CHAPTER 5

To measure how well you are doing, you need to compare yourself against the benchmarks outside your organization
5. Conclusions and recommendations

“A robust banking sector working under an efficient regulatory framework can become a boon to a large section of smaller but important customers that have a direct bearing on the economic environment by their participation in economic activities; clearly these developments highlight, more than ever before, the importance and relevance of banking for the uncovered population; however, in order to achieve this objective, there are numerous challenges especially relating to an integrated and coherent policy approach” – said the Union finance minister Shri Pranab Mukherjee addressing the leaders of India’s financial and corporate sectors on the occasion of the Financial Express (FE) Best Banks awards function held at Mumbai recently. He also advised the banks to adopt the best risk management practices to stay attuned to the global developments. At the same time, he went on to add, that consolidation and meeting capital requirements will be the key thrust areas for Indian banks now, besides leveraging advanced technology and managing human resources effectively. These statements coming as they do from the top most government functionary looking after the country’s finances enable us to put things in the perspective and crystallize the latest thinking of the Government of India in regard to the future role, responsibilities and challenges faced by the Indian banking sector.
Banks today are under tremendous pressure to perform to meet the objectives of all their stake holders, while satisfying the regulators that the bank’s policies, loans and investments are financially sound. Over the years, as banks have grown in size, more and more of them have approached the money and capital markets to raise funds by issuing stock, bonds and other securities. Banks’ entry into open market for mobilizing funds means that their financial statements are being increasingly scrutinized by the investors and the general public. These developments coupled with other regulatory measures like Basel norms and switchover to IFRS (International Financial Reporting Standards) among others have placed enormous pressure on commercial banks to set and meet performance goals.

5.1 Ratio based approach to evaluation of post-merger performance of select (acquiring) commercial banks

In the pages that follow, a detailed look will be taken at the most widely used indicators of quality and quantity of bank performance before and after merger with a view to evaluating the post-merger performance of select (sample) commercial banks of India. The evaluation centers on the most important performance dimensions for any bank—profitability, productivity and risk. It will also explore the post-merger changes in the other bank performance parameters which have gained prominence and relevance over time in the intensely competitive commercial banking scenario.
Analysis of pre- and post-merger operating and profitability performance ratios of acquiring banks for the entire sample set of mergers shows that quite a few of these ratios do not indicate significant improvement in performance post the merger. The evidence is at best mixed. The mean efficiency ratio of the acquiring banks has significantly improved post-merger. Among the most important ratio measures of bank profitability in use today are the Return on assets (ROA) and the return on equity capital (ROE). Each of these two ratios looks at a slightly different aspect of profitability. ROA is a key indicator of managerial efficiency; it indicates how efficiently the bank management converts the bank's assets into net earnings. ROE, on the other hand measures the rate of return that is passed on to the bank's shareholders. It closely equals the net benefit that stock holders receive from investing their funds (capital) in the bank.

It is observed from the results furnished in the profitability parameters table 4.4 that while the mean Return on Assets (ROA) showed a significant decline post-merger, the mean Return on Equity (ROE) improved albeit not significantly. While some studies have found improved profitability ratios associated with bank mergers (Cornett and Terhnanian, 1992), there are others which do not show such improvements. Akhavein, Berger and Humphrey (1997) compared simple pre- and post-merger profitability ratios, such as ROA and ROE based on accounting values but found no improvement in them [taking a
sample of mergers occurring in the 1980s involving US banks with assets $1 billion and above (excluding loan loss provisions and taxes from net income)] following consolidation. Another noteworthy study of Stephen A. Rhodes (1994) on change in operating performance ratios post-merger, taking a sample of 19 U.S. bank mergers, also found no improvement in profitability following bank consolidation.

This clearly shows that the assets acquired were of such quality that they did not contribute to improved performance of the acquiring banks in general. This is in line with the argument that many commercial bank mergers in India before 1999 period were triggered by the weak financials of the target banks (“bail-out mergers”). Further, the target banks were much smaller in size as compared to the acquirers to be able to make a perceptible impact on their performance.

The Return on Equity (ROE) can be further broken down for closer analysis as:

\[
\text{ROE} = \text{Net profit margin} \times \text{Asset utilization ratio} \times \text{Equity multiplier.}
\]

If any of these ratios begins to decline, management is required to pay close attention and ascertain the reasons for the change.

Looking at ROE as a product of three component ratios as depicted above, it is observed that while the mean Equity multiplier (EM) has
improved significantly post-merger (from 13.70% to 17.56%) the asset utilization ratio has declined (from 10.10 to 9.10), though not in a significant way (See Table 4.4). Of these three financial ratios, the EM or assets-to-equity capital ratio is normally the largest, averaging about 15 or larger for most banks. The biggest banks in the industry, on an average operate, with multipliers of 20 or more. EM is a direct measure of the bank’s degree of financial leverage. Because equity must absorb losses on the bank’s assets, it follows that the larger the multiplier, the more exposed to failure risk the bank is. But, looking from the other perspective, the larger the multiplier, the greater the bank’s potential for high returns for its stockholders.

It is observed from the profitability parameter analysis (Table 4.4) that there is a significant increase in the average EM from 13.70% to 17.56% post merger in line with the banking practice. It can be concluded that the acquiring banks have exploited the financial synergies well and improved their mean EM to a healthy level. This speaks positively of the impact of mergers on banks profitability measured in ROE terms. It is, however, observed that a decline in mean AU, (from 10.10 to 9.10) which, though, not significant in itself, there is a caution for the bank management to explore the reasons closely and initiate necessary remedial measures. Incidentally, the bank’s degree of asset utilization (AU) reflects its portfolio management policies, in particular, the mix and yield on the bank’s assets. Other profitability
ratios like Net interest margin (NIM), which measure how large a spread the management has been able to achieve by closely monitoring the bank’s earning assets and by pursuing the cheapest sources of funding. The slight improvement in NIM from 1.40% to 2.30% indicates that the acquiring banks’ spread has increased post-merger possibly because of the financial synergies that accrue to a merged entity in accordance with the synergy theory of mergers. The changes in other profitability ratios, however, are not significant.

Referring to the Operating parameter analysis (See table 4.3), three ratios, i.e. mean operating expenses to AWF, mean operating expenses to total expenses and mean efficiency ratio have been found to change significantly post-merger for the acquiring banks. The first two ratios speak about the importance of expense control, which is the most important discriminator between top performers and also rans. High-profit banks manage their operating expenses better by making all out effort to reduce interest expense, employee costs and overhead. The smaller the ratio the better is the expense control of the bank. Both these ratios have showed significant decline for the acquiring banks post-merger indicating that bank mergers have proved useful in bringing down the expenses of the bank, possibly be due to increased scale (scale economies) and realization of synergies in various functional areas of management. The decline in mean efficiency ratio (not efficiency) is also significant. It indicates how much a bank pays in non-interest expense
for one rupee of operating income. The smaller the ratio, the greater is the profitability, other factors remaining the same. It may therefore be inferred that bank mergers have impacted the mean efficiency ratio, which is in accordance with the differential efficiency theory, the most general theory of mergers. The differential efficiency explanation can be formulated more rigorously and may be called managerial synergy hypothesis, which states that if a firm has an efficient management team whose capacity is in excess of its current managerial input demand, the firm may be able to utilize the extra managerial resources by acquiring a firm (bank) that is inefficiently managed due to paucity of such resources (Weston et al, 2000).

These findings compare favorably with those of Spindt et al (1993) and Cornett et al (2006) who conclude that mergers lead to operating gains which may be primarily due to economies of scale. However, the studies of Pilloff (1996) and Berger et al (1999) find little or no improvement in the operating performance of merged banks relative to industrial peers. Srinivasan (1992) and Srinivasan et al (1992) report that mergers in banks do not reduce operating expenses. These findings are in line with those relating to other operating ratios in this study where there is no significant change post- merger (See table 4.3).
The deposit base, average working funds and net profit (in absolute value terms) have increased significantly after the merger (See table 4.2 depicting business parameter changes pre- and post-merger). The stable and low cost nature of deposits makes them the most sought after source of funds by the banks. Viewed from this perspective the acquiring commercial banks have benefited from the mergers.

Staff productivity measures staff performance and their contribution to the growth of the banking industry. The analysis (See table 4.5) shows that the productivity of the commercial banks in India continued to register a significant improvement post-merger as reflected by the increasing trend of branch and staff productivity and also by the fairly stable cost conditions. This should augur well with the long-term vision of the Government of India to see that the banking system remains vibrant in the context of rapid economic development of the country. The most important denominator for assessing the efficiency of a bank is the net profit per employee. While this mean ratio has increased (from 0.027 to 0.034) for the acquiring banks post-merger (though statistically not significant), the productivity change as measured by the ratios mean Business per employee (BPE), mean Operating profit per employee (OPE), mean Advances per employee (APE) and mean Assets per employee (APE) has shown(See table 4.5 ) significant improvement post-merger. This could be due to the fact that in terms of the skill sets the employees of the target banks were more or less equally competent as compared to the
employees of the acquiring banks in their chosen areas of banking. It is possible that target banks could not fully exploit their potential due to their small size, lack of opportunities and other macro and micro environmental conditions. The productivity of employees is crucial for the overall efficiency of the banks. Several measures have been taken by the banks to right size the employees for enhancing their productivity. These efforts have been ably supported by business process reengineering (BPR) and technological upgradation besides a plethora of measures taken for human resource (HR) development. The quantity and quality of bank personnel emerge as the key components in determining overall productivity — directly through the wage bill and indirectly through output changes.

These findings compare favorably with those of Hazlina et al (2010) who conducted a research study on Productivity of Malaysian Banks after Mergers and Acquisitions. Their findings reveal that the process of mergers and acquisitions has actually increased the efficiency and productivity growth of the banking groups in Malaysia.

More often than not, productivity indicators are being mixed up with profitability indicators; there is a need to distinguish these. Further, this raises the question whether efficiency should be measured in terms of productivity or profitability. While the literature does not seem to address this issue comprehensively, there is an imperative need to
examine this aspect more critically and determine and demarcate the areas of concern explicitly. Future research could extend the present study by comparing the pre- and post-merger averages with the industry averages as well. Researchers could also attempt event study approach to evaluate the returns to share holders of merging banks and compare their findings with the present study to gain further insights into bank mergers in India. Rigorous research may also be undertaken to establish the linkage between size and profitability of the business entities (including banks) in various sectors of the economy which will lend greater insights to the usefulness of M&As as a growth strategy.

5.2 DEA Approach to evaluation of post merger efficiencies of commercial banks in India

Data Envelopment Analysis (DEA) approach is a non-parametric method because it is not based on any explicit model of the frontier. In DEA, a linear programming model is run repetitively with each firm (bank) appearing in the objective function once to derive individual efficiency ratings. Each firm (bank) will have a derived efficiency rating of E, a measure of relative efficiency. The closer E is to 1, the higher the relative efficiency. E=1 is for the “best practice” unit, and will be lower for all other firms in the study. Thus, E<1, implies relative inefficiency.

**Productive efficiency**

The economic theory of the firm assumes that production takes place in an environment in which managers attempt to maximize profits by operating in the most efficient manner possible. The competitive model
implies that firms which fail in this regard will be driven out of the market by more efficient ones. This is however, an ideal situation and when natural entry barriers or regulation dilute the impact of competitive forces, there arises scope for inefficient firms to continue and prosper. Variations from productive efficiency may be broken down into input and output induced inefficiencies. Overall input inefficiency resulting from suboptimal use of inputs can be decomposed into allocative and pure technical efficiency. Allocative inefficiency occurs when inputs are combined in sub-optimal proportions. Regulatory restrictions are typically given as a major reason for this occurrence (Douglas D.Evanoff et al, 1991). Pure technical inefficiency occurs when more of each input is used to produce a given level of output. This inefficiency is typically attributed to weak competitive forces which allow management to get away with reduced productivity. The distinction between these two inefficiency types is crucial as they may be caused by forces which are altogether different.

The research study now examines how productive efficiency calls for optimizing behavior with respect to outputs. Optimal behavior necessitates production of the level and combination of outputs corresponding to the lowest per unit cost of the production process. This is possible if economies and diseconomies of scale exist at different output levels ((Douglas D.Evanoff et al, 1991). A firm is scale efficient if it produces as per constant returns to scale (CRS), i.e changes in output
result in changes in cost proportionally. Because scale inefficiency involves the choice of an inefficient level, it is considered a form of technical inefficiency. The total technical efficiency (TE) includes both PTE and SE.

Production of more than one product may result in additional cost benefits. If the cost of joint production is less than the cost of independent production processes, there exist economies of scope. Otherwise, diseconomies of scope are said to exist.

**Efficiency Analysis:**

The following table 5.1 presents a panoramic view of the efficiency changes of the acquiring commercial banks (the acquirers are taken from the DEA study sample of commercial bank mergers) that have taken place post-merger.

<table>
<thead>
<tr>
<th>SL. No</th>
<th>Merger</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>PTE</td>
<td>SE</td>
<td>TE</td>
<td>PTE</td>
</tr>
<tr>
<td>1</td>
<td>OBC-BDB</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>2</td>
<td>OBC-GDB</td>
<td>√</td>
<td>X</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>3</td>
<td>BOB-BCB</td>
<td>X</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>BOB-BSB</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>UBI-SB</td>
<td>X</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>PNB-NB</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>ICICIB-BOM</td>
<td>√</td>
<td>X</td>
<td>X</td>
<td>√</td>
</tr>
<tr>
<td>8</td>
<td>HDFCB-TB</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

√ = Increase, post-merger
X = Decline, post-merger

Source: Processed Data
**Technical Efficiency (TE) Analysis**

The mean technical efficiency (TE), mean pure technical efficiency (PTE) and the mean scale efficiency (SE) have all increased post-merger in 4 out of 8 cases of mergers of commercial banks under Model 1. But under Model 2, while the mean TE of the acquiring banks has improved in 5 out of 8 mergers and the mean SE has improved in 6 out of 8 cases, the mean PTE has improved in only 3 cases post-merger. Of the three efficiencies being considered under the models 1&2, it is the PTE that has increased in the least number of cases, though PTE, unlike the output inefficiency and allocative inefficiency which may be unavoidable from the perspective of the firm (bank), is entirely under the control of and results directly from the behavior of the producer. It is therefore necessary for the bank managements concerned in such situations to assess the reasons for the same and initiate necessary remedial measures. For example, Under Model 1, the PTE during the merger period (both before and after the merger) ranged between 97% -100% which is a very healthy performance for the Indian banking system as a whole. But under Model 2 (transforming deposits into loans, the basic activity/function of the banks), while the mean PTE has shot up from 84.40% to 100% in the ICICIB-BOM merger, it has slipped from 100% to 64% in the case of BOB-BCB merger. Though it is not appropriate to attribute the entire decline to merger in either case, a closer analysis would reveal that while the former was a merger of private sector banks...
and a market driven one, the latter was more in the nature of a bail-out merger dictated by the regulators to salvage an ailing bank. But in contrast, the mean PTE has gone up considerably (by 30%) in OBC-GTB merger, possibly because of the complementary nature of the acquired technology resources (including strong ATM base) and the GTB’s branch network and highly rated customer service orientation of the GTB employees. It may therefore be concluded that mergers, regardless of whether they involve banks in the public or private sector, either government dictated or otherwise, as long as the strategic intent and the anticipated synergistic benefits are clear, they enjoy a greater chance of success.

Looking at the mean SE changes under Model 1, it is observed that the mean SE has either increased post-merger or declined very marginally (by about 1% or so). Under the model 2, which envisages the conversion of deposits to loan and advances, the core function of the banks, the mean SE has improved by an impressive range of 6% - 30% across the sample (except for BOB-BCB where the decline was a marginal 2.90% and HDFCB-TB where the decline was 6.80%). It therefore lends support to the belief that by and large bank mergers have yielded significant scale efficiencies in accordance with the theory of mergers. Scale efficiencies, as already seen, result in reduction of unit costs when the fixed overhead is spread over a larger volume of output.
The technical efficiency (TE) is a combination of the PTE and the SE effects. Under Model 1, the mean TE had increased by 0% - 12.30% in five mergers and declined by a marginal 1% to 3% in the remaining three cases, post the merger. However under Model 2, though the mean TE had gone up by a whopping 36.30% in case of OBC-GTB merger, the same was 22.40% in ICICIB-BOM merger. While there was an increase or a marginal decline (-1.20% in UBI-SB merger) in all other cases under Model 2, BOB-BCB merger was unique in the sense that the mean TE had dropped by as large a percentage as 25.60% post-merger. A closer analysis would reveal that that during the second and the third years 2001 and 2002 respectively, following the merger, there was a steep decline in PTE of the merged bank by as much as 47% and the SE declined by 32% in the year 2001. This is possibly due to the fact that a small bank like BCB though in a financially bad shape before merger, could not have brought about such a steep fall in PTE of a major public sector bank like BOB after the merger. It may therefore be concluded that mergers of commercial banks in India, on an average, have brought about positive and healthy improvement in the efficiency of the acquiring banks. These research findings compare favorably with those of Jackson and Fethi (2000) and Sufian et al (2007) who investigated the performance of Turkish and Singapore commercial banks respectively using DEA and found that larger and more profitable banks were more likely to operate at higher levels of technical efficiency (TE).
Cost and Profit Efficiency Analysis

Table 5.2
Cost Efficiency(X-Efficiency) and Profit Efficiency Table

<table>
<thead>
<tr>
<th>Efficiency category</th>
<th>Merged Banks</th>
<th>Mean Cost Efficiency (%)</th>
<th>Mean Profit Efficiency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before Merger</td>
<td>After Merger</td>
<td>Before Merger</td>
</tr>
<tr>
<td>OBC-BDB</td>
<td>96</td>
<td>98.7</td>
<td>96.3</td>
</tr>
<tr>
<td>OBC-GTB</td>
<td>97.6</td>
<td>93</td>
<td>98.6</td>
</tr>
<tr>
<td>BOB-BCB</td>
<td>96.2</td>
<td>98.6</td>
<td>94.3</td>
</tr>
<tr>
<td>BOB-BSB</td>
<td>99.2</td>
<td>94.9</td>
<td>98.4</td>
</tr>
<tr>
<td>UBI-SB</td>
<td>96.5</td>
<td>97.3</td>
<td>96</td>
</tr>
<tr>
<td>PNB-NB</td>
<td>96.5</td>
<td>97.6</td>
<td>96.2</td>
</tr>
<tr>
<td>ICICIB-BOM</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>HDFCB-TB</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Data processed

It is observed from the above table 5.2 that the cost efficiency(X-efficiency) had increased marginally (maximum 2.70%) or remained unchanged (already at 100%) post-merger in six out of eight cases. In the other two cases, OBC-GTB and BOB-BSB, the cost efficiency had declined by a little over 4% post the merger. It may therefore be inferred that the bank mergers in India have not significantly impacted the cost efficiency or X-efficiency in a major way during the study period. These results compare favorably with studies of US banking which show very little or no cost efficiency(X-efficiency) improvement on average for the M&As of the 1980s, were of the order of 5% costs or less (Berger and Humphrey,1992;Rhoades,1993;De Young,1997) . If there had been
technology related gains on an average from branch consolidation and restructuring, mechanized operations etc these might have been offset by managerial problems in monitoring the larger and more complex organizations, culture related conflicts and hiccups in integration.

Cost inefficiencies, or the potential cost savings sometimes called X-inefficiencies are different from scale inefficiencies which require a bank to increase the amount of output it produces. Similarly they differ from capturing increased scope economies, which require a bank to change the output mix it produces (Robert De Young, 1997).

Cost-efficiency studies using data of the early 1990s have produced mixed results. While one set of studies of M&As of large U.S institutions, a majority of which were in-market, found modest cost efficiency gains in most cases (Rhoades, 1998), another study found very little improvement in average cost efficiency for M&As of either large or small banks (Berger, 1998). Yet another set of studies suggested that cost efficiency of an M&A could depend upon the type of M&A, the motivating factors and the manner of implementation by the management (Frei et al, 1995; Rhoades, 1998). The results obtained here are in line with the findings of the aforesaid investigations. It would also be observed from the Cost and Profit efficiency table 5.2 that ICICI bank and HDFC Bank are the best practice or cost efficient banks in the sample which other public sector banks should emulate. The leadership/management of these banks appears to be endowed with proper managerial focus and
expertise to inspire and motivate the stakeholders. No surprise that Ms. Chanda Kochhar, the MD and CEO of ICICI Bank got the best banker of the year award in the Financial Express (FE) Best Banks Awards function held on the 13th July, 2010 in Mumbai and the Padma Bhushan, the highest civilian honour bestowed by the GOI on eminent personalities from all walks of life recently (January, 2011).

Profit efficiency of M&As is the most comprehensive measure of efficiency. It embodies the scale, scope, product mix and X-efficiency effects for both costs and revenues including diversification benefits (A.N. Berger et al, 1999). Akhavien et al (1997) and Berger (1998) found from their studies of profit efficiency effects of US bank M&As of 1980s and early 1990s found improved profit efficiency resulting from improved diversification of risks. They found that consolidation tended to bring about a change in their asset portfolios from securities towards loans, with more loans per dollar equity, which are consistent with a more diversified loan deployment. Again it is seen that ICICI bank and the HDFC Bank are the profit efficient banks before and after the merger.

In respect of the remaining six merger cases, it is observed that while the PE has increased though marginally (around 0.50% to 6%) in four mergers, it has declined by about 6% in the remaining two mergers. It may therefore be concluded that while the PE has not drastically reduced after any of the sampled commercial bank mergers, it has in fact gone up in a majority of the cases under consideration. S.C. Ray et al
(2010) investigated the profit efficiency distribution of Indian commercial banks (using a sample of 68-71 banks) during the period 1997-2003 and found that in some years the profit efficiencies were lower than even 50%. In the latter years of the sample period, more banks appeared to be performing close to the benchmark. The trend appears to have picked up further with many more banks achieving much higher levels of profit efficiency over time as can be seen from the estimates of profit efficiency portrayed in the table 5.2.

5.2.1 DEA Malmquist Productivity Index (TFPCH) Analysis

In the post-reform era, Indian banking sector has undergone substantial changes. Certain factors, such as rapid increase of technological possibilities, deregulation and financial innovation have contributed in no small measure to ushering in these changes and restructuring of the banking industry the world over. These changes have in turn led to increased competitiveness in the industry. Among these factors, technological progress and deregulation in the financial services sector have, undoubtedly stood out as the two which have made the greatest impact on M&As of credit institutions (Berger et al, 1999; Amel et al, 2004).

The level of technological progress in M&As has enabled the banks to augment the scale of production and commercialization of many financial products and services. This has in turn created an incentive for banks to expand their size. The way the commercial banks in India have gone in
for substantial investments in technology (in ATMs and core banking solutions, to mention a few) to maintain their competitive positions over the last decade, is in itself a testimony to the fast growing influence of technology on the future growth and profitability of the Indian banking sector. The Malmquist productivity index (MPI) analysis reveals that bank mergers have contributed to both the technological and technical efficiency changes with the former being ahead in the order of contribution to total productivity change post the merger. Allen.L.Webster (1997) investigated the impact of technological change on bank performance. His findings indicate that there is a strong relationship between technological change and its over-all performance. He also found a significant relationship between bank size and profitability and the rate at which banks implemented technological change. In particular, his study indicated that both ROA and ROE were closely and positively associated with the adoption of technologically advanced procedures. The universal banks that sometimes result from bank mergers help the larger banks in providing a diversified product mix which is cost effective. The implications for bank managers are very clear. Mediocre management can produce only mediocre results. Globalization, specialization and technological advancement are intensifying the competition and the pressure continues to be on the managers and executives charged with policy formulation and
implementation, for improved and sound management practices to ensure continued organizational survival and success.

5.2.2 Tobit regression

Tobit regression analysis reveals that while the variables size, Non-interest income to total income, Average net worth to average total assets, PBDITATA, and the nature of ownership(public or private sector) significantly and positively influence the technical efficiency under Model 1 (See Table 4.24), under Model 2 (See Table 4.25) the significant explanatory variables impacting the technical efficiency are size again and the Return on net worth (RONW), Return on capital employed (ROCE), the average net worth to average total assets and PBDIATA. The dummy variables DSECTOR and DYBM are also significant though they have a negative impact on technical efficiency. It may therefore be inferred that Size, ANWATA and PBDIATA are the three highly significant variables that influence the technical efficiency of the commercial banks. NIITI is significant under Model 1 indicating that banks should take necessary measures to increase their share of non-fund based income to step up their technical efficiency besides three above referred variables. The above results show that public sector banks are less technically efficient than the new generation private sector banks which by way of their efficient personnel management, tech-savvy nature and favorable customer orientation appear to be doing relatively better. Hence the
public sector banks may take a leaf out of the work culture of their private sector brethren and fine tune their processes and work culture. Model 3 (See Table 4.2) shows that the cost efficiency (X-efficiency) is significantly and positively influenced by size, RONW, PBDIATA and NIINI. In the emerging competitive banking scenario the contribution of non-interest income as a percentage of Net income is a very crucial determinant of X-efficiency because Non-interest income is generally non-fund based and its increase reflects the diversification of income streams for the banks, which have all along been relying on interest income, generated from core operational activities, rather heavily. Model 4 (See Table 4.27) shows that profit efficiency, which is more comprehensive than the cost efficiency, is significantly and positively influenced by RONW and PBDITATA and negatively by the dummy variable DSECTOR as already explained.

**5.3 Managerial implications and summary for the marketing implications of bank mergers:** Bank mergers create a great deal of uncertainty both for the customers of the acquired and the acquiring banks. The following recommendations should help bank managements and bank marketers to deal with this uncertainty in a meaningful way.

The analysis of marketing implications of bank mergers brings out clearly that there are differences in opinion on the service quality impact of bank mergers and that these are significantly related to demographic and behavioral variables. It is therefore necessary for the bank
managements/marketers to tailor promotional messages, policy concerns, and communications about the bank merger to the needs of various demographic/behavioral segments. In particular, females, better educated and professionals, higher income individuals, elderly people and others whose frequency of transaction and association with the bank is not in the extremes must be convinced and assured that the service quality will improve or at the least remain at the same level after the merger.

It has been observed in several studies that 5% to 10% of the customers are generally lost after a bank merger. The results indicate that younger generation respondents exude more optimism than older generation respondents about the positive influence of mergers on the quality of banking services. Similar is the case with females over males, those whose association with bank is less than 2 years and those in the income slab of Rs.(less than) 1.50 lakhs as compared to other corresponding categories. However, bank marketers should make an allout effort to build on this optimism instead of taking it for granted. Further, it is important to note that that if an acquired bank fails to meet the customer expectations post-merger the resulting dissatisfaction for them could be much higher than what it was before merger. “Public Sector banks need to focus more on customer centricity. They have to meet the increasing expectation of the customers both in terms of products and services” says Punjab National Bank’s Chairman and
Managing Director K R Kamath (Business Standard, Banking Annual, and February 2010)

Bank marketers of both acquiring and acquired banks post-merger, while developing marketing strategies, should give due consideration to the differential nature of segment wise needs/expectations based on the demographic and behavioral dimensions referred to in the study. By providing services which match the segmental requirements, bank marketers are more likely to achieve success in retaining their market share apart from roping in customers affected by the turbulence created in the banking environment.

Long term customer retention is crucial for any bank’s survival in the emerging competitive business scenario. Research shows that gender, for example, is a significant factor in perception of service quality (Stafford, 1996). Biological and physical differences, gender identity and gender role attitudes all have the potential to affect behavior and perceptions (Fischer and Arnold, 1994). The life cycle models predict a higher overall asset accumulation and a higher savings level, at least initially, in an ageing population. Other life cycle models show that individual’s risk aversion increases with age. (Jessica Lindbergh, Ruth-Aida Nahum and Sofia Sandgren, 2008) This calls for development of banking products that are well tailored to address the growing needs of the aged as compared to those in their youth or middle age.
5.3.1 Factor analysis

Factor Analysis of the questionnaire items (variables) has identified the following six factors as influencing the customer perception of commercial bank mergers in India.

1. Primary Banking Service Quality determinants
2. Size/Scale benefits
3. Customer Relationship Management (CRM)
4. Brand image
5. Importance of communication about merger to the customers
6. Opportunities for innovation.

While the significance of the factors 1, 2 and 5 has already been discussed under factor analysis (Chapter 4) and elsewhere as considered appropriate, the marketing implications of the factors 3, 4 and 5 are explored below in greater detail.

Customer Relationship Management (CRM)

Of late, the Customer Relationship Management (CRM) has gained lot of importance in the context of determining the life time value of a customer. A move to implement CRM calls for a multipronged strategy which encompasses: a basic change in corporate culture, introduction of incentive programs to reward sincere and hard working employees and
customers who are loyal to the bank, exploitation of cross-selling opportunities arising from mergers leading to increased revenues and profits and more intensive use of customer data bases to identify new opportunities for differential promotion.

**Brand Image/Equity**

Brands, particularly those possessing high brand brand value can be an organization’s most powerful assets (Herremans et al., 2000). It enables organizations to enjoy high brand loyalty, name awareness, perceived quality. (Bristow et al., 2000). Bharadwaj et al., (1993) emphasize that brand equity is important for services that are characterized by experience and credence attributes, such as banking services. Brands help banks in better differentiating their service offerings in a highly competitive bank market which offers mostly similar products. State Bank of India, a commercial bank with very high brand equity boasts of customers banking with it for decades and decades.

**Opportunities for innovation**

**Within** the financial services sector, banking industry was one of the first to embrace technology and benefit significantly. Technological innovation has brought about a significant change in the speed of information processing and transmission, bank marketing, customer access and awareness of the bank’s offerings. The development of
internet based banking services has greatly helped the commercial banks in providing cost-effective and convenient banking solutions which meet the varied investment needs of the consumers. While banks move towards attaining greatly improved levels of customer service, the customer needs are multiplying because of globalization of operations which increase risk and return. Hence there is an imperative need for the commercial banks to chase the moving target in meeting customer expectations and survive in the highly competitive market place.

This study shows that in a banking environment marked by frequent mergers demographic/behavioral differences and customer service perceptions are related. It is imperative for the bank marketers to respond to the specific needs/requirements of these demographic/behavioral segments. Failure to do so might result in loss of dis-satisfied customers due to uncertainty about the future service quality of the banks concerned.

5.4 Brief review of the research findings

To sum up, the evidence reviewed here examines the issue of Mergers & Acquisitions in the Indian banking sector from three broad perspectives i) ratio based analysis post-merger performance of the select commercial banks ii) DEA based evaluation of post-merger efficiencies of the select
commercial banks, the role of technological progress in enhancing the total productivity of the banks, and identification of the major factors influencing the efficiency of the banking sector in India and finally iii) the marketing implications of commercial bank mergers in India. While the ratio analysis yields mixed results concerning the impact of bank mergers on the performance of Indian commercial banks, the DEA analysis posits the post-merger performance scenario of commercial banks of India more positively and favorably.

The ratio analysis emphasizes that mergers can help commercial banks achieve superior profitability if the bank management looks at the following crucial dimensions of bank financial management:

Analysis of operational parameters indicates a significant increase in Operating expenses to Average Working Funds (AWF) and a significant decline in Efficiency ratio (not efficiency) post-merger. The smaller the efficiency ratio, the more profitable is the bank, all other factors being equal.

It is also observed from the results that the ratio of Operating expenses to Total expenses has increased significantly after the merger. While the increase in operating expenses to some extent is natural post-merger, better control over operating expenses in the changed scenario could help the merged bank in converting more of total income into net income or net profit.
The acquiring bank’s output generally grows after merger and there will be an increase in fixed assets with their attendant operating costs. Careful and calibrated use of operating leverage from fixed assets is important to achieve increased returns from the assets acquired through merger. Improved and more sophisticated techniques need to be employed by the bank in managing the asset portfolio to meet liquidity needs in order to achieve increased returns from the assets acquired through mergers.

The results of \textit{profitability parameter analysis} indicate that there is a significant improvement in the Equity multiplier (EM) or the financial leverage of the acquiring bank has increased from 13.70\% to 17.56\% post-merger. Earnings multiplier or financial leverage should be used very carefully by the bank management in raising funds. The literature review indicates that top-earning banks generally economize on using high cost equity capital and lay more emphasis on the earnings-leveraging effects of relatively less costly short and long term debt. In this context, the financial synergies that the merged entity (bank) is likely to enjoy, gain prominence. Financial leverage works in favor of the bank when the earnings are positive, but on the flip side, it magnifies the negative impact of losses. It is also found that the Net interest margin (NIM) has increased from 1.90\% to 2.30\% post-merger. This is an extremely important measure in evaluating a bank’s ability to manage \textit{interest rate risk}. 
State of the art risk management techniques should be put in place post-merger so that bank’s exposure to various types of risk is minimized and losses do not overtake income and equity capital.

The EPS and PE ratio analysis indicates the former has increased from Rs.9.23 to Rs.19.65 post-merger which is statistically significant while the latter has increased from 7.26 to 9.83 post-merger though not in a significant manner.

The need for expanding fee income has become a key element in bank strategies to increase profits in recent years. Deregulation of the banking industry has put added pressure on banks to charge fees for every service they render to their clients. This has led to many innovations in developing new fee-generating services, like portfolio management, wealth management and depository services.

Management of non-performing assets (NPAs) is another critical area for banks facing mergers as it has often been found that the target banks, especially in the regulator dictated mergers, are generally found to be saddled with their own share of bad debts. While the proportion of NPAs is broadly controlled in the Indian commercial banking sector (around 2% to 3%), there is an imperative need to for the banks to manage their credit risk by monitoring their loan portfolios efficiently in the post-merger scenario.
Analysis of productivity parameters shows that the average net income per employee has increased from Rs.0.027 crores (2.70 lakhs) to Rs.0.034 crores (3.40 lakhs) post-merger. According to the RBI data on profile of banks, the profit per employee on an average stood at Rs.5.34 lakh in 2009-10. Corporation Bank’s employee productivity is the highest among nationalized banks. The bank’s profit per employee was Rs.9.52 lakh in 2009-10, followed by IDBI Bank at Rs.8.44 lakh. Private banks have fared well in this category, with the profit per employee of Axis Bank and ICICI Bank high at Rs 12 lakh each in the year 2009-10. The profit generated by each employee of private sector bank stood at Rs 7.19 lakh in 2009-10.

Significant increases have been observed in average Business per employee (BPE), Operating profit per employee, Assets per employee and the Loans (Loan and advances) per employee ratios of the acquiring banks post-merger. Employee productivity is generally higher among top earners. According to the RBI data on profile of banks 2009-10, the average business per employee of SBI stood at Rs.6.36 crore, against the industry average of Rs. 8.73 crore. A merger offers logically more scope for the larger bank to manage more assets and achieve higher income per employee which in turn will enable them to pay higher salaries to the more productive employees.
From the efficiency analysis, it is observed that the scale efficiency has improved in a majority of the sampled acquiring banks post-merger though the same cannot be said about the pure technical efficiency (PTE), a kind of input oriented efficiency of the bank. This lends credence to the view that bank size is clearly an important factor in maintaining improved profitability and technical efficiency. This view also receives support from the Tobit analysis of the TE of the sampled merging banks possibly due to scale efficiencies derived from the merger. The TE has also been found to be positively influenced by the capitalization, Non-interest income total income (NIITI) and PBDIT to average total assets (PBDITATA). The study also shows that the new generation private sector banks to be more technically efficient than the public sector banks under both the TE models considered for the study. The Tobit analysis of TE also demonstrates the significant positive influence of size, capitalization, PBDITATA and ROCE on the TE of the bank even under the second set of inputs and outputs which reflect the core banking activity (Model 2). Based on existing trends and changes in economic environment, future consolidation of the banking sector in India will likely involve mergers between both public sector and private sector banks. Though the mergers of SBI’s associates with itself (the latest ones in the news being State Bank of Indore and State Bank of Saurashtra which merged with the SBI in August, 2008) have been happening at regular intervals, the same is not the case with public sector banks in general though they
account for about 75% of the market share of the business. Hence to remove the inefficiencies primarily of technical nature, “mergers of public sector banks” is a strategic imperative. The literature review points in the direction of continuation of consolidation of banks in EU, Asia to exploit the synergies of mergers. While the study has not found significant cost-efficiency gains in bank mergers, consolidation appears to increase profit efficiency and to help in diversification of the portfolio risks of the participants on an average. Amihud et al(1998) argue that profit efficiency is more appropriate than the analysis of cost efficiency to the M&A study because it includes the revenue effects of changes in output that typically occur after mergers. Profit efficiency is a more general concept that includes cost X-efficiency effects of the merger plus any revenue and cost effects of changes of output.

**Tobit analysis** suggests that the cost-efficiencies are influenced by Size, RONW, NIINI and PBDIATA. This is in line with the literature findings that when profitability is measured by ROE, the largest banks in the industry lead the pack, by making better use of their financial leverage. Tobit regression also indicates that the profit efficiency of the banks is influenced by RONW and PBDITATA. This finding has implications for the capital adequacy norms to be followed by the Indian commercial banks as per RBI directives. The capital adequacy of a bank is measured by the Capital to the risk weighted assets ratio (CRAR) for which the RBI stipulated standard is 9%. However for many banks in India, the CRAR is
well over the prescribed bench mark (Around 14% for example for, SBI, the market leader). But there has been a paradigm shift in the emphasis following the implementation of Basel-II norms (for improved risk management of banks), i.e a shift from capital sufficiency hither to emphasized by the regulators to capital efficiency. Referring to the other two significant variables, NIINI and PBDITATA, while the growing role of non-fund based income in determining the net income of a bank has already been emphasized, it is quite intuitive that PBDIATA is a significant contributor to the profit efficiency of the bank.

Further, referring to the Malmquist productivity Index analysis, it is observed that the change in mean MPI (productivity measure) of acquiring bank post-merger is brought about more by the technological progress (frontier shift) rather than by the technical efficiency change. Hence it is necessary for the Indian public sector commercial banks to emulate the new generation private sector banks which provide the efficiency benchmarks in implementing the latest technologies in banking industry, so as to augment their productivity. In this context, a reference may be drawn to a study on the efficiency of public sector banks for the period 2003-2007 by G.M. Sanjeev (2008) which has not found any clear cut evidence of improvements in efficiency levels of public sector banks over the years. This is in accordance with the results of Tobit analysis where the sign of the estimates for the regression coefficients of Dummy variable DSECTOR have always been negative.
indicating that public sector banks are less efficient under all the models. Technological innovation/upgradation has been a major concern of financial institutions (FIs) in the recent years. Technology has entered the banking sector over the years in various forms: core banking solutions which will reduce transaction costs by as much as 15% immediately and more in course of time; Real Time Gross Settlement, Electronic Funds Transfer (EFT), Electronic banking, ATMs, Structured Financial Messaging Systems (SFMS), Plastic money (credit cards, debit cards and smart cards), Biometric ATMs and Transactional kiosks etc are a few prominent examples in this context. Evolution of technology is taking place at an enormous pace and if the banks fail to keep pace with it, they will lose the competition race. Technology risk occurs when technological investments do not produce economies of scale or scope. Diseconomies of scale can arise if there are excess capacities, technological redundancies, and organizational/bureaucratic inefficiencies (red tape) that get worse as an FI grows. Diseconomies of scope arise when a FI, say a bank fails to generate anticipated synergies by way of major investments in state of the art/emerging technologies (A.Saunders, 1994). Technology is a key driver in the banking industry, which creates new business models and processes besides revolutionizing distribution channels. The beneficiaries in this sector are those that have invested in technology. Adoption of technology also
enhances the quality of risk management systems in banks (especially under Basel II).

A further challenge which banks might face in technology investments is to ensure that they derive maximum advantage from their investments and avoid wasteful expenditure arising from peacemeal adoption of technologies. The banks should also take care to ensure that they do not adopt inappropriate/inconsistent or obsolete technologies in a hurry (V. Leeladhar, 2006). This calls for a critical evaluation of costs and benefits of technology investments by banks concerned in a systematic and co-ordinated manner to derive maximum mileage from such investments. It is therefore necessary that technology management is given adequate importance and should rightly be treated as an integral part of sound bank management process.

The third and final stage of the research study highlights the importance of customer perception of the implications of commercial bank mergers in India. After all, the customer is the king and every banking effort is aimed at improving his lot. The findings on marketing implications of commercial bank mergers in India (customer perception of bank mergers) reveal that customer perception is significantly influenced by the demographic and behavioral variables. This has important implications to the bank management in developing an effective marketing strategy. This study demonstrates clearly that in a banking environment marked
by frequent commercial bank mergers demographic/behavioral differences and customer service perceptions are related. By providing banking products and services which match the segmental requirements, bank marketers are more likely to be crowned with success in retaining their market share apart from roping in customers affected by the turbulence created by mergers in the banking environment. Factor analysis has identified six major factors influencing the customer perception of bank mergers of which the brand equity, customer relationship management (CRM) and innovation in developing appropriate banking products and services are crucial. While the importance of innovation has been discussed in detail in the context of technology management, the latter two are sheer necessities in the emerging competitive scenario. CRM clearly underscores the fact that in implementing best practices in marketing, there has been a paradigm shift from product focus to customer focus and bank managers have found that the enhancement of existing customer relationships through managing customer expectations automatically brings the benefit of profitable and sustainable revenue growth.

Looking at the findings from a *policy perspective*, it is time that in the best interests of maintaining public confidence and transparency, the central government and the RBI streamlined the rules governing bank mergers. The RBI has sought exemption for bank M&As from the Competition Act of 2002. It has contended that the exemption is quite
logical and flows from the urgency and unique nature of bank mergers, especially forced ones. Since the RBI is the central bank of the country, it has the requisite expertise and is relatively better placed to be the final arbitrator to decide on the issues concerning bank M&As. Under the Competition Act, any bank merger requires the final approval from the Competition Commission, although the RBI’s views will be duly noted. However, the Act has restricted the control of the Competition Commission to mergers of two entities for which the combined asset value is more than Rs 1,000 crore or $500 million or a turnover of Rs 3,000 crore or $1.5 billion. Under the statutory provisions of section 44 A of the Banking Regulation Act, the RBI is empowered to decide bank M&As. If the bank mergers in question are of forced nature, the central bank is necessarily guided by public interest as such decisions were often taken in a short-time frame (sometimes overnight) to protect depositors. While the issue whether bank mergers should be brought under the purview of the Competition Commission of India (CCI) continues to be hotly debated, it is appropriate for the regulators to lay down clear guidelines so that the CEOs of the banks do not talk out of turn in this regard. This is the first and foremost necessity. Norms for separating weak from strong banks for merger or acquisition should be clearly laid down so as to avoid confusion in the minds of the banks themselves and the customers.
Secondly, it is of utmost importance to examine whether the acquiring bank has a good work culture and efficient style of functioning that needs to be spread to the target bank. Third, the role of strategic intent in mergers is extremely important. Complementarity of assets, operations and synergistic considerations should be made the most important criteria for authorizing/approving bank mergers. Finally, the most attractive targets could well be those where the merged entity (bank) has a wider and highly diversified business portfolio and a product mix. For example, two banks one of which is strong in corporate and mid-corporate finance and the other with strengths in retail lending would logically be made for each other. Similar is the case for banks operating on technology platforms which are compatible (OBC’s acquisition of GTB offers an excellent example of synergies of this nature). Once such norms are put in place, banks mergers become more acceptable without facing much reluctance, resistance or opposition from various quarters.

To conclude, for a bank merger to succeed, the role of Human Resources Management (HRM) and effective due diligence followed by integration planning and implementation are crucial. Proper leveraging of target banks’ employees talents and skills (HDFC Bank has successfully done this in its merger with the Centurion Bank of Punjab) besides dealing with problems of cultural conflict effectively during the implementation of merger process will go a long way in improving the chances of merger success of the banks concerned. The latest bank merger that has
recently been approved in-principle by the boards concerned is that of Bank of Rajasthan (BOR) with the ICICI Bank. The dynamics of the said merger are furnished in the table 5.3.

Table 5.3
Merger Dynamics

<table>
<thead>
<tr>
<th>Merger Dynamics</th>
<th>ICICI Bank</th>
<th>Bank of Rajasthan</th>
<th>Swap ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latest Mcap (Rs crore)</td>
<td>99,125</td>
<td>1,471</td>
<td>25 shares of ICICI Bank for 118 shares of Bank of Rajasthan</td>
</tr>
<tr>
<td>Branches</td>
<td>2,009</td>
<td>458*</td>
<td>Branch network of ICICI Bank to cross</td>
</tr>
<tr>
<td>ATM</td>
<td>5,219</td>
<td>111*</td>
<td>2,440 post-merger</td>
</tr>
<tr>
<td>No of employees</td>
<td>34,596*</td>
<td>4,075*</td>
<td>BoR’s market cap is currently</td>
</tr>
<tr>
<td>Gross NPA (%)</td>
<td>5.06</td>
<td>2.8 #</td>
<td>1.5% of that of ICICI Bank’s</td>
</tr>
<tr>
<td>Capital Adequacy (%)</td>
<td>19.41</td>
<td>11.3 #</td>
<td>Third acquisition for</td>
</tr>
<tr>
<td>Loan book (Rs crore)</td>
<td>1,81,200</td>
<td>8,100#</td>
<td>ICICI Bank after Sangli Bank,</td>
</tr>
<tr>
<td>Low-cost deposits (%)</td>
<td>41.7</td>
<td>27.4*</td>
<td>Bank of Madura</td>
</tr>
<tr>
<td>Business/employee (Rs crore)</td>
<td>1,154*</td>
<td>532*</td>
<td></td>
</tr>
</tbody>
</table>

*As of March 2009; # As of December 2009; All the other figures are as of March 31, 2010

Source: Business Line

Banks like HDFC Bank, ICICI Bank and Axis Bank are also reported to be on the lookout for acquiring smaller banks. The merger of ICICCI with ICICI Bank and even the reverse merger of IDBI and IDBI Bank served multiple objectives. First the institutions were strengthened financially. Second, they helped in avoiding the complex restructuring process the weaker bank would have had to undergo to foster financial stability. Finally, they have opened the doors for actively promoting universal banking (A.Vasudevan, 2004). The underlying logic of the thinking of managements of these banks is that the larger the bank, the greater is
its competitive strength and better is its prospects of survival and
growth. The implication of this argument is that Indian banks are unable
to compete internationally in various areas like competitive sourcing of
funds, credit disbursal, investments and rendering of financial services-
especially because of their small size, and the only Indian bank that
would be able to do so is the banking behemoth, SBI, that too, probably
after its merger with its associates. To end this dissertation, a reference
may be made to the opening sentences of the book “Successful Mergers-
Getting the people issues right” by Marion Devine(2002) “COMPANIES
COME AND GO, chief executives rise and fall, industry sectors wax and
wane, but an outstanding feature of the past decade has been the rise of
mergers and acquisitions(M&As)”. The current trends indicate that India
has climbed seven notches to the 10th in the global takeover league table
and is poised to set a record this year(2010) on abundant funding as
companies go in search of technology and new markets. One can only
expect much more impressive M&A numbers (including value) in the
Indian banking sector in the coming decade as well.