



Relative Performance of Banks

A Study

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Public sector banks (PSBs) continue to be a dominant part of the banking system. As of March 31, 2008 PSBs accounted for 69.9 percent of the aggregate assets and 72.7 percent of the aggregate advances of all Scheduled Commercial Banks (SCBs) in India. The number of instruments available; the volume of services banks provide to both retail and corporate customers; the level of technology involved are the mantras for the leap bound progress of PSBs, but still there is a long way to go. Today PSBs are facing the challenges of squeezed spreads, demanding customers and lack of matching skills, as compared to private sector banks in India. This has increased pressures on efficiency and productivity of these banks. An attempt has been made to empirically define and analyse technical efficiency of PSBs operating in India by applying the Data Envelopment Analysis (DEA) model. The performance of these banks is assessed in DEA using the concept of efficiency or productivity, which is the ratio between total output to total input.

Today, 20 years after economic liberalisation, we have a vibrant banking sector, powered both by improved and efficient PSBs and the growth-hungry private ones with a number of instruments available, variety and volume of services offered by banks to their retail and corporate customers, and levels of technology which were considered just imagination even ten years ago. As India Inc gained confidence and eyed more and more global deals, Indian banking kept pace, with its advisory services, financial structuring expertise, and negotiating skills. Indeed, they have successfully partnered India Inc in its global journey without missing a beat.

The banking industry not only acts as a facilitator for industrial and agricultural growth, but also affects the daily life and well being of the citizens. Since independence, Indian banks have gone through three major changes - a

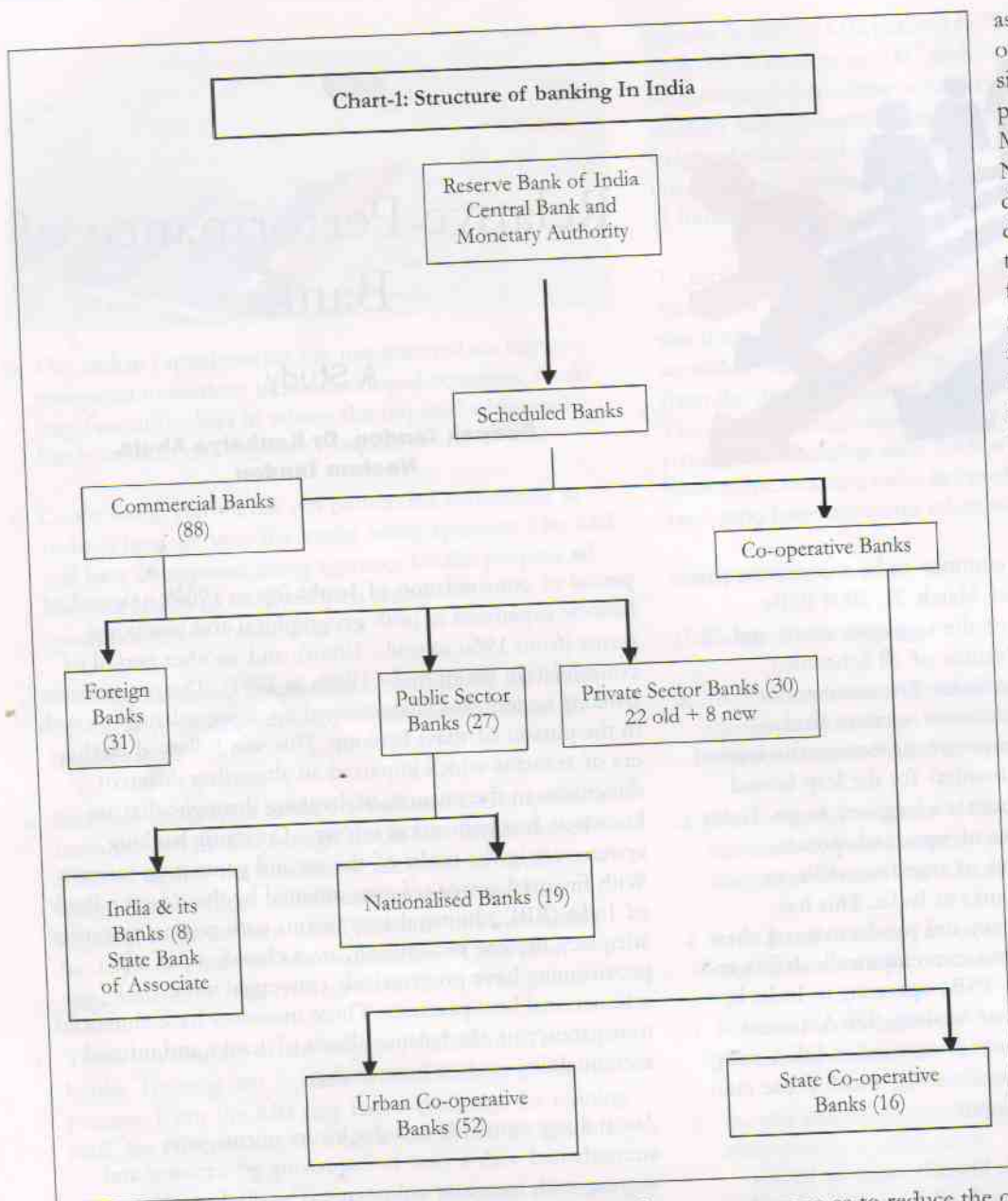
period of consolidation of banks (up to 1966); a period of historic expansion in both geographical and functional terms (from 1966 to mid - 1980s); and another period of consolidation (from mid - 1980s to 1991). The pre-reforms banking system was characterised by unprecedented growth in the pursuit of mass banking. This was followed by the era of reforms which imparted an altogether different dimension to the nuances of banking through what are known as first generation reforms. Currently banking systems are in the midst of the second generation reforms. With financial sector reforms initiated by the Reserve Bank of India (RBI), the regulatory norms with respect to capital adequacy, income recognition, asset classification and provisioning have progressively converged with international best practices. These measures have enhanced transparency of the balance sheets of banks and infused accountability in their functioning.

Accounting standards and disclosure norms were strengthened with a view to improving governance and aligning with international norms. The disclosure requirements broadly covered capital adequacy, asset quality, maturity distribution of select classes of assets and liabilities, profitability, country risk exposure, risk exposures in derivatives, segment reporting, and related party disclosures.

Structure of banking

The commercial banks in India have a combined network of over 53,000 branches and 17,000 ATMs all over the country. According to a report by ICRA Limited - a rating agency - PSBs hold over 75 percent of total assets of the banking industry, with the private and foreign banks holding 18.2 percent and 6.5 percent shares respectively.

Banking industry in India is undergoing a major



transformation due to changes in economic conditions and continuous deregulation. The implementation of reforms has had an all round salutary impact on the financial health of the banking system, as evidenced by the significant improvements in a few salient financial indicators of the banking system. The average capital adequacy ratio (CAR) for the scheduled commercial banks, which was around 2 percent in 1997, increased to 13.08 percent as on March 31, 2008. The improvement in the CAR has come about despite significant growth in the aggregate assets of the banking system. This level of capital ratio in the Indian banking system compares favourably with the banking systems in many developed countries.

With regard to the asset quality also, the gross non-performing assets (NPAs) of the SCBs which were as high

as 15.7 percent at the end of March 1997 declined significantly to 2.4 percent as at the end of March 2008. The net NPAs of these banks during the same period declined from 8.1 percent to 1.08 percent. These figures too compare favourably with the international trends and have been driven by improvements in loan loss provisioning by the banks as also by the improved recovery climate enabled by the legislative environment. It is amazing that the NPA ratios have recorded remarkable improvement despite progressive tightening of the asset classification norms by the RBI, over the years. Reform measures have also resulted in improved profitability of the banks. The Return on Assets (ROA) of SCBs increased from 0.4 percent in the year 1991-92 to 0.99 percent in 2007-08. The banking sector reforms also emphasised the need to improve productivity of banks through appropriate rationalisation

measures so as to reduce the operating costs and improve the profitability by increasing efficiency in terms of business level of banks in India.

Efficiency relates to how well a bank employs its resources how a bank simultaneously minimises costs and maximises revenue, based on an existing level of production technology. A technically inefficient bank implies that too many inputs are required to produce a unit of output which happens because of weak competitive forces.

Reference studies

There have been a number of studies on liberalisation programmes and their impact on efficiency of banks in developed countries. In India, the major studies include

Bhattacharya et al (1997) analysing data for the period prior to reforms, which associated performance with technical efficiency. Most of the other studies by Das (1997); Sarkar and Das (1997); Sarkar J, Sarkar S and Bhaumik S K (1998), Ram Mohan (2004), Das and Ghosh (2005), and Sensarma (2005) found that there is a strong ownership effect on a bank's performance. Dr Milind Sathye has measured the efficiency of banks in India using DEA. He used two models to show how efficiency scores vary with change in input and output. To measure efficiency, two inputs and two output variables, namely interest expenses, non-interest expenses (inputs) and net interest income and non-interest income as outputs were used. A second DEA analysis was also run on DEAP software with deposits and staff numbers as inputs and net loans and non-interest income as outputs.

Sayuri Shirai (2002) assessed the impact of reforms by examining the changes in the performance of the banking sector. The study found that the performance of PSBs improved in the second half of the 1990s. Kaveri (2001) considered nine efficiency parameters - CAR, net NPA as percentage of net advances, net profit to total assets, gross profit to working funds, net interest income to total assets, interest expended to total assets, intermediation cost to total assets and provisions and contingencies to total assets. The study concludes that no bank can be weak or potentially weak all of a sudden. There is a gradual deterioration in the position of default and profitability. B Janki (2002) analysed the effect of technology on labour productivity and concluded that efficiency can be enhanced by using technology to develop new products and motivation of workforce. To conclude - efficiency is a function of input efficiency and output efficiency. Both input and output efficiency are a function of many factors that are allocative and technical in nature.

What is DEA?

DEA is an application of linear programming that has been used to measure the relative efficiency of operating units with the same goals and objectives and which are termed Decision Making Units (DMUs). This technique aims to measure how efficiently a DMU uses the resources available to generate a set of outputs (Charnes et al, 1978).

The performance of DMUs is assessed in DEA using the concept of efficiency or productivity, which is the ratio of total outputs to total inputs. Efficiencies estimated using DEA are relative to the best performing DMU (or DMUs if there is more than one best performing DMU). The best performing DMU is assigned an efficiency score of 100 percent or unity and the performance of other DMUs vary between 0 and 100 percent relative to this best performance. The operating units of banks have multiple inputs such as staff size, salaries, hours of operation, and advertising budget, as well as multiple outputs such as

profit, market share, and growth rate. In these situations, it is often difficult to determine which operating units are inefficient in converting their multiple inputs into multiple outputs. DEA has proven to be a helpful managerial tool in this particular area.

Using DEA model, the efficiencies of banks are estimated for the sample period from March 31, 2003 to 2008. The sample included 19 PSBs (excluding State Bank of India and its associates which are excluded because of their major size, which would have affected the efficiency scores of other PSBs operating in India). The empirical results are based on the performance of banks, on the basis of interest expenses and operating expenses as

inputs, and business measure as output during the period from 2003 to 2008. In order to have a suitable indicator for evaluating the bank's performance, the level of business (Advances + Investments) is used as output.

Table-1 depicts that interest expenses of Canara Bank at INR 6,050 crores are maximum whereas they were minimum in the case of Punjab and Sind Bank at INR 904 crores. While maximum operating expense were incurred by Punjab National Bank (INR 2,930 crores), minimum was by Punjab and Sind Bank (INR 525 crores). While business of INR 1,17,609 crores is maximum in case of Punjab National Bank, it is minimum in case of Punjab and Sind Bank at INR 16,608 crores. Maximum NPAs are of Bank of India (INR 1,379 crores) followed by Canara Bank (INR 1,110 crores). NPAs in case of Corporation Bank are INR 180 crores, and those of Oriental Bank of Commerce are INR 245 crores and Punjab National Bank are INR 631 crores.

DEA IS AN APPLICATION OF LINEAR PROGRAMMING THAT HAS BEEN USED TO MEASURE THE RELATIVE EFFICIENCY OF OPERATING UNITS WITH THE SAME GOALS AND OBJECTIVES AND WHICH ARE TERMED DECISION MAKING UNITS (DMUs). THIS TECHNIQUE AIMS TO MEASURE HOW EFFICIENTLY A DMU USES THE RESOURCES AVAILABLE TO GENERATE A SET OF OUTPUTS (CHARNES ET AL, 1978).

