CHAPTER II: REVIEW OF LITERATURE
Chapter II

Review of Literature

This chapter will discuss and review the literature regarding the efficiency of banking all over the world. The chapter will be divided into two sections. Section I deals with literature on efficiency of conventional banks and section two deals with literature on efficiency of Islamic banks. This chapter will focus on both theoretical and empirical studies on banking efficiency. Further the conceptual development and evolution in measurement methods will be reviewed.

Section I: Theoretical Literature of Efficiency

1. Conceptual Framework of Economic Efficiency

The concept of economic efficiency is not new in economic literature. The concept was traditionally defined by the OECD in 1950 in the context of productivity of energy, labour and capital in terms of production that were investigated in relation with energy, labour or capital. The OECD defined as Productivity means total product divided to each of the inputs or product factors.

After this traditional definition from OECD, further, others attempted to define the productivity in the literature. To enrich the idea of efficiency and measurement of efficiency, Farrell\(^1\) (1957) had first discussed the concept of measuring efficiency with inspiration from Koopmans\(^2\) (1951) and Debreu\(^3\) (1951). He was the first person, who for the first time measured the efficiency by using empirical tools. To measure the efficiency, he classified efficiency measurement into two components, i.e. Technical Efficiency (TE) and Allocative Efficiency (AE). According to him, the concept of technical efficiency is the firm’s ability to obtain maximal output from a given set of inputs while allocative efficiency means the firm’s ability to use inputs in

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optimal proportions, given their respective prices and production technology. He explained the concept by presenting it in the figure 2-1.

Figure 2-1- Technical, allocative efficiencies

Based on his concept, the combinations of two components will produce Overall Economic Efficiency (OE). Assuming a firm, ABC, is using only two inputs, x₁ and x₂ to produce a single output (y) at point P. SS' slope shows the possible combinations of inputs the firm can produce if it is perfectly efficient. The slope AA' represents the input price ratio and it shows the various combinations of inputs that require the same level of expenditure. If the firm’s production is efficient, it should occur at point Q', which indicates the cost minimisation. That is where SS' and AA' slope intersect, which means the input combinations Q' is both technically and allocatively efficient.

Since the ABC firm produces using the combination of input at point P, two types of inefficiency arise. First, it is technically inefficient, since by moving to point Q, it could produce the same output with fewer inputs. In order to measure the magnitude of a firm’s technical efficiency (TE), the ratio is calculated as OQ/OP, which is equal to one minus QP/OP. Second, it is allocatively inefficient. Producing at point P shows that the firm made an incorrect choice as to the combination of

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inputs at the given prices, therefore incurring more cost if it had produced at point Q'. To measure the allocative efficiency (AE), the ratio is calculated as OR/OQ.

Further, Farrell explained the overall efficiency by using TE and AE technique. He calculated OE by TE multiplied by AE. As has been mentioned equation form in below:

\[ OE = TE \times AE = \left( \frac{OQ}{OP} \right) \times \left( \frac{OR}{OQ} \right) \]

Where, Overall Efficiency (OE) equals to Technical Efficiency (TE) multiplied by Allocative Efficiency (AE).

In above equation, technical efficiency, allocative efficiency and economic efficiency have been given importance to measure the overall efficiency. Therefore, a firm is regarded as technically efficient if it is able to obtain maximum outputs from given inputs or minimise inputs used in the production of given outputs. However, the main objective of the producers is to avoid waste and obtain maximum output productivity from the inputs. Koopmans\(^5\) (1951) had also explained that a producer was considered technically efficient if, and only if, it was impossible to produce more of any output without producing less of some other output or using more of some input. On the basis of general efficiency, Berger and Mester\(^6\) (1997) have given the importance to the economic efficiency and given importance to two specific components viz., cost and profit efficiency in economic efficiency.

i. Efficiency vs. Productivity

The terms efficiency and productivity in economic literature have a lot of importance because sometimes some researchers are using interchangeably while discussing the total productivity from the inputs involved in the production process.


Coelli, T. et al (2005)\(^7\) says that productivity differs from the efficiency while every firm on the production frontier of each industry is technically efficient, but it is possible to increase the efficiency of firm by utilizing the scale economy through adjusting the scale of firm to the highest optimal scale in particular industry. Therefore it is possible that a firm may be technically efficient but may still be able to improve its productivity by exploiting scale economy. Grosskopf\(^8\) (1985) defined productivity growth as the net change in output due to change in efficiency and technical change. Solow (1957) sought to attribute output growth to input growth and technical change by distinguishing movements along a production frontier from shifts in the frontier. Economy of scale was added to the story by Brown and Papkin (1962). David and van de Klundert (1965) allowed technical change to be biased. The effects of scale economy and technical change on productivity growth were translated into their effects on production cost by Ohta (1974) and Binswanger (1974). A full-blown model of productivity change decomposed into movements along a cost frontier (scale economy), shifts in the cost frontier (technical change) and non-marginal cost pricing was developed by Denny, Fuss, and Waverman (1981) and Glop and Roberts (1981). Only Nishimizu and Page (1982), who decomposed productivity growth into shifts in the production frontier and movements toward or away from it, attempted to incorporate efficiency change into a model of productivity change. From above discussion it can be concluded that productivity is the change in efficiency of firm by utilizing scale economy and technical changes over the time. So, both have specific meaning and importance equally in the literature.

2. The Evolutionary Trend of Concept of Efficiency in Banking

Ratio analysis technique for performance evaluation of firms is older than the frontier approaches introduced by Farrell in 1957 that developed in both approaches of parametric and non-parametric methods in efficiency measurement. Further in this context, improvement was made in efficiency measurement. One of such methods is

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Data Envelopment Analysis (DEA), which is based on the pioneering work of Farrell (1957). However, the credit of the development of DEA method goes to Charnes et al. (1978), who had given details about method. Ratio analysis technique had been used extensively in financial statements analysis for both normative and positive purposes (Whittington, 1980). The normative approach compares a firm’s ratio to a benchmark such as an industry average to judge its performance whereas, the positive approach uses ratios to predict future performance such as earnings and also to predict bankruptcy and assess the riskiness of the firm. However, there have been numerous methodological problems as were pointed out by Barnes (1987), Smith (1990), and Fernandez-Castro and Smith (1994), as was the assumption of there being proportionality between numerator and denominator. The proportionality assumption might not be true in many cases as world gives erroneous conclusions from ratio analysis. Another problem with using ratio analysis technique was that choice of a single ratio did not provide enough information about the various dimensions of performance of a firm. Aggregation of ratios is usually avoided because it requires weighting the ratios in some fashion and any such weighting is ultimately arbitrary. The problems as mentioned above in ratio analysis technique had prompted researchers to find new ways of addressing the issue of efficiency analysis of firms. One of such techniques which have been used in recent years is a mathematical programming technique known as data envelopment analysis (DEA).

Nowadays, banks in Iran usually have been using financial ratios for the measurement of their performance evolution while discussing the financial ratios. Yeh (1996) remarked that a number of financial ratios were calculated and combined to evaluate the performance of financial sector, but combining of these financial ratios is a

complicated process under changing economic conditions (Yeh, 1996). Similarly, financial ratios are short term measure of the performance and are not appropriate for the measurement of long term performance of the banks (Sherman and Gold, 1985; Oral and Yolalan, 1990).

Berger & Humphrey (1997) pointed out that frontier analysis is essentially a sophisticated way to "benchmark" the relative performance of production units. Most financial institutions, with varying degrees of success, benchmark themselves and/or use industry consultants to perform this task. The power of frontier analysis is twofold. First, it permits individuals with very little institutional knowledge or experience to select "best practice" firms within the industry (or "best practice" branches within the firm), assign numerical efficiency values, broadly identify areas of input overuse and/or output underproduction, and relate these results to questions of government policy or academic research interest. Second, in the hands of individuals with sufficient institutional background, frontier analysis permits management to objectively identify areas of best practice within complex service operations, a determination not always possible with traditional benchmarking techniques due to a lack of a powerful optimizing methodology such as linear programming.

Frontier analysis provides an overall objectively determined, numerical efficiency value and ranking of firms (also called X-efficiency in the economics literature) that is not otherwise available. This attribute makes frontier analysis particularly valuable in assessing and informing government policy regarding financial institutions, such as determining the efficiency effects of mergers and acquisitions for possible use in antitrust policy. When frontier analysis is more narrowly focused on proprietary transactions data and detailed input use across branches of a financial institution, a firm’s internal performance can often be enhanced beyond that possible with its own

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benchmarking procedures. Knox Lovell (1993) has given a comprehensive conceptual framework on efficiency and productivity.

Efficiency of a production unit means a comparison between observed and optimal values of its output and input. The comparison can take the form of the ratio of observed to maximum potential output obtainable from the given input, or the ratio of minimum potential to observed input required to produce the given output, or some combination of the two. In these two comparisons the optimum is defined in terms of production possibilities, and efficiency is technical. It is also possible to define the optimum in terms of the behavioral goal of the production unit. In this event efficiency is economic and is measured by comparing observed and optimum cost, revenue, profit, or whatever the production unit is assumed to pursue, subject, of course, to the appropriate constraints on quantities and prices.

Productivity of a production unit means the ratio of its output to its input. Productivity varies due to differences in production technology, differences in efficiency of the production process, and differences in the environment in which production occurs. The isolating of efficiency component and measuring its contribution to productivity is interesting because of reach to the sources of changes.

The basic question which hereupon comes to mind is, “why the interest in measuring efficiency and productivity?” Knox Lovell has remarked two reasons in its answer. First is, they are success indicators, performance measures, by which production units are evaluated. And second, only by measuring efficiency and productivity, and separating their effects from the effects of the production environment, one can explore hypotheses concerning the sources of efficiency or productivity differentials.

The literature on efficiency measurement by “Frontier” approach in various areas began with work of Farrell (1957). But Farrell’s measure of efficiency is not perfect (Lovell- 1993) as it does not coincide with Koopman’s definition of technical

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efficiency. Technical efficiency is necessary, but not sufficient, for Koopman's technical efficiency (Lovell-1993). Further, Lovell (1985) pointed out, in some cases theory provides no guidance, or provides conflicting signals, concerning the impact of some phenomenon on performance. In such cases empirical measurement provides qualitative as well as quantitative evidence. Such works on empirical analysis have been summarized by Cote and Desrochers (1990) for the ownership issue and by Otsuka and Hayami (1988) for sharecropping. New results on sharecropping are provided by Laffont and Matousssi (1990) and Lee and Foland (1991). Alchian (1965) noted that the inability of public sector owners to influence performance by buying and selling shares in public sector units means that public sector managers worry less about bearing the cost of their decisions than do their private sector counterparts. Berger & Humphrey (1997) in their survey titled “efficiency of financial institutions: international survey and directions for future research” listed the utilization and benefits from information obtained of financial institutions efficiency measurement as: (1) to inform government policy by assessing the effects of deregulation, mergers, or market structure on efficiency; (2) to address research issues by describing the efficiency of an industry, ranking its firms, or checking how measured efficiency may be related to the different efficiency techniques employed; or (3) to improve managerial performance by identifying “best practices” and “worst practices” associated with high and low measured efficiency, respectively, and encouraging the former practices while discouraging the latter. They have surveyed 130 studies that apply frontier analysis to financial institutions in 21 countries; they critically reviewed the empirical literature of financial institutions efficiency and pointed out additional research works needed in this area especially to improvement of measurement techniques to reach more consistency with the concepts of efficiency and productivity, and more empirical works needed on developing countries financial institutions.
Section II:
Empirical Literature of Efficiency in Banking

The studies of efficiency using “frontier” approaches on banking did not start until Sherman and Gold\(^{17}\) (1985) initiated their study. They applied the frontier approaches to the banking industry by focusing on operating efficiency of branches of a savings bank. Since then, there have been extensive studies on bank efficiency done in the US and European countries and most of the studies focused on conventional banking (Berger & Humphrey, 1997; Goddard et al., 2001). Berger et al. (1992) found that during the 1980s, the high-cost banks experienced a higher rate of failure than more efficient banks. On the other hand, in a study of banks during the 1920s Wheelock et al., (1995), found that the less technically efficient bank had high rate of failure\(^{18}\). Lacasta (1988) supported the view that efficiency indices conditions on the performance of banks\(^{19}\).

There are many works which supported the views on the Private ownership of firms to promote efficiency of the firms. However there are some views on public ownership that is public choice which argued that government officials maximize their own utility; since their objectives are not necessarily consistent with profit maximization, government ownership and management of firms can lead to persistent X-inefficiencies (Niskasen, 1975; Levy, 1987). Somewhat, this problem is aggravated when the government itself changes the firms’ objectives frequently to accommodate the interests of different pressure groups (Estrin and Perotin, 1991; Shleifer and Vishny, 1994; Shleifer, 1998). Alternatively, Alchian (1965), Alchian and Demsetz (1972), and De Alessi (1980) argue that private ownership of a firm provides undisputed property rights, which ensures that the firm is operated more efficiently than a public firm in which no stakeholders have a clear right over its assets and its profits. Furthermore, Manne (1965) and Fama (1980) pointed out that the managers of a privately owned firm perform efficiently to avoid becoming vulnerable to

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takeovers that would lead to loss of control for the incumbent management. On the other hand, management of state-owned enterprises (SOEs) are immune from such disciplining; hence, they focus on furthering their own interests rather than on efficiency and profitability of these firms (Vickers and Yarrow, 1980).

In recent years, however, a nonparametric technique namely Data Envelopment Analysis (DEA) has been used successfully in measuring the efficiency of banks and other organizations (Drake and Howcroft, 1994). Furthermore, after Charnes, Cooper and Rhodes (1978)\(^{20}\) who coined the term DEA as namely “CCR” model specification of DEA technique, a ‘large number of studies have extended and applied the DEA methodology’ (Coelli, 2005).

1. Studies on efficiency of Banks with “Frontier” approach

Al-Faraj et al. (1993)\(^{21}\) evaluated the relative efficiency of bank branches of the largest commercial bank in Saudi Arabia by means of Data Envelopment Analysis (DEA) for the improvement of the utilization of available resources at branch level more efficiently. They applied DEA methodology on fifteen branches of the bank located in the Eastern province of Saudi Arabia. One year actual input-output data of the bank was used for the study. Eight inputs and seven output factors were identified at branch level on the basis of consultation and personal interviews with the administrators of the several banks. DEA enabled them to identify three inefficient branches out of fifteen bank branches under consideration.

Miller and Noulas\(^{22}\) (1996) used DEA to estimate the technical efficiency of 201 large sized banks operating in United States. For this estimation, they used data about inputs (total transactions deposits, total non-transactions deposits, total interest expense and total non-interest expense) and outputs (commercial and industrial loans, consumer loans, real estate loans, investments, total interest income and total non-


interest income) of the banks from 1984 to 1990. They estimated overall technical, pure technical and scale efficiency for the banks and found large mean estimated scores of scale efficiency as compared to overall technical and pure technical efficiency scores. They also found that the pure technical inefficiency was twice as compared to scale inefficiency and also reported the number of banks operating under decreasing returns to scale, increasing returns to scale and constant returns to scale. From second stage regressions, they found that the profitability and size (measured by total assets) of the banks were significant contributors to overall technical, pure technical and scale efficiencies of the banks.

Ayadi et al.²³ (1998) measured the bank performance in Nigeria by applying data envelopment analysis to ten banks by using financial data from 1991 to 1994. They used interest paid on deposits, total expenses and total deposits as inputs while total loans, interest and non-interest incomes were considered as outputs. They reported that banks in existence for long period of time are relatively more efficient than other banks in the sample and banks having poor management showed bad performance and is key determinant of the bad performance of banks in Nigeria.

Avkiran²⁴ (1999) used two DEA models under the assumptions of variable returns to scale (VRS) to measure the average x-efficiency of Australian commercial banks from 1986 to 1995. Under the two models he used different groups of input/output variables to arrive and enrich the results. In model A, he used interest expense and non-interest expense as inputs while net interest income and non-interest income as output of the bank. In model B, he used deposits and staff number as inputs of the bank while net loans and non interest income as outputs of the banks. He found mean annual DEA score ranged from 78.99% to 91.58% in model A and from 37.23% to 70.43% in model B. According to him, DEA efficiency estimates are sensitive to the input and output variables of the model. In this study, the impact of merger on the efficiency of bank is not cleared. In one case merger has positive impact on the efficiency of bank while in another case it has negative impact on the efficiency of

bank. Similarly in one case merger raises the efficiency of the bank in first year and falls in the next year while in one case merger has no effect on the efficiency of the bank.

Jackson and Fethi\(^25\) (2000) analyzed performance of Turkish banking sector by applying DEA and then explored the determinants of efficiency from a set of explanatory variables (bank size, number of branches, profitability, ownership and capital adequacy ratio) by the use of Tobit model. They defined performance of a bank in terms of its ability to produce outputs with minimum use of inputs. For this study, they used the data of year 1998 and considered number of employees and sum of non labour expenses as inputs of the bank. Under CRS specification of DEA, the estimated mean efficiency score for 48 banks was 0.67 while under VRS specification: they found 0.77 as mean efficiency score for Turkish banks. From “Tobit econometric model specification” analysis, they found significant negative impact of capital adequacy ratio and significant positive impact of profitability and size of the bank on estimated efficiency.

Isik and Hassan\(^26\) (2002) estimated cost, allocative, technical, pure technical and scale efficiency of Turkish banking industry from 1988 to 1996 by using Data Envelopment Analysis. Following intermediation approach, they considered labour, capital and loan able funds as inputs of the bank and short term loans, Long term loans, risk adjusted off balance sheet items and other earning assets as outputs of the bank. After analysis, they found that the state and foreign owned banks performed better than the private domestic banks. According to them, government should promote competition in banking sector by enforcing financial reforms to improve the efficiency of banks.

Sathye\(^27\) (2003) measure the productive efficiency of Indian banks. He used input oriented model of Data Envelopment Analysis under the assumption of Variable


Returns to Scale (VRS). Indian bank’s Association published data of year 1997-1998 were used for the study. He used two models to calculate the efficiency scores of public, private and foreign owned banks. In one model, he used interest expenses and non-interest expenses as inputs of the banks while net interest income and non-interest income as outputs of the bank. In second model, he used deposits and staff number as inputs and net loans and non-interest income as outputs of the banks. In first model estimated mean efficiency score was 0.83 while in second model it was 0.62. He found, most of foreign owned banks on the estimated frontier. He also found that the efficiency scores of private owned banks were lower as compared to public owned and foreign owned banks. According to him, lower score of private sector banks could be due to their expansion.

Hauner (2004) estimated cost and scale efficiency by using data envelopment analysis. Following intermediation approach, outputs and inputs were defined for German and Austrian commercial banks. For the study, he used 485 observations from the period 1995 to 1999 and calculated average cost and scale efficiency score of commercial banks. According to him, German banks were more cost efficient as compared to Austrian banks and on average neither technical nor scale efficiency changed significantly over time under the study period. To explain the difference in cost efficiency among the banks regression was used to capture the impact of different important variables. After analysis, he found a significant positive impact of interbank deposits, size of the bank and public ownership on the cost efficiency of commercial banks.

According to Beck et al. (2005), in Nigeria, in early 1990’s more than 50% of total banking assets were privatized. They studied the impact of privatization on bank performance and compared the same bank before and after privatization. At the same time, they also compared this privatized banks with privately owned banks in Nigeria. They used non-performing loans, return on assets and return on equity as performance indicators. For the study, annual data of 69 banks for the period 1990 to 2001 were used. According to their analysis, return on equity significantly increased while non-

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performing loans decreased significantly due to privatization. They also found that the older and smaller banks performance worse than the new and larger banks. According to them, larger banks perform better due to economics of scale and scope while new banks due to ability of capturing of new profit opportunities. They also reported that banks focused on retail banking performed significantly poor than the banks focused on lending to government and on fee based business. So the results of their study indicated a performance improvement of banks due to privatization while before privatization, these banks performed significantly bad as compared to privately owned banks.

Pi and Timme\(^{30}\) (1993) investigated the relationship of concentration of decision management and control in one person on the cost efficiency level of the bank and returns on assets. On the basis of their study, they found that the banks whose chairman of the board and CEO\(^{31}\) were the same person had significantly less efficiency than those banks that possessed not similar governance structure and concluded that performance was affected by top management structure.

Laurent Weil\(^{32}\), in a paper titled: “Banking efficiency in transition economies, the role of foreign ownership”, tried to analyse the increasing trend foreign ownership of banks in transition economies on the performance of the banking sector in the Czech Republic and Poland. So he revealed that on average foreign-owned banks are more efficient than domestic-owned banks. And this advantage does not result from differences in the scale of operations or the structure of activities. So research achieved to the degree of openness of the banking sector to foreign capital has a positive impact on performance. It may also have a positive influence on the macroeconomic performance of these countries, because of the important role of the banking sector in the financing of these economies.

\(^{31}\) CEO is abbreviation for Chief Executive Officer
Asish Saha and T.S. Ravisankar\textsuperscript{33}, in a paper titled: “Rating of Indian commercial banks: A DEA approach” examined the financial sector reform of India in 1990s whether the efficiency of banking sector improved after the concerned reform plan. The results of the analysis indicate that, barring few exceptions, the public sector banks have in general improved their efficiency scores over the years 1992-1995 after enforcement of reforms. They have mainly confined itself to the public sector banks primarily because they account for about 85% of the Indian commercial banking business. Finally, their preceding discussion essentially supports the contention of this paper that DEA methodology is useful and suitable for rating the efficiency of Indian banks.

2. Studies relating to efficiency of Islamic Banks

One group of studies includes studies that assess the performance of Islamic banks using traditional financial ratios (e.g. Abdus-Samad, 1999, Bashir, 1999, and Hassan and Bashir, 2003). While second group of studies focus on banks’ efficiency and utilize frontier analysis approach (e.g. Yudistira, 2003; Al-jarrah and Molyneux, 2003, Hussein, 2004, Hassan 2005 and etc.).

H. Ahmad Mokhtar & others (2008), studied the efficiency of Islamic banking in Malaysia by using DEA method and they found that the efficiency of overall Islamic banking industry in Malaysia has increased during 1997-2003 due to liberalization and also they discovered that although the fully fledged Islamic banks were more efficient than the Islamic windows, they were still less efficient than the conventional banks.\textsuperscript{34}

Shamsher Mohamad, and others\textsuperscript{35} (2007), studied the Islamic versus conventional banks efficiency for Organisation of Islamic Conference (OIC), by stochastic frontier analysis method to indicate international evidence. The study found that Islamic banking in Middle East and Turkey scored the high cost efficient while African


Islamic banks scored the lowest cost efficiency. Meanwhile, big conventional banks scored the highest profit efficiency and small conventional banks and African conventional banks scored the lowest profit efficiency. Further, study mentioned that bank efficiencies are greatly affected by internal and external factors. (S. Mohammad and et.al. 2007)

Al-Jarrah and Molyneux\(^6\) (2003) investigate the efficiency of the banking system in Jordan, Egypt, Saudi Arabia and Bahrain. They used the (SFA) and Fourier-Flexible (FF) form, based on intermediation approach to estimate cost and profit efficiency levels in the countries under investigation. In particular, their paper evaluates whether factors such as asset quality, capital level, and environmental variables such as bank size, market characteristics, geographic position, and liquidity ratios influence banks' efficiency levels. In addition to input and output variables, the study employs three control variables including size of the loan loss reserves as a percent of bank’s credit portfolio, the capital adequacy ratio, and a time trend. Their results show that larger banks seem to be more profit efficient in general.

Kh. Hussein\(^7\), (2004) studied banking efficiency in Bahrain; Islamic vs. conventional banks. He tried to examine the performance of Bahrain as a leading financial centre in the Persian Gulf region with estimate how close Bahrain banks are from their potential profits that a best-practice bank can earn and compare the profit efficiency of Islamic vs. conventional banks. His result indicates that profit efficiency of Bahrain banks is relatively stable and in line with the OECD banks. And he finds out that in general not much difference in profit efficiency between Islamic and conventional investment banks, despite the fact that many Islamic banks are small and act as venture capital.

D. Yudistira\(^8\) (2003), remarked that the interdependence of Islamic banks to other financial system is still closely related and any regulator, especially in which the bank operates, should consider Islamic banking in the search of global financial stability.


The findings further indicate that there are diseconomies of scale for small-to-medium Islamic banks which suggests to be encouraged.

T. Ahmad (2008) had studied "Efficiency analysis of commercial banks in Pakistan" by diverse specifications of DEA methodology, input oriented approach of DEA under Constant Return to Scale (CRS) and Variable Return to Scale (VRS) is used for the efficiency measurement of the commercial banks. Also the scale efficiency and returns to scale under which commercial banks operate is also estimated and intermediation approach is used to define the inputs and outputs of the commercial banks. He extracted five specifications of DEA developed for efficiency measurement of each year and finally by using Tobit model to develop the relationship between efficiency scores and factors affecting it under each specification. He analyzed and found that commercial banks could improve their efficiency by increasing profits, assets, mark up interest earnings and non-mark up interest earnings and decreasing liabilities, mark up interest expenditures and non-mark up interest expenditures among the bank specific variables. At the same time, government can improve the efficiency of banking sector in Pakistan by promoting foreign banking and discouraging the privatization of public sector banks and mergers in the banking sector.

3. Banking reform and liberalization policy

The gist of the theoretical analysis of financial reforms is quite straightforward: liberalize financial markets and let the free market determine the allocation of credit. With the real rate of interest adjusting to its equilibrium level, low yielding investment projects would be eliminated, so that the overall efficiency of investment would be enhanced. Also, as the real rate of interest increases, saving and the total real supply of credit increase which induces a higher volume of investment. Economic growth would, therefore, be stimulated not only through the increased investment but also by an increase in the average productivity of capital. Moreover, the effects of lower reserve requirements reinforce the effects of higher saving on the supply of bank lending, while the abolition of directed credit programs would lead to

an even more efficient allocation of credit thereby stimulating further the average productivity of capital. The way this would be achieved is equally straightforward: remove interest rate ceilings, reduce reserve requirements and abolish directed credit programs. Stiglitz and Weiss (1981) demonstrated that asymmetric information leads to two serious problems: adverse selection and moral hazard. The implication of the presence of these problems is that the informational asymmetries of higher interest rates, which actually follow financial reforms and financial liberalization policies in particular, exacerbate risk-taking throughout the economy, thereby threatening the stability of the banking system, which can easily lead to frequent financial crises. Profit-maximizing competitive behavior by commercial banks is particularly unrealistic in the case of developing countries. The banking sectors in these countries are oligopolistic, in which case financial reforms may well lead to increased spreads between lending and deposit rates without increased financial deepening (Demetriades and Luintel, 1996). It would not be unreasonable to argue that threatened banks attempt to recoup losses by increasing lending rates and/or reducing deposit rates to savers. This is particularly possible in the oligopolistic environment of the developing country banking sectors.

In two recent papers Arestis and Demetriades (1998, 1999) work out the key assumptions of the theoretical model underpinning financial reforms, which are found to be highly unlikely to be met in the real world. The more important ones are those of perfect information, profit-maximizing competitive behavior by commercial banks and the assumption of institution-free analysis (including the scant attention paid to the role of stock markets).

A relevant further consideration is the undue attention paid to microeconomic aspects of financial reforms. One such microeconomic phenomenon is bankruptcy and the fear of default, both of which are rarely, if at all, incorporated in the analysis of financial reforms. Wholesale financial reforms based on models that do not pay


due attention to these details could cause serious problems. The experience of South East Asia is a very telling case (Stiglitz, 2000, p.6).

The institutional framework surrounding the banking sector is paramount and assuming an institution-free approach to financial reforms could lead to expensive policy mistakes. For example, ignoring the role of banking supervision by central banks proved very costly in the period 1977-1996 especially in Latin America. It is now widely accepted that financial reforms need to be preceded by improved quality of regulation (World Bank, 1989). The more recent South East Asian crisis has demonstrated weaknesses in the legal framework, including the non-existence or deficiency of bankruptcy laws and procedures as well as deficiencies in banking regulation. A further example is that financial reforms have paid little attention to stock market development despite the enormous growth of stock markets over the last twenty years (Arestis and Demetriades, 1997, 1999).

Despite these problems, financial reforms had a relatively early impact on development policy through the work of the IMF and the World Bank. Perhaps in their traditional role as promoters of free market conditions, they were keen to encourage financial reforms, especially financial liberalization policies, in developing countries as part of more general reforms or stabilization programs. Events following the implementation of financial reforms did not justify the theoretical premises. A number of factors were blamed for these events, including differential speeds of adjustment, competition of instruments, macroeconomic instability and inadequate bank supervision. There occurred a revision of the main tenets of the thesis. More precisely, these revisions followed the experience with financial reforms over the period 1977-1996 as analyzed above.

Financial liberalization does not lead necessarily to an orderly system of market supervision and management. Indeed, such attempts lead to structural inadequacies in the regulation and supervision of financial institutions and make financial systems vulnerable to shifts in international speculator sentiment. A very good example is

Thailand which liberalized its financial system (with Thai banks lending to property developers to support vastly overpriced office blocks, and lacking in expertise in terms of collateral evaluation), only to discover that foreign capital brought its economy to near collapse and sparked the whole South East Asian crisis (see, for example, Jomo, 1998). Another good example is South Korea where during the five-year period prior to the crisis the government relaxed its control over the financial system significantly and in 1993 the process was accelerated. In addition, relaxation of state control over large-scale firms took place.

i. Ownership and Income source of banks

Further analysis indicates that the reasons for the better risk adjusted performance of new generation banks has been their ability to diversify its income sources. This is brought out by their higher fee income to total income ratio as compared to old generation banks and reinforced by the multivariate regression analysis results. The higher dependence on traditional interest income seems to be a drag on bank’s performance in the absence of adequate risk-based pricing practices of banks. The old generation banks have tried to get over this by greater dependence on investment income which is however extremely risky given the macro-economic factors that drive the interest rate movements. Our analysis corroborates the riskiness associated with this income source and shows that investment income is the most volatile across all ownership groups of banks. Therefore excessive dependence on this income source to compensate for the low returns associated with interest income is not healthy in the long run. This is because trading income derived from buying and selling of securities and treasury income earned mainly from lending in the call money market are subject to unpredictable variations. On the other hand, as the economy grows, the demand for fee-based services of banks services is certain to go up. Hence, initiating well-thought-out steps to enhance fee-based income may not be fraught with as much risk. In this context, RARORAC framework can be used to assess the risk adjusted return on capital for a specific product or line of business. Customer profitability analysis would enable the management target niches, develop new products and change pricing. Our analysis indicates that diversifying to fee based income is a more viable option for banks in the long run. This necessarily involves
constant feel of the marked requirement, innovation in banking products, and upgrading skills of personnel to meet these requirements. Lastly we need to emphasize that despite falling interest spread because of falling interest rates and increased competition, banks cannot withdraw entirely from its traditional activity of generating interest income through continuing credit exposure. Therefore what is important is the need to set in place better risk adjusted pricing mechanisms and credit risk management systems in place that can ensure that credit exposure will not act as a drag on the bank performance. Together with this, healthy diversification to fee-based income will enable banks to pull up their risk based performance.\footnote{Umakrishnan, K U and Bandyopadhyay, Arindam (2005), “Changing income structure, ownership and performance: an empirical analysis of Indian banking sector”, University of Witwatersrand, SA and National Institute of Bank Management, India}

The arguments for separating banking supervision from Central Banks, and placing this within a unified financial supervisory agency, have become increasingly powerful in recent years, more particularly in developed countries with complex financial systems. The blurring of functional boundaries has led to a seamless financial system; so efficiency suggests that a unified financial supervisor should mark that system. Add in perennial concerns about putative conflicts of interest, and a worry whether an (operationally) independent Central Bank with added supervisory functions might become too powerful within a democratic context, and the result is a potent cocktail of reasons for such a change. The counter-argument rests on fears whether the information base needed by a Central Bank to carry out its various essential functions might be less good if it did not have direct control of banking supervision in-house. While there are some reasons adduced for such concerns within developed countries, they are, as yet, somewhat speculative. Why cannot information flows be almost as good between agencies, as when they are internalized within the same institution? If so, the above arguments for a unified financial supervisory authority tend to become dominant.

It is, however, the thesis of Section (IV) above that there are much stronger reasons to believe that the conduct of banking supervision will be better done under the wing of the Central Bank in less developed countries. Within a Central Bank, supervisors in
such countries are, one can claim, likely to be better funded, more independent and hence more expert and reliable. Apart from case studies, experience and anecdote there is not much hard evidence to go on, especially on this latter subject.\footnote{Sub-Saharan Africa}

Institutional factors affect financial depth and access to financial services more than asset quality and profitability (measured by nonperforming loans (NPL) and return on equity (ROE). The results also suggest that depth of credit information has the strongest influence on the NPL ratio, and political stability affects access the most. Based on model findings, policy implications on prioritizing institutional reforms to enhance financial sector development are suggested for individual countries and for country groups.

Many researchers have shown that the institutional environment has an important impact on the functioning of the financial sector (Tressel and Detriagiache 2008, and Demetriades and Fielding 2009). La Porta (La Porta, et al 1997 and La Porta, et al 1998) argues that legal origin determines the level of financial development. He suggests that common law-based systems, originating from English law, are better suited for development of financial markets than civil law systems, arguing that common law has been instrumental in protecting private property than civil law, which aims at addressing corruption in the judiciary and improving the power of the state.

The literature review presented above underscores the importance of institutional reforms for SSA countries\footnote{Goodhart, C.A.E., "The organizational structure of banking supervision", Financial Stability Institute, Bank for International Settlements, Basel, Switzerland, FIS occasional papers No.1 – November- 2000.}. Verriest (2009) points out that, changes in the institutional environment are even more sensitive to weak institutional settings such as in African countries. Others (Demetriades, et al 2009) argue that financial depth (credit to private sector/GDP) is shallow in SSA countries not because of the lack in the creditworthiness of the borrowers, but because of the lack of developed infrastructure that would enable banks to screen and monitor borrowers. Another consideration in SSA is the heavy dependence on foreign aid, both financial and technical assistance, from various international and/or foreign organizations/donors.
Nkusu and Sayek (2004) demonstrate that development of the local financial market positively enhances the impact of aid, which is significantly larger when local financial markets are more developed.\footnote{Anayiotos, G.C. and Hoyhannes Toryan, (2009) „Institutional Factors and Financial Sector Development: Evidence from Sub-Saharan Africa“, IMF Working Papers. WP/09/258}

It is intuitive that institutional factors do influence financial systems through various direct and indirect channels. However, simply because of having very limited resources and a number of constraints (e.g., limited knowledge base, limited financial resources, and cultural factors) institutions can only be improved slowly. Hence, it is extremely important for policy makers to know which institutional factors are critical for financial sector development. While strategic goals vary from country to country and certain factors can be less, or more important for policymakers, this paper provides some evidence that institutional factors matter, which could help guide the sequencing of institutional reforms to promote financial sector development.

Anayiotos, G.C. and Hoyhannes Toryan, (2009), results show that in general, all four institutional factors included in their model have a similar significance among SSA countries in affecting financial sector development. On the other hand it turned out that, financial sector development is characterized more by the ROE (return to equity) and NPLs (Non-performing loans), rather than by Financial Depth and Access which may reflect the large variation of these measures in SSA countries. The results imply that improvements in institutional factors in SSA countries would influence Financial Depth and Access more than ROE and NPL. The results also show that in general the Depth of Credit Information has the strongest impact on NPL. This implies that countries willing to reduce NPL with the help of institutional changes should consider setting up credit registries, increase transparency and amount of shared information. Similarly, in many SSA countries Access is determined mostly by Political Stability and partially by Legal Rights of Borrowers. While this does not hold for all SSA countries, the low level of financial development also depends on non-institutional and other institutional factors not examined in their paper. In some countries (e.g., Kenya and Zambia) there is a large gap regarding the development of institutional
factors analyzed in this paper, suggested that these countries should focus their efforts on improving the weakest ones.

4. Banking studies on I.R. Iran

H. Bazmohammadi, has studied the “Structural reform of the banking system, A step towards re-organization of Iran official financial markets” in 2003 at monetary and banking research academy of the central bank of Iran. I.R. A descriptive study by the aggregate data from the banking sector performance criticized the specifications of the Iranian banking system as a universal banking system which is actively present in the capital market by the partnership transactions need a monitoring and surveillance institution in all the aspects of the financial market of Iran. Also Islamic banking experience foreshadows high consistency of this system with publication and transaction of securities. Islamic banking method in respect of diversification of the financial services of banks is comparable with universal banking method. Whereas Islamic bank shall be able to funding the investment plans based on partnership transactions or be share holder of the commercial or productive firms, and intervene in administrative affairs of the firms or publishing the participation papers due to funding their covered firms and so on.

M. Asgari, 2008, has studied the “Financial liberalization and economic growth, world trend and Iran’s experience”, Present financial system of Iran is an over controlled system by high rate of inflation. Financial liberalization by achievement of the financial development and financial depth, shall prepare the domestic financial markets for competition with foreign financial markets.

M. Motavaseli and R. Aghababaei (2005) in a study investigated “The vulnerability of the banking system in Iran by the institutionalism approach”, they have given a performance evaluation of the banking system by the financial development ratios and find out that the ratio of the liquidity to GDP which indicates the financial depth is lower than many of the developed and developing countries. And also the efficiency ratio for banking system of Iran which is indicated by the banking system claims on non-public sector to GDP in comparison with the world average ratio.

Structure of the market which measure by the concentration ratio (share of the three big banks from non-public sector sector deposits) is more than world average ratio, and portfolio ratio which measure by net interest earnings to total assets is higher than the world average ratio, and this higher ratio of profitability can be explained by the high concentration ratio. Whereas government only deposited 14% percent of the total deposits by banking system but 33% percent of the total banking sector facilities outstanding to the public sector. Therefore he concluded that the state ownership in Iran banking sector is one of rare cases in the world (La porta, et al. 2000), the scale of the banking sector couldn’t develop to be able to mobilize the resources and savings successfully. The concentration ratio in the Iranian banking sector is so high and operational efficiency is higher than the world average ratio. Iranian banking sector in resource allocation was very inefficient and couldn’t from capital accumulation channel to create any effective movement. Therefore from analysis results concluded Iranian banking sector in micro level (firm–level) was profitable but couldn’t fulfil macroeconomic functions in saving mobilization and efficient allocation of them.

S. Bakhtiari and A. Arshadid (2004), in a paper titled “An analysis of the interest free banking efficiency in the Islamic Republic of Iran” by discussion on the aggregate data analyze the performance of the Islamic banking system based on examining the basic features of the Islamic banking system in comparison with conventional banking, and also the evolution of deposits and credits reviewed. The supply of the deposits to the banking system has been decreased in some parts due to lack of favourite change of the payable rates in the Islamic banking system. The gap between the profits paid to the deposits and rates of the banking facilities in the post–Islamic period has considerably increased. This condition totally contradicts with the Islamic banking objectives. The relation between the rate of return in the economic sectors and the rates of banking facilities in post-Islamic period in comparison with the pre-Islamic period has increased.

M. Razavi (2005), concluded the main challenges of Islamic banking in Iran as follows:

1) Lack of planning to development of Islamic banking in Iran. Lack of surveillance regarding to achievement to determined objectives of system such as production target, fair distribution of the profits really not nominal, 2) superficial operation in enforcement of Islamic transaction and nonalignment to payment of real profit to depositors. Indisposition of the banks to achieve the real partnership transactions. Absence of efficient accounting system under standards regarding to guarantee the real profit payments instead of cash method. Lack of the qualified risk management in banks. Lack of efficient regulatory and surveillance system, indisposition of banks to long-term facilities outstanding. Lack of strong vigour of professional experts, not represent the real financial statements audited, and finally lack of transparency in decreasing the real value of currency in high inflation environment and how it will recompense.

Al-Jarrah (2003), investigated the operational efficiency of banking system in Iran empirically, by the study sample of 10 banks operating in Iran over the period of 1991-2002 to derive the efficiency levels he employed stochastic frontier approach method. He found out from his study that the technical efficiency averaged around 93%, and also he did not find significant differences between efficiency levels of banks based on asset size. The derived efficiency levels for the banks operating in Iran suggest that the performance of Iranian banking system has witnessed negligible improvement over the past few years. This level of technical inefficiency is somewhat better than the range of (10-15)% for the 130 studies surveyed by Berger and Humphrey (1997) and Berger and De Young (1997). These results are also better than the level of inefficiency found in European studies including Carbo et al. (2000). Whose findings for a sample of banks, from twelve countries, show mean cost inefficiency of around 22% for the period 1989 to 1996.

In addition in an Islamic country, Islamic state by utilizing the banking system are going to follow the social priority investment plans which is in line of social/Islamic
justification of society to equally accommodate the social resource for society which is different objective from the liberalism /capitalism system which is main goal of system following maximum profit by fulfillment of personal benefit. Therefore Islamic state as maximum welfare-government bounded to follow social justice goals. As economic literature expressed a well-known discussion on trade-off between efficiency and Justice, but we just have to hint here that efficiency measurement in Islamic banking environment which has followed different objectives from the conventional banks is somewhat apparent mislead the literature. So the comparative studies should be done between Islamic banks as inter area studies.

Although a lot of works has been carried out for the evaluation of commercial banks performance in Iran but most of them was by the descriptive method or for single bank by the study on single bank's branches or rational analysis of performance by banks headquarters. Macroeconomic environmental adjustment which deal with reform policies in long-term planning by the government in rebuilding the article 44 of the constitutional law lead to more competitive business atmosphere to contribute the economic efficiency of banking system.

After discussions and reviewed of literature in this chapter there are many gaps in the literature and methodology and interpretations to know the exact reasons for lacking banking efficiency. Therefore it needs to study as to how to improve the efficiency of bank and at what conditions that needs to be studied. In addition to that questions, in competitive environment, banking sector must growth to contribute in different sector of economy, however, the banking sector must earn the credibility in the age of globalization so that the common man must trust the business of bank which are operating in the economy in any country of the world.