

## Chapter IV

### ASSESSMENT OF UNIVERSAL BANKING : A THEORETICAL FRAMEWORK AND MODEL SPECIFICATION

#### Part I : INTRODUCTION

We will consider in this chapter a suitable methodology for the performance appraisal of universal banks within the commercial banking set up. To do so, we first review in Part II previous studies on this subject particularly in respect of methodological framework. Part III will review the econometric studies which have so far been reported on scale and scope economies in financial institutions. In Part IV, however, we will develop and calibrate a suitable econometric model which can be used to assess the performance of commercial banks, both in absolute and relative senses in term financing business.

#### Part II : REVIEW OF UNIVERSAL BANKING LITERATURE

A number of studies have been reported on universal banking in different countries. A substantial volume of the literature have, however, been devoted to a hypothesis concerning the *raison-de-etre* of universal banking. The debate has presumably originated from the investigation why, disobeying the lead of Great Britain for the adoption of orthodox type of banking, different countries adopted universal

banking in their development processes.

The pioneer study on the above issue was made by Alexander Gerschenkron who hypothesised that the countries like Germany, Italy etc. where industrialization were initiated much later than the period of industrial revolution in Great Britain, adopted universal banking.<sup>1</sup> He reasoned that the need for an arrangement of voluminous investment of fund to support large scale industries at the initial stage of development itself compete with the already industrialized countries like England compelled them to introduce such institutions. Gerschenkron tested this hypothesis for the banking systems of Germany, Russia, England, Austria, Belgium, Spain and Italy.

Cameron Rondo sought to re-examine the Gerschenkron hypothesis in his edited work on 'Banking in the Early stage of Industrialization'. In that edited work Olga Crisp studies the nature of banking in Russia,<sup>2</sup> Hugh T. Patrick on that in Japan<sup>3</sup> and Richard Tilly on that in Germany.<sup>4</sup> The hypothesis was however, again taken up by Cameron Rondo in his another edited work 'Bank and Economic Development'. This volume was contributed by Richard Sylla on United States of America,<sup>5</sup> Cohen on Italy,<sup>6</sup> Kozo Yamamura on Japan<sup>7</sup> and George D. Green on Louisiana.<sup>8</sup> Rondo's work apart, two more studies exclusively analysed the Gerschenkron hypothesis. Those were Banking and Industrialization in Austria-Hungary by

Richard L. Rudolf<sup>9</sup> and Banking and Finance in West Germany by Francke Herman and Michael Hudson<sup>10</sup> and the Economic development of France and Germany by John M. Clapham.<sup>11</sup> These authors did not, however, see eye to eye in regard to the strength of the Gerschenkron hypothesis to explain the emergence of universal banking in the international scenario.

Apart from proving into the causes for the emergence of universal banks, a number of studies have devoted also to the growth of the universal banking system and its associated advantages and disadvantages in different countries. We may refer in this context the study on Money and Banking in Japan<sup>12</sup>, Financial Institutions of Japan by Reserve Bank of India,<sup>13</sup> and The Modern Japanese Banking System by Hubert F.Schiffer,<sup>14</sup> where the development of universal banking in Japan, the need for such a banking system after the Meije restoration and the contribution of the Zaibatsu group of financial intermediaries to its development had been discussed. The growth aspects of universal banking had been discussed for Germany in an unpublished work of International Monetary fund (IMF) on "Functional and structural aspects of the German universal banking System by Klaus - Walter Riechel."<sup>15</sup> According to this work German universal banks would keep a close surveillance on the business and continue its proximate association even after profile start accruing and the Company stand steadily on its feet. Similar type of work was done by P.B.Whole focusses light on the evolution, growth and viability of German universal banking.<sup>16</sup>

The study on the growth of universal bank in United States of America is no less voluminous. A pioneer work in this field has been done by Milton Friedman and Schwartz, A.J.<sup>17</sup> who had investigated the extent of universal banking by the American commercial banks during the period 1867-1960. They had, however, found that Federal Reserve Act (1913) favoured the universal banking by the commercial banks through lowering required reserves for time deposits than for demand deposits. Similar study was jointly made by C.A.Fillips, T.F.Acmanus and R.W.Nelson<sup>18</sup> who investigated that the proportion of banks assets which represented commercial credit showed decreasing trend in comparison to their investment in capital loans. Harold G.Moulton's work<sup>19</sup> also shows that prior to the organisation of Federal Reserve System commercial banks in U.S.A. followed the principles of universal banking. They used to provide real estate loan although the same was prohibited by the banking regulation. This study reveals that commercial banks share in long term investment were higher than those of the commercial loan. Since 1920 there was a boom in capital market of U.S.A. Many firms started to approach capital market for the first time. As a result banks were losing their traditional lending business to the capital market. To regaining their losing ground of business the commercial banks entered into the capital market which is the subject-matter of study made by White Engene in "Banking innovation in the 1920's ; The Growth of National Banks' Financial Services".<sup>20</sup> But all classes of

banks had no direct entrance to the capital market. While the State Bank could engage directly in security business, National banks had to overcome more legal hurdles to diversify their product offerings. To overcome the legal barriers to invest in company securities the National Banks incorporated security affiliates under State Corporate Charter. These aspects of universal banks in USA were studied by Peach W. Nelson in the security affiliates of national banks.<sup>21</sup>

The need for the universal banking system for rapid industrialization was also discussed at length by L. Malhapt in "In Defence of Universal Banks",<sup>22</sup> by United Nations Industrial Development Organisation (UNIDO) on Development Finance Institutions and Multipurpose Banking<sup>23</sup> and by F. Wilhelms Christians on "Why Universal Banks Works."<sup>24</sup>

There is a scanty of literature on Universal Banking in India. In some government reports like that of Shroff Committee<sup>25</sup> (1954) and Indian Industrial Commission (1916-18)<sup>26</sup> we find discussions on the necessity of universal banking in India to foster her industrial development. A similar study was also made by Reserve Bank of India just before the advent of universal banking culture in India during the post Independence era. The pioneer academic study in this field was "Commercial Banks and Industrial Finance, Term lending and underwriting" by M.Y. Khan and Preeti Singh.<sup>27</sup> In their work they have

investigated the fast role played by the commercial banks in India in industrial financing via term loans and underwriting of capital issues by corporate enterprises. Suresh Bedi's work on "Universal Banking System : A Case for adoption in developing countries"<sup>28</sup> highlights the universalization of commercial banks's function since the mid-fifties. The other studies made in Indian context are "Banking in India in the Eighties" by Raj Kumar Nigam<sup>29</sup> "The Changing Profile of Indian Banking" by J.N.Saxana,<sup>30</sup> "Role of Commercial Banking in a Developing Economy with Special Reference to India" by V.N.Kukku, "Nationalised Banking and Economic Development" by G.D.Khan<sup>32</sup> and Corporate Investments, Savings and Borrowings" by L.C.Gupta,<sup>32A</sup>

A noteworthy study was conducted by Industrial Licensing Policy Enquiry (Dutt) Committee<sup>33</sup> in the field of institutional financing. The study revealed that, out of total assistance sanctioned to the private sector, the S.F.C.'s and SIDCs together provide only 12.2 per cent while three-fourth of the total assistance provided by public financial institution is channelised through institutions which do not deal with small and medium concerns.

Joshi (1965)<sup>34</sup> examined the role of the financial intermediaries in providing finance to large scale industries in the private sectors. After analysing the contribution of each important intermediaries

towards industrial development in India, he estimated these intermediaries have participated 17 per cent of investments in various industries against 39 per cent in share capital of public limited companies.

Gupta (1969)<sup>35</sup> from the extensive study viewed that, the growth of institutional finance emerged in India due to structural change for industrial financing system with wide change of socio-political situations in India. He attempted to measure overall impact of financial institutions on capital formation in the organised private sector as also on the allocative efficiency of financial system. He observed during first plan financial assistance rendered by special institutions represented only 4.1 per cent of gross fixed investment in private industry which rose to 7.9 per cent in second plan further to 18.1 per cent in the third plan period. He also found that commercial banks remained the most important single agency for financing the private corporate industry and Life Insurance Corporation (LIC) was the single largest purchaser of industrial securities and underwriter of new issues of large and established companies. While investment in industrial securities by Unit Trust of India (UTI) still remain in very narrow range.

Khan (1996)<sup>36</sup> analysed the significant development in commercial banks since the mid-fifties related to the widening of

range of banking operations. According to him term lending and underwriting of securities, as forms financing, represented a radical departure from the traditional lending practice of supplying short-term credit for meeting the working capital requirement. In addition to that Professor Khan found the commercial bank's widened range of financial assistance to industry, partly through the purchase of shares and debentures and partly through the lending against such securities.

Bandyopadhyay, Tarun and Indrajit Ray (1995)<sup>37</sup> analysed the causes behind the formation of development finance institutions in India before independence. Their investigation shows that nationalist spirit among the people acts behind the genesis of development finance institutions in pre-independence India.

<sup>38</sup>  
Lokanathan (1969) in his lecture delivered under the auspices of A.D.Shroff Memorial Trust observed that, the problems and conditions in respect of industrial finance in India remained more or less the same right upto the end of Second World War and ushered an era in the independent India. Thus 1947 may be taken as a sort of benchmark in dealing with industrial finance. This point was investigated by A.K.Banerjee (1963)<sup>39</sup>, M.Kidron (1965)<sup>40</sup>, Aziz (1993)<sup>41</sup>, Highlighted his actual experience of decentralised planning in the state of Karnataka and suggested the institutional structure which are necessary to achieve the ends of decentralised governance.



Basu (1961)<sup>42</sup> made a comparative analysis of structure, organisation and activities of specialised institutions for industrial finance in Germany, Britain and Japan and suggested for the establishment of suitable machinery to solve hindrances to term-financing in Indian industries.

This review demonstrates only the descriptive assessment of the universal banking within the commercial banking set up without taking resort to the recent advancement in statistical tools and techniques in appraisal.

Part III : Review of Econometric Studies Reported on Scale and Scope Economics in Universal Banks.

A recent study<sup>43</sup> has examined the concomitant viability of commercial and development banking activities within India's commercial banking set-up to assess the prospect of universal banking in India. It has followed the following sequence of logic : started with a probe

into the extent of scale economies in the prevailing Indian banking technology to know about the cost implications of a larger volume of activities, it has proceeded to examine the scope of accommodating development banking within the existing output-mix. The concept of cost sub-additivity has been adapted to this end. The study has found evidences from time-series data that they exist substantial scale economies among Indian nationalised commercial banks, and that they are featured with technological sub-additivity. The present study, however, seeks to examine the same hypotheses on the basis of cross section field survey data. The branch-wise sample data enable us to investigate into the existence of scale economies at the plant-level in contrast to the firm-level scale economies studied previously. Moreover, the plant-level scope economies for universal banking can also be examined thereby. Note that the plant-level scale economies have been sought to be measured by incorporating a 'branching' variable in the cross-section model at the firm level.<sup>44</sup> An exclusive plant-level model can, however, yield more powerful conclusions than what a single variable in the firm-level model can.

Part IV : DEVELOPMENT OF ECONOMETRIC MODEL TO ASSESS  
THE PERFORMANCE OF UNIVERSAL BANKING

Thanks to the duality between production and cost functions, the cost behaviour of a firm is often examined for the appraisal of its production efficiency.<sup>45</sup> Following the

study under reference, we measure the commercial banking activities ( $x_1$ ) of an organisation by the aggregate of various types of deposit and short-term loans, and its development banking activities ( $x_2$ ) by term-loans sanctioned to the industrial sector. This study does not incorporate investment in shares and debentures in  $x_2$  since such practices are absent among the sample banks. We model both these variables as arguments though the latter is contested in the literature<sup>46</sup> and used as a dependent variable also in some studies. Both these variables are, however, measured in rupee terms, and total cost (Tc), having incorporated interest expenses as one of its components at disagreement with the referred study, the exercise follows an intermediation approach to the analysis of bank behaviour.<sup>47</sup> The wage rate ( $w$ ) is measured as usual by the average salary and wages per employee.

In line with the recent trend of the literature, we postulate the following conventional translog relationship for the banks' cost behaviour :

$$\begin{aligned} \ln Tc = & \alpha_0 + \alpha_1 \ln x_1 + \alpha_2 \ln x_2 + \alpha_3 \ln w + \alpha_{11} (\ln x_1)^2 + \alpha_{22} (\ln x_2)^2 \\ & + \alpha_{33} (\ln w)^2 + \alpha_{12} \ln x_1 \ln x_2 + \alpha_{13} \ln x_1 \ln w + \alpha_{23} \ln x_2 \ln w \\ & \dots (1) \end{aligned}$$

Since, as we will shortly discuss, the conventional translog function is not suitable to measure the scope economies, a hybrid translog cost relationship is also adopted here as an alternative. A typical hybrid translog<sup>48</sup> cost function is of

the following form.<sup>49</sup>

$$\begin{aligned} \ln Tc = & \bar{\alpha}_0 + \bar{\alpha}_1 x_1 + \bar{\alpha}_2 x_2 + \bar{\alpha}_3 \ln w + \bar{\alpha}_{11} (x_1)^2 \\ & + \bar{\alpha}_{22} (x_2)^2 + \bar{\alpha}_{33} (\ln w)^2 + \bar{\alpha}_{12} x_1 x_2 \\ & + \bar{\alpha}_{13} x_1 \ln w + \bar{\alpha}_{23} x_2 \ln w \dots \dots \quad (2) \end{aligned}$$

In certain cases, however, the estimation of conventional and hybrid translog function with the wage rate as one of the arguments leads to insignificant values of F statistics. We attempt, therefore, to estimate the following alternative relationships where wage rate (W) is excluded :

$$\begin{aligned} \ln Tc = & \bar{\bar{\alpha}}_0 + \bar{\bar{\alpha}}_1 \ln x_1 + \bar{\bar{\alpha}}_2 \ln x_2 + \bar{\bar{\alpha}}_{11} (\ln x_1)^2 + \bar{\bar{\alpha}}_{22} (\ln x_2)^2 \\ & + \bar{\bar{\alpha}}_{12} \ln x_1 \ln x_2 \dots \dots \quad (3) \end{aligned}$$

$$\begin{aligned} \ln Tc = & \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \alpha_{11} (x_1)^2 + \alpha_{22} (x_2)^2 \\ & + \alpha_{12} x_1 x_2 \dots \dots \quad (4) \end{aligned}$$

As adumbrated above, the banking technology among the samples is appraised here from the viewpoints of scale and scope economies. The former would entail whether the sample branches contain in themselves adequate excess capacity for the accommodation of any additional activities, and the latter would mop up the technological jointness between commercial and development banking activities. The following constitutes our measure of scale economies (SL) :

$$SL = \frac{\sum_i x_i MC_i}{C} = \sum_i \eta_c x_i \quad \dots (5)$$

which for models 1, 2, 3 and 4 becomes

$$\sum_i \eta_c x_i = \sum_i (\alpha_{i1} + 2 \alpha_{i1} \ln x_i + \alpha_{ij} \ln x_j + \alpha_{i3} \ln w) \quad \dots (6)$$

$$\sum_i \eta_c x_i = \sum_i x_i (\bar{\alpha}_i + 2 \bar{\alpha}_{i1} x_i + \bar{\alpha}_{ij} x_j + \bar{\alpha}_{i3} \ln w) \quad \dots (7)$$

$$\sum_i \eta_c x_i = \sum_i (\bar{\bar{\alpha}}_i + 2 \bar{\bar{\alpha}}_{i1} \ln x_i + \bar{\bar{\alpha}}_{ij} \ln x_j) \quad \dots (8)$$

$$\sum_i \eta_c x_i = \sum_i x_i (\underline{\alpha}_i + 2 \underline{\alpha}_{i1} x_i + \underline{\alpha}_{ij} x_j) \quad \dots (9)$$

respectively. These measures are estimated at the (geometric) mean sample as also at plant levels. If scale economies are found to prevail among sample branches, we proceed to examine the relative strength of development and commercial banking activities in the overall scale economies by dint of the measure, product specific scale economics ( $\eta_c x_i$ ).

The scope economies (SC) are said to prevail when the cost function behaves sub-additively, that is, when total costs resulting from joint production of commercial and development banking are less than the sum-total of costs, resulting from their separate productions :

$$C(x_1) + C(x_2) > C(x_1, x_2)$$

A supper-additive cost function :

$$C(x_1) + C(x_2) < C(x_1, x_2)$$

indicates, on the other hand, the prevalence of scope diseconomies. Panzar and Willig, however, measure the same per unit of total cost :

$$Sc = \frac{C(x_1) + C(x_2) - C(x_1 \ x_2)}{C(x_1 \ x_2)} \quad . . . . \quad (10)$$

Scope economies or diseconomies are said to prevail accordingly as

$$Sc \gtrless 0$$

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