AN ANALYSIS OF THE PERFORMANCE OF INDIAN BANKS IN THE EMERGING COMPETITIVE ENVIRONMENT AND SUGGESTED STRATEGIES FOR REGULATION

Thesis submitted

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By

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Under the Supervision of

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Birla Institute of Technology and Science Pilani (Rajasthan)

CERTIFICATE

This is to certify that the thesis entitled "An Analysis of the Performance of Indian Banks in the Emerging Competitive Environment and Suggested Strategies for Regulation" and submitted by Meera Sharma, ID No. 1999PHXF016 for the award of Ph.D. Degree of the Institute embodies original work done by her under my supervision.

Date : 13.8.2001

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CONTENTS

CHAPTER 1

INTRODUCTION

Background

Banks are an integral part of the Indian Financial System. They are important mobilizers of savings and distributors of credit. Some 25 years ago, bankers operated in an environment of beneficially regulated markets and restricted competition. The three forces of *liberalization, technology and growing customer sophistication* coupled with increased volatility in markets and interest rates has made banking a less predictable and riskier field.

This change in environment brought in by these three forces has produced intense and growing competition, declining margins on conventional banking businesses, increased cost pressures and greater risk. As a result the pace of mergers and failures, where regulators permit, has increased. The decline in margins in traditional businesses has prompted banks to diversify into new markets. Increased cost pressure has forced banks to launch campaigns to drive down costs through branch closures, ATM networks and staff lay-off.

A number of dramatic changes have changed the environment in which banks function during the nineties. Liberalization and reform of the banking sector have been foremost among these. The Narasimhan committee recommendations were the starting points for liberalization and reform of the Indian banking industry in 1992-93. Liberalization has changed a highly regulated

environment into one that allows the play of market forces. One of the direct consequences of this change has been an intensification of competitive forces. Banks are free to fix the interest rates they charge on their loans and offer on their deposits. Moreover, new banks have been allowed entry into the industry. These and other changes have ushered in a competitive environment in banking. Along with liberalization and intense competition, advances in information technology are set to irreversibly change the working of banks. Technology is no longer a force that can be ignored either by banks or their regulators.

Other trends in banking such as mergers, diversification and product innovations owe their origins largely to the trends in liberalization, competition and technology.

In summary, the environment in which banks operate has changed irreversibly during the nineties. The objectives of this study are derived from these developments.

Objectives

The objectives of this study are three-fold, as listed below:

1. To study the changes in the Indian banking environment during the nineties.
2. To analyze the performance of Indian banks in this emerging environment.
3. To suggest strategies for regulation in the new environment.

The hypotheses tested in this study follow from these objectives.

Hypotheses

The hypotheses examined by this study are as follows:

1. Indian banking industry is comparatively more regulated than others.

2. Banks are more efficient now than they were prior to liberalization.

3. Banks are following and are likely to follow the paths of adoption of new technology, mergers and diversification in response to the emerging environment.

4. The regulatory framework has lagged behind and has been inadequate to handle the changes in environment.

5. Existing regulations will need to be revised and new ones formulated in the changing environment.

Methodology

The Scope of this study covers scheduled commercial banks excluding the regional rural banks.

The tools used for analysis included econometric tools for frontier construction, tools for index construction, trend and ratio analysis (both for quantitative and qualitative aspects) and an extensive literature survey. The sources of empirical data included RBI and World Bank publications. Data was also collected from publications of Reserve Bank of Australia, the

Federal Reserve of the US and IMF publications. Journals, both Indian and foreign, were also consulted and so were business magazines.

The study has been divided into the following chapters:

(a) Worldwide Liberalization Trends in Banking

The first segment surveys the trends of liberalization, both worldwide and in India. It also attempts to benchmark the degree of regulation of banks in India after almost a decade of liberalization vis-a-vis other countries of the world.

(b) Indian Financial Market

The second segment looks at how the environment external to banks is changing. The changing preferences of customers for bank and non-bank products and the trend in the relative positions of banks versus other intermediaries are analyzed.

(c) Market Structure of Banking Industry in India

Having analyzed trends in the environment external to banks, this segment analyzes trends in the internal competitive dynamics of the industry. These include the changes in market shares of bank groups, and an activity analysis.

(d) Profitability analysis of Indian Banks.

The fifth segment analyzes profitability trends of Indian banks.

(e) Analysis of the Non-Performing Assets of Banks

This section analyzes the trend of bank NPAs, their fundamental causes and sequencing of reforms aimed at their resolution.

(f) Analysis of Trends in Efficiency of Indian banks

The performance of Indian Banks in efficiency improvement over the decade of the 90s is analyzed next.

(g) Product Innovation and Diversification in Indian Banking Business

Banks in India and elsewhere have used product innovation to boost reserves and hedge risks. The trend of product innovation in India is analyzed in this section. Banks have also diversified into non-traditional activities owing to the changing competitive environment. Their performance and the trends in this direction are also analyzed.

(h) Information Technology in Banking

Information technology is having a dramatic impact on the business of banks and their competitive environment. The eighth section analyzes the trends of information technology and the potential risks to banks on account of these trends.

(i) Scale Economies and Bank Mergers

This section surveys the trend of mergers in banking worldwide. It also examines the possible motives for such a trend in Indian banking including presence of scale economies.

(j) Regulatory and Institutional Framework

The tenth section focuses on the current regulatory and institutional framework, assessing its adequacy in light of the preceding discussion and international trends.

(k) Findings and Suggested Strategies for Banking Regulation

As evident from the title this section concludes the study by presenting the findings and suggesting a strategy for regulation.

(l) Annexures

This thesis also contains numerous annexures such as a list of references and bibliograhy; lists of tables, graphs, appendices and boxes; and, a list of abbreviations used.

CHAPTER 2

WORLDWIDE LIBERALIZATION TRENDS IN BANKING

The objective of this chapter is to analyze the trend of liberalization in banking internationally. Against the backdrop of liberalization an attempt is made to benchmark the regulations on the Indian banking industry with those worldwide. The chapter also studies the impact of liberalization on banking systems and the new risks generated by liberalization.

Deregulation

Internationally, one of the major trends in the banking sector in the past two decades has been that of deregulation. Deregulation, in most cases, has covered the dismantling of interest rate controls; the removal of barriers between banks and other financial intermediaries; and lowering of entry barriers both for domestic and foreign banks.

Most major countries removed interest rate controls in the past two decades. The United Kingdom was the earliest in this regard. Credit control was abolished in the UK during the seventies. The United States commenced the process of elimination of interest rate ceilings on deposits in 1980 and concluded the process by the early eighties. Interest rate controls in France and Switzerland were removed during the later part of 1980s. In Japan too, domestic deposit rate deregulation started in 1985 (Danton, 1992).

In the eighties barriers between banks and securities markets were progressively lowered in the United States giving limited freedom to banks to conduct trading and underwriting of domestic

securities. The trend towards a full range of services including insurance, securities and banking being offered by single firms has been aided by liberalization. In the US the Glass-Steagall act of 1933, which prohibited affiliations between securities firms and banks was finally scrapped in 1999. There will be few restrictions now on banks and insurers merging and banks will be allowed to take up equity stakes in companies. This development is a pointer to a trend in almost all other international markets (The Economist, October 30, 1999).

In Japan legislation was enacted in the early nineties allowing banks and security firms to form subsidiaries for conducting each other's business. Banks in Germany, Switzerland, France and the United Kingdom always had greater freedom to conduct investment activities, the model of banking followed in these countries being one of 'Universal Banking'.

Interstate banking and intrastate branching were both restricted in the United States. The major cost of such legislation was the restricted ability of banks to diversify their loan portfolio geographically. The large number of bank failures in Texas in the 1980s occurred on this account (Clair and Driscoll, 1993). These failures were reported at a time when the US banking industry as a whole was reporting profits. Starting late 1970s and continuing through the eighties a number of states in the US allowed inter-state banking.

In the European countries, on the other hand, such geographical restrictions are unknown. The unification of European economies is further bringing down even the inter-country barriers that existed.

Almost all OECD countries in the eighties removed restrictions on the ability of foreign banks to establish subsidiaries. In the United States the International Banking Act of 1978 accorded equal status for foreign and domestic banks.

The trend of liberalization has been seen in other countries as well. Box 2.1 summarizes the deregulation steps in banking and loan and deposit markets in western pacific economies.

Box 2.1

Summary of Deregulation in Banking in Western Pacific Economies

Australia
1980 Interest rate ceilings on all bank deposits removed
1985 Entry of foreign banks allowed
1986 Interest rate ceilings on all new loans removed

Hong Kong
1995 Interest rates on deposits for duration of > 24 hours liberalized

Indonesia
1983 Removal of interest rate ceilings on loans by state banks
1988 Entry norms for domestic and foreign banks eased

Korea
1981 Lowering of entry barriers for domestic and foreign banks
1988 Interest rates on loans liberalized
1994 Rates on deposits of > 1 year duration liberalized

Box 2.1 (contd.)

Philippines
1981 Interest rate ceilings removed on deposits and loans
1989 New banks allowed
1991 Bank branching liberalized
1994 Foreign bank entry liberalized

Singapore
1995 Cartel that was controlling deposit and loan interest rates abolished

Taiwan
1989 Ceiling band on rates abolished and establishment of private banks freed

Thailand
1990 Interest rate ceilings removed

Source: Brouwer (1995).

Deregulation and Reform in Indian Banking Sector

In India too liberalization and reform of the banking industry began in 1992-93 and was largely driven by the recommendations of the first Narasimhan Committee report. The committee gave a set of recommendations to develop a healthy, competitive, market oriented, efficient and professionally managed banking industry in its first report. The major recommendations were a reduction in SLR to its statutory minimum of 25 percent; progressive reduction in CRR; government borrowing rates to be market related; gradual phasing out of directed lending; deregulation of interest rates; fixation of capital adequacy norms; allowing banks with a consistent record of profitability to tap capital markets; bringing transparency in banking

accounts to international standards; setting up of special debt recovery tribunals; and, reorganization of the banking industry.

The recommendations of the two Narasimhan committees are listed in greater detail in Appendix 2.1.

Based on the recommendations of the committees a number of deregulation and reform measures were undertaken. This included a phased reduction in CRR from 15 percent in 1993-94 to 7.5 percent in 2001. SLR was progressively lowered from 38.5 percent in 1992-93 to 25 percent in 1997-98, applicable on entire net liabilities and not on an incremental basis.

Lending rates for borrowings of more than Rs. 2 lakhs were freed in 1994-95. In 1997-98 similar freedom was given for term loans of 3 years and above. Interest rates on all credit limits were freed in 1998-99. Beginning with completely controlled rates in 1992-93, banks were gradually allowed more freedom in setting deposit rates. In 1997-98 they were allowed to fix deposit rates for maturities of 30 days and above. They were allowed to determine penal interest rates on premature withdrawals and to offer varying rates for deposits of Rs.15 lakhs and above in 1998-99.

In 1995-96 private sector mutual funds and in 1997-98 other entities were allowed to lend in the call money market. In 1999-2000 a liquidity adjustment facility was introduced. Bank wise limits on certificates of deposits were withdrawn in 1993-94 and minimum period for their transferability reduced to 15 days in 1998-99 from 30earlier. The minimum size of CDs was

reduced from 25 to 5 lakhs in 1997-98 and banks were allowed to freely invest in these. The restriction on minimum period for transferability was eliminated in 1999-2000.

In the government securities market a number of reforms were carried out such as introduction of market related interest rates in 1992-93; setting up of Securities Trading Corporation of India in 1993-94; reduction of maximum maturity in 1993-94; implementation of delivery versus payment and appointment of primary dealers in 1994-95; constitution of a Technical Advisory committee in 1996-97; permission to FIIs to invest in government securities in 1998-99; and, amendment of SCRA to invest RBI with regulatory powers in 1999-2000.

In the area of reform, RBI introduced a risk-based capital standard of 8 percent in 1992-93, which was upgraded to 9 in 1998-99.

A loan system for delivery of credit was introduced which was progressively increased from 0 percent in 1992-93 to 80 percent in 1997-98. In 1997-98 all directions relating to MPBF were also withdrawn. Banks were allowed to give term loans in 1992-93 and finance infrastructure projects in 1999-2000.

Subsequent to passage of Recovery of Debts due to Banks and Financial Institutions Act, 1993, debt recovery tribunals were set up in 1994-95, 1995-96 and 1999-2000. In 1999-2000 RBI issued guidelines for settlement advisory committees.

Bank dealing in shares was liberalized by allowing them access to secondary market in 1996-97; allowing advances against share to corporates in 1997-98; and allowing their total exposure to capital market to not exceed 5 percent of their total outstanding advances as on March 31 of previous year.

Banks were given functional autonomy relating to sanctioning of business in 1996-97 and fixation of service charges in 1998-99.

RBI set up a board of financial supervision in 1993-94 and adopted the CAMELS model to evaluate banks in 1998-99. In 1999-2000 banks were asked to annex the statements of their subsidiaries to their own.

New private sector banks were allowed entry in 1992-93. Bank branch licensing was liberalized by permitting banks to shift, open and conditionally close down branches in 1992-93 and 1993-94.

In case of priority sector lending,foreign banks were advised to increase their targets from 15 to 32 percent in 1993-94. The definition of priority sector was widened considerably in 1998-99 to include venture capital; credit to NBFCs for small transporters; loans upto Rs. 1 Crore to software industry and food and agro based processing industry.

Stand alone ATMs were allowed in 1996-97. Risk management guidelines were issued to banks in 1998-99 and banks were allowed conditional entry into insurance in 1999-2000.

A comparison of reforms with the recommendations shows that though considerable progress has been made in areas such as deregulation of CRR, SLR, interest rates and reform of capital and prudential accounting standards, a number of basic reform measures are pending. The phasing out of directed credit; one time cleansing of bank balance sheet through an asset reconstruction fund; abolition of dual control of RBI and the ministry of finance over banks; and coordination between RBI and SEBI have yet to be implemented. However, it cannot be denied that far reaching measures of liberalization have changed drastically the environment in which banks operate.

A study carried out by Williamson and Mahar (1999) tracked and analyzed this trend of liberalization of the financial sector over the past two decades world wide. The authors identified six dimensions of financial liberalization:

- Abolishing credit control
- Deregulating interest rates
- Allowing free entry
- Making banks autonomous (making official interference rules based and not based on discretion)
- Privatization of banks
- Freeing international capital flows

The survey looked at 34 economies and tracked the trend of liberalization on a four point scale.

- Repressed Financial Sector

- Partly Repressed Financial Sector
- Largely Liberal Financial Sector
- Liberal Financial Sector

They found that in 1973, 24 economies fell in the 'repressed' category while in 1996 this number was zero. Simultaneously, the number of financial sectors in the 'largely liberal category' increased from 2 to 18 and in 'liberal' from 4 to 10, over the same period.

The above mentioned study covered only 34 economies and tracked liberalization over a time period. In the next section presented below, an attempt is made to use a larger database of countries and benchmark Indian regulations against those worldwide at a point in time.

Benchmarking of Indian Regulations

After nearly a decade of liberalization and reform in the Indian banking industry, it would be informative to know exactly how liberal or regulated are we. This section attempts to answer this question.

i) Data Source

The data has been abstracted from a recently released (April 2001) World Bank database of regulations on the banks of 107 countries across the world for the year 1999.

ii) Methodology

An index covering seven dimensions of regulations has been constructed for the purpose of benchmarking. These dimensions have been extracted from the World Bank database. The dimensions are used to calculate a raw score, which is then converted to an index. The dimensions are described below followed by a description of the index construction.

Dimension 1: Entry of new banks

The extent of regulation on entry of new banks is the first dimension of regulation considered. It is quantified using the requirements for capital to be satisfied before gaining a license and the submissions to be made at the time of application. These sub dimensions are listed hereunder.

1.1 Are the following submissions required at the time of applying for a license?

- Draft by-laws
- Intended organization chart
- First 3-year financial projections
- Financial information on shareholders
- Background/experience of future directors
- Background/experience of future managers
- Source of funds for capitalization
- Intended market differentiation of new bank

1.2 Is the information on source of funds for capital required at the time of licensing?

1.3 Are sources of funds to be used as capital verified by licensing authority before granting license?

1.4 Can borrowed funds be used as capital?

The raw score of a country on the sub dimension 1.1 is calculated by assigning a score of one each to every document required for submission. Further, a score of one was assigned to each "yes" reported by the country on questions 1.2, 1.3 and a "no" on question 1.4.

Dimension 2: Powers of regulators to discipline banks

2.1 The second dimension encompassing the relative extent of regulatory powers to discipline are measured on the five-point scale given below. The scale asks if regulators can do the following in respect of a bank:

- Supercede shareholders rights
- Remove and replace management
- Remove and replace directors
- Forbear certain prudential regulations
- Insure liabilities beyond any explicit deposit insurance scheme

The raw score of a country on this dimension is calculated by assigning a score of one to each reply of "yes" to the above five sub dimensions.

Dimension 3: Mandatory disclosure

The relevant sub dimensions on which the extent of regulation of mandatory disclosure has been measured are:

3.1 Can the bank income statement contain accrued but unpaid interest/principle while loan is non-performing?

3.2 Are consolidated accounts covering banks and its non-bank financial subsidiaries required?

3.3 Are off-balance sheet items disclosed to supervisors?

The raw score for a country on this dimension is calculated by assigning a value of one to a reply of "no" to 3.1 and "yes" to 3.2 and 3.3.

Dimension 4. Compulsory Audit

The sub dimensions covering mandatory audit are given below:

4.1 Is external audit compulsory?

4.2 Do specific requirements for extent of audit exist?

4.3 Is certification or licensing of auditors required?

4.4 Is auditors' report submitted to supervisor?

4.5 Can supervisors meet external auditors to discuss report without the bank's approval?

4.6 Can legal action be taken against external auditor by supervisor for negligence?

An answer of "yes" to each of the above sub dimensions has been given a score of one for calculating the raw score on this dimension.

Dimension 5: Capital requirements

According to the database, all countries surveyed had a minimum capital ratio requirement for their banks. Moreover, hundred countries out of 107 had a ratio requirement of 8percent or

above. Thus, this dimension was not considered for comparison. The sub dimensions considered are as follows:

5.1 Is the ratio risk weighted in line with Basle guidelines?

5.2 Does the ratio vary with a bank's credit risk?

5.3 Does the ratio vary with market risk?

5.4 Before minimum capital adequacy is determined, which items are deducted from capital:

i. Market value of loan losses

ii. Unrealized securities losses

iii Unrealized foreign exchange losses

One mark for each "yes" replied to each of 5.1 to 5.3 and i to iii of 5.4 is assigned to calculate a raw score for a country on this dimension.

Dimension 6: Exit provisions for ailing banks

The extent to which regulators can take action in the case of an ailing bank is measured on the three dimensions given below:

6.1 Can supervisory agency supercede bank shareholder rights and declare bank insolvent?

6.2 Does banking law allow supervisory agency to suspend some or all ownership rights of a problem bank?

6.3 Does law establish a pre-determined level of solvency deterioration, which forces automatic actions such as intervention?

One mark is assigned for a "yes" reply to each of the above sub dimensions to calculate the raw score.

Dimension 7: Range of allowable activities for banks

The sub dimensions considered under this dimension are as follows:

7.1 The allowable activities considered are given below:

- Securities - Ability of banks to engage in businesses of securities underwriting, brokering, dealing and all aspects of mutual fund business
- Insurance - Insurance underwriting and selling
- Real estate - Investment, development and management of real estate

The level of regulatory restrictive-ness is measured on a four-point scale as given below:

- Unrestricted - Full range of activities can be carried out in bank itself
- Permitted - Full range of activities allowed but all or some in subsidiaries
- Restricted - Less than full range in bank or subsidiary allowed
- Prohibited - Activity allowed in neither bank nor subsidiary

The raw score is worked out by assigning one mark if an activity is unrestricted, two if permitted, three if restricted and four if prohibited. The marks awarded for each activity are summed to get an overall score.

iii) Index Construction

Morley et al (1999) construct an index to measure the progress of reforms in a given country with reference to a group of countries and apply the index on a group of Latin American countries. A similar index is constructed for this study as described below.

To compare the extent of regulation within a group of countries, an index is constructed from the raw scores. The index, called "Reg", is calculated as:

Reg^i_j	=	(Country i's raw score on dimension j - Minimum raw score of the group on dimension j)/ (Maximum raw score of the group on dimension j - Minimum raw score of the group on dimension j)

Two groups of countries are used for comparison as described hereunder.

Group I consists of Developed Countries where deregulation commenced much early. The countries are Canada, Denmark, Germany, France, Japan, Sweden, United Kingdom and United States of America.

Group II consists of Western Pacific economies, which are developing nations and/or lie in geographic proximity to India. The countries are Australia, China, Indonesia, Korea, Malaysia, New Zealand, Philippines, Singapore, Taiwan, and Thailand.

The indices have been calculated for each of the two reference groups. A composite index for a country is calculated by averaging the index values across all dimensions, i.e.,

$$Reg^i = (1/n)\Sigma_j Reg^i_j$$

Where,

i denotes the country,

j denotes the dimension, and

n denotes the number of dimensions for which values are available for a country i.

The benefit of using such an index is that it allows the scores on different dimensions to be uniformly collaborated on a scale of zero to one. As is evident from the index construction, a country with the minimum raw score on a particular dimension will have a Reg^i_j value of zero and the country with the highest raw score will have a Reg^i_j value of one. Zero implies least regulated and one implies most regulated. It also takes into account the distance between a particular country's score and the minimum score in relation to the maximum distance in the group. It thus, changes an absolute raw score into a relative index.

iv) Results

The countrywise raw scores of groups I and II on each dimension are reported in Tables 2.1 and 2.2 along with the average raw score for the entire population of 107 countries. Tables 2.3 and 2.4 present the "Reg" values for each group.

Table 2.1

Raw Scores of Group I, India and Population Average

	Entry Barriers	Discipline	Disclosure	Audit	Capital	Exit	Activities
Canada	**11**	2	3	4	**1**	1	5
Denmark	10	**1**	**3**	**6**	**6**	**3**	6
France	8	2	**2**	6	5	**0**	5
Germany	**5**	3	2	6	4	2	**4**
Japan	9	**5**	3	**3**	3	3	**11**
Sweden	10	3	2	4	1	0	7
UK	10	5	3	4	6	1	5
US	9	3	3	6	4	3	10
India	9	3	2	4	4	0	10
Population Average	9.58	3.57	2.63	4.78	3.13	2.03	8.51

Source: http://www.worldbank.org/research/interest/prr_stuff/bank_regulation_database.htm

Table 2.2

Raw Scores of Group II, India and Population Average

	Entry Barriers	Discipline	Disclosure	Audit	Capital	Exit	Activities
Australia	**10**	4	**3**	5	**6**	**1**	7
China	9	4	**2**	NR	NR	NR	**12**
Indonesia	10	**3**	3	5	**1**	**3**	11
Korea	9	**5**	NR	4	4	3	7
Malaysia	9	NR	3	**6**	1	3	8
New Zealand	**6**	NR	2	4	3	1	**4**
Philippines	8	4	3	3	3	3	6
Taiwan	10	4	2	**1**	2	NR	10
Thailand	10	5	2	4	2	2	7
Singapore	NR	NR	3	6	4	NR	7
India	9	3	2	4	4	**0**	10
Population Average	9.58	3.57	2.63	4.78	3.13	2.03	8.51

NR: Not Reported

Source: http://www.worldbank.org/research/interest/prr_stuff/bank_regulation_database.htm

Table 2.3

"Reg" Values for Group I

	Entry Barriers	Discipline	Disclosure	Audit	Capital	Exit	Activities	Reg[1]
Canada	1	0.25	1	0.33	0	0.33	0.14	0.44
Denmark	0.83	0	1	1	1	1	0.29	0.73
France	0.5	0.25	0	1	0.80	0	0.14	0.38
Germany	0	0.50	0	1	0.60	0.67	0	0.40
Japan	0.67	1	1	0	0.40	1	1	0.72
Sweden	0.83	0.50	0	0.33	0	0	0.43	0.30
UK	0.83	1	1	0.33	1	0.33	0.14	0.66
US	0.67	0.50	1	1	0.60	1	0.88	0.81
Group I Average	**0.67**	**0.50**	**0.62**	**0.62**	**0.55**	**0.54**	**0.38**	**0.55**
India	**0.67**	**0.50**	**0**	**0.33**	**0.60**	**0**	**0.88**	**0.42**
Population	**0.76**	**0.64**	**0.63**	**0.59**	**0.43**	**0.68**	**0.64**	**0.62**

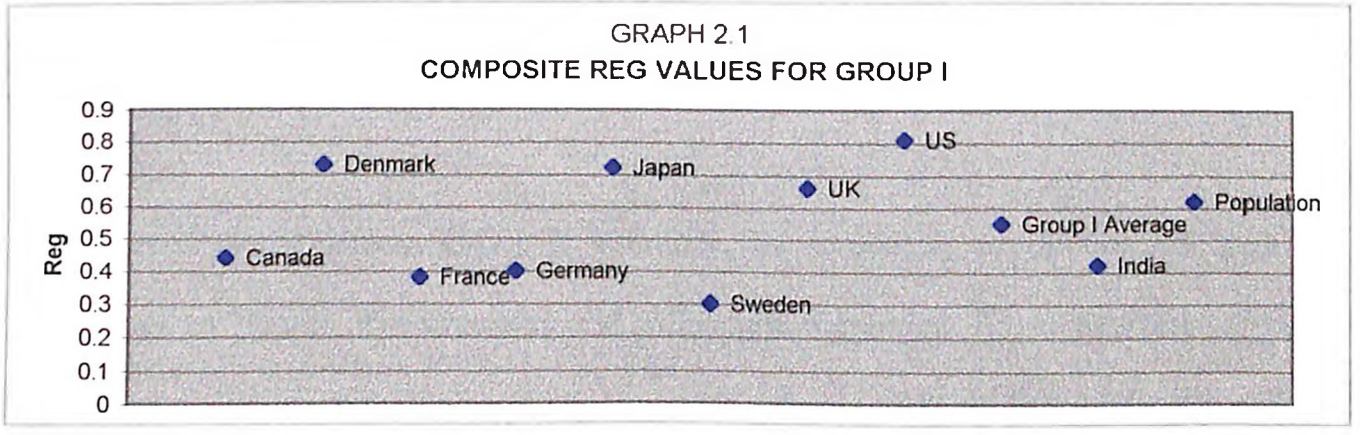
Table 2.4.

"Reg" Values for Group II

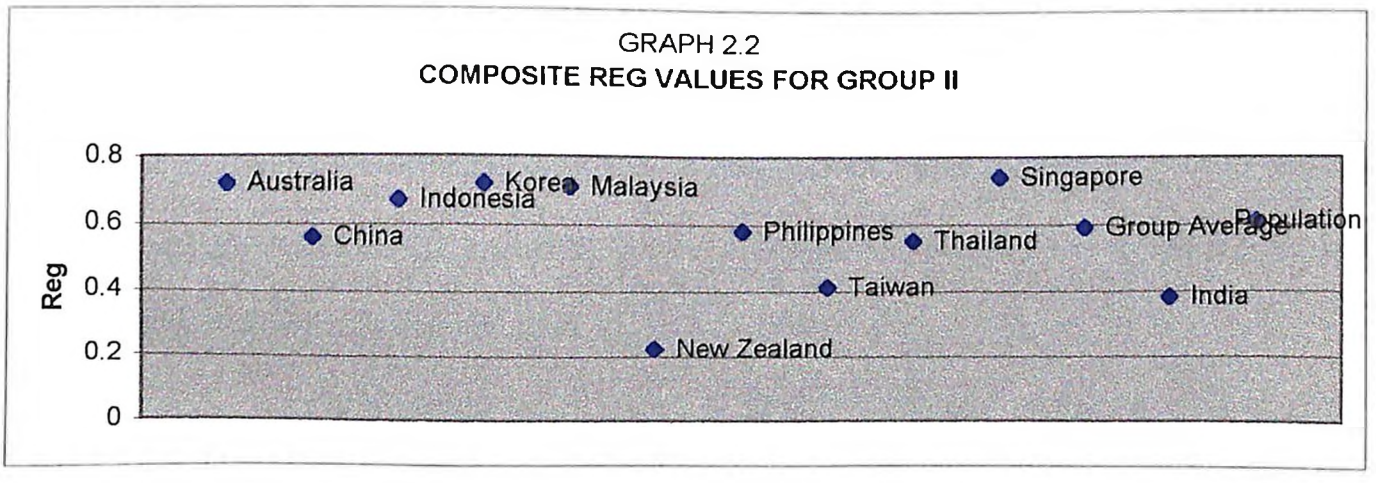
	Entry Barriers	Discipline	Disclosure	Audit	Capital	Exit	Activities	Reg[1]
Australia	**1**	0.50	**1**	0.80	**1**	0.33	0.38	0.72
China	0.75	0.50	**0**	NR	NR	NR	**1**	0.56
Indonesia	1	**0**	1	0.80	**0**	**1**	0.88	0.67
Korea	0.75	**1**	NR	0.60	0.60	1	0.38	0.72
Malaysia	0.75	NR	1	**1**	0	1	0.50	0.71
New Zealand	**0**	NR	0	0.60	0.40	0.33	**0**	0.22
Philippines	0.50	0.50	1	0.40	0.40	1	0.25	0.58
Taiwan	1	0.50	0	**0**	0.20	NR	0.75	0.41
Thailand	1	1	0	0.60	0.20	0.67	0.38	0.55
Singapore	NR	NR	1	1	0.60	NR	0.38	0.74
Group II Average	**0.75**	**0.57**	**0.56**	**0.64**	**0.38**	**0.76**	**0.49**	**0.59**
India	**0.75**	**0**	**0**	**0.60**	**0.60**	**0**	**0.75**	**0.38**
Population	**0.90**	**0.28**	**0.63**	**0.76**	**0.43**	**0.68**	**0.56**	**0.61**

Graphs 2.1 and 2.2 present the relative position of regulation on Indian banks vis-à-vis the two reference groups using the composite index "Reg[i]".

GRAPH 2.1
COMPOSITE REG VALUES FOR GROUP I



GRAPH 2.2
COMPOSITE REG VALUES FOR GROUP II



v) Analysis

The benchmarking analysis shows that Indian banks have a high degree of regulation on the dimensions of Capital Requirements and Allowable Activities vis-à-vis Group I countries. The regulatory severity is comparatively low in the case of Disclosure, Audit and Exit Provisions. Overall, Indian banks enjoy a relatively low degree of regulatory restriction when benchmarked against Group I countries.

When benchmarked against Group II countries, the regulatory restrictions are high on the dimensions of Capital Requirements and Allowable Activities. As in the case of Group I, regulatory powers are low on the dimensions of Disclosure and Exit Provisions. Overall, Indian regulatory powers are on the lower side vis-a-vis countries on this group as well.

A comparison with the index values of the population also shows that on the dimensions of Disclosure and Exit Provisions the regulatory powers of Indian regulators are far below the normal. In the case of exit provisions, the average raw score of countries where at least one bank was closed down in the past 5 years is 2.36, higher than the population average of 2.03. This shows that in countries where banks have faced difficulties, governments have been keener to provide regulations that ensure a smooth exit for ailing banks. This is an area that might require greater regulation in the Indian situation.

India's score on the dimension of disclosure is low on account of sub dimension 3.2. However, RBI has taken steps to remedy the situation in 1999-2000 by asking banks to produce

consolidated accounts for their non-bank financial subsidiaries. Since the World Bank database captures the situation as in 1999, the index value on this dimension appears very low.

Similarly, in the case of the Activities dimension, the database records the Indian raw score assuming that both real estate and insurance activities are prohibited for Indian banks. This too has changed since banks have been allowed conditional entry into insurance through joint ventures. Thus, the Indian score on this dimension would be lower than that reported in this study.

An analysis of the average scores of Group I and Group II countries on the composite "Reg" shows that the average composite score for Group I countries is 0.55 while that for Group II countries is 0.59. This is an expected result given the profile of the two groups. However, the developed countries donot exhibit a uniformly low value of "Reg", which is contrary to expectations. Denmark, Japan, the US and UK report high values of "Reg" lying between 0.6 and 0.8 while Canada, France, Germany and Sweden report values lying between 0.2 and 0.5. On the other hand the Group II countries show a high degree of uniformity with all "Reg" values lying above 0.5 except that of New Zealand and Taiwan.

An analysis of the composite Indian "Reg" score leaving out the Disclosure and Exit Provisions dimensions shows a composite Index value of 0.53 for India when benchmarked with group I countries and 0.54 when benchmarked with Group II countries. Thus, these are the two dimensions that account for a low overall score. On the remaining five dimensions the Indian score is closer to the group averages. The Disclosure norms have already been amended, leaving

the Exit Provisions as the only dimension on which Indian regulatory provisions exhibit an alarming degree of deviation from the normal.

The impact of deregulation

Dis-intermediation is one by-product of liberalization. The trend towards dis-intermediation in Japan started in the late 1980s with the deregulation of the capital market. This included the lifting of prohibitions on short term Euro yen loans to domestic borrowers; gradual removal of restrictions on corporate bond market and creation of a commercial paper market (Akihiro and Woo, 2000). Following these developments, banks faced price competition with borrowers finding it cheaper to borrow directly from the markets. This situation was further worsened by the fact that banks were not permitted by regulators to underwrite securities when the bond market was booming. They were allowed to set up subsidiaries to deal in securities in 1994.

The trend of dis-intermediation is also captured by data, which shows that the share of bank's borrowing and lending business in the total financial services market is falling. In the United States of America bank assets formed 28 percent of all financial assets in 1999, roughly half of what they were 20 years ago. Though bank lending accounted for 55 percent of all financial assets in Britain and 75 percent in France and Germany in 1999, these shares are showing a downward trend (The Economist, March 13, 1999).

These trends of dis-intermediation and competition resulting from deregulation have squeezed the margins of banks. In the US regional banks had margins of more than 5.5 percent points in

1970s which fell to 4 percent in 1999. Margins for bigger money-center banks have fallen from 3 percent to around 1.25 percent in the same time period (The Economist, April, 1999).

At the same time banks have had to approach capital markets themselves to raise capital in line with their risk weighted assets owing to the Basle Committee's norms on capital adequacy. Investors in the share markets require higher earnings per share from banks in return for contributing to their capital. The trends of falling spreads and investor's demanding higher returns have pushed banks to take greater risks to generate additional returns (The Economist, July 29, 2000). This vicious cycle is well illustrated by the problems of the Japanese banking industry in the 1990s as vividly documented by Akihiro and Woo (2000) and summarized below. Price competition owing to deregulation of rates and dis-intermediation in the late 1980s lead Japanese banks to riskier lending primarily against real estate collateral. The asset market collapsed in early 1990s leading to deterioration in the quality of bank balance sheets. As a result the credit ratings of banks fell and many of the corporate borrowers of banks had better ratings than the banks. This meant the good quality borrowers of banks could borrow at lower rates from the capital markets than the banks themselves. Subsequently towards the mid- nineties it became extremely difficult for banks to raise capital from the market. To compete with the corporate bond and commercial paper markets banks started offering euro yen loans to small and medium enterprises at rates below the prime rates. Until 1995 the banks that were relatively weakly capitalized expanded their lending more rapidly than the strongly capitalized ones. This is an indication of gambling by the weak banks to survive.

Apart from going in for riskier lending as documented above banks can do two things to boost returns - cut costs and/or enter new businesses to expand revenues. Data shows that they have done all three.

Banks have attempted to cut costs and improve efficiency. Efficiency ratios of banks as a whole have fallen from 67 percent in late 1980s to 58 percent in late 1990s (The Economist, April, 1999). In recent years they have also used mergers to cut down overlapping branches and rationalize staff to lower costs.

However, increasingly the better returns have come from worse borrowings. In 1993 35 percent of syndicated lending by American banks was for companies with a below investment grade rating. In September 1998 it was 62 percent (The Economist, April 1999). The trend of banks going in for riskier lending to boost returns is also reflected by the data on the non-performing loans of banks in the USA, which have shown a rising trend over 1997 and 1998. Part of the reason being that good borrowers have directly approached the capital market and banks are left with the lower quality ones (dis-intermediation). In the USA sub-prime lending, i.e., lending to those with bad credit histories by banks has been growing fast. In fact, the quality of borrowers approaching the capital markets directly has also been declining. Which means that banks are left to lend to those borrowers who are not even capable of approaching the capital markets (where too credit quality has been falling) (The Economist, July 10, 1999).

Liberalization and Financial Crises

The survey carried out by Williamson and Mahar (1999) also analyzed the impact of liberalization on financial sectors and found an improvement in efficiency of fund allocation post liberalization. It also found that financial crises are often associated with a recently opened capital account or other aspects of liberalization. The authors felt that liberalization altered the rules of the game and increased the possibility of accidents. And this was true of both rich and poor countries. They also found that adequate systems of supervision and regulation rarely preceded liberalization. Thus, careless liberalization was the culprit, not just liberalization.

In a World Bank policy research working paper Demirguic–Kunt and Detragiache (1998) studied the empirical relationship between liberalization and financial sector crises. They used a panel of data for 53 countries for the period 1980-95 and tested if banking crises were more likely to occur in liberalized financial systems when other factors that may increase the possibility of a crises were controlled. They found that, indeed, crises were more likely to occur in countries where the rule of law was weak, corruption widespread, bureaucracy inefficient and contract enforcement mechanism ineffective.

To explore the reasons behind this relationship between liberalization and financial sector crises they further explored the relationship between bank franchise value and liberalization. The reason being that a regulated environment with controlled interest rates and entry barriers could make a banking license more valuable since it helped to restrict competition, while liberalization would erode this value. In a situation where implicit or explicit guarantees for depositors existed, the erosion of franchise value could lead banks to choose a riskier loan portfolio because

they need not pay for the downside risk, leading to a crisis. In accordance with this reasoning their analysis reveals that bank franchise value is eroded when markets are liberalized. Implying that the removal of regulations increases competition leading to lower values for banking licenses. This in turn increases the propensity of bank managers to gamble with risky assets in order to survive competition, thereby causing a crisis.

In an IMF working paper Drees and Pazarbasioglu (1995) analyzed the reasons behind the banking sector crises in Finland, Norway and Sweden in the late 1980s and early 1990s. They find that the banking industries in these countries underwent drastic changes in the 1980s characterized by increased competition, deregulation, removal of restrictions on cross border capital flows and financial innovation. A credit boom preceded deterioration in the quality of bank balance sheets resulting in intervention by the governments.

The presence of a relationship between liberalization and crises was acknowledged by the IMF after the South East Asian Currency Crisis, when it identified the areas of work to make the world less prone to financial crises. One of the four areas identified was 'orderly liberalization of international capital flows' (IMF Survey, August 2, 1999).

Financial crises have been happening frequently in the past 13 years: the wall street crashed in October 1987; Japan's stock market crashed in 1989; Europe's' exchange rate mechanism collapsed in 1992-93; the bond market crashed in 1994 so did the Mexican economy; the South East Asian turmoil happened in 1997; and, Russia's crisis in 1998 (The Economist, June 12, 1999). These crises have been both widespread and costly. They have affected both developed

and developing countries and have burdened the exchequer. Table 2.5 gives a selected view of bank crises. The table shows that banking crises have happened frequently in the past two decades. It tabulates the economic cost of these crises and presents the fact that neither developed nor developing countries are immune to crises.

Table 2.5.
Selected Episodes of Bank Crises

Country	Year(s) of Crisis	Scope of Problem	Estimate of Costs
Argentina	1980-82	More than 70 institutions liquidated/ subject to central bank intervention.	55.3 percent of GDP
Finland	1991-94	Govt. took control of 3 banks that accounted for 31 percent of total bank deposits	11 percent of GDP
Indonesia	1997-99	61 banks closed and 54 nationalized (out of 240), non-performing loans 65-75percent of total loans.	50-55 percent of GDP
Republic of Korea	1997	15 out of a total of 26 banks needed govt. intervention.	N.A.
Norway	1987-93	State took control of 3 largest banks (accounting for 85 percent of banking system assets) whose loan losses had wiped out their capital	8 percent of GDP
Sweden	1991	5 banks accounting for over 70 percent of banking system assets experienced difficulties	4 percent of GDP
Japan	1990s	Non performing loans sized upto 25 percent of GDP	12 percent of GDP till 1998
United States	1984-91	More than 1400 savings and loan institutions and 1300 banks failed	3.2 percent of GDP

Source: Barth et al (2000)

Conclusions

This study shows that liberalization is a global trend and can generate risks when carried out in the absence of fundamental reforms.

Another important conclusion relates to the benchmarking exercise. The study shows that Indian banks are subject to a low degree of regulation overall when compared both with developed as well as with countries that can be considered comparable in degree of development. The study also brings out the stark absence of regulation relating to the smooth exit of ailing banks. Leaving out the two dimensions of disclosure and exit, regulations on Indian banks are very well balanced vis-à-vis other countries.

APPENDIX 2.1

Recommendations of the Two Narasimhan Committees

Narasimhan Committee-I (Kapila and Kapila, 1995).

The Narasimhan Committee raised a number of pertinent issues in the report it submitted. It highlighted the decline in productivity and efficiency in Indian banks. It noted that social banking political interference and an excessive degree of central direction resulted in a large number of constraints on banks wanting to improve their performance. It also pointed out that the reserve requirements were inordinately high and the interest banks received on these was well below prevailing market rates. It also highlighted the inadequate levels of capital and lack of transparency in accounting practices prevalent in banking industry at the time.

Against the background of issues confronting the banking sector the committee made the following recommendations to develop a health, competitive, market oriented, efficient and professionally managed industry:

I. Reserves

It recommended a reduction in SLR to the statutory minimum of 25 percent and government borrowing rates to be market related.

It also suggested a progressive reduction in CRR and rates of interest on it to be market linked as well.

II. Directed Lending

Such programmes should be a temporary feature of providing extraordinary support to some sectors, not permanent. Existing programmes should be gradually phased out. Some sectors such as small and marginal farmers, tiny sector of industry, small business and transport operators, village and cottage industries, rural artisans and other weaker sections can be provided an allocation of 10 percent of aggregate bank credit. Concessional interest should also be gradually eliminated. An incentive can be given to banks after directed credit has been phased out to provide preferential refinance from the RBI in respect of incremental bank credit to priority sectors.

III. Interest Rates

The committee recommended that these be market determined.

IV. Capital Adequacy

A phased conformity to risk based capital standards as suggested by the Bank for International Settlements was recommended, i.e. a capital adequacy of 8 percent of risk weighted assets for every bank. Further, banks with a consistent record of profitability should be allowed to tap the capital market and the government can supplement the capital of others.

V. Accounting Norms

It was suggested that bank's investment portfolios be bifurcated into permanent and current investments wherein full provision for depreciation in value of current investments be made.

The committee suggested that non performing assets be accounted for and income on such assets not be booked on an accrual basis. It further suggested that provisioning be done on a basis of four health codes, Standard, Substandard, Doubtful and Loss assets. The committee also recommended that all specific provisions made in respect of doubtful assets be allowed as a deduction for tax purposes. The suggestion to bring transparency in bank accounts upto international standards was also made.

VI. Recovery of Dues

The committee recommended setting up of special debt recovery tribunals. Since these tribunals would take time to be set up, it suggested the formation of an Asset Reconstruction Fund that would cleanse the bank balance sheets of existing bad debts.

VII. Structural Organization

The committee suggested the evolution of a four-tier structure of the banking industry in India. The broad pattern suggested was:

- The first tier consisting of 3 or 4 large banks (including SBI) which could become international in character;
- 8 to 10 national banks with a network of branches throughout the country engaged in general or universal banking;
- local banks confined to a specific region; and

- Rural banks (including RRBs) whose operations and activities would be confined to the rural sector.

The Committee recommended mergers to create the first tier. It also recommended freedom of entry for new private sector banks and equal regulatory treatment for public, private and foreign banks.

Abolishment of branch licensing was also suggested.

VIII. Organisation, Methods and Procedures in Banks

The committee recommended mechanization and computerization and staff with special skills to manage bank diversification. The committee also proposed winding up of Banking Services Recruitment Boards and giving freedom to banks to recruit their staff.

IX. Markets

The committee proposed allowing non bank participants in the call money market and encouraging debt securitization.

X. Regulation and Supervision

The committee stresses capital adequacy norms as a broad framework for regulation. The committee also recommends abolition of regulations, administrative directions and supervisory controls over aspects of internal organization & administration which are not directly concerned with protecting depositors' interests, such as managerial functions, manpower recruitment,

remuneration of staff, location of offices, hiring of premises and advertisement expenditure. The committee suggested that the main responsibility of ensuring compliance with the prudential norms should be with the banks themselves who would send periodic returns to the supervisors on compliance. Thus, a system of off-site enforcement of rules with occasional on-site inspection was suggested.

The committee also firmly suggested that duality of control between RBI and Ministry of Finance over the banking industry be replaced by single control of the RBI.

It also suggested setting up a quasi-autonomous Banking Supervisory Board under the aegis of the RBI which should have supervisory jurisdiction over the banking system, DFIs, non-bank financial intermediaries and other para banking financial institutions such as those that accept deposits or float bonds from the public. A single board would avoid segmentation, inadequate coordination and duplication of supervision. The committee also recommended coordination between RBI and SEBI.

Lastly the committee suggested a periodic review of directions issued by RBI.

XI. Legislative Measures

The committee envisaged changes in provisions of Banking Companies (Acquisition and Transfer of Undertakings) Acts, 1970/1980 in order to provide higher ceilings for paid up capital. Similarly, these acts would need amendment to allow nationalized banks to access the capital markets. The statutes of the

Banking Regulation Act, 1949 relating to transparency in accounts and branch licensing were also proposed to be amended.

Repeal of the Banking Service Commission Act, 1984 was also suggested.

A special act for debt recovery tribunals was recommended.

Narasimhan Committee-II (Follow-up to the Second Narasimhan Committee Recommendations, 1998-99)

The second Narasimhan Committee, set up to review the progress of reforms and suggest further action suggested that a minimum target of 9 percent CRAR be achieved by year 2000 and 10 percent by year 2002.

It also suggested updating of risk weight norms by applying a market risk weight of 5 percent to government/ approved securities. The risk weight of government guaranteed advances was recommended to be set equal to other advances. Similarly, a foreign exchange open position was recommended for a 100 percent risk weight.

Similarly, in the area of provisioning too, a general provisioning of 1 percent on standard assets and reduction of the time period for recognition of a doubtful asset from 24 to 12 months were recommended. Classification as NPAs of government guaranteed advances which had turned sticky was also suggested. The committee also recommended the avoidance of evergreening and

the initiation of steps to cleanse balance bank sheets and prevent re-emergence of new NPAs. Government guarantees for bonds issued as tier II capital; disclosure of maturity pattern of assets and liabilities; foreign currency assets and liabilities; and movements in provision account and NPAs; specification of concentration ratios to sectors and their monitoring; publication of operational manuals; and the setting up of an independent review mechanism especially for large borrower accounts, which can spot potential NPAs were the other recommendations of the committee.

CHAPTER 3

INDIAN FINANCIAL MARKET

This chapter focuses on a brief review of literature to explore workable indicators relevant to a trend analysis of the overall financial market including banks. It then uses these and other indicators to conduct a trend analysis of the environment external to banks i.e., the shares of other financial institutions in the financial market and preferences of bank consumers.

Literature Survey

Beck et al (1999) develop a database of indicators of financial development and structure across countries and over time. They attempt to unite a wide variety of indicators measuring the size, activity, efficiency and market structure of financial intermediaries and markets. They distinguish between different financial intermediaries such as central banks, deposit money banks, development financial institutions and others like insurance firms, pension funds, non banking financial institutions, etc. Deposit money banks are defined as institutions that have accounts against which cheques can be issued. They develop 'relative size measures' which indicate the importance of financial intermediaries relative to each other. The base used for such relative size measures is total assets of all financial intermediaries. The individual measures are deposit money bank assets to total assets and assets of each individual financial intermediary to total assets. These relative size measures give an indication of the relative shares of different categories of financial institutions in the total assets of all major financial intermediaries. When examined over time they indicate how the share of each category of intermediary is increasing or decreasing over time. The measures of activity used by them are credit given by financial

intermediaries to GDP. However, this measure is more appropriate for comparison among countries since the gross domestic product is used as the base measure.

Brouwer (1995) uses deposits to GDP and loans to GDP versus size of money market to GDP to compare the relative importance of money market (which is the market for tradable financial products) to the market for non traded financial products in Western Pacific economies. These indicators give the relative importance of banks, which primarily give credit in a non-tradable form, and the money market. If banks have a larger size it implies that borrowers, largely, prefer to raise funds through banks rather than directly from the money market. The authors use the GDP in the denominator because they wish to compare the relative importance of banks versus the money market across countries. In this context the GDP serves as an indicator of the size of the economy and enables comparison among different economy sizes.

Cottarelli and Kourelis (1994) use the size of market for short term instruments issued by enterprises (commercial paper and bankers acceptances) to GDP and the size of market of short term instruments issued by others (certificates of deposits and treasury bills) to GDP as measures of development of money markets.

Framework Used for the Study

On the basis of the literature survey the following framework has been developed for a study of the external environment facing Indian banks:

a. Relative Size Measures

An important objective of this study is to analyze the competitive position of banks relative to other intermediaries that perform functions similar to those of banks. These intermediaries are all-India term lending institutions, state level finance and development institutions, insurance institutions, mutual funds and other non-banking financial and investment companies. The banks have to compete with other intermediaries in the tradable long-term debt market and the share market. They have to compete in these markets for the sources and the uses of funds. In other words, the banks have to raise their deposit share from the primary savings sector, particularly the households, and also increase their lending business. Relative size measures selected herewith attempt to analyze the trends in relative shares of these competing institutions.

The first measure used to analyze the relative importance of banks versus other institutions/ markets is their relative share in the total financial assets held by the household sector. This is chosen because the household sector is the main 'source' of surplus funds in the economy. The ratios used are: share of bank deposits; non-bank deposits; company shares and debentures; units of UTI; provident and pension fund; and insurance schemes in total financial assets held by the household sector. In view of the significance of the household sector in the financial markets in India a long time frame spanning over past two decades - 1980s and 1990s - is chosen for analyzing the trends of these ratios.

The second measure used is the relative shares of various financial intermediaries in the total financial assets of financial intermediaries. The ratios used are share of financial assets of scheduled commercial banks; all India term lending institutions; state level institutions;

insurance companies; non-government financial and investment companies to total financial assets of all financial intermediaries. The composition of total financial assets of all financial intermediaries is made up of financial assets of the all India term lending institutions, state level finance and development institutions, insurance companies, UTI, other institutions such as Deposit Insurance and Export Credit Guarantee Corporations and non-government financial and investment companies. The ICICI falls in the category of both all India term lending institutions and non-government financial companies. This overlap is taken care of while aggregating data. This analysis is done over 1990 to 1998.

The third measure used here is share of lending by banks, financial institutions, companies, foreign agencies; debentures; and public deposits in total borrowings of public limited companies. While the first measure of relative size looks at the relative shares of banks and their competitors in sources of funds, these indicators look at their relative shares in the uses of funds. Total borrowings are defined as the sum of borrowings from all the above mentioned sources. These ratios are analyzed for the time period 1990-91 to 1998-99.

b. Measures of Consumer Preferences

Customer preferences are analyzed by looking at the relative shares of different deposit products in the total deposits of banks. Particularly, trends in relative shares of term, savings and demand deposits, the three major deposit products, are analyzed. The second variable analyzed is the maturity pattern of term deposits. These two variables are likely to give an indication of trends in the preferences of deposit consumers.

Data Sources

This trend analysis is based on the published sources of data. Important publications used for compilation of the data are:

A. Handbook of Statistics on Indian Economy, 1999. This is a publication of the Reserve Bank of India containing data on the financial assets of the household sector and the maturity pattern of bank deposits.

B. Report on Trend and Progress of Banking in India, 1998-99. This is a publication of the Reserve Bank of India containing data on assets of scheduled commercial banks, all India term lending institutions, state level institutions, LIC, GIC, UTI, DICGC and ECGC

C. RBI's annual studies on 'Performance of Financial and Investment Companies'. These studies are conducted by the Reserve Bank of India and published in the monthly RBI Bulletins. Studies for years from 1989-90 to 1998-99 have been used for this study. These studies provide data on the assets of non-government financial and investment companies. These studies do not consider all the non-government financial and investment companies. They cover between 20 and 30 percent of the total paid-up capital of all non-government financial and investment companies. This particular data may not be useful for a study of the absolute size of assets of these companies. However, these data are still very useful as an indicator of trends in share of assets of these companies in total financial assets.

D. Annual Surveys of RBI on ' Finances of Public Limited Companies'. These studies are published in the monthly RBI bulletins. They contain data for sources of borrowings of these companies. The companies in these surveys account for 20 to 30

percent of the total paid-up capital of all such companies. Since the percentage changes each year, the absolute amounts may not be comparable across years but the trends in relative shares can be compared.

E. Composition and Ownership Pattern of Bank Deposits, 1990 to 1999. This is an annual survey conducted by the Reserve Bank of India and published in the monthly RBI bulletins. Information on trends in deposit markets including the share of term savings and current deposits in total deposits of banks has been collected from these surveys.

Analysis

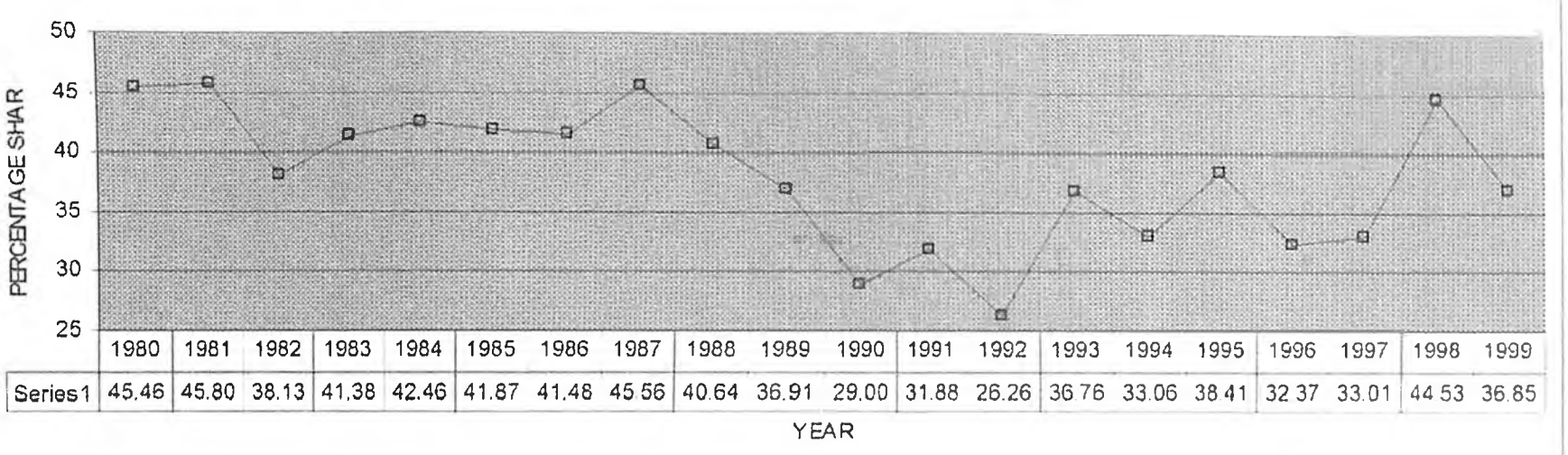
In what follows, the Indian financial market data is analyzed by using the framework developed earlier. Each of the measures is taken up one by one, the relevant ratios computed over time and presented in the form of tables and graphs to support the analysis. The tables of raw data are presented at the end of the chapter while those of ratios are presented along with the graphs during the course of the analysis.

a) Relative Size Measures

Graph 3.1 presents the share of bank deposits in total financial assets of the household sector. While an overall average share of bank deposits during 1980-99 is around 38 percent, one can observe considerable fluctuations around this mean value. In the 1980s, the bank deposits made 41.97 percent of the financial assets of the household on an average. This proportion declined in the 1990s to an average of 34.21 percent. A calculation of the variance around the mean value

GRAPH 3.1

SHARE OF BANK DEPOSITS IN FINANCIAL ASSETS OF HOUSEHOLDS



	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Series1	45.46	45.80	38.13	41.38	42.46	41.87	41.48	45.56	40.64	36.91	29.00	31.88	26.26	36.76	33.06	38.41	32.37	33.01	44.53	36.85

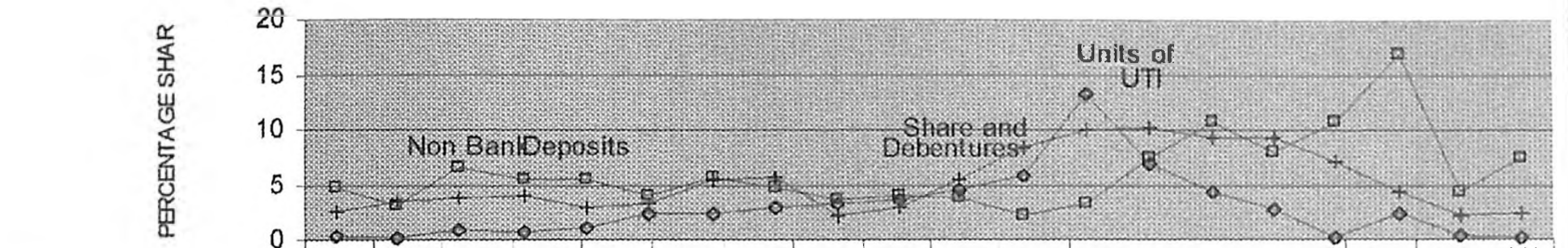
Source: Financial Assets/ Liabilities of the Household Sector (1971-99)

shows that the level of variance in share of bank deposits between 1980 and 1989 was 9.20 while that between 1990 and 1999 was 26.60! Two broad conclusions can be drawn very clearly. One, the average relative share of the commercial banks in the primary savings market has declined from 41.97 percent in the 1980s to 34.21 percent in the 1990s. Two, the share of bank deposits in household savings has become quite unstable as brought out by the comparison of variances. This implies that banks can no more expect stable growth in their deposit liabilities.

By looking at Graphs 3.1 and 3.2 simultaneously, some very useful observations can be made. In Graph 3.1, from a high of 45.80 percent in 1981 the share of deposits dropped to a low of 26.26 percent in 1992 and recovered to end at 36.8 percent in 1999. The reasons for this dip in share of bank deposits in 1992 become clear from Graph 3.2, which shows the share of non-bank deposits, shares and debentures and units of UTI in total financial assets of households. A surge in investments in shares and debentures and units of UTI during the period explains the dip in 1992. The share of units of UTI rose from 5.84 to 13.35 percent between 1991 and 1992. The share of debentures and shares rose from 5.5 to 9.99 percent between 1990 and 1992. The dip in 1996, on the other hand, is caused by the surge in non-bank deposits, which grew from 7.94 to 16.85 percent between 1995 and 1997. When customers consider the non-bank deposits, shares and debentures or units of UTI better choices they switch away from the traditional bank deposit alternative. However, disillusionment of the customer with these markets and products makes them return to bank deposits. The deregulation of bank deposit interest rates along with disillusionment with alternatives, thus, seems to be the reason for their resurgence in 1998.

GRAPH 3.2

SHARE OF NON-BANK DEPOSITS, SHARES & DEBENTURES AND UNITS OF UTI IN FINANCIAL ASSETS OF HOUSEHOLDS



	1980	1981	1982	1983	1984	1986	1987	1988	1989	1990	1991	1992	1993	1994	1996	1997	1998	1999
Non-Bank Deposits	4.65	3.12	6.56	5.40	5.42	5.57	4.75	3.67	3.95	3.81	2.18	3.26	7.51	10.64	10.70	16.85	4.35	7.40
Shares & Debentures	2.47	3.40	3.74	4.01	2.95	5.45	5.55	2.25	2.84	5.50	8.44	9.99	10.22	9.19	7.16	4.31	2.12	2.37
Units of UTI	0.40	0.26	0.84	0.76	1.18	2.29	2.96	3.31	3.57	4.52	5.84	13.35	6.98	4.30	0.21	2.45	0.33	0.27

YEAR

Source: Financial Assets/ Liabilities of the Household Sector (1971-99)

The first conclusion that can be drawn from coupling Graphs 3.1 and 3.2 is that shares, mutual funds and non-bank deposits are perceived as alternatives to bank deposits by the household saver. The second conclusion is that the weaknesses of these alternatives have ensured, at least for the short term, that bank deposits remain popular. The third conclusion is that the share of bank deposits in total financial assets of household sector is falling albeit slowly. Finally, the share of bank deposits in the total financial assets has become quite unstable.

An additional insight into this situation is provided by information on the regulations prevailing at the time of the surge in non-bank deposits. It is pertinent to note that till April 1995 banks were not allowed to offer rates of more than 12 percent on their term deposits. On the other hand, the surge in non-bank deposits was largely accounted for by deposits offering more than 14 percent rate of interest. Almost 75 percent of total deposits of non-banking companies in 1993-94 were offering more than 14 percent rate of interest (Growth of Deposits with Non-Banking Companies, 1993-94). This regulatory arbitrage, wherein different rates are allowed for similar products, harmed the interest of banks during 1995-97.

Till date savings account interest rates continue to be controlled by the RBI. However, money market mutual funds are already offering highly liquid investments that pay a rate of interest related to the rates in the money market. They have also been allowed to offer facilities to investors to write third party cheques against their investments, making them close substitutes for savings accounts. These developments need to be monitored closely by regulators particularly in view of similar regulatory arbitrage having harmed bank interests in other countries in the past.

An additional feature noticed here is the high sensitivity of bank deposits to interest rate changes. With deregulated deposit interest rates the competition for deposits among banks and between banks and other institutions is likely to intensify, given the high sensitivity of customers to interest rate rises and falls.

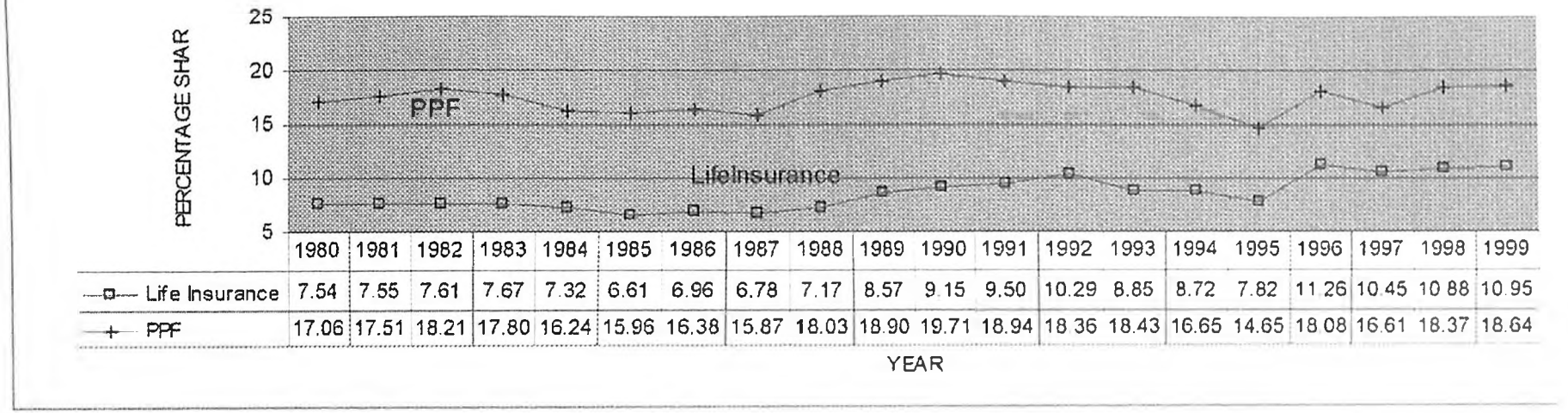
Graph 3.3 depicts the relative shares of the insurance schemes and pension and provident fund schemes in total financial assets of households. Insurance schemes have formed between 7.54 and 10.95 percent of household financial assets over the decade. PPF schemes accounted for between 17.06 and 18.64 percent of the total assets during the decade. It is clear that these assets have a relatively stable share of the household sector's financial assets. However, we observe a gentle rising trend in the share of insurance schemes. Between 1989 and 1992 while the share of bank deposits dropped by almost 10 percent, both PPF and insurance shares remained stable. Again between 1995 and 1997 bank deposit shares show a fall whereas both insurance and PPF shares show a rise. This shows that the Indian investor perceives PPF and insurance schemes as substitutes to deposits to some extent.

As insurance and PPF contributions constitute a relatively stable component of household sector income they may even serve to neutralize the sharp rises and falls in bank deposits. This could provide a strong rationale for banks to diversify into the insurance field.

The second relative size measure looks at the relative share of the assets of various financial intermediaries in total assets of all financial intermediaries. The first graph in this category, Graph 3.4, shows the share of bank assets in the total assets of financial intermediaries. It is clear

GRAPH 3.3

SHARE OF INSURANCE AND PPF SCHEMES IN ASSETS OF HOUSEHOLDS



	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Life Insurance	7.54	7.55	7.61	7.67	7.32	6.61	6.96	6.78	7.17	8.57	9.15	9.50	10.29	8.85	8.72	7.82	11.26	10.45	10.88	10.95
PPF	17.06	17.51	18.21	17.80	16.24	15.96	16.38	15.87	18.03	18.90	19.71	18.94	18.36	18.43	16.65	14.65	18.08	16.61	18.37	18.64

YEAR

Source: Financial Assets/ Liabilities of the Household Sector (1971-99)

from the Graph that the share of bank assets has been falling during the nineties. Starting from a high of around 65 percent in 1990, banks accounted for 60 percent in 1998. Overall, asset-wise they are still the largest institutions. Moreover, the downward trend seems to have slowed down after 1992. The problems in the banking sector in the early part of the decade seem to be responsible for this.

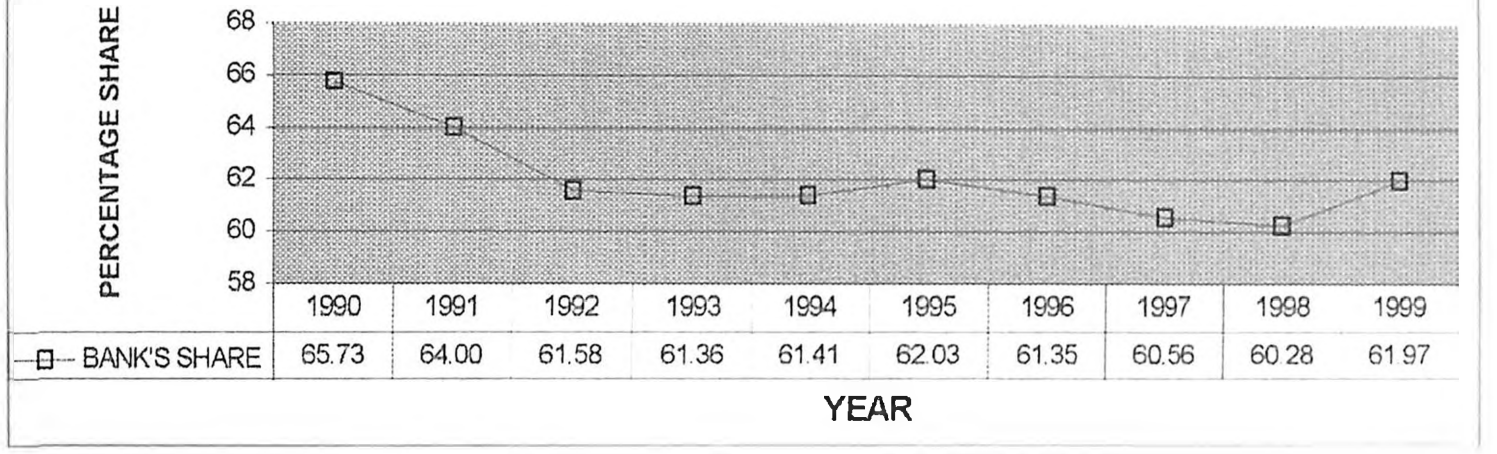
The second graph in this category of relative size measures, Graph 3.5, looks at the trends in shares of assets of all India term lending institutions (including ICICI) in total assets. It appears to show a slight upward trend with a dip of 2 percentage points between 1993 and 1995. However, a further analysis of shares of various institutions included in the all India term lending institutions category throws up a different picture. When ICICI is separated out a new picture emerges.

Graph 3.6 shows the trends in shares of all India term lending institutions (excluding ICICI) assets in total financial assets and a picture of a downward trend emerges clearly. However, the fall of 2 percentage points over the decade is small compared to that of banks. Graph 3.7 shows the trend in assets of ICICI and it appears that ICICI is the only term lending institution aggressively increasing its asset size.

Graph 3.8, next in this category, shows the trend in share of assets of non-government financial and investment companies, excluding ICICI, SCICI and HDFC. It appears that this type of intermediary is showing a steady upward trend over the decade. Even after excluding the assets of ICICI, SCICI and HDFC the trend remains positive over the decade.

GRAPH 3.4

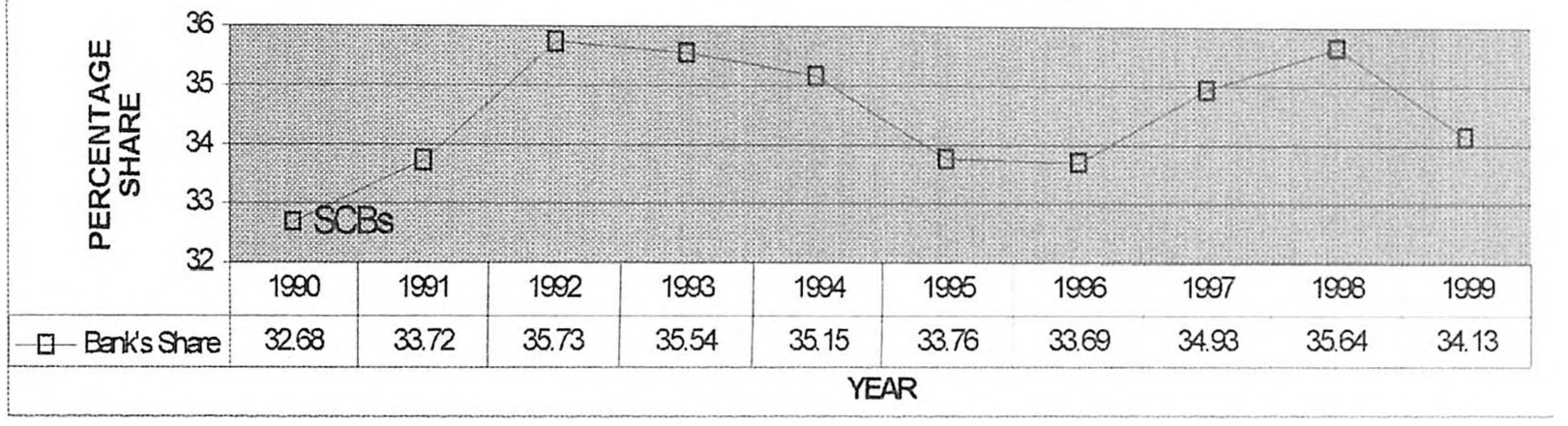
SHARE OF SCHEDULED COMMERCIAL BANKS IN TOTAL ASSETS



Sources: Financial Assets of Banks and Financial Institutions (1991-99) and (1990-97), Combined Balance sheet-selected Financial and Investment Companies (1998-99), (1995-96 to 1997-98), (1993-93 to 1994-95), (1990-91 to 1992-93) and (1989-90).

GRAPH 3.5

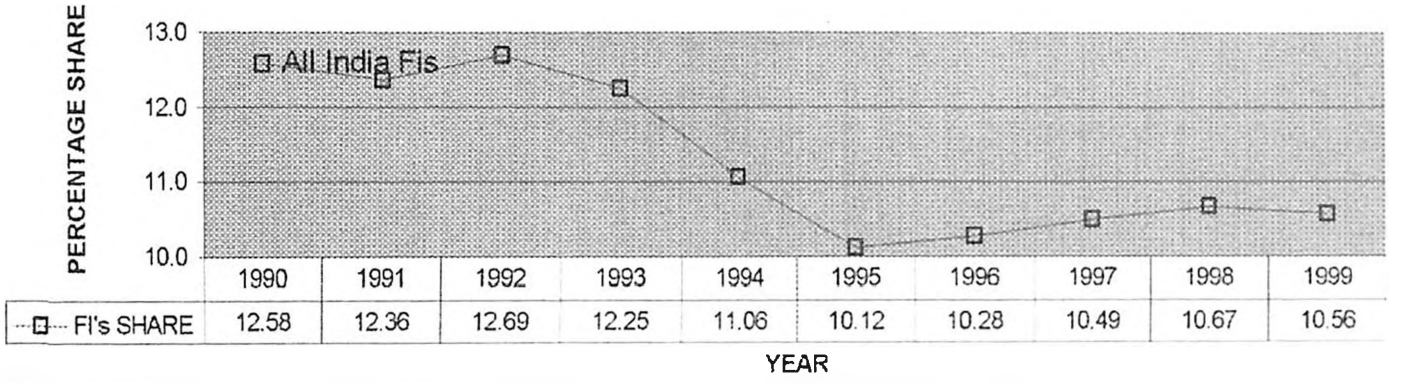
SHARE OF FINANCIAL ASSETS OF ALL INDIA TERM LENDING INSTITUTIONS (INCL. ICICI) IN TOTAL FINANCIAL ASSETS



Sources: Financial Assets of Banks and Financial Institutions (1991-99) and (1990-97), Combined Balance sheet-selected Financial and Investment Companies (1998-99), (1995-96 to 1997-98), (1993-93 to 1994-95), (1990-91 to 1992-93) and (1989-90).

GRAPH 3.6

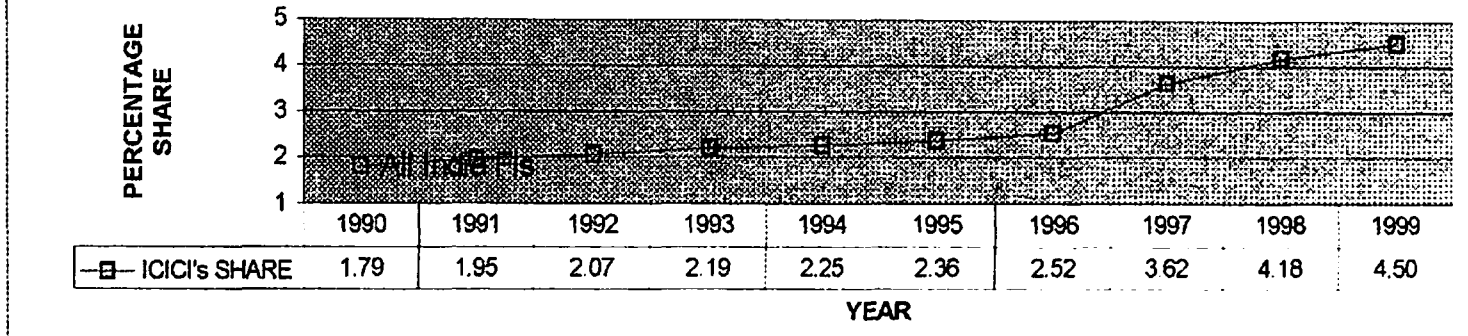
SHARE OF FINANCIAL ASSETS OF ALL INDIA TERM LENDING INSTITUTIONS (EXCL. ICICI) IN TOTAL FINANCIAL ASSETS



Sources: Financial Assets of Banks and Financial Institutions (1991-99) and (1990-97), Combined Balance sheet-selected Financial and Investment Companies (1998-99), (1995-96 to 1997-98), (1993-93 to 1994-95), (1990-91 to 1992-93) and (1989-90).

GRAPH 3.7

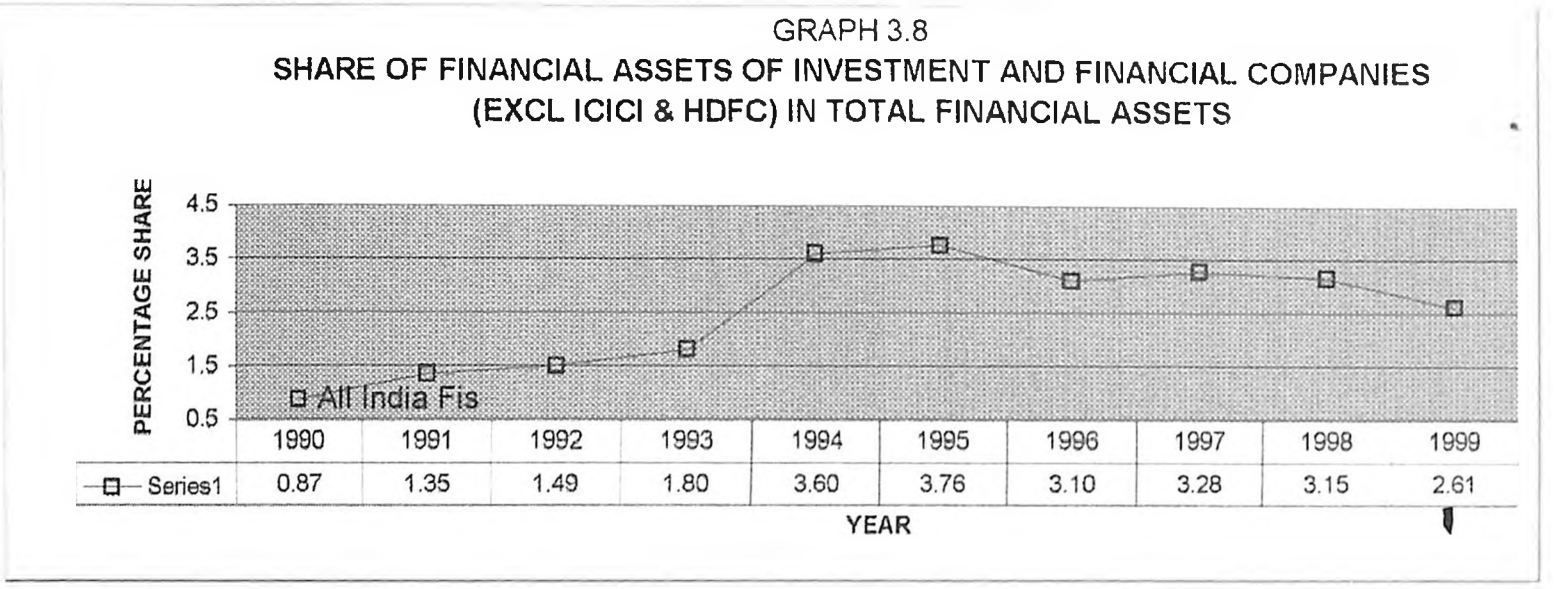
SHARE OF FINANCIAL ASSETS OF ICICI IN TOTAL FINANCIAL ASSETS



Sources: Financial Assets of Banks and Financial Institutions (1991-99) and (1990-97), Combined Balance sheet-selected Financial and Investment Companies (1998-99), (1995-96 to 1997-98), (1993-93 to 1994-95), (1990-91 to 1992-93) and (1989-90).

GRAPH 3.8

SHARE OF FINANCIAL ASSETS OF INVESTMENT AND FINANCIAL COMPANIES (EXCL ICICI & HDFC) IN TOTAL FINANCIAL ASSETS



Sources: Financial Assets of Banks and Financial Institutions (1991-99) and (1990-97), Combined Balance sheet-selected Financial and Investment Companies (1998-99), (1995-96 to 1997-98), (1993-93 to 1994-95), (1990-91 to 1992-93) and (1989-90).

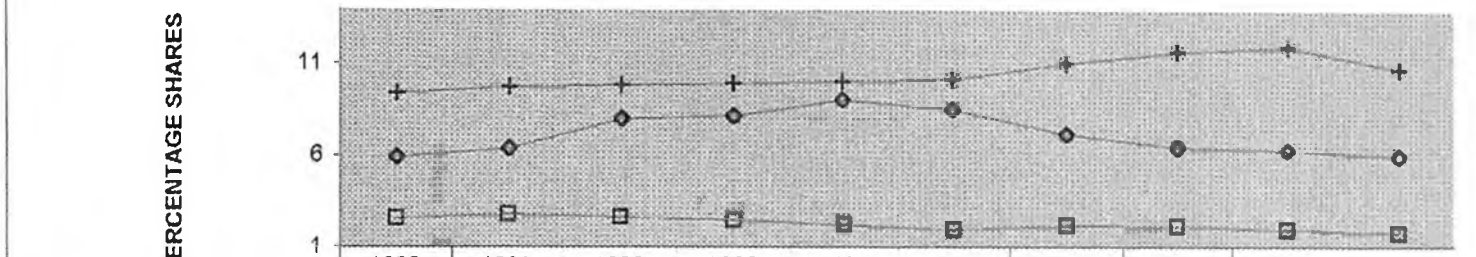
Graph 3.9 looks at the trend in share of assets of state level financial institutions, insurance companies (LIC, GIC and its subsidiaries) and UTI in total assets.

The state level finance and development institutions have lost considerable share over the decade – almost 20 percent of their share in 1990. UTI gained considerable share between 1990 and 1994, which it lost later to reach almost the level at which it started the decade. Insurance companies, on the other hand, have shown a steady rising trend throughout the decade.

The third relative size measure used here is share of lending by banks, financial institutions, companies, foreign agencies; debentures; and public deposits in total borrowings of public limited companies. Graph 3.10 depicts the relative shares of bank long term lending, debentures and FI lending in total borrowings of public limited companies. It can be seen that over the years share of bank lending has dropped from 39.48 percent to 35.87 percent. The share of lending by financial institutions has risen from 27.84 percent to 30.83 percent. Graph 3.11 presents the relative shares of lending by foreign agencies, companies and public in borrowings of public limited companies. The share of foreign agencies has gone up more than 2.5 times from 1.40 percent in 1990 to 4.84 percent in 1999. The share of lending by companies has risen 1.5 times from 1.54 percent in 1991 to 2.20 percent in 1999. The share of public deposits has, however, fallen from 7.99 percent to 4.49 percent between 1990 and 1999. The rise in lending by foreign agencies could give rise to foreign exchange risks for the companies, which might be transmitted to the banks as credit risks.

GRAPH 3.9

SHARE OF FINANCIAL ASSETS OF STATE LEVEL INSTITUTIONS, LIC AND GIC AND UTI IN TOTAL FINANCIAL ASSETS



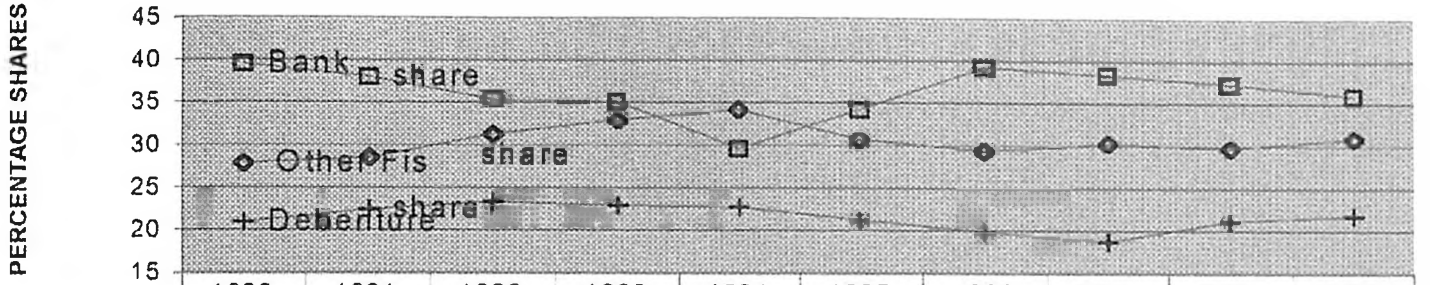
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
STATE LEVEL INSTTNS	2.53	2.76	2.61	2.47	2.17	1.93	2.16	2.11	1.93	1.73
INSURANCE CO.s	9.36	9.73	9.82	9.91	10.01	10.15	11.01	11.65	11.94	10.70
UTI	5.89	6.37	8.00	8.15	9.02	8.50	7.17	6.42	6.27	5.94

YEAR

Sources: Financial Assets of Banks and Financial Institutions (1991-99) and (1990-97), Combined Balance sheet-selected Financial and Investment Companies (1998-99), (1995-96 to 1997-98), (1993-93 to 1994-95), (1990-91 to 1992-93) and (1989-90).

GRAPH 3.10

SHARE OF BANK LENDING, DEBENTURES AND LENDING BY OTHER Fis IN TOTAL BORROWINGS OF PUBLIC LTD. COMPANIES



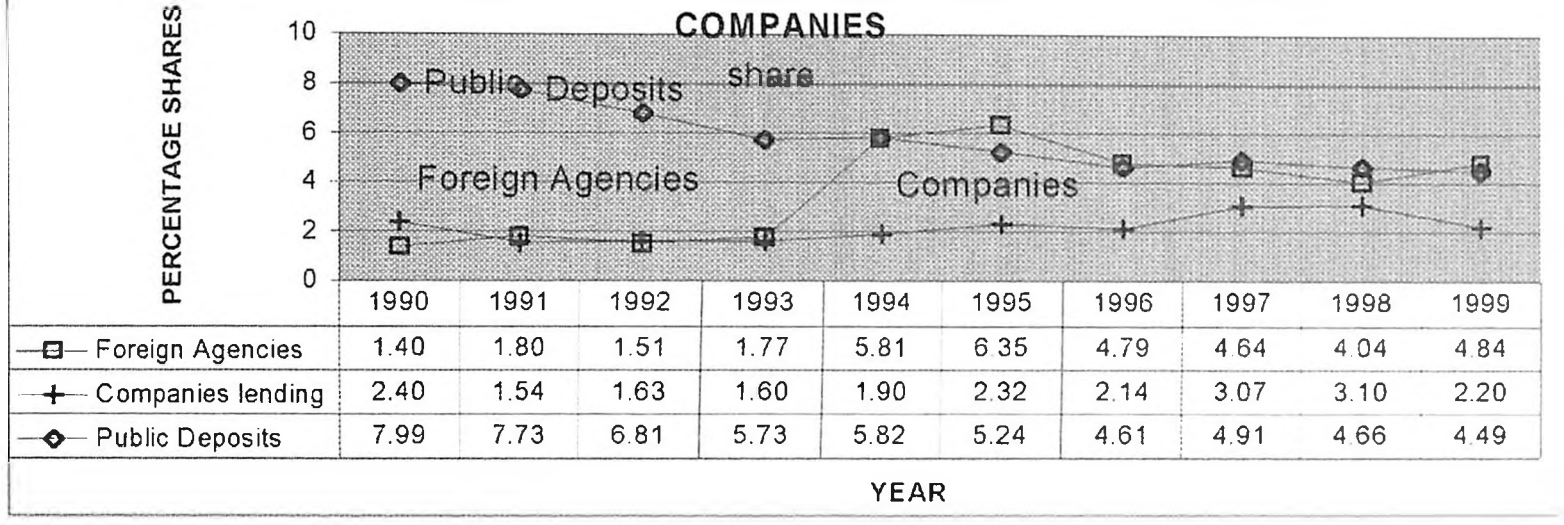
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Bank lending	39.48	37.98	35.37	35.13	29.61	34.17	39.20	38.36	37.29	35.87
Debentures	20.89	22.46	23.36	22.85	22.72	21.22	19.88	18.76	21.17	21.77
Other FIs lending	27.84	28.50	31.32	32.93	34.16	30.70	29.38	30.26	29.74	30.83

YEAR

Source: Combined Balance sheet of the Selected Public Limited Companies (1997-98 to 1998-99), (1994-95 to 1996-97), (1990-91 to 1992-93), (1993-94) and (1989-90).

GRAPH 3.11

SHARE OF LENDING BY FOREIGN AGENCIES, COMPANIES AND PUBLIC DEPOSITS IN TOTAL BORROWINGS OF PUBLIC LTD. COMPANIES



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Foreign Agencies	1.40	1.80	1.51	1.77	5.81	6.35	4.79	4.64	4.04	4.84
Companies lending	2.40	1.54	1.63	1.60	1.90	2.32	2.14	3.07	3.10	2.20
Public Deposits	7.99	7.73	6.81	5.73	5.82	5.24	4.61	4.91	4.66	4.49

YEAR

Source: Combined Balance sheet of the Selected Public Limited Companies (1997-98 to 1998-99), (1994-95 to 1996-97), (1990-91 to 1992-93), (1993-94) and (1989-90).

It can be seen that borrowings through debentures and FIs seem to be substituting for bank borrowing over the years. This is interesting since banks have traditionally lent for working capital while FIs have lent for long term purposes. This reiterates the position taken by a number of banking committees like the Tandon committee that bank lending gets channeled into long-term uses.

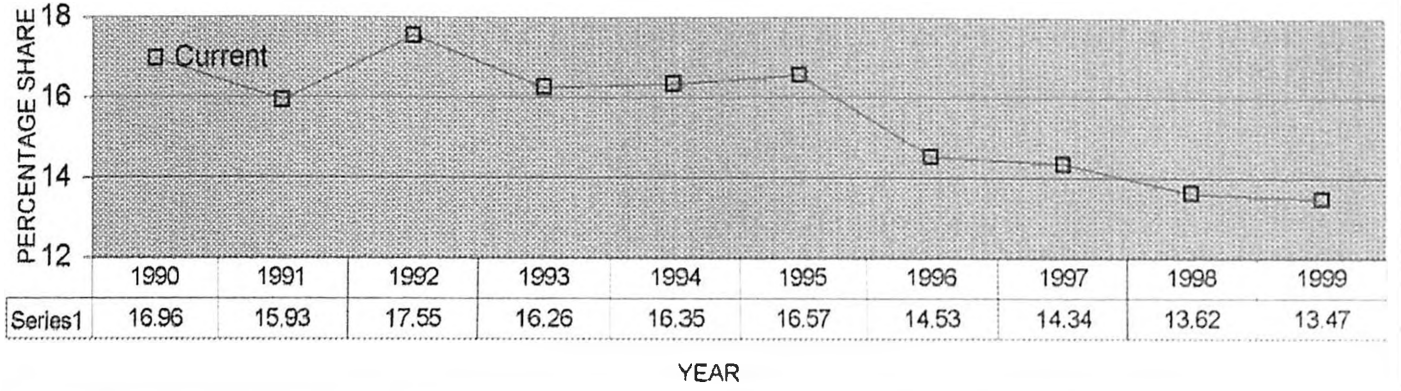
b) Measures of Consumer Preferences

Graphs 3.12 to 3.14 reflect the changing preferences of deposit customers. Current deposits and savings deposits have fallen as a proportion of total deposits. The share of term deposits has gained especially after the liberalization of interest rates on these deposits in 1995-96. Savings deposits rates continue to be regulated. It is clear that customers are shifting out of low interest paying transaction accounts. This development has important implications for banks, which have traditionally had access to low cost deposits. With rates on term deposits being deregulated and customers moving to term deposits, their cost of funds is likely to increase in the future. This will definitely put pressure on their spreads, forcing them to reduce other expenses in order to maintain their net profit margins.

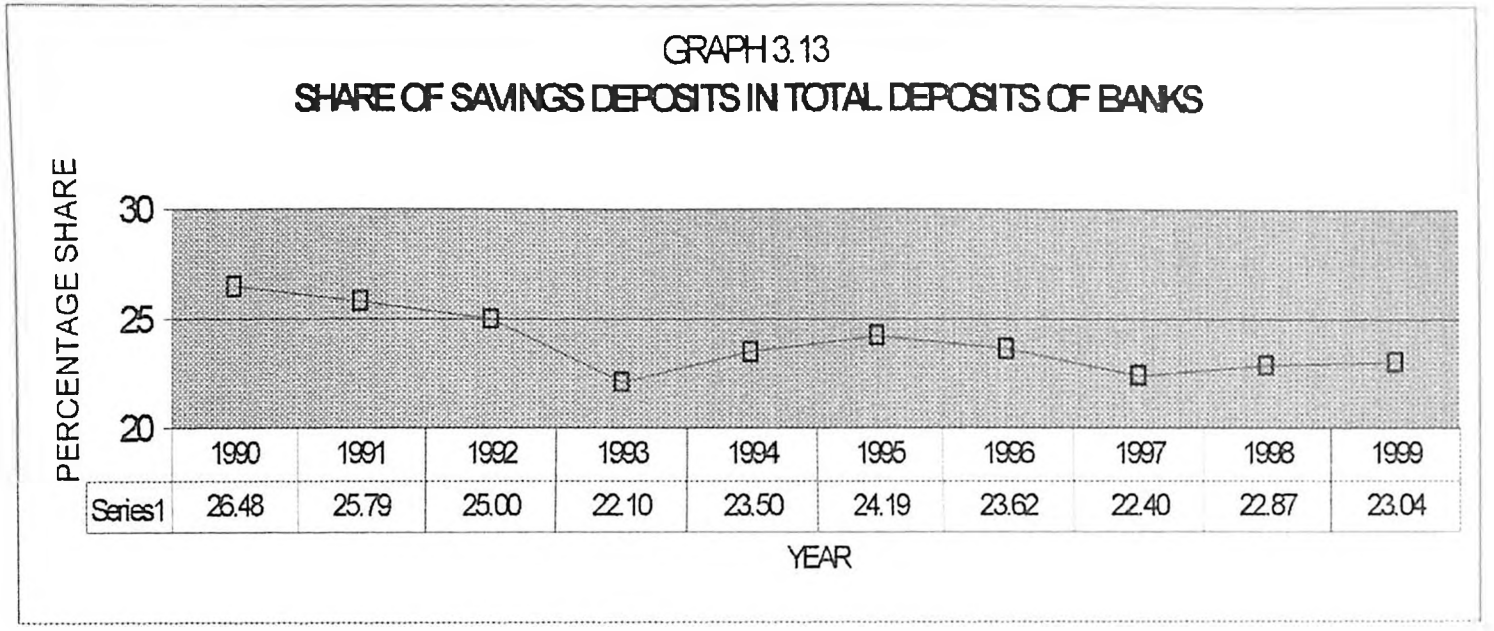
Graphs 3.15 and 3.16 represent the changes in preferences of customers relating to maturity of term deposits. Term deposits are crucial components of banks' liabilities since they contribute more than 60 percent of their total deposits. Both the graphs clearly show a trend of customers moving away from longer maturity. Share of deposits of less than an year of maturity have more than doubled from 12.8 percent to 27.49 percent in 1990 and 1998 respectively. Similarly, shares

GRAPH 3.12

SHARE OF CURRENT DEPOSITS IN TOTAL DEPOSITS OF BANKS



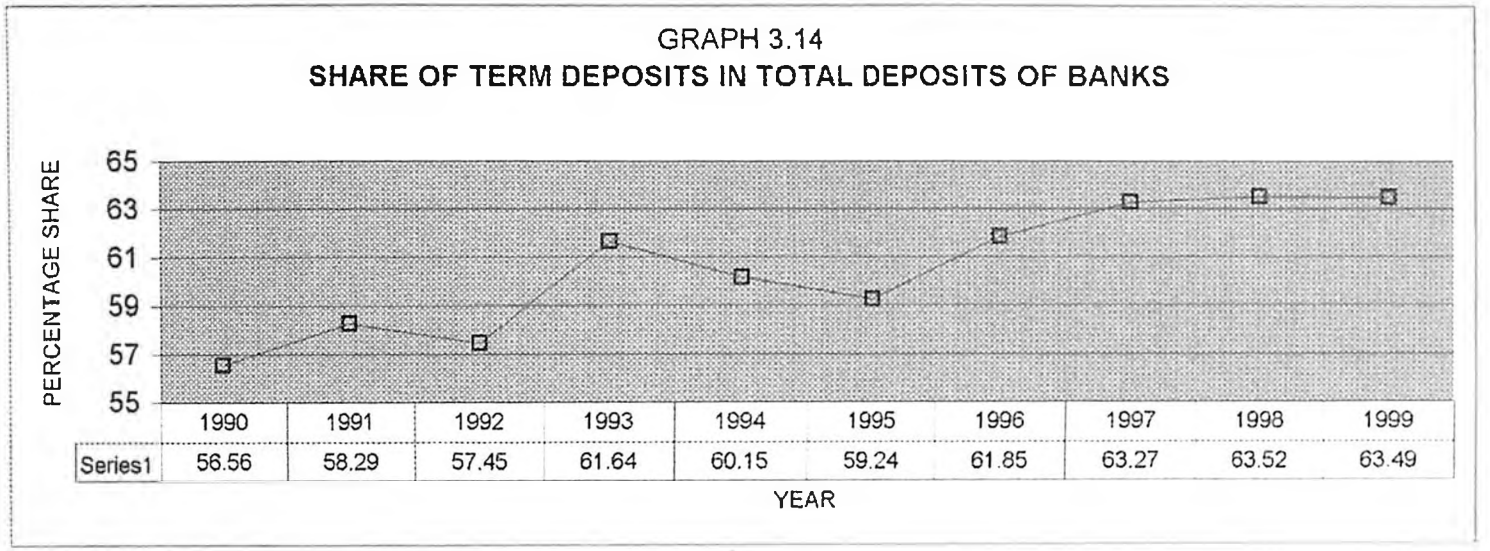
Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits (March 1990) to (March 1999).



Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits (March 1990) to (March 1999).

GRAPH 3.14

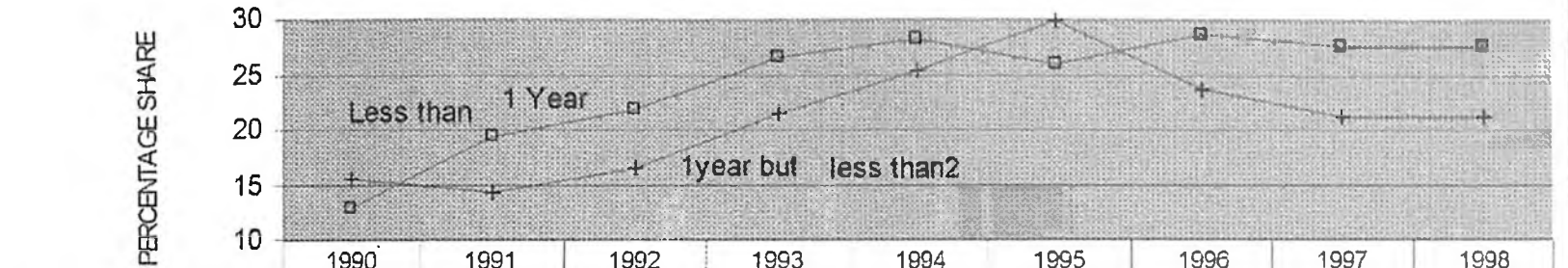
SHARE OF TERM DEPOSITS IN TOTAL DEPOSITS OF BANKS



Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits (March 1990) to (March 1999).

GRAPH 3.15

SHARE OF SHORT AND MEDIUM TERM DEPOSITS IN TOTAL TERM DEPOSITS OF BANKS



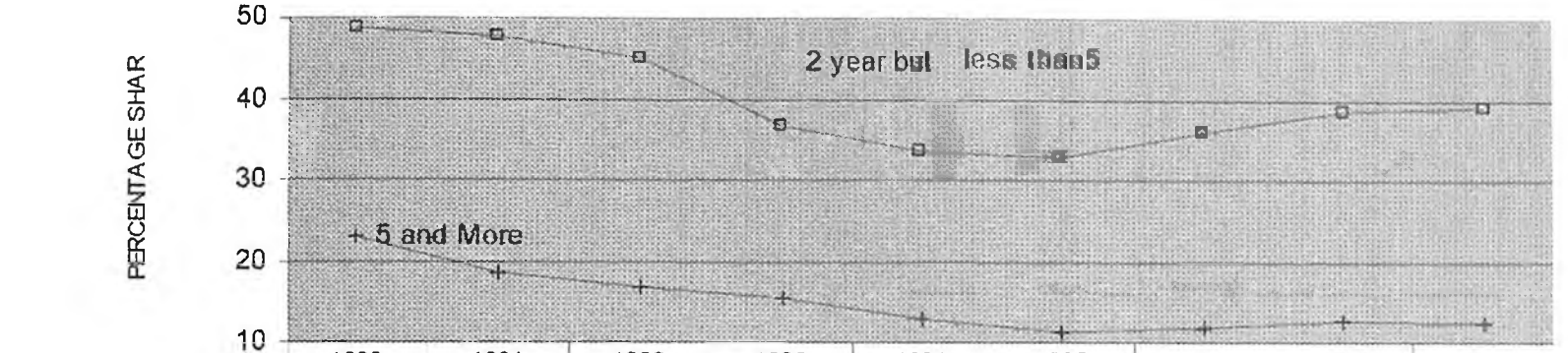
	1990	1991	1992	1993	1994	1995	1996	1997	1998
Less than 1 yr.	12.80	19.39	21.78	26.50	28.18	26.00	28.59	27.65	27.49
1 yr to less than 2	15.51	14.30	16.44	21.44	25.41	29.82	23.78	21.14	21.17

YEAR

Source: Scheduled Commercial Banks-Maturity Pattern of Term Deposits (1990-98)

GRAPH 3.16

SHARE OF LONG TERM DEPOSITS IN TERM DEPOSITS OF BANKS



	1990	1991	1992	1993	1994	1995	1996	1997	1998
2yrs to less than 5	48.66	47.70	45.10	36.66	33.57	32.78	35.95	38.64	38.99
5 and more yrs	23.01	18.61	16.68	15.40	12.84	11.41	11.69	12.57	12.35

YEAR

Source: Scheduled Commercial Banks-Maturity Pattern of Term Deposits (1990-98)

of deposits with very long maturity, i.e. five and more years have almost fallen to half their values in 1990, from 23.01 percent to 12.35 percent.

These trends are significant in the backdrop of the management of interest rate and liquidity risks. Banks are exposed to both on account of the unique nature of their business, which involves maturity intermediation. The mismatch in maturity of assets and liabilities exposes their income to changes in interest rates. Similarly, it also exposes them to the possibility of liquidity problems. With banks entering into long term lending, the maturity of their assets is likely to increase whereas the trends analyzed above suggest the maturity of their liabilities is decreasing. This will result in greater exposure to interest rate risk.

Conclusion

The first discernable conclusion is that household savers are willing to approach the capital markets directly to invest and are willing to adopt non-traditional financial instruments. Thus, bank deposits now have to compete with shares and debentures, mutual funds and non-bank deposits for a share of the sources of funds. Similarly, their share of assets in total financial assets of intermediaries is falling. Their share in borrowings of public limited companies has also fallen, though marginally. Foreign borrowing and inter-company deposits have emerged as competitors.

Consumer preferences too are changing, as brought out by the analysis of deposit products. The volatility in deposit volumes and changes in their composition have the effect of heightening interest rate risk. From the point of view of regulators, the need to guard against regulatory

arbitrage, which has hurt banks in the past, is crucial. The case of units of MMMFs becoming close substitutes of savings accounts to the detriment of banks needs to be kept in sight.

Given the customer's desire for higher returns, banks will have to cut down their costs to improve the returns they can offer. Regulators can facilitate this by removing obstacles in the path of branch and staff rationalization.

Lastly, risk management systems for interest rate risk management need to be put in place in view of interest rate deregulation and volatility in portfolio volumes and composition.

TABLE 3.1
Financial Assets of the House hold Sector
At Current Prices (Rupees Crores)

Year	Financial Assets	Currency	Bank Deposits	Non Bank Deposits	Life Insurance	PPF	Claims on Govt.	Share and Debentures	Units of UTI
1980	10249	1332	4659	477	773	1748	531	253	41
1981	12118	1625	5550	378	915	2122	712	412	31
1982	13621	965	5194	894	1037	2480	1748	510	114
1983	16097	2026	6661	870	1235	2865	1243	646	122
1984	18790	2776	7978	1019	1376	3052	1976	555	222
1985	23549	2938	9859	960	1556	3759	3107	762	567
1986	25562	2220	10603	1423	1779	4188	3413	1394	586
1987	31849	3090	14510	1512	2159	5055	3092	1768	943
1988	36106	4815	14674	1326	2589	6509	3680	813	1196
1989	39958	4256	14747	1580	3423	7552	5478	1136	1427
1990	48233	7655	13987	1839	4415	9508	6758	2655	2179
1991	58908	6251	18777	1286	5599	11155	7883	4972	3438
1992	68077	8157	17880	2218	7003	12501	4845	6800	9087
1993	80386	6562	29550	6035	7114	14814	3885	8212	5612
1994	109485	13367	36200	11654	9548	18226	6908	10067	4705
1995	145382	15916	55834	11547	11370	21295	13186	13474	3908
1996	123381	16525	39941	13198	13894	22311	9588	8839	262
1997	154200	13643	50902	25980	16121	25617	11784	6645	3776
1998	178576	12780	79514	7775	19431	32808	22164	3777	595
1999	207841	22131	76590	15376	22766	38742	27004	4935	565

Source: Financial Assets/ Liabilities of the Household Sector (1971-99).

TABLE 3.2

Financial Assets of Financial Intermediaries

(Rs. Crore)

1 Year	2 SCBs	3 All Banks	4 Non Govt.Fin.(incl. ICICI,SCICI, HDFC)	5 All India Term Lending Fis (Excl.ICICI)	6 ICICI	7 SFC, SIDC	8 LIC,GIC	9 UTI	10 DICGC ECGC
1990	196377	205513	10568.3	39337.4	5603.9	7899.1	29273	18421.2	1650
1991	222613	232786	15359.07	44969	7084	10048	35402	23164	1987
1992	259902	271915	20993.87	56049	9135	11523	43364	35336	2354
1993	299509	312983	27000.51	62465	11185	12576	50568	41578	2899
1994	358407	373511	34624.52	67280	13715	13229	60880	54882	3833
1995	438092	455840	48308.4	74375	17375	14178	74614	62444	5127
1996	489148	508652	62041.21	85216	20911	17914	91308	59411	4560
1997	542001	564824	75793.91	97880	33756	19719	108664	59875	5884
1998	628332	654406	89725.31	115876	45340	21003	129635	68113	6914
1999	721649	750581	101662.01	127946	54510	21003	129635	71925	8409

Source: Financial Assets of Banks and Financial Institutions (1991-99) and (1990-97), Combined Balance Sheet-Selected Financial and Investment Companies (1998-99), (1995-96 to 1997-98), (1993-94 to 1994-95) , (1990-91 to 1992-93) and (1989-90).

TABLE 3.3

Borrowings of Public Limited Companies

(Rs. Crores)

Year	Debentures	Loans from Banks	Other Indian Fis	Foreign Agencies	From Companies	Public Deposits	Total
1990	7328	13854	9768.1	492	842.2	2803	35087.3
1991	8447	14284	10719	676	581	2906	37613
1992	10948	16577	14679	708	762	3190	46864
1993	12890	19815	18576	996	904	3231	56412
1994	12902	16816	19401	3298	1079	3303	56799
1995	16234	26132	23484	4857	1775	4005	76487
1996	18130	35744	26786	4365	1950	4208	91183
1997	20088	41068	32401	4966	3282	5260	107065
1998	26069	45911	36612	4978	3815	5739	123124
1999	30560	50353	43283	6791	3094	6296	140377

Source: Combined Balance Sheet of the Selected Public Limited Companies, (1997-98 to 1998-99), (1994-95 to 1996-97), (1990-91 to 1992-93), (1993-94) and (1989-90).

TABLE 3.4

Deposit Composition of Banks

(Rupees in Lakhs)

Year	Current	Savings	Term	Total
1990	2956993	4615221	9860041	17432255
1991	3186602	5159557	11662050	20008209
1992	4047896	5764853	13249680	23062429
1993	4545931	6181417	17236994	27964342
1994	5328302	7660180	19606291	32594773
1995	6396300	9336900	22862200	38595400
1996	6365617	10344331	27090448	43800396
1997	7292950	11391754	32180491	50865195
1998	8237042	13829345	38414719	60481106
1999	9929772	16977196	46793309	73700277

Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits (March 1999, 1998, 1997, 1996, 1995, 1994, 1993, 1992, 1991, 1990).

TABLE 3.5

Maturity Pattern of Term Deposits of Banks

(Rs. in Crores)

Year	Less than 1 Year	1 year but less than2	2 year but less than5	5 and More	Total
1990	9002	10912	34244	16188	70346
1991	22117	16312	54419	21235	114083
1992	28783	21732	59595	22040	132150
1993	43657	35322	60407	25371	164757
1994	54565	49195	65006	24855	193621
1995	57853	66350	72934	25384	222521
1996	73675	61277	92645	30138	257735
1997	85291	65195	119181	38788	308455
1998	102884	79237	145933	46231	374285

Source: Scheduled Commercial Banks-Maturity Pattern of Term Deposits (1990-98).

CHAPTER 4

MARKET STRUCTURE OF BANKING INDUSTRY IN INDIA

This chapter focuses on a brief review of literature to explore market structure indicators relevant to the banking industry. These indicators are then used to analyze the market structure trends in Indian banking during the 1990s.

Literature Survey

Beck et al (1999) look at measures of market structure of the banking industry. Specifically, they calculate a concentration ratio, which is the ratio of three largest bank's assets to total assets of the banking industry. This gives the extent of concentration of market share among few large firms. The higher the ratio, more is concentration of market power. The second measure of market structure used is ratio of publicly owned commercial bank's assets to total assets of the banking industry. A publicly owned commercial bank is defined as a bank wherein at least 50 percent of equity is owned by government or a government institution. This ratio gives insight into the type of firms dominating the industry.

Lopez and Kaushik (1998) conduct a comparative analysis of profitability of credit unions and commercial banks in the USA in the nineties. They look at number of commercial banks over the decade to spot any consolidation in the industry.

Sarkar and Bhaumik (1998) analyze the market structure of Indian banking industry using three variables. The first is the concentration ratio, i.e. the market share of largest few (one, three or

five) banks. The second is inter-bank mobility, i.e. changes in the market share rankings of banks. The third measure used is market share of bank groups as measured by the share of their deposits in total deposits of all banks. The bank groups used by them are SBI and associates, nationalized banks, old private banks, foreign banks and new private banks.

Framework Used for the Study

On the basis of the literature survey the following framework has been developed for a study of the relevant trends pertaining to banks:

a) Measures of Market Structure

The deposit market of banks is used to analyze the competitive dynamics between different bank groups. The aim of studying trends in market structure is to analyze the competitive dynamics of the industry largely through an analysis of market shares of players or groups of players in the industry. The market shares of different bank groups in the deposit market are analyzed to gain an understanding of trends in market structure. The bank groups used are SBI and associates, nationalized banks, private and foreign banks. The measures are percentage share of deposits of each group to total deposits (sum of deposits of all groups).

b) Measures of Activity

Banks deploy most of the funds raised through deposits in credit and investments, the primary business of banks being to give credit. Researchers have used various ratios to measure the activity level of banks by looking at their ability to channel deposits into lending and investment operations over time. Some of these ratios are:

1. The credit to deposit ratio.

Deposits are defined to be equal to the total of fixed, savings and current deposits. Credit includes loans and advances, cash credit and overdrafts, and bills purchased and discounted.

2. Total investments to deposit ratio.

Total investments include investments in securities of state and central governments, other approved securities, shares, debentures, bonds and others (including foreign securities, gold etc.). These total investments are segregated into two sets and two more ratios are calculated. These ratios are given below:

2.1 State and central government and other approved securities to deposit ratio.

2.2 Shares and debentures to deposit ratio.

This analysis has been carried out for the years 1980 to 1999. During this period the financial year of scheduled commercial banks was changed from January-December to April-March. Thus, the data from 1980 to 1987 is as on 31st December and that from 1990 to 1999 is as on 31st March. The 15 months from January 1988 to March 1989 have been compiled together.

Data Sources

This trend analysis is based on the published sources of data. Important publications used for compilation of the data are:

A. Selected Banking Indicators 1947-97. This is a publication of the Reserve Bank of India and contains data on deposits and investments of Scheduled Commercial Banks from 1980 to 1987 and 1990 to 1997. For years 1998 and 1999, the data has been compiled from Report on Trend and Progress of Banking in India, 1998-99.

B. Composition and Ownership Pattern of Bank Deposits, 1990 to 1999. This is an annual survey conducted by the Reserve Bank of India and published in the monthly RBI bulletins. Information on trends in deposit markets has been collected from these surveys.

Analysis

In what follows, we analyze the Indian banking data by using the framework developed earlier. We take up each of the measures one by one, compute the relevant ratios over time and present them in the form of tables and graphs to support the analysis and broad conclusions.

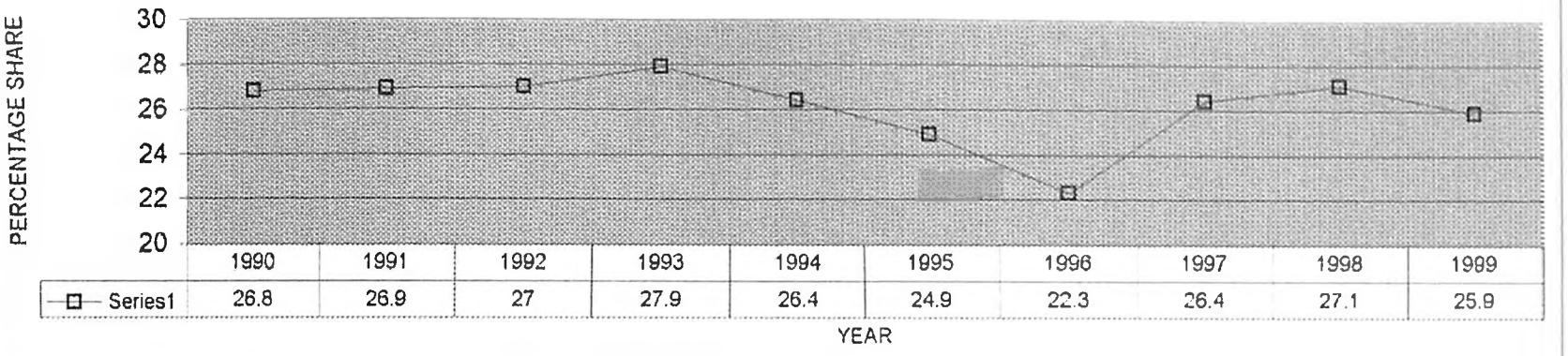
a) Measures of Market Structure

Graphs 4.1 to 4.3 show the share of different bank groups in the total deposits mobilized by all the bank groups.

The market share of SBI and associates has not shown a major drop over the period, moving from 26.8 percent in 1990 to 25.9 percent in 1999, but during the same period the share of

GRAPH 4.1

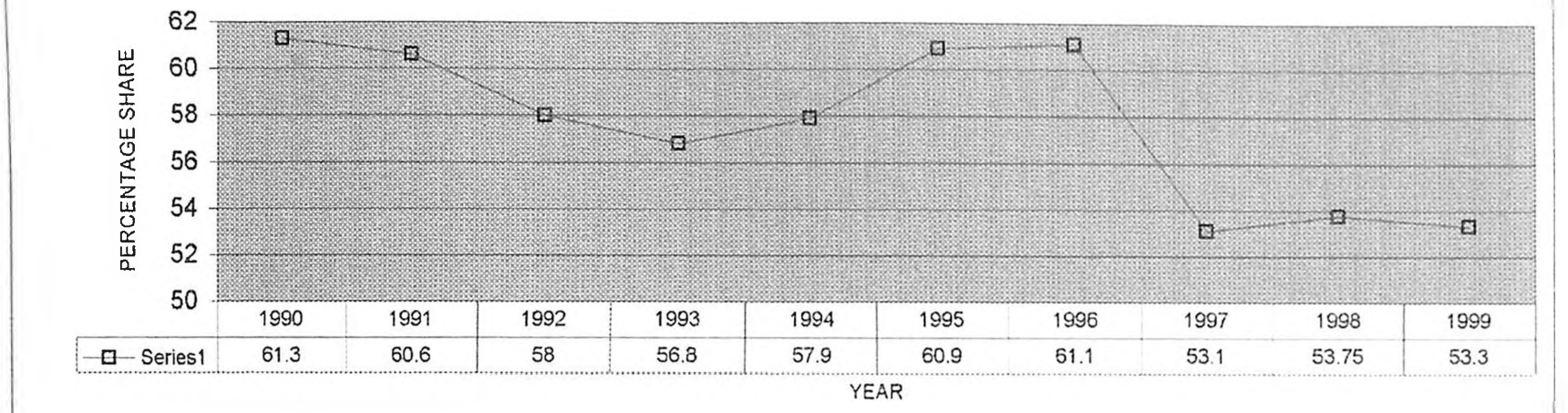
SHARE OF DEPOSITS OF SBI AND ASSOCIATES IN TOTAL DEPOSITSOF BANKS



Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits, March 1990 to March 1999.

GRAPH 4.2

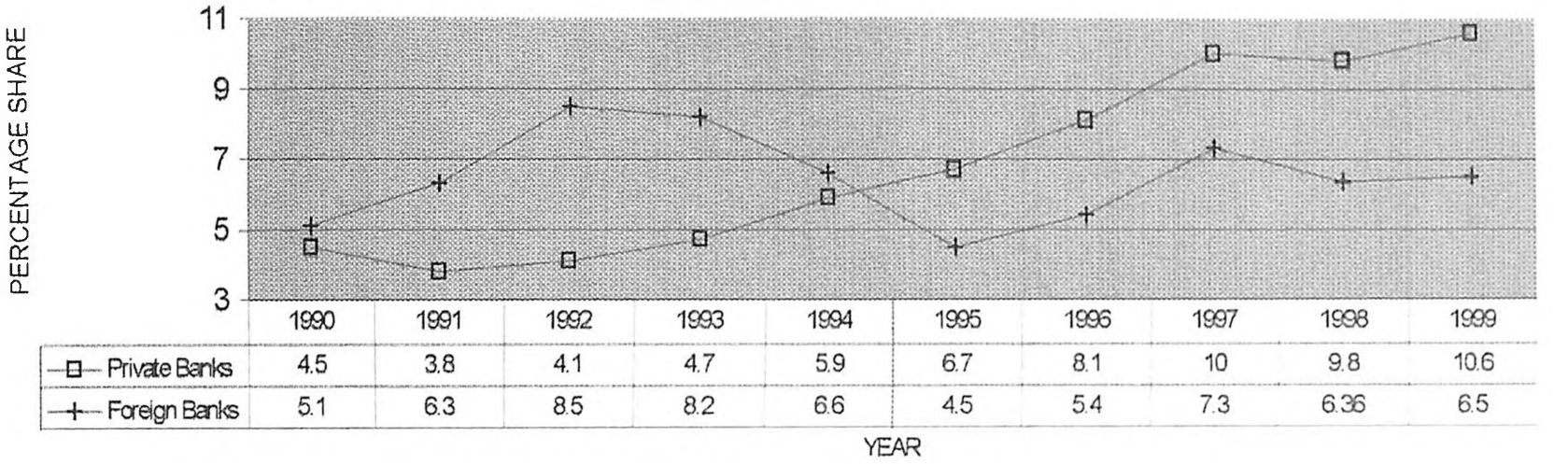
SHARE OF NATIONALIZED BANK DEPOSITS IN TOTAL DEPOSITS



Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits, March 1990 to March 1999.

GRAPH 4.3

SHARE OFPRIVATE AND FOREIGN BANK DEPOSITS IN TOTAL DEPOSITS



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Private Banks	4.5	3.8	4.1	4.7	5.9	6.7	8.1	10	9.8	10.6
Foreign Banks	5.1	6.3	8.5	8.2	6.6	4.5	5.4	7.3	6.36	6.5

Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits, March 1990 to March 1999.

nationalized banks has registered a precipitous fall from 61.3 percent to 53.3 percent. In fact their share dropped from 61.1 percent to 53.1 percent in 1997 itself and has not recovered since.

The market share of private sector banks, on the other hand, has been growing steadily. It has grown from 4.5 percent in 1990 to 10.6 percent in1999. They have more than doubled their share over the period.

The Graphs 4.2 and 4.3 show a break in trends in 1995, 1996 and 1997. This was the time when a number of important liberalization measures such as deregulation of interest rates on deposits and branch licensing, and allowing entry of new private sector banks were implemented.

It appears that private sector banks are providing competitive interest rates to win market share from their rivals and they are succeeding.

A study conducted by Sarkar and Bhaumik (2000) throws further light on the competition in deposit markets. They study the region wise market shares of banks from 1993-94 to 1997-98. They find that in New Delhi, West Bengal and Maharashtra, where foreign and private sector banks are most concentrated, private sector banks have made the maximum gains mostly at the expense of foreign banks. In Tamil Nadu, Kerela, Andhra Pradesh, Karnataka, J&K and Rajasthan, where private sector banks compete with public sector banks, private sector banks have significantly dented the market shares of the public sector banks. In Uttar Pradesh, Madhya Pradesh, Bihar, Orissa, Gujarat and Punjab where both foreign and private sector banks have a marginal presence they find no change in relative market shares.

The extensive branch network of public sector banks across the country has served as a fortress against invasion of market share. Private banks will require substantial time and resources to break into it. However, in the more accessible geographical markets they are already assaulting the market share of public sector banks.

b) Activity Measures

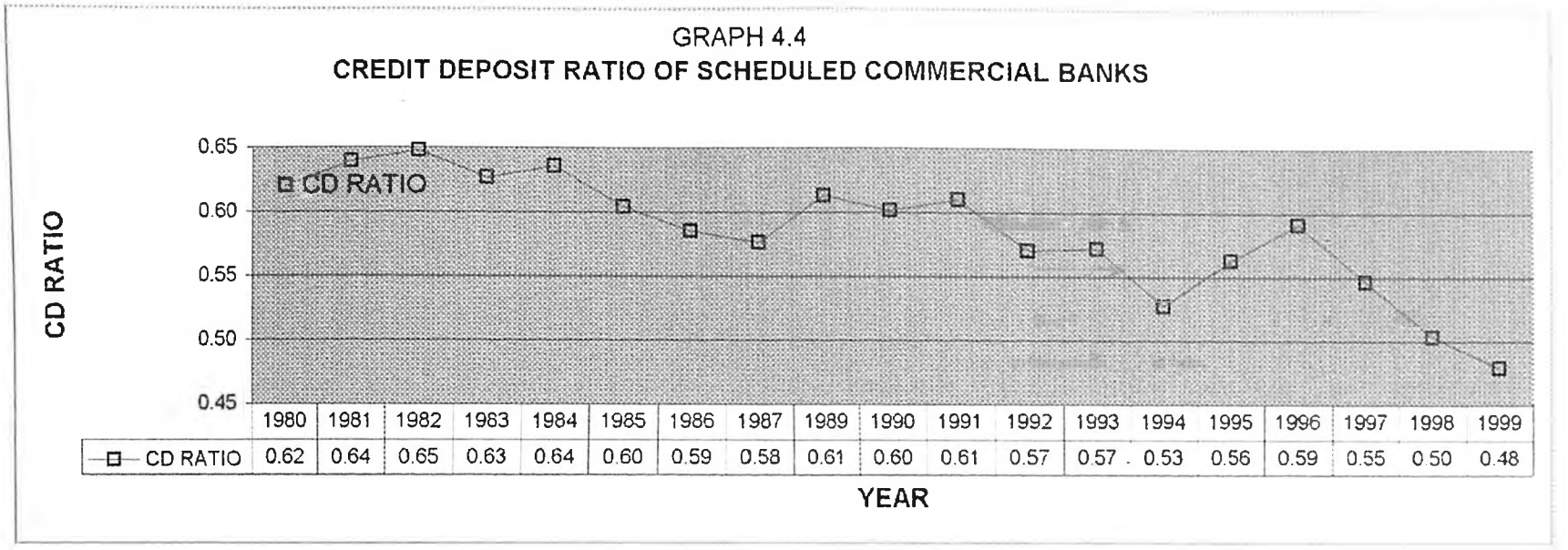
The first graph in this category, Graph 4.4, shows trends in credit to deposit ratio of commercial banks. The ratio shows a drop in the nineties from 0.6 in 1990 to 0.48 in 1999. It is clear from the graph that credit as a proportion of total deposits has fallen sharply over the period 1989 to 1999.

Graph 4.5 shows the trends in investment-deposit ratios. The graph shows a rising trend.

Graph 4.6 shows the trend in approved investments to deposit ratio. This ratio has fallen over the ten-year period from 1990 to 1999 from 0.36 to 0.33 even though the regulatory requirement of investment in government securities has been lowered in phases from 38.5 percent to 25 percent between 1990 to 1997. Moreover, after 1997 this ratio is applicable on aggregate net demand and time liabilities and not on incremental plus aggregate basis. This means that there is no regulation forcing banks to have approved investments to deposit ratio of more than 25 percent. It is also clear from this graph that the rise in the total investment to deposit ratio (as seen in Graph 4.5) is coming not from approved investments but from the non-approved ones. A large part of these non-approved investments are shares and debentures (48 percent in 1997). Greater

GRAPH 4.4

CREDIT DEPOSIT RATIO OF SCHEDULED COMMERCIAL BANKS

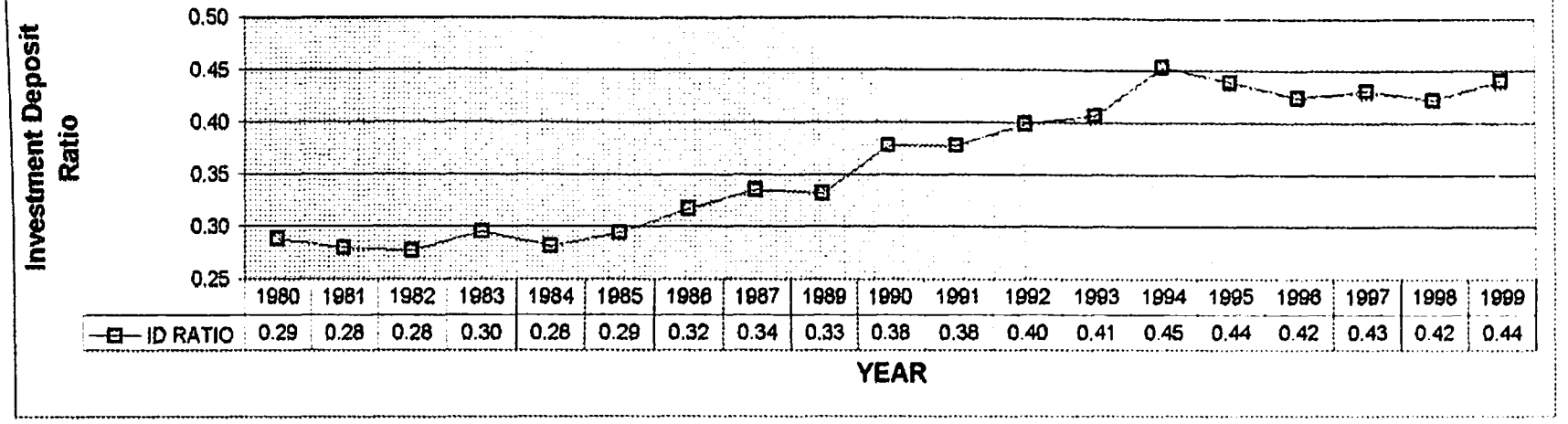


	1980	1981	1982	1983	1984	1985	1986	1987	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
CD RATIO	0.62	0.64	0.65	0.63	0.64	0.60	0.59	0.58	0.61	0.60	0.61	0.57	0.57	0.53	0.56	0.59	0.55	0.50	0.48

Source: Selected Banking Indicators (1947-97) and Consolidated Balance Sheet of Scheduled Commercial Banks as on March 31 (1998 and 1999).

GRAPH 4.5

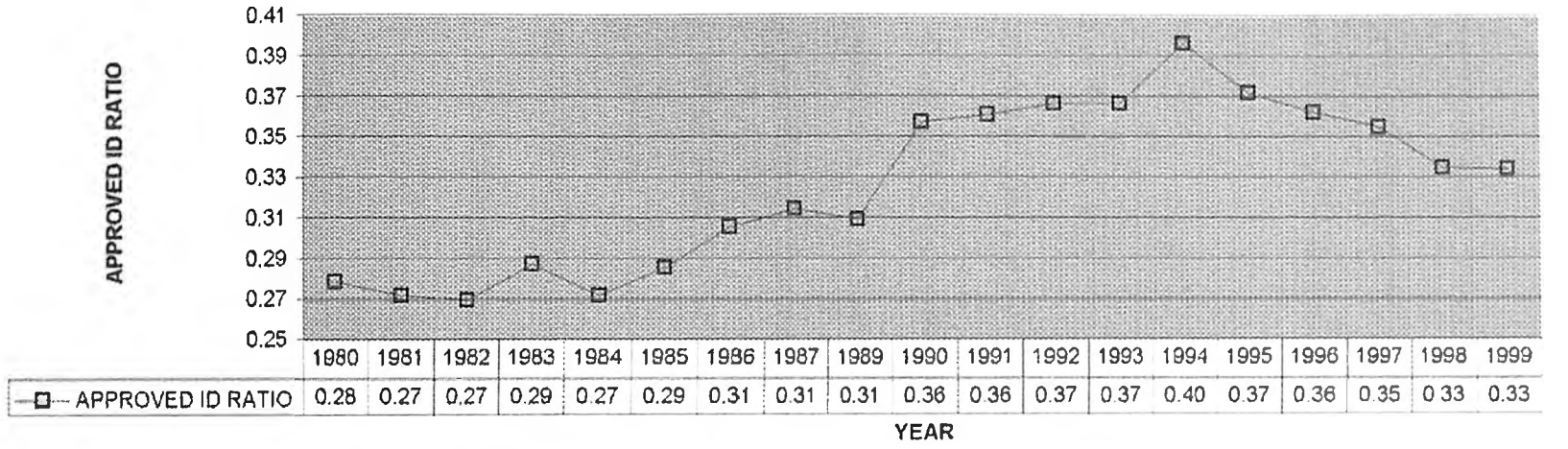
INVESTMENT DEPOSIT RATIO OF SCHEDULED COMMERCIAL BANKS



Source: Selected Banking Indicators (1947-97) and Consolidated Balance Sheet of Scheduled Commercial Banks as on March 31 (1998 and 1999).

GRAPH 4.6

APPROVED INVESTMENT TO DEPOSIT RATIO OF SCHEDULED COMMERCIAL BANKS



Source: Selected Banking Indicators (1947-97) and Consolidated Balance Sheet of Scheduled Commercial Banks as on March 31 (1998 and 1999).

than raising resources through banks. This is possibly because they have an established reputation among investors. Thus, in this category of companies there is a trend towards dis-intermediation of banks. The smaller and younger firms, on the other hand, are still not able to tap the capital market directly and, therefore, prefer raising resources through banks. Second, in both the categories of companies bank funds are the costliest. This is a particularly alarming finding given the traditional access of banks to cheap deposits.

On the supply side there appears to be a relationship between the regulatory requirement of linking bank capital to risk weighted assets and the unwillingness of banks to give loans. Firstly, banks are required to keep capital equivalent to100 percent of the loans made to companies, i.e., loans carry a risk weight of 100 percent. However, the capital to be kept aside for investments in government securities is only 2.5 percent (Follow-up to the Second Narasimhan Committee Recommendations, 1998-99). It is clear that clubbing all corporate advances in a 100 percent risk category puts banks at a disadvantage. It puts good borrowers out of their reach by raising their cost of borrowing. Given the difficulty being faced by banks in raising capital it is but natural that they would rather invest in government securities than give loans to un-credit worthy entities. This regulatory arbitrage seems to be responsible for the drop in the credit deposit ratio.

Conclusion

The trend of heightened competition visible in chapter 3 is seen in this chapter too. There the competition was between banks and non-banks, while here it is between banks themselves. Within banks the market shares of bank groups in the deposit market have been changing, albeit

slowly. The extensive branch network of public sector banks has ensured that their share is still the highest.

The analysis of activity measures shows that banks are substituting investments in securities for credit. Regulators will have to keep in mind this long-term trend which is questioning the very rationale behind the existence of banks, i.e. giving loans. Some regulatory requirements might be furthering the trend towards greater investments on bank balance sheets and these might need to be revised. The high cost of bank credit owing to high NPAs and low efficiency is also an area of concern. Bank credit is the costliest source of funds even though banks have access to cheap deposits. This is a development threatening the borrowers at large since high costs translate into higher expected returns. Regulators need to facilitate efficiency improvements in banks. Also banks seem to be substituting interest rate risk for credit risk and management of interest rate risk is likely to become crucial in the future.

TABLE 4.1
Bank Group Wise Shares in Total Deposits
(Percentages)

Year	SBI and Associates	Nationalized	Other	Foreign
1990	26.8	61.3	4.5	5.1
1991	26.9	60.6	3.8	6.3
1992	27	58	4.1	8.5
1993	27.9	56.8	4.7	8.2
1994	26.4	57.9	5.9	6.6
1995	24.9	60.9	6.7	4.5
1996	22.3	61.1	8.1	5.4
1997	26.4	53.1	10	7.3
1998	27.1	53.75	9.8	6.36
1999	25.9	53.3	10.6	6.5

Source: Composition and Ownership Pattern of Scheduled Commercial Bank Deposits (March 1990 to 1999)

TABLE 4.2
Bank Credits and Investments
(Amount in Rs. Lakhs)

Year	Total Investments	Credit	Deposits	Approved Investments
1980	1266427	2726732	4398690	1224570
1981	1489312	3405415	5327024	1445160
1982	1717601	4009729	6191603	1666546
1983	2177307	4618015	7365609	2112054
1984	2449377	5525781	8695376	2359583
1985	3033780	6235537	10321341	2943101
1986	3883866	7167179	12248194	3738607
1987	4739966	8140482	14128293	4437427
1989	5754854	10632744	17349211	5358411
1990	6871519	10954122	18204686	6498328
1991	7976609	12878506	21110891	7613042
1992	9956497	14228559	24959833	9140757
1993	11796067	16573194	28992265	10618287
1994	15421299	17929459	34018778	13466619
1995	17502069	22433086	39843520	14803309
1996	19135819	26636415	45064807	16316643
1997	23116715	29310497	53634247	19019769
1998	27196667	32416654	64406871	21547537
1999	33963341	36964855	77114555	25755979

Sources: Selected Banking Indicators (1947-97), Consolidated Balance Sheet of Scheduled Commercial Banks as on March 31 (1998 and 1999).

CHAPTER 5

PROFITABILITY ANALYSIS OF INDIAN BANKS

This chapter focuses on a brief review of literature to explore workable efficiency/ performance indicators relevant to the banking industry. These indicators are then used to analyze the profitability trends in Indian banking during the 1990s. This analysis is expected to reflect whether the profitability of the banking industry is improving post liberalization.

Literature Survey

Beck et al (1999) develop a database of indicators of financial development and structure across countries and over time. They attempt to unite a wide variety of indicators measuring the size, activity, efficiency and market structure of financial intermediaries and markets. The measures of profitability of banks used by them are net interest margin to total bank assets and overhead costs to total bank assets. The net interest margin is the difference between interest income and interest expense of the intermediaries. This difference represents the costs incurred by the depositors and the borrowers because of the presence of an intermediary. The higher this difference, lower the return depositors get on their deposits and higher the cost borrowers have to pay for their borrowings. The overhead costs are the costs (other than interest costs) incurred by the intermediary in performing its function. Thus, these two indicators - the net interest margin and overhead costs - depict the efficiency with which intermediaries channel funds from the savers to the borrowers in terms of the costs they and their customers incur. The denominator is taken as total assets in order to enable a comparison between intermediaries of different sizes.

Claessens et al (1998) study the impact of foreign banks on profitability of domestic banking markets in 80 countries. They use the ratios net interest income to total assets; non-interest income to total assets; overhead costs to total assets; and loan loss provisioning to total assets.

Lopez and Kaushik (1998) conduct a comparative analysis of profitability of credit unions and commercial banks in the USA in the nineties. The measures of profitability that they look at are net interest income, non-interest income, non-interest expense, loan provisions, realized gains / losses on investment, income before and after taxes, dividends and retained income each as a percentage of average assets. Dividends versus retained income indicate the level of funds distributed to shareholders versus that reinvested in the enterprise. Higher the retained income greater the reinvestment. A firm that has a higher rate of fund retention will need lower access to external fund sources to finance it's growth.

Methodology

On the basis of the literature survey the following framework has been developed for a study of the relevant trends pertaining to banks:

Measures of Profitability

Profitability ratios are used to analyze the trends in the profitability of banks. The measures selected in the light of the above discussion are ratios of *spread, net profit, interest costs, and non-interest costs* to total assets. These ratios are derived from the basic accounting concept of 'net income' of banks which is calculated as:

Net Income = Interest Income - Interest Expenditure + Other Income - Other Expenses - Provisions for Losses - Taxes

The difference between the Interest Income and Interest Expenditure is called spread of banks and is responsible for the bulk of their net income. This is an important indicator of profitability of banks. Other Expenses represent the costs incurred by banks in performing their intermediation function of raising deposits and giving loans.

The ratios are reported for the time period 1991-92 to 1998-99. Major criteria for selection of this time period is the availability of consistent data since prudential accounting standards were introduced in 1991-92.

Data Sources

This trend analysis is based on the published sources of data. The publication used for compilation of the data is the Report on Trend and Progress of Banking in India, 1998-99. This is a publication of the Reserve Bank of India containing data on profitability measures.

Analysis

In what follows, the Indian banking data is analyzed using the framework developed earlier. The ratios are presented in the form of tables attached with graphs to support the analysis and broad conclusions.

a) Spread to Total Assets

The first measure of profitability, shown in Graph 5.1, is that of percentage of spread to total assets. The graph clearly shows a drop in spread for all bank groups over their 1991-92 levels over the time period under consideration. The spread of SBI and associates showed a drop of almost 1 percent over these eight years while that of nationalized banks showed a drop of 0.07 percent. The case of the old private sector banks is particularly striking. Their spread has dropped to a little more than half of its level in 1992. There is a steep drop noticeable after the entry of new private sector banks in the two years 1994-95 and 1995-96. Old private sector banks had the highest spread in 1992 and are ranked fourth among the five bank groups in 1998-99.

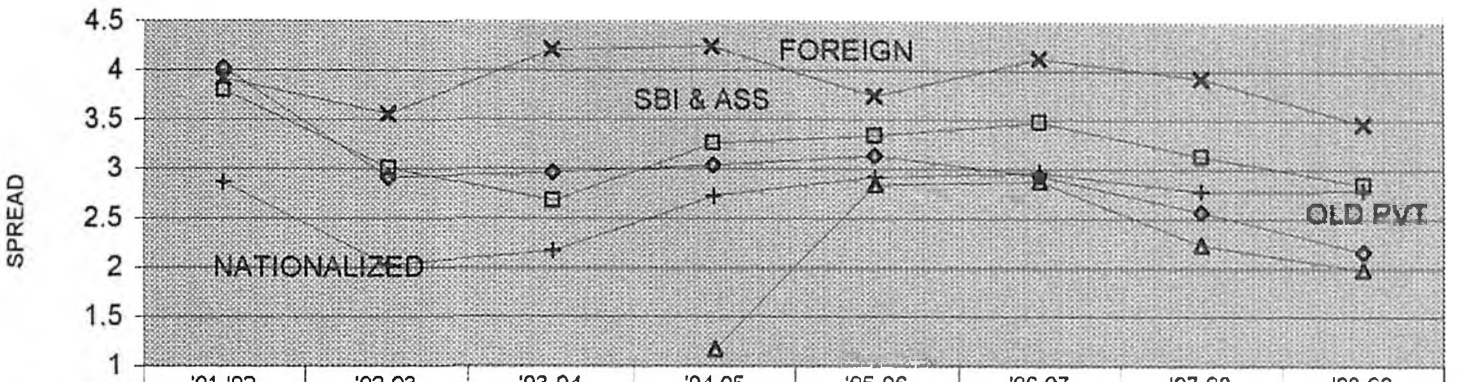
The new private sector banks have maintained the lowest spreads throughout the time period under consideration.

The spreads of SBI and associates, old private sector and foreign banks were grouped very closely at the higher end in 1992. Over the decade wide variations have developed among them. Out of the three, the spread of foreign banks has fallen the least and of old private sector banks the most. The fall in spread of foreign banks is almost half a percentage point.

Surprisingly, the spread of nationalized banks shows the least fall among all bank groups over the time period! Contrary to expectations they seem to be least affected by liberalization. The old private sector banks seem to have been affected the most.

GRAPH 5.1

SPREAD OF DIFFERENT GROUPS OF SCHEDULED COMMERCIAL BANKS AS A PERCENTAGE OF THEIR ASSETS



	'91-'92	'92-93	'93-94	'94-95	'95-96	'96-97	'97-98	'98-99
SBI AND ASSOCIATES	3.8	3.01	2.68	3.26	3.34	3.48	3.14	2.85
NATIONALIZED BANKS	2.86	2.02	2.17	2.73	2.92	2.97	2.78	2.79
OLD PRIVATE	4.02	2.91	2.97	3.04	3.14	2.93	2.57	2.16
NEW PRIVATE				1.17	2.84	2.88	2.23	1.98
FOREIGN	3.92	3.56	4.21	4.24	3.74	4.13	3.93	3.47

YEAR

Source: Net Profit /Loss, Spread, Interest Expenses and Intermediation Costs as a percentage of total assets of Public Sector, Private Sector and Foreign Banks (1991-92 to 1998-99).

b) Interest Costs to Total Assets

The second measure of profitability presented in Graph 5.2 is interest costs as percentage to total assets. It would be incorrect to compare the interest expenses over time since they depend on the interest rates prevailing in the economy. However, the contribution of interest expenses to spreads and the relative expenses of bank groups at a point in time can be compared.

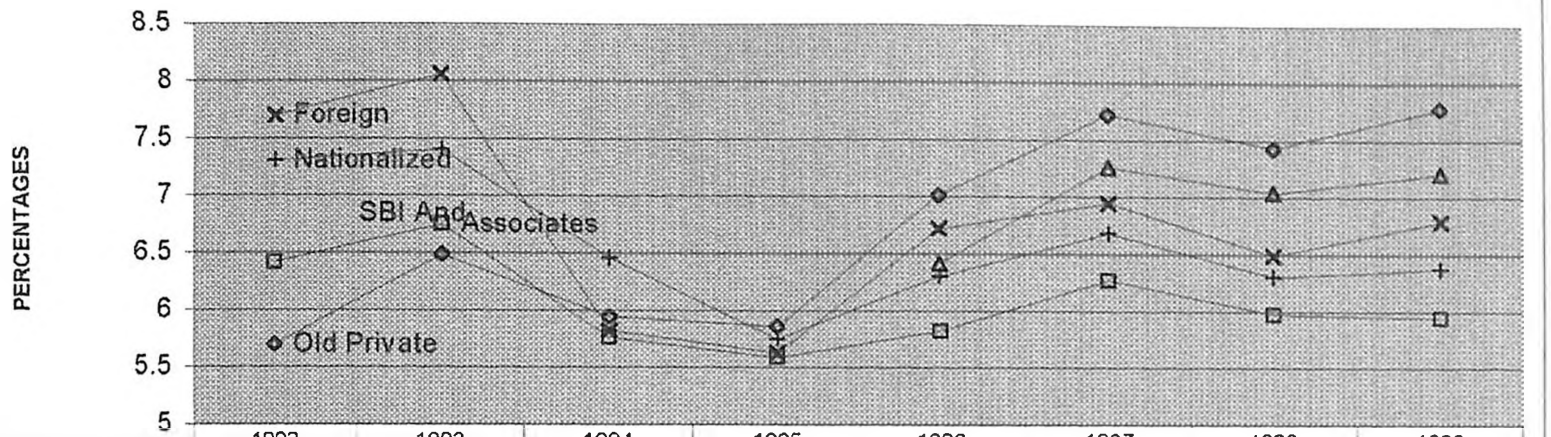
The first striking feature of the graph is the difference in position of old private sector banks over the time period under consideration. They had the lowest interest costs in 1992 but have the highest in 1999. In fact, almost 80 percent of the reduction in their spreads between 1995-96 and 1998-99 is on account of higher interest costs and not on account of lower interest incomes. Similarly, 93 percent of the reduction in spreads of new private sector banks between 1995-96 and 1998-99 is accounted for by a rise in their interest expenses.

Foreign banks had the highest interest expenses in 1992 but are third highest in 1999. Only 26 percent of the reduction in their spreads between 1995-96 and 1998-99 is accounted for by rise in interest expenses, implying that their spreads are under pressure from drop in interest income and not from a rise in interest expenses, unlike the private banks.

Nationalized banks had the second highest costs in 1991-92 but are on position four in 1998-99. Almost 54 percent of the reduction in their spreads between 1995-96 and 1998-99 is accounted for by rise in interest expenses.

GRAPH 5.2

INTEREST EXPENSES AS A PERCENTAGE OF TOTAL ASSETS OF BANK GROUPS



	1992	1993	1994	1995	1996	1997	1998	1999
SBI AND ASSOC.	6.41	6.75	5.76	5.59	5.82	6.27	5.97	5.94
NATIONALIZED BANKS	7.31	7.4	6.46	5.75	6.3	6.68	6.3	6.37
OLD PRIVATE	5.7	6.48	5.94	5.86	7.01	7.72	7.43	7.78
NEW PRIVATE					6.41	7.26	7.04	7.21
FOREIGN	7.7	8.06	5.82	5.63	6.72	6.95	6.49	6.79

YEAR

Source: Net Profit /Loss, Spread, Interest Expenses and Intermediation Costs as a percentage of total assets of Public Sector, Private Sector and Foreign Banks (1991-92 to 1998-99).

SBI and associates have the lowest interest costs in 1998-99 as against the second lowest in 1991-92. Almost 25 percent of the reduction in their spreads between 1995-96 and 1998-99 is accounted for by higher interest expenses.

This analysis clearly brings out the keen competition for deposits between private sector banks and to some extent nationalized banks too. SBI and associates and foreign banks seem to be least affected by this competition.

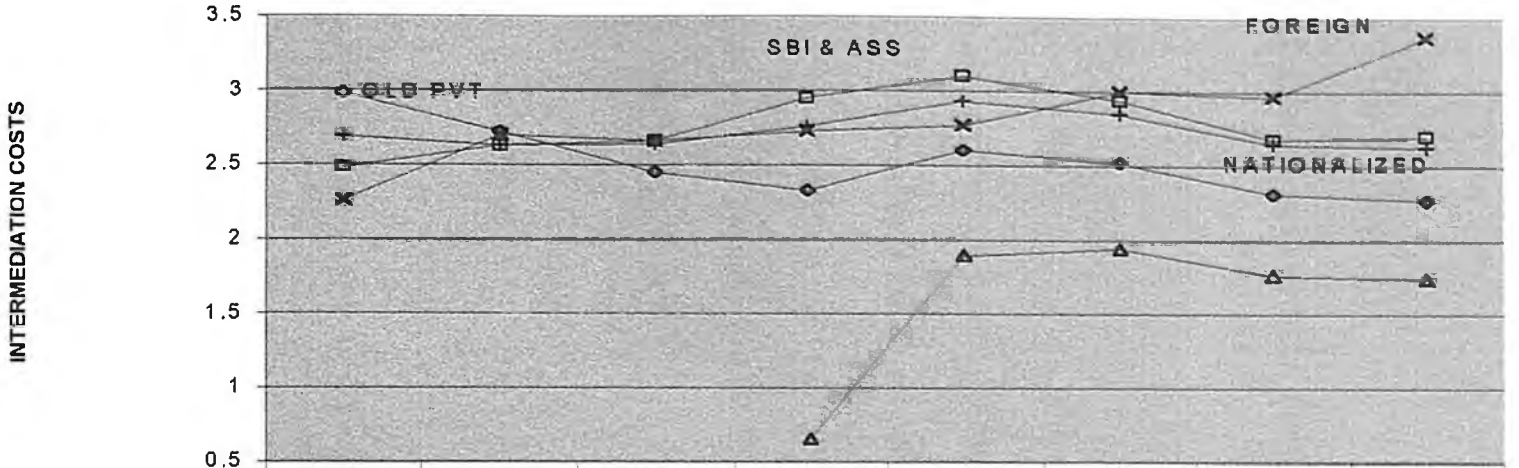
c) Non-Interest Costs to Total Assets

The third measure of profitability is percentage of non-interest costs to total assets and Graph 5.3 shows its trends for different bank groups. Here the trend of reduction in non-interest costs is not visible as in the case of spreads. Non-interest costs of SBI and associates and foreign banks have risen from 2.48 to 2.70 percent and 2.26 to 3.37 percent, respectively.

Foreign banks had the lowest costs across all groups in 1991-92 and by 1998-99 they had the highest. Old private sector banks have made the maximum efforts to lower their costs and have achieved a reduction of 0.71 percentage points – the maximum reduction across all bank groups. Old private sector banks have responded to the drastic reduction in their spreads (as seen in Graph 5.1) by reducing non-interest costs to maintain profit margins. Starting from the highest costs among all bank groups in 1991-92 they were the fourth highest in 1998-99.

GRAPH 5.3

INTERMEDIATION COSTS DIFFERENT GROUPS OF SCHEDULED COMMERCIAL BANKS TO TOTAL ASSETS



	'91-'92	'92-93	'93-94	'94-95	'95-96	'96-97	'97-98	'98-99
SBI AND ASSOCIATES	2.48	2.63	2.66	2.95	3.1	2.94	2.68	2.7
NATIONALIZED BANKS	2.69	2.63	2.64	2.76	2.93	2.85	2.65	2.63
OLD PRIVATE	2.98	2.72	2.45	2.33	2.6	2.52	2.31	2.27
NEW PRIVATE				0.65	1.89	1.94	1.76	1.74
FOREIGN	2.26	2.7	2.66	2.73	2.77	3	2.97	3.37

YEAR

Source: Net Profit /Loss, Spread, Interest Expenses and Intermediation Costs as a percentage of total assets of Public Sector, Private Sector and Foreign Banks (1991-92 to 1998-99).

Here too, new private sector banks outperform the other groups by a wide margin – their costs are the lowest across the years. That is not all, they are lower than the next higher group, i.e. old private sector banks, by 0.53 points!

d) Net Profit to Total Assets

The trend in the fourth measure of profitability of different bank groups, net profit to total assets, is shown in Graph 5.4.

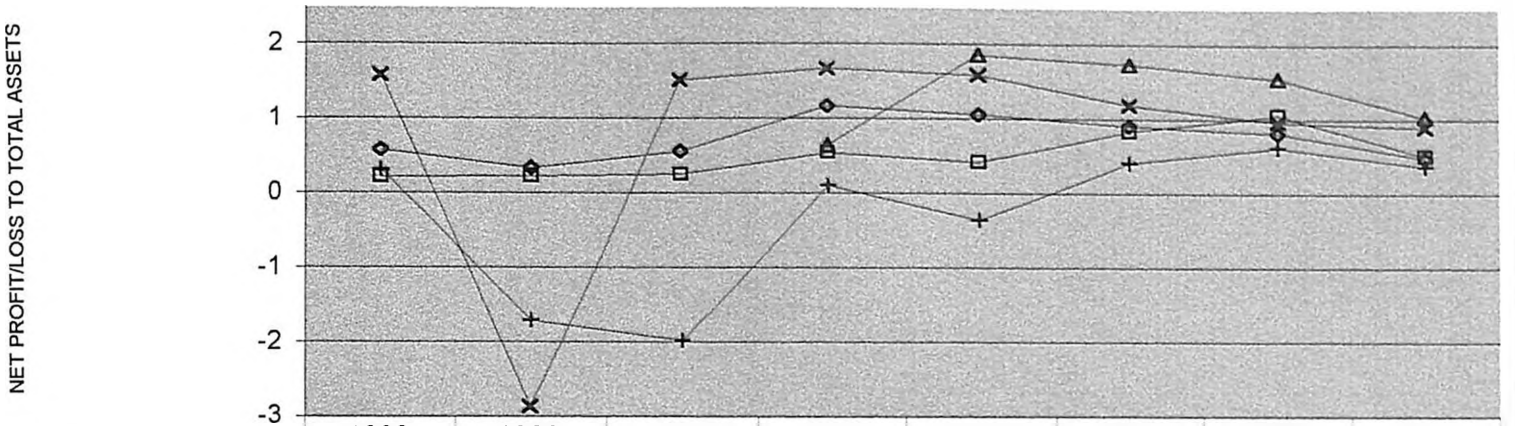
Old private sector and foreign banks both show falls in their net profit levels but on account of different reasons. In the case of old private sector banks the primary reason is a drop in spreads not completely covered by a fall in non-interest costs. On the other hand, in the case of foreign banks the reason for drop in net profit margins is a sharp rise in non-interest costs. Their net profit dropped by 1.48 percent points, spreads dropped by only 0.45 percent points and non-interest costs rose 1.11 percent points.

The surprise package here is SBI and associates who have managed to improve their net profit margins by almost 0.3 percentage points over the time period under consideration despite both a reduction in spreads and a rise in non-interest costs. Nationalized banks too have improved their margins.

New private sector banks have the highest net profit margin levels. These, however, have fallen over the past four years (1995-96 to 1998-99). A look back at Graphs 5.1 and 5.3 tells us that their spreads and non-interest costs have both fallen over these years.

GRAPH 5.4

NET PROFIT/LOSS AS A PERCENTAGE OF ASSETS OF DIFFERENT BANK GROUPS



	1992	1993	1994	1995	1996	1997	1998	1999
SBI AND ASSOCIATES	0.21	0.22	0.25	0.54	0.42	0.84	1.06	0.51
NATIONALIZED BANKS	0.3	-1.71	-1.98	0.1	-0.36	0.41	0.62	0.37
OLD PRIVATE BANKS	0.57	0.34	0.56	1.16	1.06	0.91	0.81	0.48
NEW PRIVATE BANKS				0.64	1.85	1.73	1.55	1.03
FOREIGN BANKS	1.57	-2.88	1.51	1.66	1.58	1.19	0.97	0.9

YEAR

Source: Net Profit /Loss, Spread, Interest Expenses and Intermediation Costs as a percentage of total assets of Public Sector, Private Sector and Foreign Banks (1991-92 to 1998-99).

Thus, like in the case of old private sector banks, the fall in their non-interest costs has not kept pace with the fall in their spreads leading to a fall in net profits of 0.82 percent points.

Overall there appears to be a slight convergence among the net profits of various bank groups. The difference between highest and lowest levels was 1.36 percent points in 1991-92 while it was 1.26 percent points in 1998-99.

Conclusion

Overall, the study of profitability ratios throws up some interesting insights, which are summarized below.

SBI and associates have consolidated and improved on their performance. Their major worry would be reducing non-interest costs to improve their net profit margins further.

Nationalized banks represent a diverse group of banks but overall they have reduced non-interest costs and improved spreads managing a slight increase in net profit levels.

Old private sector banks seem to face the greatest threat at present. Their spreads are under attack owing to competition from new private sector banks and they have not been able to stem the fall in their net profits even by a large reduction in non-interest costs.

New private sector banks seem to be well placed with high net profit margins and very low non-interest costs. They have set a blistering pace by offering very low spreads on their business ,

sustained, no doubt, by low costs. However, their spreads are falling. The fall in their spreads is not matched by the fall in costs and this might lead to problems for some banks in this group in the future.

Foreign banks have, surprisingly, managed to maintain their spreads despite the competition from new private sector banks. Their net profit margins have fallen on account of higher non-interest costs.

CHAPTER 6

ANALYSIS OF THE NON-PERFORMING ASSETS OF INDIAN BANKS:

This chapter examines the various facets of the problem of non-performing assets (NPAs) of Indian banks and the fundamental reasons behind the build-up of NPAs. It also examines the sequencing of reforms aimed at resolving this problem.

The problem of NPAs of Indian banks is put in perspective by the data given in Table 6.1. The table shows that the gross NPAs of public sector banks have been falling over the past decade but the NPAs of scheduled commercial banks as a whole have risen between 1997-98 and 1998-99.

Table 6.1
Gross Non-Performing Assets to Total Advances of Scheduled Commercial Banks
(Percentages as at end March)

Year	All Scheduled Commercial Banks	Public Sector Banks
1992-93	NA	23.20
1993-94	NA	24.80
1994-95	NA	19.50
1995-96	NA	18.00
1996-97	15.7	17.80
1997-98	14.4	16.00
1998-99	14.6	15.90

Source: Bank Group-wise Gross and Net NPAs of Scheduled Commercial Banks (1993 to 1999).

The facts presented in Table 6.1 are worrisome for three reasons. First, the level of NPAs is still high by international standards. Levels of NPAs in USA, Japan, Hongkong, Korea, Taiwan and Malaysia ranged from 1 to 8 percent in 1993-94, 0.9 to 5.5 percent in 1994-95 and 0.85 to 3.9 percent in 1995-96 (Siddiqi et al, 1999). Second, the pace of reduction of NPAs is slow. The second Narasimhan committee set a target of bringing the gross NPAs of banks with an international presence to 5 percent by year 2000 and 3 percent by year 2002 (Perspectives, 1998-99). Against these benchmarks the pace of reduction in NPAs is very slow. The two leading banks with an international presence, Bank of Baroda and State Bank of India, had gross NPAs of 16.03 and 15.56 percent respectively, at the end of March 1998-99. Third, the trend of reduction in NPAs for scheduled commercial banks as a whole has reversed in 1998-99. These facts demonstrate that the problem is still far from being solved eight years after the commencement of reforms in 1992.

This chapter examines the hypothesis that the problem remains unsolved because of improper sequencing of reforms. Researchers and institutions such as the IMF and the World Bank are stressing the importance of proper sequencing. The interim committee of the Board of Governors of the IMF, constituted in the aftermath of the South East Asian currency and banking crises, issued a communiqué in 1998. This communiqué stressed the importance of "orderly and properly sequenced" liberalization in reducing the vulnerability of financial systems to potential shocks (IMF Survey, April 27, 1998). A conference organized under the aegis of the IMF in July 1999 also deliberated on the issue of sequencing financial sector reforms (IMF Survey, August 2, 1999). One of the speakers at this conference, Gerard Caprio, Director, Financial Policy and Strategy Group and Head, Financial Sector Research, World Bank, opined that reforms involving

Thus, like in the case of old private sector banks, the fall in their non-interest costs has not kept pace with the fall in their spreads leading to a fall in net profits of 0.82 percent points.

Overall there appears to be a slight convergence among the net profits of various bank groups. The difference between highest and lowest levels was 1.36 percent points in 1991-92 while it was 1.26 percent points in 1998-99.

Conclusion

Overall, the study of profitability ratios throws up some interesting insights, which are summarized below.

SBI and associates have consolidated and improved on their performance. Their major worry would be reducing non-interest costs to improve their net profit margins further.

Nationalized banks represent a diverse group of banks but overall they have reduced non-interest costs and improved spreads managing a slight increase in net profit levels.

Old private sector banks seem to face the greatest threat at present. Their spreads are under attack owing to competition from new private sector banks and they have not been able to stem the fall in their net profits even by a large reduction in non-interest costs.

New private sector banks seem to be well placed with high net profit margins and very low non-interest costs. They have set a blistering pace by offering very low spreads on their business,

building institutions and improving the entire infrastructure that influences the behavior of the participants of the financial sector should be carried out first. This is because these are fundamental reforms and take a long time to complete. Thus, reforms carried out in the absence of supporting infrastructure are like a structure built without a foundation.

Further, the process of liberalization itself gives rise to new risks since it changes the rules of the game. As already outlined in Chapter 2, Demirguic-Kunt and Detragiache (1998) found that crises are more likely to occur in countries a few years after the start of liberalization. This was more so where the rule of law was weak, bureaucracy inefficient and contract enforcement mechanisms ineffective - in other words where liberalization was carried out without building the basic infrastructure and institutions. A similar conclusion was drawn by a study conducted by Williamson and Mahar (1999). Thus, proper sequencing of reforms is not only crucial to their success but also to decreasing the probability of crises following liberalization.

Fundamental Causes of High NPA Levels

As a first step to the analysis, the institutional and infrastructural factors that are fundamentally responsible for preventing the build up of NPAs are outlined below.

a) The Legal Infrastructure

In a review of the literature and evidence on corporate governance, Shleifer and Vishny (1997) noted that the foundations of corporate governance mechanisms are the laws that give protection to the suppliers of finance and the legal institutions that enforce these laws. The former

determine the powers of the suppliers of finance and the latter the speed and efficiency with which they can be used.

The results of a survey conducted by Siddiqi et al (1999) showed that the legal environment has been hostile to banks. In particular, 27 public sector and 6 private sector banks filed suits for the recovery of 46.38 percent of their NPAs in 1997-98 but were able to recover only 4.32 percent. In addition a significant portion of suits have been pending for more that a decade. The legal route for recovery of dues is longer when cases are referred to the Board for Industrial and Financial Reconstruction. This is because provisions of the Sick Industrial Companies Act, 1985 bar banks from taking action in such cases. Thus, in India both laws and enforcing institutions require reform.

b) Public Ownership of Banks and Market Discipline

Cheryl W. Gray, then Interim Director, Public Sector in the World Bank's Poverty Reduction and Economic Management Network, outlined three aspects of a well functioning legal system for a market economy (Gray, 1997). In addition to enacting market friendly laws and establishment of a broad set of efficient supporting institutions, Gray emphasized creating a demand for laws and efficient institutions.

Creditor friendly laws and efficient supporting institutions are ineffective unless banks take recourse to them. Repeated bail-outs by the government through recapitalization or bad debt buy outs reduce the incentive for banks to use friendly laws and institutions.

Shleifer and Vishny (1997) observed that though, theoretically, state firms are controlled by the public, defacto the control rests with bureaucrats. They have control rights but no rights to the cashflows generated, resulting in little concern for performance. This is particulary relevant to the public sector banks and is another reason why these banks may not use friendly laws and institutions. A market mechanism to deal with this problem is the reduction of government stake in public sector banks, in turn increasing their dependence on the equity market. Already investor concerns about high NPA levels have seen bank stock prices suffer on the stock market in the recent past. The share prices of Bank of Baroda, State Bank of Travancore and Bank of India fell 54.5, 54.4 and 52.4 percent respectively in 1998-99. While in the same period the S&P CNX Nifty Index showed a decline of 38.9 percent (Stock Prices of Indian Banks, 1998-99). Pressure from markets will force banks to deal with their NPAs aggressively.

c) Political Interference

The Indian banking system has been extensively misused for political reasons in the past. A large part of their bad debts are a legacy of this misuse. As shown in Table 6.2, the NPAs in priority sector advances of public sector banks are 46 to 49 percent of their overall NPAs while priority sector advances form only 30 to 32 percent of their total advances.

Table 6.2.

Contribution of Priority Sector NPAs to Overall NPAs in Public Sector Banks

	1995-96	1996-97	1997-98
Percentage of Priority Sector Advances to Total Advances	30.37	32.40	32.04
Percentage of Gross NPAs in Priority Sector Advances to Total Gross NPAs	48.27	47.67	46.40

Source:Siddiqi, A.Q., A.S. Rao and R.M. Jhakkar (1999).

The first Narasimhan committee report refers to the dangers of the micro credit guidance imposed on banks and suggests that directed credit be phased out gradually. Autonomy to bank managements in credit decision making is an important prerequisite to imposing market discipline.

d) Competition, Liberalization and Gambling

Sunderarajan, Deputy Director, Monetary and Exchange Affairs Department, IMF, suggested that all liberalization steps be subject to a "systemic stability test" (IMF Survey August 2, 1999). The test consists of answering the following question: "What are the structural institutional measures that are needed to protect the financial system against various risks and sources of instability that are foreseen in the short to medium term given the planned liberalization?" Liberalization of interest rate controls and entry conditions often aims at improving the efficiency of banks by generating competitive pressures. However, an increase in competitive pressures can lead banks to take excessive risks.

Hellman et al (2000) studied the dynamics of interest rate deregulation in the presence of deposit insurance schemes. According to them every bank has the option of investing in a "prudent asset" that yields relatively little or in an inefficient "gambling asset" that yields high returns if the gamble pays off and imposes costs on the depositors and deposit insurers if it fails. A bank can offer higher deposit rates and attract additional deposits. It can then invest in the gambling asset to achieve a higher growth rate.

The Indian banking industry has gone through both interest rate and entry liberalization. Sarkar and Bhaumik (1998) studied the impact of the structure of the banking industry on efforts to increase competitive efficiency through deregulation. They found that the large branch network of Indian public sector banks serves as a non-regulatory barrier to competition. Thus, the new private sector banks are primarily competing with the old private sector and foreign banks. In this context the recent trends in the NPA profile of the players is interesting. Table 6.3 shows that from 1996-97 to 1998-99 the NPAs of public sector banks have been falling while those of private and foreign banks have been rising. It is possible that intense competition in a small segment of the market is pushing private and foreign banks to take excessive risks.

Table 6.3

Gross NPAs as a Percentage to Total Advances of Different Bank Groups

	Public Sector Banks	Old Private Sector Banks	New Private Sector Banks	Foreign Banks
1996-97	17.8	10.7	2.6	4.3
1997-98	16.0	10.9	3.5	6.4
1998-99	15.9	13.0	5.7	7.0

Source: Bank Group-wise Gross and Net NPAs of Scheduled Commercial Banks (1997 to 1999).

Perhaps the requirements of adequate capital for private and foreign banks can be reviewed.

e) Bank Management

The foregoing discussion has focussed on systemic issues but the level of NPAs varies greatly among banks. It is obvious that some banks are better able to manage credit risks in the face of

existing constraints than others are. This underscores the importance of efficient credit appraisal and risk management systems in banks. Information networking among banks further aids their risk management abilities.

f) Prudential Regulation and Information Disclosure

Another prerequisite to imposing market discipline is the provision of adequate information disclosure. The income recognition norms being followed by banks prior to 1992-93 did not allow the true extent of their bad debts to be revealed. This allowed the situation to degenerate considerably before being detected.

Analysis of Relevant Reform Measures

Stijn Claessens, Lead Economist of the World Bank's Financial Sector Strategy and Policy Department, outlines the "phases of distress" that mark the efforts to restore the health of an ailing banking sector (IMF Survey, January 24, 2000). He mentions a **restructuring phase** when institutional, rehabilitation and recapitalization steps are carried out; and, a **fundamental reform phase** when the deeper causes are addressed through long term fundamental reform. The reforms carried out in the restructuring phase aim at a one-time cleansing of bank balance sheets. On the other hand fundamental reforms attempt to ensure that this cleansing is not required again. If restructuring reforms are not implemented along with fundamental reforms there is a good possibility the restructuring will be needed repeatedly in the future.

The liberalization and reform measures from 1992-93 have been classified on the basis of Claessens' "phases of distress" and are outlined below in Boxes 6.1 and 6.2.

Box 6.1. **List of Restructuring Reforms**

- Recapitalization and writing down of capital base of banks to account for their losses has continued right up to1998-99.
- An amount of Rs.400crores set aside in 1998-99 budget for an asset reconstruction fund.
- Banks agreed to restructure existing debt at a meeting with Finance Minister in June 2000.
- RBI announced a policy for recovery of NPAs to be in operation till March 2000.

Source: Kapila and Kapila (1997), Iyengar (2000), Monetary & Credit Policy Measures, Government Securities Market and Strengthening of Capital and Supervision (1998-99), and Policy Environment (1999-2000).

Box 6.2. Fundamental Reforms

Legal Environment

1. The recovery of debts due to banks and financial institutions act, 1993 was enacted in 1993 and a number of debt recovery tribunals were established subsequently.

S.

An analysis of the restructuring reforms shows that recapitalization measures have continued right from 1992-93 to 1998-99 but no effort has been made to cleanse bank's balance sheets of bad debts. A scheme for a one time cleansing of bank balance sheets has been launched, finally, in year 2000.

Box 6.2. Continued

2. Guidelines to banks for setting up settlement advisory committees for working out bad debts without legal recourse were circulated in1998-99.
3. An expert group to suggest appropriate amendments in the legal framework affecting banking sector was set up in 1998-99 which submitted its report, suggesting sweeping changes in banking laws in April 2000.

Market Mechanisms

1. The SBI Act, 1955 was amended in 1993-94 and the banking companies (acquisition and transfer of undertakings) acts 1970/1980 were amended in 1994-95 to allow for greater private shareholding.

Political Interference

1. Power to sanction credit was largely passes into the hands of bank managers in 1996-97.
2. The definition of priority sector was widened in 1998-99 to include lending to NBFCs for on-lending to small road and water transporters and tiny sector, software industry, retail traders, food and agro-based processing and provision of venture capital.

Risk Management

1. Guidelines on risk management including credit risk measurement, monitoring and control issued in 1998-99.
2. Working group set up to examine feasibility of setting up a credit information bureau submitted its report in 1998-99.

Box 6.2. Continued

3. A new process for monitoring loans involving loan monitoring from the outset to detect potential sickness is being adopted after the finance minister's meeting with bank chieftains in June 2000 (Iyengar 2000).

Regulation

1. Income recognition, asset classification and loan loss provisioning norms laid down in 1992-93.
2. Minimum risk based capital standards norms in line with international standards were specified in 1992-93.

Source: Kapila and Kapila (1997), Iyengar (2000), Monetary & Credit Policy Measures, Government Securities Market and Strengthening of Capital and Supervision (1998-99), and Policy Environment (1999-2000).

A look at the fundamental reforms shows that bank legislation has not yet been reformed. Though special debt recovery tribunals were set up fairly early they have proved ineffective owing to inadequate infrastructure. However, since this reform was started early their functioning can now be streamlined on the basis of past experience.

Since the long delays inherent in the legal system were well known, guidelines for settlement advisory committees should have been issued earlier than 1998-99. This would have helped tackle NPAs in the absence of legislative reform.

Directed credit continues to exist though its definition has been widened recently. Political compulsions make it difficult to phase out directed credit but a widening of its definition could have been attempted earlier.

Similarly the guidelines for risk management were issued recently in 1998-99. The ground-work for setting up a credit information bureau too has started in 1998-99.

The decision to allow banks to tap the equity markets was taken fairly early but 14 out of 19 nationalized banks were still fully owned by the government at the end of March 1999. One reason for this is their high NPA level.

The early implementation of minimum risk based capital standard, income recognition and asset classification norms is a positive aspect of the sequencing of reforms.

Conclusion

The magnitude of NPAs in Indian banks continues to remain at a worrisome level. Moreover, the trend of reduction in NPAs has reversed in the past two years. An analysis of the sequencing of reform measures carried out post 1992-93 reveals that a large part of the fundamental reform required to tackle the problem of bad debts has either just commenced last year or is still on the anvil. It should have been scheduled much earlier in the reform process since such fundamental reforms take a long time to complete. This improper sequencing is precisely the reason why the NPAs problem has become chronic in Indian banks.

This analysis throws up suggestions for future action by regulators and policy makers. One, legislative reforms are needed both to contain the level of existing NPAs and to prevent building up of large NPAs in future. Two, a time bound reduction in directed credit is required. The inclusion of new sectors in priority sector in 1998-99 is a step in the right direction. Three,

enactment of legislation against loan write-offs is needed. Four, the government should announce a long-term policy on capitalization of banks which should aim at a gradual withdrawal of government assistance. These are measures that create an environment conducive to preventing the building of NPAs in the future.

Along with the above fundamental reform measures, the resolution of existing NPAs in banks should be carried out through appropriate vehicles.

Lastly, since liberalization itself can create conditions for accelerated build-up of NPAs, a proactive approach on the part of regulators to meet such challenges should be adopted.

CHAPTER 7

ANALYSIS OF TRENDS IN EFFICIENCY OF INDIAN BANKS

Introduction

The primary objective of this chapter is to study the efficiency trends in the Indian banking industry post-liberalization. The chapter also compares the size of observed inefficiencies with the impact of product mix and scale on costs and examines the sources of inefficiency.

The chapter on Profitability Analysis of Banks looked at the post-liberalization trends in a number of profitability variables. However, the analysis did not give an indication of whether the differences among banks have narrowed over the years, stayed constant or widened. The analysis of efficiency carried out in this chapter aims to answer this question. Moreover, that analysis was carried out bank group wise while this analysis is carried out bank wise.

The forces of competition have intensified in Indian banking owing to liberalization. The key steps that have heralded this change are the freedom given to banks to fix their prime lending rates and the entry of new private sector banks in 1995; and, the deregulation of interest rates on deposits in 1997. Though liberalization has covered a number of other facets of the working of the industry, these three steps are chiefly responsible for an increase in competition within the sector. Due to these changes the Indian banking sector is in the process of moving from its existing level of equilibrium to a new level of equilibrium.

From the point of view of banks and their regulators it is important to know how different banks will be affected by these changes in their competitive environment. This insight can be gained by an evaluation of the dispersion in bank costs. Further, this understanding of cost dispersions will benefit from four types of analyses. First, variation of costs with scale, i.e. do banks with a certain scale have a cost advantage relative to others and, if so, how significant is this advantage. Second, variation of costs with product mix, i.e. are banks with a certain product mix at a cost advantage relative to others and, if so, how significant is this advantage. Third, given a certain scale and product mix, does dispersion in costs owing to inefficiency still exist and, if so, how significant is this dispersion. Fourth, what are the sources of inefficiency?

Firms at a disadvantage owing to either of these reasons will be forced to change their cost structure or exit the industry in the context of intensified competition. An analysis of these four factors will give a clue to the strategy banks will need to follow in order to be competitive. It will also give an indication about the potential risks that the banking industry might face and the strategy regulators should follow in order to deal with these risks.

Literature Survey

Das (1997) calculates efficiency of public sector banks over time. The approach used is a linear programming approach. The maximum inefficiency results reported by this study are 42 percent in year 1990 and 71.4 percent in year 1996. Since the approach used is a linear programming approach, inefficiency might be overstated. The average inefficiency results for the years 1990

& 1996 are 19 percent and 24 percent respectively. A rise in inefficiency is observed during this period. However it is not statistically significant.

Sarkar and Das (1997) examine the inter-bank performance differences in an efficiency analysis of Indian banks for the year 1994-95. They use principal component analysis to evolve an efficiency index. They find mostly foreign banks in the most efficient category. Out of the top 25 banks, 22 were foreign and 3 private.

Hunter and Timme (1995) use the distribution free approach to measure inefficiency and scale economies of US banks. They report overall inefficiency between 23 and 32 percent.

Kaparakis et al (1994) conduct a study on inefficiency of US banks in the year 1986 and find inefficiencies ranging from 1 to 17 percent. They also find that inefficiencies increase with bank size.

Berger and Humphrey (1991) apply the thick frontier approach to calculation of inefficiency for all US banks for the year 1984. They find differences of 25 percent or more in costs, which dominate scale economies. They further find that most inefficiency is operational, involving overuse of labour, rather than financial, involving excessive interest payments. Their results suggest that additional competition owing to deregulation will pressure inefficient banks to cut costs, merge with more efficient institutions or exit the industry. Moreover, this pressure will arise from more efficient firms of similar size and product mix rather than from firms with cost advantages owing to scale.

Analysis of Available Methodologies for Measuring Inefficiency

Inefficiency is the deviation of actual from optimum behavior. Inefficiency is measured relative to an efficient cost 'frontier' which is estimated from the data. Inefficiency can be defined as the percentage difference between observed cost and predicted minimum cost, holding scale and output mix constant.

The first issue relating to methodology is the approach to be used for measuring inefficiency. A number of approaches have been used in the surveyed literature and a brief outline of each along with its advantages and disadvantages is given below.

The Econometric Approach modifies a standard cost function to allow inefficiencies to be included in the error term. This error term is by construction orthogonal to the predicted frontier. The assumption forces inefficiencies to be uncorrelated with the regressors. Inefficiencies are distinguished from random components of error terms by assuming that they come from an asymmetric half normal distribution since they only increase costs. The random components are assumed to come from a symmetric normal distribution. Thus, an assumption about the nature of the underlying distribution has to be made under this approach.

The Data Envelopment Analysis Approach uses linear programming to estimate piece wise cost/production frontiers. Firms on the vertices of the frontier are efficient and inefficiency of others is measured relative to these efficient firms. However, all distances from the efficient firms are treated as inefficiencies with no scope for random error. This can result in an upward bias in the measured inefficiency.

The Thick Frontier Approach estimates a cost function for the lowest average cost quartile of banks. This quartile constitutes a thick efficiency frontier. Simultaneously, a cost function for the highest average cost quartile is estimated. The differences between these two cost functions are separated into market factors and inefficiency. The assumptions underlying the approach are that error terms within quartiles reflect only random error and differences between quartiles only inefficiencies and market factors. Even if the error terms within the quartiles represent inefficiencies the thick frontier approach gives a measure of average inefficiencies. The use of quartiles averages out the extreme values from both the lowest and highest quartiles. The restrictive assumption of inefficiencies being orthogonal to the regressors is not required here.

The Distribution Free Approach assumes that the differences in actual and predicted costs for a given period have a random component and a persistent inefficiency component. When averaged out over time only the inefficiency component remains. This, however, is not a valid assumption when efficiency trends are being analyzed over a long time frame and the environment is changing rapidly owing to deregulation. In fact, the studies that use this approach (Hunter and Timme, 1995) explicitly attempt to make sure that the years chosen for the study are not years of deregulation.

The second issue relating to methodology is the choice of output and cost metric to estimate the cost output relationship. Two competing approaches are analyzed below.

Under the production approach, banks are considered to be producing customer accounts (both large and small). Thus, operating cost is the dependent variable and number of accounts is the

output or independent variable. There are three major drawbacks of this approach. First, interest costs, which form the bulk of bank costs (71 percent of Indian banks' costs in 1999-2000), are ignored totally. Second, the primary function of banks is intermediation, not production. Third, published data on number of customer accounts is not available.

Under the Intermediation Approach banks intermediate deposits into loans. Thus, amounts intermediated are independent variables (i.e. deposits and loans) and operating as well as interest costs are dependent variables.

Berger et al (1987) report similar results for scale economies using both the production and the intermediation approach.

The third issue in methodology relates to the specification of the cost function. In this context a study by Hunter et al (1990) tests the robustness of competing flexible functional specifications and finds that the standard translog gives an adequate fit to bank cost data.

Methodology

The methodology used here to calculate inefficiency is the thick frontier approach. The cost and output metrics are chosen in line with the intermediation approach. The model specifies two types of costs – labour costs and interest costs. These two types of costs accounted for 90 percent of the total costs of all Indian banks in 2000. A separate equation is specified for each in order to draw separate conclusions about inefficiency in each. Output is measured in terms of Rupees intermediated. Three types of deposits are combined into two outputs – transaction deposits

(including savings and current deposits) and time deposits. The third output is loans and advances. Thus, Rupee values of transaction deposits (saving and current), term deposits, and advances are the specified outputs.

All the public sector, private sector and foreign banks are used for the study.

The years chosen for the study are 1989-90, 1995-96 and 1999-2000. The year 1989-90 is representative of the pre-liberalization period. The year 1995-96 is chosen so that the new private sector banks operations can be captured. The year 1999-2000 is chosen for the latest data available.

As a first step the banks were divided into size classes based on their asset size. The following factors were used to decide on criteria for making asset size classes:

1. The criteria should be amenable to being used consistently over all the three years of the study,
2. It should ensure adequate number of banks in each size class so that a regression can be carried out, and
3. It should separate out the very small banks and very large ones.

Thus, the median asset size is used to make the division into two asset size classes. This criteria meets all the above mentioned conditions.

For the purpose of constructing a thick frontier the banks in each asset size category are further divided into three groups on the basis of their cost to total asset ratio. The first group has the lowest cost to asset ratio and the third the highest. Thus, banks in the first group are of higher than average efficiency, those in the second of average and those in the third of lower than average efficiency. The banks in the first group, hence, constitute the efficient frontier.

The function chosen is the standard translog. Given below is the model specification:

$$\ln ID = c^1 + \beta^1_1 \ln TA + \beta^1_2 \ln TE + \beta^1_3 \ln TA \ln TE + e^1 \quad \ldots 1$$

$$\ln LC = c^2 + \beta^2_1 \ln TA + \beta^2_2 \ln TE + \beta^2_3 \ln AD + \beta^2_4 \ln TA \ln TE + \beta^2_5 \ln TA \ln AD + \beta^2_6 \ln TE \ln AD + e^2 \quad \ldots 2$$

Where

ID = interest costs

LC = labour costs

TA = transaction deposits, i.e. savings + current

TE = term deposits

AD = advances and loans

The c's and β's are coefficients and e's are error terms.

The equations are estimated using ordinary least squares for each of the cost divisions and size classes. Thus, six equations are estimated for each size class over three years - thirty six regressions are carried out overall.

The total difference in predicted costs of most efficient and least efficient banks is next calculated as

$$[AC^{D3} - AC^{D1}]/AC^{D1} \qquad \ldots 3$$

where, AC^{Di} is the interest and labour costs to total assets ratio calculated using the regression equation for cost division i. The calculation is made at the mean output values of each cost division. Next, the part of this difference that is attributable to differences in output mix is calculated as

$$[AC^{D3*} - AC^{D1}]/AC^{D1} \qquad \ldots 4$$

where, AC^{D3*} is calculated using the regression equation for cost division 1 and mean outputs for cost division 3. Thus AC^{D3*} represents the average cost to asset ratio for division 3, or least efficient, banks if they were using the efficient division 1 technology. This ratio, calculated by equation 4, represents the part of the overall difference in costs of efficient and inefficient banks that is explained by differences in output mix.

Finally, the inefficiency of division 3 banks is calculated as

$$[\,AC^{D3} - AC^{D3*}]/AC^{D1} \qquad \ldots 5$$

Thus, 5 captures the difference between observed predicted costs for division 3 banks and their predicted costs if they had been using the efficient technology of division 1 banks.

This analysis is carried out for cost division 2 also. Having calculated the inefficiency for banks in division 2 and 3, an average measure of inefficiency (simple arithmetic average) is found for each size class and each year. This gives the relative inefficiency among banks in the three years.

Lastly, the overall inefficiency for the year 1999-2000 is decomposed into two sources: interest costs and labour costs. This provides a guide to the strategy banks and regulators should follow in order to increase efficiency.

The proportion of inefficiency attributable to interest costs is calculated as:

$$(AC^{D3}{}_{ID} - AC^{D3*}{}_{ID})/(AC^{D3} - AC^{D3*}) \qquad \ldots 6$$

Inefficiency owing to labour costs is

$$(AC^{D3}{}_{LC} - AC^{D3*}{}_{LC})/(AC^{D3} - AC^{D3*}) \qquad \ldots 7$$

Having calculated the sources of inefficiency for division 3 the same is repeated for division 2 and simple average calculated.

Data Source

Bank wise profit and loss accounts and balance sheets were obtained from the Statistical Tables Relating to Banks, published by the RBI. The years chosen for the study were 1990, 1996 and 2000. Hence, the publications for these years were used.

The bank wise data grouped in two size classes – small and large- and three cost divisions – cost division I, II and III- for the three years of study are presented in Appendices 7.1 to 7.3.

Results

The results of regressions run on each cost division, grouped size class and year wise, are presented in Appendices 7.4 to 7.6.

The average values of difference in costs between banks in the efficient frontier and other banks; part of this difference accounted for by variations in product mix; and inefficiency are shown below in Tables 7.1 and 7.2. Table 7.1 presents the data for small banks while 7.2 presents the data for large banks.

Table 7.1

Average Inefficiencies for Small Banks

Year	Average difference in costs	Part of average difference accounted for by product mix	Average inefficiency
1989-1990	0.2838	0.07656	0.2072
1995-1996	0.4442	-0.07423	0.5184
1999-2000	0.3382	0.00897	0.3292

Two observations can be made looking at Table 7.1. First, average inefficiency of the small banks has risen post liberalization. However, it seems to have gone down in 2000 over its 1996 level. Second, the proportion of cost differences accounted for by product variations has gone down over the years compared to its 1990 level.

The inefficiency data of large banks from Table 7.2 can also be used to draw two conclusions. First, the average inefficiency of these banks has also risen over the years. The rise is slight in 1996 and sharp in 2000. Second, the parts of differences accounted for by variations in product mix have gone down post 1990. Third, the difference in costs between banks has gone down drastically in 1995-96 over 1989-90 levels. The reported inefficiency is still high on account of the reduction in proportion accounted for by product mix. This means that the differences in cost levels of banks have narrowed in 1995-96 over their 1989-90 levels.

Table 7.2

Average Inefficiencies of Large Banks

Year	Average difference in costs	Part of average difference accounted for by product mix	Average inefficiency
1989-1990	0.4315	0.27237	0.1591
1995-1996	0.1185	-0.06721	0.1857
1999-2000	0.3974	0.09296	0.3044

The first two conclusions are supported by a study carried out by Das (1997). Das uses data for public sector banks for the years 1990 and 1996. He finds that average efficiency goes down from 0.81 in 1990 to 0.76 in 1996. In other words average inefficiency shows a rise from 0.19 to 0.24. This is expected to be on the higher side since he used a linear programming approach as discussed in the early part of the chapter. He also finds that inefficiency owing to product mix differences declines over this period. The greater freedom to banks post liberalization in being able to choose their product mix in view of the costs associated with them seems to be the reason behind this trend.

Analyzing both tables simultaneously also throws up revealing insights. The first observation is that the average inefficiency of large banks is lower than that of small banks for all the years. Second, the variation in inefficiency of small banks is 0.0164 and the coefficient of variation is 0.0465. The variance in inefficiency of large banks is 0.00399 and the coefficient of variation is

0.0184. From these data it appears that competitive forces unleashed by liberalization are acting more intensely on the smaller banks causing sharper upheavals than in the case of the larger ones. Thus, it is in this size segment that a shake-out among participants through mergers or closures is more likely.

Presented next, in Tables 7.3 and 7.4, are the average cost data for the efficient frontier banks and all other banks for the three years.

Table 7.3

Average Cost to Assets Ratios for Small Banks

Year	Average Costs to Assets Ratio for Efficient Frontier (AC^{D1})	Average Costs to Assets for all Others ($AC^{D2} + AC^{D3}$)/2
1989-1990	0.06298	0.08085
1995-1996	0.05870	0.08478
1999-2000	0.07056	0.09442

The data in the second column of Table 7.3 show that the efficiency frontier itself has shifted over the years. In year 1995-96 it has moved to a higher efficiency level than in 1989-90 and has gone down in 1999-2000. A closer look at the banks in the cost divisions (Appendices 7.1 to 7.3) for the relevant year and size class makes the situation clear. The new private banks, which started their operations in year 1995, have all occupied the efficient frontier in 1995-96 on account of their low costs. The emergence of new private sector banks has, in effect, changed the

standards for the banks in this group and shifted the efficiency frontier to an altogether different level. A look at the third column of Table 7.3 shows that the costs of other banks have actually gone up over the years even when compared to the efficient frontier level in 1989-90. More importantly this result would hold even if the shift in the frontier were ignored and a stationary frontier of 1989-90 considered. Thus, it can be said that while the efficiency frontier is shifting to higher efficiency levels the banks outside the frontier are falling farther in terms of efficiency. In other words, banks in the small size category are becoming more inefficient both when compared with the shifting frontier and when compared with the stationary frontier.

The corresponding figures for large banks are presented in Table 7.4.

Table 7.4

Average Cost to Assets Ratios for Large Banks

Year	Average Costs to Assets Ratio for Efficient Frontier (AC^{D1})	Average Costs to Assets for all Others ($AC^{D2} + AC^{D3}$)/2
1989-1990	0.05746	0.08225
1995-1996	0.07795	0.08719
1999-2000	0.05789	0.08091

Here too, the efficiency frontier has been shifting. The downward shift in the frontier in 1999-2000 over 1995-96 is significant. Again a look at the data in appendices 7.1 to 7.3 shows that the new private sector banks which were falling in the small bank category in 1995-96 have moved

to the large category in 1999-2000 causing a fall in the cost level of the efficient banks in 1999-2000. However, this fall is not significant compared to 1989-1990. The rise in the cost levels in 1995-96 shows that the efficient frontier banks were on the path of increasing costs resulting in lower differences among the efficient and other banks.

A comparison of Tables 7.3 and 7.4 shows that the efficiency of small banks is worsening both when considering a shifting as well as a stationary frontier (1989-90 levels). However, the efficiency of large banks is not worsening to the same extent when considering a shifting frontier and might be even improving when considering a stationary frontier (1989-90 levels). Again it appears that the problems are greater in the small bank group compared to the large bank group.

Table 7.5 and 7.6 present sources of the average inefficiencies reported in Table 7.1 and 7.2 for the year 2000.

Table 7.5

Source wise allocation of inefficiency of small banks

Year	Percentage of inefficiency from	
	Interest cost	Labour cost
1999-2000	30.20	69.80

Table 7.6

Source wise allocation of inefficiency of large banks

Year	Percentage of inefficiency from	
	Interest cost	Labour cost
1999-2000	54.51	45.49

Looking at both the Tables, 7.5 and 7.6, it can be said that the situation as in 2000 is that interest costs, which accounted for 71 percent of total costs, accounted for only 30 and 54 percent of inefficiencies. On the other hand, labour costs accounted for only 19 percent of the total costs of banks in 2000 but accounted for 45 to 70 percent of inefficiency. Thus, labour costs are the key to improving efficiency.

Conclusion

In conclusion it can be said that the impact of liberalization on the banking industry can be seen clearly from the analysis. The competitive scenario has changed completely resulting in new risks and challenges, both for banks and their regulators.

The trend analysis of efficiency among banks shows that both large (consisting mostly of nationalized) and small (mostly private and foreign) banks have become less efficient over the period of liberalization. The small banks show greater increases in inefficiency compared to the large banks. They also show greater variations in inefficiency.

Part of the reason for this increase in inefficiency of both small and large banks is the emergence of new private sector banks, which are setting new standards of operations. However, the small banks have become more inefficient even when compared with their original pre-liberalization frontier. On the other hand large banks have not shown the same rise in inefficiency when compared to a stationary frontier.

Product mix variations among banks account for a very small proportion of cost differences implying that efficiency is more important than product mix combinations. Moreover, these have reduced over the years indicating a positive impact of liberalization.

Interest costs form the bulk of bank costs but account for a smaller proportion of inefficiency than labour costs.

The implications of these conclusions for banks and their regulators are numerous. First, regulators have to take special note of the impact that the emerging competitive environment is having on the small banks in particular. They should establish early warning systems to detect problems in this group and provide for safety nets or smooth exit options through mergers with stronger banks or winding up operations. Second, the rationalization of labour should be treated on a priority basis and enabling regulations established. Lastly, banks themselves should focus on reducing inefficiency, especially in labour costs.

APPENDIX No. 7.1

COST WISE BANK DIVISIONS 1989-90

(Rupees in Lakhs)

Name of Bank	Total Assets	Total Costs	Bank* Type	Cost/ Assets	Term Deposits	Savings Deposits	Demand Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
Size class: Small											
Cost Division: I											
Sonali	1726	60	FB	0.035	130	17	1142	1159	251	11	23
Sakura	13325	651	FB	0.049	6655	351	912	1263	4801	476	68
Deutsche	49728	2724	FB	0.055	21927	403	6077	6480	19434	1770	185
Bahrain	7877	445	FB	0.056	6304	70	409	479	4621	367	21
Oman International	19131	1110	FB	0.058	4714	69	6032	6101	7451	555	33
Societe Generale	18537	1201	FB	0.065	9557	150	374	524	6130	963	51
Mashreq	14340	958	FB	0.067	7477	186	2220	2406	6489	777	47
Bharat Over	37860	2536	OP	0.067	12890	5380	4920	10300	17232	1745	443
Tamil Nadu Mercentile	30914	2253	OP	0.073	11406	4805	6394	11199	12445	1172	633
Bank Of Rajasthan	92913	7364	OP	0.079	41385	17574	13085	30659	10661	4680	1937
Nainital	12058	967	OP	0.08	5311	3975	1077	5052	4261	624	253
AVERAGES	27128.09	1842.64			11614.18	2998.18	3876.55	6874.73	8525.09		
ACD1	0.06298										

* FB - FOREIGN BANK OP - OLD PRIVATE BANK NP - NEW PRIVATE BANK

APPENDIX No. 7.1 (contd.)

COST WISE BANK DIVISIONS 1989-90

Name of Bank	Total Assets	Total Costs	Bank Type	Cost/ Assets	Term Deposits	Savings Deposits	Demand Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
Size class: Small											
Cost Division: II											
Sangli	53411	4301	OP	0.081	24191	10925	6792	17717	21303	2779	1147
City Union	17103	1398	OP	0.082	8269	2588	1832	4420	7524	867	353
LakshmiVilas	31460	2605	OP	0.083	13710	4447	4967	9414	13553	1460	825
Karur	42335	3541	OP	0.084	18423	4140	5018	9158	17901	2201	905
Banque NationaleParis	29949	2506	FB	0.084	8077	1147	6811	7958	10461	1115	367
Ratnakar	8030	676	OP	0.084	4136	1537	741	2278	3576	449	161
UWB	59330	5257	OP	0.089	23021	12080	8979	21059	23662	3463	1392
Benaras	25899	2328	OP	0.09	13264	7415	1473	8888	10661	1615	594
ABN Amro	22557	2039	FB	0.09	6639	438	2191	2629	7062	1249	167
Karad	7097	646	OP	0.091	2916	1975	1432	3407	3205	432	162
Bank of Tokyo	47166	4313	FB	0.091	18649	1685	6116	7801	16980	2677	229
AVERAGES	31303.36	2691.82			12845.00	4397.91	4213.82	8611.73	12353.45		
ACD2	0.070	ACD2*		0.058							

APPENDIX No. 7.1 (contd.)

COST WISE BANK DIVISIONS 1989-90

Name of Bank	Total Assets	Total Costs	Bank Type	Cost/ Assets	Term Deposits	Savings Deposits	Demand Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
				Size class: Small							
				Cost Division: III							
Abu Dhabi	5031	471	FB	0.094	2541	188	1258	1446	2446	341	43
Bareilly	13958	1309	OP	0.094	5727	3196	2214	5410	5323	800	395
Bank of Madura	46372	4396	OP	0.095	19463	9702	5841	15543	19103	2529	1428
Karnataka	61215	5837	OP	0.095	32988	12931	4335	17266	27419	3814	1607
Federal	82110	8499	OP	0.104	44549	19705	6265	25970	37051	4984	2700
Middle East	30077	3151	FB	0.105	18927	877	2996	3873	11077	2486	209
South Indian Bank	56456	5937	OP	0.105	31471	13077	4692	17769	24718	3476	1939
Catholic Syrian	43295	4559	OP	0.105	23495	10362	3898	14260	18863	2710	1291
Dhanalakshmi	11951	1326	OP	0.111	6443	3340	878	4218	5083	727	497
Nedungadi	16689	1905	OP	0.114	9058	4089	1524	5613	8605	1043	664
Lord Krishna	4019	500	OP	0.124	2347	851	217	1068	1653	291	162
Indosuez	25000	3286	FB	0.131	10833	143	772	915	6970	2775	78
AVERAGES	33014.42	3431.33			17320.17	6538.42	2907.50	9445.92	14025.92		
ACD3	0.09204	ACD3*		0.078							

APPENDIX No. 7.1 (contd.)

COST WISE BANK DIVISIONS 1989-90

Name of Bank	Total Assets	Total Costs	Bank* Type	Cost/ Assets	Term Deposits	Savings Deposits	Demand Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
				Size class: Large							
				Cost Division: I							
J&k	119998	7380	OP	0.062	35883	28777	37154	65931	58667	5091	1586
Bank of America	207047	14171	FB	0.068	43225	2251	23334	25585	85466	9917	719
State Bank Patiala	310633	21335	SB	0.069	125321	67707	68552	136259	129739	14372	4963
State Bank ofIndia	8051729	561977	SB	0.07	2198765	991254	1161507	2152761	3449914	393610	112639
State Bank Hyderabad	339010	23838	SB	0.07	114617	51019	77720	128739	139359	15104	6011
State Bank Saurashtra	160994	12015	SB	0.075	68001	23295	35107	58402	72081	7041	3572
Allahabad	638327	47866	NA	0.075	284110	141625	97998	239623	244255	35189	8175
State Bank Indore	163175	12314	SB	0.075	56696	28291	38135	66426	68794	7728	3070
Bank Of India	2010387	152178	NA	0.076	1047326	265434	238088	503522	1012008	118565	24543
Standard Chartered	136278	10346	FB	0.076	50089	10901	13999	24900	51935	6022	2085
Canara	1628035	125381	NA	0.077	635718	246186	210363	456549	649848	88591	23723
AVERAGES	1251419.36	89891.00			423613.73	168794.55	181996.09	350791	542006		
ACD1	0.05746										

APPENDIX No. 7.1 (contd.)

COST WISE BANK DIVISIONS 1989-90

Name of Bank	Total Assets	Total Costs	Bank Type	Cost/ Assets	Term Deposits	Savings Deposits	Demand Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
Size class: Large											
Cost Division: II											
Punjab National Bank	1602374	124974	NA	0.078	695174	358207	196055	554262	647862	87294	24855
Indian Bank	951241	76041	NA	0.08	515006	103628	87221	190849	491413	55649	11492
Central Bank India	1352350	108356	NA	0.08	582721	280827	282116	562943	582740	74602	25044
Union Bank India	742491	59585	NA	0.08	334472	164936	130700	295636	304800	39109	13971
OBC	289900	23413	NA	0.081	150012	59186	37886	97072	120307	16250	4290
IOB	843837	68748	NA	0.081	468530	114376	82420	196796	373293	49866	13966
HSBC	190011	15533	FB	0.082	41486	17223	27844	45067	55763	9435	1926
Grindlays	284850	23730	FB	0.083	86345	36336	60680	97016	79442	14194	3902
Andhra	382608	32466	NA	0.085	217476	67451	37643	105094	160033	22160	6604
Vysya	112468	9676	OP	0.086	63268	13116	8710	21826	45848	6551	2204
United Bank India	565408	48978	NA	0.087	256801	135331	65254	200585	228706	32578	12145
AVERAGES	665230.73	53772.73			310117.36	122783.36	92411.73	215195.1	280927.9		
ACD2	0.07282	ACD2*		0.069							

APPENDIX No. 7.1 (contd.)

COST WISE BANK DIVISIONS 1989-90

Name of Bank	Total Assets	Total Costs	Bank Type	Cost/ Assets	Term Deposits	Savings Deposits	Demand Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
			Size class: Large								
			Cost Division: III								
State Bank Travancore	254361	22144	SB	0.087	112619	54320	36108	90428	119842	15198	4974
Bank Of Maharashtra	397258	34729	NA	0.087	157458	101761	64205	165966	164961	24107	7869
American Express	131104	11479	FB	0.088	50391	3063	34160	37223	50480	5315	719
Corporation Bank	193822	17010	NA	0.088	97746	29341	25976	55317	89851	11068	3850
Punjab and Sind Bank	284216	25085	NA	0.088	143873	69604	30583	100187	122278	17165	5691
Bank Of BAroda	1632006	144154	NA	0.088	871236	228894	193886	422780	796180	111211	22559
UCB	1039603	92660	NA	0.089	528341	156075	173835	329910	497432	61759	18549
State Bank Mysore	185308	16648	SB	0.09	75456	33653	36257	69910	86161	9819	4973
SBBJ	278930	25478	SB	0.091	113569	52380	62149	114529	137860	16845	6190
Dena	359074	34545	NA	0.096	149684	88374	63814	152188	151293	23055	8857
Syndicate	806496	77793	NA	0.096	456865	151550	70746	222296	388626	52149	18276
Vijaya	342832	33973	NA	0.099	147257	49027	39429	88456	149211	24122	6108
AVERAGES	492084.17	44641.50			242041.25	84836.83	69262.33	154099.2	229514.6		
ACD3	0.09171	ACD3		0.077							

Source: Earnings and Expenses of Scheduled Commercial Banks, Liabilities and Assets of Scheduled Commercial Banks, 1989-90

APPENDIX No. 7.2

(RUPEES IN LAKHS)

COST WISE BANK DIVISIONS 1995-96

Name of Bank	Total Assets	Total Costs	Bank* Type	Cost/ Assets	Demand Deposits	Savings Deposits	Term Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
					Size: Small						
					Cost Division: I						
Bank Of Punjab	46681	1949	NP	0.0418	5312	3720	18797	9032	22130	690	156
Times Bank	61661	3410	NP	0.0553	3560	881	31131	4441	35119	2154	213
Netherlandene	42788	2632	FB	0.0615	887	177	902	1064	15761	1734	313
Commerz bank	9825	661	FB	0.0673	12	17	181	29	2826	22	157
Mashreq bank	58719	4175	FB	0.0711	4808	411	31056	5219	31064	3035	178
Development Singapore	12650	953	FB	0.0753	342	1	869	343	7733	574	120
Sakura	67262	5078	FB	0.0755	3251	890	25551	4141	40559	2857	143
Indosuez	143881	11189	FB	0.0778	6187	1224	65967	7411	47612	8713	346
Development Credit	91407	7333	OP	0.0802	13226	13959	41665	27185	41991	4273	1135
Bahrain	29026	2424	FB	0.0835	649	908	19778	1557	18045	1200	79
Dresdner	20609	1809	FB	0.0878	866	1	5141	867	8687	675	308
Centurion	35532	3373	NP	0.0949	1387	563	19576	1950	18778	2301	123
Sanwa	28385	2799	FB	0.0986	2244	273	4548	2517	18188	2261	76
Middle East	108474	10778	FB	0.0994	2350	3110	75767	5460	43886	8808	414
AVERAGES	54064.29	4183.07			3220.07	1866.79	24352.07	5086.86	25169.93		
ACD1	0.05871										
*	FB - FOREIGN BANK			OP - OLD PRIVATE BANK			NP - NEW PRIVATE BANK				

APPENDIX No. 7.2 (contd.)

COST WISE BANK DIVISIONS 1995-96

Name of Bank	Total Assets	Total Costs	Bank Type	Cost to Assets	Demand Deposits	Savings Deposits	Term Deposits	Transaction Deposits	Advances	Interest Costs	Labour Costs
				Size: Small							
				Cost Division: II							
ICICI	115726	11934	NP	0.1031	18670	1851	52274	20521	65075	8492	449
Lord Krishna	46835	4839	OP	0.1033	2747	4634	31767	7381	27010	3320	582
Nainaital	22507	2332	OP	0.1036	1977	7522	11625	9499	6880	1331	647
Dhanalshmi	83457	8657	OP	0.1037	5581	8232	56860	13813	44859	5849	1466
HDFC	99229	10377	NP	0.1046	22688	1731	44150	24419	36862	7084	468
Sangli	90373	9717	OP	0.1075	16854	20740	44747	37594	42214	5566	2751
Ratnakar	21049	2277	OP	0.1082	2297	3125	12025	5422	9157	1506	517
BharatOverseas	81395	8878	OP	0.1091	9727	11720	46999	21447	39922	5476	1341
City union	72513	7957	OP	0.1097	9097	8067	40041	17164	38526	5056	1085
ABN Amro	171598	18838	FB	0.1098	11958	2498	43697	14456	93971	12314	957
Tamilnadu Mercentile	142886	15838	OP	0.1108	28551	14550	68587	43101	69580	8846	2084
Ganesh	5764	647	OP	0.1122	332	1000	3502	1332	3069	427	94
UTI	120947	13684	NP	0.1131	32943	770	58852	33713	55685	10133	413
UWB	187551	21257	OP	0.1133	22518	32142	107638	54660	89066	12898	3598
AVERAGES	90130.71	9802.29			13281.43	8470.14	44483.14	21751.57	44419.71		
ACD2	0.07898	ACD2*		0.053							

APPENDIX No. 7.2 (contd.)

COST WISE BANK DIVISIONS 1995-96

Name of Bank	Total Assets	Total Costs	Bank Type	Cost to Assets	Demand Deposits	Savings Deposits	Term Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
					Size: Small						
					Cost Division: III						
Banque NationaleParis	99732	11447	FB	0.1148	19158	1721	20875	20879	52985	6670	1267
Societe Generale	115520	13279	FB	0.1149	1647	162	56883	1809	59909	11028	298
Karur Vysya	152889	17705	OP	0.1158	15880	11403	88597	27283	82430	12233	2597
Sonali	3182	370	FB	0.1163	2191	41	165	2232	212	28	61
Nedungadi	52596	6260	OP	0.119	4885	9988	31696	14873	25399	3499	1701
Bank Of Tokyo	155234	18846	FB	0.1214	21828	5167	62552	26995	96160	11148	745
Catholic Syrian	153756	18915	OP	0.123	14037	22382	101652	36419	83361	12143	3448
Bareilly	27599	3396	OP	0.123	2705	8545	14494	11250	8156	1691	930
Lakshmi Vilas	111077	13696	OP	0.1233	14472	10896	65945	25368	49282	8391	2282
Oman International	30397	4055	FB	0.1334	2680	1832	15000	4512	15778	2393	104
Benaras	55450	7607	OP	0.1372	3637	14324	29074	17961	15280	3557	1474
NovaScotia	45586	6269	FB	0.1375	1306	317	12398	1623	30565	4822	186
Abudhabi	29944	4275	FB	0.1428	4095	2232	18865	6327	13499	3029	118
CreditLyonnais	83923	12151	FB	0.1448	5713	244	55320	5957	49127	9654	348
Barclays	35134	7999	FB	0.2277	462	121	12292	583	21930	5611	491
AVERAGES	76801.27	9751.33			7646.40	5958.33	39053.87	13604.73	40271.53		
ACD3	0.09058	ACD3*			0.05554						

APPENDIX No. 7.2 (contd.)

COST WISE BANK DIVISIONS 1995-96

Name of Bank	Total Assets	Total Costs	Bank* Type	Cost/ Assets	Demand Deposits	Savings Deposits	Term Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
					Size: Large						
					Cost Division: I						
Global	221353	18481	NP	0.0835	14948	1171	116312	16119	137732	13595	366
OBC	1052404	95397	NA	0.0906	103297	164341	603451	267638	467178	62574	14185
Bank of America	384407	35048	FB	0.0912	37268	9949	145491	47217	202713	25483	2249
Bank Ofindia	3314550	303472	NA	0.0916	417456	555727	1779114	973183	1559580	193850	65750
Bank of Rajasthan	311581	28586	OP	0.0917	58220	39430	153032	97650	136099	20145	4774
J&K Bank	347199	32917	OP	0.0948	54580	78517	156422	133097	136413	18120	4715
IOB	1807909	173066	NA	0.0957	203932	276816	978126	480748	750425	121351	37417
Syndicate	1555340	149024	NA	0.0958	170214	305800	795811	476014	539766	87059	41955
Indusind	188538	18214	NP	0.0966	12633	1045	127545	13678	112119	13420	223
Corporation Bank	690510	67056	NA	0.0971	119138	91224	363034	210362	244211	40726	9426
State Bank Patiala	833866	82587	SB	0.099	111110	139238	370736	250348	330486	48246	14781
Allahabad	1242023	123668	NA	0.0996	113305	309111	592477	422416	481560	76168	25572
Karnataka	227939	23008	OP	0.1009	19916	35330	130285	55246	118542	14596	4163
Canara	3112064	316278	NA	0.1016	477499	578991	1567834	1056490	1309584	187700	58718
AVERAGES	1092120	104772			136680	184764	562834	321443	466172		
ACD1	0.07796										
*	NA - NATIONALIZED		SB - STATE BANK GROUP								

APPENDIX No. 7.2 (contd.)

COST WISE BANK DIVISIONS 1995-96

Name of Bank	Total Assets	Total Costs	Bank Type	Cost/ Assets	Demand Deposits	Savings Deposits	Term Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
					Size: Large						
					Cost Division: II						
UnionBI	2051566	209195	NA	0.102	256669	395252	1137252	651921	868108	128718	38684
UCB	1550282	158474	NA	0.1022	170189	290946	683181	461135	498213	86773	42467
SBI	14446983	1488399	SB	0.103	2247679	2131416	5260450	4379095	5982565	822592	335164
SBBJ	664201	68656	SB	0.1034	81353	123451	261181	204804	244748	37292	17753
Bank Of Maharashtra	779927	80660	NA	0.1034	81567	210684	304868	292251	269217	46210	23635
Andhra	708657	73582	NA	0.1038	69456	136757	390514	206213	258033	45501	16663
Dena	824648	86627	NA	0.105	89079	190187	368375	279266	340168	51920	18567
Federal	436044	46221	OP	0.106	28705	51849	289162	80554	222845	31687	6659
United Bank India	1081179	115584	NA	0.1069	103208	256268	519517	359476	285113	64759	26552
Grindlays	764497	81761	FB	0.1069	108751	89016	327202	197767	364619	48854	11051
Central Bank India	2320347	249623	NA	0.1076	270551	582357	1122252	852908	890257	142274	62272
Vysya	526228	57411	OP	0.1091	45656	34089	350333	79745	254181	44690	6242
Bank of Baroda	3442373	379210	NA	0.1102	373013	563670	1900270	936683	1601255	224963	54942
Hongkong Shanghai BC	521625	57530	FB	0.1103	79370	50918	254150	130288	214590	30226	5315
AVERAGES	2151326	225210			286089	364776	940622	650865	878137		
ACD2	0.08366	ACD2*			0.06848						

APPENDIX No. 7.2 (contd.)

COST WISE BANK DIVISIONS 1995-96

Name of Bank	Total Assets	Total Costs	Bank Type	Cost / Assets	Demand Deposits	Savings Deposits	Term Deposits	Transactn Deposits	Advances	Interest Costs	Labour Costs
					Size: Large						
					Cost Division: III						
Standard Charteres	419388	46332	FB	0.1105	37789	25185	210883	62974	201846	24353	10833
State Bank Hyderabad	814480	90435	SB	0.111	124050	125237	359873	249287	387616	50575	17516
Bank of Madura	204193	22745	OP	0.1114	33677	23934	97214	57611	99701	13364	3830
PNB	3148547	357885	NA	0.1137	311605	827327	1573357	1138932	1267989	208901	75784
State Bank Indore	311894	35559	SB	0.114	47685	60307	138539	107992	147048	19039	7918
State Bank Mysore	474236	54998	SB	0.116	55246	86472	238090	141718	203885	30373	13023
Punjab and Sind Bank	723701	85982	NA	0.1188	52938	136947	397857	189885	278984	49812	16311
Citibank	865880	103818	FB	0.1199	85888	21406	570225	107294	347864	54074	5186
South Indian Bank	205511	25540	OP	0.1243	12385	28535	131467	40920	102840	15977	4679
State Bank Travancore	664581	85525	SB	0.1287	53019	122784	366611	175803	334916	54601	13735
American Express	302416	39523	FB	0.1307	30470	9473	191540	39943	130665	25202	3141
Vijaya	722372	98424	NA	0.1363	103027	126220	369603	229247	244370	48581	17702
Deutsche	191284	27456	FB	0.1435	32544	5094	96644	37638	114122	12906	1696
State Bank Saurashtra	466558	71197	SB	0.1526	57217	57487	199623	114704	181308	24463	10862
Indian Bank	1779294	303071	NA	0.1703	146661	228499	956328	375160	787346	141061	36288
AVERAGES	752956	96566.00			78947	125660	393190	204607	322033		
ACD3	0.09074	ACD3*			0.07696						

Source: Earnings and Expenses of Scheduled Commercial Banks, Liabilities and Assets of Scheduled Commercial Banks, 1995-96

APPENDIX NO 7.3

COST WISE BANK DIVISIONS 1999-2000

(RUPEES IN LAKHS)

Name of Bank	Total Assets	Total Costs	Bank* Type	Costs to Assets	Demand Deposits	Savings Deposits	Transaction Deposits	Term Deposits	Advances	Interest Costs	Labour Costs
			Size : Small								
			Cost Division: I								
Cho Hung	14939	501	FB	0.034	7213	19	7232	1948	3438	139	106
Arab Bangladesh	7400	257	FB	0.035	1858	30	1888	1117	744	104	57
Sonali	5983	250	FB	0.042	4187	76	4263	296	394	54	99
Ceylon	16156	832	FB	0.051	1156	139	1295	3872	9069	584	58
SB Mauritus	41712	2455	FB	0.059	1925	132	2057	10743	26332	2070	138
Muscat	17389	1140	FB	0.066	741	151	892	11045	2569	654	156
Developmnt Singapore	32239	2169	FB	0.067	558	98	656	4700	18748	1620	194
Nova Scotia	128043	8840	FB	0.069	5260	1273	6533	61609	87527	7013	562
KBC	32899	2340	FB	0.071	162	11	173	21474	7708	1490	458
Sanwa	25934	1873	FB	0.072	2799	572	3371	8235	17970	1248	135
Overseas Chinese	5703	440	FB	0.077	133	15	148	1090	2013	136	116
Bank Of Punjab	319483	25519	NP	0.080	49449	33334	82783	177991	130140	18911	776
Development Credit	332687	26735	OP	0.080	22424	24301	46725	229937	163813	20675	2621
Nainital	50007	4215	OP	0.084	4279	16666	20945	25413	10327	2870	1004
Sakura	58082	4902	FB	0.084	4281	1059	5340	8239	33103	3651	447
AVERAGES	72577.07	5497.87			7095.00	5191.73	12286.73	37847.27	34259.67		
ACD1	0.0705631										
*	FB - FOREIGN BANK		OP - OLD PRIVATE BANK			NP - NEW PRIVATE BANK					

APPENDIX No.7.3 (Contd.)

Name of Bank	Total Assets	Total Costs	Bank Type	Costs to Assets	Demand Deposits	Savings Deposits	Transaction Deposits	Term Deposits	Advances	Interest Costs	Labour Costs
				Size : Small							
				Cost Division: II							
SBI Commercial	70723	6049	OP	0.086	2694	1191	3885	47484	36787	5246	260
Sangli	148900	12787	OP	0.086	20061	31989	52050	85840	47790	8619	3199
BharatOverses	161638	13909	OP	0.086	12010	20177	32187	108661	68760	10475	1711
Banque de Paris	228233	21050	FB	0.092	32851	2679	35530	70486	67511	15740	2421
Tamil N Mercen	307630	28917	OP	0.094	45866	29016	74882	191571	125504	22336	4052
Karur Vysya	374517	36673	OP	0.098	34630	27762	62392	246669	180730	28100	5392
Lord Krishna	103734	10159	OP	0.098	6347	7643	13990	74211	48552	8266	1068
Lakshmi Vilas	231168	22673	OP	0.098	30493	23816	54309	142032	115005	16253	3852
Nedungadi	173911	17161	OP	0.099	10212	18853	29065	129756	79375	12508	2921
Dhanalakshmi	159400	15773	OP	0.099	13116	16000	29116	110950	77631	12341	2246
Abu Dhabi	67354	6726	FB	0.100	6090	3867	9957	49091	23662	5984	287
Chase Manhattan	33387	3339	FB	0.100	430	1	431	1	1150	1469	495
Oman Intll	59984	6060	FB	0.101	3763	2438	6201	35398	22410	5311	205
BahrainKuwait	55795	5779	FB	0.104	2825	1370	4195	32395	25496	4803	353
City union	154205	15992	OP	0.104	15584	16600	32184	101864	76939	12918	1973
SIB	444361	46322	OP	0.104	23808	61281	85089	303447	202108	35072	8633
AVERAGES	173433.75	16835.563			16298.75	16542.688	32841.44	108116	74963.125		
ACD2	0.0854677		ACD2*	0.0771882							

				APPENDIX No.7.3 (Contd.)							
Name of Bank	Total Assets	Total Costs	Bank Type	Costs to Assets	Demand Deposits	Savings Deposits	Transaction Deposits	Term Deposits	Advances	Interest Costs	Labour Costs
					Size: Small						
					Cost Division: III						
BOR	412864	43476	OP	0.105	61619	69766	131385	192825	172844	30614	9048
Dresdner	34254	3672	FB	0.107	972	139	1111	11586	417903	1889	506
Ganesh Bank	15016	1613	OP	0.107	975	2335	3310	10553	7840	1284	196
Ratnakar	50106	5409	OP	0.108	5603	5693	11296	32506	18736	3535	986
Benaras	100234	10894	OP	0.109	4343	24296	28639	61515	23145	8016	2003
Mashreq	35670	3948	FB	0.111	4374	557	4931	20492	12191	2738	389
Catholic Syrian	269204	30006	OP	0.111	23176	38824	62000	183777	106071	22029	5901
Societe General	66988	7826	FB	0.117	8654	2128	10782	26474	23305	5930	753
Credit Lyonnais	101788	11976	FB	0.118	5225	78	5303	79747	40218	9871	952
Chinatrust	16710	1972	FB	0.118	620	121	741	6248	7571	1421	180
Commerz	47788	5904	FB	0.124	1408	746	2154	12042	13695	3999	812
Barclays	32175	4032	FB	0.125	1467	115	1582	19119	4763	2841	476
Amex	272570	37035	FB	0.136	40097	14824	54921	86912	89194	19638	7193
ING	32292	5668	FB	0.176	850	1324	2174	3741	10997	3456	841
Bank of Tokyo	87603	18724	FB	0.214	22097	6072	28169	34626	39105	5848	1507
Intll Indonesia	11402	2524	FB	0.221	299	30	329	1532	1781	810	117
AVERAGES	99166.50	12167.44			11361.19	10440.50	21801.69	48980.94	61834.94		
ACD3	0.1033929		ACD3*	0.0652038							

			APPENDIX No.7.3 (Contd.)								
			COST WISE BANK QUARTILES 1999-2000								
Name of Bank	Total Assets	Total Costs	Bank* Type	Costs to Assets	Demand Deposits	Savings Deposits	Transaction Deposits	Term Deposits	Advances	Interest Costs	Labour Costs
					Size: Large						
					Cost Division: I						
HDFC	1165614	54567	NP	0.047	277991	112495	390486	452286	336227	37428	4853
ABN Amro	751659	50098	FB	0.067	102739	37301	140040	202253	389643	36314	3444
ICICI	1207263	82026	NP	0.068	158748	53326	212074	774528	365734	66695	3637
UTI	666898	45826	NP	0.069	66555	30467	97022	474799	350662	39286	1543
J&K	1056124	75764	OP	0.072	182089	159620	341709	600500	351807	59822	8984
Indusind	799689	59137	NP	0.074	87069	13451	100520	554076	367705	50112	1197
HSBC	1266608	94294	FB	0.074	161649	117805	279454	596016	430237	64472	10103
S B Patiala	1231129	98450	SB	0.080	202084	264730	466814	551356	577541	69509	21123
BOBaroda	5860516	480994	NA	0.082	552452	1084225	1636677	3494141	2439291	350663	89645
SBI	26150496	2156775	SB	0.082	3618205	4150653	7768858	11913249	9810197	1527258	447787
United western	482073	39806	OP	0.083	63642	57204	120846	314038	235802	30463	6628
Global Trust	753122	63109	NP	0.084	84541	29425	113966	505919	321101	50719	1813
BOM	444369	37348	OP	0.084	80003	50582	130585	232519	166542	26609	6278
S B Saurashtra	753447	64889	SB	0.086	77089	115059	192148	385141	319973	45580	14289
S B Hyderabad	1550822	133748	SB	0.086	234143	240505	474648	778055	533197	96235	25083
AVERAGES	2942655	235789			396600	434457	831056	1455258	1133044		
ACD1	0.057905										
*	NA - NATIONALIZED BANK			SB - STATE BANK GROUP							

					APPENDIX No.7.3 (Contd.)						
Name of Bank	Total Assets	Total Costs	Bank Type	Costs to Assets	Demand Deposits	Savings Deposits	Transactior Deposits	Term Deposits	Advances	Interest Costs	Labour Costs
					Size: Large						
					Cost Division: II						
BOI	5606454	483954	NA	0.086	609290	991624	1600914	3173474	2523105	344314	99912
Corpn bank	1676228	145007	NA	0.087	191009	195772	386781	1041182	777747	114609	17726
UCO	2355837	204957	NA	0.087	231500	504403	735903	1100093	763026	142493	50623
Grindlays	1149816	100366	FB	0.087	139892	152030	291922	555857	423341	68522	16715
Andhra Bank	1580345	138390	NA	0.088	157506	276094	433600	1008195	557360	102536	26095
Canara	5440249	476426	NA	0.088	710442	1112934	1823376	2976761	2354673	341447	95109
IDBI	451215	39528	NP	0.088	42842	17326	60168	284649	160071	33261	1408
SBBJ	1246915	109818	SB	0.088	136686	241272	377958	529444	440111	74235	26548
OBC	2454120	217352	NA	0.089	188366	365737	554103	1655418	932553	174528	23137
Centurion	522434	46652	OP	0.089	33217	11427	44644	342064	183981	36249	1091
UBI	1950762	175218	NA	0.090	156295	455597	611892	1066876	456278	128646	38657
S B Indore	627897	56507	SB	0.090	83428	124989	208417	301220	284153	37233	13345
Deutsche	465421	41953	FB	0.090	99499	10104	109603	107135	176212	23835	5752
Syndicate	2716280	246354	NA	0.091	247411	567676	815087	1550455	1220631	161233	66921
CBI	4147409	376384	NA	0.091	436930	1053367	1490297	2096875	1580492	252160	99083
Indian Bank	2352762	214990	NA	0.091	176228	392646	568874	1342476	820340	151868	49339
AVERAGES	2171509	192116			227534	404562	632096	1195761	853380		
ACD2	0.0821851		ACD2*	0.0626855							

					APPENDIX No.7.3 (Contd.)						
Name of Bank	Total Assets	Total Costs	Bank Type	Costs to Assets	Demand Deposits	Savings Deposits	Transaction Deposits	Term Deposits	Advances	Interest Costs	Labour Costs
						Size: Large					
						Cost Division: III					
Union BI	3498554	322259	NA	0.092	482902	742990	1225892	1884644	1461323	235803	61186
Allahabad	1971149	181689	NA	0.092	169643	570118	739761	1024450	824006	128097	36706
Vijaya	1279210	118890	NA	0.093	192977	229434	422411	736877	468761	80937	27265
BOMaharashtra	1522668	142023	NA	0.093	154533	359667	514200	826455	525221	100015	32485
IOB	2762090	258253	NA	0.093	260770	521171	781941	1649835	1157320	182626	57742
PNB	5412857	506205	NA	0.094	543700	1587541	2131241	2617082	2257172	353820	118367
Dena	1685084	158058	NA	0.094	159934	334977	494911	833751	711788	116919	29304
S B Travancore	1243458	117198	SB	0.094	104690	232762	337452	680809	513121	87759	22148
Std Chartered	910698	86057	FB	0.094	113404	55949	169353	331247	431886	57698	7426
Citibank	1417240	134601	FB	0.095	234280	59027	293307	727018	662017	84582	10600
Vysya	893578	85994	OP	0.096	75598	77655	153253	589147	393775	68315	9730
S B Mysore	828491	80161	SB	0.097	85206	149795	235001	428235	349510	51897	22316
Karnataka	574227	56948	OP	0.099	40174	69437	109611	407806	245143	46383	7528
PSB	1189944	118694	NA	0.100	82165	247258	329423	726175	476482	85108	24216
Bank of Amercia	567943	58727	FB	0.103	45770	9139	54909	196268	365749	40266	9385
Federal	760255	87860	OP	0.116	43728	99991	143719	502619	403571	70145	11812
AVERAGES	1657340	157101			174342	334182	508524	885151	702928		
ACD3	0.07965		ACD3*	0.0638896							

Source: Earnings and Expenses of Scheduled Commercial Banks, Liabilities and Assets of Scheduled Commercial Banks, 1999-00

APPENDIX No. 7.4

Results of Regression for year 1989-90

Size Class: Small

Cost Division: I

dependant variable: lnID

variable	coefficient	std. Error	t-stat
c	-7.7230992	3.5186476	-2.1949055
lnta	0.7430322	0.4761398	1.5605337
lnTE	1.4474867	0.3687156	3.9257543
lnTElnTA	-0.0634591	0.0493103	-1.2869335

r-squared	0.988086	f-statistic	193.5219
adjusted r-squared	0.982981	prob (f-statistic)	0.000000
s.e. of regression	0.199984		

dependant variable: lnLC

variable	coefficient	std. Error	t-stat
c	62.069487	8.9863603	6.9070775
lnTA	-5.4010204	1.5620059	-3.4577466
lnTE	25.983280	2.2555228	11.519848
lnAD	-35.603246	2.9670193	-11.999668
lnTElnTA	-2.7254973	0.2449392	-11.127242
lnTElnAD	0.0952840	0.0731467	1.3026423
lnTAlnAD	3.6027891	0.3276192	10.996881

r-squared	0.995567	f-statistic	149.7152
adjusted r-squared	0.988917	prob (f-statistic)	0.000117
s.e. of regression	0.157270		

APPENDIX No. 7.4 (contd.)

Size Class: Small

Cost Division: II

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	2.5200293	14.350485	0.1756059
lnTA	-0.5254590	1.7241754	-0.3047596
lnTE	0.5397384	1.5169466	0.3558058
lnTElnTA	0.0527662	0.1791664	0.2945097

r-squared	0.934276	f-statistic	33.16869
adjusted r-squared	0.906109	prob (f-statistic)	0.000165
s.e. of regression	0.214526		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-10.912256	35.597376	-0.3065466
lnTA	-3.6996917	7.1502058	-0.5174245
lnTE	4.9413375	19.929381	0.2479423
lnAD	1.3912795	22.107622	0.0629321
lnTElnTA	0.1294826	2.4883627	0.0520353
lnTElnAD	-0.6076022	0.7687232	-0.7904045
lnTAlnAD	0.3979537	2.2081176	0.1802231

R-Squared	0.864571	F-Statistic	4.255963
Adjusted R-Squared	0.661428	Prob (F-Statistic)	0.091184
S.E. of regression	0.476238		

APPENDIX No. 7.4 (contd.)

Size Class: Small

Cost Division: III

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	-5.0282025	3.8536116	-1.3048026
lnTA	0.1328584	0.4778853	0.2780133
lnTE	1.5650609	0.4092968	3.8237804
lnTElnTA	-0.0422973	0.0490910	-0.8616106

r-squared	0.982575	f-statistic	150.3734
adjusted r-squared	0.976041	prob (f-statistic)	0.000000
s.e. of regression	0.149047		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-17.488094	18.013210	-0.9708483
lnTA	-6.9622687	10.061850	-0.6919472
lnTE	21.138150	8.0893482	2.6130844
lnAD	-10.726473	14.006002	-0.7658484
lnTElnTA	-1.1782790	1.5392671	-0.7654805
lnTElnAD	-1.0778000	1.2272063	-0.8782550
lnTAlnAD	2.1716162	0.9526849	2.2794696

R-Squared	0.963224	F-Statistic	21.82665
Adjusted R-Squared	0.919094	Prob (F-Statistic)	0.001937
S.E. of regression	0.380485		

Size Class: Large

Cost Division: I

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	11.573454	6.3038824	1.8359248
lnTA	-1.0641697	0.5199975	-2.0464901
lnTE	-0.1619587	0.5622839	-0.2880372
lnTElnTA	0.0902417	0.0416834	2.1649331

r-squared	0.984993	f-statistic	153.1498
adjusted r-squared	0.978561	prob (f-statistic)	0.000001
s.e. of regression	0.209575	.	

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-21.899827	17.818477	-1.2290515
lnTA	3.4266960	2.4638198	1.3908062
lnTE	15.563262	5.2748458	2.9504677
lnAD	-14.585106	4.4043051	-3.3115566
lnTElnTA	-1.4444768	0.5387648	-2.6810895
lnTElnAD	0.1512703	0.1673519	0.9039057
lnTAlnAD	1.1398585	0.3647589	3.1249645

R-Squared	0.994063	F-Statistic	111.6251
Adjusted R-Squared	0.985158	Prob (F-Statistic)	0.000210
S.E. of regression	0.175324		

APPENDIX No. 7.4 (contd.)

Size Class: Large

Cost Division: II

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	6.7081713	8.0163998	0.8368060
lnTA	-0.2567726	0.7052525	-0.3640860
lnTE	-0.0850800	0.6611004	-0.1286946
lnTElnTA	0.0517844	0.0565963	0.9149789

r-squared	0.980890	f-statistic	119.7696
adjusted r-squared	0.972701	prob (f-statistic)	0.000002
s.e. of regression	0.141137		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-6.2725530	21.925085	-0.2860903
lnTA	-2.6098608	3.0151697	-0.8655768
lnTE	1.4778801	7.5126639	0.1967185
lnAD	2.6263231	7.9660224	0.3296907
lnTElnTA	0.1846932	0.7248141	0.2548145
lnTElnAD	-0.2673338	0.3160203	-0.8459388
lnTAlnAD	0.0633315	0.6126267	0.1033770

R-Squared	0.985092	F-Statistic	44.05151
Adjusted R-Squared	0.962730	Prob (F-Statistic)	0.001307
S.E. of regression	0.174221		

APPENDIX No. 7.4 (contd.)

Size Class: Large

Cost Division: III

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	-17.970322	9.1426710	-1.9655440
lnTA	1.5483742	0.7160257	2.1624561
lnTE	2.0761048	0.8387323	2.4752888
lnTElnTA	-0.1070934	0.0639451	-1.6747715

r-squared	0.986481	f-statistic	194.5817
adjusted r-squared	0.981411	prob (f-statistic)	0.000000
s.e. of regression	0.115288		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-88.024785	25.351951	-3.4721109
lnTA	11.352359	17.866382	0.6354033
lnTE	-12.698398	36.355154	-0.3492874
lnAD	16.636047	47.942574	0.3469995
lnTElnTA	0.7557540	4.1527476	0.1819889
lnTElnAD	0.3353936	1.3783199	0.2433351
lnTAlnAD	-1.6910670	3.1515007	-0.5365910

R-Squared	0.959855	F-Statistic	19.92491
Adjusted R-Squared	0.911682	Prob (F-Statistic)	0.002399
S.E. of regression	0.270736		

APPENDIX No. 7.5

Results of Regression for year 1995-96

Size Class: Small

Cost Division: I

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	-4.6006180	3.7390197	-1.2304343
lnTA	1.3071083	0.5781593	2.2608099
lnTE	1.0462373	0.5556093	1.8830452
lnTElnTA	-0.1058534	0.0673304	-1.5721487

r-squared	0.795212	f-statistic	12.94370
adjusted r-squared	0.733776	prob (f-statistic)	0.000888
s.e. of regression	0.767629		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	51.505034	68.353501	0.7535098
lnTA	0.5753444	6.4497445	0.0892042
lnTE	-3.7376164	6.9307007	-0.5392841
lnAD	-6.5573661	11.086095	-0.5914947
lnTElnTA	-0.2097281	0.5985788	-0.3503768
lnTElnAD	0.5168492	0.9049089	0.5711616
lnTAlnAD	0.2111723	0.9235442	0.2286543

R-Squared	0.492350	F-Statistic	1.131507
Adjusted R-Squared	0.057222	Prob (F-Statistic)	0.721987
S.E. of regression	0.701026		

APPENDIX No. 7.5 (Contd.)

Size Class: Small

Cost Division: II

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	-3.8324524	6.9719031	-0.5496996
lnTA	0.1591230	0.8461602	0.1880530
lnTE	1.1691789	0.7069309	1.6538801
lnTElnTA	-0.0145003	0.0785885	-0.1845087

r-squared	0.929904	f-statistic	44.22038
adjusted r-squared	0.908875	prob (f-statistic)	0.000004
s.e. of regression	0.293860		

dependant: lnLC

variable	coefficient	std. error	t-stat
c	3.7927892	30.083774	0.1260742
lnTA	4.0659790	7.8521346	0.5178183
lnTE	-8.8482057	35.834258	-0.2469203
lnAD	4.9069432	35.297599	0.1390166
lnTElnTA	0.6021401	3.5606205	0.1691110
lnTElnAD	0.3718911	0.9183746	0.4049449
lnTAlnAD	-0.9568848	3.7323726	-0.2563744

R-Squared	0.636627	F-Statistic	2.043991
Adjusted R-Squared	0.325164	Prob (F-Statistic)	0.185679
S.E. of regression	0.770255		

APPENDIX No. 7.5 (Contd.)

Size Class: Small

Cost Division: III

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	2.2331778	7.0508376	0.3167252
lnTA	-0.5241718	0.8837394	-0.5931294
lnTE	0.8455038	0.6751174	1.2523805
lnTElnTA	0.0251070	0.0836811	0.3000316

r-squared	0.953366	f-statistic	74.96054
adjusted r-squared	0.940648	prob (f-statistic)	0.000000
s.e. of regression	0.368505		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-17.602623	31.374369	-0.5610511
lnTA	3.1606742	4.9275526	0.6414288
lnTE	-10.210931	5.5161578	-1.8510949
lnAD	10.842433	6.4680663	1.6763021
lnTElnTA	1.0300559	0.4939046	2.0855361
lnTElnAD	0.0832840	0.1531303	0.5438766
lnTAlnAD	-1.2453683	0.7937237	-1.5690199

R-Squared	0.774649	F-Statistic	4.583374
Adjusted R-Squared	0.605637	Prob (F-Statistic)	0.026045
S.E. of regression	0.801594		

APPENDIX No. 7.5 (Contd.)

Size Class: Large

Cost Division: I

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	0.8515800	9.1279060	0.0932941
lnTA	-0.0936654	0.6400344	-0.1463443
lnTE	0.6861203	0.8030432	0.8544002
lnTElnTA	0.0140123	0.0562906	0.2489279

r-squared	0.983014	f-statistic	192.9102
adjusted r-squared	0.977919	prob (f-statistic)	0.000000
s.e. of regression	0.142407		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-3.7260428	33.539667	-0.1110936
lnTA	6.7816008	6.0312840	1.1244042
lnTE	-8.7631146	10.638519	-0.8237156
lnAD	3.2326020	7.4750665	0.4324513
lnTElnTA	0.2809490	0.7152664	0.3927893
lnTElnAD	0.4376153	0.5764138	0.7592034
lnTAlnAD	-0.7334023	0.8095064	-0.9059870

R-Squared	0.978132	F-Statistic	52.18329
Adjusted R-Squared	0.959388	Prob (F-Statistic)	0.000018
S.E. of regression	0.355834		

APPENDIX No. 7.5 (Contd.)

Size Class: Large

Cost Division: II

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	8.7271524	4.5114693	1.9344368
lnTA	-0.5670168	0.3197276	-1.7734370
lnTE	-0.0017955	0.3562164	-0.0050404
lnTElnTA	0.0573809	0.0243507	2.3564397

r-squared	0.993442	f-statistic	504.9409
adjusted r-squared	0.991474	prob (f-statistic)	0.000000
s.e. of regression	0.084214		

dependant variable: lnID

variable	coefficient	std. error	t-stat
c	-68.130839	42.496030	-1.6032283
lnTA	2.5440710	5.9982417	0.4241361
lnTE	29.026514	15.590434	1.8618157
lnAD	-20.974092	13.187512	-1.5904511
lnTElnTA	-2.0212399	1.2458927	-1.6223226
lnTElnAD	-0.2752893	0.4602023	-0.5981919
lnTAlnAD	1.9480655	1.0321677	1.8873538

R-Squared	0.977121	F-Statistic	49.82594
Adjusted R-Squared	0.957510	Prob (F-Statistic)	0.000022
S.E. of regression	0.226717		

APPENDIX No. 7.5 (Contd.)

Size Class: Large

Cost Division: III

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	1.3998945	4.6809071	0.2990648
lnTA	-0.1285394	0.3980950	-0.3228863
lnTE	0.5951358	0.3687445	1.6139515
lnTElnTA	0.0212364	0.0304232	0.6980349

r-squared	0.988223	f-statistic	307.6661
adjusted r-squared	0.985011	prob (f-statistic)	0.000000
s.e. of regression	0.099051		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-24.781745	36.796800	-0.6734755
lnTA	-1.4737081	5.6835731	-0.2592925
lnTE	8.7639057	9.6206685	0.9109456
lnAD	-2.9540420	11.911990	-0.2479890
lnTElnTA	-0.4112981	0.8750665	-0.4700193
lnTElnAD	-0.3289560	0.5967165	-0.5512769
lnTAlnAD	0.6168332	0.8355211	0.7382617

R-Squared	0.902328	F-Statistic	12.31784
Adjusted R-Squared	0.829075	Prob (F-Statistic)	0.001160
S.E. of regression	0.402934		

APPENDIX No. 7.6

Results of Regression for year 1999-2000

Size Class: Small

Cost Division: I

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	-1.9519709	4.6269772	-0.4218674
lnTA	0.0817368	0.5433862	0.1504211
lnTE	0.9558832	0.4928955	1.9393223
lnTElnTA	-0.0046092	0.0550192	-0.0837747

r-squared	0.910461	f-statistic	37.28386
adjusted r-squared	0.886041	prob (f-statistic)	0.000005
s.e. of regression	0.619137		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	1.6899382	7.0989645	0.2380542
lnTA	0.5741423	1.0314331	0.5566452
lnTE	-0.7284781	1.5587708	-0.4673414
inAD	0.4931906	1.6739072	0.2946344
lnTElnTA	0.0913439	0.1769830	0.5161169
lnTElnAD	0.0707133	0.0837666	0.8441708
lnTAlnAD	-0.1544340	0.2484124	-0.6216838

R-squared	0.767041	F-Statistic	4.390130
Adjusted R-squared	0.592321	Prob (F-statistic)	0.029310
S.E. of regression	0.715918		

APPENDIX No. 7.6 (contd.)

Size Class: Small

Cost Division: II

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	13.943321	2.3429230	5.9512503
lnTA	-1.0960859	0.3825692	-2.8650657
lnTE	-0.6257272	0.1507905	-4.1496453
lnTElnTA	0.1172991	0.0274936	4.2664208

r-squared	0.957014	f-statistic	89.05333
adjusted r-squared	0.946267	prob (f-statistic)	0.000000
s.e. of regression	0.181998		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-33.503536	17.905413	-1.8711400
lnTA	0.4703264	3.9713903	0.1184286
lnTE	-2.3563700	1.2204130	-1.9307972
lnda	8.0714215	5.5603477	1.4516037
lnTElnTA	0.4743296	0.4386673	1.0812969
lnTElnAD	-0.2260577	0.3755669	-0.6019107
lnTAlnAD	-0.4683850	0.2804019	-1.6704059

R-squared	0.969252	F-Statistic	47.28322
Adjusted R-squared	0.948753	Prob (F-statistic)	0.000003
S.E. of regression	0.269511		

APPENDIX No. 7.6 (contd.)

Size Class: Small

Cost Division: III

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	6.7670313	3.8015492	1.7800720
lnTA	-0.3446564	0.5067989	-0.6800655
lnTE	-0.0428470	0.3880865	-0.1104058
lnTElnTA	0.0567108	0.0447544	1.2671575

r-squared	0.878730	f-sTAtistic	28.98414
adjusted r-squared	0.848412	prob (f-statistic)	0.000009
s.e. of regression	0.410258		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	0.7877079	10.538356	0.0747468
lnTA	-1.6393251	2.6849343	-0.6105643
lnTE	1.5361056	2.5124152	0.6114059
lnda	0.2990703	2.4993817	0.1196577
lnTElnTA	0.0117530	0.2286320	0.0514058
lnTElnAD	-0.1620878	0.3193030	-0.5076299
lnTAlnAD	0.1950044	0.2202942	0.8851996

R-squared	0.894127	F-Statistic	12.66789
Adjusted R-squared	0.823545	Prob (F-statistic)	0.000610
S.E. of regression	0.538630		

APPENDIX No. 7.6 (contd.)

Size Class: Large

Cost Division: I

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	10.503987	6.7063975	1.5662637
lnTA	-0.6685792	0.4919116	-1.3591449
lnTE	-0.1334091	0.4925250	-0.2708676
lnTElnTA	0.0639903	0.0345332	1.8530085

r-squared	0.979689	f-statistic 176.8602
adjusted r-squared	0.974150	prob (f-statistic) 0.000000
s.e. of regression	0.168729	

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	23.845665	48.560479	0.4910509
lnTA	8.1474823	24.610052	0.3310632
lnTE	-5.6290272	19.721196	-0.2854303
lnAD	-5.2821972	23.682588	-0.2230414
lnTElnTA	-0.2569071	1.8408479	-0.1395591
lnTElnAD	0.6387891	2.0060815	0.3184263
lnTAlnAD	-0.2519033	1.4517025	-0.1735227

R-squared	0.893241	F-Statistic 11.15584
Adjusted R-squared	0.813172	Prob (F-statistic) 0.001631
S.E. of regression	0.679990	

APPENDIX No. 7.6 (contd.)

Size Class: Large

Cost Division: II

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	9.5484588	3.7720803	2.5313509
lnTA	-0.5290198	0.2978633	-1.7760491
lnTE	-0.0857451	0.2845641	-0.3013210
lnTElnTA	0.0563834	0.0219569	2.5679095

r-squared	0.993441	f-statistic	605.8138
adjusted r-squared	0.991801	prob (f-statistic)	0.000000
s.e. of regression	0.075067		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	-37.746765	23.605979	-1.5990341
lnTA	2.1620093	5.0828598	0.4253529
lnTE	1.5355616	3.4826326	0.4409198
lnAD	2.4513389	8.7556847	0.2799711
lnTElnTA	-0.0231588	0.5586804	-0.0414526
lnTElnAD	-0.1345160	0.4584640	-0.2934059
lnTAlnAD	-0.0296454	0.2966102	-0.0999473

R-squared	0.986910	F-Statistic	113.0957
Adjusted R-squared	0.978184	Prob (F-statistic)	0.000000
S.E. of regression	0.203299		

APPENDIX No. 7.6 (contd.)

Size Class: Large

Cost Division: III

Dependant Variable: lnID

variable	coefficient	std. error	t-stat
c	24.561359	5.7592976	4.2646448
lnTA	-1.6814503	0.4470835	-3.7609309
lnTE	-1.1457003	0.4503897	-2.5437978
lnTElnTA	0.1378081	0.0328314	4.1974483

r-squared	0.977547	f-statistic	174.1489
adjusted r-squared	0.971934	prob (f-statistic)	0.000000
s.e. of regression	0.098959		

dependant variable: lnLC

variable	coefficient	std. error	t-stat
c	96.651501	65.641416	1.4724164
lnTA	4.3030036	7.8476751	0.5483157
lnTE	-21.378403	11.248449	-1.9005646
lnAD	3.8803126	6.7383268	0.5758570
lnTElnTA	0.9529979	0.3002381	3.1741406
lnTElnAD	0.7720977	0.8955235	0.8621747
lnTAlnAD	-1.2229889	0.5832637	-2.0968027

R-squared	0.951659	F-Statistic	29.52949
Adjusted R-squared	0.919431	Prob (F-statistic)	0.000020
S.E. of regression	0.231777		

CHAPTER 8

PRODUCT INNOVATIONS AND DIVERSIFICATION IN INDIAN BANKING BUSINESS

This chapter analyzes the global trends in product innovations and diversification in banking in general and the developments in India in particular.

Product Innovations-World Wide Trends

The evolution of credit ratings, which help investors to assess the credit quality of borrowers, and, the growth of capital markets resulted in banks being bypassed by borrowers who could raise funds directly from the investors.

As mentioned in Chapter 2, the trend towards dis-intermediation in Japan started in the late 1980s with the deregulation of the capital market. This included the lifting of prohibitions on short term Euro yen loans to domestic borrowers; gradual removal of restrictions on corporate bond market and creation of a commercial paper market (Akihiro and Woo, 2000). Following these developments, banks faced price competition with borrowers finding it cheaper to borrow directly from the markets. This situation was further worsened by the fact that banks were not permitted by regulators to underwrite securities when the bond market was booming. They were allowed to set up subsidiaries to deal in securities in 1994.

The trend of dis-intermediation is also captured by data, which shows that the share of bank's borrowing and lending business in the total financial services market is falling. In the United States bank assets formed 28 percent of all financial assets in 1999 roughly half of what they were 20 years ago. Though bank lending accounted for 55 percent of all financial assets in Britain and 75 percent in France and Germany in 1999, these shares are showing a downward trend (The Economist, March 13, 1999).

This trend of dis-intermediation has squeezed the margins of banks. In the US regional banks had margins of more than 5.5 percent points in 1970s which fell to 4 percent in 1999. Margins for bigger money-centre banks have fallen from 3 percent to around 1.25 percent in the same time period (Cookson, 2000).

At the same time banks have had to approach capital markets themselves to raise capital in line with their risk weighted assets owing to the Basel Committee's norms on capital adequacy. Investors in the share markets require higher earnings per share from banks in return for contributing to their capital. The trends of falling spreads and investor's demanding higher returns have pushed banks to generate additional returns.

Banks can do three things to boost returns - go in for riskier lending, cut costs and/or enter new businesses to expand revenues.

One of the routes to boost revenues has been that of moving into non-traditional areas to earn fees and commissions. Banks have found innovative ways of adding to their income.

Innovations are mostly responses to changes in supply and demand conditions. For example, the highly volatile interest rate environment in the 1980s in the US saw the development of adjustable rate mortgages. These are loans whose interest rate is linked to a variable index. Similarly, advances in technology have lead to development of new products like credit cards, internet banking, ATMs, smart cards and debit cards.

The restriction on interest rates payable on deposits in the late 1960s in the US saw the emergence of eurodollars and bank commercial paper both of which were exempt from restrictions on rates. Similarly, the restrictions on rates payable on checking accounts lead to the offerings of NOW (Negotiable Orders of Withdrawal) accounts. ATS (Automatic Transfer to Savings Account) and sweep accounts are also product innovations motivated by the desire to avoid regulations on interest rates on checking accounts.

A major innovation has been the emergence of off-balance sheet activities. These are the contingent claims or contracts that bind a bank to perform an activity in case a pre-specified situation materializes. They are called off-balance sheet items because they don't show up on the balance sheet of the bank until the pre-specified situation materializes. A bank earns fee income on off-balance sheet activities. Most often the motivation behind such products is the need to earn a fee-income from the borrowers who are approaching the investors directly, bypassing the banks. Such borrowers are not financed by banks but in case they are not able to raise finance from the investors,banks provide them the guarantee that they will finance the shortfall. This

guarantee is an off-balance sheet item and is provided for a fee. Some examples of off-balance sheet items are given below.

A loan commitment may be extended by a bank to backup the maturing commercial paper of the firm. If the market conditions are not conducive when the firm issues new commercial paper, the firm can use the backup extended by the bank. Similarly, banks offer note issuance facilities to help corporations place their securities with foreign investors. If the corporation cannot obtain financing, it can fall back on the bank for finances. Both these innovations have helped banks to earn fee income even in the face of dis-intermediation. The risks involved with both the commitments are liquidity and credit risks. The former exists because the bank has agreed to extend funds based on an uncertain occurrence. The latter arises when the contingent claim materializes and the bank lends to the borrower. Infact, both the risks are higher than normal because borrowers will use the backup facility only when liquidity in the market is poor or they are in distress.

A forward contract is an agreement between two parties to buy and sell an asset at a date in the future at a pre-specified rate. A futures contract is a similar agreement trading on an organized exchange with the prices marked to market daily. In the case of an option contract the buyer of the contract has the option to buy or sell the asset on a pre-specified date and rate in the future. Interest rate swaps are contracts that involve the exchange of a stream of interest payments between two parties. Interest rate forwards, futures, options and swaps can be used by banks to hedge their interest rate risk. Foreign exchange forwards, futures and options can be used by banks to either hedge foreign exchange risks or in the course of trading. All these contracts

create commitments involving a bank and a counter-party. The primary risk is that of default by the counter-party (except in the case of exchange traded contracts, where a clearing- house guarantees the performance of every contract).

Securitization involves packaging loans of a similar type and selling securities backed by the cash flows of the loans in the package. Standardized loan contracts like house loans or retail consumer loans are most amenable to securitization. The bank earns a fee on servicing the assets in such cases. Mortgage loans were the first to be securitized, followed by computer leases, automobile loans and credit card receivables (Kohn, 1994). Moreover, the bank can move its assets off-balance sheet and save on the capital adequacy requirements. Securitization also integrates the financial services industry as a money market or a secondary market in long term securities would do. It does so by providing a secondary market in asset backed securities.

Rapid development of the bond markets has given rise to another innovation, the syndicated loan. It is a source of rapid financing wherein bank credit committees approve large loans quickly and later download them into bond markets. In the process they earn a fee and have no balance sheet commitment (Euromoney, September, 1999e).

In the commercial paper market a new product is asset backed commercial paper. In the US domestic market around 30 percent of outstanding commercial paper amount is asset backed commercial paper (Euromoney, September, 1999b).

Need for Innovations - the Indian Context

The off-balance sheet exposure of all Indian scheduled commercial banks increased by 27.6 percent from Rs. 4,58,092 crores in 1998-99 to Rs. 584,440.9 crores in 1999-2000. As a proportion of total liabilities this exposure increased from 48.2 percent in 1998-99 to 52.6 percent in 1999-2000. As of 1999-2000, 39.62 percent of off-balance sheet exposure of all scheduled commercial banks came from forward exchange contracts (Financial Performance of Scheduled Commercial Banks, 1999-2000). In July 1999, guidelines for forward rate agreements and interest rate swaps were issued by RBI and banks were allowed to undertake these activities. However, interest rate futures and options are not yet available to banks.

Commercial banks are subject to significant asset-liability mis-matches with implications for interest rate, liquidity and foreign exchange risks. The RBI issued draft guidelines on asset-liability management (ALM) in September 1998, which were finalized in February 1999. Initially, the focus was on measuring the liquidity and interest rate risks of banks and they were required to submit reports to the RBI on the level of these risks periodically. Banks started submitting the reports in prescribed format from June 1999. However, in view of the absence of high level of computerization, 100 percent coverage of business for measurement of risks was stipulated for completion by April 2001. Repeated requests by banks to be given more time in view of the poor state of their management information systems was the reason for the delay in the final date. Moreover, the method used for measuring interest rate risk currently is the simple gap analysis. Banks have been asked to stipulate a time frame over which they can move over to more sophisticated techniques. Lastly, the focus so far has been on measuring risks while there are three steps in the management of risk - identification, measurement and management.

There is an immediate need for instruments that facilitate interest rate management by banks. The interest rate environment has become highly volatile over the decade of the nineties. The advance rate of SBI stayed at 16.5 percent throughout the decade of the eighties while in the nineties it ranged from 14 to 19 percent. The call money rates (Mumbai) ranged between 7.12 and 11.49 percent between 1980-81 and 1989-90. On the other hand, the rates between 1990-91 and 1998-99 moved between 7.83 and 19.57 percent (Structure of Interest Rates, 1970-71 to 1998-99). The rates on government securities are also market determined now unlike in the past when they were fixed by the RBI. The proportion of government securities in the asset portfolio of banks is fairly high as seen in the Chapter on Performance Trend Analysis of Banks. Similarly, the maturity duration preferred by bank customers is shortening while banks are moving into long term lending. A study carried out by Das (1996) analyzes the trends in the asset-liability mismatch of scheduled commercial banks in India. A sample of seventy banks is selected and data for 1990-91 and 1994-95 is used. Public sector banks in 1991 invested 28.7 percent in interest-sensitive assets (liquid securities + short term loans) which were financed by 36.8 percent of interest sensitive liabilities (short-term deposits + short-term borrowings). Corresponding ratios were placed at 32.7 percent and 36.7 percent in 1995. The gap in the interest sensitive portfolios declined from -8.1 percent in 1991 to -4.0 percent in 1995. The gap for private banks was -6.3 percent in 1991 and declined remarkably to -0.3 percent in 1995. In the case of foreign banks, the interest sensitive assets exceeded interest sensitive liabilities by +16.1 percent in 1991, which increased to +19.3 percent in 1995. It appears that foreign banks were placed to profit from a rise in interest rates in 1995. Subsequent rise in rates in 1996-1997 bears out the accuracy of their forecast. Overall, the study shows that public sector banks performed relatively poorly in terms of portfolio matching. It appears that foreign banks

are aggressively aligning their portfolio to take advantage of their forecasts of interest rates in the future. Private sector banks have achieved near perfect portfolio matching i.e., they will be least affected irrespective of how the rates move. The public sector banks have neither aligned their portfolio to take advantage of forecasted rates nor have they matched their portfolios to achieve a situation where they are not affected by movements either way. It appears that the skills required for interest rate risk management are lacking in this group of banks.

Interest rate futures and options are useful instruments for managing interest rate risks. These are also instrumental in promoting a vibrant fixed income securities market. Schinasi and Smith (1998) study the development of the fixed income securities markets in the US, Europe and Japan. They find that the availability of interest rate options and futures is a factor influencing the level of development of the markets in these countries. The advantage of interest rate futures and options over interest rate swaps and forward rate agreements is their tradability in secondary markets.

The Reserve Bank appointed an in-house working group on asset securitization in June 1999. The group made short, medium and long-term recommendations. These are summarized in Box 8.1. The RBI has set up an implementation committee to give effect to these recommendations (Securitisation, 1999-2000).

Box 8.1

Selected Recommendations of the Working Group on Assets Securitization

1. Appropriate definition of securitization,
2. Rationalization of stamp duties,
3. Inclusion of securitized instruments in Securities Contracts (Regulation) Act, 1956,
4. Increased flow of information through credit bureau,
5. Standardization of documents,
6. Development of insurance / guarantee institutions,
7. Adequate disclosure norms.

The Andhyarujina committee set up in 2000 to suggest changes in banking laws recommended the creation of a new Securitization Act, which would confer a legal status to the transfer of future receivables (Sharif, 2000).

Securitization is a very useful instrument for a variety of financial intermediaries. The initial securitization deals were done for mortgages. The nature of mortgage loans is that they are very long term in nature, which means that the financial institutions that originate these mortgages have invested their funds for a long term. If they are able to fund these investments through sources of finance that are equally long term they have a matched portfolio. This maturity matching hedges against interest rate risk. However, in reality most mortgage originators have

access to short term funds. This creates a serious mismatch which can expose them to interest rate risk. On the other hand there are institutions which have long term sources of funds such as insurance and pension funds but do not have access to long term assets to invest in. Securitization of mortgages helps integrate the needs of the two types of institutions. The mortgage originator can package the mortgages and sell them to a pension fund or insurance company. In this manner the originator earns servicing fees from the borrower and the mortgage is funded by the institution that buys the packaged loan. This helps the reduction of interest rate risk. In India a large number of banks have home finance subsidiaries and in a volatile interest rate environment securitization can be beneficial for them. Moreover, the trend towards consumer durable financing and credit cards also points to the need for a securitization market since these liabilities are also amenable to securitization.

Securitization can also be a very useful instrument for banks wanting to cleanse their balance sheets of bad loans. Asset securitization is the tool used in Asset Reconstruction Funds formed for the purpose of resolving the large amounts of bad debts of banks. This has been used in a number of countries with varying degrees of success. Mexico in 1994, Philippines in 1981-86, Spain in 1977-85 and a number of South East Asian countries have used securitization and asset management vehicles for resolving the bad debts of their banks (Klingebiel, 2000). The experience of some countries such as Argentina (1995-1999) has been very positive in this respect (De La Torre, 2000). In the light of banks venturing into the area of mortgage financing and consumer durable financing, the development of a market for securitization will be beneficial.

Diversification of the Banking Business

The greater diversification of the services offered by banks has been one of the important trends in the industry in the decades of the eighties and nineties. Chiefly, the diversification has involved the participation of banks in the securities markets, through trading, underwriting and mutual fund activities, and in the insurance business, through selling and underwriting insurance.

This chapter tracks the world-wide and Indian trends of diversification in bank activities. It examines the reasons behind these trends and their potential benefits and risks. In the light of this trend analysis the level of preparedness of the Indian industry, primarily the regulators, to tackle the potential risks is analyzed.

World Wide Trends

The rationale for the trend of financial firms diversifying is the potential for cross selling products to customers. In Europe, for example 90 percent mutual fund investments are sold through banks, this share is 35 percent in America (The Economist, March 13, 1999). In most cases the strong branch network of banks provides them readymade channels through which a number of products can be distributed.

This is also the rationale behind mergers between banks and insurance firms. In Europe, for example, banks have been buying insurance companies in 'bancassurance' deals. The rationale, again, is the prospect of cross-selling bank products to policy holders and insurance policies to

bank customers. In Germany the trend is called Allfinanz. Not only have banks entered into other businesses but they are also facing competition from new entrants. In Britain, for example, supermarket firms have entered the market for savings accounts and credit cards. Being new, they can use technology to by pass the traditional cost of a brick and mortar branch network (The Economist, March 13, 1999).

Diversification Trends in India

The allowable activities that banks can undertake are specified in the Banking Regulation Act, 1949 and summarized in Appendix 8.1. Insurance was added to the list via a notification by the government in 2000 (Policy Environment, 1999-2000).

Banks were allowed to conduct mutual funds business through subsidiaries in the late 1980s. Appendix 8.2 shows the amount mobilized by bank and financial institutions sponsored mutual funds versus private mutual funds and UTI during the past two decades. It is clear that with the entry of private sector mutual funds the amount mobilized by bank and FI sponsored mutual funds has shrunk drastically.

Similarly, banks were allowed to float subsidiaries for merchant banking activities including securities underwriting. A number of banks have opened such subsidiaries like the State Bank of India's subsidiary, SBI Capital Markets Ltd. Banks have also floated subsidiaries for home finance though they are not involved directly in real estate investment, development and management.

Apart from floating subsidiaries for mutual fund business, banks are also selling mutual fund schemes of other funds. Banks that do not have their own mutual funds are selling mutual fund schemes to their traditional clients, earning a commission in the process. This helps them in offering a better product variety to their customers and leveraging their branch (distribution) network. Standard Chartered Bank is the largest bank distributor of mutual funds (Pitalwalla, 2000). The mutual funds have also found advantages in tying up with banks to provide services to the customers. For example, IDBI mutual fund tied up with a few banks to offer an encashment facility to the investors of its scheme IDBI INit. 95. Investors could encash the units at any of the 100 designated branches of the empanelled banks (Pitalwalla, 1999). Similarly, SBI Mutual Fund is planning to leverage the branches of its parent to sell its schemes (Pitalwalla, 2001).

In 2000 RBI released its norms for banks' entry into the insurance sector. The RBI set prior criteria to bank entry into insurance underwriting. These are summarized in Box 8.2.

Box 8.2.

Criteria for Joint Venture Participation in an Insurance Venture for Banks

1. Net worth of the bank should be not less than Rs.500 Crores,
2. The Capital to Risk Weighted Assets Ratio of the bank should not be less than 10 percent,
3. The level of NPAs should be reasonable,
4. The bank should have earned a net profit for the past three continuous years,
5. The track record of the performance of the subsidiaries of the bank, if any, should be satisfactory.

Source : Policy Environment, 1999-2000.

Banks have been allowed to set up joint ventures for the purpose of insurance underwriting with a maximum stake of 50 percent. Banks not eligible to start joint ventures can invest up to 10 percent of their net worth or Rs.50 crore, whichever is lower, in an insurance venture. Prior approval of the RBI is required by banks for joint ventures or investments in insurance. All banks have been allowed to act as insurance agents, unlike the restricted permission for underwriting. Thus, those banks not forming joint ventures are planning to leverage their branch network to sell insurance products of other firms. They are forging alliances to act as corporate agents for established or newly formed insurance companies. For example, National Insurance Company, a subsidiary of General Insurance Corporation, is planning a strategic tie-up with United Bank of India (UBI) (Goswami, 2000). Syndicate bank too has similar plans (Iyer, 2000).

Bank investments in equity, and consequently their ownership of non-financial companies, is fairly restricted in India. Prior to October, 2000 they were allowed to invest in shares, convertible debentures and units of equity linked schemes upto 5 percent of the incremental deposits of the previous year. Now, however, they can invest upto 5 percent of their outstanding credit at the end of the previous year (Team ET, 2000a).

Bank ownership of non-finance companies is, however, not allowed. Similarly, the management of banks by industrial houses is also prohibited. Infact, the new guidelines for setting up new private sector banks released by the RBI in January 2001 strictly rule out the setting up of private banks by industrial conglomerates.

Potential Risks Associated with Bank Diversification

Regulators across the world have been concerned with the additional risks that non-traditional activities can bring to a bank. The need to safeguard the banking system from risks stems from its unique place in an economy. Banks are mobilizers of savings and control the payment system. Moreover, there is a possibility of distress within one bank spreading to others and endangering a large part of the industry. However, historically regulators in different countries have regulated these activities differently. In the US, for example, banks have been highly restricted whereas in Germany the model followed by banks has always been one of universal banking.

In situations where diversified activities are carried out in subsidiaries there is a risk of multiple gearing, i.e. the same capital being used as a buffer by two or more entities. This is possible where the parent issues equity and passes it on to a subsidiary resulting in it being counted at both parent's and subsidiary's level. It is also possible that the parent issues debt and down-streams it as equity. These situations can result in inadequacy of capital for both parent and subsidiary operations.

Diversification into new activities raises new business risks, which add to existing risks, changing the group's risk profile. The inability to identify, measure, and manage the new risks can lead to situations of crisis. Transmission of risks from one business entity in the group to another may further compound the problem. For example, some Indian public sector banks have had to shoulder the financial burdens of their mutual fund subsidiaries in the past. Canara Bank had to buy back units of the Canstar '97 scheme on behalf of Canbank Mutual Fund (Mumbai Bureau, 2001).

The possibility of regulatory arbitrage also arises in the situation where a number of firms performing similar activities are regulated by different entities. This was one of the features of the Japanese banking sector crisis during the decade of the nineties. Credit cooperatives sold products that were similar to banks, but were regulated by the local governments, not the central bank. Thus, the regulations surrounding their activities were different from those of banks. They were comparatively loosely regulated. They undertook riskier lending and contributed to unhealthy competition in the credit market. This indirectly contributed to the weakening of all institutions. In order to deal with this problem a central agency called the Financial Supervisory Agency was established in Japan in 1998 to consolidate the segmented regulation (Akihiro and Woo, 2000).

Overlapping of activities among institutions is accompanied by evolution of instruments, both tradable and non-tradable, of a hybrid character. For example, interest rate futures and options might be traded on stock exchanges but are based on a debt contract. Such instruments might create overlap of jurisdiction for regulators whose functions are demarcated on the basis of stock market activities and debt instruments. The risk in such a situation is inadequate regulation owing to problems of coordination between regulators.

Similarly, concerted action might be required in times of crisis in one market. This assumes importance in light of the overlaps between institutions and markets. For example, bank financing against shares. The crisis in the stock markets in the first week of March 2001 is a case in point. Large positions had been built in the markets on the back of financing by banks. In

order to stem the crisis concerted action involving the banks had to be taken to contain the crisis. With different regulators for stock markets and banks concerted action might be delayed or impaired on account of lack of coordination.

Recognizing the unique challenge of ensuring the safety of the banking industry in the light of the emergence of financial conglomerates, the Basle Committee on Banking Supervision; the International Organization of Securities Commissions; and the International Association of Insurance Supervisors gathered to establish a joint forum in 1996 to study the issues surrounding supervision of such conglomerates. The joint forum published a report in 1999 on 'Supervision of Financial Conglomerates'. The forum gave guidelines for regulators to detect multiple gearing and establish forum for information sharing.

Regulatory Organizations

This trend towards universal banking has been followed by a trend towards establishing a single regulator for all financial firms and markets. A single statutory regulator for financial services firms, the Financial Services Authority (FSA), has been established in the United Kingdom in 1999-2000.

The rationale for choosing a single regulator over multiple regulators is the gradual blurring of distinctions between firms offering different financial services over the years. This has made it difficult to regulate firms on a functional basis since a multiple regulatory structure matches neither the structure of firms nor the market. Moreover, a single regulator may be able to exploit economies of scale and scope. A single regulator may also avoid the duplication of efforts of the

firms being regulated. For example, the costs of FSA were budgeted to be lower in real terms in 1999-2000 than the sum of its components in either of the previous two years (Briault, 1999).

However, the problems of coordination may exist within a unified regulator as well. Moreover, a unified regulator may become a very powerful entity. The government of the United Kingdom has increased the statutory accountability mechanisms of the FSA to balance its power.

Other countries, apart from the UK, have also moved towards a single regulator over the decades of the 1980s and 1990s. Norway established a single regulator in 1986; Canada in 1987; Denmark in 1988; Sweden in 1991; Japan, Korea and Australia in 1998; and, Iceland and Luxembourg in 1999 (Briault, 1999).

The rational behind Norway, Sweden and Denmark establishing a unified regulator were largely the same as those behind the formation of the FSA of UK. They had an additional rationale, namely, better recruitment and retention of qualified personnel since an integrated organization would provide better growth opportunities. According to a study by Taylor and Fleming (1999), the economies of scale argument in favour of unified regulators is especially applicable to countries with small financial systems. They review the decade long experience of the Scandinavian countries with unified regulators and conclude that all three appear to have achieved economies of scale and efficiency. Staffing problems have been overcome. However, their success in achieving economies of scale was limited since administrative reorganization was not accompanied by legislative reorganization which lead to different agencies being replaced by different departments. Taylor and Fleming (1999) also conjecture that integrated

supervision would be better for financial sectors that are changing rapidly because problems arising would not remain undetected.

Current Organization of Regulatory Agencies in India

The regulatory structure in India for different activities is detailed below. Currently banks are regulated primarily by the RBI. The powers granted to RBI largely stem from the Banking Regulation Act, 1949. Mutual funds are regulated by the SEBI under the SEBI Act, 1992. Insurance companies are regulated by the IRDA whose powers stem from the Insurance Regulatory and Development Agency Act, 1999. After the CRB scandal in 1996-97, the Vasudeva committee was appointed to examine the issue of Non Banking Financial Company (NBFC) regulation. Subsequently the RBI act was amended in 1997 giving it regulatory powers over the NBFCs. Thus, apart from the 100 odd scheduled commercial banks RBI now regulates around 1400 NBFCs (as of 2000) also (Iyengar and Gogoi, 2000).

In view of the limited resources available with RBI and the large number of NBFCs, the issue of hiving off NBFC regulation to a separate body was under consideration of the finance ministry in June 2000 (Iyengar and Gogoi, 2000). The RBI has already hived off most of its regulations of the housing finance sector to the National Housing Bank and of regional rural banks to the NABARD.

Thus, a plethora of agencies are currently charged with the regulation of financial institutions. The basis for their organization is activity type. RBI, SEBI and IRDA each regulate the activities dealing with banking, securities and insurance. The RBI has further the responsibility of

regulating NBFCs, which perform a set of activities very similar to banks. Housing finance banks and Regional rural banks are performing banking activities and their regulation is the primary responsibility of RBI.

It is clear from the discussion that though there are extensive relationships among firms through floatation of subsidiaries or joint ventures, there are no relationships among regulators, except in the case of NHB and NABARD. Thus, while each of the independent regulator is in a position to evaluate the risks of an individual entity in a group, the risks of the group as a whole are not looked at by any regulator.

Just as there are a number of regulators for different institutions, various markets for financial products also have overlapping jurisdictions for regulators. In 2000 a long standing debate about the regulation of debt markets involving the RBI and SEBI was finally put to an end. It was decided that the RBI will regulate government securities, money market instruments, repos and over-the-counter derivatives such as forward rate agreements, interest rate swaps and currency swaps. If any of these instruments is traded on a stock exchange then SEBI will regulate its trading in line with the policy guidelines of the RBI. SEBI will have the jurisdiction of regulating all other debt instruments including corporate debt and private placements (Sharma, 2000).

Given below are the suggested strategies for regulators in order to overcome the risks arising from diversification.

a) Coordination among Regulators

Where supervisors are organized on an activity basis the identification of group wide risks, situations of multiple gearing and regulatory arbitrage will require extensive coordination among supervisors. A permanent system of information sharing and dialogue will need to be established. This has been stressed by the RBI in its Report on Currency and Finance, 1999-2000. However, in India a formal mechanism of this type does not exist as yet even though the banking industry is progressively getting more and more diversified.

The issues that will have to be addressed in establishment of such a mechanism are the framework for information sharing and the identification of a coordinating entity. These issues can be sorted out mutually among regulators in the short term but may require the enactment of formal statues in the long term. Broad guidelines for information sharing; appointment of coordinators; and assessment of capital adequacy have been laid down by the joint forum established on supervision of financial conglomerates.

b) Strengthening Internal Risk Management Systems of Banks

The establishment of a proactive internal risk management system covering all aspects of individual firm and group wide risks in banks is an important activity. Just as in the case of interest rate risk management, the regulators may have to take the lead in evolving model guidelines and circulating them among the banks. Further, the implementation and working of such a system at the regulator's level should be the focus of the arrangement for coordination. The RBI has initiated measures to evolve such a framework in 1999-2000. Public sector banks have been asked to annex the balance sheets of their subsidiaries to their own balance sheet from

year ending March 2001. Banks have also been advised to build-in the risk weighted components of their subsidiaries' assets into their own balance sheet. This is a phased movement towards a unified balance sheet for the group as a whole. However, no step has been taken to detect or prevent the situation of multiple gearing.

c) Strengthening Market Mechanisms of Bank Regulation

Mechanisms such as credit rating, auditors and information disclosure should be strengthened to take care of the risks arising from diversification. As a first step towards this, RBI has issued guidelines in 1999-2000 to banks to disclose their subsidiaries' annual results along with their own. Credit rating agencies and auditors will also have to incorporate the component of group wide risks in their evaluations.

In the long term the strategy of a single regulator should be considered and a phased movement towards the same can be planned and implemented.

Conclusion

Product innovations globally have been driven by the trends in the banking industry. Very similar trends are being seen in the Indian banking industry. Most of the product innovations observed globally have found roots in India as well. From the point of view of regulators, it is important to decide how to regulate these innovations. It is also important to assess if the emerging competitive environment is raising new challenges for banks, which can be dealt with by some innovation.

The increased volatility in interest rates was to be expected after interest rate deregulation in 1995-96 and auction based system of price determination for government securities. However, the RBI guidelines on asset-liability management focusing on management of liquidity and interest rate risks were issued in 1999, almost three years later. Moreover, these guidelines still focus on the measurement aspect and not on management of these risks. It is very possible that since bankers have lived in an environment sheltered from such risks so far they donot have the requisite skills to manage these risks. Such human skills will have to be developed on a priority basis.

The banking industry is diversifying into new activities both in India and the world over. This trend is creating a labyrinth of interconnected firms and markets. The emergence of such diversified conglomerates raises risks for banks on account of the interconnections and possibilities of transmission of risks. Regulators also face the risk of not being able to identify group wide risks on account of their limited jurisdictions. Even when risks are identified, taking concerted and coordinated action for their resolution is difficult. In the light of these potential risks regulators should work out mechanisms for coordination and proactive internal risk management in the short term and consider moving towards a regulatory structure that reflects the structure of the industry in the long term.

APPENDIX 8.1

ALLOWABLE ACTIVITIES FOR BANKS AS PER THE BANKING REGULATION ACT, 1949.

The following is a summary of the main activities that a banking company may engage in, in addition to the business of banking. The central government has the power to notify any additional forms of business.

1. Dealing in bills of exchange, scrips and securities, foreign exchange, acquiring, holding, underwriting, dealing in stock, receiving valuables for safe custody.
2. Acting as agents for any government or local authority or person or persons or any other form of agency business except that of a managing agent.
3. The effecting, insuring, guaranteeing, underwriting, participating in managing and carrying out any issue and lending for the purpose of the same.
4. Carrying out and transacting every kind of guarantee and indemnity business.
5. Managing and selling property in satisfaction or part satisfaction of its claims.
6. Undertaking and executing trusts.

Source : Tannan (1994)

APPENDIX 8.2

RESOURCES MOBILISED BY MUTUAL FUNDS

(Rupees Crores)

Year (April – March)	UTI	Bank Sponsored Mutual Funds	FI Sponsored Mutual Funds	Private Sector Mutual Funds
1979-80	57.85			
1980-81	52.10			
1981-82	157.37			
1982-83	166.90			
1983-84	330.16			
1984-85	756.19			
1985-86	891.75			
1986-87	1261.06			
1987-88	2059.42	250.29		
1988-89	3855.01	319.74		
1989-90	5583.59	888.07	315.25	
1990-91	4552.95	2351.94	603.54	
1991-92	8685.40	2140.40	427.09	
1992-93	11057.00	1203.99	759.97	
1993-94	9297.00	148.11	238.61	1559.52
1994-95	8611.00	765.49	576.29	1321.79
1995-96	-6314.00	113.30	234.81	133.03
1996-97	-3043.00	5.90	136.85	863.58
1997-98	2875.00	242.96	205.55	678.29
1998-99	170.00	253.18	576.42	2090.37

Source: Resources Mobilized by Mutual Funds in India (1982-83 to 1998-99).

CHAPTER 9

INFORMATION TECHNOLOGY IN BANKING

Advances in technology are set to change the face of the banking business. Technology has transformed both the **products** offered and the **delivery channels** used by banks in retail banking. It has also greatly impacted the wholesale markets of banks. This chapter briefly surveys the electronic products and delivery and trading systems in use in banking today and examines the potential new risks arising from their development. It also explores the challenges that the banking industry and its regulators face.

New Products

New electronic means of payment include multipurpose prepaid cards like electronic purses and stored value smart cards or prepaid stored value mechanisms for executing payments over networks such as the Internet. Banks can use the latest technology to provide electronic money (e-money), electronic purses and retail electronic payment systems. E-money involves the creation of liabilities on the balance sheet of an issuer. These are payable to the customer at face value. The growth of e-commerce will provide an impetus to the use of e-money and electronic retail payment systems. Potentially lower transaction costs, ease of usage, security perceptions and level of general acceptability will play an important role in determining their popularity. In the future,electronic cash stored on cards and PCs could replace cash.

Alternate Delivery Channels

Automated teller machines (ATMs), telephone banking, PC banking, mobile and Internet banking are the technology enabled delivery channels available to banks.

a) ATMs:

ATMs as delivery channels for bank products have been in extensive use in other countries but have caught up in India only over the past few years. The number of ATMs in India per million people works out to 1.2 only. In Japan the number is 800 (Shetty and Nayak, 2000). ATMs provide the customer access to cash round the clock without needing a bank branch. Advances in technology have upgraded ATMs into virtual branches from simple cash vending machines. ATMs now come with touch screens, which allow customers to log-in to the Internet and do almost all their banking transactions through Internet banking. The retail banking reach of private and foreign banks has been restricted in the past by the regulations imposed on bank branching. These banks have gained access to retail customers through ATMs which are outside the scope of current regulations. Moreover, ATMs lower their costs enabling them to access a larger clientele by offering lower minimum account balance requirements. The Suvidha scheme of Citibank, for example, is targeted at the middle income group and has a low minimum balance requirement. Thus, new technology presents foreign and private banks with an opportunity to expand their market into new geographic and income segments without expanding their branch network.

Most public sector banks are also setting up ATMs aggressively. The State Bank of India, for example, is planning to install 2000 ATMs by March 2001 (Cherian, 2000). Even though public sector banks are setting up ATMs, the benefits of new technology will not accrue to them in the same measure as to the foreign and private sector banks. This is because ATMs will be an addition to their existing large branch network. Thus, this new technology may not increase their customer access significantly but will increase their costs on account of greater spending on technology. This problem is compounded by the

fact that they can neither replace existing branches with ATMs as per current regulations nor lay off staff, which is already in excess. The widespread adoption of new delivery channels presents an opportunity for private and foreign banks but might prove to be a threat for the public sector players.

b) Internet / Mobile Banking

Internet and mobile banking are the most talked about delivery channels for banks today. In a recent survey the reasons cited by British Banks for offering online banking included customer demand and competitive pressures (The Economist, April 10, 1999). According to International Data Corp, a research firm in the US, about 10 million US households banked using the Internet in 1999 (Cresci, 2000). In India ICICI Bank and HDFC Bank are already offering Internet and mobile banking.

An Internet-only bank will be able to keep its costs far lower than those of established banks since it operates without branches. This will enable it to offer keener rates and faster services. An internet bank, Wingspanbank.com, has lowered its costs to the extent of being able to offer returns on a three month certificate of deposit that are almost one percentage point higher than the US national average. The bank also offers a response to loan requests in 30 seconds (Euromoney, September, 1999a). The First Internet Bank began operations in 1999 and by 2000 was managing $151 million in assets with only 14 employees (Cresci, 2000). Moreover, Internet banks will be able to expand into cross border retail markets faster since they can bypass the setting up of an elaborate brick and mortar branch structure. ABN Amro, for example, is looking at Internet banking as a way of expanding internationally (The Economist, August 28, 1999).

The Internet also makes it easier to search for the best product. A search for the cheapest available home loan offered by any bank in the market can be accomplished in seconds on the Internet. This democratization of information puts great power in the hands of the customer. Deposit and loan products, the basic business of banks, will be commoditized in the future, resulting in a cut-throat price competition. Thus, banks in the future will need to focus on obtaining scale economies.

Further, setting up IT based delivery channels requires large investments. In order to reap the greatest returns on these investments banks will try to push more products through these delivery channels. Thus, banks will have to find the right balance between product variety and specialization. Large investment requirements of technology are also reasons for consolidation in the industry since such investments will require more resources than one bank can afford. This is one of the major reasons behind the merger of three Japanese banks to create the world's largest bank in asset size (The Economist, August 28, 1999). Thus, technology might intensify the trends of universal banking and consolidation in the industry.

Electronic Automated Trading Systems

The discussion so far focussed only on the impact of technology on retail banking markets but technology is also impacting the wholesale markets of banks.

a) The Foreign Exchange Market

The foreign exchange market, where banks are major participants, works on electronic trading systems. Electronic automated trading systems now account for most of the turnover in the London foreign exchange market (Dyson and Cicolecchia, 1999). Many

banks also have their own systems of Internet trading for foreign exchange in place. Trades that are small in size and don't involve much complexity will be more adaptable to such technology initially. According to Philip Vasan, Global Head of Foreign Exchange at Credit Suisse First Boston, electronic trade and fast access to information for consumers will dis-intermediate traditional banks and only those using technology to deliver value added services like research will survive (Dyson and Cicolecchia, 1999).

b) The Commercial Paper Market

Electronic trading is impacting the commercial paper market too. Warburg Dillon Reed has set up the first web site offering web trading in Euro commercial paper (Euromoney, September, 1999b). Here too electronic trading seems to be the future for the simpler deals or the commoditized end of the market.

c) The Bond Market

In the international bond markets too, electronic trading has been introduced for the major benchmark products. This has been driven by the fall in spreads on trading in these products. Only electronic trading can support such low spreads. The number of electronic bond trading systems in North America more than doubled between 1997 and 1998 (Euromoney, September, 1999c).

Globalization of Markets

Technology also helps transcend geographical barriers and gives greater impetus to globalization of financial markets. According to Mr. Eisuke Sakikabara, ex Japanese vice Finance Minister for External Affairs, finance has become a sort of information industry – thriving on information and transacting on computers. A huge amount of money can move

banks also have their own systems of Internet trading for foreign exchange in place. Trades that are small in size and don't involve much complexity will be more adaptable to such technology initially. According to Philip Vasan, Global Head of Foreign Exchange at Credit Suisse First Boston, electronic trade and fast access to information for consumers will dis-intermediate traditional banks and only those using technology to deliver value added services like research will survive (Dyson and Cicolecchia, 1999).

b) The Commercial Paper Market

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across borders in a short period of time. He calls this "cyber-capitalism" and feels that new rules are needed to monitor and control this phenomenon (Euromoney, September, 1999d).

Potential Risks

The chapter now examines the potential new risks that the increase in usage of these new products and delivery channels can create for different players in the market.

a) Risks to customers

The potential new risks to customers are theft of cards, manipulation of security systems on the internet with an intention to commit fraud, bankruptcy of the issuer of e-money, large scale breakdown of electronic systems, and use of information generated by transactions without the customer's consent.

b) Risks to Bankers

Fraud committed owing to security breaches and large-scale system breakdowns are the risks to banks using new delivery channels like Internet banking. A study funded by the Federal Bureau of Investigation unearthed an epidemic of cyber crime in the US – nine out of ten organizations surveyed reported computer security breaches in 1999 (Das and Sarma, 2000). The costs of such breaches to organizations are enormous. Similarly, large-scale system breakdowns caused by viruses transmitted through the Internet are also prevalent. The New York based Reality Research estimated that such large scale breakdowns will cause businesses to lose more than $1.5 trillion in 2000 (Das and Sarma, 2000). British banks, according to a recent survey, are apprehensive about the security issues involved in online banking (The Economist, April 10, 1999). Thus, in addition to

traditional operational risks, banks will also have to handle security risks arising due to induction of information technology.

The relentless downward pressures on costs on account of technological advances could lead to a margin pressure for the banking industry as a whole. Already spreads in the banking industry have shown a downward trend worldwide. Banks have responded by **cutting costs** through consolidation, efficiency drives and staff rationalization and by **increasing revenues** though entry into new businesses and new markets. The quality of their loan portfolios has also fallen owing to fall in spreads and dis-intermediation. These trends of consolidation, diversification and a drop in the quality of assets will accelerate owing to advances in technology.

In India a number of public sector banks are in the unenviable position of not being able to rationalize either their branch or staff and not having avenues of mergers. In addition they may not be in a position to invest in technology causing them to lose customers to technology-savvy competitors. This may result in an increase in the number of "problem or weak" banks in the future. This is a potential risk for the industry and regulators need to evaluate current regulations in the light of future developments before it is too late.

The technology requirements of banks are also leading them to tie up with firms in the technology industry to offer new products and delivery channels. For example, HDFC Bank and Tata Consultancy Services have formed a joint venture. Such ventures will raise new risks for banks since business risks for firms in the technology industry will add to the group wide risks of banks or their parent companies.

Lastly, the sources of risk to issuers of e-money are the liabilities created on their balance sheets.

c) Systemic Risks

Information about the prices in the market is made available fast by information technology. This information when fed into bank's risk models tells them the value of their market positions immediately. This enables them to react faster to price changes and often they act together. In a situation of falling prices all banks may try to liquidate their positions leading to further steep price falls and high volatility – forcing them to go in for more selling and so on. This vicious cycle can generate a crisis. This greater volatility combined with greater globalization may lead to instability in financial markets and pose economy-wide risks.

Systemic risks involving contagion arising from insolvency of one issuer of e-money to another can assume significance as the use of e-money grows.

d) Social Risks

The risks to society and the economy in general are the use of technological advances for money laundering and tax evasion, and the threat of cyber- terrorism.

In recognition of these risks to consumers, banks and nations, numerous working groups have been set up internationally to explore the emerging issues for regulators. A working group was set up by the G 7 heads of states and governments to conduct a cooperative study focussing on electronic money, consumer protection, law enforcement, and supervisory and cross border issues. It submitted its report in 1997. The Financial Action

Task Force (FAFT) on money laundering was set up in 1989 by the G10 and issued its initial recommendations to set up a basic framework for anti-money laundering efforts in 1990. These were revised in 1996 to deal with new technological developments. The staff of G10 country central banks also examined the issue of e-money and money laundering under the auspices of the Committee on Payment and Settlement Systems. The OECD too is undertaking a project to assess tax evasion issues in e-commerce. Similar efforts are also underway at the IMF.

Emerging Roles For Regulators

Governments and regulators will have to perform the following roles to minimize the risks foreseen in the future:

a) To Provide a Legal Framework

The most important activity for regulators is ensuring the enactment of laws and establishment of mechanisms for speedy legal redress. In particular, laws relating to use of the new products and delivery channels, Internet fraud, hacking, money laundering, tax evasion, illegal gambling and cyber terrorism will need to be enacted. In India the work on this front has already begun.

b) To Establish Regulatory and Supervisory Arrangements

An important activity for regulators will be reviewing the existing regulation in the light of expected developments in the industry. For example, the restrictions on closing down branches, hurdles to staff rationalization, and requirements for mergers may need to be reviewed in light of the changing competitive dynamics of the industry.

Regulators will also have to specify minimum safety features to be adopted by issuers for secure transactions. There might be need for a certifying agency to certify minimum-security guidelines being followed by issuers. In addition,an internal vigilance system in banks to deal with their security risks will be required and regulators could take the lead in developing model risk management guidelines. It is possible that future advances in technology will reduce the need for such systems in the long run.

The trend towards tie-ups between banks and technology firms or the forays of banks into the information technology industry will also need to be addressed and regulators will have to pay attention to group wide risks in addition to risks of banks as stand-alone entities.

Detailing disclosure norms for the product features including safety aspects and privacy provided will help the protection of consumer interests.

Regulations to minimize the risks of bankruptcy of e-money issuers and systemic risk of contagion will be required. For example, only banks could be allowed to issue e-money. Systemic risk of contagion could be dealt with by extending deposit insurance to e-money balances.

The RBI has already appointed an internal group to study Internet banking. It will suggest an appropriate supervisory and legal framework, measures for adoption of global best practices and adequate security and clearing systems for e-banking and electronic money transfers (Team ET, 2000*b*).

In this activity of establishing a regulatory framework care will be needed to frame regulations that are flexible to technological advances and don't tie banks and consumers to obsolete technology. For example, the Information Technology Act, 2000 recognized digital signatures on public key infrastructure (PKI) technology but the related rules specified the exact process of PKI operation (Nagraj, 2000). In the light of such specific recommendations an in-built mechanism of periodic review of rules to incorporate the impact of fast changes in technology will be needed. Alternately, a body consisting of technology experts and industry and customer representatives can be formed for certification of security related provisions. Regulators will also need to keep the recommendations of international working groups in mind while framing regulations.

c) To act as Facilitators

A crucial activity for governments and regulators will be facilitating cooperative arrangements among various participants in this industry. For example, banks in Switzerland have entered into a prepaid card arrangement wherein they assume full liability for all their debts jointly and severally. This arrangement is useful because the bankruptcy of one issuer of e-money can lead to a loss of confidence of consumers in the whole system – impacting other issuers. Through this arrangement the confidence of the consumer is insured. As the financial system moves towards globalization aided by technology such cooperative arrangements will be required on an international level as well. For example, twelve leading international banks agreed to a uniform international anti money laundering code in October 2000 (The Economic Times, October 26, 2000). International cooperative arrangements will be required between governments and regulators too, especially to prevent regulatory arbitrage i.e. issuers using differences in jurisdiction and regulations between countries to profit and evade laws. Similarly,

coordination between regulators of different industries will be required keeping in view the trend of convergence of industries fueled by information technology.

One of the methods of reducing the expenditure on technology per bank is developing an industry wide network of technology enabled delivery channels rather than a channel for each bank. A regulator can facilitate such arrangements between the smaller players.

d) To Develop Institutional/ Telecom/ Other Infrastructure

The regulator will also need to oversee the development of infrastructure. Alternately, it may have to facilitate/initiate cooperative arrangements between firms in the industry for setting up such infrastructure. For example, the RBI has recently launched a V-Sat network INFINET (Indian Financial Network). This will be fully operational by the end of 2001 and will facilitate electronic communication between banks, nationwide networking of ATMs, e-commerce and in the long run retail e-payment systems using e-money. Development of clearing mechanisms for electronic transfers will be required.

New institutional infrastructure or re-energizing of existing institutions will also be needed. For example, the training institutions for bankers and regulators will have to gear up to incorporate the latest technology related developments. Existing staff will also require training. Supporting infrastructure from other industries will also be needed. For example, insurance firms over the world have started offering insurance products against hacking. This could be an important tool of risk reduction for issuers and regulators may need to encourage development of expertise for this product (Das and Sarma, 2000). The RBI has already set up an institute to facilitate research in applications of information technology for financial services. This is an important step taken towards building the infrastructure required by the industry.

Conclusions

The future task for regulators in order to deal with new technology is highly demanding. They will be required to remove redundancy in existing laws and regulations. They will also have to enact new effective laws and regulations relevant to the new developments. Existing institutions will have to be geared up to withstand new challenges and new arrangements at the national and international levels will be needed to withstand the challenges in future.

CHAPTER 10

SCALE ECONOMIES AND BANK MERGERS

This chapter analyzes the global trend towards consolidation in the banking industry and the reasons behind this trend. It also analyzes the possibilities for mergers in Indian banking and the strategy regulators can adopt in this context.

Worldwide Trends and Motivations

The trend of dis-intermediation as outlined in the Chapter on product innovations has forced banks to look for new ways to boost their returns. One of the routes adopted by the banks is that of consolidation. Mergers and acquisitions have been used to expand revenues and cut costs.

In 1998 the commercial banking industry worldwide had more volumes of mergers and acquisitions than any other industry. More than a fourth of total merger and acquisition deals were involving banks – totaling $102 billion (The Economist, March 13, 1999).

The trend can be said to have started in the US in the 1980s. The US banking industry saw more than 7000 mergers between 1980 and 1998. The nineties saw some of the largest mergers in banking history in the US. The number of banks in the US declined by more than a third over1980 to 1997. Simultaneously the proportion of banking assets accounted for by the 100 largest banking organizations went from over 50 percent in 1980 to nearly 75 percent in 1997. The reasons for the mergers were a new statutory environment that allowed interstate ownership

and branching, banks seeking scale economies and geographical diversification and increased competitive pressures (Meyer, 1998a and 1998b).

In Japan three banks, the Industrial Bank of Japan , Dai-Ichi Kangyo Bank and Fuji Bank announced their intention to merge in 1999. This merger will yield the world's biggest bank by asset size. The objective of the merger is to cut costs through branch and staff rationalization (The Economist, August 28, 1999). Some of the reasons advanced by Japanese banks for the proposed merger are: the need to invest more in information technology than one bank can afford; foreign competition; drive for economies of scale in retail banking; and the need to increase capital strength in the face of bad debt crises (Euromoney, November, 1999).

Merger mania can be seen in Europe too with Banco Santander and Banco Central Hispano Americano in Spain merging in 1999 (The Economist, March 13, 1999).

A major rationale for mergers is deriving scale economies.

Another motivation for mergers has been the ability to rationalize branches to cut down costs. The potential for such cost saving depends on the structure of a country's banking industry. Spain, for example, has more than five times as many branches per citizen as America. Germany's ratio is twice that of America's (The Economist, March 13, 1999). Thus, historical factors behind branch expansion influence the possible savings through branch rationalization. The success of mergers in cost cutting is also dependent on labour laws, unions, politicians, and

regulations governing bank branch closure. The extent of government ownership of banks is also a factor.

Another motivation for mergers is the belief that banks in markets where the market share is concentrated among few banks are more profitable. Scholtens (2000) uses a sample of 100 international banks over the years 1987 – 1997 to analyze how concentration in the banking industry is related to bank profitability in a number of industrialized countries. He notes that bank profit margins have shown a decline since the late 1980s in major industrial countries (Canada, France, Germany, Italy, Japan, the UK and the US). In many countries banks have responded by merging/acquiring to increase their scales in the hope of improving profitability. His analysis, however, shows that there is a very weak association between bank profitability and concentration.

Pilloff and Santomero (1996) review the available research literature on the value created by bank mergers. They study 18 research papers on the subject and summarize that most studies fail to find a positive relationship between merger activity and gains in either performance or stock-holder wealth. This conclusion holds across a wide variety of methodologies and samples used by the authors of the eighteen studies.

Mergers are also routes for cross border expansion into markets of other countries. Here the motivation is increasing revenues. Banks find it easier to acquire an existing bank with a wide branch network than to build their own network from scratch. This rationale is more powerful for retail banking than wholesale banking.

Mergers among banks and other financial institutions are also driven by the desire to increase revenue. The bancassurance deals between banks and insurers are motivated by the desire to cross sell different products to customers.

Lastly, mergers are used as an exit route for troubled banks. The Trust Fund, established in 1995 at the height of the banking sector crisis in Argentina, assisted in the mergers of more than a dozen troubled banks with healthy banks (Carrizosa et al, 1996).

Mergers in the Indian Context

An attempt was made to look at the possible benefits Indian banks can derive from mergers.

As a first step the presence and extent of scale economies was examined.

a) Methodology for Measuring Scale Economies

The methodology for calculation of ray scale economies is outlined below.

The cost and output metrics are chosen in line with the intermediation approach. Output is measured in terms of Rupees intermediated. Three types of deposits are combined into two outputs – transaction deposits (including savings and current deposits) and time deposits. The third output is loans and advances. Thus, rupee values of transaction deposits (saving and current), term deposits, and advances are the specified outputs.

All the public sector, private sector and foreign banks are used for the study. The year chosen for the study is 1999-2000.

The cost function is specified as given below:

$$\ln C = c + \beta_1 \ln TA + \beta_2 \ln TE + + \beta_3 \ln AD + + \beta_4$$

$$\ln TA \ln TE + + \beta_5 \ln TE \ln AD + + \beta_6 \ln TA \ln AD + e \quad \ldots 1$$

Where,

C =Sum of interest and labour costs

TA =Sum of savings and demand deposits

TE =Term deposits

AD =Advances

Ray scale economies are measured as

$$RSCE (Q^B) = \Sigma i (\delta \ln C(Q^B) / \delta \ln(Qi)) \quad \ldots 2$$

The detailed calculations are shown in Appendix 10.1.

A value of greater than 1 for equation 2 shows that a unit increase in scale over the level Q^B will increase the costs by more than 1. Similarly, a value of less than 1 shows that a unit increase in scale will increase costs by less than 1. A value of 1 shows a constant return to scale. This level of scale (at a value of one) is the optimal scale of operation for a bank.

b) Results

Presented in Table 10.1 below are the results of the calculations.

Table 10.1

Ray Scale Economies for Various Size Classes for year 1999-2000

Size Class (Rupees Lakhs)	Ray Scale Economy
<= 100000	0.8545
>100000 and <= 200000	0.8572
>200000 and <= 300000	0.9215
>300000 and <= 400000	0.9435
>400000 and <= 500000	0.9537
>500000 and <= 600000	0.9609
>600000 and <= 700000	0.9679
>700000 and <= 800000	0.9753
>800000 and <= 900000	0.9823
>900000 and <=1000000	0.9840
>1000000 and <=1100000	0.9883
>1100000 and <=1200000	0.9934
>1200000 and <=1300000	0.9979
>1300000 and <=1500000	0.9996
>1500000 and <=1600000	1.0062
>1600000 and <=1700000	1.0090
>1700000 and <=1800000	1.0123
>1800000 and <=1900000	1.0142
>1900000 and <=2000000	1.0172
>2000000 and <=2100000	1.0176
>2100000 and <=2200000	1.0200
>2200000 and <=2500000	1.0285
>2500000 and <=2700000	1.0307
>2700000 and <=3200000	1.0368
>3200000 and <=3600000	1.0426
>3600000 and <=4600000	1.0531
>4600000 and <=5200000	1.0585
>5200000 and <=7100000	1.0717
>7100000 and <=7200000	1.0726
>7200000 and <=7600000	1.0751
>7600000	1.1342

The data presented above show that the scale diseconomies vary between 14.55 and 13.42 percent.

The very small and large size banks show diseconomies of scale with the intermediate size banks showing insignificant scale diseconomies.

Comparing the scale economies with inefficiency we can say with confidence that both for small as well as large banks scale economies are dominated by inefficiency. Which means that scale economies are not as significant as inefficiency. Thus, banks will have to focus on increasing efficiency as increases in scale are not likely to give them the same benefits.

The list of banks categorized on the basis of their size is presented in appendix 10.3. As seen in this appendix the smallest size class (scale less than or equal to 100000 lakhs of Rupees), exhibiting scale diseconomies of roughly 15 percent, is occupied by 26 banks. This is by far the largest number of banks in any size class. It appears that a large number of banks in the smallest size class, largely foreign and old private, can derive significant economies from an increase in scale. The nationalized banks, on the other hand, can derive economies of only around five percent or below since the first nationalized bank appears in size class numbered nine. Thus, scale economies might be required by the smallest banks to compete and mergers might help them achieve the required optimum size. Interestingly, this is also the segment with the greatest competition as outlined in the chapter on profitability trend analysis.

The second rationale for Indian banks to merge stems from their need for adequate amount of regulatory capital. In January 2001, RBI announced that it would shortly notify the new minimum capital requirements for the old private sector banks. It indicated that the new requirements would entail these banks to achieve a minimum net worth of Rs.100 crores within a

set time frame (Mumbai Bureau, 2001). The exact guidelines have not yet been notified. As per their balance sheets of year 1999-2000, 15 out of 25 old private banks met this requirement and ten did not. Many of these ten banks reported a very large shortfall of net worth. Similarly, indications are that the net worth requirement for new private sector banks (which were licensed in 1993) would also be doubled to Rs.200 crores. Out of the seven new private banks, four met this requirement and three exhibited a shortfall in year 1999-2001. The list of banks along with their categorization is given in Appendix 10.2. Given the depressed conditions of the Indian stock markets these banks might find it difficult to raise share capital and a merger would be an easier option to fulfilling the requirements.

The third major rationale for Indian banks to merge would arise out of the need for geographical expansion via mergers. Some of the new private sector banks are seeking to expand their networks geographically by merging with a bank that already has an established network in the region of their interest. This is one of the reasons behind the merger of ICICI bank with Bank of Madura.

Cost cutting via the close down of overlapping branches could be a reason for merger between two well established banks. The recent merger of ANZ Grindlays and Standard Chartered is a case in point. However, the banks likely to benefit the most from this method of cost cutting are the public sector banks with their large branch networks.

Another rationale for banks to merge might be the spending required to keep up with technological advances. Lastly, many banks may not be able to withstand the competitive

pressures generated by the emerging competitive scenario and may look at mergers as an exit option.

Implications for Regulators

The emerging competitive environment may lead to a large number of mergers in the Indian banking industry. The industry has already seen three mergers - HDFC bank with Times Bank, ANZ Grindlays with Standard Chartered and ICICI with Bank of Madura - in the past three years. This is a pointer towards future trends since the rationale for bank mergers are becoming stronger over time. An important issue for regulators to consider is the regulation of such merger activity.

In particular, regulators have to watch the anti-trust aspects of merger activity.

In this context the experience of the US Federal Reserve can be extremely useful since the US has seen more mergers in the past two decades than any other country. The objectives of the public policy followed by the US Federal Reserve in cases of mergers and acquisitions are enumerated in Box 10.1.

Box 10.1

Objectives of Public Policy in Relation to Mergers and Acquisitions followed by US Federal Reserve Bank

1. Ensure a safe and sound banking system,
2. Preserve benefits of competition for consumers of financial services,
3. Meet convenience and needs of local communities,
4. Allow the firms to evolve with the needs of the markets.

Source: Meyer, 1998a and 1998b.

An important issue would relate to the anti-trust aspects of merger activity. In the US the evaluation of a merger proposal from the point of view of its competitive effects is carried out by the Federal Reserve. The Federal Reserve applies the provisions of the anti trust act while evaluating the proposals. The act specifies national and state-wide deposit market share limits for mergers. The national limits are 10 percent and state limits 30 percent. Which implies that the merger should not result in the merged entity holding more than these shares in the respective markets. This is accompanied by an analysis of other aspects. The competitive impact of a merger is evaluated using the local banking markets as a unit since households and small businesses obtain most of their financial services in a local area. The first step involves defining the product market area or the core products that are being provided by banks. This is a fairly routine procedure. The second step involves defining the local geographical unit. This is done on a case by case basis using demarcations like the local metropolitan area and other similar criteria.

The third step involves calculation of the Herfindahl-Hirschman Index of market concentration (defined as the sum of squares of market shares of all competitors) for the local market both before and after the proposed merger. The change in the index is looked at from the point of view of certain criteria laid down by the Department of Justice. For example, according to the department of justice guidelines, a market in which post merger HHI is more than 1800 is highly concentrated. A bank merger will not be challenged unless post merger HHI is at least 1800 and increases the HHI by more than 200 points.

Apart from the analysis of the competitive effects as outlined above some other aspects are also taken into account. The board constituted to evaluate the merger considers if the adverse structural effects are offset. This could be the case when the firm to be acquired is located in a declining market and exit by merger is appropriate because exit by closing is not desirable and shrinkage could lead to diseconomies of scale. It also considers if one of the banks in question has failed or is likely to. The potential for new competition after the merger is also examined.

Throughout this process of evaluation the board provides consultancy and transparent information to the banks involved. It also carries out a periodic review of its provisions in this respect and coordinates with other agencies for the purpose.

The Indian government has already drafted an anti-trust law, which provides for the setting up of a commission to look into anti-trust issues. The power of regulating bank mergers from the point of view of mergers should continue to remain with the RBI since it is the main regulator. Appropriate guidelines will need to be drafted for this purpose.

The RBI currently evaluates proposals of mergers primarily from the point of view of the swap ratio and the interests of the shareholders. This evaluation will have to be expanded to include the anti-trust issues as well.

Another important issue here is the sharing of information and coordination between RBI and SEBI. Merger proposals may be accompanied by unethical practices on the bourses as seen in the proposed merger of UTI and Global Trust recently. They will need to coordinate to prevent such occurrences.

Lastly, RBI may have to play a pivotal role in facilitating mergers for weak or potentially weak banks. This would require a proactive approach to detect early signs of problems and act in time to prevent a run on the bank and closing down.

Conclusion

In conclusion it can be said that the Indian banking industry is likely to see many more mergers as competition intensifies. The mergers are most likely among the private sector and foreign banks. This is because the public sector banks are still protected by their large branch network, which insulates them from competition from new banks, who will take some time to develop a comparable network. The private and foreign banks, on the other hand, have been most severely impacted by competition and are likely to seek mergers to improve their competitive position. They are also likely to benefit from such mergers on account of scale economies. This need will be felt more once the proposed rise in net worth requirements takes place.

Regulators have to adopt a forward-looking approach to these developments, anticipating and preparing for them. They might need to facilitate the merger process for some banks that show potential for sickness. They would also need to initiate the development of legal and regulatory framework for anti-trust issues. The international experience with such issues can be used as a starting point for such a development.

APPENDIX 10.1

Calculation of Ray Scale Economies

In order to calculate ray scale economies the bank data for the year 1999-2000 given in Appendix 7.3 was divided into size classes of 100000, Rupees Lakhs as shown in Appendix 10.3.

$$\ln C(Q) = c + \beta_1 \ln TA + \beta_2 \ln TE + + \beta_3 \ln AD + + \beta_4$$

$$\ln TA \ln TE + + \beta_5 \ln TE \ln AD + + \beta_6 \ln TA \ln AD + e \qquad \ldots 1$$

Thus,

$$\delta \ln C(Q)/ \delta \ln TA = \beta_1 + \beta_4 \ln TE + \beta_6 \ln AD$$

$$\delta \ln C(Q)/ \delta \ln TE = \beta_2 + \beta_4 \ln TA + \beta_5 \ln AD$$

$$\delta \ln C(Q)/ \delta \ln AD = \beta_3 + \beta_5 \ln TE + \beta_6 \ln TA$$

$$RSCE (Q^B) = \Sigma i \ (\delta \ln C(Q)/ \delta \ln Qi)$$

$$= \beta_1 + \beta_2 + \beta_3 + \beta_4 (\ln TE + \ln TA) + \beta_5 (\ln AD + \ln TE) + \beta_6 (\ln AD + \ln TA)$$

$$\ldots 2$$

Using all banks, a cost function of type (1) is estimated with costs defined as sum of interest and labour costs. The proportion of each output type in total is kept constant according to the average calculated using all banks and (2) is estimated for various output categories (Q^B).

Sample calculations for the first size class are given in detail below followed by final figures for the remaining classes.

Proportion of each output type in total calculated using all banks:

	Avg. amount	Proportion
TA Transaction deposits	338025	23.61
TE Term Deposits	619199.2	43.25
AD Advances	474460	33.14
Total output	1431684.2	100.00

The output for banks with output between 1000 and 100000 (inclusive) in lakhs of Rupees are calculated as

TA : 32625.96 x 0.2361 = 7702.99, ln TA = 8.9493638

TE : 32625.96 x 0.4325 = 1411072.8, ln TE = 14.159861

AD : 32625.96 x 0.3314 = 1081224.3, ln AD = 13.893605

Where 32625.96 is the mean total output for the first size class.

The model estimated for equation (1) using all banks is described below:

Dependent variable: ln (Interest costs + labour costs)

Independent variables	Coefficient	Std. Error	T statistic
C (constant)	2.1887512	1.0690462	2.0473870
.lnTA	-0.2017176	0.2326543	-0.8670275
.lnTE	-0.7502538	0.2424550	-3.0944041
.lnAD	1.3676840	0.3098677	4.4137674
.lnTElnTA	0.1385534	0.0346458	3.9991436
.lnTElnAD	-0.0181997	0.0258982	-0.7027393
.lnTAlnAD	-0.0986073	0.0345608	-2.8531564

R-Squared	0.957584	F-statistic	327.3545
Adjusted R^2	0.954659	Prob.(F-statistic)	0.000000
SE of regression	0.420337		

Ray scale economics are calculated using equation 2 as:

$$\text{SCALE RSCE}(Q^B) = - 0.2017176 - 0.7502538 + 1.3676840 + 0.1385534*(23.109225) - 0.0181997*(28.053466) - 0.0986073*(22.842969)$$

$$= \mathbf{0.8545}$$

Similarly, for the other scale classes

Size Class (Rupees Lakhs)	Ray Scale Economy
>100000 and <= 200000	0.8572
>200000 and <= 300000	0.9215
>300000 and <= 400000	0.9435
>400000 and <= 500000	0.9537
>500000 and <= 600000	0.9609
>600000 and <= 700000	0.9679
>700000 and <= 800000	0.9753
>800000 and <= 900000	0.9823
>900000 and <=1000000	0.9840
>1000000 and <=1100000	0.9883
>1100000 and <=1200000	0.9934
>1200000 and <=1300000	0.9979
>1300000 and <=1500000	0.9996
>1500000 and <=1600000	1.0062
>1600000 and <=1700000	1.0090
>1700000 and <=1800000	1.0123
>1800000 and <=1900000	1.0142
>1900000 and <=2000000	1.0172
>2000000 and <=2100000	1.0176
>2100000 and <=2200000	1.0200
>2200000 and <=2500000	1.0285
>2500000 and <=2700000	1.0307
>2700000 and <=3200000	1.0368
>3200000 and <=3600000	1.0426
>3600000 and <=4600000	1.0531
>4600000 and <=5200000	1.0585
>5200000 and <=7100000	1.0717
>7100000 and <=7200000	1.0726
>7200000 and <=7600000	1.0751
>7600000	1.1342

APPENDIX 10.2

List of banks meeting or not meeting proposed net worth requirements, 2000

Table A.1.

Old Private Sector Banks

Name of Bank	Meeting Requirement (Yes) Or not (No)
Bank of Madura	Yes
Bank of Rajasthan	Yes
Benaras State Bank	No
Bharat Overseas Bank	No
Catholic Syrian Bank	No
Centurion Bank	Yes
City Union Bank	Yes
Development Credit Bank	Yes
Dhanalakshmi Bank	No
Federal Bank	Yes
Ganesh Bank of Kurundwad	No
Jammu and Kashmir Bank	Yes
Karnataka Bank	Yes
Karur Vysya Bank	Yes
Laxmivilas Bank	Yes
Lord Krishna Bank	No
Nainital Bank	No

Nedungadi Bank	No
Ratnakar Bank	No
Sangli Bank	No
SBI Commercial and International Bank	Yes
South Indian bank	Yes
Tamil Nadu Mercentile Bank	Yes
United Western Bank	Yes
Vysya Bank	Yes

Table A.2

New Private Sector Banks

Name of Bank	Meeting Requirement (Yes) Or not (No)
Bank of Punjab	No
Global Trust Bank	Yes
HDFC Bank	Yes
ICICI Bank	Yes
IDBI Bank	No
Indusind Bank	Yes
UTI Bank	No

Source: Liabilities and Assets of Scheduled Commercial Banks (1999 and 2000) and Earnings and Expenses of Scheduled Commercial Banks (1999 and 2000).

APPENDIX 10.3

SIZE CLASSES FOR RAY SCALE ECONOMIES 1999-00

(Rupees Lakhs)

Name of Bank	Bank* Type	Transactn Deposits	Term Deposits	Advances	Total Output	Interest Costs	Labour Costs
			SIZE CLASS 1				
Chase Manhattan	FB	431	1	1150	1582	1469	495
Overseas Chinese	FB	148	1090	2013	3251	136	116
Intll Indonesia	FB	329	1532	1781	3642	810	117
Arab Bangladesh	FB	1888	1117	744	3749	104	57
Sonali	FB	4263	296	394	4953	54	99
Cho Hung	FB	7232	1948	3438	12618	139	106
Ceylon	FB	1295	3872	9069	14236	584	58
Muscat	FB	892	11045	2569	14506	654	156
Chinatrust	FB	741	6248	7571	14560	1421	180
ING	FB	2174	3741	10997	16912	3456	841
Ganesh Bank	OP	3310	10553	7840	21703	1284	196
Develpmnt Singpr	FB	656	4700	18748	24104	1620	194
Barclays	FB	1582	19119	4763	25464	2841	476
Commerz	FB	2154	12042	13695	27891	3999	812
KBC	FB	173	21474	7708	29355	1490	458
Sanwa	FB	3371	8235	17970	29576	1248	135
Mashreq	FB	4931	20492	12191	37614	2738	389
SB Mauritus	FB	2057	10743	26332	39132	2070	138
Sakura	FB	5340	8239	33103	46682	3651	447
Nainital	OP	20945	25413	10327	56685	2870	1004
Societe General	FB	10782	26474	23305	60561	5930	753
BahrainKuwait	FB	4195	32395	25496	62086	4803	353
Ratnakar	OP	11296	32506	18736	62538	3535	986
Oman Intll	FB	6201	35398	22410	64009	5311	205
Abu Dhabi	FB	9957	49091	23662	82710	5984	287
SBI Commer	OP	3885	47484	36787	88156	5246	260
			SIZE CLASS 2				
Bank of Tokyo	FB	28169	34626	39105	101900	5848	1507
Benaras	OP	28639	61515	23145	113299	8016	2003
Credit Lyonnais	FB	5303	79747	40218	125268	9871	952
Lord Krishna	OP	13990	74211	48552	136753	8266	1068
Nova Scotia	FB	6533	61609	87527	155669	7013	562
Banque de Paris	FB	35530	70486	67511	173527	15740	2421
Sangli	OP	52050	85840	47790	185680	8619	3199

* FB stands for Foreign banks, OP for old private, NP for new private, NA for Nationalized and SB for SBI and Associates

			APPENDIX 10.3				
			(CONTD.)				
			SIZE CLASS 3				
BharatOverses	OP	32187	108661	68760	209608	10475	1711
City union	OP	32184	101864	76939	210987	12918	1973
Dhanalakshmi	OP	29116	110950	77631	217697	12341	2246
Amex	FB	54921	86912	89194	231027	19638	7193
Nedungadi	OP	29065	129756	79375	238196	12508	2921
			SIZE CLASS 4				
Lakshmi Vilas	OP	54309	142032	115005	311346	16253	3852
Catholic Syrian	OP	62000	183777	106071	351848	22029	5901
Bank Of Punjab	NP	82783	177991	130140	390914	18911	776
Tamil N Mercen	OP	74882	191571	125504	391957	22336	4052
Deutsche	FB	109603	107135	176212	392950	23835	5752
			SIZE CLASS 5				
Dresdner	FB	1111	11586	417903	430600	1889	506
Development Credi	OP	46725	229937	163813	440475	20675	2621
Karur Vysya	OP	62392	246669	180730	489791	28100	5392
BOR	OP	131385	192825	172844	497054	30614	9048
			SIZE CLASS 6				
IDBI	NP	60168	284649	160071	504888	33261	1408
BOM	OP	130585	232519	166542	529646	26609	6278
Centurion	OP	44644	342064	183981	570689	36249	1091
SIB	OP	85089	303447	202108	590644	35072	8633
			SIZE CLASS 7				
Bank of Amercia	FB	54909	196268	365749	616926	40266	9385
United western	OP	120846	314038	235802	670686	30463	6628
			SIZE CLASS 8				
ABN Amro	FB	140040	202253	389643	731936	36314	3444
Karnataka	OP	109611	407806	245143	762560	46383	7528
S B Indore	SB	208417	301220	284153	793790	37233	13345
			SIZE CLASS 9				
S B Saurashtra	SB	192148	385141	319973	897262	45580	14289
			SIZE CLASS 10				
UTI	NP	97022	474799	350662	922483	39286	1543
Std Chartered	FB	169353	331247	431886	932486	57698	7426
Global Trust	NP	113966	505919	321101	940986	50719	1813
			SIZE CLASS 11				
S B Mysore	SB	235001	428235	349510	1012746	51897	22316
Indusind	NP	100520	554076	367705	1022301	50112	1197
Federal	OP	143719	502619	403571	1049909	70145	11812
			SIZE CLASS 12				
Vysya	OP	153253	589147	393775	1136175	68315	9730
HDFC	NP	390486	452286	336227	1178999	37428	4853
			SIZE CLASS 13				
Grindlays	FB	291922	555857	423341	1271120	68522	16715
J&K	OP	341709	600500	351807	1294016	59822	8984
			SIZE CLASS 14				
HSBC	FB	279454	596016	430237	1305707	64472	10103
SBBJ	SB	377958	529444	440111	1347513	74235	26548
ICICI	NP	212074	774528	365734	1352336	66695	3637

			APPENDIX 10.3				
			(CONTD.)				
			SIZE CLASS 15				
S B Travancore	SB	337452	680809	513121	1531382	87759	22148
PSB	NA	329423	726175	476482	1532080	85108	24216
S B Patiala	SB	466814	551356	577541	1595711	69509	21123
			SIZE CLASS 16				
Vijaya	NA	422411	736877	468761	1628049	80937	27265
Citibank	FB	293307	727018	662017	1682342	84582	10600
			SIZE CLASS 17				
S B Hyderabad	SB	474648	778055	533197	1785900	96235	25083
			SIZE CLASS 18				
BOMaharashtra	NA	514200	826455	525221	1865876	100015	32485
			SIZE CLASS 19				
Andhra Bank	NA	433600	1008195	557360	1999155	102536	26095
			SIZE CLASS 20				
Dena	NA	494911	833751	711788	2040450	116919	29304
			SIZE CLASS 21				
UBI	NA	611892	1066876	456278	2135046	128646	38657
			SIZE CLASS 22				
Corpn bank	NA	386781	1041182	777747	2205710	114609	17726
			SIZE CLASS 23				
Allahabad	NA	739761	1024450	824006	2588217	128097	36706
UCO	NA	735903	1100093	763026	2599022	142493	50623
			SIZE CLASS 24				
Indian Bank	NA	568874	1342476	820340	2731690	151868	49339
			SIZE CLASS 25				
OBC	NA	554103	1655418	932553	3142074	174528	23137
			SIZE CLASS 26				
Syndicate	NA	815087	1550455	1220631	3586173	161233	66921
IOB	NA	781941	1649835	1157320	3589096	182626	57742
			SIZE CLASS 27				
Union BI	NA	1225892	1884644	1461323	4571859	235803	61186
			SIZE CLASS 28				
CBI	NA	1490297	2096875	1580492	5167664	252160	99083
			SIZE CLASS 29				
PNB	NA	2131241	2617082	2257172	7005495	353820	118367
			SIZE CLASS 30				
Canara	NA	1823376	2976761	2354673	7154810	341447	95109
			SIZE CLASS 31				
BOI	NA	1600914	3173474	2523105	7297493	344314	99912
			SIZE CLASS 32				
BOBaroda	NA	1636677	3494141	2439291	7570109	350663	89645
			SIZE CLASS 33				
SBI	SB	7768858	11913249	9810197	29492304	1527258	447787
Source: Liabilities and Assets of Scheduled Commercial Banks, 1999-00							

CHAPTER 11

REGULATORY AND INSTITUTIONAL FRAMEWORK

This chapter surveys the latest trends in regulation worldwide and in India. It analyzes the present Indian regulatory and institutional framework against the international trends.

International Developments

International developments in regulation over the past 15 years have been dominated by the Basel Capital accord. The Basel committee on Banking supervision is a forum of banking supervisory authorities established by central bank governors of the group of ten countries in 1975. It consists of senior representatives of central banks and supervisors from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, Netherlands, Sweden, Switzerland, United Kingdom and the United States. The first capital accord was signed in 1988 and has been adopted by more than 100 countries, including India. The Basel committee set up under the auspices of the Bank of International Settlements governs the standards of regulation for banks around the world.

The 1988 accord specified that the capital to risk weighted assets ratio should be at least 8 percent. Further, it specified only three classes of borrowers - those for which banks needed to put aside the full 8 percent capital; those for which they needed only a fifth of that; and those for which they needed none at all. All non-financial companies, irrespective of their credit worthiness, go into the first category. The Basel committee has itself recognized (in its new accord) that this framework creates incentives for banks to make high risk investments which

may lead to an understatement of the risks and overstatement of the capital adequacy. In view of the shortcomings of the old accord the committee released a proposal to replace the old accord in June 1999. After reviewing a number of suggestions to the proposal a more concrete proposal was put up in January 2001 giving an year's time for review and comment before finalization of the new accord.

An Overview of the Latest Proposals for the New Basel Capital Accord

The objectives of the accord are promoting the soundness of the financial system and maintaining at least the existing level of capital; enhancing competitive equality; constituting a more comprehensive approach to addressing risks; and suggesting approaches appropriately sensitive to the degree of risk taken on by a bank.

The accord stresses the importance of three mutually reinforcing pillars of regulation, namely, minimum capital requirements, supervisory review and market discipline. The three pillars are outlined below.

a) Pillar 1: Minimum Capital Requirements

The new accord maintains the definition of regulatory capital and the application of a minimum ratio of capital to risk weighted assets as in the old accord. The change lies in the risk weightages applicable to assets in line with their risk profiles. A continuum of two approaches is suggested, namely standardized and internal ratings based (IRB) approaches. A beginning can be made with standardized approach and a bank meeting eligibility requirements can move on to adopting the IRB approach.

The first approach in the range of options is the standardized approach. The committee proposes the use of export credit agencies for rating sovereigns. These ratings can be mapped to standardized risk buckets. Similarly corporate too will be assigned risk weights on the basis of external ratings. In turn supervisors and banks are responsible for evaluating the methodologies used by external credit assessment institutions for corporate ratings. The committee also recognizes credit mitigation techniques like collateral, credit derivatives, guarantees or netting agreements.

The second approach that can be used under the proposed new accord is the Internal Ratings Based (IRB) approach. This approach assesses the risk associated with each asset class bases on three elements: risk components, where a bank may use either its own or standardized supervisory estimates; a risk weight function which converts the components into risk weights; and a set of minimum requirements that a bank must meet to be eligible for IRB treatment. Banks can rate assets on the risk of borrower default and assign a borrower to a rating grade. Then a bank could estimate the probability of default (PD) associated with borrowers in these internal grades. PD estimated in this manner is the first risk component. Banks will measure not only the probability of default but also the loss if this happens. This has two components, the loss given default (LGD) which measures the loss after recoveries if default occurs and the exposure to the borrower at any time (exposure at default or EAD). The risk function provides a mechanism by which the risk components outlined above are converted into regulatory risk weights. This function allows for greater risk differentiation since it uses the grading structures

of individual banks. Finally the risk-weighted assets are calculated as a product of risk weights and measures of exposure (EAD).

To be eligible for the IRB approach a bank must meet a full set of minimum criteria both at the outset and on an ongoing basis. This is because the responsibility of calculating the amount of capital required by a bank rests largely with the bank itself under this approach. The requirements ensure the integrity and credibility of a bank's rating system, process and its estimation of the risk components that will serve as the regulatory capital. The new Basel accord deals with these requirements in detail.

The committee has also proposed to make another important departure from the old accord in that minimum capital requirements will not only depend on the characteristics on an individual exposure but also on those of the other exposures. Granularity in the form of concentration of a bank's exposure to single borrowers, or groups of closely related borrowers is also incorporated into the IRB approach. This is achieved by a standard supervisory capital adjustment applied to all exposures other than those in the retail portfolio.

The new accord has also attempted to address other risks apart from credit and market risks. Primary among these is operational risk, which is defined as "the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events". The committee proposed a continuum here too, namely the basic indicator standardized and internal measurement approaches.

As a first approximation the committee has used 20 percent of minimum regulatory capital as estimated under the earlier accord in estimating an indicative level of an "alpha factor" in the basic indicator approach. Under the basic indicator approach the capital charge for operational risk will be determined by a fixed percentage (alpha factor) of a proxy for the bank's overall risk, for example its gross income.

The standardized approach, which may be used by banks meeting certain criteria, divides a bank's activities into a number of standardized industry business lines. Within each business line, the capital charge will be calculated by using "beta factor". Across business lines both the indicator of risk and beta factor may differ.

The internal measurement approach allows banks meeting more rigorous standards to rely on internal data. Banks will collect data on an operational risk indicator and on the probability that a loss event will occur and losses given such events. The bank will then use a "gamma factor" determined by the committee on basis of industry-wide data to calculate capital charge.

As banks move along the continuum of approaches, the capital requirements for capital risk will decrease stemming from a calibration of the factors in the three approaches.

b) Pillar 2: Supervisory Review Process

This pillar intends to ensure that each bank has sound internal processes in place to assess the adequacy of its capital based on a thorough assessment of its risks. The thrust of the committee's views on supervision are captured by the following four principles:

Principle 1: "Banks should have a process for assessing their overall capital in relation to their risk profile and a strategy for maintaining their capital levels".

This process should include policies and procedures designed to ensure that material risks are captured; procedures for relating the bank's strategies and level of capital to risk; and internal controls to ensure the integrity of the system. Bank management should also perform rigorous, forward-looking stress testing that identifies events of changes in credit and capital market conditions that could have an adverse impact.

Principle 2: "Supervisors should review and evaluate bank's internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the results of this process".

Principle 3: "Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum".

Principle 4: "Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored".

In addition to the above, the committee has identified other aspects such as interest rate risk in the banking book. The committee declares that interest rate risk is a significant risk and should merit capital charges. However, difficulties in calculating this charge have prompted it to include interest rate risk in the pillar 2 of the new accord. It recognizes bank's internal systems as the principal tool for measurement of interest rate risk in bank-books and supervisory response.

Lastly the committee stresses the importance of supervisory transparency and accountability.

c) Pillar 3: Market Discipline

The third pillar reinforces the first two. Meaningful information disclosures by banks inform market participants about the bank's activities, facilitating their exercise of discipline.

The committee suggests that banks be bound by the following overarching principle: "Banks should have a formal disclosure policy approved by their board of directors. This policy should describe the bank's objective and strategy for the public disclosure of information on its financial condition and performance. In addition banks should implement a process for assessing the appropriateness of their disclosure, including frequency."

Review of Key Indian Regulatory Aspects

In October 1998 it was decided to raise the stipulated minimum capital to risk weighted assets ratio (CRAR) of banks to 9 percent from the year ended March 2000. Earlier the Basel Committee's old standard of 8 percent was being followed. The calculation of this ratio is also carried out as per the old accord. An adjustment for market risk in case of investments is also made currently to the extent of 2.5 percent of the investments. Operational risk, however, is an

alien concept so far. The need for a new capital adequacy framework, which is more risk sensitive than the current one is being increasingly felt in India too. The motive for this lies in the high holding of government securities by banks, way in excess of the minimum stipulation. Currently government securities carry a credit risk weight of zero percent while the weight for corporates is a uniform 100 percent. This is one of the reasons for a falling credit deposit ratio.

An immediate impact of implementation of the new accord is likely to be felt on the Indian banks. First, their investments in government securities, which were not attracting any capital charge for credit risk will attract a charge based on the export credit agency's rating of Indian sovereign risk. This is likely to raise the minimum capital they will require, adding to their cost of funds. The requirement of calibration of corporate exposure on the basis of ratings of an external credit rating agency is definitely desirable given the greater risk sensitivity of this approach. The June 1999 paper called for risk weights on bank and corporate exposures to never be less than those applied to the sovereign of incorporation. This would have put Indian banks and corporates at a disadvantage since no Indian corporate, however creditworthy, would have been able to a get a capital charge less than Indian government borrowing, automatically increasing its cost of funds relative to that of a firm from developed country. A study by Ferri et al (2000) raised some other issues. They noted that the number of rated firms in G10 countries is 24 times higher than that of firms in lowest income group countries, as opposed to a GDP level 8 times higher. Implying that credit rating agencies in lower income countries are expected to have a lower degree of expertise and ratings may not be as accurate as in developed countries. They also find that the correlation between firms and sovereign ratings is almost non-existent for G10 countries but becomes high for low income countries. Moreover, sovereign ratings of developing

countries are more volatile than those of developed ones. For example, between 1996 and 1998 the sharpest down grading were those of the East Asian countries, in some cases these were excessive since the deterioration of fundamentals was not that great. A sovereign downgrading affects both the cost of funds and their supply to an economy. This implies that the capital requirements of banks in developing countries are expected to be more volatile. In view of these issues the latest proposal of the Basel committee specifies that exposures to banks and corporates that have higher external credit assessments than those of their sovereign of incorporation may receive a preferential risk weight provided it is not less than 20 percent.

In the area of supervision (pillar 2), the Padmanabhan Committee report 1996 had formulated the strategy currently being followed by regulators. These are stated below:

a) In tandem with the system of off-site monitoring, on-site supervision should be made an on-going activity. These should target specific areas that are not explored in depth in statutory inspections, which focus on mandated core assessments.
b) Supervision, whether on or off site should focus on specified areas of supervisory interest and not as catch all exercises. These could focus on financial condition, operating condition (systems and controls) and regulatory compliance.
c) These exercises should be discriminating as between banks, based on defined parameters of soundness - financial, managerial and operational, the last one related mainly to risk management and internal control systems.
d) Extending the role of auditors for supervisory purposes should not be by grafting add-ons to statutory audits but by commissioning special purpose agency audits.

e) Supervision should be oriented to enforcement and correction of deviations which are the raison d' etre of the supervisory process and the hallmark of its effectiveness.

The impact of implementation of the new accord would necessitate a change in the above detailed strategy of supervision to one that focuses on the internal systems of the bank. The entire outlook of the accord is one of allowing banks to increasingly monitor and decide the appropriate level of capital themselves, through their internal processes. Supervisors will largely have to establish best practices in operational issues and ensure their implementation.

In India disclosure norms facilitating market discipline (pillar 3) are specified by the RBI. Lately the RBI has suggested additional statements to be disclosed along with the annual balance sheet and profit and loss accounts. These are the interest rate risk profile on basis of GAP calculations and the profile of NPAs. RBI has also asked for consolidation of subsidiary accounts with that of parent.

Review of Key Institutions

a) Credit Rating Institutions

Credit rating is an indicator of the current capacity of a corporate entity to service its debt within a specified time period and with reference to the investment being rated.

A key requirement of the application of a more risk-sensitive capital adequacy framework in India is the development of credit rating agencies. Particularly for the standardized approach, the first step in the adoption of the new accord, corporate risk weights will have to come from

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corporate ratings by an external credit rating agency. Not only are good domestic credit rating agencies required, but regulators and banks might also have to periodically assess their performance as suggested by the new Basel accord.

National regulators have been given the discretion to specify agencies as external credit rating agencies in order to implement the new accord. They will have to determine if an agency meets the following criteria before enlisting it as an approved agency:

1. Objectivity of ratings
2. Independence of Ratings
3. Internal access or transparency i.e. the general methodologies used should be publicly available
4. Disclosure of methodology, definition of default, time horizon and meaning of rating and actual default rates and transition of assessments
5. Adequate resource to continuously monitor the performance of a rate entity
6. Credibility

RBI has so far approved three credit rating agencies, viz. Credit Rating Information Services of India Ltd., Investment Information and Credit Rating Agency of India Ltd. and Credit Analysis and Research Ltd.

Credibility arises from objectivity and an important precondition is separation of the businesses of the rater and rated. Indian credit rating agencies are promoted largely by term lending

institutions. In the recent past a number of Financial Institutions have approached the markets with large issues of debt. Thus, an arms length relationship with the promoters would be necessary. Supervisors might need to issue guidelines to Indian credit rating agencies in order to enable them to meet the above mentioned criteria well in time. Moreover, the analytical methodologies used might need to be assessed and improved. This is crucial since in the future, if the new accord is accepted without many changes, the cost of funds to and consequently the health of the private sector will depend largely on these agencies. Tie-ups with foreign agencies might facilitate this process.

b) Credit Information Bureau.

A credit information bureau is another essential institution required for assessing capital adequacy under the new framework. Particularly the calculation of probability of default for a particular class of borrowers and the beta factors for an industry will be greatly facilitated by the existence of information on defaulters across banks.

A working group was constituted to look into the possibilities of setting up a credit information bureau (CIB) and it submitted its report in 1999. It recommended revision of the legal framework to allow for disclosure of information on defaulters, adoption of best international practices with regard to collection of information, processing of data and use of effective systems to ensure the security of data. Subsequently the SBI has entered into an MOU with HDFC, Dun and Bradstreet Information Services Ltd. and Trans Union International Inc. as partners to set up a CIB within the confines of the existing legislation.

c) Auditors

Auditors play an important role in ensuring the transparency and authenticity of bank balance sheets. In so doing they play a critical role in the supervisory process and in the process of implementing market discipline. The information that is available in bank balance sheets is used both by supervisors and market participants. In adhering to the new accord auditors will have to consider the materiality of the information to be disclosed and the frequency of disclosure. There is also a proposal to include the disclosure norms put forth in the accord in the international accounting standards. If this happens both auditors and banks will have to change their systems of reporting and assessment in order to comply.

Conclusion

A new capital adequacy framework has been proposed by the influential Basel committee. This is more risk sensitive than the earlier accord and addresses the shortcomings of the earlier accord. However, certain aspects of the accord put banks and their borrowers in developing countries at a disadvantage when compared to their peer group in developed countries. The impact of such provisions should be assessed by the regulators and modifications to the accord suggested accordingly. Regulators also need to facilitate the augmentation of the credit rating agencies and the internal processes of banks.

CHAPTER 12

FINDINGS AND SUGGESTED STRATEGIES FOR BANKING REGULATION

This chapter summarizes the findings of the study and the implications for regulators.

Liberalization has been an important feature of the environment in which banks have operated in the eighties and nineties. In India too, a number of reform and liberalization measures have been carried out starting from the early nineties. Chief among these have been the liberalization of entry, enabling new private sector banks to be established; decontrol of interest rates; and allowing banks entry into other activities. Liberalization changes the competitive environment, often radically, leading to new challenges and risks.

Comparative Regulation of Indian Banking Industry

Against this backdrop of liberalization a number of variables were analyzed during the course of the study to track the changes in the competitive environment. A striking change in the secure environment in which banks operated earlier was noticed through the behavior of bank deposits' share in financial assets of the household sector. It is clearly visible that depositors are more willing to invest in products other than bank deposits. This has resulted in volatility in bank deposits and erosion of their share of financial assets of households. Banks have also suffered on account of regulatory arbitrage when a ceiling was put on the rates banks could offer while other similar instruments had no such ceiling. These developments show that the sensitivity of bank deposit volumes to interest rates has risen. Another aspect of the changing preferences of customers is their growing preference for short-term instruments and for interest bearing deposits

in place of current and savings accounts. These trends signal a change in the composition of bank liability portfolio. Banks' entry into long term lending is also changing the maturity of their asset portfolio. Both these developments raise the interest rate risk faced by banks.

There has also been a drop in the share of banks in the uses of funds in the economy. Bank lending has lost out to financial institutions, foreign agencies and inter-company deposits in borrowings of public limited companies.

After nearly a decade of domestic liberalization a benchmarking of Indian regulations with a large population of other countries showed that the level of regulation in India is less than the population average. This is largely because of the lack of regulatory powers to enable exit of banks.

This finding conclusively disproves the first hypothesis that the Indian banking industry is comparatively more regulated than the others.

Apart from the external environment, the internal market structure of banking industry has also been changing. The shares of nationalized banks in the total deposits of banks have fallen steeply especially after interest rate deregulation in 1996. On the other hand, private sector banks have gained in what appears to be a competitive price war after rate deregulation. The extensive branch network of public sector banks has slowed the advance of private sector banks.

Efficiency Trends of Banks

The trend analysis of profitability ratios of banks shows a decline in their spreads, across all banks groups. Competition from new private sector banks, which are operating on very thin spreads, appears to be instrumental in this decline. The worst hit are the old private sector banks. Nationalized banks' spreads have not fallen as much as those of old private sector banks. Most of the decline in spreads of old private sector banks has been on account of a rise in interest expenses indicating that interest rate deregulation has triggered a rate war. Even though old private sector banks have attempted to balance the rise in their interest expenses by reducing their non-interest expenses, they have not been able to stem the fall in their net profits. Despite very low spreads, new private sector banks have the highest net profits. Their net profits, however, are falling too. Overall it appears that the entry of new banks has generated competition, which is primarily impacting the old private sector banks.

A study of the NPAs of Indian banks shows that their level has stayed high by international standards and the trend of reduction in their levels has reversed in 1998-99. The problem appears to have become chronic due to the absence of crucial restructuring and fundamental reform measures. A large part of the bad debts owe their origins to the directed credit programmes. A worrying feature of the NPA trend analysis is the rise in NPAs of old private, new private and foreign banks between 1996-97 and 1998-99. This rise has come when the NPAs of public sector banks were falling. Of old private sector, new private sector and foreign banks, old private sector banks have the highest level of NPAs.

The efficiency analysis shows a rise in inefficiency of both large and small banks post liberalization. Also greater freedom given to banks to choose their product portfolios have ensured that variations in product mix don't account for a large difference in costs. However, the inefficiencies among smaller banks are higher than those among larger banks. Further the efficiency frontier itself has shifted upward owing to the emergence of new private sector banks which have changed the standards of efficiency. While the frontier is shifting to higher standards, banks outside the frontier, particularly the smaller ones, are falling farther in efficiency. Labour costs are the largest contributors to inefficiency among banks.

An analysis of scale economies among banks shows that these are dominated by inefficiencies. The very small banks show diseconomies of roughly 15 percent and 26 banks fall in this class. These are mostly small foreign and old private sector banks. Most nationalized banks, on the other hand, show minor diseconomies.

Thus, the empirical evidence on the second hypothesis, namely banks are more efficient now than they were prior to liberalization, is inconclusive.

However, there are indications that banks are endeavouring to become more profitable in the long run.

Response of Banks to the Emerging Environment

Globally falling spreads have prompted banks to add to their incomes by offering innovative products. These have helped banks to maintain their profits in the face of dis-intermediation. The

emergence of interest rate risk in a deregulated interest rate environment led to development of innovative products to hedge this risk. These very same conditions are observable in the Indian context as well. The need for innovations will be felt increasingly in the future.

Similarly, the blurring of boundaries between banks and other financial institutions has been a trend world wide. This trend has been prompted by banks' need to cross-sell a larger number and variety of products to their traditional customers. This trend is visible in India too. However, whether banks possess the expertise to manage such diversification is an area of concern.

The emergence of new technology in bank products and distribution channels offers numerous advantages to banks such as better customer service, lower costs, and avenues for faster expansion. Banks are likely to adopt new technology rapidly in view of the competitive environment and the competitive advantages it offers them.

The investments required to utilize the new information technology are large and may drive mergers in the economy. Other reasons for mergers are likely to be the presence of scale economies; higher minimum networth requirements; the move towards universal banking; and benefits from branch rationalization. Thus, mergers, particularly among old and new private sector banks, appear to be in the offing.

The developments in Indian banking industry indicate that banks are following and are likely to follow the paths of innovation, diversification, adoption of new technology and mergers in response to the emerging environment as stated in the third hypothesis.

Adequacy of the Regulatory Framework in the Emerging Environment

A failure of the regulatory framework is visible in analysis of the investment patterns of households. Regulatory arbitrage between non-bank's and bank deposits resulted in a loss of market share for bank deposits.

The sequencing of reforms has also faltered. Owing to inadequate fundamental legal reform NPAs have become a chronic problem. In fact some of the fundamental reforms suggested by the first Narasimhan committee have not been implemented. These include the phasing out of directed credit, which is one of the root causes of high NPAs. The resolution of the bad debts of banks through the establishment of an asset reconstruction fund, as suggested by the committee, is also pending implementation. The abolition of dual control of the Ministry of Finance and RBI on the banking industry is pending and divestment of government stake in public sector banks is being implemented only recently.

Similarly, interest rates were deregulated before Indian banks even had a mechanism to measure interest rate risk, leave alone manage it. The basic business of banks, extending loans, is in decline as shown by the activity analysis. An important reason behind this is the capital adequacy framework, which creates incentives for banks to invest in government securities. Similarly, high labour costs, which make bank lending costly, have been dealt with only recently after bank lending has already lost market share.

Thus, it is quite clear that the regulatory framework in India has lagged behind the developments in the banking environment and at present is inadequate to handle the changes in the environment, as stated in the fourth hypothesis.

Revision of Existing and Formulation of New Regulations

In view of the expected developments in banking, a number of shortcomings exist in the current regulatory framework. For example, securitization is an important avenue through which interest risks can be managed, yet the mechanisms to facilitate it are not yet in place even though banks are exposed to greater risk after interest rate deregulation.

Similarly, guidelines for regulating mergers are not in place even though three mergers have taken place.

The Indian banking industry is rapidly acquiring a diversified face yet few mechanisms for coordination among regulators exist. Lastly, competition among and increased risks for the banks have raised the possibilities of failures. An exit policy and facilitating regulations are virtually non existent to manage such eventualities.

The world is moving towards a new capital adequacy framework, which will require a new mind set for regulators and bankers. It is likely to pose new challenges and calls for improvements in existing institutions.

As a corollary to the above, existing regulations will need to be revised and new ones formulated, which proves the hypothesis five.

The next section outlines the strategies that regulators need to follow in the context of the analysis of the emerging competitive environment, the performance of banks and their likely responses.

Suggested Strategies for Regulation

It is evident that liberalization changes the environment in which banks operate. Other forces also produce an environment that is in a continuous state of flux. This creates new challenges and risks. It is imperative for the regulator to anticipate these risks and act in a proactive manner. On the basis of the analysis carried out in the thesis the following proactive strategies are being suggested for regulators:

a) Demarcation of High Risk Banks/ Group of Banks

The RBI already has a rating system called CAMELS on the basis of which it rates banks. However, competitive dynamics, as outlined in the earlier part of this thesis, also need to be kept in mind. It is clear from our analysis that old private sector banks are a high-risk group and will need closer monitoring than others. Thus, regulators should focus on such groups that are likely to be severely affected by competition.

b) Guarding Against Regulatory Arbitrage

Regulatory arbitrage has hurt the interests of banks in the past. Currently the savings account interest rates are regulated and Money Market Mutual Funds can offer market rates of interest. As the two grow more like each other there is a possibility of regulatory arbitrage here too. It would be imperative for RBI to allow banks to offer market related interest rates on savings accounts to prevent this from happening. Given the blurring of boundaries between banks and other institutions and the appetite of customers to experiment with new products, ensuring parity in regulations between various products and institutions is likely to become a major challenge for regulators in the future.

c) Fundamental Reforms

Fundamental reforms are required to ensure a safe and healthy banking sector. This aims both at precursor steps, which prevent a failure and antecessor steps, which help resolve failure.

Revision of regulations restricting branch and labour rationalization is a fundamental reform falling in the precursor category to prevent sickness among banks.

Under precursor steps, reform of Sick Industrial Companies act, which is crucial to resolving bad debt; reduction of government holding to allow market forces to act; phasing out of directed credit; ensuring strong internal systems for credit risk management and the setting up of a Credit Information Bureau are required to prevent buildup of NPAs.

In order to manage interest rate risks, internal systems to measure and manage such risk; provision of instruments such as interest rate futures and options; and enabling securitization are the fundamental reforms required.

The emergence of diversified conglomerates will necessitate strengthening of consolidated risk management for the group as a whole; examination and implementation of recommendations of international working groups; increasing coordination among regulators; and, above all a cautious approach in allowing banks to diversify.

Provision of a legal framework and its periodic review; regulatory arrangements for secure electronic transactions; facilitation of inter-bank cooperation to minimize risk of contagion; the development of institutional infrastructure for training and development; and telecommunication infrastructure for industry wide use will be needed to enable the use of information technology by banks.

Design of a merger policy covering anti-trust issues will be required in anticipation of merger trends.

Lastly, the pending recommendations of the Narasimhan committees need to be implemented speedily.

For the antecessor phase, an exit policy which ensures the smooth exit of troubled banks with minimum risk to the system as a whole is required.

d) Preparing for the New Generation Capital Adequacy Norms

The new Basel Accord on capital adequacy has been released for discussion and debate. Regulators will need to carry out a thorough study of its implications for banks in India and work out a strategy that is suitable for the Indian situation. Strengthening of the internal risk management systems of banks is a corner stone of the new accord and RBI will have to exhort and guide banks towards this. Institutions that are crucial to the implementation of the accord such as the supervisory board, credit rating agencies and auditors will also need to be strengthened.

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LIST OF APPENDICES

LIST OF BOXES

LIST OF GRAPHS

LIST OF GRAPHS (contd.)

LIST OF GRAPHS (contd.)

LIST OF GRAPHS (contd.)

LIST OF TABLES

LIST OF TABLES (contd.)

LIST OF ABBREVIATIONS

ALM	Asset Liability Management
ATM	Automated Teller Machine
ATS	Automatic Transfer of Savings
BFS	Board for Financial Supervision
CAMELS	Capital Adequacy, Asset quality, Management, Earnings, Liquidity and Systems
CD	Certificate of Deposit
CIB	Credit Information Bureau
CP	Commercial Papers.
CRAR/CAR	Capital to Risk weighted Assets Ratio
CRR	Cash Reserve Ratio
DICGC	Deposit Insurance and Credit Guarantee Corporation
DRT	Debt Recovery Tribunal
DVP	Delivery Versus Payment
EAD	Exposure at Default
ECGC	Export Credit Guarantee Corporation
FAFT	Financial Action Task Force
FI	Financial Institution
FSA	Financial Services Authority
G7	Group of 7
G10	Group of 10
GDP	Gross Domestic Product

GIC	General Insurance Corporation
HDFC	Housing and Development Finance Corporation
HHI	Herfindahl – Hirschman Index
ICICI	Industrial Credit and Investment Company of India
IDBI	Industrial Development Bank of India
IMF	International Monetary Fund
INFINET	Indian Financial Network
IRB	Internal Ratings Based Approach
IRDA	Insurance Regulatory & Development Agency
LGD	Loss Given Default
LIC	Life Insurance Corporation
MMMF	Money Market Mutual Fund
MOU	Memorandum of Understanding
MPBF	Maximum Permissible Bank Finance
NABARD	National Bank for Agriculture & Rural Development
NBFC	Non Banking Financial Company
NDTL	Net Demand and Time Liabilities
NHB	National Housing Bank
NOW	Negotiable Orders of withdrawal
NPA	Non Performing Assets
OECD	Organization for Economic Cooperation and Development
PC	Personal Computer
PD	Primary Dealers

PD	Probability of Default
PKI	Public Key Infrastructure
PLR	Prime Lending Rate
PPF	Public Provident Fund
PSB	Public Sector Banks
PTLR	Prime term lending rate
RBI	Reserve Bank of India
RRA	Regulations Review Authority
SAC	Settlement Advisory committee
SBI	State Bank of India
SCB	Scheduled Commercial Bank
SCRA	Securities Contracts Regulation Act
SEBI	Securities Exchange Board of India
SLR	Statutory Liquidity Ratio
STCI	Securities Trading Corporation of India
UBI	United Bank of India
UTI	Unit Trust of India
VSAT	Very Small Aperture Terminal