

**DEVELOPMENT FINANCING BY INDIAN PUBLIC SECTOR BANKS:**

**A Portfolio Analysis, 1970-85**

Dissertation submitted in partial fulfilment of the requirements  
for the award of the degree of **Master of Philosophy in Applied  
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I hereby affirm that the research for this dissertation titled 'Development Financing By Indian Public Sector Banks: A Portfolio Analysis, 1970-85' being submitted to the Jawaharlal Nehru University for the award of the Degree of Master of Philosophy in Applied Economics was carried out entirely by me at the Centre for Development Studies, Trivandrum.

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Certified that this dissertation is the bonafide work of Ms. Mausumi Manna and has not been considered for the award of any other degree by any other university.

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## CHAPTER 1

### Introduction

Public sector commercial banks are instruments in the hand of the monetary authority of a developing nation to fight the impediments to economic development. While for the banks, active participation in development finance imposes additional constraints on their portfolio choice. The success of the monetary **policy** variables in influencing the macroeconomic **target** variables in the real sector depends to a large extent, upon the consequent portfolio allocation of the commercial banks.

Monetary economists have been adopting a mixed approach towards the question of portfolio adjustment of the commercial banks for the effectiveness of monetary control. The arguments range from the pure Quantity Theory or a modified Monetarist Version to the most orthodox Credit Views. More recent trends attempt a reconciliation between the two extremes, though the exactness of the **transmission mechanism** remains a debatable issue.

In the concrete Indian scenario, given the conditions of working of the monetary system, does the portfolio management of the public sector commercial banks, subject to the operating constraints integral to financing development, help the target variables move in the desired trajectory, or is there an inherent inconsistency in the policy design that creates a paradoxical situation, where the different policy variables represent conflicting forces, and thus fail to work in harmony

with each other ?

This study focuses on the interaction between the portfolio adjustment mechanism of individual commercial bank and various monetary policy variables - as the co-ordination between the two determines the success of a bank as financier of economic development, and sets the conditions for optimization of bank portfolio. In India, the interrelation between the state and its banker, the Reserve Bank of India, plays a very important role in defining the functions of the monetary policy. The Reserve Bank, though otherwise the autonomous apex institution with independent power of monetary control, accepts a position of sub-ordination in this relationship. This makes **deficit financing** the soft option to buttress additional government expenditure, which in turn conditions the role of the monetary policy in restricting the functioning of the public sector commercial banks. The imperatives of resource mobilization which thus governs the portfolio behavior of individual bank, provides a macro canvas for our analysis.

The study includes the 28 public sector banks in India, classified into six groups according to their average asset-size over 1970-85. State Bank of India, the successor of the Imperial Bank, with the largest individual size, has been treated as a separate group owing to its distinct functions. The seven subsidiaries of the State Bank of India are grouped together. The fourteen major banks nationalized in 1969 have been divided into three groups based on their asset size. The six small banks nationalized in the second lot form a separate group. This

classification, presented in Table 1.1 below, has been followed throughout.

**Table 1.1**

AVERAGE ASSET SIZE OF THE BANKS, 1970-1985  
(Amount in thousands of Rs)

BANK GROUPS	ASSET SIZE
<b>GROUP 1: State Bank of India</b>	12,92,58,671
<b>GROUP 2: Associates of State Bank of India</b>	
(a) State Bank of Hyderabad	52,05,808
(b) State Bank of Patiala	47,82,075
(c) State Bank of Bikanir & Jaipur	46,85,978
(d) State Bank of Travancore	44,66,687
(e) State Bank of Mysore	35,67,793
(f) State Bank of Saurashtra	26,22,878
(g) State Bank of Indore	20,90,382
<b>GROUP 3: Nationalized Bank Group 1</b>	
(a) Bank of India	307,76,367
(b) Bank of Baroda	301,18,051
(c) Central Bank of India	278,04,694
(d) Canara Bank	230,82,808
(e) Union Bank	176,50,999
<b>GROUP 4: Nationalized Bank Group 2</b>	
(a) United Bank	145,78,689
(b) Indian Overseas Bank	144,75,704
(c) United Commercial Bank	140,64,545
(d) Indian Bank	118,90,817
(e) Bank of Maharashtra	115,47,045
<b>GROUP 5: Nationalized Bank Group 3</b>	
(a) Dena Bank	80,50,531
(b) Punjab National Bank	79,16,083
(c) Allahabad Bank	76,98,417
(d) Syndicate Bank	41,35,860
<b>GROUP 6: Six Small Banks Nationalized After 1980</b>	
(a) Oriental Bank of Commerce	78,10,890
(b) Andhra Bank	67,64,970
(c) New Bank of India	51,48,361
(d) Corporation Bank	48,90,194
(e) Punjab & Sind Bank	36,06,665
(f) Vijaya Bank	33,86,270

Note: The asset size of the banks has been calculated by taking the average over 1970-85 of the total assets, as given in each year's balance sheet.

It can be mentioned here that as nationalization of these 28 public sector banks occurred at various stages, this has led to a sub-periodization of our work. The study begins in



1970<sup>1</sup> with the nationalization of the fourteen major banks. The Imperial Bank (later State Bank of India) and its subsidiaries by then were already in the public sector. The beginning of the second sub period coincides with the nationalization of the six small banks in 1980. The discussion ends at 1985, with the so called liberalization of the monetary and fiscal policy parameters.

A balance sheet approach to the bank portfolio has been adapted here, using the data for the total business of Indian scheduled commercial banks. The information used is supplied by individual banks in the special return on Form A-1, published in the Statistical Tables Relating To Banks In India (RBI).

The study is structured in the following way: Chapter 2 discusses the prime issues involved in the portfolio choice problems of the Indian public sector banks and in this light, reviews the performance of the banks in the period under study. Chapter 3 provides a theoretical background for analyzing the portfolio behavior of commercial banks in a macro framework for the working of Indian monetary system. The discussions in Chapter 4 are confined to the question of optimum risk-return choice of a bank portfolio under the policy constraints operative on them in the relevant period, defining the basic concepts used in our analysis. Chapter 5 analyses the broad trends in the pattern of asset allocation during the period under observation.

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<sup>1</sup> The first bank nationalization act (transfer & acquisition of undertakings) was passed in 1969, but effective undertaking was done only after 1970 following the legal proceedings in the Supreme Court.

The 6<sup>th</sup> and the concluding chapter presents the results of a regression analysis on the effects of changes of various determinants of bank portfolio, before concluding the discussion with reference to the inter-linkage between the monetary and real sector, and commercial banks' role in this relationship. The first appendix deals with the sources, modifications and limitations of the numerical evidences used. The second appendix gives some detail statistics, which have been used in a concise form in the main text.

## CHAPTER 2

### The Emerging Issues of Portfolio Choice

The portfolio behavior of the public sector banks in India in the post-nationalization period, needs to be studied in its relevant context. The question of efficient resource mobilization in a low capital developing economy sets the conditions for working of the financial institutions, especially in the public sector, and thus, the performance of the public sector banks needs to be examined in relation to these issues."

#### 2.1 The Conditions for Portfolio Management

Public sector banks, unlike their private sector counter parts, have to rely more on the monetary policy parameters than on their own choice variables in determining their asset allocations. The need for nationalization of the commercial banks in a developing economy derives from the attempt to control the behavior of the major macroeconomic variables, which in turn necessitates direct state intervention in the financial sector. The role of the apex banking institution in influencing the future path of these variables, as well as its relationship to the base, are thus defined in the context of bank nationalization - its objectives and consequences.

The pre-amble to the 'Banking Companies (Acquisition and Transfer of Undertaking) Act, 1969', defines the purpose of bank nationalization as... 'to control the height of the economy and to meet progressively, and serve better the needs of development of the economy in conformity with national policy and objectives'.

The developmental imperatives of the economy at the

time of nationalization were conditioned by the particularly conjectural circumstances of that period. The process of planned industrialization was being threatened by acute capital scarcity. Self-sufficient agricultural growth, for which the unorganized credit market was the chief source of finance, was suffering from an extreme funds shortages. In such circumstances, aggravated by an adverse balance of payment situation, scarce domestic resources were largely controlled by and concentrated in private hands. Bank nationalization was perceived as the weapon to fight these impediments ... to redirect the flow of funds from the hands of big industrial houses (to whom the major commercial banks in India owed their affiliation) towards the development of the public sector economy. The directions of the portfolio allocation of the nationalized banks were set accordingly.

Thus the first one and a half decades of nationalization (1970-85), form a period of strict supervision from the monetary authority. Throughout this entire period we observe the government's net borrowing from the Reserve Bank (RBI) to show an alarmingly increasing trend. This has been the easiest resort to overcome the large and regular budgetary deficits faced by the government throughout this period. The resulting expansion of **reserve money** whose single most important component has been RBI's credit to the government has provided a strong impetus to monetary growth via the money multiplier in a condition of declining currency-deposits ratio. The most effective tool available to the Central Bank (CB) at this juncture, to check this expansionary trend and stabilize money-

induced price rise was to increase the reserve requirements and squeeze the credit creating capacity of the commercial banks.<sup>2</sup> On the other hand, credit expansion by the commercial banks was the need of the hour for the development of important sectors of the economy: agriculture, small scale industry, new industrial estates, self-employment schemes etc. which had so far remained outside the commercial banking network. Bringing almost the entire banking business within the public sector had helped to make bank credit more available to these neglected sectors. The direct linkage which had thus been established between banking and economic development can be recognised as the increasing reserve requirements through gradual raising of the level of Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR) to provide a cushion for inflationary pressures, induced via deficit financing. This continual increase of the level of SLR is needed not only to balance the otherwise operative expansionary forces, but also to ensure availability of bank finance for the public sector in the form of statutory investments in government and approved securities. As the rates on government securities are set below the rates of return on other competing assets, investments in government securities may not appear to be a lucrative option to the banks, unless CB imposes compulsion, and the conditions of investment in private security market seem less favourable. The statutory investments in government and other approved securities by the bank and other financial institutions makes it easy for the gilt-edged security market to match the supply with an artificially created demand. In addition to this

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<sup>2</sup>.Report of The Committee to Review the Working of the Monetary System (1985).

indirect funding of public sector investments, banks take a direct part in financing economic development by supplying low cost credits to socially desirable sectors (priority sector lending). This active participation in financing economic development imposes larger and newer constraints on the portfolio decisions of the banks. High reserve requirements cuts down the volume of investible funds, while expansion of soft term loans reduces the level of total earnings.

Thus identifying these major constraints confronted by the banks, integral to the process of financing economic development, as the operative constraints in their portfolio choice, we would like to examine how the banks adjust their decision making accordingly, and how this constrained portfolio choice affects their overall performance over these years (1970-85). The decision making of the banks, subject to the given constraints, determines over time the movement of bank credit to influence the real magnitudes of variables like interest rate and price level, even though the nominal values may lack the required flexibility under an administered regime. As the movement of bank finance is expected to have desired effects on the **target** variables in the real sector, it is necessary to see whether the movement of the bank portfolio follows the designed orbit, failure of which questions the efficiency of policy formulation. A review of the performance of the banks, attempted in the following sections, is called, for as the health of the financial sector in a growing economy has large implications in the process of economic development. When the financial intermediaries are expected to perform something more

than just borrowing cheap and lending dear, the question of efficiency of the bank management no longer remains a micro problem of the concerning bank, but acquires wider implications. Therefore, the conventional criteria cannot be used to judge the efficient functioning of the public sector banks. Since the major part of the asset allocation of Indian public sector banks are carried out under CB's dictations, the interaction between the policy directives and the choice decisions of the banks attracts due attention. The indicators used to study the functioning of the banks are thus at one end the profitabilities of the banks, and on the other, the developmental activities of the banks viz. deposit mobilization, credit expansion etc., to satisfy the objectives of social control.

## 2.2 Performance Indicators: Profitability Ratios

The size of bank business expanded enormously following nationalization. The asset-size of the major banks swelled up significantly through merger and amalgamation of small and inefficient banks with them.

Table 2.1

ANNUAL COMPOUND RATE OF GROWTH (%) OF TOTAL ASSETS, 1960-85		
BANK GROUPS	1960-69	1970-85
GROUP 1	12.57	21.63
GROUP 2	11.60	19.33
GROUP 3	13.06	19.73
GROUP 4	12.07	19.67
GROUP 5	13.05	18.79
GROUP 6	13.62	19.02

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 Note: the  $R^2$  values have been more than .95 in all cases and the 't' statistics have also been satisfactory.

Table 2.1 gives the compound growth rates of total assets

in 1960-69 and 1970-85 for a comparative picture between the pre and post nationalization asset growth. As the Table shows, asset growth rates have increased substantially over the years for all bank groups. In fact there is not much inter-bank variation in the rate of asset growth in the two periods. The Asset size has increased by almost one and a half times in the period after nationalization. But the absence of significant inter-bank variation points to the fact that nationalization may not be a major factor in explaining the asset size increase. In any case, 1970 is not a break point for all banks except the fourteen major banks. The extent of merger/amalgamation has been more substantial for larger banks. But the smaller banks also show an equivalent growth in size. What contributed more to the post 1970 asset increase, is large policy induced deposit mobilization. There has been large increase in all types of deposits after 1970 to comply with the objectives of nationalization (Table 2.3). All the bank groups show an almost similar pattern in deposit growth. There is huge deposit expansion after 1970 which finally slows down in the 80s. Though the magnitude of the fall is different for different bank groups, even the six small banks nationalized after 1980 witness high increase in deposits in the 70s and a fall in the 80s. One can conclude from this that it is not **nationalization** as a singular event for a particular bank, but the general atmosphere created in the Indian monetary system in the 70s following nationalization of the largest commercial banks in 1969, that led to the size expansion of the entire banking sector.

However, realized profit has not been able to keep pace



with the size increase. The profitability ratios calculated in Table 2.2 show a continuous declining trend for a period of over 25 years, with the average profitability ratios being higher in the pre 1970 period, though the fall in profit ratios is also sharper in that period (refer graphs on profitability). The absolute amount of profit made during this period (1960-69) had been subject to wide fluctuations,<sup>3</sup> resulting in sharper falls and due to a lower growth in size in this period, the average had been much better.

**Table 2.2**

AVERAGE PROFITABILITY RATIOS, 1960-85

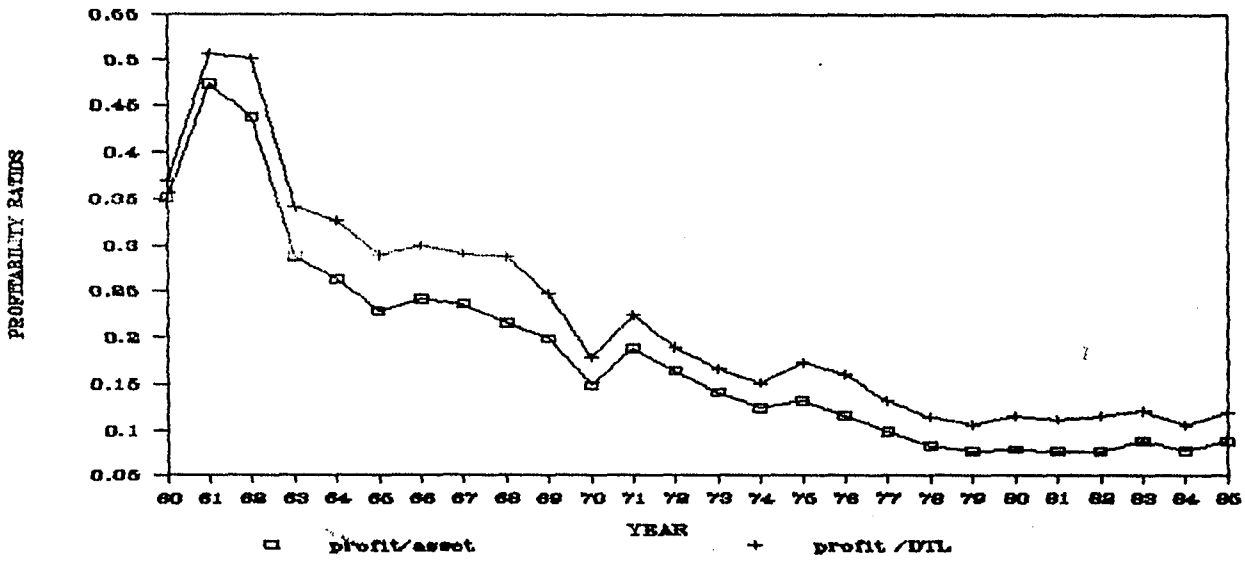
BANK GROUPS	1960-69		1970-79		1980-89		1970-85	
	1	2	1	2	1	2	1	2
GROUP 1	.29	.35	.13	.16	.08	.11	.11	.14
GROUP 2	.22	.29	.07	.07	.03	.02	.06	.05
GROUP 3	.34	.41	.12	.13	.08	.08	.10	.11
GROUP 4	.25	.34	.14	.16	.05	.07	.11	.13
GROUP 5	.30	.39	.12	.15	.08	.09	.10	.13
GROUP 6	.31	.38	.14	.17	.10	.11	.12	.15

Note: **Ratio 1** is the average over various sub-periods of the ratios of net profit (after taxation) to total asset.  
**Ratio 2** is the average of the ratios of net profit to total demand time liabilities (DTL).

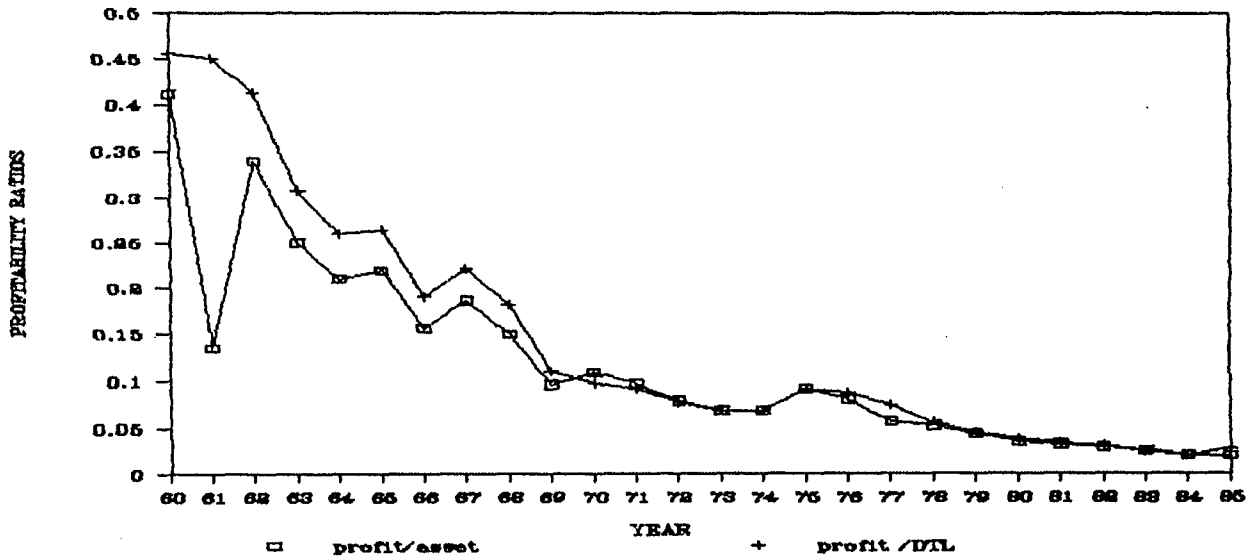
The post nationalization period observes more stability in the business of the commercial banks. This stability might have been achieved through various factors. Increased volume of compulsory investments in gilt-edged securities have provided a stable earning though at a lower level. While establishment of Deposits Insurance Corporation

<sup>3</sup>Detail figures are given in Appendix II, Table A.2

### PROFITABILITY RATIOS:GROUP 1

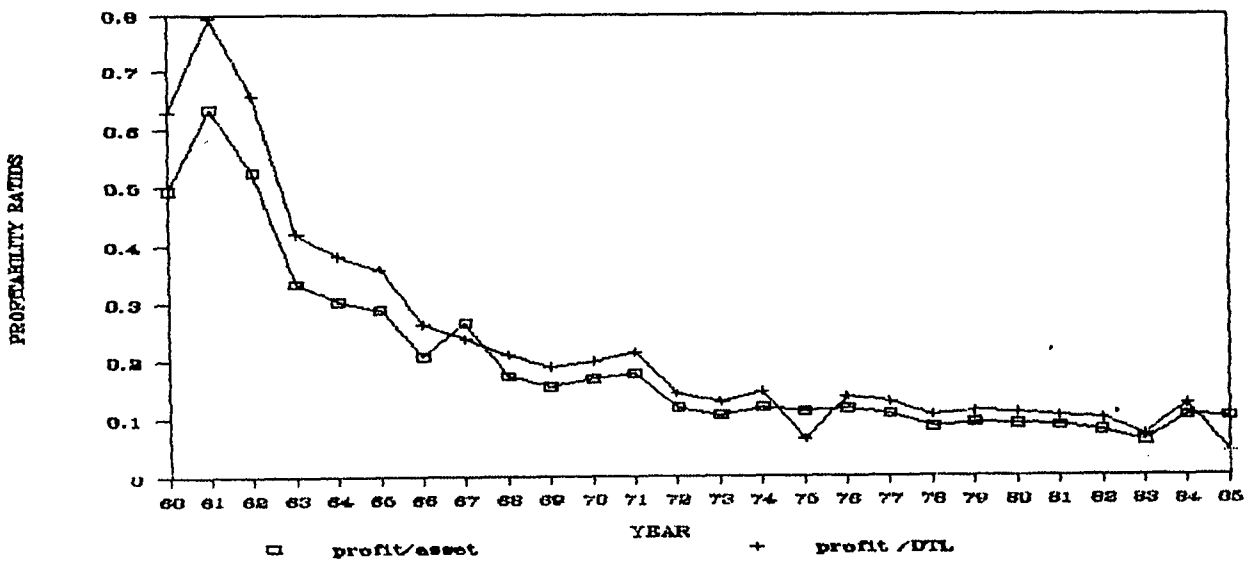


### PROFITABILITY RATIOS:GROUP 2

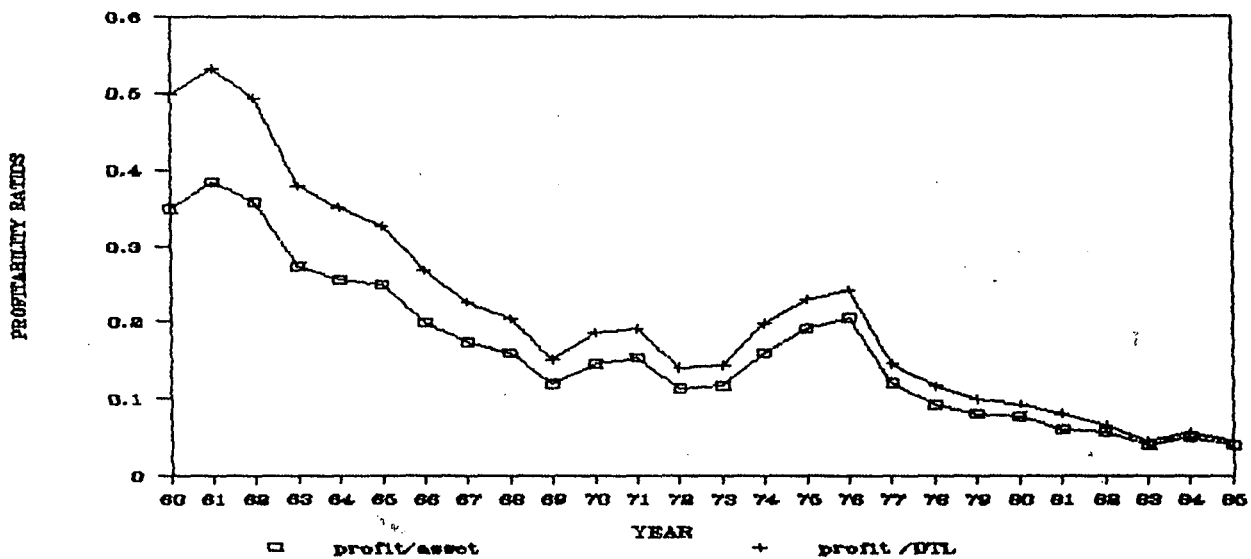


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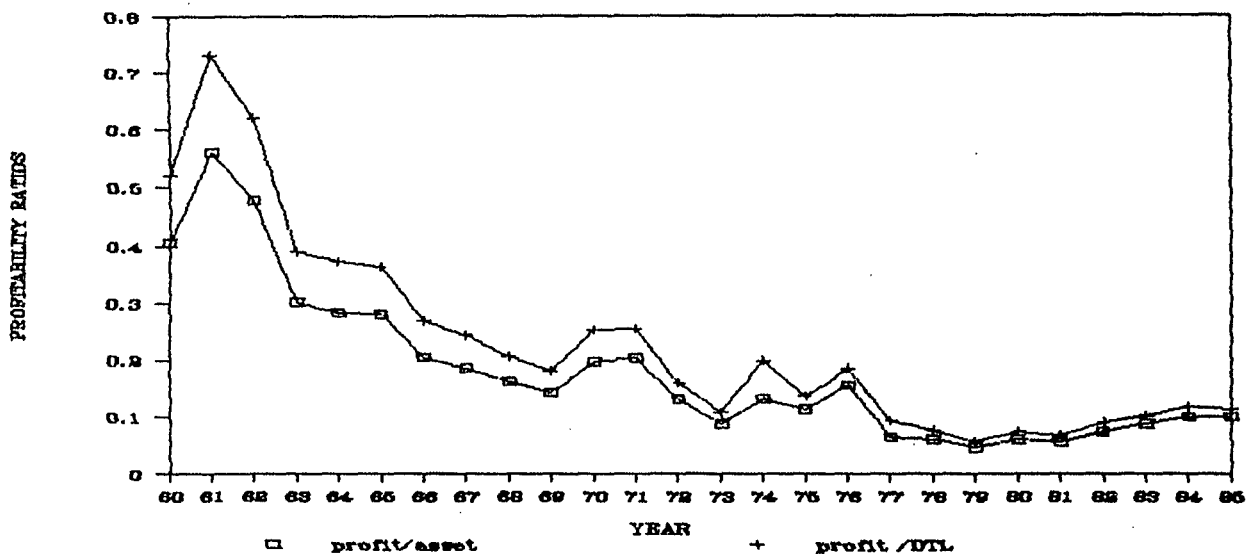
### PROFITABILITY RATIOS:GROUP 3



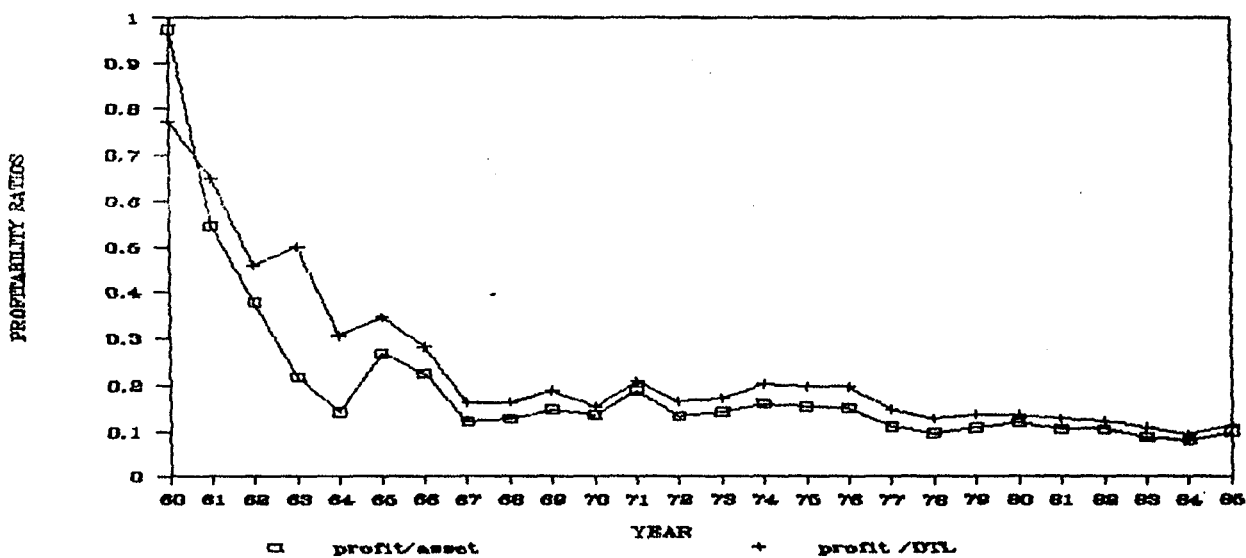
### PROFITABILITY RATIOS:GROUP 4



### PROFITABILITY RATIOS:GROUP 5



### PROFITABILITY RATIOS:GROUP 6



(later Deposits Insurance & Credit Guarantee Corporation) in mid sixties brought back public confidence in banking business. Nationalization of the major scheduled commercial banks virtually eliminated any scope for bank failure. Liberal refinance facilities made available to them by the RBI also reduced the uncertainties in the bank business to a great extent. As we observe, the average profitability ratios in the later sub periods are much lower for all the bank groups. The Associate Banks (group 2) show the poorest performance in both the ratios. But the other small-sized group (group 6) show a much better performance implying that size alone is not affecting profitability. One may remember here that Associate Banks are operating in the public sector since an earlier period and are thus bearing some responsibilities of financing development unlike the small banks in group 6.

The two ratios gradually come closer to each other indicating the growing prominence of DTL in total asset. While for group 2 the two ratios are almost identical for SBI, the single largest bank with highest asset size, profit to asset ratio maintains considerably higher profit to DTL ratio. This can be attributed to a high proportion of assets other than deposits ( eg. property & premises) in total assets of SBI.<sup>4</sup> The following graphs show the declining trend of the two profit ratios over 1960-85 for all bank groups.

As we see from the graphs, there has been a sharper fall in the beginning years slowly reaching a fairly lower level in

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<sup>4</sup>refer to Table 5.1, Chapter 5.

1969-70. There are several ups and downs in the early seventies with varied degree for different groups. Only group 2 shows a definite fall till mid seventy and a small improvement for a year or so after that, falling again to stagnate at a very low level after 1980. The major nationalized banks (groups 3, 4 & 5) show higher fluctuations in profitability, almost through entire seventies. While for all the bank groups the end of the period is marked with a low level stagnation, group 5 is the only bank group where the ratios tend to improve slightly at the end.

Thus an overview of the performances of the commercial banks in the profitability frontier presents a rather disappointing picture. The Indian commercial banks have always failed to show much sign of health. The situation rather deteriorated further when almost the entire banking system has been brought within the public sector. Banks are observed to be unable to maintain their level of earning over the years, though uncertainty in the banking business have been reduced through passage of time. In an underdeveloped financial system as in India, incorporation of the major commercial banks in the public sector certainly has a large role to play in the reduction of uncertainties. A larger spread of banking habit, branch expansion in un-banked areas, guarantee facilities etc. which have provided greater strength in bank operation could not have been that easily achieved under private control. But while the business size has expanded, the higher control operated through CB in the portfolio management has reduced the scope for profitable asset allocation. We shall see in the next section that much of this size increase has also failed to prove itself viable having further dampening effect on profitability.

### 2.3 Performance Indicators: Deposit Mobilization & Branch Expansion

The prime objective of bank nationalization was to achieve a high rate of deposit growth. Larger mobilization of deposits was expected to bring the maximum of domestic savings within the organized financial sector, and to build up an adequate resource base for individual banks, so that they can rely more on their own funds and become less dependent on Reserve Bank lending.

In this respect, the growth of deposits has been quite satisfactory, as seen in Table 2.3. But deposit growth could not maintain a steady upward trend. The rate of growth slowed down gradually after the initial breakthrough. This lowering of the rate of deposit growth is a dismal factor, specially in the circumstances when the domestic savings potentials are yet to be fully captured. Bank deposits hardly face any competitive financial assets outside the metropolitan nexus to which the household savings can flow in, as corporate investment is a risky affair and government securities offer lower return.<sup>5</sup>

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<sup>5</sup>The co-operative movements in India have failed to become really successful in institutionalizing rural credits, though in operation for a long time. Bank deposits have gained much popularity, even in comparison to postal savings, the former being considered safer. The public sector banks are entrusted with additional responsibility to mobilize rural savings by sponsoring the Regional Rural Banks, after RRB has been established.

Table 2.3

## ANNUAL COMPOUND RATE OF GROWTH OF DEPOSITS (%) BY TYPE

BANK-GROUPS	CURRENT	SAVINGS	TERM	TOTAL
GROUP 1				
1970-79	19.26	21.96	21.23	20.75
1980-85	18.77	19.29	17.31	18.16
1970-85	17.69	21.54	19.64	19.44
GROUP 2				
1970-85	19.39	19.6	17.63	18.55
1980-85	18.41	18.06	17.56	17.91
1970-85	19.36	20.35	18.42	19.15
GROUP 3				
1970-79	21.12	22.83	23.69	23.06
1980-85	8.83	28.69	14.61	19.25
1970-85	17.46	21.44	19.64	20.15
GROUP 4				
1970-79	16.88	18.74	21.67	19.96
1980-85	6.21	7.18	11.04	9.16
1970-85	15.71	15.39	17.67	16.69
GROUP 5				
1970-79	14.93	17.29	19.03	18.31
1980-85	12.43	15.43	17.86	16.25
1970-85	16.76	17.92	20.17	18.66
GROUP 6				
1970-79	28.22	29.87	27.44	28.14
1980-85	19.35	17.26	18.37	18.24
1970-85	22.92	25.6	23.61	23.96

Note: The  $R^2$  values have been over .95 in almost all cases, the 't' statistics have also been satisfactory.

In spite of this large deposit mobilization, the habit of free resorting to Central Bank borrowing has not been checked. Later, when we discuss the pattern of asset allocation we shall see that this deposits strength is not even enough to allow the banks to fulfill their required investment quota. Borrowing from various sources including RBI can hardly be stopped in such a situation. The percentage distribution of the types of deposits has almost maintained the same pattern over the years, with term deposits occupying the most important position. But the share of current accounts in total deposits falls except for the Associate Banks, and the proportion of savings bank account

(SB) rises as is clear from Table 2.4

**Table 2.4**

DISTRIBUTION OF DEPOSITS BY TYPE

BANK-GROUPS	CURRENT	SAVINGS	TERM	TOTAL
<b>GROUP 1.</b>				
1970-79	31.48	18.26	50.26	100
1980-85	26.78	22.25	50.97	100
1970-85	29.71	19.75	50.53	100
<b>GROUP 2.</b>				
1970-79	23.23	25.62	51.15	100
1980-85	23.17	28.45	48.38	100
1970-85	23.21	26.68	50.11	100
<b>GROUP 3.</b>				
1970-79	21.27	25.98	52.75	100
1980-85	18.26	30.57	51.17	100
1970-85	20.49	27.66	51.86	100
<b>GROUP 4.</b>				
1970-79	18.89	27.13	53.98	100
1980-85	18.65	24.50	56.85	100
1970-85	18.80	26.14	55.06	100
<b>GROUP 5</b>				
1970-79	20.01	30.58	49.41	100
1980-85	14.77	29.03	56.21	100
1970-85	18.04	30.00	51.96	100
<b>GROUP 6</b>				
1970-79	19.18	22.98	57.83	100
1980-85	16.91	26.51	56.58	100
1970-85	18.33	24.31	57.36	100

This popularity of the SB accounts might have arisen due to two factors. First, the easy withdrawability of SB accounts and facilities of cheque withdrawal making it popular as near money, and second, the increasing importance of rural and semi-urban small savings in bank deposits. The performance in branch expansion keeps up to expectations. In December 1985, the number of offices opened after nationalization constitute 84.82% of total number of offices, of which 52.75% offices are in rural and 13.58% offices are in semi-urban areas. But these offices lag much behind the old existing branches in both mobilization of deposits and disbursement of credits.



**Table 2.5 (a)**

POPULATION GROUP WISE DISTRIBUTION OF DEPOSITS AND CREDITS  
(As on december 1985)

Population Group	All Offices			Offices Opened After June, 1969		
	No. of Offices	Deposits	Credits	No. of Offices	Deposits	Credits
Rural	54.56	13.64	13.83	62.19	22.35	26.10
Semi Urban	19.94	21.15	16.78	16.02	19.21	17.9
Urban	15.06	25.82	21.88	13.03	23.93	18.2
Metropolitan	10.44	39.39	47.51	8.76	34.33	37.5
Total	100.00	100.00	100.00	100.00	100.00	100.00

**Table 2.5(b)**

PERCENTAGE SHARE OF DEPOSITS AND CREDITS OF NEW OFFICES  
(Opened After June 1969).

Population Group	No. of Offices	Deposits	Credits
Rural	52.75	11.65	12.55
Semi-urban	13.58	9.93	8.61
Urban	11.06	12.37	8.76
Metropolitan	7.43	17.74	18.02
Total	84.82	51.69	47.94

Source: Calculated from Banking Statistics: Basic Statistical Returns (Reserve Bank Of India), December, 1985.

If we combine the features of branch expansion and the changes in types of deposits as has been done in Table 2.6, we see that Savings Bank accounts are gaining popularity in all population groups, and in especially in rural areas where they compete neck and neck with term deposits. Current account deposits are losing their stronghold even in urban/metropolitan areas though here, these accounts still holds a better position

than in other population groups.

**Table 2.6**

**POPULATION GROUP WISE DISTRIBUTION OF DEPOSITS BY TYPE**  
(December 1975 - December 1985)

Population Gr.	Current	Savings	Term	Total
<b>Rural</b>				
1975-79	10.09	40.29	49.62	100
1980-85	7.38	41.42	51.20	100
1975-85	8.16	41.39	50.45	100
<b>Semi-urban</b>				
1975-79	12.91	31.72	55.37	100
1980-85	10.67	34.48	54.85	100
1975-85	11.78	33.10	55.12	100
<b>Urban/Metropolitan</b>				
1975-79	19.92	22.61	57.47	100
1980-85	18.78	25.39	55.83	100
1975-85	19.35	24.01	56.64	100

Source: Calculated from Banking Statistics : Basic Statistical Returns (Reserve Bank Of India), relevant years.

To sum up, a review of the performance of the public sector banks in 1970-85, brings out the following features:

- i) A substantial increase in asset-size of the banks through merger/amalgamation, deposit mobilization, branch expansion and greater degree of monetization of the economy.
- ii) Though deposit mobilization is quite satisfactory, it is unable to maintain a steady upward trend; while there remains scope to tap more household savings.<sup>6</sup>
- iii) The new branches established after nationalization constitute more than 80% of total bank offices which involves higher maintenance cost including establishment expenses and

<sup>6</sup>Recently there has been an attempt to attract household savings directly to the public sector by increasing coupon yield on government dated securities following the recommendations of the Chakravarty Committee. The fear that it will have a dampening effect on bank deposit was taken care of by the committee by advising a simultaneous alignment of all rates.

servicing of numerous small accounts. But the contribution of these offices to total deposits and credits are trailing much behind the old existing offices.

iv) While this is the picture on the liability side, the asset allocation structure does not provide much scope for balancing out the higher expenditure costs. Here the banks work under constraints imposed upon them through the Central Banks' monetary policies as discussed in Section 2.1.

v) The trends in the profitability of the banks show that in spite of the stability in banking business brought about by nationalization, the rate of profit is falling continuously for most of the banks, leaving little scope to be complacent about the health and viability of the banks.

Given these conditions, we shall try to work out in the following chapters the structure of bank portfolio allocation subject to the post nationalization policy constraints. Before going into the allocative problems of individual banks, we shall examine the specificity in the Indian monetary system that governs the basic trends of the major monetary variables affecting the working of the units, viz. the financial institutions.

## CHAPTER 3

### A Theoretical Background

Commercial banks intermediate the flow of funds from the actual savers (households) to the investors (public and private enterprises). Since the investors, in addition to mobilizing finance through the intermediaries, also borrow directly from the public, bank assets (deposits) stand in competition to other financial assets including cash in public asset portfolio. This interrelation among the asset components in the portfolio of the public acts as a determining factor behind the supply of financial resources for planned economic development and necessitates state intervention to control the portfolio behavior of the public sector financial institutions. This chapter discusses the nature of this relationship in the Indian context and in this light, analyses the behavior of the liquidity functions of the public and the banks, over the period under study. It finds that, given the particular nature of this relationship in India, which is both a cause and a result of the direction and magnitude of various monetary policy variables, the objectives of different monetary policies, operative on the public sector banks, represent conflicting forces.

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#### 3.1 Bank Portfolio Behavior: Some Basic Concepts

It is recollected from the previous chapter, the Indian public sector banks, by virtue of their direct participation in the process of financing economic development, work under several policy constraints imposed by the Central Bank (CB). These constraints operating on the banks are identified as  $c$  = Cash Reserve Ratio (CRR) which is a fixed proportion (in



percentage terms) of DTL.

$k$  = Statutory Liquidity Ratio (SLR) which is also a fixed percentage of DTL. Banks are required to keep the SLR in excess reserves, gold, government and other approved securities.

$a$  = The proportion of total advances of each bank disbursed in favour of the priority sectors.

A rational choice by the banks is to allocate their asset portfolio in a way so that they are able to maintain their expected earning<sup>7</sup> after adjusting for the changes in these policy variables, in an interest rate system which is mostly regulated by the CB.

How far the changes in the policy variables will affect banks' portfolio adjustment depends upon the degree of substitution among the assets in a bank portfolio. For example, an open market sale of government bonds can be made successful, only if the government bonds is a good substitute for other assets, so that there is a positive response to an increase in yield on them. Generally, a gross substitutability among the assets constituting banks' demand equation for assets is assumed in studying the portfolio behavior of the banks.<sup>7</sup> The degree of substitution, which determines the nature of risk aversion, is subject to empirical verification. The classification of the asset groups by type, or by maturity plays a crucial role in deciding substitutability and diversity of the asset portfolio.<sup>8</sup>

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<sup>7</sup>Porter (1967).

<sup>8</sup>Berth, Craft and West (1977), Silber (1970)

Public sector banks enjoy less freedom than their private sector counterparts as the Central Bank is more powerful in enforcing controls on the former. We can think of a situation as in India where  $k$  rises, so that banks' purchase of government bonds rises, without any increase in the rate of return on the bonds. This apparently irrational choice of securities can be enforced by the CB, given the particular nature of government security market in India. The captive nature of the market, the existence of few alternate attractive investment options in the private security market, and the intermingling of open market operations and public debt management by the CB, play a crucial role in suppressing the yield responsiveness of the banks. Hence, the elasticity of substitution loses its importance in determining portfolio choice of the banks.

In fact, one may argue that an administered interest rate system involves less risk than is usual in a traditional bank portfolio model. It reduces the uncertainty about future rates of interest, as changes in the CB's money & credit policy is less unpredictable. Prior to the establishment of Discount & Finance House of India (DFHI) in 1988, the secondary market in India was almost nonexistent except for the services of a few approved brokers in Bombay, Calcutta & Madras. Therefore, the risk of convertability of the assets in the secondary market has mostly been an insignificant question to the Indian commercial banks, given the underdeveloped financial set up.

Default risks are associated more with the micro aspect of

banking and are difficult to measure at the aggregate level.<sup>9</sup> That leaves uncertainties about changes in deposit growth to play the most important role in determining risk. Silverberg's empirical study on the aggregate bank experience in the U.S. economy (1961-71), suggests that if banks are allowed to adjust their deposits rate upward, they prefer to have larger growth of deposits though at higher costs. They are willing to bear the additional cost and adjust their loan and investment portfolio towards higher yielding assets and reduce their capital ratios to offset some of the impact of increased cost.<sup>10</sup> This result points out the trade-off between higher cost of **deposit growth** as opposed to risks of **deposit low**. The former is probably preferred by the banks as it creates the environment for asset allocation in a more remunerative way. The composition of deposits has an impact on bank portfolio choice as the time dimension of the investible funds depends on it. The speed of adjustment of the portfolio, following deposit growth, is faster for time deposits than demand deposits as the former has a larger influence on the excess reserve ratio.<sup>11</sup>

These basic facts about the general behavior of a bank's portfolio help us in understanding the particular nature of the portfolio behavior of the Indian public sector banks in the relevant period, and in constructing a theoretical foundation for our analysis, attempted in the next section.

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<sup>9</sup>Porter, Richard C (1967) and Silber, William L. (1970)

<sup>10</sup>Silverberg (1973).

<sup>11</sup>Pierce (1967)

### 3.2 The Macro Structure of Indian Financial System Conditioning the Portfolio Management of the Commercial Banks

As we know, deposits from the public is the major strength of the banks to carry out independent banking operation, without excessive reliance on the CB.<sup>12</sup> Expansion of the size of banking operation, thus to a large extent, depends on the nature of household savings. In general, the behavior of the household savings in India, shows a complementary relationship between physical and financial assets.<sup>13</sup> This limits the flow of household investments in financial assets. In addition, low degree of monetization of the economy, prevalence of the system of kind payments, tendencies to hoard, popularity of cash as the means of transaction among the predominantly low income savers in India, limits the growth of bank deposits as well as the scope for direct public borrowing. This makes deficit financing the easiest way to finance additional government expenditure, given the particular character of the relationship between the CB and the government in India, coupled with low tax base, and the difficult terms associated with borrowing from abroad. Since the CB performs the dual role as the manager of public debts and controller of open market operations, its task as the financier of the state becomes easier when the financial institutions are the main purchasers of government bonds, by virtue of their SLR requirements. This results in the tendency of raising the SLR requirements of the financial institutions. As increasing reserve requirements cut down the volume of funds available, regular deposit growth becomes necessary to support the policy

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<sup>12</sup>See Khusro & Sidharthan (1972).

<sup>13</sup>See McKinnon (1973)



of credit expansion to the desired sectors.<sup>14</sup> The prospect of additional deposit growth largely depends on the degree of substitution between bank deposits and other assets in public's asset portfolio. Let us understand the nature of this substitution in the Indian context.

We use a Tobin-Brainard general equilibrium framework for a financial system in which we have the CB, the public, and the commercial banks.<sup>15</sup> The CB as the banker of the government, is the sole supplier of currency. The demand for currency comes from the public (direct demand) and the banks (indirect demand through cash reserve requirements). Currency, government bonds and bank deposits are the three competing assets in the public asset portfolio. Banks' asset portfolio consists of cash reserves, government bonds and loans to public. The inter-linkage among the currency, capital and loan market determines the equilibrium rates of return in all the three markets, if market forces are allowed to operate freely. Regulation of the interest rate in any of these markets breaks the chain. Given these conditions, we proceed to understand the nature of substitution between the currency (C) and deposits (D) for the entire system (public + banks). Currency and deposits are

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<sup>14</sup> Initially bank credits can be made available to the so far neglected sectors by shift of credits from the large borrowers to the small borrowers. But this limits the flow of credit to the desired sectors after a point, given the acute fund shortage in these sectors and the demand for institutional credits. Besides, a complete outflow of credits from the large industries and trades is neither possible nor desirable. Additionally, that also affects the health and viability of the banking sectors as priority loans yield less returns. Thus deposit growth in proportion to credit expansion becomes an absolute necessity and the need arises to explore the possibilities of, and identify the difficulties of additional deposit mobilization.

<sup>15</sup> Tobin & Brainard (1967).

substitutes to each other in both public and bank portfolio, taken separately. But when we consider the financial system as a whole, C & D may turn out to be complementary to each other. The exact mechanism can be examined as follows:

For an increase in the rate of return on deposits (d), if the indirect demand for cash from the banks following the deposits growth outweighs the fall in direct demand from the public, C & D may have a complementary relation to each other. That is, for an increase in d, both  $\Delta C$  &  $\Delta D$  for the economy as a whole must be positive for C and D to be complementary to each other.

$$\text{ie } \Delta C > 0, \Delta D > 0$$

Let  $C = C_b + C_p$  be the initial level of currency holding for the whole system.

$C_b$  = Currency holding by the banks (indirect demand)

$C_p$  = Currency holding by the public (direct demand)

Case I:  $C_p$  remains at the same level for a rise in d.

For  $\Delta C > 0$ ,

$$C_b + c \Delta D + C_p > C_p + C_b.$$

If  $C_p$  remains at the same level.

$c$  = Cash Reserve Ratio.

$0 < c < 1$ .  $c \Delta D \Rightarrow$  increase in indirect demand for cash. So, the inequality holds.

Now let  $C_p$  fall by the full amount of rise in deposits  $\Delta D$ , ie currency and deposits are perfect substitutes in public asset portfolio.

Case II:  $C_p$  falls by full amount of rise in deposits  $\Delta D$ .

Therefore, for  $\Delta C > 0$ ,

$$(C_B + c\Delta D) + (C_P - \Delta D) > C$$

$$\text{or } (c-1)\Delta D > 1.$$

but,  $0 < c < 1$ , so the inequality holds if  $\Delta D < 0$ . which is absurd as it implies fall in D with rise in d. So  $C_P$  cannot fall by full amount  $\Delta D$  but may be by a positive fraction, say  $g$  of  $\Delta D$ .

Case III:  $C_P$  falls with rise in d by  $g$  fraction of  $\Delta D$ .

So, for  $\Delta C > 0$ .

$$(C_B + c\Delta D) + (C_P - g\Delta D) > C$$

$$\text{or } (c-g)\Delta D > 1$$

As long as  $c > g$ , the inequality holds. Otherwise, the fall in direct demand offsets the rise in indirect demand and so currency and deposits are substitute to each other.

Hence we comment, if public demand for cash does not fall, or falls less than the rise in deposits following an increase in deposits rate, C & D tend to have an increasingly lower degree of substitution for the economy as a whole. Let us pose this behavior in the indian context to comprehend its implication. Here, cash is the most popular way of holding liquidity by the public which results in a high direct demand for cash. As the economy expands, increasing degree of monetization invites additional demand for cash from the public. Both bank deposits and government bonds stand as a weak substitutes for cash in the public's asset portfolio. The currency/deposit ratio declines with spread of bank habit. But for credit money to take over completely from cash money, there is still a long way to go.

That apart, there is a high indirect demand

for cash from the banks, mainly from two sources. First, demand for cash to carry out usual banking business (the transaction balance), which is directly proportional to expansion in bank business. The implication of this demand pull on banks' asset allocation in the relevant period is discussed in Chapter 5. The high reserve requirements under CB's direction form a second source of demand for cash for the banks, whose effect on the optimality of bank portfolio is discussed in the next chapter. Right now, we simply observe the fact that, while the demand for cash of the public remains the same (or even increases) as the economy expands, owing to the low substitutability of cash by other assets in public portfolio, the demand for cash of the banks increases over time, given the conditions of working of the monetary system in India. So, for the entire economy, currency tends to have an increasingly lower degree of substitution with other assets, including bank deposits.

As we have mentioned earlier, the major plank of resource mobilization in recent years has been high government borrowings from the CB, mostly against treasury bills. This has been followed by revision of the levels of reserve requirements of the financial institutions (banks and insurance companies) in cash and approved securities to check the expansionary effect of government borrowing and to ensure purchase of government bonds by the financial institutions in a captive market. As the CB lends money to the government, supply of currency rises through government expenditure. In a free market system, it is the capital market rate that brings about the equality between the excess supply of currency and the liquidity preference. But in

the administered interest rate regime, the rate of return on government bonds may not respond to this increase in currency supply; neither can it influence public demand for cash much, as bonds occupy an insignificant position in public asset portfolio in a captive bond market with a low rate of return on capital. So, the step taken by the monetary authority to counteract the expansionary effects of this increase in cash supply is to increase the reserve requirements of the banks. But as C & D have low degree of substitution in public asset portfolio, the CB can enforce control only over that part of excess supply of cash that comes back as bank deposits. If  $d$  is allowed to adjust upward, the higher deposit growth that will follow might capture more of the excess supply but the leakage ( $\Delta D - \Delta C$ ) still remains. Further, if bond rate does not rise, the shift of purchasing power from public to government can take place via bank deposits only, to satisfy government's increasing demand for cash. Even if the reserve requirement is very high (say, the complementary case), increase in reserve requirements cannot balance the expansionary impact of government borrowings unless any increase in currency supply immediately results in increase in holding of bonds and deposits. Upward revision of the loan rate to squeeze the credit expansion can act as a check to the multiplier effect of increased government borrowings as total bank advances is likely to increase by  $\Delta D - (c + k)\Delta D$  amount. But that goes against the principle of development finance, which requires increase in total bank credits in general, and credit expansion at a lower rate for some desired sectors. In fact the average loan rate falls as the proportion of priority loans increases over time. That increases the demand for bank loans

and hence creates a paradoxical situation where one policy tool of the monetary authority needs to squeeze bank credit as an anti-inflationary measure, while the other encourages it to smooth out the resource crunch of economically crucial sectors.<sup>16</sup>

Here we can mention that **debt financing**, rather than deficit financing has been speculated to be an alternative to the money-multiplier process by attracting direct public investments in government bonds through revision in the rate of return on them, accompanied by an interest rate structure where all rates (including bank deposits & loans) reflect the real market forces and are in alignment with each other.<sup>17</sup> But it raises question not only regarding the distributive justice of public debt, but

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<sup>16</sup>Chitre (1978) in his study of the portfolio behaviour of the Indian scheduled commercial banks few years after nationalization, observes that banks' excess reserve ratio has reached the irreducible minimum level of transaction balance, and their excess holding of govt. securities have disappeared. In this situation he predicts that in years to follow, there is possibility of somewhat lenient application of the liquidity requirements to permit increased advances to priority sectors, following social control. Otherwise, any further increase in bank credit would depend on the growth of deposits & the refinance available from RBI and IDBI. He suggests an alternate possibility of shifting of portfolio from other securities to loans and advances, to facilitate credit expansion in this situation.

This again points out the conflict between the policy of high reserve requirements and credit expansion to the priority sectors. We see that in years to follow, this conflict remains unresolved or even aggravates. Much importance then lies on the refinance facilities. But if the deposit growth reaches its upward limit before the excess demand/need of the priority loans is exhausted, the situation becomes more critical as refinance induced portfolio expansion can not be a long term solution.

<sup>17</sup>Report of the Committee to Review the Working of the Monetary System (1985).

also about the non-inflationary character of debt financing.<sup>18</sup>

The above discussion makes it clear that there is no sound economic logic behind the constraints operating on commercial banks' portfolio management in India. How much the rising trends in *c* & *k* can check the expansionary effects of uncontrolled government expenditure is not beyond doubt. In no way it is possible to assert, that the foregone profitability of the banks is balanced by the growth effect of higher statutory investments in government and quasi government securities. The utilization of financial resources in the public sector or the question of efficiency in the use of funds is beyond the scope of this study. It is true that with rise in *a*, the proportion of priority loans, more funds is available to sectors like agriculture, small industries and trades etc. But mere disbursement of more credits to these sectors cannot rule out class bias in the flow of institutional credits. especially given the rigid security norms associated with bank credits. Thus whether the priority loans really benefit the target groups is a questionable issue. Also in no way it is possible to guarantee that the loans sanctioned, are utilized for the purpose they are given. On the other hand, expected earning of the banking units are adversely affected with continual upward revision of *c*, *k* & *a*, as the proportion of low yielding assets in the bank portfolio increases and continuous reduction of the volume of investible funds limits the scope for alternative compensatory investments.

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<sup>18</sup>Patnaik (1986), Patil (1986), Sanyal (1986), Seshan (1987)

Lastly, the higher demand for cash (direct + indirect) which surfaces through increasing monetization of the economy, rising reserve requirements of the financial institutions, and downward rigidity of the demand for cash by the public as store of liquidity, builds an important leakage in the system. As we have already discussed, this leakage either dampens the effectiveness of contractionary monetary policy through increasing cash reserve requirement of the commercial banks or contradicts the policy of expanding bank credits to serve the need of economic development. That apart, for the banks, the situation thus created forces them to accept a sub optimal allocation of the asset portfolio, at a lower level of income. Given these macroeconomic issues affecting the portfolio choice of the Indian public sector commercial banks under the monetary policy rule of the Central Bank, the question of optimality of the bank portfolio subject to the policy constraints  $c$ ,  $k$  and  $a$  in a micro model for individual bank has been discussed in the next chapter.



## CHAPTER 4

### The Conditions for Optimum Portfolio Choice

Portfolio choice theory in its simplest form involves the rationale of maximization of expected earning for a given level of risk, or minimization of risk for a given expected earning. A public sector bank cannot be guided only by this simple rule in its optimum portfolio choice. As an integral part of development planning, a public sector commercial bank is required to take into account factors like mobilization of deposits, expansion of credits for priority sectors, minimization of regional imbalance in sanction of credits, and several others. Since price stability is perhaps the most important monetary policy objective in India in recent years, large responsibilities lie on the public sector banks to ensure non-inflationary financing of economic development. Imposition of high reserve requirements on the banks and other financial institutions are reflective of this fact. The target for these broader social objectives which a public sector bank is expected to fulfill, are mostly set for them by the Central bank. The problem of optimal portfolio selection of a bank then reduces to a simple risk-return choice, where the set targets for the social objectives are fully satisfied. In other words, the objective function of a bank's portfolio allocation, needs to incorporate two main aspects, viz. attainment of maximum feasible return (or minimum risk), and fulfillment of the policy regulations of the Central Bank. The aim of this chapter is to develop a framework to analyze the optimum portfolio behavior of the Indian public sector banks, involving both these aspects mentioned above.

#### 4.1 Defining the Conditions of Risk and Return for a Bank Portfolio

Commercial Banks, as financial intermediaries, borrow from public, institutions, the Central Bank or other commercial banks. These constitute the liabilities of the banks.<sup>19</sup> The banks attempt to maximize returns from investment of the liabilities less reserves in various income earning assets under conditions of risk.

The major risk factors arise due to the uncertainties about deposit growth. The reserve assets, as a fraction of the deposits liability is maintained to satisfy any predicted or unpredicted **withdrawal** by the public. The reserve assets gives maximum liquidity to safeguard against **deposit low**, but earns no return. The income earning assets are Investments in Securities and Loans and Advances. So Liquid Assets (Reserve Assets), with maximum liquidity, ie. least risk but no return, followed by Investments and Advances respectively, in order of decreasing liquidity and increasing risk and return, constitute the major components of a bank's asset portfolio. The risks other than deposit low come from uncertainties about future interest rates, changes in the price level, fear of capital loss and default of payment of bank loans by the borrowers. These risk factors are identified by Tobin to which Silber adds another element of risk; the marketability of the assets in the secondary market.

In a financial system, where the role of the Central Bank (CB) is just confined to issuing of the legal tender

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<sup>19</sup>The inter-bank liabilities cancel out for the banking community as a whole.

currency, the rates of return on various components of asset portfolio are determined by market forces of demand and supply. Thus the rate at which bank accepts deposits is determined by demand for and supply of deposits. This cost of borrowings (deposit cost) plus operational expenses constitute bank's expenditure. The allocation of investible funds, ie. liabilities less reserves, between Investments and Advances is determined on the basis of the relative rates of return on them, net of liquidity cost. The market forces of demand and supply in the **Capital** and the **Loan** market determine the respective rates. Inter-linkage between the two markets acts as a feedback in deciding relative as well as individual rates. The difference between the rate at which a bank lends and invests its funds, and the rate at which it borrows (plus the establishment cost) is the profit of the bank.

But, in reality, the CB does not confine its duty to issue of currency only. The instruments of monetary policy in the hands of the CB act as constraints on commercial bank's portfolio decision. Regulations from the Central Bank, rather than market forces may determine the deposit and lending rates of the bank. The Central Bank is the lender of the last resort to the commercial banks. The rate at which the banks borrow from the CB is under CB's discretion and serves as an important monetary policy tool. Another way the Central Bank can influence portfolio decisions of the commercial banks is by regulating the volume of reserve asset holdings. The CB imposes regulations on reserve requirements in cash and approved securities for money and credit control. The success of the

monetary authority in operating these constraints on the banks, and the consequent adjustment of bank portfolio influences the major macroeconomic variables in the system. Reaction of the banks to changes in any or all of these policy constraints in managing their asset portfolio, thus becomes an important factor for the efficiency of resource mobilization. This necessitates examination of the bank portfolio adjustment mechanism subject to the policy constraints at the bank level. Though the study of the actual decision making process of the banks, in relation to the macro monetary policies operative on them, needs to take into account the branch level adjustment procedures as well. Implementation of policies such as expansion of small lending etc. depends more on the decision making by each small branch in every remote areas. In addition to the inter bank variations, the intra bank differentials in interaction to the policy variables deserve equal attention. However, given the limited scope of this study, we confine our focus to the relations at the bank level, the aggregative decision making of each bank being a cumulation of the micro level choices.

In the following section, a model of the portfolio behavior of the Indian public sector banks is developed, taking into account all the specific regulations under which they have been operating during the period under study. Before that, the various components of bank portfolio and its determining factors can be briefly explained. The liability of the banks consists of capital, deposits from the Public and the borrowings from other banks, the Reserve Bank, IDBI and other institutions. Deposits

form the main part of the total liabilities (Table 4.1 below).<sup>20</sup> This, plus borrowings (excluding borrowing from the RBI, IDBI etc.) constitute the total demand and time liabilities of the banks (DTL).

**Table 4.1**  
SHARE OF DEPOSITS IN TOTAL LIABILITIES

BANK GROUPS	1960-69	1970-79	1980-85
GROUP 1	82.84	74.66	62.55
GROUP 2	77.56	74.45	76.47
GROUP 3	78.1	87.43	84.06
GROUP 4	71.59	77.26	80.09
GROUP 5	76.28	75.99	79.13
GROUP 6	71.84	75.79	79.54

Banks are required to keep a fraction of the DTL as cash reserve ratio (CRR) with the Reserve Bank. Interest is paid on the total holding of CRR minus the 3% statutory cash reserves. The rest of the cash reserves at hand and with the banks is the excess reserves of the banks. The banks need this excess reserve mainly to carry out the day to day transactions. In addition to CRR, they keep a part of DTL as statutory liquidity ratio (SLR) which can be kept in excess reserves, gold and investments in government and other approved securities. Advances are made by the banks in the form of call

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<sup>20</sup>We may note that in Table 4.1, the share of deposits in total assets is decreasing by a good amount over time for the State Bank of India. While for the other bank groups it is either increasing or remaining more or less the same. This, no doubt has been reflected in the higher differences between the two profitability ratios for SBI as mentioned in Chapter 1 (the profitability graphs).

2money, bills and loans. After nationalization, a large part of the loans are disbursed to satisfy the credit needs of the priority sectors. In India, all the rates of interests are mostly regulated by the Central Bank. Thus the deposits rates, bank rate, lending rates in the call money, bills and loans markets, the yields and prices of securities have a somewhat rigid structure and are not allowed to adjust spontaneously.

#### 4.2 Risk-Return Frontier: a Rational Choice

An optimum portfolio allocation by the public sector banks can be viewed as a simultaneous determination of the various components of bank assets portfolio under changing conditions of risk (cost), return and C B's monetary policy.

A balance sheet identity of the bank portfolio requires:

$$D = R + I + A \dots\dots\dots (1)$$

D = Total DTL, R = Total Reserves

I = Investments in Securities, A = Advances

The allocation of the portfolio among R, I and A follows the mechanism described below. Volume of the reserve holdings R is determined at any point of time by the past knowledge on deposit growth, the proportion of time deposits in DTL, and the level of cash reserve requirements announced by the Central Bank. Total reserve holdings R thus determined, the distribution of the rest of the portfolio between I & A is decided by their relative rates of return net of liquidity cost.

As we have mentioned earlier, the CRR is kept by the bank with the Reserve Bank as a fixed percentage of DTL. With  $c$  as the level of CRR, as dictated by the Reserve

Bank, the total holdings of CRR by a bank at any point of time is thus  $cD$ . Conceptually  $cD \leq R$  .....(2). Therefore, we define  $R - cD = E_r$  .....(3) as the excess reserves of the bank and write  $R - E_r = R_r (cD)$ .....(4) as the required reserve holdings. We can then think of the total reserve holdings of the bank consisting of two parts, viz. the required part and the free part. Thus, we can write

$$R = R_r + E_r \text{ .....(5)}$$

$R_r$  = Required Reserves,  $E_r$  = Excess Reserves or Free Reserves.

The investment portfolio as in the balance sheet consists of the investments in government securities, other approved securities, and other securities. Now as we know, a bank is required to keep SLR in addition to CRR and the assets, eligible for SLR holdings are excess reserves, gold, and investments in government and other approved securities. We call the investments in government and other approved securities  $I_g$  and the investments in other securities  $I_o$ . Therefore, from the balance sheet identity, we have  $I = I_g + I_o$ .....(6)

The level of SLR being  $k$ , a fixed percentage of  $D$ , the SLR holdings of a bank can be written as  $kD$ . Now, conceptually,

$$kD \leq I_g + E_r \text{ .....(7)}$$

We define  $(I_g + E_r) - kD + I_o = I_f$ .....(8)

$I_g - [(I_g + E_r) - kD]$  is the excess holdings of government securities over the stipulated amount, ie the statutory investments (SIR). This, plus  $I_o$  can be called the total free investment ( $I_f$ ) of the bank. Therefore, we can write

$$I = I_r + I_f \text{ .....(10), where } I_g \geq I_r$$

Similarly we can also think of the advances consisting of two parts, a required component and a free component. Let  $a$  be the

fraction of the loans going to the priority sectors. We write,

$$A_p = aA \dots\dots\dots(11)$$

Therefore,  $A_n = A - aA = (1-a)A \dots\dots(12)$

$$A = A_p + A_n \dots\dots\dots(13)$$

where,  $A_p$  = Priority Advances,  $A_n$  = Non-Priority Advances.

Thus, the policy requirements are imposed in the balance sheet identity of the asset/liability to have the main items of the asset portfolio decomposed into a free and a required part, represented by equations (5), (10) and (13).<sup>21</sup>

thus equipped, we proceed to understand the nature of the interaction between the portfolio behavior of the bank and the monetary policy variables. We assume that the bank is always able to fulfill the cash reserve requirement<sup>22</sup>, ie.  $cD = R_r$

But the SLR requirements can be greater than, equal to, or less than bank's actual holdings of excess reserves and government securities ( without considering the holdings of golds).

Therefore,  $kD \gtrless E_r + I_g$ , depending upon whether the bank is able to fulfill the SLR requirements or not. This will determine the relation between  $I_g$  and  $I_r$ , ie.  $I_r \gtrless I_g$ .

Whether the bank fulfill the SLR requirements or not is then given by the sign of the inequation  $(E_r + I_g) - kD \gtrless 0$

or by  $I_r \gtrless 0$ , either ignoring  $I_o$  which is only a small part

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<sup>21</sup>The balance sheet data on bank assets of all the 28 banks for the years 1970-85 have been decomposed following this method in Table 5.2 to have an empirical verification of our conceptualization of the interaction between the portfolio behaviour of the banks and the monetary policy variables.

<sup>22</sup>ie. the banks always have positive excess reserve holdings. This is a realistic assumption about the portfolio behaviour of Indian commercial banks in the period under study, refer Chapter 5.



of the total investment portfolio (see Table 5.3), or adding  $I_0$  to the SLR shortfall (or excess holdings of  $I_g$  in cases of surplus investments in  $I_g$ ) to obtain the total free investments. Thus the fund available for free allocation of the portfolio, after making provisions for all the reserve requirements is;

$$D-R-I_r = D - R_r - (E_r + I_r)$$

$$= D - cD - kD = (1-c-k)D \dots \dots \dots (9)$$

Since the bank is required to pay penalty on failure to hold stipulated SLR. The case of  $I_f < 0$  involves additional costs in allocation of assets. There are mainly two cost components involved in optimum portfolio decision for failure of SLR : the cost of penalty payment for each unit of shortfalls, and the cost of borrowing to hold each additional unit of **borrowed funds** to show the required asset holdings.

A few words need to be said here about the actual mechanism by which a bank tries to show its required reserve holdings in cash and approved securities. Bank's actual holdings of the reserve asset is a function of the expected demand for cash - the expectation based on a historically known probability distribution of cash withdrawal and deposit growth. In India, a peculiar situation arises because the excess reserve holdings (in addition to the required cash holdings with the Central Bank) is an approved asset for statutory reserve holdings. So, we basically have three forces of demand operating on the cash holdings of the bank; the actual amount of cash needed for regular transaction, the required cash reserves to be maintained with the Reserve Bank, and in addition, the demand to hold more of borrowed reserves if  $kD$  is sufficiently high so that there are

likely chances of SLR shortfalls, assuming that the total reserve holdings of the bank is sufficient to meet at least the cash reserves requirements or,  $cD < R$ . The accounting identity  $D \equiv R+I+A$  is ensured, in case of any imbalance between the two sides, through the borrowed reserves which acts as the balancing item. Thus if the extent of reserves components is sufficiently high so that in case of a rise in the levels of  $c$  and  $k$ , the own financial strength of the bank, given by the size of  $D$ , and given the volumes of holdings of  $R$ ,  $I$  and  $A$  at any point of time, is not enough, the quickest resort is provided by the borrowed reserves, in an attempt to fulfill the reserve requirements. The borrowed funds is mostly provided to the deficit bank by the Reserve Bank, as the lender of the last resorts, and other banks and non-bank financial institutions with surplus funds. Now, as the failure of SLR involves payment of penalties, rational choice by the deficient bank is to borrow quick, purchase short term approved assets (available on tap) and have them rediscounted at earliest opportunity, having earned some quick return on them. The trade-off is thus between the penalty to be paid relative to the income that can be earned minus the cost of borrowing. So for a mismatch between the required holdings of reserves and the actual holdings of cash and approved securities, ie. for  $cD + kD > R_r + E_r + I_r$ , a last minute adjustment brings the equality between the two through borrowed funds. In fact this gives the logical explanation for imposition of SIR in a captive government security market, as this ensures the purchase of  $I_g$  by the financial institutions.

As we know, the optimal portfolio selection of a

bank involves the distribution of the total liabilities (D) less reserves (R), between I and A in a way so that the return from each unit of investment of the funds net of liquidity costs is maximized. We have already discussed the factors that determine bank's holding of R at any point of time. Risk diversification of the portfolio leads to holdings of varied assets with differential risks. The rate of return on I is lower, but the liquidity is higher in comparison to A. Let the relative rate of return between I & A be  $l^*/i^*$ , where  $l^*$  is the average rate of return on A and  $i^*$  is the average rate of return on I (net of liquidity cost). As  $l^*/i^*$  increases, allocation is made in favour of A and against I.

The optimality conditions for the bank portfolio can then be written as :

$$\text{Condition I : } i^*[(1-c-k)D - (R_r + E_r + I_r)]/x \geq 1$$

where  $x$  is the cost involved with holdings of each additional unit of required reserve shortfalls (penalty cost) or/and fulfillment the of required reserves through borrowed funds.<sup>23</sup>

In other words,  $x$  is the cost of holding each unit of free investments. A bank holds free investments instead of meeting the reserve requirements only if the return from each unit of free investment is greater than the cost.<sup>24</sup> The implicit

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<sup>23</sup>A bank can meet a part of the reserves requirements by borrowings and can still have shortfalls.

<sup>24</sup>This does not necessarily mean that the return from the non approved securities (not eligible for reserves requirements) is high enough for the bank to consider the trade off between foregoing this return or paying penalty for the shortfalls. In the case of Indian banks, the holdings of the non approved securities is negligible. The volume of free investment, which consists more of government securities, depends not so much on the relative rate of return but on the level of SIR, free

assumption here is that R does not earn any return as we take only  $i^*$  as the rate of return where both R and I ( $I_g$ , but  $I_o$  is only a small part of I) are eligible for reserve holdings. This is not true as the Reserve Bank has introduced payment of interest on total volume of CRR over the 3% statutory cash holdings. We can include the earnings on the cash holdings without much modifications.

Condition II :  $l^*A / i^*I \geq 1$  , this gives the condition for distribution of  $(D - R)$  between I and A. Thus the optimality of the asset portfolio of a bank takes into consideration the following main factors:

- i) The demand for cash, taking into consideration all the three forces of demand mentioned above, which determine the holdings of the reserve assets R.
- ii) The distribution of  $(D - R)$  between I and A depending on the relative rate of return between I and A, net of the liquidity costs (risk).
- iii) The decision to fulfill either the reserves requirements or pay the penalty.
- iv) The growth of D and the available liquidity of D, given by the composition of D (the proportion of demand liabilities and time liabilities in D).
- v) The opportunity cost of allocating each additional unit of assets, measured here by the cost of borrowing  $x$ .

The portfolio selection of the bank requires to take into account all these factors simultaneously. The distribution of the asset portfolio between I and A determines the holdings of I and thus

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investments being a mere residual term, a conceptual entity. What plays a significant role here is the associated risk factor. We shall take up the question of risk later.

the volume of funds available for SIR given R, and thus determines the level of shortfalls if holding of I is not enough or/and k is too high. Again the levels of c and k, and the extent of SLR shortfalls determines the demand for R and the redistribution of funds between I and A. Another factor determining the distribution between I and A is the level of a, as it affects the value of  $l^*$  and thus the value of the relative rate  $l^*/i^*$ . Changes in the levels of any of the exogenous variables, D, x,  $l^*/i^*$ , c, k, and a, together or separately, thus disturbs the optimal asset allocation and initiates the reallocation of the asset portfolio in order to satisfy conditions I and II, at the new values of the determining exogenous variables. In the following diagram, the effects of changes of these variables on the optimum allocation of the asset portfolio is examined. Figure (1) gives the distribution of the total DTL of a bank among R, I and A at different levels of risks. In Figure (2), the portfolio choice of a bank at various combinations of risks and returns are given, using a utility maximization approach following Tobin.<sup>25</sup> Some necessary assumptions about the bank portfolio behavior, applicable to all banks, are required here: i) Banks are risk-aversers and diversifiers. They have a preference between expected earning from their asset portfolio and risks that can be depicted by positively sloping indifference curves. The degree of the risk aversion is given by the slope of the curves. The preference schedules are convex to the origin owing to diversification of asset allocation. ii) The banks' management is rational in the

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<sup>25</sup>Refer Tobin (1956) : 'Liquidity Preference as a Behaviour Towards Risk.' (reprinted in Cowles Foundations Monograph Series No. 19).

sense that they try to increase or retain the level of earning by adjusting their asset portfolio. iii) Banks work in a given set of opportunity loci of combinations of risks and returns available to them. iv) Opportunity loci and preference schedules for the entire portfolio, consisting of multiple assets, can be defined<sup>26</sup>.

Figure 1.

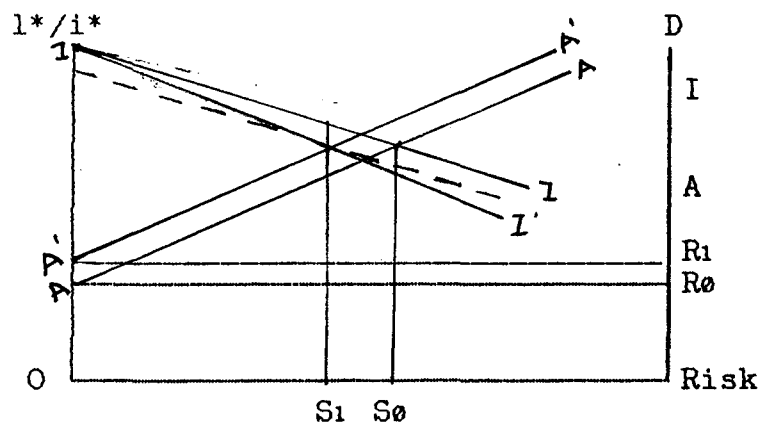
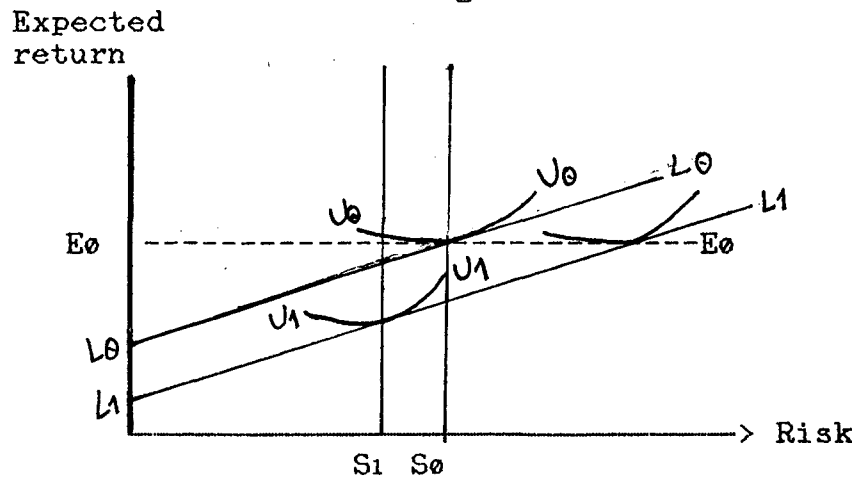


Figure 2.



In Figure (1), we measure  $R$  and  $A$  upward along the right vertical axis, and we measure  $I$  downward along the same axis. The left vertical axis measures the relative rate of return  $l^*/i^*$ . The horizontal axis measures risk. The height of the right vertical axis gives the size of  $D$ . Now, given  $R$ ,  $(D - R)$

<sup>26</sup> Tobin (1956).

is distributed between I & A. So, we draw the I and A schedule with origin at  $(D - R)$ . As higher the volume of investment in securities (I), or loans (A), higher is the return but greater is the risk undertaken, the I and A lines are positively sloped. Since the degree of risk associated with per unit allocation in A is more than that in I, the slope of the II schedule is steeper than the slope of the AA schedule. In Figure 2,  $L_i$  give the opportunity loci and  $U_i$  give the preference schedules for various combinations of risk(cost) and expected return. The actual volume of investment undertaken (I+A) decides the level of risk and expected earning. The slope of the preference schedule gives the degree of risk aversion.

The optimality of the portfolio is established in the following way. Given  $R$ ,  $(D - R)$  is distributed between I and A. There are varied degrees of risks and returns associated with I and A (given by  $l^*/i^*$ )<sup>27</sup>. The intersection between the I and A lines determine the level of risk chosen by the bank for the allocation of its portfolio. At this level of risk, the optimal choice of the bank is given by the tangency of the opportunity locus and the preference schedule and gives the expected return from the allocation of the portfolio. Now, let us start from an optimal allocation of the portfolio of a bank given by  $U_1 L_1$ . The holding of  $R$  ( $R_0$ ) has been determined by the values of  $c$  and  $k$ , say  $c_0, k_0$ . The SIR thus determined by  $k_0$ ,

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<sup>27</sup>Theoretically, the relative rate of interests between I and A takes into account the differences in the liquidity associated with investment and loan portfolio (return net of liquidity cost). But in our empirical testings in chapter 6, the liquidity has not been included because of the difficulties in measurement of liquidity of various items of investments and advances.

and given the target for priority advances  $a_0$  for that period, the relative rate  $(l^*/i^*)_0$  has been fixed. The distribution of  $(D_0 - R_0)$  between  $I_0$  and  $A_0$  is specified by this rate at the level of risk  $S_0$ . The expected return from the entire portfolio is thus given by  $E_0$ . Now, let us examine the effect of changes of the policy variables  $c$ ,  $k$  and  $a$  in the optimal portfolio selection described above, using tools of comparative static.

Let us assume that  $D$  i.e. the total size of the portfolio remains the same throughout. Now as  $c$  increases, with other things remaining constant  $R$  in Figure (1) increases, and hence the origin shifts upward. The  $II$  and the  $AA$  schedules shift parallel to intersect each other at a lower level of risk and return as the volume of investible fund squeezes. In Figure (2), the opportunity locus shifts down with cut down in the volume of investible fund, reducing the average earning. The adjustment mechanism operates as follows: as the cash reserve requirement  $c$  rises,  $D^*$  reduces and  $I_f$  tends to become negative because in period 1 following the rise in CRR;  $c_1 D + k_0 D > R_{r_0} + E_{r_0} + I_{r_0}$ , with  $c$  changing from  $c_0$  to  $c_1$ .  $R_r$  has to rise to match the new cash reserve requirement, but since  $kD$  remains the same, shift of fund is not possible from  $(E_r + I_r)$ . The effect is first visible in  $I_f$ , shown by the sign of  $I_f$ , as  $A$  is less liquid. So the new optimality is achieved with increase in holding of  $R$  and reduction in  $I$  immediately, and in  $A$  probably after a time

*lag.* But the new equilibrium is achieved only at a lower level



with other things remaining constant. The adjustment in Figure (1) is little complicated. The bank tries to meet the increase in SLR through either borrowed reserves and/or redistribution of the items in the asset portfolio.<sup>30</sup> The total security holdings may or may not increase (but  $I_f$  tends to become negative). Thus in Figure (1), both the origin and the slope of the I schedule may change.  $l^*/i^*$  remains the same per unit of investment, but if the total holdings of the security portfolio increases, the average earning<sup>31</sup> reduces ( $l^*A_0 + i^*I_0/A_0+I_0 > l^*A_1 + i^*I_1/A_0+I_1$ ,  $I_1 > I_0$ ). But if  $I_g$  holdings of the bank has been large enough to provide for the increase in  $k$ , without undergoing any change in the asset distribution, then increase in  $k$  can be taken care of just by reduction in  $I_f$  ( $c_0D + k_1D > R_{r0} + E_{r0} + I_{r0}$ , the adjustment takes place via  $I_f$ , the asset redistribution among  $R$ ,  $I$  and  $A$  depends on whether  $I_g \geq I_r$ ). If  $k$  is sufficiently high and  $I_g$  holdings is not adequate enough, the risk return choice in Figure (1) corresponds to a lower risk, lower return choice. Thus in Figure (2), the opportunity locus shifts down with reduction in expected earning and the new asset allocation again represents a lower preference point. A simultaneous revision of

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<sup>30</sup>The borrowings from RBI and IDBI is excluded from total demand and time liabilities. The natural tendency of the bank is to buy short term government bills to show the fortnightly SLR requirements by taking resort to the borrowing facilities from the RBI etc. But since the commercial banks' borrowings from the RBI is not unlimited (as opposed to the borrowings by the government), banks can also take resort to inter-bank or call money market borrowings to serve the same purpose. In the later case,  $D$  increases, even without deposits growth. But since borrowings is only a small part of the DTL, redistribution of the holdings of the assets in the portfolio is required, to adjust for the changes in the volume of reserve requirements. We can still retain our assumption that the right vertical axis gives the size of  $D$  and examine the redistribution of  $D$  among  $R$ ,  $I$  and  $A$ .

c and k can be explained by the same mechanism.

Therefore, a rise in the reserve requirements disturbs the optimal asset allocation of the bank and a new allocation can only take place at a lower preference point representing lower level of earning, after making necessary adjustments for policy changes. A rational choice by the bank management at this juncture is to retain the level of earning. It is only possible by investing the free part of the asset portfolio ( $I_f + A^*$ ) in a more remunerative way, so that the fall in income is compensated. But as the volume of investible fund gets gradually squeezed through increase in the reserve components, chances are less likely that this is possible at the same level of risk-return combination per unit of investment. Therefore the bank is required to undergo a higher risk - higher return allocation for  $I_f + A$ . This calls for a change in the degree of risk aversion of the bank, ie a change in the slope of the preference schedule to achieve the tangency at the initial expected earning  $E_0$ .

An almost similar result follows with increase in a, the proportion of priority advances. This again leads to a downward shift of the  $L_i$  schedule as average earning falls with increasing proportion of low yielding advances in total portfolio resulting in a sub-optimal lower preference allocation. Even if the rise of a is not accompanied by a rise in the reserve requirements, the optimal holdings of R, I and A changes through changes in the relative rate of return  $l^*/i^*$ , ie. the available risk return frontier changes. In addition, there takes place a redistribution between  $A_p$  and  $A_n$ . We can relax the assumption

of unchanging volume of deposits and allow D to vary as well. A change in D has significant effects on the portfolio adjustments following changes in the monetary policy parameters. Rise in D increase the volume of the investible funds. But as D rises,  $cD$  and  $kD$  also rises, without a rise in  $c$  or  $k$ . So only a fraction of  $\Delta D$  can be invested according to the free choice by the bank. If a rise in D is accompanied by a rise in  $c$  and  $k$  as well, there operates a two way pull to raise the holdings of the required components; once through rise in D and again through rise in  $c$  &  $k$ , both the forces operating simultaneously.

The cash demand function of the bank undergoes changes with upward revision of  $c$ ,  $k$ . Changes in  $c$  and  $k$  are likely to increase the demand for cash, without an increase in D. An increase in D, equivalent to the increase in  $c$  and  $k$ , may not lead to additional demand for cash by the bank. But the effect of a simultaneous change in  $c$ ,  $k$  & D on the liquidity preference is not unambiguous. A change in any other determinants of the bank's demand for cash, eg. rate of cash withdrawal, proportion of time deposits in total deposits, branch expansion in areas far off from the head office etc., is likely to result in an increase in demand for the transaction balance. In the Indian context, in the period under observation, all these forces of demand are operative on the liquidity preference of the commercial banks. We have discussed in the previous chapter about the downward rigidity of the cash demand of the public which limits the flow of resources from the household sector, both in the form of bank deposits, and direct government borrowings from the public. The later leaves government borrowings from the Central Bank to be

the easiest option to finance government expenditure, and hence tends to increase  $c$  and  $k$  for the banks, squeezing the volume of investible fund  $D^*$ .<sup>31</sup> The former, i.e. the limited growth of bank deposits, does not give a scope to the bank to balance this fall in  $D^*$ , following increases in  $c$  and  $k$ , through increase in  $D$ . This in turn, limits the capacity of the bank to expand institutional credit to socially desirable sectors. On the other hand, it leads to a fall in the expected earning of the bank and threatens the health and viability of the banking sector, the financier of economic development.

Thus the banks are pushed further and further towards a sub-optimal low income portfolio allocation as they are required to cushion uncontrolled government borrowings, and provide cheap funds for economic development. Expansion of branch banking and financing weaker sections through numerous

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<sup>31</sup>While increase in  $c$  unambiguously cuts down the volume of investible fund, without an increase in  $D$ . However, the effect of an increase in  $k$  on the funds available for investment needs explanation. As  $k$  rises, depending on the relationship between  $I_g$  and  $I_r$ ,  $I$  may rise, or remains the same.  $A$  is likely to fall, to adjust for the increase in  $R$  and  $I$ , following increase in  $c$  and  $k$ , but with a time lag as  $A$  is the least liquid asset. From the empirical evidences on the functioning of the public sector banks in India in the relevant period (refer Table 5.1 and 5.2), we observe both  $I$  and  $A$  to fall over time and  $R$  to rise. With the falling rate of returns from the income earning assets, via rise in  $c$ ,  $k$  and  $a$ , and with the various forces operating on the cash demand function of the bank to increase the liquidity need, discussed earlier, this phenomenon can easily be explained. But, at a conceptual level, the effect of changes of  $c$  and  $k$  on the availability of investible funds can be studied unambiguously, if we consider  $D^*$ , instead of  $D$ .  $D^*$  only includes the free portfolio of the bank, and it thus shows how the increase in  $c$  and  $k$  restricts the free portfolio decision of the bank. The optimum allocation however takes place between  $I$  and  $A$ , at a given magnitude of the relative rate of return  $l^*/i^*$ . An increase in  $c$ ,  $k$  (and  $a$ ) is also likely to affect the relative rate of return and thus affects the optimal portfolio allocation as described in the diagrams.

small accounts increases cost of operation and leads to a downward shift of the opportunity locus. There is further increase in the cost of maintaining liquidity as cash withdrawal rates are likely to be higher when small savings in remote areas constitute a major source of fund. Given the fact that branch expansion has failed to mobilize enough resource strength for the banks,<sup>32</sup> the burden on the CB as the lender of last resort remains. In any case, with a high and increasing reserve requirements, increase in D does not really help the banks to work independent of refinance facilities. A hypothetical solution exists for the banks to allocate the free part of its asset portfolio in a way so that it can earn high enough, even at the cost of high risk, to compensate for the fall in income from the required part. But as the share of the required components in the asset portfolio becomes higher and higher, the chance of compensating the fall in income becomes increasingly difficult. Besides, given the underdeveloped financial structure in India, there does not exist much alternative investment opportunities for the banks. The actual possibilities to achieve this hypothetical solution for the Indian schedule commercial banks in the public sector is discussed in the next chapter.

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<sup>32</sup>refer Table 2.5

## CHAPTER 5

### Changing Structure of the Asset Portfolio

It is time now to have a glimpse at the general behavior of the asset portfolio of the public sector banks in the period under observation, in order to understand the interaction of the portfolio adjustment mechanism of the banks with the monetary policy rules. For this purpose, the changes in the composition of the asset portfolio of the banks over the relevant period have been examined to explain the changing structure of the bank portfolio in terms of the changing values of the monetary policy parameters.

#### 5.1 Composition of the Asset Portfolio of the Banks

The composition of the asset portfolio of the Indian schedule commercial banks during the period under study shows that the distribution of the asset portfolio has mostly followed the simple yield-liquidity trade-off principle. The major bulk of the asset holdings consists of advances which brings the highest returns. The next large holdings has been investments with lesser return but higher liquidity, followed by cash reserves with highest liquidity and no return. We have decomposed the total assets of the banks into the three main components, R (reserves), I (investments) and A (advances), using the balance sheet data. Each asset category has further been subdivided into the various components, according to the balance sheet entry. Thus Table 5.1 gives us the identity  $D \equiv R + I + A$  with each component expressed as percentage of the total (D). In Table 5.2, these three asset categories have been broken down into the free and required parts, to show the effects of the policy constraints on the distribution of the asset portfolio.

Table 5.1

## COMPOSITION OF THE ASSET PORTFOLIO (PERCENTAGE DISTRIBUTION)

BANK GROUPS	CASH	INVESTMENT	ADVANCES	OTHER ASSET	TOTAL
<b>GROUP 1</b>					
1970-79	7.68	24.64	53.88	13.80	100.00
1980-85	7.65	21.68	48.68	21.98	100.00
1970-85	7.67	23.53	51.93	16.87	100.00
<b>GROUP 2</b>					
1970-79	9.64	22.83	55.85	11.68	100.00
1980-85	14.01	24.19	49.76	12.04	100.00
1970-85	11.61	23.27	53.56	11.56	100.00
<b>GROUP 3</b>					
1970-85	7.17	24.37	53.43	15.03	100.00
1980-85	10.37	23.12	49.88	16.63	100.00
1970-85	8.37	23.90	52.11	15.62	100.00
<b>GROUP 4</b>					
1970-79	8.97	23.18	53.16	14.69	100.00
1980-85	11.68	22.32	51.80	14.20	100.00
1970-85	9.99	22.86	52.65	14.51	100.00
<b>GROUP 5</b>					
1970-79	8.70	26.05	50.36	14.89	100.00
1980-85	11.16	24.90	48.95	14.99	100.00
1970-85	9.62	25.24	50.13	15.01	100.00
<b>GROUP 6</b>					
1970-79	12.61	22.02	48.89	16.48	100.00
1980-85	15.01	23.39	46.31	15.28	100.00
1970-85	13.51	22.54	47.92	16.03	100.00

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 Note: Other Assets include Premises, Immovable Properties etc. The other assets category does not have a separate entry in the asset-liability identity in our model.

As Table 5.1 shows, the asset structure broadly remains the same over the years. But the relative shares of the asset components undergo significant changes. As we see, the shares of income earning assets, investments and advances are falling over the years. Their shares in total portfolio have fallen in 1980-85 by around two to three percentage points on the average for investments, and four to five percentage points on the average for advances, in comparison to that in 1970-79. But the small banks in groups 2 and 6, show an opposite trend, with a slight increase in the share of investments in total portfolio. This fall in the shares of investments and advances

are matched by a rise in the 'other asset' component i.e. premises, immovable property etc. for State Bank of India. For all other bank groups, there is an increase in the share of the cash holdings, and only a small rise and, in a number of cases, even a fall in the share of 'other assets'.

Table 5.2 disaggregates the **required** and **free** components of the asset portfolio. A rough estimate of the amount of cash reserve requirements has been obtained by calculating the proportion of DTL (as obtained from the balance sheet) that should be kept as required cash reserves at the level of CRR prevailing in december, each year. This amount (cD) has been deducted from the total cash holdings (R), to obtain the excess reserves ( $R - cD = E_r$ ). The SLR requirements have similarly been obtained by calculating the proportion of DTL that should be kept as the statutory liquidity reserves, given each year's ratio (kD). This amount, minus the excess reserves, i.e.  $(kD - E_r)$ , gives a rough estimate of SIR (statutory investment ratio  $I_r$ ). The SIR has been deducted from the sum of investments in government and other approved securities ( $I_g - I_r$ ) to obtain free investments in these securities. Investments in other securities has been added to this (free investments in government securities), to get an estimate of total free investments ( $I_f$ ). As for the break up of total advances in priority and non-priority advances ( $A_p$  &  $A_n$ ), the total priority sector lendings made by the banks in each year has been subtracted from total advances which is a total of call money, bills and loans.



Table 5.2

## COMPOSITION OF THE ASSET PORTFOLIO: REQUIRED &amp; FREE COMPONENTS

BANK GROUPS	R <sub>r</sub>	E <sub>r</sub>	T <sub>r</sub>	I <sub>r</sub>	I <sub>f</sub>	I <sub>t</sub>	A <sub>p</sub>	A <sub>n</sub>	A <sub>t</sub>
<b>GROUP 1</b>									
1970.79	52.3	47.7	100	86.9	13.1	100	33.5	66.5	100
1980.85	65.8	34.2	100	102.9	-2.9	100	33.7	66.3	100
1970.85	57.4	42.6	100	92.9	7.1	100	33.6	66.4	100
<b>GROUP 2</b>									
1970.79	41.3	58.7	100	87.1	12.9	100	34.2	65.8	100
1980.85	58.1	41.9	100	97.8	2.2	100	40.5	59.5	100
1970.85	47.6	41.6	100	91.1	8.9	100	36.6	63.4	100
<b>GROUP 3</b>									
1970.79	55.1	44.9	100	95.1	4.9	100	34.7	65.3	100
1980.85	63.9	36.1	100	112.1	-12.1	100	35.3	64.7	100
1970.85	58.4	41.6	100	101.5	-1.5	100	34.9	65.1	100
<b>GROUP 4</b>									
1970.79	43.7	56.3	100	91.3	8.7	100	30.1	69.9	100
1980.85	58.8	41.2	100	115.6	-15.6	100	32.2	67.8	100
1970.85	49.4	50.6	100	100.4	-0.4	100	30.9	69.1	100
<b>GROUP 5</b>									
1970.79	45.9	54.1	100	81.1	18.9	100	30.6	69.4	100
1980.85	59.7	40.3	100	101.1	-1.1	100	37.4	62.6	100
1970.85	51.1	48.9	100	88.6	11.4	100	33.1	66.9	100
<b>GROUP 6</b>									
1970.79	32.2	67.8	100	80.2	19.8	100	0.0	100.0	100
1980.85	44.4	55.6	100	91.2	8.8	100	41.3	58.7	100
1970.85	36.8	63.2	100	84.4	15.6	100	15.5	84.5	100

Note: The column heads are the following; R<sub>r</sub>: Required Reserves, E<sub>r</sub>: Excess Reserves, T<sub>r</sub>: Total Reserves, I<sub>r</sub>: Required Investments, I<sub>f</sub>: Free Investments, I<sub>t</sub>: Total Investments, A<sub>p</sub>: Priority Advances, A<sub>n</sub>: Non-priority Advances, A<sub>t</sub>: Total Advances.

According to Table 5.2, which has been constructed to understand the effects of the policy variables  $c$ ,  $k$  and  $a$  on the structure of asset allocation, the shares of the required components in each asset, as expected, are rising over time. The free holdings of investment portfolio for most bank groups has been negative in the later period (1980-85), which no doubt imply a failure to satisfy the SIR requirements.<sup>33</sup> The only

<sup>33</sup>The fact that banks are under heavy pressure of continually increasing SLR is supported by Reserve bank's scheme of phased payment of penalties by the banks. The Reserve Bank appreciates that a number of banks would face heavy penalties in the period from March 30, 1985 onwards and this could result in a sudden disruption of certain vital credit operations. With a view

two bank groups who hold positive balance of free investment throughout are group 2, and group 6. But these are the only two groups who show an increase in the share of their investment portfolio in Table 5.1. Though the share of cash reserve requirements are rising over time, banks maintain a substantial balance of free reserves. We recall here that the share of cash component in the asset portfolio are rising for all bank groups except SBI (Table 5.1). The negative share of free investments is easily understandable given the fact that government and other approved securities ( $I_g$ ), which are eligible for the SIR holding, constitute around 90% of the investment portfolio. Since  $I_f$  is nothing but a conceptual entity, it shows the extent of the SLR shortfalls of each bank group. The positive excess reserves holdings reflects the rising need for cash holdings, with increase in CRR and other forces affecting cash demand. In spite of the rising cash balances and large holdings of government and other approved securities,  $E_r + I_g$  is not adequate enough to satisfy SLR, by the full amount  $kD$ . This is more important given the falling trend of deposit growth (Table 2.3). While  $c$  and  $k$  are continually revised upwards, the deposit growth is not keeping up with the rising trend of the reserve requirements. Banks' holdings of government securities are already too large, given the rates of return on them in relation to the rates on loans and advances. Given the increasing upward pull on the demand for cash, further increase in government security

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to giving banks some more time to rectify this shortfalls and to ensuring the continuing flow of credit for meeting genuine productive needs of the economy, a comprehensive scheme of phased introduction of penalties of SLR shortfall has been devised.' R. N. Malhotra, Governor, RBI (source: Credit Information Review, No 73, August 1985).

holdings (ie. increased holdings of the investment portfolio, as other securities form only a negligible part of the total investment portfolio), implies shift of funds away from the advances, affecting the credit expansion policy for important sectors. Before discussing this issue in further detail, the allocation structure of the individual asset components has been presented in the following sections.

## 5.2 Composition of the Investment Portfolio of the Banks

The investment portfolio shows the predominance of the government securities. Over these 16 years, banks continue to hold almost the same share specially owing to difficulties in investment in the private security market. But we may notice that the share of central government securities are falling over time and the other approved securities are taking over, except for group 5. This can be explained by various factors. If we compare the gross yields on central and state government securities,<sup>34</sup> we find the yield on state government securities to be slightly higher. Other approved securities mostly include the state government securities. Apart from the yield factor, increasing decentralization in bank management as a part of micro and macro level credit planning creates situation favourable for investment in local bodies and hence increasing the investments in 'other approved' securities. But probably a more significant factor for lower yield on government securities has been the predominance of 91 days treasury bills (available on tap) with an absolutely sticky rate of return, in banks' investments in government securities.

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<sup>34</sup> see Report on Currency & Finance, Volume. 2 : Reserve Bank of India, or Reserve Bank of India Bulletin (monthly).

**Table 5.3**

COMPOSITION OF THE INVESTMENT PORTFOLIO (PERCENTAGE DISTRIBUTION)

BANK GROUPS	GOVERNMENT SECURITY	APPROVED SECURITY	OTHER SECURITY	TOTAL INVESTMENT
<b>GROUP 1</b>				
1970-79	79.44	13.96	6.60	100
1980-85	60.68	32.86	6.46	100
1970-85	72.41	21.05	6.55	100
<b>GROUP 2</b>				
1970-79	63.93	34.76	1.31	100
1980-85	61.42	38.15	0.43	100
1970-85	62.99	36.03	0.98	100
<b>GROUP 3</b>				
1970-79	65.40	25.07	9.53	100
1980-85	61.25	27.84	10.91	100
1970-85	63.84	26.11	10.05	100
<b>GROUP 4</b>				
1970-79	72.21	22.95	4.85	100
1980-85	69.31	27.60	3.09	100
1970-85	71.12	24.69	4.19	100
<b>GROUP 5</b>				
1970-79	74.84	21.94	3.22	100
1980-85	77.39	20.11	2.50	100
1970-85	75.79	21.26	2.95	100
<b>GROUP 6</b>				
1970-79	59.07	33.09	7.84	100
1980-85	55.42	40.25	4.33	100
1970-85	57.70	35.78	6.52	100

Note: Other Approved Securities include securities of State Associate Bodies like Electricity Board, Housing Board, Municipal Corporation's bonds issued in Presidency town, debentures of Land Development Banks, all fully secured by the state government.

Table 5.4 gives a picture of the free holding of these two securities alone (If, excluding holding of other securities, I0). It shows a high negative balance of these assets. For bank group 3, the free holdings of government and other approved securities are negative even in the earlier phase (1970-79). Associate Banks and the six small banks still hold a positive balance, but their shares are also falling. In fact, for associate banks, the free share of these assets in 1980-85 is only 1.78%.

Table 5.4

## FREE HOLDINGS OF GOVERNMENT &amp; APPROVED SECURITIES

BANK GROUPS	INVESTMENT
<b>GROUP 1</b>	
1970.79	6.49
1980.85	-9.44
1970.85	0.51
<b>GROUP 2</b>	
1970.79	11.58
1980.85	1.78
1970.85	8.10
<b>GROUP 3</b>	
1970.79	-4.58
1980.85	-23.03
1970.85	-11.50
<b>GROUP 4</b>	
1970.79	3.85
1980.85	-18.75
1970.85	-4.63
<b>GROUP 5</b>	
1970.79	15.69
1980.85	-3.61
1970.85	8.45
<b>GROUP 6</b>	
1970.79	5.98
1980.85	4.44
1970.85	5.32

Note: Free investment in govt & other approved securities is given as the percentage in total investment.

This large investments in government securities is not really a recent phenomenon in Indian banking. Indian joint-stock banking companies, which were modelled after British tradition of commercial banking, since its inception, have been giving more importance to trade and commerce in the interest of the imperial state, in addition to putting large funds in government bonds to supply the credit needs of the colonial government, especially during the wars.

The nature of security investments in the post independence and specially the post nationalization period cannot

certainly be studied in the same perspective. The holdings of huge amount of government bonds by the commercial banks does not just follow from tradition but is expected to serve a different and more important purpose. The direction of bank credits has changed its course away from trade and commerce and towards large industries in the early years of planning (though more in favour of large industrial houses), and predominantly towards the public sector after social control. Making the banks invest compulsorily in gilt-edged security market (through SLR requirements) ensures flow of funds for planned growth in the public sector. Thus we observe a two fold involvement of the public sector banks in financing economic development; direct supply of cheap credit to priority sectors and indirect supply of low cost resources to government through investments in gilt-edged security market. The imposition of high SLR on banks is not merely a reflection of high demand for financial resources in the process of growth, but also to cope with the uncontrolled government expenditures which involves both development as well as non-developmental expenses. On the other hand, to make this borrowing cheapest possible, the rates of return on gilt-edged securities are completely out of alignment with other rates. The 91 days treasury bills has been a major instrument through which this twin force of unlimited government debt to the Central Bank, and the contractionary credit policy of the Central Bank through SLR has been operating. But the treasury bill rate has remained sticky throughout this period.<sup>35</sup> The market structure for other

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<sup>35</sup>The rate on treasury bill (TB) remained below 3-4% in the period 1970-73, Since 1974 it has maintained the same level at 4.6%. Though the interest-rate structure of government's dated securities have been revised after 1985 following the recommendations of the Chakravarty Committee, the possibility of

dated securities has been equally stringent. In this circumstances, the negative balance of If probably shows the yield responsiveness of the banks.

An alternative against the captivity and low-yield in government security market could have been increased investment in 'other securities'. But as we see in Table 5.3, the proportion of investment in other securities more or less maintain the same level. This is not a surprising factor, given the fact that commercial banks' participation in the private security market has traditionally been negligible owing to the risk involved with investments in the stock market. Corporate finance in India had been under the managing agents in the early years of banking. Later, Insurance Companies, IDBI and UTI took over. Any attempt on the part of the commercial bank to penetrate into the stock market not only would have required change in their risk-averting character but would have invited avoidable competition with these institutions. Moreover, neither the colonial government then, nor the national government later would have encouraged the conflict between commercial banks and the managing agencies/public sector institutions like LIC, GIC, IDBI, UTI etc.

In short, the investment opportunity frontier faced by the public sector banks in India is rather restricted. As their deposit size (D) and the level of reserve requirements (c & k) rise, banks are compelled to put more fund in gilt-edged securities

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raising the rates on 91 days TB has been ruled out by the committee on money market (Vaghul working group). The 182 days TB available instead (at auction) is yet to become a successful instrument.

return from which is not at par with returns from alternative assets. But the scope for investing in substitute securities with higher return is limited. These factors can be posed as the explanatory factors behind the fall in the share of investment portfolio in total portfolio (Table 5.1).

### 5.3 Composition of the Loan Portfolio of the Banks

Loans and advances have the highest expected earning associated with them. Advances refer to advances made by the banks in three major markets; call money market, bill market and the loan market. Call money market no doubt is a good place to put short-term funds in a profitable way. Call money rates reflect the day to day demand/supply disparity and fluctuate widely if it is allowed to respond to the market forces. The demand/supply mismatch in this market is dependent upon the differences in the credit needs in busy and slack seasons. The call money rate is thus likely to be subjected to wide fluctuations, but it has been fixed at 10% since 1973 following the intervention of Indian Banks Association in the market.<sup>36</sup> Call money holdings of most banks, as seen in Table 5.5 constitutes only a negligible part of total advances. Only SBI enjoys slightly better position in call money holdings during the 1980-85 period.

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<sup>36</sup> refer Report of the Working Group on Money Market (Vaghul Committee Report). Lately market forces have been allowed to operate in the call money market following the recommendations of the Chakravarty Committee and the Vaghul Working Group.



**Table 5.5**  
COMPOSITION OF THE ADVANCE PORTFOLIO (PERCENTAGE DISTRIBUTION)

BANK GROUPS	CALL MONEY	BILLS	LOANS	TOTAL
<b>GROUP 1</b>				
1970.79	3.15	9.59	87.25	100.00
1980.85	7.16	6.19	86.65	100.00
1970.85	4.66	8.32	87.03	100.00
<b>GROUP 2</b>				
1970.79	3.60	15.17	81.23	100.00
1980.85	3.72	14.02	82.25	100.00
1970.85	3.65	14.74	81.61	100.00
<b>GROUP 3</b>				
1970.79	1.07	18.66	80.26	100.00
1980.85	2.10	14.77	83.13	100.00
1970.85	1.46	17.20	81.34	100.00
<b>GROUP 4</b>				
1970.85	0.91	19.27	79.83	100.00
1980.85	1.42	18.23	80.34	100.00
1970.85	1.10	18.88	80.02	100.00
<b>GROUP 5</b>				
1970.79	1.41	17.70	80.89	100.00
1980.85	0.95	12.82	86.23	100.00
1970.85	1.24	15.87	82.89	100.00
<b>GROUP 6</b>				
1970.79	1.38	20.42	78.19	100.00
1980.85	0.82	13.45	85.73	100.00
1970.85	1.17	17.81	81.02	100.00

As the working group on the money market points out, SBI is the only bank which is consistently net lender in the call money market. All other banks are forced to accept a position of being net borrower because of their perpetual liquidity crisis arising out of the need to show the SLR balance. This fact is well supported by Table 5.2 which shows that the SIR requirements, are much higher than the total holdings of investment portfolio in government and approved securities. One solution to this problem is to borrow in the call money market to show the day to day SLR requirements failure of which is subject to penalty payment. Hence, though the call money market is potentially a profitable avenue to invest short term excess funds, most public sector banks hardly have any surplus funds to

put in, in the call money market.

It is clear from Table 5.5, like the call money holdings, bill financing is also not a prominent feature in bank advances. Purchasing and discounting of bills can be a good source of earning to the commercial banks. But bill culture has never really flourished in India. Bill payment is not very popular either among the trading communities or among the departmental undertakings. Absence of a secondary market<sup>37</sup> restricts the scope for rediscounting the bills before maturity, if required. The commercial banks enjoy certain privileges from the existing interest rate structure in the bill market. The cost of refinance available to the banks against bills are mostly fixed below the bank rate through the concessional and discretionary policy followed by the RBI. The minimum rate at which commercial banks can discount bills are set in such a way so that bills do not become cheaper than cash credits. The RBI has also taken up various bill market schemes from time to time to develop the bill market. In spite of these measures, bills have failed to become an important source of earning to the commercial banks.

So it is the loan portfolio, which has always been the major source of income to the banks. According to Table 5.5, the loan portfolio constitutes more than 80% of total advances. Looking at the sectoral allocation of bank credits in India since the inception of commercial banking, three distinct phases can be

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<sup>37</sup> The Discount & Finance House of India, which started operating only very recently, is yet to establish itself.

recognized: Phase I ( till Depression) Dominance of Trade and commerce under the colonial regime.

Phase II ( the war booms, inter-war reconstructions, early phase of industrialization before social control) : Trade and Commerce losing importance to industry, dominance of large industries with a high degree of concentration in the ownership of credit.

Phase III ( policy oriented change of direction in bank credit following social control) : Shares of so far neglected sectors like agriculture, small scale industries, retail trade, small transport etc. are shooting up by introduction of the policy of priority sector lendings. While the share of large industries in total bank credits is falling, they still occupy a very important position in the non-priority free lending of the banks, but with a fairly high degree of concentration against the objectives of nationalization.<sup>38</sup>

This pattern of credit allocation is clearly indicative of the risk-averting nature of the banks. The Indian commercial banks, quite understandably, have never been very adventurous as far as disbursement of bank credits is concerned. Credits has simply flown towards the most important and profitable sector of the economy. The banks have been reluctant to direct loans

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<sup>38</sup>It can be mentioned here is that Hester (1964) in his study on profitability and portfolio of Indian Banks has taken the concentration in ownership of bank credits as observed in general, almost as a lemma (Hester reminds the readers Joan robinson's comment that 'no ethical conclusion should be drawn from the observation' that 'most firms confine their banking business to one or almost a few banks: pp 5, Ch 1). Thus his focus on the question of nationalization of the Indian Banks, a remote possibility then, rested more on the anticipated fear of increased inefficiency through greater control. The need for dechanalization of credits to small borrowers in the socially desirable sectors, less possible to achieve without social control has not been considered to be an important issue.

towards agriculture, petty trades & industries, and other small sectors, because of the high risk involved with such loans.

A glance at the security pattern of bank loans (Table 5.6) reveals that almost 80% of the loans are considered good, fully secured. Doubtful debts are absolutely not encouraged. Loans guaranteed by personal securities alone or additional securities from one or more parties are also fairly popular but small borrowers are hardly in an advantageous position to offer respectable references. Many of the loans are often supported by a high rank bank personnel, but the chance of class bias in this respect cannot totally be ruled out.

Table 5.6

DISTRIBUTION OF ADVANCES BY TYPES OF SECURITIES

BANK GROUPS	1	2	3	4	5	6	7
<b>STATE BANK</b>							
1970.79	81.7	6.3	10.0	0.0	1.1	0.9	100
1980.85	80.6	7.7	10.3	0.0	0.6	0.8	100
1970.85	81.3	6.8	10.1	0.0	0.9	0.8	100
<b>ASSOCIATES</b>							
1970.79	84.3	2.9	11.3	0.0	1.3	0.3	100
1980.85	86.5	3.9	7.8	0.0	1.5	0.3	100
1970.85	85.1	3.3	10.0	0.0	1.3	0.3	100
<b>OTHERS</b>							
1970.79	74.3	7.4	16.9	0.0	0.9	0.5	100
1980.85	71.9	12.8	13.4	0.0	1.0	0.9	100
1970.85	...	...	...	...	...	...	...

Note a). 'Others' include 14 nationalized commercial banks in 1970-79 and 20 nationalized commercial banks in 1980-85. Thus no averaging has been done for the whole period 1970-85.

Note b). The column heads are the following:

- 1: debts fully secured;
- 2: debts with only personal security of debtor;
- 3: debts having additional security from one or more parties;
- 4: bad or doubtful debts;
- 5: debts in which some officer of the bank is interested, they include debts due by directors or officers of the banks, debts due by companies or firms in which the directors or managers or other officers are interested, maximum loans made to directors or managers or officers either severally or jointly;
- 6: debts due from banks;
- 7: total advances.

Dechannelization of bank credits towards the small borrowers in the weaker sectors would have been impossible without social control as threats of high default risks without guarantee facilities would have prevented the bank credits flowing towards them. Despite the fact that bank lending rates have always been much below the unorganized loans market rate, small farmers or village artisans have always remained outside the banking network. The spacial distance of nearby bank branch, complicated administrative machinery unsuitable for illiterate borrower, strictness of security norms, personal attachment of these borrowers to indigenous moneylenders and several other reasons have been enough to dissuade prospective small borrowers. Social control has helped to get over some, though not all of these impediments. The adequate guarantee and refinancing made available to the banks under various credit guarantee schemes of IDBI, NABARD, DICGC and other institutions has been needed to bribe the banks out of their reluctance towards such loans.<sup>39</sup> Even though there are reasons to believe that risk of default may not always be inversely related to the size of loan,<sup>40</sup> the average rate of return on the loan portfolio

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<sup>39</sup> We find that on the average almost 75% of the ordinary loans in the priority sectors and almost 90% loans under the Differential Interest Rate scheme are now covered by various institutions. (source: Credit Information Review, Reserve Bank of India, various issues, specially April/May and december of each year).

<sup>40</sup>The micro level study of selected branches by the National Institute of Bank Management [ Patel & Shete (1983) : Financing of Weaker Sections by Commercial Banks.] comments... 'the discussion on the repayment behavior aspect of the loans given to the members of weaker section thus brings out very positive aspect of the borrowers' willingness to repay and the bankers' promptness in making efforts for the recovery'... [pp 105, Ch V].

However some of the studies carried out by NABARD (cf Credit Information review, No. 66, January 1985 ) have revealed that

drops down with expanding share of short term loans. Thus, extending advances to priority sectors on concessional terms goes against the rational portfolio choice as it reflects a lower preference allocation of the portfolio, unless there are possibilities to compensate for this fall in income from other sources. Apart from being soft termed, these loans are likely to have higher cost components attached to them as they require servicing of numerous small accounts. But, the returns on the loan portfolio have been under RBI's regulations during the major part of our period of study. RBI imposed on September 25, 1964, ceilings on the lending rates of commercial banks which continued till January 20, 1970. Ceilings have been reimposed with effect from March 15, 1976.<sup>41</sup> Given this structure in the loan market, we shall later examine the hypothetical solution offered in Chapter 4, viz, banks can safeguard their level of expected earning by compensating the fall in income from the required portfolio investments through higher returns from the free part of the portfolio. For the moment we observe that the share of loan portfolio in total assets is falling over time (Table 5.7). This table has been constructed to get a separate picture about the loan portfolio, different from Table 5.1 which gives the trend of the whole advance portfolio, sum of

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many branches of banks have prescribed shorter loan maturities than those stipulated by NABARD, while in cases where longer repayment periods are stipulated in respect of small farmer beneficiaries, uniform repayment period has been fixed for both small and other farmers. This is identified as one of the major factors for rising trend of overdues under term lending, particularly in view of the fact that small farmer coverage is over 60% of total advances made under term lending.

<sup>41</sup> i. Report on Currency and Finance: Notes on Statements  
ii. Ceilings have been rewithdrawn recently following the recommendations of Chakravarty Committee.

call money, bills and loans. Comparing the two tables, we notice, bank groups 1, 2, 3 & 5 show similar trends in holdings of loan and advance portfolio. However for bank groups 4 & 6, while the total advances are falling, share of loan is rising, by a negligible one percentage point for group 4 but by a good amount for group 6. As for bank group 5, the falling share of loans is much higher than that of advances. Group 6 is in fact showing a rise in both investments and loans. This group, consisting of the six small banks nationalized much later, in 1980, shows the best sign of health, given the smallness of size.<sup>42</sup>

**Table 5.7**

SHARE OF LOANS IN TOTAL ASSETS

BANK GROUPS	LOAN
<b>GROUP 1</b>	
1970.79	46.98
1980.85	42.19
1970.85	45.18
<b>GROUP 2</b>	
1970.79	45.42
1980.85	40.92
1970.85	43.73
<b>GROUP 3</b>	
1970.79	42.06
1980.85	39.98
1970.85	41.28
<b>GROUP 4</b>	
1970.79	40.70
1980.85	41.67
1970.85	41.07
<b>GROUP 5</b>	
1970.79	46.22
1980.85	39.83
1970.85	43.82
<b>GROUP 6</b>	
1970.79	32.40
1980.85	39.73
1970.85	35.15

The realization of the importance of the commercial

<sup>42</sup>refer Chapter 1, Section 2.

banks in financing agriculture and other small scale unorganized but socially important sectors dates back to 1931,<sup>43</sup> but no concrete step has been taken before nationalization. The percentage share of priority advances in total loan portfolio shows both variations over years and variations across bank groups as given in Table 5.8. At the starting block (1970), SBI and the Associate Banks, who have been already working in the public sector, are in a slightly better position. Other banks soon catch them up. There are some inconsistency in the total figure for priority sector lendings given in Table 5.8, as definition of priority sector have changed from time to time, with inclusion of new sectors and exclusion of some old sectors. Since our interest is to see the difference between the required portfolio allocated according to the policy rule and the free portfolio allocated under free choice, we have taken the sum of all the concessional loans advanced by the banks in each year, to have the break up of A in Ap and An. According to Table 5.8, the flow of credits towards the priority sectors reaches its peak in 1979-80 but drops immediately down, except for group 6. Incidentally, 1979-80 is the year when the new 20 point programme of the government of India is undertaken and there is renewed interest in the role of commercial banks in financing weaker sections. Another factor worth noting here is that the small

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<sup>43</sup>The Central Banking Enquiry Committee (1931) recognised the importance of bank finance in agriculture etc. But co-operatives were thought to be better suited for this task. Reserve Bank had a separate department for agriculture since its beginning (following Sir. Malcolm Darling's report) by Section 54 of Reserve Bank of India Act, 1935. But only as late as 1968, the National Credit Council introduced the concept of priority sector lending and the concrete task to involve all the major commercial banks in financing agriculture and other weaker sections was undertaken after social control.



banks show a better performance in financing soft loans indicated by higher percentage of priority advances. This is the only group which seems to have the least difficulty in satisfying the policy norms set by the Reserve Bank. The profitability performance of this group is quite satisfactory in comparison to other groups, despite holding large share of low yielding loans and also satisfying the SLR requirements indicative in their positive holdings of free investments over and above the required amount.

Table 5.8

SHARE OF PRIORITY LENDINGS IN TOTAL LOANS

YEAR	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
1970	42.11	39.47	34.69	36.34	21.71	...
1971	38.36	33.90	35.73	36.93	22.62	...
1972	36.86	31.89	39.10	37.74	37.96	...
1973	38.31	37.20	43.71	39.44	42.74	...
1974	38.08	41.97	43.68	41.37	43.02	...
1975	35.64	46.34	45.08	41.01	44.10	...
1976	33.09	46.76	42.09	37.24	38.55	...
1977	37.86	43.43	41.55	41.73	39.26	...
1978	40.66	49.48	44.17	39.70	41.72	...
1979	43.13	53.38	47.89	41.65	44.73	...
1980	44.11	52.46	48.75	43.42	46.77	49.33
1981	41.54	48.21	47.23	42.09	45.53	51.64
1982	35.87	48.47	44.45	39.65	44.20	49.44
1983	36.22	45.99	38.90	36.16	39.60	45.77
1984	36.96	50.34	39.02	37.19	40.20	44.95
1985	38.35	50.14	44.31	39.26	41.35	47.94
Average	38.57	44.96	42.52	39.43	41.11	48.18

Note: Total priority lending includes export credit upto 1983. After the establishment of export-import bank, export credit no longer falls within the priority advances.

Among the priority sectors, agriculture and small scale industries are given highest priority since the beginning. In fact while introducing the concept of priority sector lending in 1968, the National Credit Council has emphasized that banks should increase their involvement in the financing of two

sectors, viz. agriculture and small scale industries as a matter of urgency. Other sectors have been subsequently included to widen the scope of this type of credit. The concept of weaker sections within the priority sectors has been introduced later on to recognize the difference in need among the different socio economic classes within each sector. There are different sub targets for credit disbursement for the sub groups within each group. Table 5.9 gives a picture of the distribution of total priority sector advances among the major priority sectors which shows the importance of agriculture and small scale industries in the priority sectors.

**Table 5.9**  
**SECTORAL DISTRIBUTION OF PRIORITY SECTOR ADVANCES**

BANK GROUPS	1	2	3	4	5	6	7
<b>GROUP 1</b>							
1970.79	30.4	36.4	5.0	3.3	0.7	0.4	0.0
1980.85	43.5	35.0	7.5	3.7	1.9	1.0	0.1
1970.85	35.3	35.9	6.0	3.5	1.2	0.7	0.1
<b>GROUP 2</b>							
1970.79	33.9	40.4	3.2	4.4	0.6	0.5	0.0
1980.85	46.9	33.3	6.3	5.8	1.7	1.4	0.1
1970.85	38.8	37.7	4.3	4.9	1.0	0.9	0.1
<b>GROUP 3</b>							
1970.79	31.7	30.3	4.8	3.7	0.9	1.6	0.3
1980.85	37.1	33.6	9.7	5.0	2.3	3.8	0.2
1970.85	33.7	31.6	6.6	4.2	1.5	2.4	0.3
<b>GROUP 4</b>							
1970.79	26.7	31.5	7.9	8.7	1.4	2.3	0.2
1980.85	34.3	34.4	11.1	6.7	1.9	3.3	0.1
1970.85	29.5	32.6	9.1	8.0	1.6	2.7	0.1
<b>GROUP 5</b>							
1970.79	30.1	31.7	8.7	6.9	1.3	2.2	0.3
1980.85	37.6	37.3	7.5	5.6	2.5	2.7	0.1
1970.85	32.9	33.8	8.3	6.4	1.7	2.3	0.2
<b>GROUP 6</b>							
1980.85	39.9	34.4	10.2	4.5	1.9	2.2	0.1

Note: This table gives the distribution for selected major sectors only. The column heads are the following: 1. agriculture and allied activities; 2. small scale industries including new industrial estates, 3. transport operators, 4. retail trade, 6. small business, 7. loans to professional and self-employed persons.

There is a small inter-bank, as well as time

series variations in the relative importance of the different sectors. Small scale industries, inclusive of new industrial estates, occupies slightly higher share for the SBI and its subsidiaries in the earlier period (1970-79), which drops down later in favour of agriculture. The major commercial banks show an opposite tendency over years. The same holds true for transport operators and retail trades where credit disbursements by different banks at different time point shows small changes in the relative importance between these two sectors. This phenomenon is probably more reflective of demand variations than differences in supply, though the interest rate structure of the different sectors also vary.<sup>44</sup> As the interest rates on various sub sectors within each sector are different, the over all average returns on each sector depends on the proportion of loans given to weaker sections in that sector.<sup>45</sup> With this picture in the opportunity frontier for risks and returns on the different asset components in the portfolio, we proceed to explore the possibilities of alternative earnings from the free assets, as suggested in the previous chapter.

#### 5.4 Exploring the possibilities of Alternative Asset Allocation

The possibilities open to the bank management to safeguard their level of gross earning in a situation where they do not have control over the major part of their asset portfolio, given the underdeveloped structure of the Indian financial

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<sup>44</sup>for the interest rate structures in different priority sectors, see the Credit Information Reviews, RBI(monthly) from August, 1979 onwards.

<sup>45</sup>for example small & marginal farmers or minor irrigation projects in agriculture, village artisans in small industries, one vehicle transport in road transport operators and many other similar sub groups are required to pay lower rate of interest than the normal concessional rate for the priority sectors.

system, is very little. The profit earning assets in our analysis are: reserve cash with the Central Bank in excess of 3% statutory holding for which interest is paid ( $R_r - 3\%$  of  $cD$ ), required investment in government and approved securities ( $I_r$ ), free investments ( $I_f$ ), priority advances ( $A_p$ ) and, non-priority advances ( $A_n$ ). As CRR increases, the interest bearing part of the cash holdings rises, but not in proportion to the return foregone from the alternate use of this cash (held to satisfy higher CRR). The average earning falls with increase in  $I_r$  and  $A_p$ , as the rate of return on them is lower. The free part of the asset portfolio viz.  $I_f$  and  $A_n$  are thus left to compensate for the fall in income due to policy induced increase in  $R_r$ ,  $I_r$  and  $A_p$ . If the return from these assets per unit of risk remains the same, the bank management can earn higher return from this assets only by increasing their degree of risk loving (higher risk for higher return per unit). We have discussed that this is a difficult proposition for the security investments as there is not much scope to earn higher return from the free holdings of the government securities (if there is any), at a higher risk and, banks' penetration in the private stock market involves various problems discussed before. This leaves  $A_n$  to be the only asset through which banks can try to compensate for the lower returns from other assets. The bank management can conceive of achieving it in two possible ways, by increasing the amount of funds allocated for this category, both in absolute term, and in proportion to holdings of other assets, and by increasing the lending rates on the non-priority loans. Neither of them offers an easy solution. The funds for additional investment in non-priority advances may come from higher deposit

growth. But as total DTL increases, the volume of required holdings of specific assets also increases, even if the level of CRR & SLR remains the same (as D rises, cD and kD rises, even though c & k remain the same). So the entire increase in DTL cannot be put in asset An. Again, increase in the holdings of An also implies increase in the volume of total advances (A). Now as the banks are required to disburse a fixed fraction (a) of the total advances for priority advances ( $A_p = aA$ ), with increase in volume of total advances, the volume of priority advances also increases, pulling down the level of return. So an increase in DTL involves a simultaneous increase in holdings of low yielding assets as well and hence the required amount of compensatory income increases, in relation to the increased cost associated with deposit expansion.

The other way in which the holdings of An can be increased is by shifting funds away from other assets. In Table 5.1, we observe a decline in the share of total investments (I), but the share of non-priority advances does not increase. Actually the share of total advances in general and loans in particular are falling for most banks, when in the loan portfolio the share of priority lending is increasing. The switching of funds is thus taking place away from these two asset categories and towards cash reserves. The share of cash holdings, as Table 5.1 shows, is increasing for all banks except SBI whose cash holding remains more or less the same.<sup>46</sup> What we observe in fact is an increase in bank's demand for cash, instead of a higher holding of non-

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<sup>46</sup>For SBI the fall in investment and advance portfolio is matched by increase in other asset category (premises and property).

priority loans. There are several factors that may be working during this period which can have an expansionary effect on the demand for cash by the banks over years. All the three components of demand as mentioned in Chapter 3 are likely to be operating, given the current structure and conditions of working of the Indian monetary system. Increase in DTL and increase in the level of CRR makes it necessary to have higher proportion of required cash reserve holding. But bank's actual demand for free cash has reasons to expand too. Branch expansion in remote areas has increased the need for more ready cash as the immediate borrowing facilities enjoyed by local branches, constituting 80% of total offices is limited. A really efficient inter-branch linkage is necessary for the head offices (or regional head offices) in Metropolis with borrowing privileges to respond to any cash shortage at the branch level and adjust to the short fall. This lack of co-ordination between the micro and macro level of banking ultimately results in an excess holding of cash.

Branch expansion in rural and semi-urban areas, and the spread of banking habit among greater number of people has resulted in increase of the number of bank customers from lower, lower-middle and middle income groups, more vulnerable to inflation and economic instabilities. Easy withdrawability of savings bank accounts and facilities of liquidation of term deposits before maturity (at some interest loss) as has been made available over these years, go in perfect harmony with the precautionary nature of savings of these customers. But for the banks, this implies greater needs to be prepared with more liquid

cash. The shifting of asset portfolio from income earning assets to liquid reserves as appears in Table 5.1 is also a reflection of the higher direct demand (transaction balance) for cash from the banks, in addition to increase in reserve requirements. Though one may argue,<sup>47</sup> it rather reflects the inefficiency of the bank management to equate the supply of cash exactly with the demand for cash. This argument is of special relevance in a situation when, this high cash holdings is at the cost of fall in investments in income earning assets, under strict policy regulations from the Central Bank.

To sum up, from the broad trends in asset allocation of the public sector banks over these years, we see that the shares of both investments and loans are falling. On the other hand, the share of cash holdings is increasing. We observe that there are several reasons for bank's demand for cash to increase given the post-nationalization banking scenario. A part of this cash may be inefficiently held. But this inefficiency in cash management is again due to weak inter-branch linkage and information failure, coupled with the centralized decision making process in bank management. In this circumstances, the possibility of increasing income either by investing the increased DTL or by replacing investments in other assets is ruled out. Neither it is possible for the banks to compensate for the fall in level of earning by increasing the per unit rates of interest charged on non-priority lending. In the first place, the lending rates are mostly dictated by CB and has to remain within the prescribed

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<sup>47</sup> The official line of argument in recent years mostly goes in this direction.

ceiling. Second, commercial banks alone cannot charge too high a rate, out of alignment with rates on other competing assets for fear of losing customers. In India, different loan markets have different set of customers and it is neither possible nor desirable for the commercial banks to charge a rate as high as the unorganized market rates. The demand for bank loans will lose most of its attraction, even to the wealthiest borrower if the rate is as high as the ordinary market rate. Besides, that will require relaxation of the high security norms mostly attached with bank loans, ie introduction of higher risk. There has not been any evidence in recent years to believe that Indian commercial banks are in the least willing to relax their security norms. Both Table 5.6 and the evidences on the guarantee offered by the various institutions to encourage the commercial banks in financing the weaker sections, rather speaks the contrary. The Indian commercial banks are more particular about shielding against risks than maintaining their level of earning. This psychology is comprehensible, given the under developed monetary structure and also given the fact that the total deposits is showing a declining trend of late. This falling rate of deposits growth, the expected fear of deposits low, involves additional risks in the banking business. It is hardly likely in such a situation that the banks will opt for a higher allocation risks. Thus the solution of safeguarding expected earning by changing the degree of risk aversion, hypothesized in Chapter 4, is rejected in the case of Indian commercial banks. In the following chapter the effects of changes of various policy variables on asset has been estimated, using regression analysis.



## CHAPTER 6

### The Determinants of Asset Allocation

The optimal allocation of the bank portfolio, as discussed earlier, depends on the availability of investible fund, the rates of returns net of liquidity costs of the competing assets in the portfolio, and the policy constraints imposed by the monetary authority. In this chapter, the effects of changes of these determining factors on the allocative decisions of a bank has been estimated. The discussion on the portfolio management of the Indian scheduled commercial banks in the public sector in interaction to the monetary policies, determined by the imperatives of resource mobilization, ends with some comments on the importance of efficient monetary management in economic development. The scope of this study has been redefined with reference to this crucial inter-linkage between the monetary and real sector, and the role of commercial banks in this relationship.

#### 6.1 The Results of the Regression Analysis

The optimality condition for asset allocation has already been defined in Chapter 4. Given  $D$ , the portfolio allocation takes place among  $R$  ( $R_r$  &  $E_r$ ),  $I$  ( $I_r$  &  $I_f$ ) and  $A$  ( $A_p = aA$  &  $A_n = [1-a]A$ ), subject to the policy constraints  $c$ ,  $k$ , and  $a$ . Banks demand for reserve holding  $R$  is determined on the basis of their expectations regarding changes in  $D$ ,  $T_d/D$ , where  $T_d$  is the time deposits, and expected changes in  $c$  and  $k$ , the expectation based on past knowledge. The rest of the asset portfolio is allocated between  $I$  and  $A$ , depending on their relative rates of return net of liquidity costs. We can write the system of asset allocation in the following functional form.

$$I = f[(1-c-k)D, Td/D, l^*/i^*, x, a ]$$

$$= f[ D^*, Td/D, l^*/i^*, x, a ]$$

$$f^1 > 0, f^2 > 0, f^3 < 0, f^4 < 0, f^5 < 0$$

$$A = g[ D^*, Td/D, l^*/i^*, x, a ]$$

$$g^1 > 0, g^2 > 0, g^3 > 0, g^4 < 0, g^5 < 0$$

D\*: The volume of investible funds (1-c-k)D,

Td/D: The proportion of time deposits in total deposits.

l\*/i\*: The relative rate of return (the ratio of the average return on A to the average return on I).

x: the opportunity cost of allocation of each additional unit of asset portfolio, this is proxied by the cost of borrowing of each additional unit of investments.

c: The cash reserve ratio. k: The statutory liquidity ratio.

a: The proportion of priority sector lendings in total advances.

Thus at any point of time, the problem of asset allocation involves simultaneous determination of I and A, the asset equations being specified by the exogenous variables D, Td/D, l\*/i\*, x, c, k, and a. Before proceeding to the empirical verification of these asset equations, we need some modification of the equational forms. We have excluded Td/D from the equations as the proportion of time deposits to total deposits on the aggregate has not undergone much changes over the period under study (refer Chapter 1). We can write the above equations in the reduced form as:

$$I = \alpha_1 D^* + \alpha_2 l^*/i^* + \alpha_3 x + \alpha_4 a \dots\dots\dots \text{equation 1}$$

$$A = \beta_1 D^* + \beta_2 l^*/i^* + \beta_3 x + \beta_4 a \dots\dots\dots \text{equation 2}$$

The series on D\* has been constructed with the values of D from each year's balance sheet data (last Friday in December), and the

levels of  $c$  and  $k$  as ruling in December each year. The rates of return series has been constructed in the following way. The return on loan portfolio is the weighted average calculated on the basis of distribution of loans according to interest ranges, given in the Statistical Tables Relating to Banks in India. This data have some limitation which have been discussed in the appendix. The weighted average of the call money rate, bill rate and the loan rate gives  $l^*$ , the average rate of return on A. The holding of call money, bills and loans from each year's balance sheet data have been used as weights while calculating the averages. The gross yields on central government securities, state government securities and ordinary equity shares have been used in calculating the weighted return series on investment portfolio  $i^*$ , the weights are again the holding of different securities as given in the balance sheet data. The cost of borrowing is the geometric mean of bank rate, call money market rate (average of market rates in Bombay, Calcutta and Madras) and inter-bank borrowing rates. The 'x' series is this rate minus  $(l^*A + i^*I)/A+I$ . The 'a' values are the ratios  $A_p/A$  for each year.

The estimated regressions as specified in the 'investment equation' (equation 1) and the 'loan equation' (equation 2) are presented in Table 6.1. For the aggregate data, all the variables except  $a$  are statistically significant with correct sign for equation (1). For equation (2), all the variables are significant with expected sign, only  $l^*/i^*$  has wrong sign. But the aggregate result is probably biased by the dominance of the large nationalized banks of group 3 in the

aggregate data. For group 3, both the equations have all the variables significant with expected sign, except  $l^*/i^*$  in equation (2). But for the other bank groups,  $D^*$  is the only variable which is observed to have significant effect in explaining the behavior of  $I$  and  $A$ . Neither borrowing cost nor the relative rate of return pass the test of significance. The proportion of priority advances prove to have negative impact on total advances for group 5, but not for any other group. The auto-correlation test gives inconclusive result in most of the cases. The result does not improve much taking the equations in logarithmic form except for bank group 2. For the nationalized banks in group 4 and 5, logarithmic form shows the yield or cost factors to be significant in some but not all cases. The results of the linear tests are presented below.

The estimated results show the volume of investible fund to be the most significant factor in determining the asset allocation of the commercial banks. For the banking community as a whole, high proportion of priority advances have a negative impact on allocation of the asset portfolio in favour of total advances. This may be taken as a yield responsiveness of the banks towards such loans. The banks are also observed to response negatively to an increase in cost of borrowing net of return by reducing the volume of allocated asset. However, the state bank group (SBI and the subsidiaries) does not seem to respond much, either to yield or cost of borrowing, which is not the case with the nationalized banks. This inter-bank difference becomes more important in the context that the SLR shortfalls are much higher for the nationalized banks than the state banks. Thus

Table 6.1

## RESULTS OF REGRESSION ANALYSIS

Equation 1.:  $I = \alpha_1 D^* + \alpha_2 l^*/i^* + \alpha_3 x + \alpha_4 a$

Bank Groups	Estimated Regression Coefficients					time	R <sup>2</sup>	d	F
	constant	D*	l*/i*	x	a				
All Banks	16516.31 (13.24)	0.45 (16.93)	-5563.0 (-3.56)	-762.41 (-2.61)	-75.89 (-1.97)	207.44 (1.77)	.99	2.63	852.97
Group 1.	-3754.57 (1.43)	0.74 (9.97)	1004.19 (1.30)	76.69 (0.58)	32.25 (1.16)	-159.39 (-2.35)	.99	2.68	267.42
Group 2.	-1037.27 (-3.12)	0.79 (17.60)	368.92 (2.89)	34.65 (1.51)	.98 (0.36)	-40.93 (-3.65)	.99	2.06	559.91
Group 3.	10377.65 (6.53)	3.17 (8.27)	-2601.73 (-4.99)	-375.57 (-3.75)	-86.87 (-5.17)	272.64 (9.82)	.99	2.18	469.75
Group 4.	-329.79 (-0.67)	0.47 (6.87)	-203.54 (-0.49)	-18.95 (-0.26)	34.18 (1.71)	3.09 (1.79)	.99	3.17	224.72
Group 5.	-1514.81 (-1.43)	0.65 (10.88)	623.23 (1.73)	78.02 (1.11)	-2.38 (0.25)	-49.66 (-1.53)	.99	1.51	386.41

† 't' statistics are given in the parentheses, 'd' denotes the Durbin-Watson statistic.

Table 6.2

## RESULTS OF REGRESSION ANALYSIS

Equation 2.:  $A = \beta_1 D^* + \beta_2 l^*/i^* + \beta_3 x + \beta_4 a$

Bank Groups	Estimated Regression Coefficients					time	R <sup>2</sup>	d	F
	constant	D*	l*/i*	x	a				
All Banks	45163.92 (4.35)	0.87 (16.82)	-1383.25 (-4.33)	-2116.78 (-3.55)	-3.22 (-3.05)	886.99 (3.70)	.99	2.53	921.73
Group 1.	952.04 (0.76)	1.24 (14.58)	-262.68 (-0.29)	-49.72 (-0.31)	-15.53 (-0.49)	-6.99 (-0.69)	.99	2.34	977.45
Group 2.	-868.71 (-1.07)	1.03 (9.68)	369.37 (1.18)	68.46 (1.10)	-4.02 (-0.67)	24.58 (0.92)	.99	2.19	366.88
Group 3.	22949.67 (6.59)	0.49 (10.58)	-5184.65 (-4.54)	891.87 (-4.06)	-222.54 (-6.04)	477.53 (7.86)	.99	2.79	485.36
Group 4.	982.62 (0.19)	1.07 (8.77)	-369.67 (-0.50)	-121.62 (-0.94)	10.78 (0.38)	-0.09 (-0.0)	.99	2.61	377.31
Group 5.	966.57 (0.65)	1.0 (11.86)	161.15 (0.32)	-81.93 (-0.93)	-34.35 (-2.63)	21.99 (0.48)	.99	2.72	685.83

† 't' statistics are given in the parentheses, 'd' denoted the Durbin-Watson statistic.

cost of borrowing as well as levels of reserve requirements are more crucial for the nationalized banks. But we must note here that bank groups 3 and 4, containing banks of almost similar asset size and volume of SLR shortfalls do not show same response to yield and costs. As  $D^*$  is highly correlated with  $D$ , the separate impact of  $c$  and  $k$  is not free from ambiguity.

## 6.2 On The Question of Rational Choice: Concluding Remarks

The point of departure of this study has been that money supply, and thus the process of credit creation have important roles to play in affecting the real variables. Studying the question of efficiency of bank portfolio in relation to the objectives and functioning of Indian monetary policy is hence justified. The theoretical foundation of this work has been based on the literature on the policy control of the Central bank and the problems of portfolio management of financial institutions. Publication of the Chakravarty Committee Report builds up a comprehensive framework to understand the dynamics of the functioning of the Indian monetary system. Simultaneously, it revives the question on control and efficiency in banking business in the Indian context. The post Chakravarty Committee reforms in the Indian financial system attempt to liberalize some forces of control, but, by safeguarding the main weapons of financing government expenditure.<sup>48</sup> The scope and success of liberalization of the financial system of a developing economy under paramount pressures of inflation, coupled with large burden of interest payments, defence and other non-planned expenditures,

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<sup>48</sup>In this connection see Velayudhan (1987) where he points out the inconsistencies in the recommendations of the Vaghul Working Group with that of the Chakravarty Committee, so that the rate on the 91 days treasury bills remains unaffected.

is rather limited. Since 1985, there has not been much change in the extent, structure, and mode of financing the budgetary deficits. As the interrelation between the financial institutions and the State (inclusive of the Central Bank as the banker of the government) is defined in the context of mobilization of resources, to finance planned and non-planned government expenditures, the aim of this study has been to redefine the conditions of portfolio choice of the banks, taking into account the changing situations, arising due to their active and important part in financing economic development.

We have already discussed that the portfolio choice theory, in its simplest form, involves the objectives of maximization of expected earning for a given level of risk or, the minimization of risk for a given expected earning. Our observations on the portfolio behavior of the Indian public sector commercial banks points out, that it is the second proposition that appears more acceptable to the banks. But in their attempt to minimize risk, **given the conditions of working of the Indian monetary system**, they fail to maintain their level of expected earning. The health of the public sector banks, the financier of economic development, is an important issue which cannot be ignored or neglected. Thus a continuous falling trend of profitability ratios of the banks, as we observe, ought to become a source of prime concern in any study of the Indian commercial banks. Though, there are hopeful indication that a stability in realization of profit may not be impossible to achieve in future, as the profitability ratios stagnate at a low but positive level during the 80s.

However, the trends in asset allocation brings doubt as to whether the portfolio management of the banks is complying with the objectives of social control. Banks are observed to be responding well to the policy of credit expansion to the priority sectors, though with full guarantee on the security of such loans. But the falling trend of the loan portfolio leaves the future of credit expansion to the desired sectors in doubt. At the same time, constant upward revision of SLR not only reduces the volume of investible fund (and thus the scope for credit expansion), but probably explains the declining trend of the investment portfolio. In a situation of decreasing deposits growth, the major operational concern of the banks confines to borrowing of reserves to fulfill the policy requirements. The continuous shortfalls of SIR, as indicated by the negative holding of excess government securities, and the penalty payments associated with it, makes bank rate and the money market rate very important monetary instruments. This continues the pressure on CB to lend the last resort, bank's demand for actual cash holdings increases under this condition, depending on the ratio of bank rate to penalty rate, per unit of SIR shortfall, in addition to other forces operating on the demand for transaction balance. If the SIR continues to follow an increasing trend, there is possibility that given a declining deposits growth, a shift of fund may take place away from the advance portfolio or investment in other securities, to satisfy the increasing demand for holding of investment portfolio (in required assets), the failure of which involves penalty payment. Thus while the proportion of priority lending in total loans increases over time following the policy rule, the actual volume



of credits disbursed tend to decline in future.

A simple regression analysis of the asset allocation functions involving the operating constraints faced by the public sector banks in the relevant period, shows that the banking community as a whole responds negatively to an upward revision of the policy variables, by restricting their asset expansion. A policy induced low yield allocation ultimately leads to shrinking of portfolio investment in desired assets. The negative response of the banks to increase in cost of borrowing less return (x) rules out the possibility of portfolio expansion via refinancing for too long a period. Since the opportunities to earn compensatory alternative income is restricted for Indian commercial banks, banks are left with no choice but to accept a low-income level of allocation. Given the yield responsiveness of the portfolio, absence of this alternate solution tends to have further dampening effect on portfolio expansion in desired assets, crucial for economic development.

The above discussion makes it clear that the policy of increasing reserves requirements, to balance uncontrolled government expenditure stand in contradiction to the objectives of social control of the commercial banks. As Central Bank's policy rule leaves only a small part of the portfolio for free choice, low yield of the existing portfolio acts as disincentives on future allocation. In this circumstances, it is hardly possible to expect spontaneous response and active participation of the commercial banks in financing economic development. If we consider that the portfolio adjustment of the

commercial banks have a crucial role to play in influencing the path of major macroeconomic variables via the monetary-real sector linkage, the decision the monetary authority in deciding preference between conflicting objectives needs to satisfy the main goals of social control. But in a situation where the CB does not have enough autonomy as banker of the government, the ultimate working of the policy variables are determined outside the banking sector.

The scope of this study is rather limited to fully explain the relation of the financial system with the economy as a whole and thus fails to grasp the full implication of the functioning of the monetary variables in influencing the development process.<sup>49</sup> It rather gives a snapshot of the working of the public sector banks during the specified period. While doing so, it tries to highlight the inconsistencies in the policy design which instead of encouraging the expansion of bank finance in economic development, ultimately creates an unfavourable climate. Since the conditions of working of the Indian monetary system has been undergoing major change since 1985, with application of liberal forces and relaxation of centralized control. It is rather too early to be able to explain the portfolio response of the public sector banks to monetary policy parameters. Whether the direction of the portfolio adjustment of the banks has been able to comply with the broad objectives of social control, and the role of the alternate regimes of control in this respect, to influence the

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<sup>49</sup>In this context see Rakshit (1989), Sanyal, Patnaik, Mukherjee (1989)

portfolio behavior of the banks will become clearer in the years to follow. The scope of this study is sure to broaden with inclusion of the non bank financial intermediaries (NBFI), as the NBFIs have a major role to play not only in both government and industrial security market, but also in direct finance of economic development through refinance and other facilities. Our analysis of the portfolio behavior of Indian public sector banks in the first one and a half decade of social control gives an important foresight in understanding one major aspect of the problem, viz the particular role of the public sector banks in financing economic development, and the impact of the policy of involving commercial in financing economic development, on the functioning of the banks.

## APPENDIX-I

### Data Sources: Limitations & Modifications.

The following Reserve Bank publications have been used as sources of numerical information in the study: Report on Currency & Finance (Volume II), Reserve Bank of India Bulletins, Banking Statistics: Basic Statistical Returns, Statistical Tables Relating to Banks in India, Credit Information Reviews, Report of the Committee to Review the Working of the Monetary System in India

The data on the portfolio composition of individual banks have been taken from Section II (detail tables) of the 'Statistical Tables Relating to Banks in India' : the tables on "Liabilities and Assets of Indian Scheduled Commercial Banks (Total Business); [under special returns on form A-1]. This data is subject to the limitations of the balance sheet data. As the reserves requirements are calculated on daily and fortnightly basis, this leads to some inconsistencies in the estimate of free and required components of the portfolio. The levels of CRR and SLR, at december each year has been used, to obtain only a rough estimate of these components.

The sectoral composition of priority sector advances have been constructed from the tables 'Advances of Public Sector Banks to Priority Sectors and Ratios to Their Total Credit' & 'Advances of Public Sector Banks to Other Priority Sectors' from the same volume.

The security pattern is based on the information given in 'particulars of advances' [Item 13] from the table 'Liabilities and Assets of Different Classes of Commercial Banks [Balance Sheet Under Section 29(1) of the Banking Regulation Act

1949] in the same volume. Wherever BSR data have been used, it has been mentioned in the footnote to the respective table.

The various rates of returns on the portfolio items have been taken from (1) :Structure of Interest Rates in India, Report on Currency & Finance (Volume II).

(2): Gross Yields (Running) on Government and Industrial Securities, Report on Currency & Finance (Volume II) and Reserve Bank of India Bulletins.

(3): Distribution of Loans & Advances of Scheduled Commercial Banks According to Interest Range, Statistical Tables Relating to Banks in India.

The effective levels of CRR & SLR have been taken from the Chakravarty Committee Report on the Monetary System, Credit Information Reviews and Reserve Bank Of India Bulletins.

All data that have been used in the study correspond to the figure in December; each year. The period covered is broadly 1960-85, though the main analysis has been done for the years 1970-85. All data relating to individual bank have been classified into six bank groups as described in Chapter 1.

The data on various rates of return is subject to a number of limitations. The data on distribution of outstanding credit of commercial banks according to interest rate ranges as given in the RBI publications, are collected through BSR-1A. These data do not include the credits below Rs 10,000 till 1982 and Rs 25,000 afterwards. The accounts with the size of credit limit below that range is collected through BSR-1B and such detail information are not available on them (source: notes on tables, BSR). But most of the priority sector loans belong to this category; accounts with the size of credit limit below the

lowest range. The proportion of these credits (below the lowest credit limit size), on average over 1970-85, major occupation groups is given below.

Table A.1

DISTRIBUTION OF CREDITS BELOW THE LOWEST LIMIT	
SECTORS	SHARE OF CREDITS
AGRICULTURE	
Direct	63.02
Indirect	6.61
INDUSTRY	1.85
TRANSPORT	7.48
SMALL SCALE INDUSTRY	6.48
PROFESSIONAL SERVICES	46.99
WHOLE SALE TRADE	.52
RETAIL TRADE	55.50
PERSONAL LOAN	18.94
OTHERS	53.03

The interest ranges for the priority sector loans are given in the Credit Information Reviews since 1979. But for the difficulties in constructing a comparable return series on the loan portfolio from 1970 to 1985, we have confined ourselves to loans given in BSR-1A.

We have used the gross yields on securities as representative of return on the investment portfolio. While constructing the return series, the gross yields on central and state government securities and the ordinary company shares have been used. RBI discontinued publication of yield series on debentures and preference shares with effect from December 1979 as most of the selected scrips were not actively traded on the stock exchanges and in many cases, the price quotations published in the 'Official Quotations Lists' pertained to transactions taken place in distant past (source: footnote to statement 66, Report on Currency & Finance, Vol II, 1979-80).

## APPENDIX-II

### Detail Statistics

The statistics used in our analysis has mostly been averaged out for the two sub periods, 1970-79 and 1980-85 and also for the whole period 1970-85, in order to facilitate easy comprehension and to avoid the difficulties in presentation of the data in simple tabular forms. However, a better idea about the actual behavior of various components of the bank portfolio may be obtained from the year to year data. Some detail tables are presented in this appendix to serve this purpose.

**Table A.2**

#### YEARLY PROFITS OF THE BANKS

YEAR	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6
1960	21759	5103	29154	11832	13117	2951
1961	27100	5103	40356	13163	19914	2633
1962	26925	5850	39733	13821	19068	2085
1963	19282	4751	29021	12006	13990	2576
1964	20531	4735	30944	12649	15309	1932
1965	20100	5462	33198	13213	16724	2447
1966	23734	4496	29699	13388	14293	2538
1967	25301	5975	29438	12436	14322	1609
1968	27576	5411	29497	12781	14411	1795
1969	28001	4148	31089	10520	14709	2740
1970	27001	3893	28387	15156	23505	3347
1971	37778	4223	35614	18377	27875	5939
1972	38500	4162	38393	16496	20833	6188
1973	41195	4381	43016	21415	17307	8072
1974	46083	5015	55306	35027	29600	12307
1975	65270	7928	62713	50818	30103	16044
1976	77529	8953	85448	70955	52316	22417
1977	77001	9760	91472	53619	25959	21805
1978	85039	9680	88018	53159	30486	24801
1979	100000	9377	110177	55890	27971	34316
1980	120208	9388	133875	65177	45838	39972
1981	151162	10418	151626	60364	52421	43795
1982	190060	11334	158545	62715	80515	49887
1983	237499	11110	146242	50486	111434	52179
1984	240242	11497	308589	78553	146535	56371
1985	320366	17017	162615	67734	168066	84406

Table A.3

## REQUIRED AND FREE COMPONENTS OF THE ASSET PORTFOLIO

YEAR	REQUIRED RESERVE	EXCESS RESERVE	TOTAL RESERVE	REQUIRED INVESTMENT	FREE INVESTMENT	TOTAL INVESTMENT	PRIORITY ADVANCES	NON-PRIORITY ADVANCES	TOTAL ADVANCE
BANK GROUP 1									
1970	37.62	62.38	100	77.50	22.50	100	34.85	65.15	100
1971	33.34	66.66	100	67.63	32.37	100	34.16	65.84	100
1972	83.72	16.28	100	78.35	21.65	100	31.83	68.17	100
1973	74.37	25.63	100	93.48	6.52	100	34.89	65.91	100
1974	32.36	67.64	100	78.10	21.90	100	33.45	66.55	100
1975	37.49	62.51	100	85.28	14.72	100	38.67	69.33	100
1976	72.83	27.17	100	103.38	-3.38	100	29.38	70.70	100
1977	63.13	36.87	100	99.27	0.73	100	33.11	66.89	100
1978	46.15	53.85	100	93.89	6.91	100	35.67	64.33	100
1979	41.65	58.35	100	93.87	6.93	100	37.84	62.16	100
1980	84.05	15.95	100	105.54	-5.54	100	38.74	61.26	100
1981	97.70	2.30	100	106.75	-6.75	100	36.99	63.01	100
1982	71.50	28.50	100	116.95	-16.95	100	31.41	68.59	100
1983	18.34	81.66	100	87.94	12.06	100	31.16	68.84	100
1984	65.90	34.10	100	104.68	-4.68	100	31.99	68.01	100
1985	57.39	42.61	100	96.85	3.95	100	31.79	68.21	100
BANK GROUP 2									
1970	30.47	69.53	100	81.18	18.82	100	34.21	65.79	100
1971	34.39	65.61	100	77.82	22.98	100	29.91	70.09	100
1972	30.76	69.24	100	88.34	19.66	100	28.02	71.98	100
1973	48.63	51.37	100	88.29	19.71	100	31.83	68.17	100
1974	34.81	65.19	100	86.84	13.96	100	35.88	64.92	100
1975	36.94	63.06	100	93.34	6.66	100	37.27	62.73	100
1976	47.88	52.28	100	86.88	14.88	100	36.75	63.25	100
1977	55.59	44.41	100	98.48	1.68	100	28.32	71.68	100
1978	45.14	54.86	100	92.48	7.52	100	37.84	62.16	100
1979	48.88	51.12	100	95.94	4.86	100	42.58	57.58	100
1980	42.66	57.34	100	94.25	5.75	100	42.81	57.99	100
1981	48.43	51.57	100	92.23	7.77	100	39.45	60.55	100
1982	56.61	43.39	100	99.57	0.43	100	39.63	60.37	100
1983	69.76	30.24	100	104.19	-4.19	100	37.65	62.35	100
1984	68.64	31.36	100	101.92	-1.92	100	41.95	58.05	100
1985	62.55	37.45	100	94.59	5.41	100	42.43	57.57	100
BANK GROUP 3									
1970	31.72	68.28	100	84.98	15.02	100	37.53	62.47	100
1971	26.86	73.94	100	88.81	19.99	100	38.15	61.85	100
1972	37.11	62.89	100	76.58	23.42	100	38.78	69.38	100
1973	75.58	24.58	100	96.94	3.86	100	34.35	65.65	100
1974	48.96	51.84	100	93.54	6.46	100	35.88	64.92	100
1975	56.69	43.31	100	101.75	-1.75	100	33.58	66.42	100
1976	91.42	8.58	100	112.74	-12.74	100	34.13	65.87	100
1977	61.28	38.72	100	101.98	-1.98	100	33.25	66.75	100
1978	66.54	33.46	100	104.67	-4.67	100	34.31	65.69	100
1979	55.95	44.05	100	97.25	2.75	100	35.83	64.17	100
1980	47.48	52.52	100	92.83	7.97	100	38.22	61.78	100
1981	59.33	40.67	100	108.78	-8.78	100	36.98	63.18	100
1982	57.88	42.28	100	106.54	-6.54	100	34.96	65.04	100
1983	74.38	25.62	100	112.16	-12.16	100	32.82	67.98	100
1984	68.42	31.58	100	117.79	-17.79	100	32.55	67.45	100
1985	76.82	23.98	100	135.58	-35.58	100	37.42	62.58	100



Table A.3 Continued.

YEAR	REQUIRED RESERVE	EXCESS RESERVE	TOTAL RESERVE	REQUIRED INVESTMENT	FREE INVESTMENT	TOTAL INVESTMENT	PRIORITY ADVANCES	NON-PRIORITY ADVANCES	TOTAL ADVANCES
BANK GROUP 4									
1970	28.89	71.11	100	80.01	19.99	100	27.15	72.85	100
1971	33.26	66.74	100	73.15	26.85	100	27.44	72.56	100
1972	28.09	71.91	100	68.47	31.53	100	28.96	71.04	100
1973	61.87	38.13	100	95.41	4.59	100	38.45	69.55	100
1974	41.68	58.32	100	95.11	4.89	100	31.78	68.22	100
1975	44.75	55.25	100	100.49	-0.49	100	38.48	69.52	100
1976	60.35	39.65	100	109.20	-9.20	100	29.56	70.44	100
1977	50.32	49.68	100	97.94	2.06	100	32.23	67.77	100
1978	46.76	53.24	100	98.83	1.17	100	30.70	69.30	100
1979	40.98	59.02	100	94.38	5.62	100	32.42	67.58	100
1980	42.09	57.91	100	93.86	6.14	100	33.65	66.35	100
1981	57.14	42.86	100	112.70	-12.70	100	33.62	66.38	100
1982	56.42	43.58	100	117.29	-17.29	100	32.50	67.50	100
1983	63.72	36.28	100	116.01	-16.01	100	29.96	70.04	100
1984	61.14	38.86	100	127.98	-27.98	100	30.68	69.32	100
1985	72.28	27.72	100	126.10	-26.10	100	32.81	67.19	100
BANK GROUP 5									
1970	23.18	76.82	100	44.17	55.83	100	17.33	82.67	100
1971	24.90	75.10	100	45.69	54.31	100	17.09	82.91	100
1972	36.21	63.79	100	68.35	31.65	100	29.27	70.73	100
1973	64.40	35.60	100	88.26	11.74	100	33.99	66.01	100
1974	39.49	60.51	100	86.38	13.62	100	34.04	65.96	100
1975	44.14	55.86	100	95.12	4.88	100	33.66	66.34	100
1976	70.49	29.51	100	109.01	-9.01	100	33.11	66.89	100
1977	54.03	45.97	100	93.31	6.69	100	33.46	66.54	100
1978	53.59	46.41	100	91.70	8.22	100	35.02	64.98	100
1979	40.37	59.63	100	88.01	11.99	100	37.78	62.22	100
1980	45.10	54.90	100	88.68	11.32	100	39.16	60.84	100
1981	55.38	44.62	100	100.04	-0.04	100	38.49	61.51	100
1982	54.40	45.60	100	99.57	0.43	100	38.20	61.80	100
1983	72.33	27.67	100	108.24	-8.24	100	34.66	65.34	100
1984	66.70	33.30	100	106.63	-6.63	100	36.20	63.80	100
1985	64.32	35.68	100	103.52	-3.52	100	37.47	62.53	100
BANK GROUP 6									
1970	23.02	76.98	100	65.48	34.52	100	0.00	100.00	100
1971	48.56	51.44	100	84.06	15.94	100	0.00	100.00	100
1972	28.45	71.55	100	85.51	14.49	100	0.00	100.00	100
1973	28.40	71.60	100	80.23	19.77	100	0.00	100.00	100
1974	43.60	56.40	100	101.01	-1.01	100	0.00	100.00	100
1975	37.41	62.59	100	90.96	9.04	100	0.00	100.00	100
1976	40.20	59.80	100	94.17	5.83	100	0.00	100.00	100
1977	33.34	66.66	100	83.73	16.27	100	0.00	100.00	100
1978	31.05	68.95	100	70.70	29.30	100	39.73	60.27	100
1979	45.29	54.71	100	93.91	6.09	100	43.18	56.82	100
1980	39.65	60.35	100	87.84	12.16	100	42.39	57.61	100
1981	53.19	46.81	100	98.43	1.57	100	40.00	60.00	100
1982	47.18	52.82	100	100.65	-0.65	100	39.91	60.09	100
1983	49.29	50.71	100	95.91	4.09	100	42.35	57.65	100
1984	38.96	61.04	100	100.77	-0.77	100	39.91	60.09	100
1985	35.90	64.10	100	94.84	5.16	100	42.35	57.65	100

Table A.4  
LIST OF VARIABLES USED IN REGRESSION ANALYSIS\*

YEAR	DTL(D)	Td/D	I	A	D*	1*/i*	a	x
ALL BANKS								
1970	5297	0.41	1554	4015	3655	2.33	31.02	0.63
1971	6141	0.44	1957	4463	4237	2.33	30.41	1.44
1972	8095	0.44	2760	5171	5424	2.36	31.77	2.00
1973	10019	0.43	3083	6510	6412	2.51	34.20	0.25
1974	11431	0.44	3591	7666	7201	2.93	35.31	-2.11
1975	19862	0.46	4297	9812	12513	2.83	35.93	-0.38
1976	18938	0.42	5381	12820	11552	2.79	33.55	-0.66
1977	22317	0.44	6554	14950	13613	2.69	34.39	0.41
1978	27960	0.42	8240	18065	16776	2.57	36.36	0.45
1979	34495	0.42	9982	21300	20697	2.54	38.75	0.19
1980	41218	0.43	12281	25517	24731	2.46	47.44	0.34
1981	49776	0.43	14714	31811	28621	2.50	46.33	-0.58
1982	58790	0.41	16579	37728	34098	2.46	41.71	0.10
1983	71591	0.41	20767	43454	40449	2.44	40.74	0.20
1984	84692	0.41	23560	51637	46581	2.52	41.91	-0.44
1985	110957	0.40	28393	59382	59362	2.60	44.04	-0.15
BANK GROUP 1								
1970	1506	0.41	448	1121	1039	2.35	42.11	0.63
1971	1683	0.48	548	1144	1161	2.34	38.36	1.44
1972	2021	0.48	759	1328	1354	2.36	36.86	2.00
1973	2461	0.49	779	1636	1575	2.47	38.31	0.25
1974	3031	0.48	956	1944	1909	2.96	38.00	-2.11
1975	3759	0.48	1161	2641	2368	2.81	35.64	-0.38
1976	4811	0.51	1432	3428	2935	2.80	33.09	-0.65
1977	5837	0.51	1734	3954	3560	2.68	37.86	0.41
1978	7370	0.47	2138	5080	4422	2.53	40.66	0.45
1979	9387	0.44	2581	6006	5632	2.50	43.13	0.19
1980	10321	0.48	3214	7562	6193	2.42	44.11	0.34
1981	13406	0.46	4373	9379	7709	2.44	41.54	-0.58
1982	16323	0.43	4496	11628	9467	2.35	35.87	0.09
1983	19357	0.43	6002	12824	10937	2.33	36.22	0.19
1984	22511	0.42	6741	14912	12381	2.44	36.96	-0.44
1985	26466	0.47	8251	17374	14159	2.50	38.35	-0.15
BANK GROUP 2								
1970	400	0.48	104	304	276	2.34	39.47	0.63
1971	461	0.51	133	326	318	2.33	33.90	1.44
1972	545	0.49	158	386	365	2.38	31.89	2.00
1973	638	0.50	195	434	400	2.47	37.20	0.25
1974	729	0.48	216	485	459	2.89	41.97	-2.11
1975	869	0.47	244	591	548	2.82	46.34	-0.38
1976	1024	0.50	315	725	625	2.79	46.76	-0.65
1977	1326	0.48	383	1168	809	2.56	43.43	0.41
1978	1728	0.47	499	1177	1037	2.54	49.48	0.45
1979	2077	0.45	600	1333	1246	2.55	53.38	0.19
1980	2522	0.47	694	1564	1513	2.44	50.84	0.34
1981	3066	0.46	898	1938	1763	2.49	48.21	-0.58
1982	3621	0.46	1078	2290	2100	2.45	34.05	0.09
1983	4385	0.46	1318	2787	2477	2.40	45.99	0.19
1984	5412	0.45	1693	3222	2976	2.53	50.34	-0.44
1985	6115	0.46	2024	3785	3272	2.62	50.14	-0.15

Table A.4 Continued

YEAR	DTL (D)	Td/D	I	A	D*	1*/i*	a	x
BANK GROUP 3								
1970	1429	0.48	362	975	986	2.32	41.31	0.63
1971	1659	0.49	455	1111	1145	2.32	41.42	1.45
1972	2695	0.50	877	1723	1806	2.36	42.03	2.08
1973	3371	0.49	1034	2179	2158	2.52	46.01	0.25
1974	3815	0.48	1176	2501	2404	2.94	46.30	-2.11
1975	9997	0.76	1393	3160	6298	2.04	47.25	-0.38
1976	6239	0.49	1795	4099	3806	2.77	43.03	-0.65
1977	7182	0.53	2057	4505	4381	2.70	42.96	0.41
1978	8429	0.54	2537	5272	5057	2.59	45.05	0.45
1979	9977	0.55	3039	6174	5986	2.54	48.48	0.19
1980	12348	0.54	3693	7138	7409	2.46	49.39	0.34
1981	14878	0.54	4091	8896	8555	2.51	48.32	-0.58
1982	16386	0.52	4878	10443	9584	2.58	45.66	0.09
1983	21084	0.56	6029	12519	11912	2.47	39.67	0.19
1984	25014	0.55	6763	15092	13758	2.55	39.93	-0.44
1985	41248	0.48	7532	17338	22063	2.70	43.63	-0.15
BANK GROUP 4								
1970	817	0.20	210	575	563	2.33	40.72	0.63
1971	965	0.20	291	640	666	2.34	41.46	1.44
1972	1170	0.20	381	723	784	2.38	41.12	2.08
1973	1480	0.27	429	964	947	2.54	41.76	0.25
1974	1770	0.27	510	1179	1115	2.94	42.90	-2.11
1975	2221	0.25	620	1484	1400	2.85	43.19	-0.38
1976	2939	0.23	781	1956	1793	2.80	39.38	-0.65
1977	3699	0.23	1023	2331	2256	2.73	43.31	0.41
1978	4531	0.24	1287	2899	2718	2.60	41.32	0.45
1979	5567	0.24	1528	3424	3340	2.55	42.43	0.19
1980	6880	0.24	1918	4034	4128	2.48	43.91	0.34
1981	7365	0.27	2191	5066	4235	2.53	42.65	-0.58
1982	9533	0.23	2407	5782	5529	2.53	40.15	0.09
1983	10971	0.24	2852	6457	6199	2.50	36.70	0.19
1984	13474	0.23	3188	7933	7411	2.57	37.85	-0.44
1985	15030	0.23	3976	8812	8041	2.59	41.63	-0.15
BANK GROUP 5								
1970	926	0.31	379	925	639	2.32	27.29	0.63
1971	1088	0.32	451	1089	751	2.35	27.38	1.44
1972	1291	0.31	467	777	865	2.35	38.73	2.08
1973	1595	0.30	508	998	1021	2.54	41.92	0.25
1974	1477	0.37	570	1175	931	2.93	42.60	-2.11
1975	2199	0.29	646	1444	1385	2.85	43.13	-0.38
1976	2793	0.27	775	1808	1704	2.79	38.26	-0.65
1977	2800	0.33	985	2098	1788	2.73	38.77	0.41
1978	3976	0.29	1262	2468	2385	2.59	41.68	0.45
1979	4978	0.29	1569	2909	2982	2.56	45.88	0.19
1980	6228	0.29	1887	3639	3737	2.46	47.04	0.34
1981	7638	0.29	2212	4571	4387	2.51	45.62	-0.58
1982	8879	0.27	2598	5321	5150	2.46	45.07	0.09
1983	10948	0.26	3209	6115	6181	2.47	40.08	0.19
1984	12307	0.28	3636	7228	6769	2.48	41.44	-0.44
1985	14757	0.27	4523	8246	7895	2.57	42.55	-0.15

\* Chapter 6, Tables 6.1, 6.2.

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