CHAPTER - II

THEORITICAL BACKGROUND & LITERATURE REVIEW

Economists have recognised the importance of financial intermediaries in the process of economic development since long. Schumpeter called, /'a vehicle of economic growth'. Many others have considered the role played by financial intermediaries in general and commercial banks in particular in promoting and mobilizing savings in an economy as a necessary condition for economic development. In the developing countries, the planners and policy makers have invariably recognised the importance of the financial system in increasing production and productivity.

The financial system is a set of institutional arrangements through which financial resources (or commands over real resources) in the economy are mobilized from surplus units and transferred to deficit spenders. The institutional arrangements include all conditions and mechanisms governing the production, distribution, exchange and holding of financial assets or instruments of all kinds and the organisation as well as the manner of operation of financial markets and institutions of all discriptions. In concrete terms, financial assets, financial markets and financial institutions are the three main constituents of any financial system.[21]

It is a historical fact that banks have usually been the first type of financial institutions to develop as a medium of savings.[2]

The credit of elaborating the role of financial intermediation and suggesting the wide spectrum of financial assets which are available in an economy as it moves along the path of economic progress goes to Gurley & Shaw. They propounded the thesis that the financial assets of non-banking financial intermediaries gained in importance as the process of economic development of an economy accelerates.[3] The ratio of bank money (cheque deposit) to total financial assets first increased, but, has levelled and decreased, with a log of one or several generations. Harold observed that "as economic development progressed the share of the banking system in the assets of the financial institutions has declined."[4] This was true of Britain as well as all developed countries. The share of the newer types of financial institutions, viz. primary savings banks, building societies, mortgage banks, life insurance companies, government and private retirement funds, investment companies and finance companies has increased in relation to both the assets of all financial institutions as well as to total financial assets. In late Sixties Goldsmith concluded that the assets of the banking system (central and commercial banks) are now considerably below those of all other financial institutions taken together in the economically most advanced countries while the opposite relationship is still common in less developed

countries.[8] This relationship continued to hold true even at present.

Several reasons are put forth for the loss of grounds by commercial banks to the N.B.F.Is.

Firstly, once a certain stage of economic development is reached, the income elasticity of demand for non-bank financial assets/services is higher than those of commercial banks.

Secondly, inflation raised the operating costs of banks more than those of N B F Is.

Thirdly, the banks have been most discriminated against in the monetary and tax policies.

Fourthly, some legal factors also throttled the growth of banks e.g. the ceiling on interest rates, price control on transaction charges, restriction on the entry of new banks and opening of bank branches solely for profit maximisation.

Lastly, the electronic funds transfer mechanism enable the N B F Is to render money transmission service without having to incur the full burden of labour-intensive operational costs that is borne by the commercial banks which are to a great extent bound by their history.

Thus, what was once the great advantage of the commercial banks - their domination of the money creation and transmission system, has proved to be a mixed blessing. Inspite of all this, it needs to be noted that commercial banks are the only financial intermediaries which create credit and thus have influence on the money supply in an economy. The experience of the developed countries has clear lessons for the developing countries. Once the N B F Is reach the size at what they offer easy accessibility to the public, they are bound to offer stiff competition to the commercial banks. Unless the latter, wider their spectrum of services and assets through financial innovations and improve operational efficiency through professional management and adoption of modern techniques, their market share of financial assets is bound to dwindle rapidly.

Role of Intermediaries

Financial Intermediaries (F Is) are institutions or firms that mediate or stand between ultimate lenders and ultimate borrowers or between those with budget surplus and those who wish to run budget deficits. The examples are banks, insurance companies, unit trusts (or mutual funds), investment companies, provident funds, etc. The central function of all Financial Intermediaries is to collect surpluses (savings) of other economic units and to lend them to deficit spenders.

F Is are dealers in securities, what they buy are primary securities what they sell are secondary securities.

The secondary securities in the form of saving deposits has enabled the banks to mobilise savings of households which can be used to lend even to a distant farmer who could not otherwise borrows directly from an urban household on the strength of his own promise to pay.

The main advantages to savers from the F Is are -
Low risk, Greater Liquidity, Convenience of dealings and rendering of other services.

Borrowers also have a preference for F Is as they have big pools of funds, so that big individual demands for funds can be satisfied easily, much greater certainty of the availability of funds at all times, the rate of interest is lower, regulated F Is do not fleece small borrowers in the manner money - lenders do. The true economic basis of financial intermediation lies in the - 1 - law of large numbers, and

2 - economics of scale in pfortfolio management

1 - Law of Large Numbers

All F Is operate on the assumption supported by statistical law of large numbers that not all the creditors will put forward their claims for cash at the same time.

2 - Economics of Scale in Portfolio Management

F Is can reap several economies of scale in portfolio
management which improve significantly their net rates of
return from their asset holdings by -

1 - Reduction of risk through portfolio
diversification.

2 - Professional management.

3 - Indivisibilities and Market imperfections.

4 - Other cost economies.

F Is play a very important role in the functioning
of a modern complex economy, in promoting economic
development and in the working of the monetary and
credit policy. The more numerous, varied, well organised,
geographically well-distributed and efficient the F Is,
more developed is the financial infrastructure of an
economy in general.

The financial system helps production, capital
accumulation and growth by -

1 - Encouraging savings,

2 - Mobilising them and

3 - Allocating them among alternative uses and
users.

Each of these function is important and the
efficiency of a given financial system depends on how
well it performs each of these functions.[6]

Financial Intermediation by Banks

The process of financial intermediation by banks is aptly described by Goldfold & Chandler, "a bank gathers funds from people by issuing and selling financial claims against itself. It can acquire assets to the ex ent and only to the extent, that it is supplied with funds in exchange for financial claims against it". Thus, a bank participates in financial markets, in two principal roles - as a buyer of funds through issues of claims against itself and as a seller of funds or purchaser of claims against others.[7] This process of mobilising savings from the economy and channelising the funds to the investors is known as the process of financial intermediation.

Gopal Karkal observes, "the image of banks has changed from the traditional 'dealer in money' to that of a modern 'leader in development'. Banks consider it their primary task together deposits (i.e. mobilise savings of the people) as a means of providing the resources for lending (i.e. channelising the savings thus collected into the most productive and profitable investments). The deposit role of banks is as important as the credit role, for the essential activity of the bai s is converting of the raw materials of deposits into outputs of loans and investment.

The business of the commercial bank is 'receiving, transferring and encashing deposits'. Bank is an institution which deals in money and money substitutes and it also provides a range of financial services.

The most important functions performed by banks are as under -

1 - providing a mechanism for making payment and remittances, and

2 - the role of intermediaries between borrowers and primary lenders. Commercial banks also deal in debts and in the process they create money. The process of money creation by the banks is known as 'monetisation of credit.'[8]

R.M. Srivastava throws light on a special aspect of deposit mobilisation, "a commercial bank is the only institution which accepts funds from the public in the form of demand deposits i.e. deposits accounts which are subject to withdrawal by the owner on demand and subject to transfer to a third party by means of a cheque."[9]

Bank and Non-bank Financial Intermediaries (N B F Is)

Role of banks and N B F Is in the field of deposit mobilisation is explained in the Report of Study Group on N B F Is, "in terms of drowal on the

pool of community's saving, N B F Is are main competitors with banking system in the field of deposits. The time accounts of household sectors are the main source of funds for N B F Is. The competition with commercial banks has therefore relevance mainly with reference to time accounts.

Despite the insured character of bank deposits the individuals prefer to put their money with N B F Is due to the following advantages -

    1 - A better rate of return on deposits,

    2 - The specialised type of customer services, &

    3 - Easier access.

N B F Is have been able to thrive in areas where the banking system is well spread due to the differential rate of interest on deposits. N B F Is mobilise deposits by paying higher rates, of interest than the banks as they have not to maintain liquidity ratios.on the other hand there is a possibility of charging higher rates of interest by N B F Is from their loan customers because, their major clientale are small men, who have very few other sources of finance. Further at present certain tax benefits are given to the depositors of commercial banks whereas such benefits are not available to the depositors of N B F Is.

Some of the deposits at the margin, may represent a shift from the organised banking sector. Some part of it would constitute an aspect of resource mobilisation by organised institutions. The problem of flight of deposits can be solved by bringing in the degree of survellance of both deposits and lending operations of N B F Is. N B F Is should supplement the activities of banks. Their function with respect to deposit mobilisation, is somewhat akin to the role of the local non-scheduled banks or urban banks.[10]

D.M. Mithani has distinguished banks and N B F Is as under -

Banks

Their liabilities are accepted as a means of payment in settlement of debts. Form a homogenous group. Provides a short-term loan in the money market. Gnerates multiple expansion of credit. Credit creation is determined by the availability of excess reserves. They can raise funds costlessly as no interest is payable on demand deposits. People deposit money for safety, convenience and liquidity considerations. Less time involved in the process of credit. The financial claims on the N B F Is are increasing at the cost of bank's demand deposits.

N B F Is

Their liabilities are not accepted as a means of payment in the settlement of debt. They form a heterogenous group. They spread all over the entire range of financial

markets, supplying short, medium and long term credit. Mobilise savings for investment. Operation and saving mobilising process is governed by structure of interest rate. Pay higher and higher interest to attract more funds. Economic motive of earning extra income. Lending operations involve longer time period and are based on income turnover. Operations can cause destabilisation impact when there are changes in the structure of portfolios held by them.[1]

Savings and Bank Deposits

Bank deposits constitute a vital component of national savings. Hence, for explaining the behaviour of bank deposits, it is pertinant to draw on the theories explaining the behaviour of savings.

Savings could be defined either as a flow concept or a stock concept. As a flow, saving is defined as income not consumed. Since income and consumption both are defined as flows, savings also becomes a flow which is a homogeneous difference between two flows. As a stock concept, saving can defined as a rate of change in wealth.

Individual households invariably save a part of their income, for meeting future needs. An individual household first of all meets its consumption needs from the income in any given period. The excess of income over consumption is his savings. When the savings of individual income earning identifies is totalled we get the savings of the economy during the period. Symbolically, S = Y - C, where S denotes savings, and Y and C stand for income and consumption respectively.

The concept of aggregate savings became an important monetary variable, in economic theory since Keynes declared, "savings is a function of income i.e. S = f (Y). That is

to say, & as income increase savings also increases and vice-versa, savings depends on the propensity to save, which is derived from the propensity to consume. Symbolically it means $\frac{S}{Y} = 1 - \frac{C}{Y}$, where propensity to save $\frac{S}{Y}$ is equal to one minus the propensity to consume i.e. $\frac{C}{Y}$. According to Keynes, the consumption function (or the propensity to consume) is a stable function of income in the short period.[12] It follows from this, that the savings function (or the propensity to save) would also be stable function of income. It should be noted that though the propensity to save is a stable function of income, savings (individual or aggregate) is an increasing function. Thus, the marginal propensity to save $[\frac{\Delta S}{\Delta Y}]$ is an increasing function. Thus, $\frac{\Delta S}{\Delta Y}$ is always greater than zero, but less than unity. Symbolically, $1 > \frac{\Delta S}{\Delta Y} > 0$.

Several economists tested this "Absolute Income Hypothesis" of Keynes. From the three segments of savers in an economy, viz. households, firms and government. Households contributed a very significant proportion of total savings in all the countries. Hence, the economic theorists concentrated their attention on suggesting various alternative explanations of households saving behaviour. The important landmarks were -

    1 - Relative income hypothesis of Dulesen Berry, 1948.

    2 - "Permanent Income Hypothesis" of Friedman 1957.

    3 - Life Cycle Hypothesis of Modiglini & Brumberg

1954 and Ando & Modiglini of 1963.

According to the "Permanent Income Hypothesis" of Milton Fridman permanent income and not current income (Keynes) is the basic determinent of savings and consumption. Permanent income in a year, is not current income but depends upon the expected income to be acquired over a long period of time. The actual or measured (Ym) income is composed of permanent income (Yp) and transitory income (Yt). In the longrun positive and negative changes in the transitary incomes cancel in an economy and there is a fixed relationship between average permanent consumption and permanent income.

This explains the empirical observation that "total savings accounts for a fairly stable share of total income", despite the rising trend of income overtime.[13]

In the recent past the life cycle hypothesis of Franco Modigliani and others was found very useful in explaining the savings behaviour in various economically developed countries.[14] The hypothesis assumes that the primary motive for saving is to provide for retirement, thus, individuals save during their working years and dissave during their retirement. In a stationary economy, the savings of the young will exactly equal the dissavings of the old, leading to aggregate household savings of zero. In the process of either population growth or productivity growth however, a positive amount of household savings

will result because the savings of the young will exceed the dissavings of the old and the higher the rate of population or productivity growth, the higher will be the household savings rate. Modigliani has argued, however, that it is not population growth per se but the ratio of retired households to working households that influences the savings rate. Moreover, since the population that has not yet reached working age, contributes to consumption without contributing to income, its ratio also affects the savings rate.

The life cycle hypothesis also identified some other factors influencing savings in an economy, viz. retirement related factors (ratios of the retirement span to lifespan, the retirement age etc.), social security (public old-age pensions represent an alternative source of financing for the retirement years and hence will tend to reduce private savings), the rate of consumer price inflation and the land prices (rising rate of inflation and land prices will increase savings).

The Role of Savings in a Welfare State

Capital formation is the most significant variable of economic growth. At the macro-level, the banking system is the main component of the machinery which converts savings into capital.[15]

It is through the three stages of capital formation
that banking contributes to economic growth - mobilisation
of savings, financing and investment in productive activities
and assets.

After the second World War the concept of welfare
state became popular, increasing considerably, states
participation in the economic activities. The state
has also taken over the responsibilities earlier shouldered
by the family and the community. The United Nations -
World Economic Survey of 1960 - indicated that the economy
in the centrally planned state was better off than in
other countries. Financing the growing gamut of socio-
economic activities required larger resources which are
not possible to secure from taxation$_\wedge$ alone, It requires-
the rise in the rate of capital formation. The rate of
investment and savings has to be raised. "The future
welfare of Great Britain depends, opines L.G. Whyte to
a great extent, upon a high level of capital investment...".
This is only p sible in the long run by the generation
of an adequate volume of saving.[16] The United National

Committee of experts has observed; "it is a common place
that economic progress is a function among other things,
of the rate of new capital formation. In most of the
countries where rapid economic programme is occuring net
capital formation at home is atleast 10 percent of the
national income and in some, it is substantially higher,
assuming that population increased between 1 and XXX
1.1/2 percent per annum.[17]

In less developed countries (LDCs) the states
responsibilities in economic and social spheres are far
more than in advanced countries. Several social services
have to be provided by the state to keep pace with the
growth of economic activities and the growing expectation
of the people. W.R. Arthur Lewies stated that Industrial
countries must invest between 10 to 15 percent of their
national income to have an economic growth of 3 to 4
percent. He further states, "for India to raise her
standard of living by 1 percent annually she would have
to raise the rate of investment from its current level of
4v to 5 percent to say 12 percent of national income. "
Thus, savings was considered was one of the vital factor's of
development as investment has to be financed by savings.

Realising the importance of savings in the process
of economic development the governments of LDCs made
concreted affort over the past three decades for developing
financial intermediaries of all possible types for

mobilising savings from various segments of the community.
The Government of India has emphasised on mobilisation of
savings in all the five year plans from the inception of
planning. Several legislations have been passed, from
the State Bank of India Act 1955, to the Regional Rural
Bank Act 1976. Legislative powers were used by LDC
Governments to create new institutions and to strengthen
and control the existing ones for mobilisation of savings.
A singuliar trend observed in all the countries has been
growing channelisation of saving to the state for financing,
the ever increasing state activities. Hence, in a welfare
state, "promotion and mobilisation of savings are conciously
directed towards the achievement of socio-economic
objectives.[18]

The fundamental factors influencing savings are
aptly summerised by Arun Ghose, "it must be emphasised
that a raising of interest rates is not necessary for
tapping higher savings. One must go back to fundamentals.
Savings are not a function of the rate of interest, though
where savings are liekly to be channelised is of course,
a function of relative interest rates, of the asset
preferences of the community, and the liquidity of different
forms of assets."[19]

For study of savings as a macro level parameter,
it is usually calculated at current prices. There is no
universely accepted concept of savings at constant prices.

For the savers the real value of savings depends on the general price level.

For the right historical perspective, it is interesting to observe that, even during a relatively more advanced stage of development and with higher per capita incomes during 1861-90, the present day developed countries had an average saving rate (12-13 percent) which was significantly lower than that of allLDCs during 1961-70 and was more or less equal to the saving rate of the low income LDCs during 1961-70. Further, their growth rate of GDP(1861-90) was roughly half the growth rate of even the low income LDCs (1961-70).[20]

From the review of trends in output, investment, savings and capital inflow during 1951-80, V.V. Bhatt arrives at broad conjectures with regards to the saving-investment aspect of the development process in the LDCs.

1 -   "Maintenance of high investment levels is largely
       a function of domestic savings performance, capital
       inflow from abroad; serves mainly as a catelyst and
       as a factor in relaxing the foreign exchange
       constraints rather than as a major factor in
       supporting rising levels of investment.

2 -   The domestic savings rate is positively related
       to the level of income and it's growth rate", and
       to the size of a country.

3 -   For raising savings rate the degree of development
       of financial structure and the examining of positive
       real interest structure seem to be important
       factors. Evidence to support this relationship
       exists practically in all the countries.

4 -   In mixed economies, a major part of domestic saving
       takes place in private sector and more particularly
       in the household sector. Public sector savings,
       generally account for less than one fourth of total
       savings.

5 -   "There has been no systematic rise in public and
       aggregate saving attributable to rising public
       revenues."[21]

       Commenting on the structure of financial savings
Dr. V.V. Bhatt, observes, "the structure of financial
savings seems to be evolving in favour of deposits and
claims on social security institutions in LDCs which have
experienced a significant rise in the saving rate of the
non-corporate sector during the last 15 years or so. Such
has been the historical trend even in the developed
countries. It seems desirable for the LDCs to assist this
trend and concentrate their efforts on bringing about or
facilitating those changes in financial structure and in
the laws and regulations which affect it, that will ensure,
or atleast make more likely that a predominately indirect
and institutional and largely contractual and mandatory flow
of personal saving contributes as much as possible to
economic growth."[22]

Literature Review

During the post-bank nationalisation period, bank deposits in India have grown at a compound growth rate of more than 19 percent per annum. Bank deposits constitute one of the important monetary variable of the Indian economy. They accounted for 47.3 percent of the national income in the year 1986-87. Obviously, its growth and composition has aroused considerable interest and concerned several studies were undertaken during the last two decades. Most of them have focus on identification of factors influencing the growth of bank deposits. The models using the data of determinants have been used for forecasting and predicting the future growth of deposits. While all the studies have examined the behaviour pattern of aggregate bank deposits. A few of them have considered the demand and time deposits separately. They have argued that the motives for holding two types of deposits differed, difference sets of factors influence their growth.

The available literature on bank deposits is reviewed below. The 1st part deals with the determinants of bank deposits on the demand side and second one, with those based on supply side.

Demand Approach

Khusro and Sidharthan was a made pioneering work on determinants of bank deposits in the early seventies.[23] They identified interest rate as the only variable influencing the demand for bank deposits. Further, the

demand and time deposits were treated separately. The demand for demand deposits was found to be inversely related to the rate of interest on time and savings deposits were the demand for time deposits was directly related to the interest rate on time deposits.

Shakuntala Desai made attempt to identify and quantify the variable which are relevant in explaing the behaviours of aggregate deposits as also the time and demand deposits of all scheduled commercial banks with the help of multiple regression analysis.[224]

Using the stability of these relationships and certain assumptions, regarding the likely level of these variables, to arrive at quarterly estimates of aggregate, time and demand deposits for 1980 and 1981. Quarterly data concerning deposits and explanatory variable for the period from March 1972 to December 1979 have been utilised.

The deposits of the banking system in this study are considered to be largely a function of National Income, banking facilities in the form of total number of commercial bank branches, opportunity cost variables, such as-yield on deposits themselves and the expected rate of inflation and lagged deposits.

Following variables were used in the model :

1) Branch expansion

2) Value of agricultural production

3) Index of Industrial production at current prices

4) Wholesale price index

5) Aggregate deposits at current prices with a time lag

6) Demand deposits at current prices with a time lag.

7) Time deposits at current prices with a time lag.

8) Time trend.

9) Rate of interest on company deposits.

10) Rate of interest on variable divided industrial securities.

1 - Branch Expansion : The banking facilities specified as total number of branches of all commercial banks (lagged by two quarters) (bt-2) showed highly significant (at 1 percent level) and positive coefficient in all the three models on deposits. In fact, branch expansion variable ranked the highest in terms of its value of elasticity. In other words, extension of banking facilities in the form of branch expansion would help to the maximum extent in mobilising the hither to untapped deposits potential and also in generating new potential via credit deployment function of these branches.

2 - Lagged Deposits : Deposits lagged by one year (ADt-4, DDt-4 and TDt-4) as a variable representing the characteristic of stickiness of deposits exerted a highly significant (at 1 percent level) and positive influence on aggregate demand and time deposits. Lagged deposits variable ranks second, to branch expansion variable in terms of the value of elasticity.

3 - Rate of Inflation : The rate of inflation specified as wholesale price index lagged by quarters (Pt-4) exerted a negative and highly significant (at 1 percent level) influence on deposits as compared to rate of interest, which

substantiates the hypothesis that in presence of high inflationary trends in the economy the substitution between deposits and real assets is more probable than the substitution between deposits and financial assets. Moreover, given the same level of income, the capacity of the individuals to save and invest is adversely affected with a rising price level which explains the negative influence of prices on deposits.

Of the two specifications tried namely, wholesale price index with one year time-lag and without any time-lag the former turned out to be a stronger determinent in terms of significance tests than the later, implying that depositors adjust their investment decisions to price changes with a time-lag.

The price elasticity of demand for deposits expressed as coefficient of wholesale price index variable (Pt-4) was higher than that of rate of interest. The value of price elasticity were higher though marginally in case of time deposits as compared to demand deposits implying that the inflation effect makes the substitution of deposits for real assets more attractive in case of time deposits than in case of demand deposits.

4) **National Income**

Although the index of industrial production expressed as non-farm income (IVm) and the value of agricultural production specified as farm income (Yt-4) as anticipated showed positive influence on deposits in all the models, their values were stastistically insignificant in majority of the equations.

5)   The non-farm income elasticity of demand for deposits and farm income elasticity of demand for deposits was found to be as low as 0.06 to 0.16 and 0.001 to 0.02 respectively. The effect of income variable on deposits appears to be under estimated in the regression. This may be attributed to underlying assumptions in specifying income as farm and non-farm income and resultant exclusion of income from service sector. Although this appears to be the only alternative available to arrive at quarterly assumptions in constructing this series, it may distort the impact of income variable by under-mining its importance quantitatively in explaining the behaviour of deposits.

6)   Trend Variable

Trend variable though positive in sign showed statistically insignificant 't' values in most of the regressions indicating that there is no definite trend in the deposits series. The inclusion of this variable did not improve the value of D-W statistics.

7)   The percentage error in terms of the deviation of the estimated levels of deposits from the actual levels of deposits was the lowest in the case of aggregate and time deposits (on average around $\pm$ 1 percent). However, the error was somewhat higher in the case of demand deposits (on average between $\pm$ 2 percent).

G.V. Satyamurthy and others made attempts to construct an econometric model for forecasting deposits of scheduled

commercial banks in India taking into account a variety of
factors influencing variations in the level of the bank
deposits.£5

Deposits with scheduled commercial banks in India may
be classified into two different categories - demand and
time deposits. The annual time series data on the variables
for the period 1960-61 to 1977-78 have been made use of
the formulation of the models. For demand deposits, following
factors were included in the model :

1   National Income at current prices in the year t.

2   Total number of scheduled commercial bank branches
        at the end of the year t.

3   The rate of inflation in the year t. (Base Year 1960)

It can be observed that except national income all
other variables considered are not statistically significant.
While the changes in branch net-work do exert influence on
the demand deposits to a certain extent the influence of
rate of inflation and interest rate are comparatively
insignificant.

In the case of time deposits, the deposits level at
the current year is influenced among other things, by the
level of time deposits in the past year. This is due to the
fact that a majority of the time deposits in the recent
past are likely to be continued in the current year and to
the compounding effect of interest earned.

C. Rangarajan and G.S. Gupta, have studied separately
the demand for current accounts, saving accounts and fixed

deposit accounts because in recent years with the change in
the formula adopted for partioning savings deposits,
considerable jumps have been seen in the time deposits on
demand deposits. Also this kind of classification enabled
them to understand the possible shift between one type of
bank deposits and another consequent upon changes in the
interest rates offered on these deposits.[26]

They have estimated the relationship in nominal terms
rather than in real terms. Data for the period 1960-61 to
1978-79 were used for estimating the relationship.

The selected independent variables were as follows :
1.   Net National Product at factor cost in current prices
      (Rs. in crores)
2.   Bank Branches
3.   Ratio of bank branches opened in that year to the
      total bank branches.

In relation to current deposits, all the variables
have the right kind of sign-income has a positive effect,
and 'branches' has a positive co-efficient. However,
'branches' alone has a co-efficient which is statistically
significant. The ratio of one year has a negative co-efficient,
they have found in their various experiments that when both
income and branches are used as independent variables only
one becomes significant. If branches are omitted, income
has always a strongly significant co-efficient. Since during
the last ten years, national income and branches have grown
at a fairly rapid rate, it becomes difficult to disentangle
the separate effects.

In case of savings deposits all the co-efficient have
right signs. Income has a positive co-efficient. Branches
again has a positive co-efficient. It can be seen that only
the co-efficient for income is statistically significant.

In relation to the fixed deposits income has a positive
coefficient. Branches again has a posi ive coefficient.

The author has also examined the importance of income
and branches as determinants of bank deposits from the cross-
section analysis.

For the year 1974-75, they related the three types of
deposits in various states to income in the various states
and the ratio of non-agricultural income to total income and
to the number of branches in each state.

In the cross-section analysis, the factors mentioned
above 11(6) taken and addition only as follows :
- Ratio of non-agricultural income to the total
national income.

For making predictions for the future, one will h ve to
make assumptions on the behaviour of nominal income, the rate
of interest and growth in branches. However, it can be
observed that while on the average the deviations between the
actual and the estimated value is not much, the deviations
are quite pronounced towards the end. In view of this, they
tried to re-estimate the equations using the more recent
observations. One problem faced in estimating equations with
smaller number of observations is the reduction in the degree

of freedom particularly when a number of independent variables are to be used.

They have taken the estimated and actual value for the three kind of deposits using the equations estimated with smaller number of observations. It can be seen from the estimated values are closer to the actual values in many years. In relation to current deposits and savings deposits between 1970-71 and 1977-78; the estimated values are closer to actual values according to the new equation in 5 years with respect to fixed deposits the new estimates are closer to actual values in 7 years. On thing that emerges from analysis is that for the purpose of forecasting it is better to use equations based on recent observations even though it has a limitations which was pointed earlier.

In the demand approach, it was found that the equations based on the sample period 1969-70 to 1978-79 perform better than those based on the period 1961-62 to 1978-79 in reproducing the history. Although, there is no guarantee that an equation which explains the history better would predict the future also better than the other equations, this is true. In other words, a high R^2 is generally, generally the necessary condition for better prediction, though it is not the sufficient condition. For this reason, in what follows, the equations based on the shorter but the more current period are used for generating deposits forecasts.

In 1982, study of D.M. Nachne, several variables were studied.[27] A three equation model was tested, featuring currency, demand deposits and time deposits as the dependent variables. As the model was fully recurssive OLS equations was considered adequate. For the demand deposits equations,

the explanatory variable tried were -

1)   Net non-agricultural income at current(market) prices

2)   Rate of interest on 3 months deposits

3)   Bank branches

4)   A dummy variable to examine the impact of bank
      nationalisation.

On the other hand, the explanatory variables tried
out in the time deposits, equations were -

1, 3 and 4 mentioned above plus the difference between
the interest rate on one year time deposits and gold inflation
rate.

The model was fixed for the years 1960-61 to 1976-77
and expose forecasts were made for the three years 1977-78,
1978-79, 1979-80 and compared with actual data which was
already available on the whole the forecasting performance
of the model was quite good.

Satyamurthy and others also formulated separate models
for demand and time deposits.[28] The multiple linear regression
model was fitted for annual time series data for the period
1960-61 to 1977-78. Several explanatory variables were tried
from which only national income turn out to be having
statistically significant impact on bank deposits. While in
the changes in the branch net-work and interest rate on time
deposits for 6-12 months c·d erect influence on demand deposits
to a certain extent, the influence on interest rates and
inflation was comparatively insignificance. In case of time

deposits the model indicated a strong influence of the level of time deposits in the previous year. This highlighted the sticky character of time deposits and explains why time deposits increase even in years of a decline in national income or of severe drought conditions. The second important factors was the national income. It also had a significant influence on bank deposits. The model also indicated that in the context of the high inflation rate in the economy, the deposit tended to the decline. Also increase in the maximum interest rate on time deposits and average yeild on industrial security tend to increase time deposits.

In more recent study, Vikas Chitre[29] has projected the components of aggregate deposits using new factors like income distribution, legged value of bank deposits, call money rate within the banks and intervention effect in the year 1977-78 of withdrawal of high denomination of currency notes from circulation in that year, apart from income and interest variables.

The latest methodical study available on the topic is that of Thomas Paul and Bhattacharya[30]. The study presents comprehensive literature review, analysis the behaviour of aggregate bank deposits and their determinants. In order to overcome, the problem of multi-collinearity and to make use of available a prior information both time series and cross-section data used for estimating demand function. A new approach to study the determinant bank deposits and in components was followed in which there is no income effect. The effect of income on bank deposits was computed as an income coefficient from the cross-section data containing

income and deposits of different states of India. A regression equation was fitted across the 22 states for the fixed year variables of bank deposits without income effect were computed using the residual of the nominal net national products using pulled cross-section and time series method they observed the real effect of the interest rates variables (which are correlated among themselves alongwith national product) influencing expectations and rate of inflation and number of bank branches on bank deposits and in components.

The non-linear relations were found to be significant. The coefficient for double log equation was highly significant and thus double log equations explain the relation best. Income either permanent or current was found to be the dominant variables affecting bank deposits. They also concluded that there was a non-linear relationship between branch expansion and growth of bank deposits. Interest rate policy had no positive impact on bank deposits. This was explained by domination of consideration like safety etc. rather than rate of return for holding bank deposits. Inflationary expectation had a significant negative reaction with fixed and total deposits.

Supply Approach

Khusro and Sidharthan's identified the differential interest rate and the reserves as the supply side factors influences bank deposits[31]. Applying statistical technique of two stage least squares (TSLS) they found bank reserves as the most important variable explaining the supply of deposits. Even the effect of the differential betweent the market rate of interest which the banker receive the and the rates they pay

on deposits also had substantial effect on deposit supply.

One of the most comprehensive study was undertaken by C. Rangarajan and G.S. Gupta[32]. Their supply approach was based on the premise that total deposits in the systems can increase only it high power money is increased by Central Banking System. Two ratios were used - the current deposits ratio (C/TD) and excess reserves to deposits (ER/TD) The deposit multiplier is dependent upon two parameters which are totally policy determined with a higher proportion of currency to deposit the multiplier would be smaller. Similarly higher the reserves ratio lower would be the multiplier. The impact of these two variables (ratios) on bank deposits was examined through regression analysis using the data for the period 1968-69 to 1975-76. In all the year except one (1973-74) the actual and estimated values of deposit corresponds very closely. However, the limitation of these methods are the difficult in making reasonable assumption on the growth of nigh powered Money and required reserves ratios.

S. Singh and B.B. Pawar[33] has also included the supply approach in their study of determinant of bank deposits. Both have highlighted the importance of reserves in promoting bank deposits. The later has also taken the component of the aggregate monetary resources viz. C_g, C_c, E, L_G and N.*

C_g = Bank Credit to Government Sector
C_c = Banks' credit to Commercial Sector
E^c = Net foreign exchange assets of banks
L_G = Government's currency liabilities to the public
N^G = Net non-monetary liabilities of banks.

However, the predication value of such an equations was several.y critised. It was argued that, the frame at best, is an only an according identity while any change in any of these components would lead to a corresponding changes in M_3, it cannot be said for sure, which was the causal relationship works. Inspite of these, short comings the equations can be used for short-term forecastings purpose.

With increasing importance on bank deposits as a monetary variable, several studies were undartaken to identify the factors influenced the growth and behaviour of bank deposits in India and in other countries. Coghlan's work [34] is mainly concerned with conceptual issues. He presented two types of models regarding the supply of deposits based on multiplier approach. Firstly, the simple ratio model used three ratios, (A) Ratio of bank reserves to bank deposits, (B) Ratio of public currency to bank deposits, (C) Ratio of high powered money to bank deposits. The second one was a structural model which used public demands for currency bank reserves and other related variables. He cautioned that the assumption of linear behavioural equation may be unrealistic. He also pointed out that application of multiplier model is possible if and only if the implicit assumption of demand for bank credit are true.

Time Series Approach

A several studies have attempted forecastings of bank deposits following the time series approach. The D. Ray's [35] study in the recent past made use of Holt-Winter and Box-Jenkince methods. The most of the earlier studies

showed that these two methods on an average, performed better than the others. The ten years data from 1970 to 1979 of total bank deposits indicated that though the series is seasonal in character. The seasonality is not so pronounced. However, it is always better to build a seasonal model to explain any variable due to seasonality. Hence, the two methods mentioned earlier were selected. Lastly, it was found that deposit forecasts based on combined forecasts under the two methods performed estimates well compare to the individual forecasts.

Varsha Varde[36] applied Box-Jenkines model for forecasting weekly deposits. This model is generally used for short-term forecasting of variables. It is accepted as the most accurate and powerful time series forecasting method. However, it is costly and complexs in comparison with other classical time series techniques. This method gave the most accurate one week ahead forecast of deposits.

Conclusion

From the above review, it is clear that most of the recent studies to forecast and explain the level of bank deposits in India, demand function and estimated using variables such as national income, rate of inflation, no. of branches, inflationary expectations etc. Majority of them found national income as the dominant factor for determination of bank deposits. Interest rate variables were found to be statistically insignificant in most of the cases. Even when coefficient had correct signs. However, many studies have indicated that deposit holders do shift one type of deposit to other type when relative rate of return changed.

REFERENCES

1	Suraj B. Gupta	:	Monetary Economics Institutions, Theory and Policy 1988, Ch.2, PP.22
2	Harold Rose	:	'The Growth in Competition for Deposits' - 1978, Journal of the Institute of Bankers, August, Vol.99, Part-4
3	Gurley J.G. and Shaw E.S.	:	Theory of Money and Finance 1960
4	Harold Rose	:	'The Growth in Competition for Deposits' - 1978, Journal of the Institute of Bankers, August, Vol.99, Part-4
5	R.W. Goldsmith	:	Financial Structure & Development 1969, Yale University Press
6	Suraj B. Gupta	:	Monetary Economics Institutions, Theory and Policy 1988, Chp.2, PP.24 to 38
7	Stephen M. Goldfold Lester V. Chandler	:	The Economics of Money & Banking 1986, Part-II, Ch.6, Page-134 Harper & Raw Publishing Inc.
8	Gopal Karkal	:	Perspective in Indian Banking 1978, Ch.1, PP.2, 3
9	R.M. Srivastava	:	Management of Indian Financial Institutions, 1984, August, Ch.2, PP.14, 15
10	R.B.I.	:	Report of Study Group on N B F Is. Banking Commission, 1972, Ch. 13, PP. 12, 13, 14
11	D.M. Mithani	:	Money Banking International Trade & Public Finance - 1986, Ch. 13, PP.291, 292
12	Keynes	:	The General Theory, 1936
13	D.M. Mithani	:	Money, Banking, International Trade & Public Finance - 1986, Ch.13, PP. 91, 292
14	Finance and Development, 1986, Dece		
15	B.M.L. Nigam	:	Banking & Economics Growth 1967, Ch.2, PP. 23 to 25

16	L.G. Whyte	:	Principles of Finance and Investment, Vol.II
17	Rostow on Growth	:	1959
18	V.R. Mutalik Desai	:	Savings in a Welfare State with special reference to the role of state in India 1966, Manaklal & Sons P.Ltd., Bombay
19	Arun Ghose	:	Monetar Targeting and the Banking Sector, 1987, 3-10, Economic and Political Weekly.
20	Simon Kuznets	:	'Modern Economic Growth Rate Structure and Spread' - 1966,)) PP.352, 353 Yale University Press.
2t	Raymond W. Goldsmith	:	Financial Structure and Development 1969, PP. 131 to 135, Yale University Press.
21	V.V. Bhatt	:	Resource Mobilisation in Developing Countries, Financial Institutions and Policies, 1986, June 21-28, Vol.21, EPW, PP.1114 No.25 and 26
22	Ibid PP.1116		
23	A.M. Khusro and N.S. Siddharthan	:	'An Econometric Models of Banking in India - 1972, Technical Studies prepared for the Banking Commission, RBI, Vol.I
24	Shakuntala Desai	:	Estimation of Bank Deposits, A Suggested Methodology - 1982, Forecasting in Banking Industry - By Varsha Varde & S. Singh
25	G.V. Satyamurthy K.H. Ramesh A. Raveendran	:	Forecasting Demand and Time Deposits of Scheduled Commercial Banks in India - An Econometric Approach - 1982, Forecasting in Banking Industry n
26	C. Rangarajan G.S. Gupta	:	Forecasting Bank Deposits 1982, Forecasting in Banking Industry
27	D.M. Nachane	:	An Econometric Model for Forecasting Aggregate Deposits of the Indian Banking System - 1982, Forecasting in Banking Industry.
28	G.V. Satyamurthy K.H. Ramesh A. Raveendran	:	Forecasting Demand and Time Deposits of Scheduled Commercial Banks in India - An Econometric Approach - 1982, Forecasting in Banking Industry

29   Chitre Vikas   : Quarterly Prediction of Reserve
                              Money Multiplier of Money Stock
                              in India - 1984, Working Paper
                              Gokhle Institute, Pune

30   M. Thomas Paul   : Behaviour of Aggregate Bank
     Biswa N.   Deposits and their Determinants -
     Bhattacharyaya   (India - 1971-72 to 1980-81)
                              1985, 'Prajnan' Quarterly
                              Journal NIBM Pune

31   A.M. Khusro   : 'An Econometric Models of Banking
     N.S. Sidharthan   in India - 1972 : Technical
                              Studied Prepared for Banking
                              Commission, R.B.I., Vol.I

32   C. Rangarajan   : Forecasting Bank Deposits -
     G.S. Gupta   1982, Forecasting in Banking
                              Industry.

33   S. Singh   : Forecasting in Bank's Deposits
                              and Credit - 1982, Forecasting in
                              Banking Industry

34   Coghlan R.   : The Theory of Money and Finance,
                              1980

35   D. Ray   : Deposit Forecasting - A Time
                              Series Approach - 1982
                              Forecasting in Banking Industry

36   Varsha S. Varde   : Methodology for Forecasting
                              Weekly Deposits of a Bank -
                              1982, Forecasting in Banking
                              Industry.