CHAPTER - VIII

DETERMINANTS OF BANK DEPOSITS

A review of literature on bank deposits presented in Chapter-II indicates that in most of the studies focus is on identification of determinants of bank deposits and establishing causal relationships.

From the literature review, we identified the following independent variables which had causal relationship with bank deposits. Accordingly, the following null hypothesis is formulated.

"Aggregate monetary resources, national income, rate of inflation, number of bank branches, ratio of newly opened bank branches during the year to the total number of branches, population per branch and variables lagged by one year viz., deposits, M_3, number of bank branches, rate of inflation, national income do not have significant influence on the total bank deposits, rate of inflation and population per branch will have negative influence in contrast to the positive influence of other factors, on bank deposits."

The hypothesis is expressed in the form of functional relationship, comprising the following five sets :

Set - I $x_1 = f (x_2, x_3, x_4, x_5)$

Set - II $x_1 = f (x_4, x_5, x_8)$

Set - III $x_1 = f (x_4, x_5, x_6)$

Set - IV $x_1 = f (x_4, x_5, x_6, x_7)$

Set - V $x_1 = f (x_9, x_{10}, x_{11}, x_{12})$

The present chapter tests the above hypothesis using the time series data for the year 1969 to 1984.

The variables are quantified as follows :

Dependent Variables

x_1 = Total deposits of all scheduled commercial banks

x_{13} = CD - Current Deposits

x_{14} = SD - Savings Deposits

x_{15} = FD - Fixed Deposits

Independent Variables

x_2 = Aggregate monetary Resources(M_3)

x_3 = Number of Scheduled Commercial Bank Branches

x_4 = Rate of Inflation (whole sale price index)

x_5 = National Income at Factor Cost at Current Prices

x_6 = Population per Branch (in 000)

x_7 = Total Deposits of all scheduled Commercial Banks lagged by one year

x_8 = Ratio of newly opened Scheduled Commercial Bank Branches during the year to the total number of Scheduled Commercial Bank branches, as at the end of the year

x_9 = Lagged M_3

x_{10} = Lagged Number of Branches

x_{11} = Lagged Rate of Inflation

x_{12} = Lagged National Income

Though, it is a well known fact that the interest is one of the most important factor influencing bank

deposits. We have not considered it in the regression
analysis as we have administered interest rates for various
types of bank deposits and for various maturity patterns
of fixed deposits.

All the data pertaining to four dependent variables
is presented in Appendix-VIII.1 and the time series data for
the eleven independent variables are given in Appendix-VIII.2.

For testing the causal relationship between the
independent variables and the dependent variable, we
followed the macro model approach and found it very useful.

The regression equations were estimated using the
simple linear, semi-log linear and double log linear
functions. However, out of the three, the double log
linear form for all the equations gave the best estimates.

We have used the following model for testing the
hypothesis. The model is presented in the form of a series
of 5 equations given below :

I $\quad$ Log x_1 = a + b Log x_2 + c Log x_3 + d Log x_4 + e Log x_5

II $\quad$ Log x_1 = a + b Log x_4 + c Log x_5 + d Log x_8

III $\quad$ Log x_1 = a + b Log x_4 + c Log x_5 + d Log x_6

IV $\quad$ Log x_1 = a + b Log x_4 + c Log x_5 + d Log x_6 + e Log x_7

V $\quad$ Log x_1 = a + b Log x_9 + c Log x_{10} + d Log x_{11}
$$+ \text{ e Log } x_{12}$$

The model was tested by using the multiple regression and the stepwise regression technique, and the former one was found more appropriate. Hence, we have presented the results of only the multiple regression techn.que for estimating the equations. The estimated equations are presented in Appendix-VIII.3.

Table No. 8.1 - Results of Multiple Regression [*]

TOTAL DEPOSITS

Sets	R[-2]	1 F-Statistics	2 T-Statistics	3 D-W Statistics
1.	2.	3.	4.	5.
I	0.99	3499.66		1.38546
			7.53209	
			0.394898	
			0.876108	
			0.812184	
II	0.99	407.743		0.882373
			1.49717	
			5.40254	
			0.723578	
III	0.99	568' 887 633.352		O.868282 1.68276
			2.22663	
			6.20340	
			2.71766	
IV	0.99	5688.68		2.40120
			0.549564	
			0.185879	
			3.24432	
			11.4838	

1.	2.	3.	4.	5.
V	0.99	2697.80		1.39525
			6.77392	
			1.69131	
			0.7423	
			0.2642	

CURRENT DEPOSITS

1.	2.	3.	4.	5.
I	0.99	2056.64		2.68854
			5.73044	
			0.941053	
			0.733039	
			0.73385	
			0.165131	
II	0.99	534.961		1.33425
			1.75110	
			6.19243	
			1.00911	
III	0.99	628.94		1.56705
			2.01169	
			6.30224	
			1.81339	
IV	0.99	1119.03		3.13862
			0.693148	
			0.870790	
			1.17791	
			4.16619	
V	0.99	2603.47		2.84767
			6.18709	
			0.307234	
			0.152000	
			1.06371	

SAVING DEPOSITS

1.	2.	3.	4.	5.
I	0.99	5187.32		2.42950
			10.48684	
			1.66429	
			2.19641	
			1.38290	

1.	2.	3.	4.	5.
II	0.98	443.345		0.827450
			1.52103	
			5.56864	
			0.884757	
III	0.99	~~568.887~~ *633.352*		*1.08276* ~~0.868282~~
			1.91851	
			5.86517	
			2.09048	
IV	0.99	5868.64		2.43243
			2.18091	
			1.31550	
			3.49882	
			12.3685	
V	0.99	8746.89		1.76178
			13.9197	
			0.901437	
			0.538874	
			0.465364	

<u>FIXED DEPOSITS</u>

1.	2.	3.	4.	5.
I	0.99	3295.55		1.30265
			6.28458	
			2.11004	
			0.298183	
			0.123836	
II	0.98	359.335		0.758250
			1.25575	
			4.98363	
			0.319485	
III	0.99	785.890		1.09590
			2.56735	
			6.71875	
			3.78284	

1.	2.	3.	4.	5.
IV	0.99	3512.37	0.897679	2.25113
			0.828907	
			3.00174	
			7.75902	
V	0.99	1653.13	4.79073	1.07118
			2.37474	
			0.657277	
			0.259640	

1 F-Statistics - Table value
    at 5% significant level
    degree of freedom 3, 12, - 3.49
    degree of freedom 4, 11 - 3.36

   - Table value
    at 1% significant level
    degree of freedom 3, 12 - 5.95
    degree of freedom 4, 11 - 5.67

2 T-Statistics - Table value
    at 5% significant level - 2.145
    at 1% significant level - 2.977
    degree of freedom - 14

3 D-W - Statistics
   for 4 variables - Table value
      DL - 0.74
      DW - 1.93

   for 3 variables - DL - 0.62
      DW - 2.15

* Graphical Presentation is given in Appendix - VIII.4

The above table indicates a very unique result. R^2 is exactly the same for all the V sets viz. 0.99. Hence all the sets explain a very strong combined influence of the independent variables on bank deposits. However, only in the set-III, all the three independent variables were significant (at 5% level) and also had the right signs. They were rates of inflation, national income and population per branch. National income was positively related and the rate of inflation and population per branch were negatively related to bank deposits.

However, when the national income and rate of inflation were combined with ratio of newly opened bank branches to total branches in the Set-II, only national income turned out to be significant at 1% level. This reflects the low deposit mobilisation by the newly opened branches in the rural and semi-urban areas. On the whole, only two factors turned out to be statistically significant in two sets. They were national income and population per branch. However, M_3, rate of inflation and lagged variables - deposits and M_3 turn out to be significant in one set. Thus, out of the lagged variables M_3 and deposits turned out to be significant (at 1% level).

There was no multi-collinearity in the regression runs. The estimates were also free from the problem of auto-correlation as varified by D-W Statistics.

In results, *Sum* the above analysis indicate the rejection of H_o and upholds the H_a.

Determinants of Categorywise Deposits

Current deposits constitute a very small segment of total deposits. All through the 80's, it was below 20 percent of total deposits. Further, these deposits are held for short period and purely for financing the large scale industry and business. Hence, most of the determinants discussed above are not likely to have any significant influence on current deposits. Yet, for our satisfaction, we had run # of log log linear multiple

regression function for all the five sets of independent
variables describedabove with current deposits as a dependent
variables. Only national income turned out to be highly
significant (at 1% level) in two equations. Further M_3 and
M_3 lagged turned out to be significant and so did lagged
deposits.

The regression runs on similar lines for savings
deposits, the dependent variable indicated that besides
national income, rate of inflation was also significant
determinant in two sets. Further, M_3, population per
branch and two lagged variables - deposits and M_3 turn
out to be significant,each in one equation.

Lastly, all the five sets of equations were estimated
considering fixed deposits as the dependent varialbe. The
results were more or less similar to that of the regression
runs with total deposits as the dependent variable. The
third set all the independent variables turned out to be
significant. Further, national income and population per
branch were the variables which were significant at 1%
level in two sets. The variables which turned out to be
significant in only one set were M_3, rate of inflation,
lagged deposits, lagged M_3 and lagged number of branches.

Using the/set III of the model, the
 linear time trend equation

forecast made for bank deposits is given in the following
table.

Table No. 8.2 - Forecast for Total Deposits

Sr. No.	Year (December end)	Total Deposits (in Rs.) (in lacs)
1.	2.	3.
1	1985	9120108
2	1986	11066238
3	1987	13427650
4	1988	16292960
5	1989	19769696
6	1990	23988329
7	1991	29107171
8	1992	35318317
9	1993	42854852
10	1994	51999599
11	1995	63095734
12	1996	76559660
13	1997	92896639
14	1998	112719000
15	1999	136772000
16	2000	165952680

In sum, the analysis revealed that, National Income, Rate of Inflation and Population per branch were the most important factors influincing bank deposits.