Chapter 6

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FLOW OF CAPITAL FUNDS AND MACRO VARIABLES

6.0   In this chapter an attempt is made to assess the
impact of some macro variables that appear to have a priori,
an influence on the flow of capital funds in the economy.
The macro variables which have been selected for analysis are
(1) Net National Product, (2) Net Domestic Savings, (3) Net
Capital Formation, (4) Interest Rates, (5) Money Supply,
(6) Price Index,and (7) Net Financial Savings.

6.1   Net National Product: In the Keynesian analysis,
savings is a function of national income, so that an increase
in national income will result in increase in the savings of
the Economy.   At the aggregate level investment is equal to
savings (I=S). But if the economy is disaggregated into sectors;
in the Indian Case into six sectors, the investment saving
identity will not hold for each sector.   There are sectors where
(I-S>0), which are the borrowing sectors, and there are sectors
where (S-I>0) which are the lending sectors.   Since a sector
where investments are greater than its savings bridges the gap
by borrowing or by increasing its liabilities, we have the
equation

$$I - S = L - A$$

where L stands for increase in liabilities and A for increase
in assets.   Sectors which have (I-S>0) are called deficit
sectors and (S-I>0) indicates surplus sectors. The corresponding
equation for a surplus sector is

$$S - I = A - L$$

NNP increases,

6.2 Thus, if/the savings in the economy increase and
if the assumption that the ratio of non-financial to financial
saving is fairly stable is made, the financial savings will
also increase. The increase in financial saving other things
being equal, will have a tendency to increase Financial Flows.
Hence, an increase in national income may increase the Total
Financial Flows. Further, an increase in national income at
constant prices implies development of the economy, and over a
period of time this development of the economy will result in
increasing the level of specialisation and self investment of
the Household sector as a ratio of its savings will decline.
This in turn has the impact of increasing financial savings
of the Household sector, which implies an increase in the Flow
of Capital Funds.

6.3 Net Domestic Savings: It has been included as an expla-
natory variable on the assumption that as net domestic savings
rise, the part of it which is transformed into financial savings
(acquisition of financial assets) would also go up, thus
increasing the Financial Flows. The Household Sector in the
Indian Economy is a surplus sector which creates financial
assets. The financial assets in the Indian Economy are created
by the Urban Household Sector which accounts for a very high
percentage share of financial savings of the economy.[1] As the
urban savings increase the Financial Flows are also pushed up
as it is used for acquiring primary securities or the liabilities
of financial sector.

6.4 <u>Net Domestic Capital Formation</u>: In a planned economy, the role played by Government Sector in domestic capital formation is very significant. In the Indian case this is evidenced by the growing deficits of the Government Sector which are met mainly by borrowing from the Household Sector, the Banking Sector and the Rest of the World Sector. Thus, the increase in Net Domestic Capital formation may have a positive impact on total Financial Flows.

6.5 <u>Interest Rates</u>: This variable has been introduced to capture the impact of rate of interest on the volume of financial savings of the Household Sector. In a developing economy where the Household Sector keeps a part of its saving in unproductive assets like gold and jewellery, an increase in the rate of interest may divert such savings into financial markets. It may be noted that the volume of bank deposits has increased significantly in recent years in the Indian economy. The increase in bank deposits may be attributed to various factors like branch expansion of banking system, deposit mobilization efforts of banks, but one of the reasons for the increase in bank deposits may be the rate of interest offered by the Banking system on deposits.

6.6 <u>Money Supply</u>: In this analysis Money Supply is taken as "Money supply with the public". It is postulated that an increase in Money Supply will have a positive impact on the Flow of Capital Funds. For, in the Indian context, the increase in Money Supply is related to the volume of deficit financing

undertaken by the Government. The Reserve Bank of India
defines deficit financing as total borrowing of the Government
from the Banking Sector. This borrowing of the Government
increases the Uses of the Banking Sector, and the Sources of
the Government Sector, thus the Flow will increase by the
amount of Government borrowing, other things being equal.
Further, (the deficit financing results in an increase in the
volume of 'high powered' money as the Central Bank prints notes
against the security of Ad hoc Treasury Bills supplied to it by
the Government.[2] A part of this 'high powered' money reaches
the Banking system and results in the expansion of credit.
Thus, the Sources and Uses of the Banking Sector increase and
Flow of Capital Funds goes up.

6.7 <u>Price Index</u>: The impact of price level on Financial
Flows is based on the assumption that the nominal cost of
production increases with increase in the price level. Therefore,
for the movement of a given amount of physical resources from
one sector to another requires a higher volume of Financial Flows.
So, the relation between the price level and the Financial Flows
may be direct. Further, it is assumed that inflation changes
the distribution of income in favour of upper income groups, as
these have a higher m.p.s the level of savings in the economy
will increase and a part of the increased savings will flow
to financial markets, which in turn will cause an increase in
the Flow of Capital Funds.

6.8 <u>Net Financial Savings</u>: The surplus sectors create Net
Financial Assets (Net Financial Savings) as their lending (Uses)

exceed their borrowing (Sources). The complex relationship between the Net Financial Savings and Financial Flows has already been analysed in Chapter 3. As in the Indian data, the Net Financial Saving and Flows both show a rising trend during the period under study, it is used as an independent variable to measure its impact on the Capital Flows.

6.9 The rate of monetisation,which is sometimes taken into account for the purpose of financial analysis, has not been considered here. The rate of monetisation has remained in the range of 83 per cent to 84 per cent of national income over the period 1961-62 to 1974-75.[3] The first study group on money supply made the assumption that if the rate of growth of the agricultural sector is 5 per cent to 5.5 per cent per annum, there will be an increase of 1 per cent in the rate of monetisation. As the rate of growth of agriculture output was less than 3 per cent and growth of population 2 per cent, the rate of monetisation of 1 per cent was not realised.

6.10 Methodology: Ordinary least squares method was adopted to determine the influence of the independent variables on the Financial Flows. Simple and Multiple regressions are used; both linear and double log functional forms have been tried. The purpose is to study the impact of Macro variables on the Financial Flows but the Macro variables which are likely to have influence on the Flows a priori are themselves interrelated. National Income, Net Domestic Saving, Net Domestic Capital Formation are all related variables, so are Money Supply, Interest Rates and Price Level. Seventeen equations have been

estimated taking alternative combinations of the independent variables. The results are given in Table 6.1.

6.11 It must be noted both the dependent variable (Financial Flows) and the independent macro variables are in constant prices (1960-61). It is found that all the equations give reasonably good fits, the $\bar{R}^2$ ranges between .72 to .95. Among the alternative functions tried, logarithmic function which considers Money Supply, Rate of Interest and Net Financial Saving is the best, since it has the highest $\bar{R}^2$. Hence, it has been chosen for further analysis.

6.12 Table 6.2 gives us at a glance, the elasticities and $\bar{R}^2$ of double log functional forms of multiple regressions that have been tried. It can be seen from Table 6.1 that simple regressions have not turned out as significant because of existence of multicollinearity. For instance, NNP turned out to be insignificant when other variables like MS and RI are introduced; in fact it can be seen from Table 6.1 that NNP's coefficient has a negative sign.

6.13 NDS and NDC have not been taken up along with NNP as these are the components of NNP. When Flows are regressed with NDC $\bar{R}^2$ is too low, when RI is introduced as an independent variable along with NDC, $\bar{R}^2$ improved.

6.14 When Financial Flows is regressed against MS along with other variables, i.e., NNP and RI it is observed that the coefficient of MS is high, it is significant at the level of 1 per cent.

6.15 When MS, P and RI are taken as independent variables, the elasticity of Money Supply is still the highest, and both $\bar{R}^2$, t values are satisfactory.

6.16 When the Flows are regressed with MS, RI and NFS, the elasticity as well as t value of MS is the highest.

6.17 Thus, Money Supply emerges as the most significant explanatory variable.

6.18 The link between Money Supply and the Financial Flows can be logically explained. Money Supply with the public has three components of which the major ones are Currency with the public and Demand Deposits. The Demand Deposits show a rising trend during the twenty-year period under analysis. As the Demand Deposits increase, the Sources of the Banking Sector increase which results in an increase in the Capital Flows, other things being equal. Thus, just as Deficit Financing increases the Money Supply and Financial Flows, increase in Demand Deposits increases the Supply of Money and Financial Flows. Therefore, Money Supply emerges as an important explanatory variable.

6.19 The above analysis establishes that Financial Flows are influenced by Money Supply and Rate of Interest. However, due to the existence of multicollinoarity the elasticities are not to be regarded as very precise.

Table 6.1: REGRESSIONS

S.No.	Dependent variable	Independent variables	Functional Form	R^2	$\bar{R}^2$	t
1.	FF	NNP	$FF = -2415 + 0.303^* NNP$ (S.E. 0.0317)	0.84	0.83	9.5584
2.	FF	NNP	$Log_{10}FF = -4.706 + 1.923^* log_{10}NNP$ (S.E. 0.1613)	0.89	0.88	11.9219
3.	FF	NDS	$FF = -80.04 + 1.3184\,NDS$ (S.E. 0.1092)	0.89	0.88	12.0733
4.	FF	NDS	$Log_{10}FF = -0.5994 + 1.1801^* log_{10}NDS$ (S.E. 0.0903)	0.72	0.70	13.0687
5.	FF	NDS & RI	$FF = -109.69 + 1.2843^* NDS + 18.35\,RI$ (S.E 0.2682) (S.E 131.38)	0.89	0.88	(4.7886, 0.1397)
6.	FF	NDS & RI	$Log_{10}FF = 0.9089 + 0.6677^* Log_{10}NDS + 0.3957\,Log_{10}RI$ (S.E 0.2128) (S.E 0.2738)	0.87	0.86	(3.1377, 1.4452)
7.	FF	NDC	$FF = -858.4935 + 1.421^* NDC$ (S.E. 0.1910)	0.75	0.74	7.4435
8.	FF	NDC	$Log_{10}FF = -0.6011 + 1.1806^* Log_{10}NDC$ (S.E. 0.1751)	0.72	0.70	6.7424
9.	FF	NDC & RI	$FF = -835.62 + 0.8338\,NDC + 261.0035^* RI$ (S.E 0.5671) (S.E 62.8940)	0.77	0.74	(1.4704, 4.1499)
10.	FF	NDC & RI	$Log_{10}FF = 2.0268 + 0.1858\,log_{10}NDC + 1.0169^\dagger log_{10}RI$ (S.E 0.3862) (S.E 0.3642)	0.81	0.78	(0.4810, 2.7924)

Table 6.1 (contd....)

S.No.	Dependent variable	Independent variables	Functional Form	R^2	$\bar{R}^2$	t
11.	FF	MS,P & RI	$FF = -2371 + 1.079^* MS + 1.8458\ P + 161.66\ RI$ (S.E. 0.2792) (S.E.4.1338) (S.E.139.53)	0.89	0.88	(3.8646, 0.4465, 1.1586)
12.	FF	MS,P & RI	$Log_{10}FF = -2.53 + 1.6191^* log_{10}MS -0.07291\ log_{10}P +$ (S.E.0.3299) (SE. 0.2385) $0.4754^\dagger log_{10}RI$ (S.E. 0.2324)	0.94	0.93	(4.9079, 0.3057, 2.0456)
13.	FF	NNP & RI	$Log_{10}FF = 0.9132 + 0.6660\ log_{10}NNP + 0.3977\ log_{10}RI$ (S.E. 0.2128) (S.E. 0.2738)	0.87	0.86	(3.1297, 1.4525)
14.	FF	NNP,MS & RI	$FF = -2406.7131 - 0.1873\ NNP + 1.7527^* MS +359.7963^{***} RI$ (S.E. 0.1434) (S.E. 0.5122)(S.E.147.1934)	0.90	0.89	(1.3061, 3.4219, 2.4449)
15.	FF	NNP,MS& RI	$Log_{10}FF = -1.3228 -0.7534\ log_{10}NNP+2.1027^* log_{10}MS +$ (S.E.0.7015) (S.E. 0.5551) $0.6055^{**} log_{10}RI$ (S.E. 0.2304)	0.94	0.93	(1.0740, 3.7880, 2.6280)
16.	FF	MS,RI &NFS	$FF = -2699 + 0.8664\ MS + 136.5247\ RI + 1.4469^{***} NFS$ (S.E. 0.2145) (S.E.81.2916) (S.E.0.5185)	0.93	0.92	(4.0392, 1.6794, 2.8291)
17.	FF	MS,RI &NFS	$Log_{10}FF = -2.6718 + 1.3774^* log_{10}MS+ 0.3540\ Log_{10}RI+$ (S.E. 0.2607) (S.E. 0.1411) $0.3077^\dagger log_{10}\ NFS$ (S.E. 0.1651)	0.95	0.94	(5.2835, 2.5089, 1.8637)

1. FF   Financial Flows in crores of Rupees (1960-61 Prices) Average
2. NNP   Net National Product in crores of Rupees in 1960-61 Prices
3. NDS   Net Domestic Savings in crores of Rupees in 1960-61 Prices
4. NDC   Net Domestic Capital Formation in crores of Rupees in 1960-61 Prices
5. RI   Rates of Interest On one year Bank Deposits
6. P   Price Index (National Income Deflator Computed)
7. MS   Money Supply with the public
8. NFS   Net Financial Saving (Computed from Flow of Funds Matrices)

Note: *   Significant at 1%

       **   Significant at 5%

       +   Significant at 10%

Source of Data

1. Financial Flows, RBI Bulletins
2. Net National Product, CSO ⎫ Feb, 1976.
3. Net Domestic Savings, CSO ⎬ Oct, 1976.
4. Net Capital Formation, CSO ⎭ Jan, 1978.
5. Rates of Interest On one year Bank Deposits, Reports on
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6. Money Supply with the Public, Indian Economic Journal, July-Sept.1980, pp. 6-7.

Table 6.2

Sl.No.	Dependent Variable	Independent Variables	Elasticities	$\bar{R}^2$
1.	FF	NNP and RI	0.6660, 0.3397	0.86
2.	FF	NNP, MS and RI	- 0.7534, 2.1027, 0.6055	0.89
3.	FF	MS,P, and RI	1.6191, -0.7290, 0.4754	0.93
4.	FF	MS,RI and NFS	1.3774, 0.3540, 0.3077	0.94

R E F E R E N C E S

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2. R.J. Mody: New Dimensions of Monetary Management, (Macmillan,
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3. S.S. Madalgi: "Trends in Monetisation in Indian Economy 1961-62
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