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AN APPROACH TO MONETARY TARGETING IN INDIA

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Issued for Discussion

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Introduction

An important area of concern to any monetary authority is the determination of the rate of growth of money supply in view of the interrelationships between credit and output on the one hand and prices and money supply, on the other hand. It is interesting to note that an independent central bank such as Deutsche Bundesbank takes into account the following information:

(a) the expected rate of growth in the productive potential;

(b) the desired change in utilisation of productive potential;

(c) unavoidable rises in prices; and

(d) the expected development of the velocity of circulation of money.

Most monetary authorities in developing countries would like to consider the information of this kind, but the quality and reliability of such information may not be high enough to fix credible and appropriate monetary targets. This study attempts to evaluate the feasibility of fixing monetary targets for the Indian economy. It is

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now widely known that financial deregulation and exchange rate liberalisation have been introduced on a large scale since 1991 and that this would have powerful effects on money supply growth. It is, therefore, very difficult to fix a monetary target without subjective judgements based on day to day information about the inflows of foreign exchange, foreign investment and imports and their effects on output in various sectors of the economy.

The monetary process involves changes over time in narrow money (M1),(the components of which consist of currency and demand deposits plus other deposits with Reserve Bank of India, broad money (M3), (the components of M1 plus time deposits with banks) variations in factors determining the money supply namely the net Reserve Bank of India (RBI) credit to the government, commercial banks' credit to the government, and effects of these on the general price level and interest rate changes. The Indian economy experienced considerable changes during the period January 1990 to December 1992 (Brahmananda et al,1992), some of them due to exogenous shocks such as the Gulf Oil crisis in 1990-91. From the latter part of 1990-91 till July 1992, the economy was subjected to a severe foreign exchange crisis. A new economic era began in July 1991 with a significant depreciation of the Indian rupee. Major revisions in interest rates and credit policies were also effected.

Importance of Demand Function for Money

The existence of a stable demand function for money gives hope to policy makers in their search for a target for the monetary aggregate consistent with other policy objectives such as price stability. This is important even in an economy undergoing adjustment after financial deregulation. A notable feature of the Indian Monetary system is the system of administered interest rates. This system evolved over several years and has the twin objectives of mobilising savings and of providing funds for capital formation to preferred sectors at discretionary interest rates. As interest rates are administered, with other objectives in mind, interest rate policy has limited scope in the Indian economy as an instrument to control aggregate credit levels. Another feature of the Indian financial system is the lack of autonomy of the Reserve Bank of India. A substantial part of the central government deficit has to be financed by borrowing from the RBI, thereby adding to the inflationary pressure in the economy. The proportion of monetized deficit to total central government fiscal deficit was as high as one-third on average throughout the eighties and its ratio to reserve money was as high as 83% to 85%. The impact of the fiscal deficit is also felt on the trade account, as aggregate demand is generated by the increase in government expenditure. The rising public sector deficit was found to be associated with a pronounced fall in the saving rate of the public sector particularly during the second half of the 1980s when a substantial increase in the investment rate took place. The present Governor of the Reserve Bank, Dr. C. Rangarajan, (1988) suggested that there should be coordination between fiscal and monetary policy, implying thereby an agreement on the extent of the expansion of RBI credit to the government, year by year. The volume of money could be regulated if there was a limit on monetisation of the fiscal deficit.

Given the above background, the main objective of this study is to determine a stable long-run relationship between money and its determinants, using monthly data on the M3 aggregate for the period April 1980 to December 1992. Monetary targeting is absolutely essential during the liberalisation period and knowledge of the long-run demand will enable the RBI to control inflation and to reduce short-run instability in the monetary aggregate. The basic framework of India's monetary policy, as in many other countries, is based on an assumption that there exists a stable demand for money. Indeed, if one were to deny the existence of a stable demand function for money, there would be very little scope for monetary policy to play a role in inflation management (Rangarajan, 1988). Several other professionals, as well as economists in academic circles, endorse this view.

Section 1 gives a general review of money demand studies and identifies a number of specific problems with them. In section 2, the methodology for determining a long-run stable demand function for money is outlined. In section 3, results obtained using this methodology are discussed. In section 4, some conclusions are drawn and a plan to relate monetary targeting to exchange rate targeting is discussed.

SECTION I

Review of Demand for Money

A number of empirical studies have been undertaken to investigate the nature of the demand for money in developing countries. Most of these support the hypothesis that the stability does not preclude shifts in parameters over time as the institutional framework in a country undergoes change. Instability in the money demand function may be attributable to financial innovations and regulatory changes. Dornbusch and Fischer (1986) [1] have underlined the need to print money after liberalisation of an economy as both over-devaluation and initial money supply growth have been observed historically in past in Israel, Argentina and Austria soon after stabilisation program and this could contribute to short-run instability.

Conventional formulations of the demand for money usually emphasise the role of real income, the rate of interest or some other measure of the opportunity cost of holding money like the rate of inflation (Bhoi 1992, Nag and Upadhyaya 1993). The use of the error correction mechanism as an extension and improvement of partial adjustment models is not uncommon (Ghatak and Ghatak, 1994). Time series modelling techniques have been applied to different aggregates of money namely, M1 and M3.

The major explanatory variables included in the demand function for money are real income, the relative shares of agricultural and non agricultural income, interest rates on fixed deposits, yield on ordinary shares, yield on long-term government bonds, the expected rate of inflation and the degree of monetisation. Empirical studies show that real income is the predominant factor. The inflation rate is found to have a significant impact on the demand for real money balances but demand for money is not found to be very sensitive to interest rates. This study which uses the liberalisation period, makes use of the exchange rate as one of the important determinants of money demand. One of the justifications for including the exchange rate in the money demand equation is its effect on the level of financial wealth of domestic residents. When the exchange rate falls (depreciation), if the country is a net debtor in foreign denominated assets, the home-currency value of wealth falls and thus reduces the demand for money (Branson and Buiter, 1984). The presence of the exchange rate in the money demand equation can also be justified by the currency substitution literature, especially when a floating currency regime [2] is in force. We hypothesize a real money balance equation as :

$$RM_t = \beta_0 + \beta_1 IP_t + \beta_2 INT_t + \beta_3 INF_t + \beta_4 e_t + u_t \ldots\ldots(1)$$

where RM_t, IP_t, e_t, denote the logarithms of real money balances, an industrial production index (a proxy for real income), and the effective exchange rate (foreign currency units per unit of domestic currency) respectively. INT_t is interest rate divided by 100, while INF_t denotes log differences of wholesale prices between two consecutive months and u_t is a stochastic disturbance term, with zero mean and finite variance. All wholesale prices are converted using 1970-71 as the base year. It is assumed that real money balances depend positively on real income (industrial output) and the exchange rate index and negatively on the rate of inflation and the interest rate.

SECTION II

Empirical Analysis

Monthly data for the aggregate money supply (M3), the index of industrial production (IP), the wholesale price index (P), the call money rate (short-term) (INT), and the effective exchange rate of the Indian Rupee are used for the period April 1980 to December 1992. Figures (1) to (5) of the original series are shown in the Appendix. Properties of various time series were assessed by conducting unit root tests. We test for the unit root non-stationarity by using the tests proposed by Phillips (1987) and Perron (1988). The test involves computing one of the three OLS regressions designed from

$$\Delta Y_t = \hat{\alpha}\, y_{t-1} + \hat{u}_t \qquad (2)$$

$$\Delta Y_t = \mu^* + \alpha^*\, y_{t-1} + u^*_t \qquad (3)$$

$$\Delta Y_t = \mu + ß\,(t - T/2) + \alpha\, y_{t-1} + u_t \qquad (4)$$

where ΔY_t denotes the first differences of Y_t. In equation (2), the null hypothesis of a unit root i.e. $H_o : \hat{\alpha} = 0$ is tested against the stationary alternative $\hat{\alpha} < 0$ by using the adjusted t-statistic, $z(t\hat{\alpha})$. The statistics were computed for a lag of 12 months. Newey-West estimation, with triangular smoothing weights of length 12, was used. In all the expressions, a consistent estimation for long-run variance is required which depended upon $\omega_\delta\ \xi = 1\text{-}(\delta/\xi + 1)$ where ξ was the number of lags and δ was the number of autocorrelations. Tests were designed for 2,1 and 0 unit roots by using second differences, first differences and levels of variables.

In equation (3), the null hypothesis of unit root and zero drift i.e. H_o: $\alpha^* = 0$ and $\mu^* = 0$, is tested against the alternative $\alpha^* < 0$ and $\mu^* \neq 0$ while in equation (4), the null hypothesis of unit root, zero drift and no trend, H_o: $\alpha = 0$, $ß = 0$, $\mu = 0$ is tested against the alternative $\alpha < 0$, $ß \neq 0$ and $\mu \neq 0$. Equation (4) is the most general model and if the null hypothesis was accepted, equation (3) was estimated. If the null hypothesis of equation (3) was accepted, equation (2) was estimated. The most parsimonious form was used to test the null hypothesis of a unit root.

Table 1
Phillips-Perron Tests on Univariate Time Series
(April 1980-December 1992)

Name of the Variable		$z(t\hat{\alpha})$	$z(t\alpha^*)$	$z(t\alpha)$	Conclusion
Real Money Balances	Levels	7.204	- 0.3456	- 5.806*	I(1)/I(0)
	Diffs	-10.12	-11.58	- 11.69	I(0)
Inflation	Levels	- 6.87	- 7.88	- 7.56	I(0)
	Diffs	- 31.83	- 32.03	-32.10	I(0)
Industrial Production	Levels	3.32	- 0.54	- 6.84*	I(1)/I(0)
	Diffs	-22.35	-30.21	-30.59	I(0)
Effective Exchange Rate	Levels	- 2.540	1.098	- 1.78	I(1)
	Diffs	-10.77	-10.78	-10.86	I(0)
Call Money Rate	Levels	- 1.021	- 4.93	- 6.25*	I(0)
	Diffs	- 18.76	-18.82	-18.83	I(0)
	5%	- 1.95	- 2.86	- 3.41	
	1%	- 2.58	- 3.43	- 3.96	

Note: *With significant trends, the model with drift and deterministic trend supports stationarity hypothesis for these variables.

It is an empirical fact that many macroeconomic time series are characterized by unit root non-stationarities, (Nelson and Plosser, 1982) implying that the classical t and F tests are not appropriate [3] (Fuller, 1985). The econometric methodology used in some of the previous studies on money demand (Bhoi, 1992 and Vasudevan, 1977) did not account for the existence of unit root non-stationarity in the data. Needless to say that if the residuals in these functions are non-stationary, an equilibrium between money and its determinants cannot exist. Almost all the studies which did not account for the presence of unit root non-stationarity are likely to suffer from two kinds of biases : (a) the residuals of the estimated relationship may not be stationary, and (b) the estimated dynamic specification does not guarantee that a stable relationship exists.

As unit root tests are not reliable on small samples, visual inspection of the graphs shown in figures 1-5 gives some guidance. Table 1 gives summary statistics of unit root hypothesis using three z(t) values. Other values of test statistics can be obtained from the author. We find that real money balances, where there is a significant deterministic time trend is an I(0) process. However, if the time trend is not used, it would be an I(1) process. Similar conclusions can be established for the industrial production index. The effective exchange rate index, despite the Rupee devaluation being administered by the Government, follows an I(1) process. Interest rates and inflation rates both exhibit stationarity.

SECTION III

Cointegration and Long-Run Relationship

The long-run relationship between a number of series can be looked at from the viewpoint of cointegration. Let x_t be a vector of 5 - component time series

$$x_t = f\,(RM,\ IP,\ e,\ INT,\ INF) \qquad (5)$$

each integrated of order one. Then x_t is said to be cointegrated if there exists a vector such that

$$s_t = \phi' x_t \tag{6}$$

is I(0). Stationarity of s_t implies that the n-variables do not drift away from one another over the long-run, thus obeying apparently an equilibrium relationship. If ϕ exists, it may not be unique as in this case, x has more than two elements. The Engle and Granger (1987) approach can deal with the possibilty of one linear combination of variables that is stationary, but in practice, when there are more than two variables in a multivariate setting, more than one stable linear combination can exist. The more cointegrating vectors there are, the more stable the system. Johansen and Juselius (1990) have developed a maximum likelihood (ML) testing procedure on a number of cointegrating vectors which also allows inferences on parameter restrictions.

Johansen and Juselius used two tests : trace and maximum eigenvalue tests to determine the number of significant cointegrating vectors. One of the major purposes of the present study is to estimate a latent relationship based on an interdependent set of variables[4] . Test results based on the VAR procedure are shown in Table 2.

It should be borne in mind that all variables are not unit root nonstationary. It will be, however, unwise to attempt multiple linear regressions when some of the variables follow an I(1) process. We, therefore, postulated a VAR model which facilitates identification through specified lags on each of the variables. The VAR model with a constant, deterministic trend and with 6 lags is then estimated. The selection of the lag structure is based on residual misspecification tests reported in Table 2. Test statistics reveal that the hypothesis of no serial correlation is not rejected at the 5 per cent significance level. The skewness and kurtosis test results seem to suggest the presence of non-normality in some cases which could indicate either that the dynamic specification of the VAR [5] is not sufficiently general to describe all the variation of data, or that the data set is not sufficiently large. The robustness of the ML cointegration approach to deviations from normality has not been investigated (Johansen & Juselius 1990).

Table 2
Residual Analysis Based on VAR Model with 6 Lags

Name of the Variable	S.D.	Skewness	Kurtosis	Variance	Q-statistic 12 Lags
RM	0.0104	0.4529	1.9731	0.00010	15.63(0.20)
INF	0.0056	0.5416	1.3149	0.00003	10.07(0.61)
IP	0.0516	0.6268	3.0794	0.00265	17.42(0.13)
e	0.0169	-3.4537	26.351*	0.00021	17.94(0.12)
INT	0.0253	0.9901	3.7082	0.00064	44.64*(0.00)

*significant. Figures in parentheses are probability levels.

Statististical tests on the evidence of a number of cointegrating vectors based on the VAR model using the variables of equation (5) are reported in Table 3. The LR test statistics confirm the rejection of one cointegrating vector in favour of two cointegrating vectors at the 95% confidence level. Both trace and maximum eigenvalue tests suggest the acceptance of the hypothesis of two cointegrating vectors. Of these two, only one has signs consistent with the money demand relationship. These two cointegrating vectors are :

$$RM = 2.4280\ IP - 2.172\ INT + 1.3676\ e - 9.6804\ INFL \quad (7)$$
$$RM = 12.87\ IP + 55.467\ INT + 20.59\ e + 1449.6\ INFL \quad (8)$$

The graph of the first cointegrating vector is shown in figure 6.

Table 3
Model with unrestricted constant and no trend in Cointegration
80:10 to 92:12

Null	Alternative	No. of Common Trends	Eigen-value	95% Critical Values	Trace	95% Criti-cal Values
r = 0	r = 1	5	51.07	33.46	117.85	68.52
r ≤ 1	r = 2	4	38.19	27.07	66.78	47.21
r ≤ 2	r = 3	3	18.08	20.97	28.58	29.68
r ≤ 3	r = 4	2	8.97	14.07	10.51	15.41
r ≤ 4	r = 5	1	1.54	3.76	1.54	3.76

(1) Eigenvalues are: 0.2935, 0.2288, 0.1146, 0.0592, 0.0104.

The second cointegrating vector (equation 8) shows that the signs with respect to the interest rate and the inflation rate are the opposite of what is expected for real money balances. Some of the magnitudes of the coefficients (e.g. inflation variable) are very high. We have, therefore, disregarded the second cointegrating vector in our further analysis. The existence of more than one cointegrating vector simply denotes that the system is moving together and that there are at least two possible dimensions in which the stable relationships co-exist.

According to the Engle-Granger theorem, if there exists a long-run relationship, a short-run relationship must exist. It is, however, not certain whether the long-run relationship is necessarily a money demand or interest rate or another relationship depending upon the size, magnitude and significance of (α) coefficients of the error correcting term. The adjustment coefficients (α's) are: -0.002513 (RM), 0.01523 (INF), -0.0904 (e), 0.09475 (INT) and -0.3543 (IP) in each of the equations.

Table 4
Testing for Zero Loading Factors

α-restriction	eigenvalues [b]	$-2\ln Q(H_4^*\|H_2^*)$
$H_2^*:\Pi_q=\alpha\beta'$	(0.2935,0.2258,0.1157,0.0592,0.0104)	—
$H_4^*:\alpha_{real}=0$	(0.1261, 0 0 0 0)	$\chi^2(4)=31.25^*$
$H_4^*:\alpha_{ip}=0$	(0.2009 0 0 0 0)	$\chi^2(4)=18.10^*$
$H_4^*:\alpha_{int}=0$	(0.2021 0 0 0 0)	$\chi^2(4)=17.88^*$
$H_4^*:\alpha_{infl}=0$	(0.1987 0 0 0 0)	$\chi^2(4)=18.49^*$
$H_4^*:\alpha_{e}=0$	(0.2059 0 0 0 0)	$\chi^2(4)=17.18^*$
$H_4^*:\alpha_{e}=\alpha_{ip}=\alpha_{int}=\alpha_{infl}=0$	(0.2092 0 0 0 0)	$\chi^2(4)=16.58^*$

*indicates significance at 5%. [b] all other αs are assumed to be zero

Note: All of the above tests are based on one significant eigenvalue (i.e. cointegration rank being unity) and the results favour the rejection of null hypothesis.

When we used an error correction equation for real money balances, the coefficient of the error correcting vector did not turn out to be significant. This led us to conclude that a long-run target for the money supply can be fixed by using equation (7), but in the short-run the interest rate should be used as an instrument to reach the target on money supply. This hypothesis requires further investigation given that interest rates in India have not been entirely market determined. In Table 4, we test the restrictions on α-loadings to examine whether the error correction term will enter each of the equations with significant non-zero value. The hypothesis of weak exogeneity is rejected in each of the cases.

Structural Change

The structural change in the long-run real money balance equation needs to be investigated since the partial liberalisation began in 1985. The conduct of monetary policy changed in the first quarter of 1985 and the financial deregulation which has continued since then could have resulted in the fall in interest rates and perhaps a sharp reduction in semi-interest elasticity of demand for money. The exchange rate regime was moving towards less controls and as a consequence it was expected that the effective depreciation of rupee exchange rate could lead to a reduction in demand for real money balances.

A number of hypotheses which are associated with the liberalisation can be tested using the cointegration analysis for two periods: 1980-84 and 1985-92. In Table 5, these results are reported. Figures 7 and 8 show the cointegrating vectors for two separate periods. We could not reject the hypothesis of two cointegrating vectors, one for the controlled regime and another for the slightly less controlled regime moving towards liberalisation i.e. the period from 1985. The signs of the coefficients were not the same in both the periods. For the effective exchange rate, the sign was negative in the first period while it was positive as expected in the second period. In the first period, there were controls and the nominal effective exchange rate was not an important determinant of the demand for money. The semi-interest elasticity of demand for money shows a slight decline in absolute values while the inflation elasticity shows an increase. These results are tentative because the entire analysis is based on asymptotic theory and as the information extends to only 7 years for the latter period, it is rather difficult to derive policy conclusions on the stability of the demand function for money.

Table 5
Cointegrating Long-run Real Money Balance Equations
(Dependent variable : log of real money)

	Estimated Coefficients		
Regressors	1980-92	1980-84	1985-92
IP	2.4280	2.113	3.898
INT	-2.1720	-3.084	-2.696
e	1.3676	-0.216	2.655
INFL	-9.6804	-10.720	-20.33

Notes: (a) The lag length of the VAR system in each sub period was set equal to six. (b) Graphs for two sub periods were used to infer the unit root property of time series since the number of observations in each period was small.

We tried to estimate a short-run relationship for the entire period but it was not possible to obtain one single error correction equation for the entire data set given the possibility of structural change. For the latter period, we estimated a short-run error correction equation but did not satisfy all econometric criteria such as normality of residuals. This is again attributable to small samples.

Extension of the Analysis to March 1994

Extending the sample to March 1994, we found a cointegrating vector with correct signs but large values of coefficients. There were two cointegrating vectors while one of them had incorrect signs. The cointegrating vector with correct signs was

$$RM = 38.77\ IP - 47.75\ INT + 15.79\ e - 2104\ INFL \qquad (9)$$

A VAR model with six lags satisfied all the criteria. The above result seems to suggest that another structural change is under way. The

Liberalised Exchange Rate Management System (LERMS) was adopted in February 1992 and this has introduced credibility, moderated expectations and reduced the discrepancy between hawala market and free market exchange rates.

A monetary target can be fixed on the basis of a long-run relationship using the data up to 1992 (equation 7). In this equation, the anticipated values of inflation rate, exchange rate, interest rate and industrial production index can be used to fix the target on money supply. This approach is a modification to the standard quantity theory of money which is often used to fix the monetary target in a developing economy.

SECTION IV

Summary and Conclusions

An approach presented in this paper assumes the stability of the demand for real money balances. This is absolutely vital for monetary targeting. The choice of monetary indicators like the money supply or interest rates is considered necessary for the effective conduct of policy because changes in key economic variables like output and prices are a result of many complex forces in the economy such as the behaviour of entrepreneurs and workers. Monetary policy objectives were very much conditioned by the need to reduce the rate of growth of money supply in view of the continuing pressure in the economy (Economic Survey, 1992-93). The target of 10.4 per cent growth in the money supply was associated with the slower expansion in net RBI credit to the government. In the context of administered interest rates, the rate of interest could hardly serve as a target variable. The behaviour of the money supply and credit have, therefore, been taken as the important indicators of the impact of monetary policy during the last fifteen years. The control over money supply growth is a necessary condition for the control of inflation in a monetized economy. Some economists, therefore, recommend control of expansion in high powered money. In India, the growth in high powered money or reserve money has been largely the result of an increase in the RBI credit to the government. Any measure to check reserve money growth depends to a large extent on the accommodation of the central bank to the demands made by the government. The inability of the RBI to deny or regulate credit to the government may be interpreted as the lack of control over reserve money and hence on money supply. Most central banks in developing countries, having faced the problem of lack of control over the money supply, would prefer to move to a system whereby they exercise more control over money aggregate and while doing so, the central banks would like to establish the existence of a stable demand function for money. Liberalisation and relaxation of controls could introduce instability in the initial period but in the Indian context such instability has not yet been sufficiently significant to inhibit the estimation of long run demand for money.

This study integrates the demand function for money with the exchange rate. One of the important determinants of long-run demand for money is the effective exchange rate in an open economy. A long-run money demand is a latent relationship which is determined through a long time series data. Such a relationship can be used to fix the long-run target on money supply. In order to reach such a target both the exchange rate and the interest rate can be used as policy instruments in the short-run. Our long term aim is to propose a model whereby simultaneous targeting of exchange rate and money supply is consistently administered within the Indian economy. The present study is a first step towards this aim. There exists a long-run relationship between money and its determinants namely exchange rate, interest rate, inflation rate and real output. A monetary target can be fixed using such a long-run cointegrating relationship and in the short-run the target may be achieved by manipulating interest rates and exchange rates which are partly under the control of the monetary authority.

Notes

(1) The phenomenon of missing money has been noticed in the case of U.S.A. The role of demand deposits as a close substitute to cash holding has disappeared. Demand deposits have also attracted interest rates in U.S.A. Among the regulatory changes, authorization to commercial banks to open interest-bearing chequable deposits and growth of negotiable order of withdrawals have blurred the distinction between interest and non-interest bearing deposits.

(2) Under the floating exchange rate system, most economies have become more interdependent than they were under fixed exchange rates. Various investigators have used proxies to capture the effects of foreign monetary developments on the home demand for real balances (Bahmani-Osokooee, 1991 and Arize, 1994).

(3) Appropriate tests have been developed by Fuller (1976), Dickey and Fuller (1981), Phillips (1987) and Perron (1988) to test whether a time series has a unit root, i.e. whether it is integrated of order one [I(1) against the alternative of I (0)].

(4) The rate of inflation can regarded as a proxy for an opportunity cost of holding money and other financial assets in situations where nominal interests rates are administratively determined.

(5) VAR processes up to 12-period lags were tried. The results based on the best VAR model are presented here.

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APPENDIX

Log of real money balances

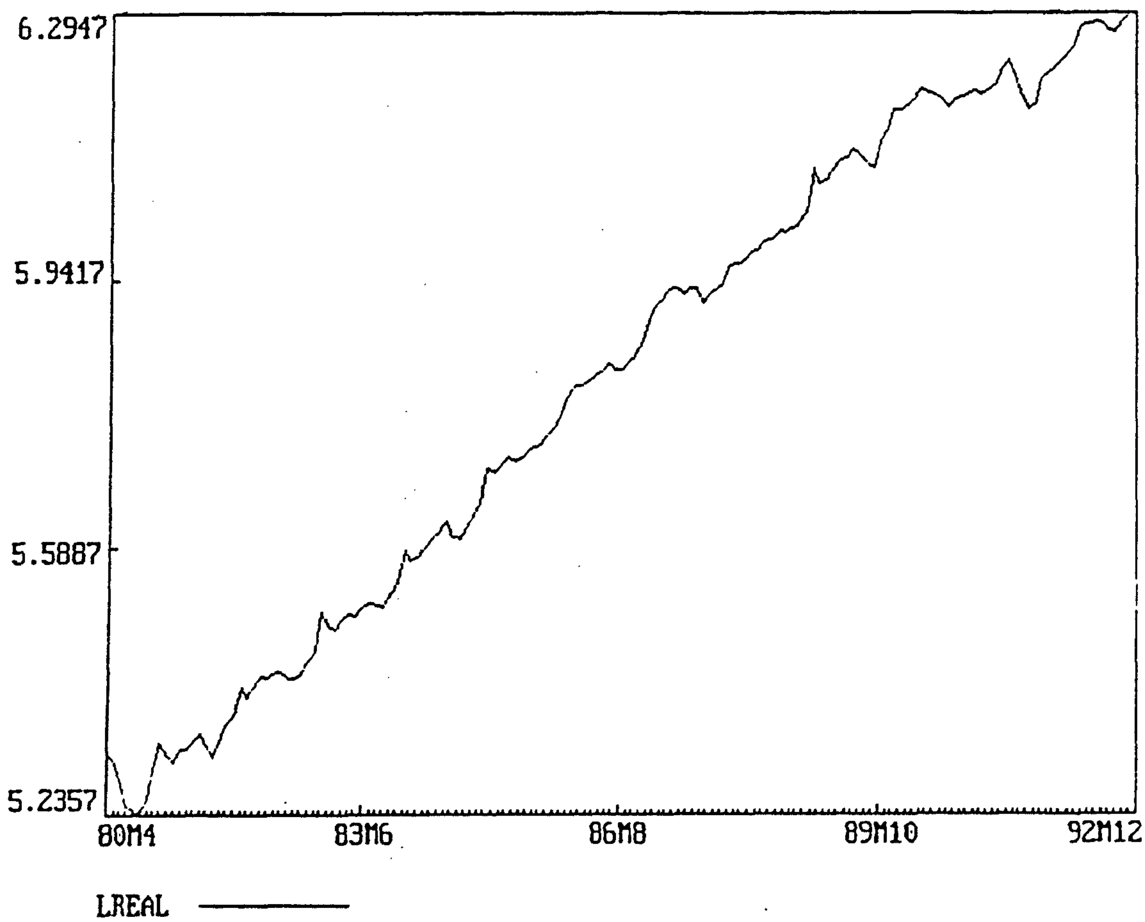

FIGURE 1

Industrial production index (logs)

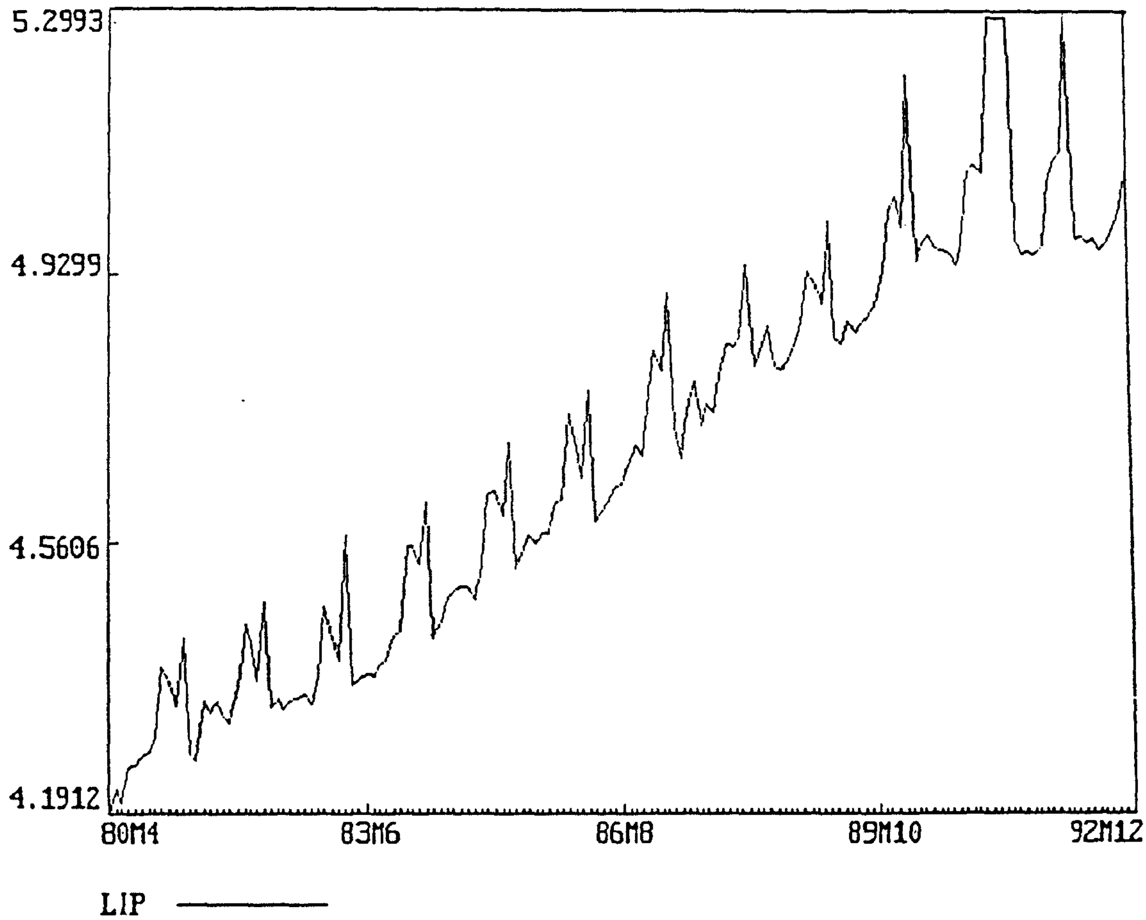

FIGURE 2

Interest rate : Call Money Rate from International Financial Statistics

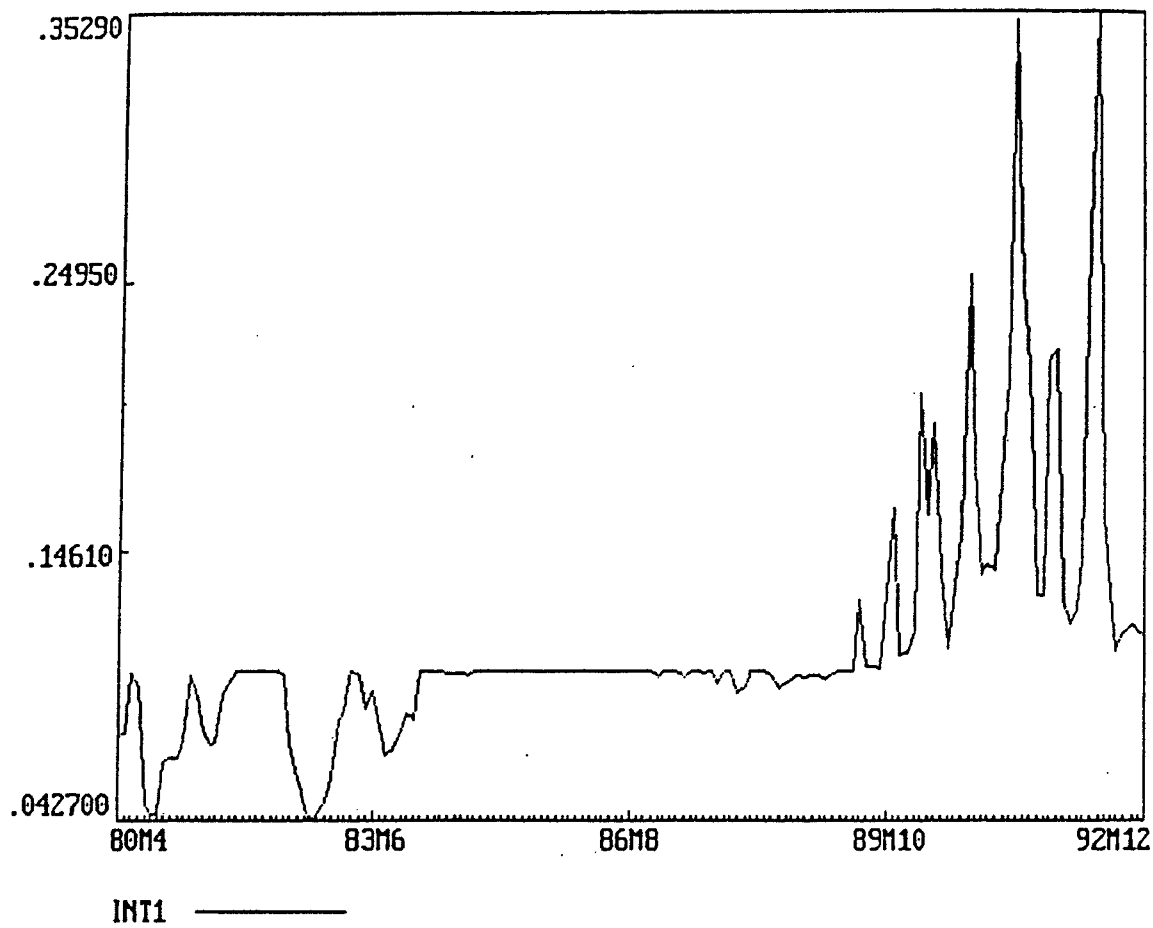

FIGURE 3

Inflation rate based on monthly wholesale price

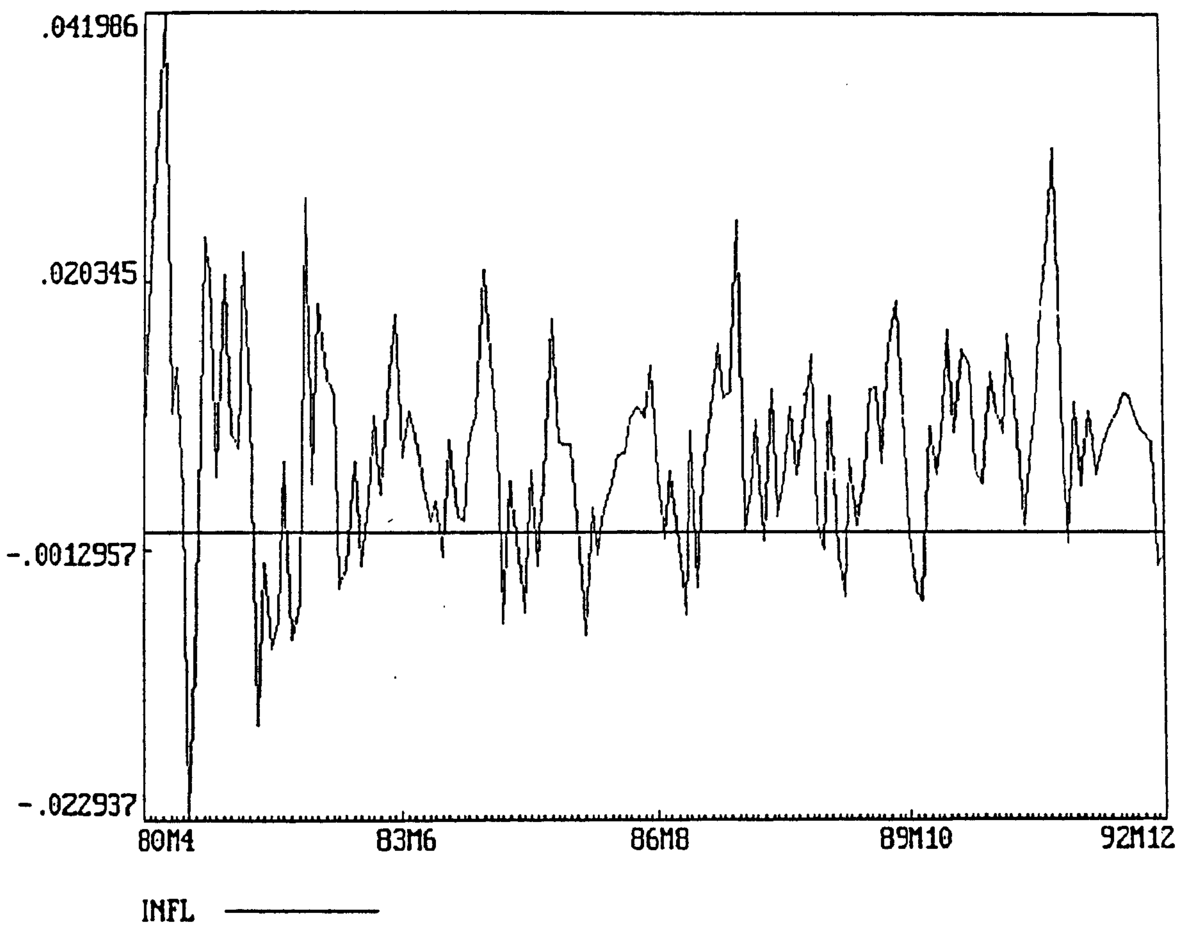

FIGURE 4

Log of Effective Exchange Rate (Index)

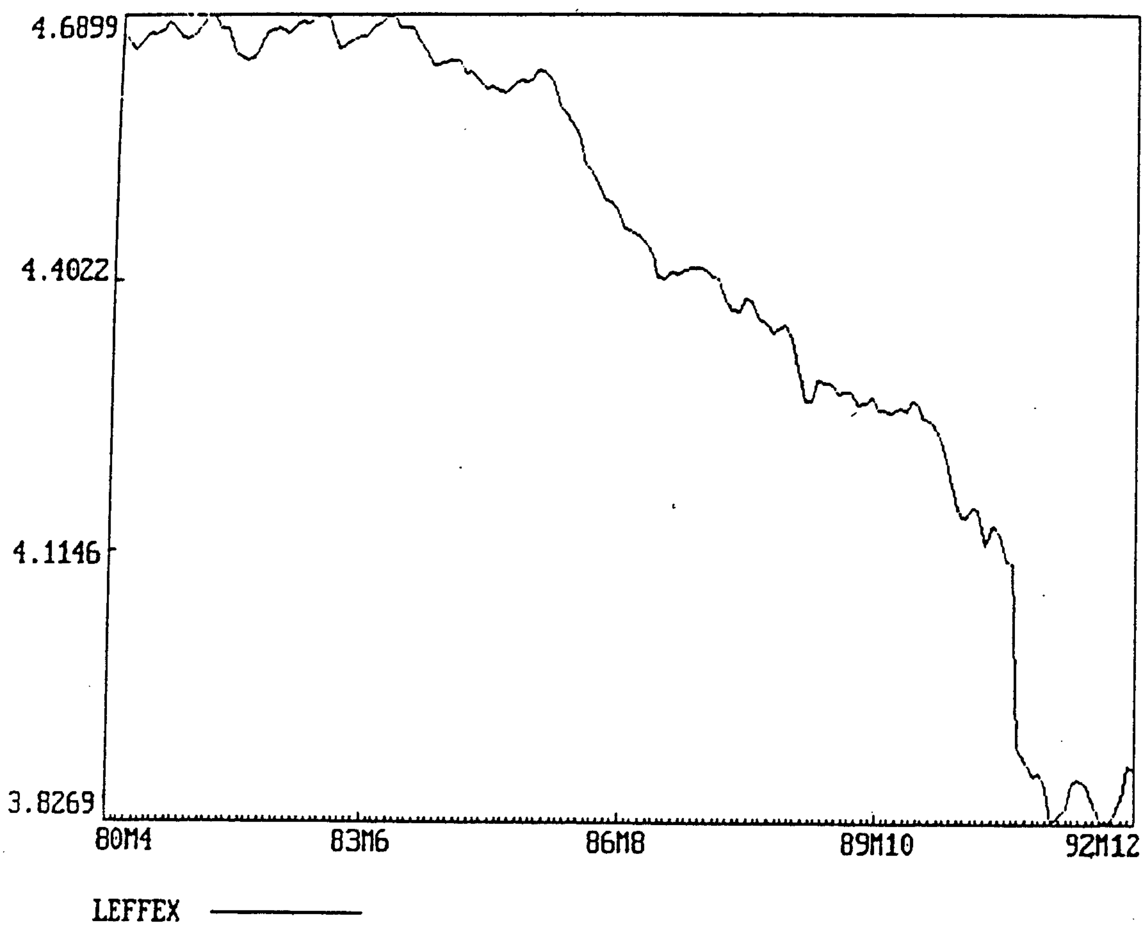

FIGURE 5

Residuals of cointegrating vector : 1980 (10) - 1992 (12)

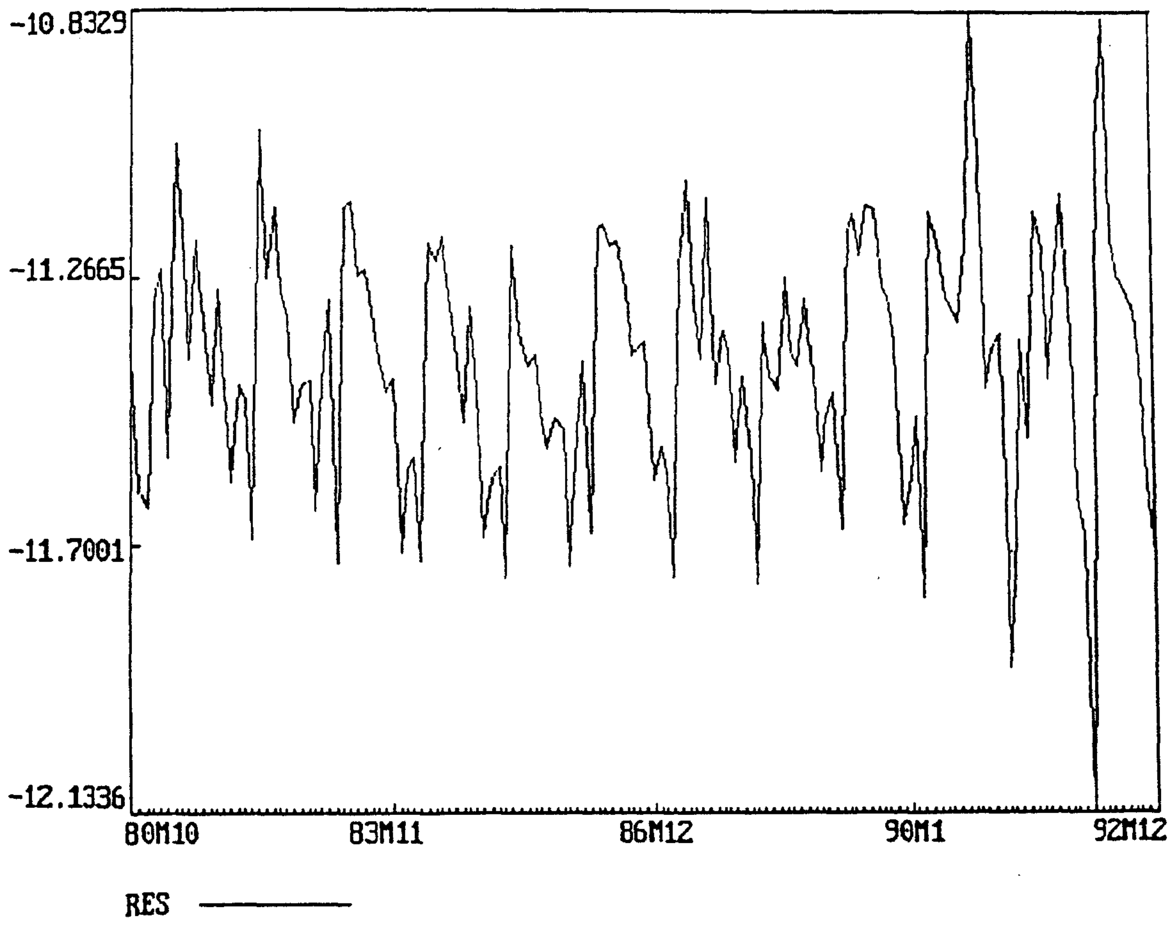

FIGURE 6

Residuals of cointegrating vector 1 : 1980(4) - 1984 (12)

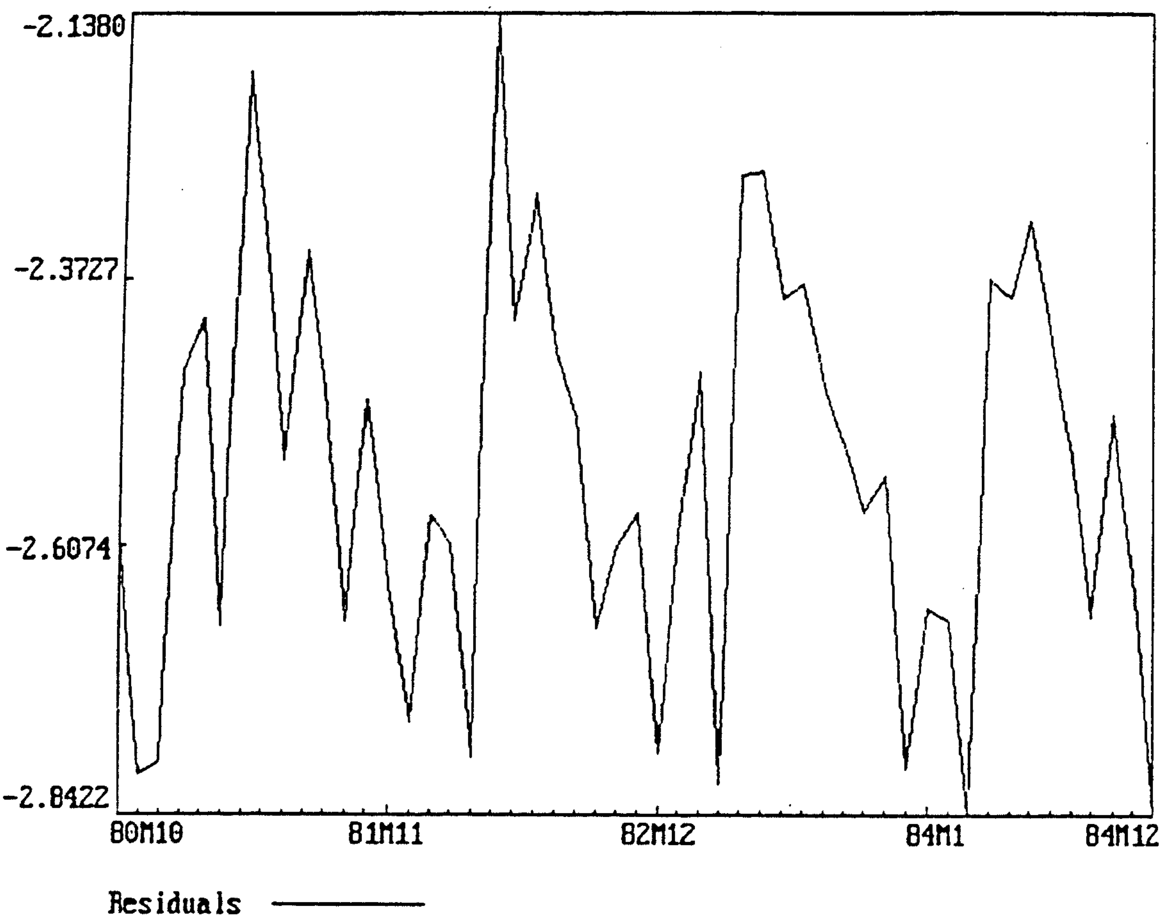

FIGURE 7

Residuals of cointegrating vector 1 : 1985(1) - 1992 (12)

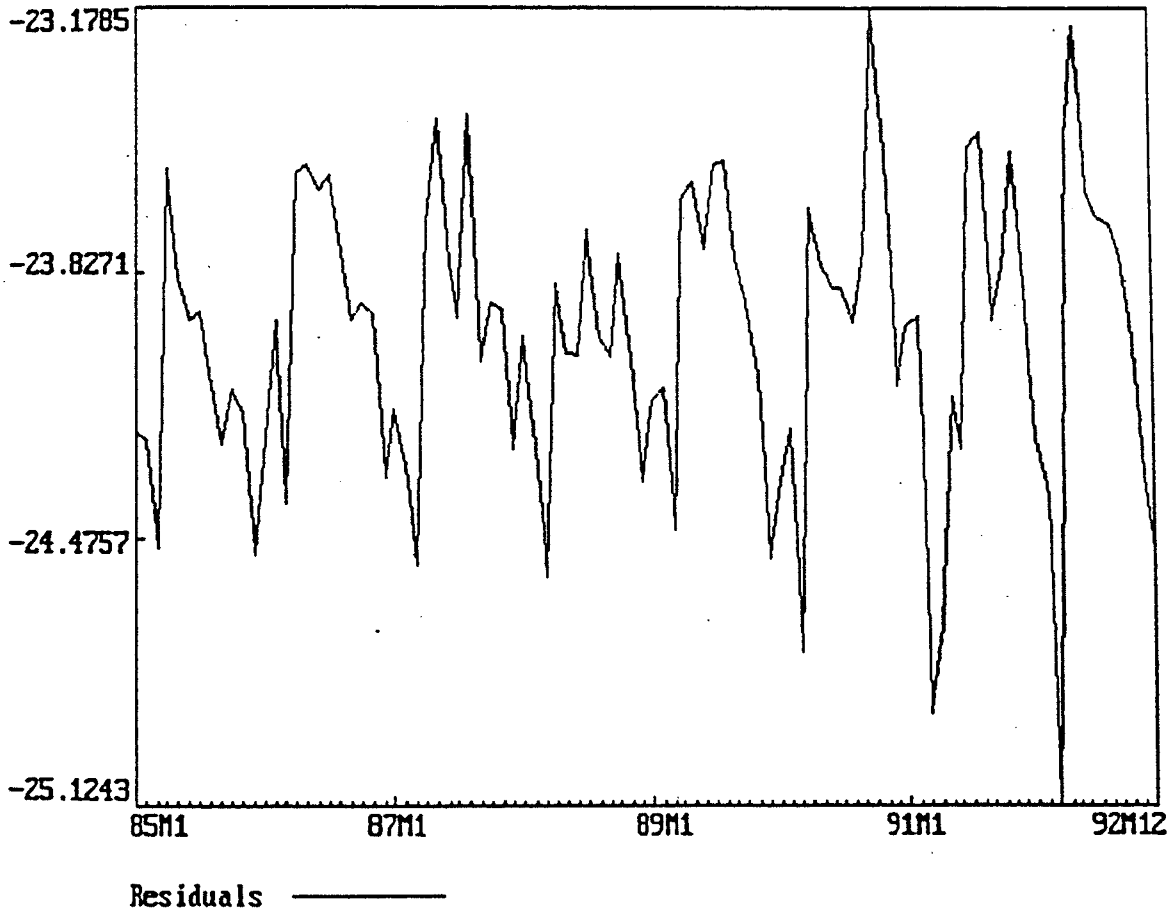

FIGURE 8

DRG Studies Series

No.	Title	Date
1.	On the Guidelines Relating to Valuation of Shares	February 19, 1992
2.	Monetary Policy, Inflation and Activity in India	April 07, 1992
3.	Gold Mobilisation as an Instrument of External Adjustment	April 21, 1992
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