Chapter 6

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OVERVIEW AND POLICY IMPLICATIONS OF THE STUDY

The present study attempts to study the interlinkages amongst the final objectives, targets and instruments of monetary policy in India by tracing its transmission mechanism and the operating procedure with the aid of latest econometric techniques. Before undertaking the econometric exercise, as a prerequisite a clear understanding of the empirical realities in terms of the existing economic environment, institutional arrangements and the basic parameters of monetary policy in India is essential. To satisfy this, Chapter 2 of our thesis provided a useful description of the empirical realities in India since Independence and briefly described the process of gradual transformation of basic parameters of monetary policy. From this discussion of historical developments we observed that, upto mid-1980s the monetary policy in India was mainly characterised by credit planning. During this period, the Reserve Bank of India (RBI) was entrusted the responsibility to ensure credit flows to different sectors and for the economy as a whole as decided by the planning authority. The financial requirements of the government to undertake developmental activities were also to be satisfied. Highly regulated regime encompassing priority sector lending commitments, cross-subsidisation coupled with adoption of the philosophy of ‘social control' culminating in the event of ‘bank nationalisation' which heavily constrained the banking operations.

During this regime, there was limited scope for conduct of monetary policy. There was an imperative need to shift from the existing practice and configure a new policy framework to enable monetary policy serve its best purpose. This was materialised with constitution of a high level committee to review the working of monetary system in India and to delineate the appropriate framework of monetary policy under the chairmanship of Professor Sukhamoy Chakravarty in 1982.
With implementation of recommendations of Chakravarty Committee Report (RBI, 1985) there was a directional change in the conduct of monetary policy, mainly drawing up the list of important objectives with emphasis on price stability and economic growth, adopting monetary targeting with feedback as the basic framework, initiation of a process of coordination between monetary and fiscal policy to reduce the fiscal burden on the former, attempt to activate money market to operationalise indirect instruments, etc. The process of reforms in key segments of the financial market and gradual opening up of the economy as a part of overall economic reforms since 1991-92 further expanded the scope of monetary policy in India. This process has slowly created the conducive atmosphere for operation of market forces by liberalising interest rates, introducing auction system in government securities, making foreign exchange rate flexible guided by Marshallian scissors of demand and supply, introducing liquidity management for day-to-day monetary policy operations, etc. Thus, Chapter 2 traces the transition of monetary policy in India from a highly regulated credit planning exercise to a new regime operating through market forces with greater transparency in a well-defined framework. The discussion in this chapter is very useful in understanding various dynamics of monetary policy operations in India in the last five decades and guides the econometric analysis with a strong foundation on the empirical realities.

In Chapter 3, we have undertaken the analysis of channels of monetary transmission in India with the aid of 'path analysis'. Basically, we have focused on the influence of monetary policy on real output. We have examined the channels of monetary transmission for pre-reform and post-reform period separately with different path models. We presume that, based on the empirical realities there is little role of market related channels such as interest rate channel, exchange rate channel, asset prices channel in the pre-reform period. During this period, only credit channel can be thought of being in operation in transmitting monetary policy shocks to real output. We have used a simple path model with only credit channel for our path analysis of channels of monetary transmission in India based on annual data covering the period from 1951-52 to 1991-92. From our estimation results, we can infer that, monetary
impulses have statistically significant influence on the bank credit and real investment. With monetary contraction, the growth of bank credit and real investments shrink. But due to weak influence of real investment on real output, we could not find statistically significant influence of monetary impulses on real output. Thus, our estimation results support monetarist long run money neutrality proposition. Extending our annual data series upto 2001-02 and estimating the above path model do not alter our inferences.

As discussed above, greater play of market forces in the post-reform period has opened up avenues for operation of market related channels of monetary transmission. Rangarajan (1997a) asserts that, “Under this new environment monetary policy is expected to work through the interest rate channel in promoting the expansion of credit and overall investment activity in the economy.” Thus, post-reform period constitutes the right set up to analyse the operation of various channels of monetary transmission and examine their relative importance and interlinkages. But the major hindrance we face in this endeavour is inadequacy of observations. Availability of limited data points on annual or quarterly frequency constrains us to depend on monthly data for our path analysis in the post-reform period, exclusively.

The new path model to study the channels of monetary transmission for the post-reform period encompasses four important paths such as interest rate channel, foreign exchange rate channel, asset prices channel and credit channel. Although it is possible to analyse the interactions amongst various individual channels in path analysis, limited data points do not permit this. With 111 monthly data points, we can estimate only 10 path coefficients, appropriately. Hence, we focused only on individual channels in a combined set up without the interlinkages.

From the estimation results of monthly path model, we found evidences of effectiveness of interest rate and asset prices channel in transmitting monetary influences to real output. Both the channels were statistically significant. The exchange rate channel was not found to be statistically significant, but monetary
shocks are found to have statistically significant influence on foreign exchange rate. There are evidences of operation of credit channel supported by statistical significance. However, inappropriate relation between the growth of deposits and credits distort monetary influence on real output through this channel. To sum up, we found statistically significant influence of monetary shocks on real output, mainly through interest rate and asset prices channels. Secondly, there are clear evidences of transmission of monetary policy shocks to key segments of financial market. Both the findings underscore the role of monetary policy in enhancing growth of real output and maintaining orderly condition in the financial market in the post-reform period in India.

The path analysis of Chapter 3 assumes no feedback from the final dependent variable to the causal variable. The assumptions of no feedback from output to money may sound restrictive. Secondly, in any discussion on monetary influence on real output, the role of prices should not be ignored. Addressing the above issues, we have attempted to study the impact of monetary shocks on final objectives of price stability and economic growth in a VAR framework in Chapter 4. Our VAR analysis takes care of the endogeneity issue and includes price in the system. From the innovation accounting exercise in VAR analysis, we have analysed the impact of monetary policy shocks on output and prices at different time horizons. Our VAR models are estimated based on both annual and monthly data, alternatively. Similar to the previous chapter our annual data covers the period from 1950-51 to 2001-02 and monthly data extends from March 1992 through May 2002. The models are identified imposing both Choleski and structural decompositions.

From the estimation results of VAR analysis based on annual data it is observed that, monetary shocks can explain only a meager 1 per cent of forecast variance of real output, and hence, monetary influences on real output is negligible. This supports monetarist long run money neutrality proposition similar to the inference drawn from the path analysis. Interestingly, we found evidences of significant influence of monetary shocks on price inflation supporting Rangarajan
(1997a) emphasising the role of monetary factor in determining inflation in the long run. The results of variance decomposition reveals that, close to one-fifth of forecast variance of inflation can be attributed to monetary shocks. As derived from the impulse response function, the impact of monetary shocks on inflation remains very significant up to 5-years after the policy shock and remains important at least up to the ninth year. Our results were similar irrespective of using Choleski or structural decompositions.

For monthly VAR models we have used monthly growth rate of M3 and call money rate to capture the stance of monetary policy, alternatively. Other variables in the model include real interest rate, growth rates of real output and price inflation. From the estimation results of our VAR model with growth rate of M3 capturing the stance of monetary policy, we found little evidence of influence of monetary shocks on real output, price and real interest rate. However, monthly growth rates of M3 may not be the appropriate variable to capture the stance of monetary policy in India in the post-reform period. Firstly, indicative targets of M3 are set in the annual Monetary and Credit Policy of the RBI in the medium term perspective consistent with projections of output growth and inflation scenario. There is no practice of setting or revising monthly M3 targets. Secondly, with greater emphasis on maintaining orderly conditions in the financial market call money rate has emerged as a better indicator of monetary policy stance in day-to-day practice.

In the VAR model consisting of call rate, real interest rate, real output and price, we found similar results imposing Choleski and structural decompositions. The impact of monetary shocks on real output was found to be negligible. Even the impact of monetary shocks on price inflation was not very significant. Monetary shocks could explain close to 10 per cent of variation in inflation since 15-months ahead up to 24-months ahead forecast. However, monetary shocks could explain close to 15 per cent variation in real interest rate since 6-months ahead to 24-months ahead forecast. Similarly, we found real interest rate shocks explaining more than 15 per cent
variation in real output since 6-months up to 21-months ahead forecast. Thus, there are evidences of activation of interest rate channel in the post-reform period.

The impulse response function for the above model revealed that, similar to the international evidence, tightening monetary shocks immediately pushes up the real interest rate. The prices experience a gradual decline and real output suffers a mild setback with one year lag.

In Chapter 5, the task of delineating the broad outline of monetary policy operating procedure in India was undertaken and linkages between policy instruments and targets were empirically examined. In this chapter, we have first discussed the international practices of operating procedure of monetary policy across selected industrial and emerging economies. This discussion implied convergence of monetary policy operation towards shifting from use of direct to indirect instruments worldwide. In India in the highly regulated regime of the pre-reform period, the flow of credit was directed to the desired sectors in consonance with the plan exercise and the administered interest rate regime impeded the functioning of market mechanism. Efforts towards reforming the monetary system and introducing a new monetary policy framework with recommendations of Chakravarty Committee Report (RBI, 1985) marked the beginning of the process to transform monetary policy operations. Development of key segments of financial market and opening up of the economy in the post-reform period further activated the financial system and effected radical changes in operation of monetary policy in India. As a consequence, inter alia, the operating procedure became transparent and well-defined.

It is observed that, there is gradual shift of emphasis from direct to indirect instruments such as OMO and repo operations in the post-reform period of 1990s in India. In the recent years, there is heavy reliance on liquidity management in monetary policy operations. Based on expected movements of various components of RBI balance sheet, liquidity is injected in or withdrawn from the market consistent
with medium term objectives of price stability and credit creation coupled with maintaining orderly conditions in the market on day-to-day basis.

We have empirically examined the relative role of policy instruments to regulate liquidity in the market. Prior to activation of OMO in March 1995, credit to banks through refinances and CRR variation largely regulated the operating target of ‘reserve money’. However, high fiscal dominance during this period constrained policy operations where autonomous liquidity mainly determined the direction of overall liquidity and was largely responsible for the variation of reserve money. Since 1997, the movement of discretionary liquidity was effective in regulating the overall liquidity consistent with desired objectives taking into account expected changes in the autonomous liquidity. During this period, policy instruments such as OMO and repo operations have emerged as dominating policy tools. Recently, the general refinances facility is completely phased out. The liquidity adjustment facility (LAF) serves the purpose of regulating liquidity on day-to-day basis to maintain orderly conditions in the market.

From our econometric analysis, we observed that, the policy instruments are quite capable of regulating discretionary liquidity consistent with desired net liquidity position (NLP). Policy shocks as reflected in NLP influence operating targets of reserve money and call money rate in the desired direction. Particularly, recent liquidity management procedure of RBI has been quite capable of exercising reasonable control on the operating target of call money rate. We found evidences of close movements of call money rate and other market rates. However, some signs of inconsistency between the association of reserve money and M3 could be traced in the post-reform period.

To sum up, there is increasing emphasis on monetary policy in the overall economic policy in India with broad objective of output expansion and price stability. In the recent times, there is greater emphasis on ensuring orderly conditions in the financial market in view of close interlinkages amongst various segments of the
domestic financial market and increasing openness of the economy. From our econometric exercise examining the influence of monetary shocks on real output, it is confirmed that in the long run money neutrality proposition holds for India. But, in the short run, particularly in the post-reform period there are evidences of positive influence of monetary policy on real output, mainly through the rate channels. We have found sound evidences of monetary influences on price inflation in the long run. Monetary shocks have sizeable impact on the real interest rate in the post-reform period.

The most important policy implication of the study is the emergence of the 'call money rate' as the most suitable operating and intermediate target at least in the post-reform period due to its close and predictable link with the final objectives coupled with reasonable control of the monetary authority on it. Our econometric analysis in Chapter 5 has established the influence of policy instruments on the 'call money rate'. We have observed close movements of 'call money rate' with other interest rate in the market. From our path analysis in Chapter 3, there are evidences supporting the link between 'call money rate' and real output. We have also found convincing evidences of transmission of monetary policy shocks through call rate to other segments of the financial market. In view of increasing emphasis on maintaining orderly conditions in the financial market in the post-reform period, these are very encouraging developments. Further, evidences supporting dominance of rate channels of monetary transmission in the recent days and close association of various market rates with call rate underscores the role of 'call money rate' in recent monetary policy practices in India.

On the other hand, there are signs of inconsistency in the association between growth rates of reserve money and M3 in the post-reform period. Secondly, our VAR analysis in Chapter 4 could not find any evidence of influence of M3 on the economic variable like real output, interest rate and prices during this period.
In this backdrop, it may be prudent to think of shifting emphasis from targeting M3 to ‘call money rate’. It may be desirable to shift to ‘interest rate targeting’. However, the feasibility of shifting to ‘interest rate targeting’ regime rests on establishing the formal integration amongst various segments of the financial market and identifying the particular rate of interest to be targeted. In the transition phase, the present ‘multiple-indicators approach’ seems to be appropriate. In the choice of rate of interest rate to be targeted in the interest rate targeting, ‘call money rate’ emerges as a convincing candidate from our study.