

Synopsis

Financial Market Developments and Evolution of Interest Rate Channel of Monetary Policy Transmission in India: A proposal for Ph.D. Thesis by Deepak Kumar Mohanty

How does monetary policy affect output and inflation is an important question? The monetary policy framework of a central bank aims to attain the desired objectives of policy in terms of inflation and growth. Typically, central banks exercise control over the monetary base and/or short term interest rates such as the rate at which the central bank supplies or absorbs reserves to/from the banking system in the economy. How these interest rate actions and liquidity operations of the central banks impact the end-objectives depends on the underlying monetary transmission, which in turn depends on the state of development in financial markets.

Monetary transmission refers to a process through which changes in the policy get translated into the ultimate objectives of inflation and growth passing through some intermediate process. Traditionally, four key channels of monetary policy transmission have been identified in literature such as (i) quantum channel relating to money supply and credit; (ii) interest rate channel; (iii) exchange rate channel; and (iv) asset price channel. In recent years, a fifth channel, i.e., expectations channel has assumed increased prominence in the conduct of forward-looking monetary policy.

Interestingly, the channels of monetary transmission are often referred to as a 'black box' – implying that we know that monetary policy does influence output and inflation but we do not know for certain how precisely it does so. This is because not only different channels of monetary transmission tend to operate at the same time but also they change over time. As Bernanke and Gertler [1995] observed:

To a large extent, empirical analysis of the effects of monetary policy has treated monetary transmission mechanism itself as a "black box". As a result, questions remain: does monetary policy affect the real economy? If so, what is the transmission mechanism by which these effects take place? Monetary policy changes affect market interest rates such as bank lending and bank deposit rates in varying degrees over time.

In general, transmission mechanism is largely conditioned by the monetary policy framework, structure and depth of the financial system in which the central bank operates and the state of real economy. While there is vast empirical literature on monetary policy transmission for advanced economies, only a limited number of empirical studies have examined the monetary transmission mechanisms in emerging and developing economies (EDEs). This is understandable given the underdeveloped nature of financial markets and rapid structural changes in EDEs. However, since the 2000s, analysis of monetary transmission mechanisms in EDEs, including India, has gained prominence due to structural and economic reforms and subsequent transitions to market oriented policy regimes. Literature on monetary transmission in India is still in a nascent stage.

An effective implementation of monetary policy needs an assessment of how the monetary policy changes propagate through the financial markets and the broader economy. In general, monetary policy gets transmitted to final objectives of inflation and growth through two stages. In the first stage, policy changes transmit through the financial system by altering financial prices and quantities. In the second stage, financial prices and quantities influence the real economy by altering aggregate spending decisions of households and firms, and hence the aggregate demand and inflation. Nonetheless, whether monetary policy actions influence the spectrum of market interest rates would *inter alia* depend upon the level of development of various segments of financial markets. Cross-country studies suggest that as domestic financial markets grow, transmission of monetary policy through financial channels becomes better.

In India, the depth and width of financial markets expanded significantly since the 1990s following wide-ranging financial sector reforms. Alongside, the market discovery of prices of financial instruments was buttressed by progressive deregulation of interest rates. Various measures were taken to facilitate the process of price discovery in different segments of financial markets which *inter alia* included deregulation of interest rates; auction-based market borrowing programme of the government; development of short-term money markets through introduction of money market instruments; discontinuation of automatic monetisation by phasing out of *ad hoc* Treasury Bills; replacing cash credit with term loans, and reduction in statutory reserve requirements. These reforms facilitated a shift in the operating framework for monetary management from direct instruments to interest rate based indirect instruments. Even though the financial reforms began in the early 1990s, the impact was evident from the late 1990s.

Financial markets in India have developed significantly since the financial sector reforms in the early 1990s. Integrated financial markets are important for different reasons like transmission of monetary policy signals (Reddy 2003), medium to provide economic growth through promoting financial savings and investment (Mohan, 2004), contributes to financial stability (Trichet 2005), improves financial services (Giannetti, et al. 2005) and encourages market discipline and informational efficiency (RBI, 2006). Further, the interest rate based monetary policy transmission framework is dependent upon the extent and speed with which changes in the policy rate are transmitted to the market interest rates and exchange rate and onward to the real sector (Mohan, 2007). A well-integrated market, makes it easier for central bank to manage demand in the economy and attain its objective of low inflation and sustained growth (Pétursson, 2001).

The development of the financial market and understanding the inter-linkages among various segments of the financial market is important for the central bank to evolve a framework for of monetary policy which is consistent with the objectives of the monetary policy. Based on the recommendations of Chakravarty Committee (1985), a monetary targeting framework was adopted by the Reserve Bank in themid-1980s, with reserve money as the operating target and broad money (M3) as an intermediate target for monetary policy operations.

In the 1990s, the increasing market orientation of the financial system and greater capital inflows imparted instability to the money demand function. Consequently, there was a shift to multiple indicators approach in the late 1990s. Under this approach, interest rates or rates of return in different markets along with movements in currency, credit, fiscal position, trade, capital flows, inflation rate, exchange rate, refinancing and transactions in foreign exchange – available on a high frequency basis – are juxtaposed with output data for drawing policy perspectives. The multiple indicators approach continued to evolve and was augmented by forward looking indicators and a panel of parsimonious time series models. The forward looking indicators are drawn from the Reserve Bank’s industrial outlook survey, capacity utilization survey, professional forecasters’ survey and inflation expectations survey. The assessment from these indicators and models feed into the projection of growth and inflation.

Along with this, following the recommendation of Narasimham Committee II (1998) the operating procedure of monetary policy was also changed by introducing the Interim Liquidity Adjustment Facility (ILAF) in April 1999. Over time the ILAF developed into a full-fledged liquidity adjustment facility (LAF) based on development and deepening of financial markets. The LAF was operated through overnight fixed rate repo (used for injection of liquidity) and reverse repo (used for absorption of liquidity) from November 2004, which provided an informal corridor for the interbank overnight call money rate. Thus RBI slowly moved towards interest rate as the key instrument of monetary transmission.

In May 2011 (RBI, 2011) RBI moved into a new operating procedure for monetary policy with the weighted average overnight call money rate as the operating target of monetary policy. The repo rate was made the key policy instrument with a new Marginal Standing Facility (MSF) under which banks could borrow overnight at 100 basis points above the repo rate. The reverse repo rate was placed at 100 basis points below repo rate defining a corridor with a fixed width of 200 basis points. Following the recommendation of the Urjit Patel Committee (RBI, 2014) while weighted average call rate continues as the operating target, there is greater reliance on term-repo under the RBI's LAF operations for liquidity management. Also the RBI switched wholesale price inflation (WPI) to consumer price inflation (CPI) as nominal anchor for monetary policy.

The RBI Working Group on Money Supply (Chairman: Y.V. Reddy, 1998) pointed to some evidence of interest rate channel of monetary transmission. RBI [2005] using a VAR framework for the period 1994-95 to 2003-04 found that monetary tightening through a positive shock to the Bank Rate had the expected negative effect on output and prices with the peak effect occurring after around six months. Monetary easing through a positive shock to broad money had a positive effect on output and prices with peak effect occurring after about two years and one year, respectively. Further, exchange rate depreciation led to increase in prices with the peak effect after six months and a positive impact on output.

A number of studies have also examined the importance of different channels of monetary policy transmission in India. Al-Mashat [2003] using a structural VECM model for the period 1980:Q1 to 2002:Q4 found interest rate and exchange rate channels to be important in the transmission of monetary policy shocks on key macroeconomic variables.

Bank lending was not an important channel due to presence of directed lending under priority sector. On the other hand, Aleem [2010] studying credit channel, asset price channel and exchange rate channel of monetary policy transmission using VAR models for the period 1996:Q4 to 2007:Q4 found credit channel to be the only important channel of monetary transmission in India.

Using cointegrated VAR approach, Singh and Singh & Kalirajan [2007] showed the significance of interest rate as the major policy variable for conducting monetary policy in the post-liberalised Indian economy, with CRR playing a complementary role. Patra and Kapur [2010] also found that aggregate demand responds to interest rate changes with a lag of at least three quarters. However, they pointed out that the presence of institutional impediments in the credit market such as administered interest rates could lead to persistence of the impact of monetary policy up to two years. Bhaumik *et al.* [2010] highlighted the importance of bank ownership in monetary policy transmission through the credit channel. Pandit and Vashisht [2011] found that policy rate channel of transmission mechanism, a hybrid of the traditional interest rate channel and credit channel, works in India, as in other six EMEs considered by them. Mohanty (2014) found evidence that policy rate increases have a negative effect on output growth with a lag of two quarters and a moderating impact on inflation with a lag of three quarters.

Against this background, the proposed thesis will examine two questions: (i) development and extent of integration in the domestic financial market, and (ii) evidence of interest rate channel of monetary transmission. The thesis could be organised in 6 chapters. The proposed chapterisation scheme is as follows:

Chapter I : Introduction

It will set the context by briefly tracing the evolution of the monetary policy framework since the mid-1980s and how interest rate has formally evolved as the operating target of monetary policy since the 2000s. This is in a way predicated on the understanding that interest rate is a key factor in monetary policy transmission to the broader economy. Thus the proposed research will have policy relevance.

Chapter II : Development of Financial Markets

In the context of reforms in the 1990s and following the implementation of recommendation of several committees – particularly Chakravarty Committee (1985), Vaghul Committee (1987), Rangrajan Committee (1991) and Narasimham Committee (1998) – various segments of the financial market were developed. This chapter will capture these developments with a greater emphasis on the money market. The analysis will show the transition from a regulated interest rate regime to a largely deregulated interest rate regime was effected. This is crucial for monetary transmission.

Chapter III : Integration of Financial Markets

This chapter will provide data analysis on the basis of monthly data on interest rate/yield in the various segments of the market. Apart from correlation, cointegration analysis will be attempted depending on the nature of the data whether I(1) or I(0). Monthly data for 20-year period from the mid-1990s to mid-2010s will be covered.

Chapter IV : Review of Literature on Monetary Transmission

This chapter will review both theoretical and empirical literature on monetary transmission with a particular emphasis on Emerging Markets and Developing Economies (EMDEs), particularly India.

Chapter V : Empirical Model on Interest Rate Channel

This chapter will set out an empirical model in a Structural Vector Auto Regression (SVAR) framework to examine the evidence of interest rate channel of monetary policy. A quarterly model will be estimated for the period 1996-97:Q₁ to 2014-15:Q₄. The starting point of the model again is dictated by the availability of quarterly GDP data only from 1996-97:Q₁. In the model, we could additionally try to control for liquidity to possibly show the efficacy of transmission under varying liquidity conditions.

Chapter VI : Conclusions

This chapter will give the conclusions of the research.