REVIEW OF MONETARY POLICY TRANSMISSION MECHANISM

Dr. Archana Rathore*

Abstract

What is monetary transmission mechanism, what are the channels through which Central Bank policy affect economy? Do the impact of monetary decision changes when certain channel becomes more effective? These were the questions posed when the channels and their impact are not clear with the readers. Monetary transmission is a complex and interesting topic because there is not one, but many, channels through which monetary policy operates. Central Banks emphasizes on research related to increase awareness about the activities of the Bank and to provide exposure about the monetary transmission mechanism amongst student community. This paper is a theoretical review on channels of monetary transmission mechanism for the young researchers and students. Also this paper will try to analyses the most effective channel of transmission which will be helpful for the policy maker to emphasis upon while formulating the policies.

Keywords: Credit Channel, Exchange Rate Channel, Monetary Transmission Mechanism, Monetary Policy

* **Assistant Professor at IBS Business School, Jaipur**

Introduction

Monetary transmission mechanism is the process through which the policy actions taken in monetary sector impacts the real sector. In simple terms how does change in instrument like cash reserve, repo rate, reverse repo have an impact over output and inflation in economy. Understanding the dynamics of transmission mechanism is the subject concern for the researchers and policy maker. In the subject line of the initiatives by central banks to promote empirical research in this area as well to produce review paper which gives a basic understanding to the students about the complexities of the mechanism. Dynamic interaction of stocks and flows macroeconomic variable is the basis of the macroeconomic framework. Monetary policy is efficient enough only when there is systematic and positive impact on economy. Empirical evidence in Economic theory has identified the main channels through which monetary policy impacts its target i.e output, employment and inflation. Generally the instruments of monetary transmission can be categorized into financial market prices (eg, interest rates, exchange rates, yields, asset prices, equity prices) or financial market quantities (money supply, credit aggregates, supply of government bonds and foreign denominated assets). Although the channels differ from one economy to another depending on a number of factors, including the underlying structural characteristics, the state of development of financial markets, the instruments available to monetary policy, the fiscal stance and the degree of openness but they are not mutually exclusive .Interest rate, Credit, Asset price and exchange rate are the traditional channels of monetary policy transmission. Historically the interest rate channel emerges as the dominant transmission mechanism of monetary policy. An expansionary monetary policy, for instance, is expected to lead to a lowering of the cost of loanable funds, which, in turn, raises investment and consumption demand and should eventually be reflected in aggregate output and prices. Monetary policy also operates on aggregate demand through changes in the availability of loanable funds, ie, the credit channel. It is, however, relevant to note that the "credit channel" is not a distinct, free-standing alternative to the traditional transmission mechanism but should rather be seen as a channel that can amplify and propagate conventional interest rate effects (Bernanke and Gertler, 1995). Nevertheless, it is fair to regard the credit channel as running alongside the interest rate channel to produce monetary effects on real activity (RBI, 2002). With announcement of interest rate changes by the monetary authorities there will be movement in

asset prices generates wealth effect in terms of market valuations of financial assets and liabilities. Higher interest rates can induce an appreciation of the domestic currency, which in turn leads to a reduction in net exports and, hence, in aggregate demand and output. In the recent period, a fifth channel – expectations – has assumed prominence in the conduct of forward-looking monetary policy in view of its influence on the traditional four channels. For example, the link between short- and long-term real rates is widely believed to follow from the expectation hypothesis of the term structure of interest rates. In a generalized context, the expectations channel of monetary policy postulates that the beliefs of economic agents about future shocks to the economy as well as the central bank's reactions can affect the variables that are determined in a forward-looking manner. Thus, "open-mouth operation" by the central bank, ie, an announcement of future central bank policy, influences expectations in financial markets and leads to changes in output and inflation. Clearly, the credibility of the monetary authority drives the expectations channel (Mohan, 2006).

Objective

The objective of the research paper is to study the different channels of monetary transmission mechanism. Also this paper will try to analyses the most effective channel of transmission which will be helpful for the policy maker to emphasis upon while formulating the policies.

Analytical Review

Theoretical Review of Literature on monetary transmission channels can be broadly divided into two lines of thought such as (i) money view, and (ii) credit view. Looking back to Keynesian IS-LM Analysis, one can understand 'Money View' basically operates through the liabilities side of banks' balance sheet. Contraction in money supply by central squeezes the demand for bonds. This results in increase of the real interest rate. . Higher real interest rate contracts investment demand as profitable projects will be costlier now. This assumes movements along a fixed marginal efficiency of investment schedule. Thus, in the 'money view' monetary contraction leads to decline in investment spending, and hence, real output.

Second view here is the credit view. Credit is linked with the assets sides of bank's balance sheet. Three assets in economy are money, bond, sand bank loan, if the credit in the economy

contracts by restricting the banks to issue deposits impedes their capacity to extend loans. Given the special nature of relationship between banks and small firms, this leads to cut down in investment spending of small firms. Even the large firms also face higher interest rates on bank loans, so reducing their investment expenditure. Thus, monetary contraction leads to lower investment and aggregate demand through bank lending. The effectiveness of credit channel rests on two crucial assumptions. First, in the assets side of the banks, loans and securities are imperfect substitutes. So, banks cannot substitute securities for loans keeping bank lending unchanged in response to monetary shocks. Second, the firms treat bank loans and other sources of finances as imperfect substitutes. Otherwise, firms can completely offset the changes in bank loans by corresponding changes in other sources of funding. The institutional arrangements for maintaining reserves and other sources of funds for the banks also play a critical role in effectiveness of bank lending channel. It is to be noted that, the 'money view' may not rule out decline in bank lending in the aftermath of monetary contraction but it conceives it as a consequence of lower aggregate demand. In other words, 'credit view' highlights the impact of lower supply of bank credit on the aggregate demand, but on the contrary the 'money view' sees decline in demand for bank loans as a consequence of lower aggregate demand. This is a case of reversing the cause and effect in the two competing approaches. Most of the literature on monetary transmission mechanism has been carried out with reference to the United States. Studies has also described framework for channel like cost of capital, consumption through wealth effects and credit rationing. Evidences have proved the response to aggregate demand through these channels is complicated. Their empirical evidences highlight the complicated response of final demand to monetary shocks through above three channels. King (1986) supports credit view from high degree of correlation between output and loans as compared to the degree correlation between money and output. Bernanke and Blinder (1988) have developed a modified version of IS-LM framework to capture the distinguishing role of money and credit channels. Instead of IS curve CC curve (for commodities-credit) is being used .Analysis shows that an upward shift in the credit supply leads to outer shift of CC-curve along a fixed LM curve, raising both interest rate and output. Empirically, they have compared the simple correlation between growth rate of GNP with those of money and credit, separately.

According to Cenic (2004), studies have analyzed a broad theoretical framework to analyze the credit channel of monetary transmission for aggregated and disaggregated data, respectively.

Result has shown the impact of monetary shock operating through interest rate channel of 'money view' will reduce the demand for all type of finances, but that operating through credit channel will lower only bank loans vis-a-vis other types of financing. Based on the aggregate time series data, the behavior of the ratio of bank debt to the sum of bank debt and commercial paper, denoted as 'mix' is studied under monetary shocks characterized by Romer shocks and federal funds rate. The empirical findings validate the impact of monetary shocks on the mix and the influence of induced changes in the mix on investment, supporting the credit view. On the other hand, given the lock-in factor due to the special relationship between small firms and the banks, inability of smaller firms to access other sources of finance and lesser dependence of large firms on bank loans, it seems appropriate to analyze credit channel based on disaggregated data across firm size. Kashyap and Stein (1994) develop a model to capture this lock-in effect and their empirical results supported the presence of credit channel. Further, analyzing the disaggregated form of credit Gertler and Gilchrist (1993) find a fall in bank loans to households as a response to restrictive monetary policy, whereas the bank loans to businesses register a marginal rise. From the evidences from the manufacturing sector, they find a relative decline in credit to small firms vis-a-vis lending to large firms as a result of monetary tightening. The evidences lead them to validate the view that credit markets imperfections help propagate the impact of monetary policy. In another interesting paper, Beraanke and Blinder (1992) have empirically analyzed the channels of money and credit in a VAR framework. They found that, monetary policy shocks captured by the federal fundsrate have immediate impact the deposits of the banks and the maximum effect is felt in 9 months, which remains permanent. Due to quasi-contractual nature, the maximum effect of monetary shocks on the bank loans is noticed after about 2 years. The nature of impact on the unemployment rate is similar to that on loans. These findings may lead to the interpretation that monetary policy works entirely through the conventional money demand mechanism and fall in the credit is due to demand constraints with fall in real output. In an analysis of four periods of restrictive monetary policy in between mid-1970s and mid-1990s in the US, Morris and Sellon (1995) found that, "banks have been able to offset a decline in core deposits by selling securities and issuing managed liabilities so as to maintain their business lending. In addition, an analysis of the terms of bank business lending finds little support for the view that banks reduce loan supply or ration credit in periods of monetary tightening." However, because of bank credit dependence of some firms, they do not

completely rule out the impact of sudden disruptions in bank lending in spending decisions of these firms and the resulting influence on the level of economic activity. The transmission mechanism through equity price channel is explained mainly through Tobin's CQ' theory of investment (Tobin, 1969) and wealth effects on consumption. Simply, Tobin's lQ' is defined as the ratio of market value of a firm to its replacement cost. When 'Q' is high the firm can sell a lesser amount of equity to install new plant and machinery implying positive relationship between CQ' and investment spending of the firms. With increase in money supply, the asset prices of the firms will rise in view of shifting of preferences from money to other financial assets. As rise in asset prices raise the market value of the firms, there is increase in Tobin's 'Q' and hence, rise in investment and real output. Further, following Modigliani's life-cycle hypothesis, the consumption expenditure of an individual is determined by his lifetime resources raised from human and physical capital, and wealth. Monetary expansion increases asset prices and with increase in financial wealth, there is a positive effect on the consumption expenditure. Thus, wealth effect on consumption provides another channel of monetary influence on real output. Similarly, introducing information asymmetry we can extend the broad contour of the traditional bank credit channel. Changes in money supply have certain effects on the asset prices and the cash flow of the firm through its effects on interest rates and prices. Changes in asset prices and cash flow of the firms through adverse selection and moral hazard influences bank lending and economic activity. Increase in the problems of adverse selection and moral hazards discourage the incentive for lending activities, and hence, reduce investment including spending on housing and consumer durables. In other words, with lower net worth, a firm is less creditworthy as it has a higher incentive to provide manipulated information on the riskiness potential projects. Because of this asymmetry of information, the potential lenders will be provoked to charge a higher risk premium for the lending. These extensions of credit channel are known as bank balance sheet channels. The above summarizes all possible individual channels through which monetary policy influences real output. In an economy, the importance of each of the channels or a combination of them depends on country specific issues such as spread of banking, development of financial sector, degree of openness and institutional arrangements.. Brunner and Meltzer (1998) have mentioned that in an economy, where key segments of the financial market are not in prominence and interest rates are highly regulated like the pre-reform India, credit channels may be more relevant than interest rate channels. Similarly, where the

degree of substitution between bank loans and other sources of funding is high and where bank lending remains unaffected by the contraction of banks' reserves by the monetary authority, there is greater role for the interest rate channels. However, the evidences supporting operation of a particular channel do not rule out the existence of other channels. In fact, the analysis of the transmission process is incomplete without assigning due emphasis on both the money and credit markets and their interaction (Samantaraya, 2011)

Conclusion

There are many categorizations of monetary transmission channels in the existing literature. Each channel that is specified has been subject to extensive academic debate. The analytical study of research studies following are the channels of monetary transmission mechanism:

Credit Channel

When the central bank decides to decrease the policy rate, adjustments in short-term money market rates occur. Debt obligations of businesses decline, thus strengthening their balance sheets. In turn, financial institutions are more willing to lend to businesses given lower risks. As a result, investment increases, resulting in higher economic growth. At the same time, inflationary pressures rise.

Real Balance Channel

An increase in money supply results in surplus of cash balances and over time in an expansion in aggregate spending. Direct transmission could also be viewed as a part of real balances effect which connects the monetary with the commodity sector.

Interest rate Channel

One of the monetary transmission channels consists of interest rate channels. The monetary authorities are able to directly control official interest rates, determining the money market rates, which in return affect aggregate spending by increasing or decreasing investment and consumption expenditures. Investment will be higher due to lower interest rates leading to lower

cost of capital. Replacement effect favors current consumption over savings if interest rates decline while income effect affects disposable income and thus spending trough the influence of interest rates on net wealth. Hence the positive impact on aggregate demand and output.

Assets Price Channel

Apart from the changes in money and interest rates, monetary policy decisions are transmitted into the real sector via asset price channels where asset prices are divided into exchange rate, equity (stock and bond) prices and real estate prices.

Exchange Rate channel

Exchange rate channel during a monetary expansion leads to a decrease of domestic interest rates (relative to the foreign ones) followed by currency depreciation. This causes a rise in net exports and hence output. Tobin's q and wealth effects are important for other asset prices channels. Tobin's q is defined as market value of the firm divided by the replacement cost of capital. Expansive monetary policy can raise the equity price, making Tobin's q of firms higher and cost of new capital relatively cheaper and thus boosting investment spending.

Balance Sheet Channel

Balance sheet channel looks at credit channel of monetary transmission from a borrowers' perspective. Monetary policy expansion for example, strengthens borrowers' net worth by a rise in equity, house and land prices or by a rise in firms' cash flow caused by a decline in nominal interest rates. EFP declines at this point because higher net worth reduces opportunistic behavior by borrowers so that banks are willing to lower lending rates, thus affecting aggregate spending decisions. The fifth and the last monetary transmission channel distinguished relates to expectations and uncertainty. The impact of monetary policy depends on the extent to which they have been anticipated by economic agents. Unanticipated changes will have relatively strong effects. Monetary authorities' control over monetary conditions is determined by their ability to influence market expectations, and in particular, inflationary expectations. The formation of expectations crucially depends on policy credibility, which takes a long time to build.

Expectations Channel

Changes in monetary policy stance affect expectations of the public concerning inflation, employment, growth, future income and profits/losses. Such changes in expectations in turn determine private economic activities. However, the impact of monetary policy through this channel is the most uncertain of all channels, as it depends on the public's interpretation of such changes in monetary policy stance. For example, the public may view a decrease in the policy rate as a signal that the economy is going to expand higher in the future, boosting their confidence to consume and invest. On the other hand, they may believe that the economy is weaker than previously expected, lowering their confidence and ultimately consumption and investment. Inflation forecasts help guide inflation expectations which are important determinants of wage increases and actual inflation in each year as well as long-term interest rates. Thus, inflation targeting countries are committed to anchoring inflation expectations of the public through the announcement of an inflation target.

References

Bernanke, Ben S., and Alan S. Blinder (1992), "The Federal Funds Rate and the Channels of Monetary Transmission," American Economic Review 82 (September): 901–21.

Brunner, K. and Meltzer, A.H.,(1998), Money and Credit in Transmission Process, American Economic Review Papers and proceedings, 78:446-51

Cenic, Maruska(2004), "Monetary Transmission Mechanisms in Transition Economies." 65 TH Anniversary Conference of the Institute of Economics, Zagreb..

Gertler M. and Gilchrist, S., (1993), The Role of Credit market imperfection in monetary transmission Mechanism: Argument and Evidence, Scandinavian Journal of Economics, pp 43-46

Kashyap, A.K and Stein, J.C.,(1994), Monetary Policy and Bank Lending Monetary Policy,(ed.) George Mankiw, University of Chicago Press, 222,pp 56.

Mohan, Rakesh (2006)"Evolution of central banking in India." *Reserve Bank of India Bulletin*

Samantaraya, et.al (2011), An Empirical Analysis of Monetary Transmission in India in the Post-Reform Period: Relevance of the Banking Channel, The IUP Journal of Applied Economics, Vol. X, No. 4, October 2011, pp. 5-22. Available at SSRN: http://ssrn.com/abstract=2109304

Tobin J., (1970), A general Equilibrium Approach to Monetary Theory. Journal of Money, Credit and Banking, 2, pp 461-72