

BANK CREDIT AND AGGREGATE DEMAND: EVIDENCE ON MONETARY POLICY TRANSMISSION

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Abstract *This paper attempts to capture the influence of policy rate changes on demand for bank credit by the firms in India. The study intent to see the impact of change in monetary policy variable i.e., policy rate on the bank lending and deposit rates and further investigates the impact of changes in the bank credit on the real economic variable GDP. The pace and trend of economic activity is reflected by macroeconomic variables such as IIP, CPI/WPI, Exports and Stock price index which are thought to be the proximate measure of firms demand for bank credit. The paper also focus on the channels of transmission of monetary policy and studies interest rate channel impact “money view” and credit channel “credit view” by focusing on the total bank credit demand by the firms.*

Keywords *Macroeconomic Variables, Monetary Policy*

It has always been of prime concern for the monetary authorities and economists to study and analyze the manner in which the changes in monetary policy are transmitted to the real economic activities. The stance of monetary policy is well responded by banks through the adjustments in the loan supply and cost of credit but looking at the other side these changes also have a signal effect or announcement effect that influences the demand side and hence the market. Conduction of monetary policy aims at the futuristic systematic influence on the economy. Monetary policy is meant to regulate and influence the final targets namely output, employment and inflation.

The transmission of monetary policy is possible through vehicles which are largely categorized into financial market prices and financial market quantities. Financial market prices include interest rates, exchange rates, yields, asset prices and equity prices, whereas financial market quantities include money supply, credit aggregates, supply of government bonds and foreign denominated assets. Though these channels are not mutually exclusive, but their relative importance depends upon the available monetary policy instruments, financial market circumstances and openness of the economy hence vary from economy to economy. Conventionally, monetary policy transmission is conducted through four key channels, viz., interest rate, credit aggregates, asset prices and exchange rate channels. Out of these channels, supported by concrete evidences interest rate surfaced as the leading channel in the transmission mechanism (Mohan, 2006). It is worth noting that though credit channel is not a standalone discrete alternative to the traditional transmission mechanism but it is a very effective support channel to promulgate and strengthen the interest rate effects (Bernanke and Gertler, 1995). Credit channel along with the interest rate channel very effectively

transmits monetary effects on the real activity (RBI, 2002)

A central proposition in this research is to study the impact of monetary policy stance on the demand for bank credit and further its transmission in the pace of economic activity monitored through GDP. In this study we have considered repo rate as the *de facto* policy rate and examined the movements of commercial banks lending and deposit rates to the changes in the policy rates. The impacts of changes in policy rate are also examined with respect to Bank credit with the lag till two months. To study the demand side impact we have introduced five proximate variables, which will measure the total demand for bank credit by the firms.

LITERATURE REVIEW

Vera (2002) studied the stagnant behavior of credit market in Venezuela with the special emphasis on specific role played by the demand for loans. Using monthly time series he estimated that credit demand was driven by firm's financial decisions and also indicated through co-integration tests that there exist “long-run relationship between the real stock of loans, an index of real sales, the interest rate on loans, the real exchange rate and the economy mark-up.” Finally, his results were consistent with the view that “interest is exogenous and the quantity of bank borrowing is largely demand determined and the real credit responds positively to the increase in the rhythm of economic activity.” Pazarbasioglu (1996) studied the demand and supply of credit during the credit crunch situation in Finland and find out that the decline in credit was largely driven by the reduction in the demand for credit. In his demand model, lending rate and expected investment appeared to the most significant factors among the other

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explanatory variables, inflation and industrial production. Bayangos (2010) studied the impact of bank credit channel in transmitting the impulses to the real economy in Philippines. “Simulation results suggest that bank credit channel matters in Philippine monetary transmission mechanism. The findings indicate that the total demand impact of changes in bank credit is the sum of various effects in the money supply, Treasury bill and lending rates, personal consumption and investment, all of which have significant impact on aggregate demand.” Pandit and Vashisht (2011) studied the impact of changes in the policy rates on the demand for bank credit in the seven emerging economies of the world and concluded that the policy rate is a significant determinant of demand for credit and further confirmed that “monetary policy is an important countercyclical tool for setting the pace of economic activity.”

The Channels of Monetary Transmission

The financial sector reforms in India were initiated in 1991. In 1997, the Asian Financial crisis intensified the reform process with the prime motive of strengthening banks organizational efficiency and safety in the light of globalization and budding openness of the economy. The monetary policy framework in India since mid 1980s till 1997-98 focused on M3 as an intermediate target to achieve monetary policy objectives. It's only been in the recent times, that interest rates and credit are focused upon as an important factor in the monetary policy transmission process.

There are four key channels through which monetary policy influences the economy.

Interest Rate Channel: It is known as “Money view”. Monetary policy influences nominal interest rate through the changes in money supply. Nominal interest rate could be best understood as the cost of credit which impacts Investment and ultimately the GDP.

Credit Channel: Monetary policy affects credit demand that is channelized through banking system. Credit channel is well thought-out under two streams, bank lending channel and balance sheet channel. Balance sheet channel studies the impact of monetary policy changes on the asset prices, borrower's collateral and borrowings and then concludes the impact on investment and income whereas bank lending channel on the other hand focuses on the possible monetary policy actions on the supply of loans. Bank lending channel accentuate the changes in the loans and deposits items of the banks' balance sheet as the medium for monetary policy transmission. Credit availability is the underlined feature of this channel. With the hike in interest rates banks restrain from lending and focus more on investing in bond. When money supply is reduced, it leads to reduction in the bank

deposits and further the available bank loans which lead to reduction in Investment and finally the Gross Domestic Product (GDP) of the economy is contracted. The reason behind the appreciation of domestic currency could be higher interest rate, which might result in reducing the net export and hence the aggregate demand and output (Bernanke and Gertler, 1995)

Asset Price Channel: Asset prices for instance, bonds, real estate and equities are influenced by the changes in the interest rate. Reduction in money supply increases the interest rate which decreases the discounted cash flow hence the Investment and the GDP.

Exchange Rate Channel: Net Exports or income generated through the exchange rate in an open economy with the flexible exchange rates could be influenced by the changes in the money supply or interest rates. Reductions in money supply increase the interest rates and further the exchange rate which results in reduced net export and GDP.

The Credit Channel Transmission

Monetary policy is an important tool to regulate the aggregate demand by regulating loanable funds, i.e., through credit channel mechanism. Credit channel affects the aggregate demand through banks and financial institution. Amount of loanable funds available bears a direct relation to investment and consumption which is in due course replicated in aggregate output and prices. An expansionary monetary policy seeks to reduce the cost of loanable funds, hence boosts investment and consumption ultimately increasing the aggregate output and prices. Conversely, contractionary monetary policy raises the cost of loanable funds which consecutively reduces the investment and consumption and ultimately lowers the aggregate output and prices. When the borrowing is expensive, investment is curtailed hence economic activity is restrained. The capital or liquidity available with banks for loaning largely depends on monetary policy stance amongst other factors. Monetary tightening leads to higher interest rates which results in higher credit risk in the economy. Monetary policy affects bank lending by impacting banks current or future capital by reducing the reserves held with the bank which results in lower deposits and lower liquidity hence the banks are forced to alter their loans portfolios. Bichsel and Perrez (2004) in their research work articulated that monetary policy impacts the banks' reserves by altering the level of liquidity and hence affects bank lending.

Monetary policy influences bank lending by impacting the deposits which comprise the supply of loanable funds (Bernanke & Blinder, 1988). Contractionary monetary policy drain deposits from the system and the failure to

issue uninsured liabilities to overcome the deficit in deposits impact the bank lending capacity. Bank lending is largely influenced by policy-induced quantitative changes on the liability structure of bank balance sheets. The stance of monetary policy is reflected through the changes in reserves which ultimately determine the amount of deposits through the reserve requirement. Principally, the relationship between monetary policy and deposits also rely on the concept of the money multiplier or a portfolio-rebalancing view of households' assets. It influence the households to re-decide their deposits based upon the altered relative yield of deposits and other assets. Either ways, monetary tightening reduces deposits and leads to contraction in money supply (Disyatat, 2010).

Bank credit plays a significant role being asset in the banks' balance sheet and liability in the hands of the borrowers. Households and SME's are largely dependent on the bank credit due to the non accessibility of other forms of credit. Subsequent to the monetary contraction which squeezes the resources available with the banking system, banks are forced to readjust their portfolios by reducing the supply of loans and consequently increase their lending rates. This rate increase adds to the financial premium being borne by

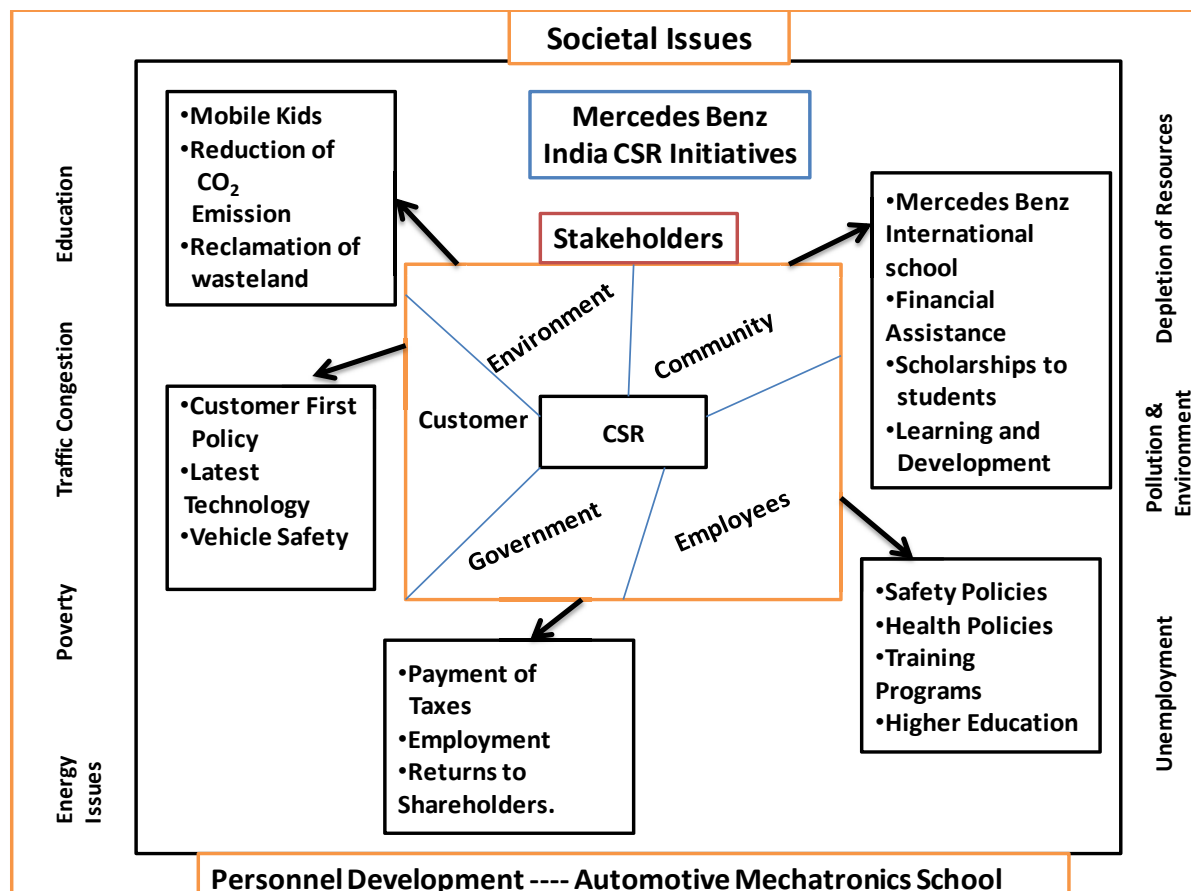
the bank dependent borrowers which ultimately results in curbing of their expenditure.

The Interest Rate Channel Transmission

Monetary policy impacts real interest rate with an assumption of sticky prices. Reduction in the nominal interest rate transforms into reduced real interest rate assuming that are prices are fixed in the short run. In order to regulate the economic condition, central bank increases the money supply which results in lowering of the short term nominal interest rate and transforms into lowered short-term real interest rates, ultimately encourage investment and hence the GDP.

Banks play significant role in monetary transmission mechanism in the real economy. They respond well to the monetary policy stance by adjusting their lending to firms and households. Bernanke and Blinder (1992) stated that contraction in the aggregate bank lending is the result of tightened monetary policy. The contraction by central bank is exercised by changing the required reserve ratios and interest rate structure (cost of capital) to regulate money

The Monetary Policy Transmission Mechanism



supply and ensure stability in the economy. Unregulated money supply results into inflation and price rise. With the increased reserve requirements banks now face fall in loanable funds, if banks are not able to replace it instantly, it results in reduced amount of loans available for banks to lend. A hike in interest rates raises the cost of borrowing making the finance expensive which generally results in curbing the investments. With the fall in investments, aggregate demand for loan is also bound to fall.

Bernanke and Gertler (1995) believed that effective monetary policy transmission is possible through credit channel and interest rate channel. Monetary policy through credit channel operates on aggregate demand by regulating the availability of loanable funds, i.e., the credit channel which is not a separate or free-standing substitute to the traditional transmission mechanism but it is a channel that strengthens and proliferate conventional interest rate effects.

The present study focuses on the both interest rate channel and credit channel for the monetary policy transmission process. Pandit (2011) said that the interest and credit channel together for the purpose of monetary transmission could be termed as policy channel.

It is important to discern between the result of central bank's policy action and variables that responds well to the policy. It is imperative to observe the degree of reduction in credit after a contractionary monetary policy but at the same time it is also crucial to observe that the fall in borrowers demand could also be the reason behind the reduction in credit. This reduction in the demand for bank credit could influence the pace of economic activity. Subsequent to the reforms in the Indian financial sector, bank rate has surfaced as an important indicator for signaling the stance of monetary policy, but in our study we have considered repo rate as the *de facto* policy rate because bank rate is inactively used by the RBI. Going forward policy rate and repo rate will be used interchangeably.

How the Economy Responds to Monetary Policy Shocks- Are borrowers dependent on banks?

Various studies have indicated that Cash Reserve Ratio (CRR) and Bank Rate (BR) are important tools to regulate loan supply in a medium term framework but Repo rate lately surfaced as the significant rate in the short run (Pandit, 2006).

Monetary policy largely works through interest rates mechanism but an additional policy channel credit channel also directly restrict the ability of the banks to make new loans and thus influences the total credit made available to the borrowers who are dependent on bank credit. The borrowers who are essentially dependent on banks for credit are generally small firms who find it difficult to avail other financing options such as equity, long term debt etc and have

less accessibility to capital markets. Gerter and Gilchrist (1994) stated that small firms witness greater decline in their manufacturing activities and reduction in inventory demand due to the monetary tightening. At the same time small firms are less accessible to the bank and non bank financing during monetary tightening (Oliner & Rudebush, 1996).

Database and Methodology

This study uses annual data from 2000 to 2010 of relevant macroeconomic variables. Data is collected from the website of RBI and Business Beacon database. The choices of variables, Export (Ex), Index of Industrial production (IIP), Moving average of stock price index, Demand pressure (WPI/CPI) and policy rate are assumed to be the proximate measure of firm's demand for bank credit and are capable enough to influence the pace of economic activity.

In our study, we have assumed that certain borrowers, like small businesses are largely dependent on banks for financing because of their less accessibility to other forms of credit like equity, long term debt, short term debt etc. The reason is justified by the economic model of asymmetric information (Moris, 1995)¹. Any changes in the monetary policy could affect the economic activity. Pandit (2006) raised the concern about the identification problem stating whether the decrease in credit was the result of fall in the supply of bank loan after the monetary contraction or was it driven by the fall in the borrowers demand. Our approach is to address this concern with the demand side analysis. Repo rate plays a significant role in raising the cost of borrowing hence the investment and the demand for credit are most likely to be postponed leading to the fall in demand for the bank loan.

The demand pressure in the economy is measured by the mark up i.e., the ratio of CPI to WPI. Vera (2002) "approximated the cash flow variable by calculating the ratio of the consumer price index, CPI, to the wholesale price index, WPI (measured on the same base year). Such an approximation is based on the normal association between the mark-up and the cash flow of corporate firms. If the behavior of the wholesale price index adequately reflects the

¹ According to Charles S. Morris et .al the view that some borrowers are dependent on banks for financing stems from economic models of asymmetric information that help explain credit market imperfections. The central idea is that the costs of obtaining information about a firm's condition, as well as liquidation or bankruptcy costs, are differentially greater for smaller firms. Thus, small firms find it more difficult and more costly to obtain credit. In addition, a special feature of banks is that they may have a comparative advantage over other intermediaries in information processing and monitoring that enables banks to lend to smaller firms at lower cost. Also see Hubbard for references to this literature.

behavior of the costs, and CPI reflects demand price which facilitates measuring demand pressure, then the CPI to WPI ratio should be a fairly good measure of the mark-up."

Index of Industrial Production (IIP) exhibits the growth of various sectors in an economy and statistically it is evident that there exist strong correlation between IIP and Bank credit.

The volume of export (US Dollar) represents the demand for goods in the foreign market. Tightened monetary policy is meant to regulate inflation and lowered inflation could have a long run impact on strengthening the exchange rate. The exchange rate channel explains the impact of monetary policy on the value of the nation's currency. Net Exports or income generated through the exchange rate in an open economy with the flexible exchange rates could be influenced by the changes in the money supply or interest rates. Reductions in money supply increase the interest rates and further the exchange rate which results in reduced net export and GDP.

The hike in the interest rate especially in the short run makes that nation's assets a very attractive investment option by the foreign investors who look forward for high yield returns. The increase in the capital inflow and hence the demand for currency contribute to the strengthening of the exchange rate or appreciation of the currency. The appreciated currency makes the foreign goods cheaper compared to the domestic goods hence declining export and increasing import. Reduction in export reduces the demand for credit by the firms and the reduced demand for domestic goods leads to cut in the resource utilization and thus reduces inflationary pressure.

An appreciation in the exchange rate can decline the demand for exports in the foreign market. Reduction in the export demand will result in reduction of resource utilization, investment and demand for loan hence contribute to lowering the inflation further.

Stock indices are termed as the leading economic indicators as they forecast the future of the economy "Stock index is the barometer of the nation's economic health as market price reflects the expectations about the economy's performance" (Pathak, 2010). Patnaik has written that the news about company and economy are reflected well in the price of a company's stock and is surprisingly a good forecaster. Per the efficient market theory "prices of securities in financial markets fully reflect all available information" (Mishkin, 1997). Apart from the increased cost of borrowing, supply side constraint; the demand for loan could also be impacted by the expectations about the economy's performance indicated by the stock indices. In our study we have taken quarterly (three month) moving average of stock price indices. Moving average is a broadly used technical analysis tool to evaluate the mood of any market. It is a good indicator for the general investor to interpret and draw on. The good

performances of the stocks reflect that the company is performing well and generating good profit. It proximate increased investment demand, may be in stock, inventories, production or whatsoever.

The investors by and large react to any change in the government or monetary policy which is expected to come into action in near future; it is termed as announcement or signal effect. The announcement effect, depending on its importance could have a positive or negative impact on the market. The announcement could be about the forthcoming changes in the interest rates, forecasted growth or inflation numbers, economic expectations and so on so forth. The crash in the stock indices as a result of expected hike in the interest rate gives substantial indication about the future pace of the economy.

For the variables this study considers simple logarithmic transformation of raw data on all five variables. Log transformation is useful in handling the exponential growth of a series and also to stabilize the variability. After liberalization in 1992, there have been significant changes on the Indian macroeconomic front. By 1997, the liberalization was already completed and the second generation reforms were in place. By 1997, Indian rupee was fully convertible on capital account and the process of complete current account convertibility has already begun. So it can be truly said that by the end of last millennium the Indian economy has transformed itself into a stable and market driven. Hence, the sample period of 2000-2010 is justified. For continuous positive data measured on an interval scale, a log transformed analysis should frequently be preferred to an untransformed analysis.

EMPIRICAL RESULT

Impact of Repo Rate Fluctuations on The Lending and Deposit Rates

Repo rate is the rate at which banks borrow funds from the RBI to bridge the gap between the demand for credit and the supply of money available with them. The increase in Repo rate makes borrowing for the commercial bank expensive and conversely the decrease in repo rate make borrowing cheaper which leads to decrease in the deposit and lending rates resulting in more credit available to the public. The change in the rates of repo and reverse repo impacts the interest rate on borrowing, savings and the mortgages. Transmission mechanism deals with the impact of policy rate (repo rate) on inflation and the economy as a whole which is actually the result of interaction between numbers of different mechanisms.

Actual and the expected changes in repo rate affect both the lending rate and interest rates on securities. At times the market rates respond little ahead to the future expectations

in the repo rate. If the hike in repo rate is expected in near future, market rate could be increased before the increase in repo rate actually announced publicly. Increased lending rate raises the cost of borrowing. Monetary authority takes every possible step to regulate the money supply in the economy but looking from the demand perspective, the changes in demand for bank credit by firms could be considered as one of the prime reason for the successful execution of the monetary policy. The study by Berger and Udell (1992) suggests that banks do not generally reduce the supply of new loans when monetary policy is tightened. *Morris and Sellon (1995)* suggested that “banks tend to sell off security holdings and increase their use of managed liabilities when

policy is tightened. Thus when banks are faced with a decline in core deposits, they appear to offset the loss of deposits by selling securities and obtaining additional funding in order to continue to meet the demand.” They studied the behavior of bank lending during the tightening period and observed that the business lending is driven by demand for loans rather than supply and further suggest that the peak in lending business lags the peak in industrial activity.

From the below charts, it is evident that the changes in short term policy rate i.e., repo rate are instantaneously followed by adjustment in the deposit and prime lending rate. Thus there exist an association between policy rates and lending and deposit rates.

Chart 1 Movement In Repo Rate And Prime Lending Rate

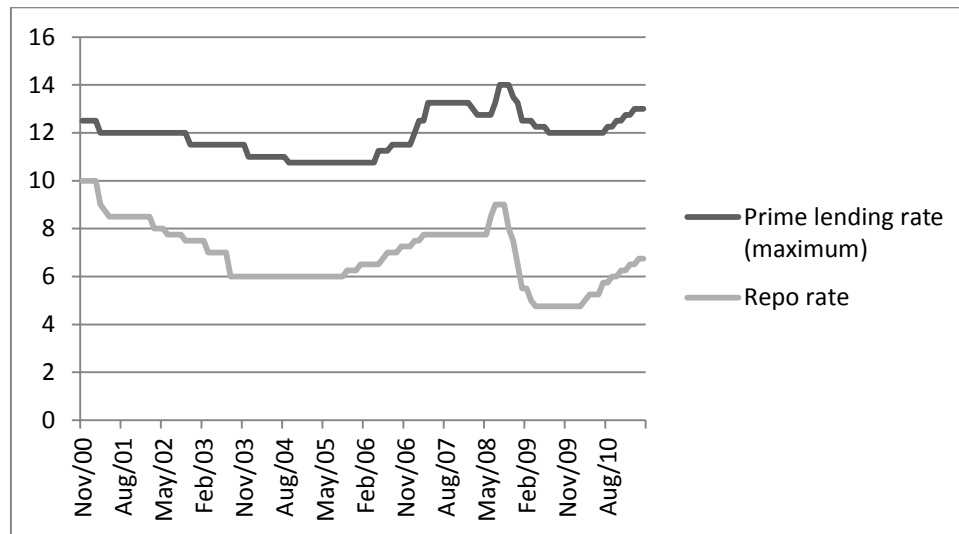


Chart 2 Movement in Prime Lending Rate and Deposit Rate

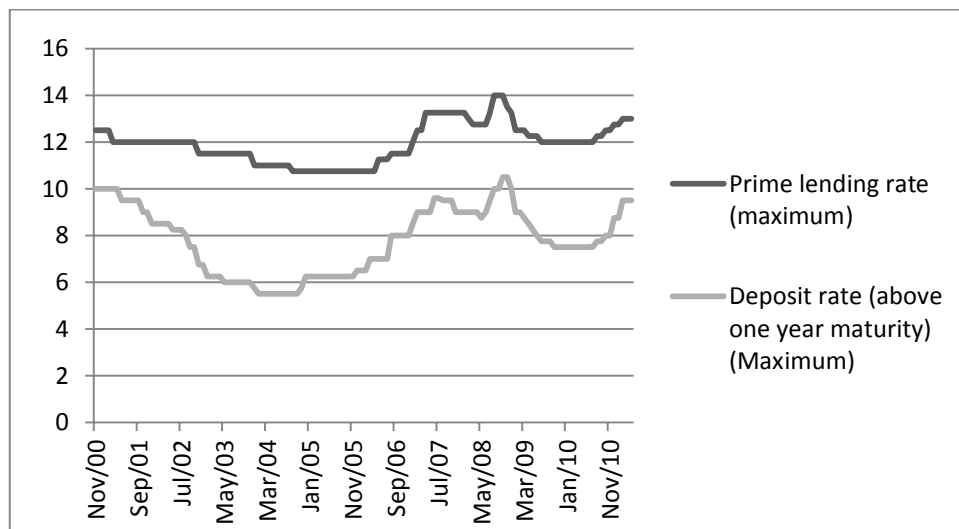
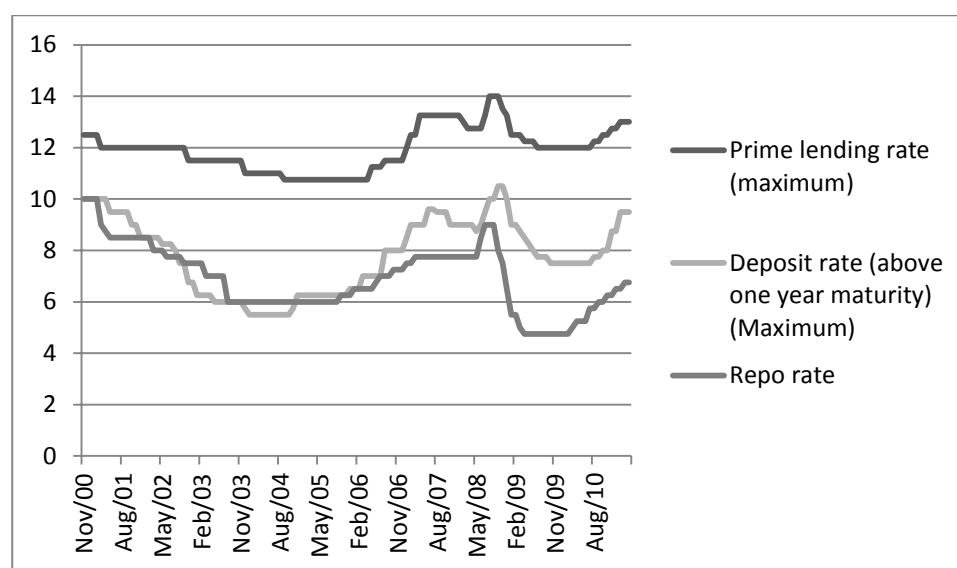


Chart 3 Movement in PLR, DR and Repo rate

2. Impact of Policy Rates Changes on the Firms Demand for Bank Credit

The mechanism by which changes in repo rate affects bank lending rates and hence regulate economy by reigning inflation is known as the transmission mechanism. Hiked lending rate makes the financing expensive for firms which results in restrained further investment. The fall in investment and consumption reduces the aggregate demand. Reduction in aggregate demand in turn reduces the resource utilization which leads to price and wage rise at a more moderate rate.

Looking at the statistical results, Repo rate has a significant negative relation with the bank credit. Repo rate is also significant with one and two months lag.

3. Impact of Bank Credit on The Real Economic Variable Gdp

Looking at the statistical results given below in Table 2, there is significant positive relationship between the Bank credit and GDP. The steady growth of the repo rate is must to stabilize inflation and to avoid soaring resource utilization. The dawdling growth in household borrowing is the consequence of hike in repo rate well imitated by increased lending rates.

The table 3 below exhibits positive correlation between Bank credit and IIP.

Looking at the statistical results in the table 4 below, bank credit is negatively related to the policy rate i.e., repo rate changes and has a significant impacts with the time lag.

Table 1: Statistical Results: Repo Rate and Banck Credit

Dependent Variable: BC				
Method: Least Squares				
Included observations: 126				
White Heteroskedasticity-Consistent Standard Errors & Covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.683688	0.30825	24.92679	0
REPO	-2.52837	1.087115	-2.32576	0.0217
REPO(-1)	-2.35338	1.084527	-2.16996	0.0319
REPO(-2)	-2.17998	1.077906	-2.02242	0.0453

Table 2: Statistical Results: Bank Credit and GDP

Dependent Variable: GDP				
Method: Least Squares				
Included observations: 38				
White Heteroskedasticity-Consistent Standard Errors & Covariance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.12298	1.38786	2.970676	0
BC	1.74404	0.10550	1.652404	0
R-squared	0.898561			
Adjusted R-squared	0.895744			

Change in repo rate has a significant impact on the lending rate. Decline in interest rate reduces the borrowing cost of the fund which is very crucial for the investors as it results in increasing the present value of their expected cash flows. Thus policy rate has a significant impact on the demand for bank credit which further reflects in the growth of the economy.

Table 3 Correlation Matrix: Bank Credit and Index of Industrial Production (IIP)

	BC	IIP
BC	1	
IIP	0.946776	1

IIP compares the growth of industrial activity in the economy year on year. It is evident from the regression coefficients that IIP is statistically significant and positively related to bank credit even with one month time lag. If the IIP is increasing, it implies that investment activity is going on in full swing in the economy and so is the demand of credit by the firms.

The demand for credit by the firms is also impacted by the Tobin Q effect. Economic Theory of investment behavior states that Tobin Q 'q' is the ratio of market value of firms existing shares to the replacement cost of the physical asset or replacement cost of the share capital. If the value of q is greater than one ($q > 1$), it encourages firms to invest more in their businesses because at that point of time profit generated surpasses the cost of the firm's asset. Movement in the stock prices to certain extent do impact the investment and consumption of the firms but the future interest rates and the present value of expected cash flow are the major indicators to regulate the demand for credit.

The mark up variable, CPI/WPI represented by INF in the table 4 measures the demand pressure in the economy. It is evident from the regression coefficients that INF is statistically significant and positively related to bank credit but with one month and two month time lag it still stands

statistically significant but is inversely related to the bank credit. Inflation is assisted by higher nominal interest rate which results in deflationary effect on the GDP of an economy. Inflation roots uncertainty about the future situation and adversely affects capital investment planning by the firms. Firms expect higher rate of return from their investments to combat the high inflation which at times impede them from undertaking further investment decisions. This could reduce the demand for credit by the firms. The instant effect of inflation raises the demand for credit but with the time lag INF is inversely related to bank credit. The increase in CPI and WPI leads to higher inflation and to combat monetary authority is bound to react by introducing policy changes which makes the cost of borrowing expensive and reduces or postpones the demand for goods and services and hence result in lesser revenue generation by firms lesser investment and lesser demand for credit.

The exchange rate channel explains the impact of monetary policy on the value of the nation's currency. Net Exports or income generated through the flexible exchange rate in an open economy could be influenced by the changes in the money supply or interest rates. Reductions in money supply increase the interest rates and further the exchange rate which results in reduced net export and GDP.

The hike in the interest rate especially in the short run makes that nation's assets a very attractive investment option by the foreign investors who look forward for high yield returns. The increase in the capital inflow and hence the demand for currency contribute to the strengthening of the exchange rate or appreciation of the currency. The appreciated currency makes the foreign goods cheaper compared to the domestic goods hence declining export and increasing import. Reduction in export reduces the demand for credit by the firms and the reduced demand for domestic goods leads to cut in the resource utilization facilitating moderation of inflationary pressure.

"Stock index is the barometer of the nation's economic health as market price reflects the expectations about the

Table 4

Dependent Variable: BC

Method: Least Squares

Included observations: 122 after adjusting endpoints

White Heteroskedasticity-Consistent Standard Errors & Covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.8278	0.365734	-2.26339	0.0256
REPO	-0.29712	0.147971	-2.00795	0.0001
REPO(-1)	-0.19725	0.204326	-0.96538	0.0366
REPO(-2)	-0.4699	0.117019	4.015563	0.0472
EX	0.124426	0.061645	2.018429	0.0461
EX(-1)	0.191537	0.066989	2.859228	0.0051
EX(-2)	0.263451	0.055725	4.727721	0
IIP	0.579871	0.13642	4.250637	0
IIP(-1)	0.421089	0.138645	3.037171	0.003
IIP(-2)	0.250731	0.15623	1.604886	0.1115
BSE	0.467286	0.165048	2.831221	0.0055
BSE(-1)	0.669901	0.289973	-2.31022	0.0228
BSE(-2)	0.161959	0.170336	0.950819	0.3439
INF	8.054566	1.587402	5.074057	0
INF(-1)	-2.16889	2.416703	-0.89746	0.0371
INF(-2)	-3.80194	1.521905	-2.49815	0.0141
R-squared		0.993657		
Adjusted R-squared		0.992759		

economy's performance "(Pathak, 2010). Stock market is a very efficient indicator of market sentiments pertaining to the future state of the economy. It is evident from the regression coefficients that stock market index BSE is statistically significant and positively related to bank credit till one month time lag. The increasing values of stock prices indicate good performances of the companies in the terms of revenue generation. It proximate increased investment demand, may be in stocks, inventories, production, expansion whatsoever. The investors generally react to any change in the government or monetary policy which is expected to come into action in near future; it is termed as announcement or signal effect. Such information gives signal about the future circumstances and seems to be the probable reason for the downside in investment by the firms.

CONCLUSION

Economic reforms in various sectors have contributed to enhance efficiency and competitiveness resulting in the robust and resilient Indian economy. Monetary policy aims to achieve growth with price stability and financial stability.

In sync with changing economic environment, monetary policy has been continuously reviewed and refined. Monetary policy in India since revised Liquidity Adjustment Facility (LAF) scheme in 2004, rely more on the indirect instruments like open market operations, repo and reverse repo rate than the direct instruments with the liberty to change the spread between the repo rate and the reverse repo rate as and when required.

Looking at the empirical results and charts changes in repo rate has a significant impact on the lending and deposit rates. This substantiate that the indirect monetary policy instrument is quite effective in communicating the stance of the policy for the banks to react. The short term interest rates are controlled by the central bank and signal the commercial bank to make the subsequent changes in the medium term interest rates.

Bank credit has significant effects on the real economic activity, measured by GDP of the economy. This accentuate the importance of credit channel transmission in the toolkit of monetary policy and justifies the rationale of giving monetary and credit analysis a salient role in the monetary

policy strategy of the RBI. Banks have conventionally been the prime source of credit for businesses. Eventually the dependence of certain borrowers abridged due to the emergence of alternative sources of finance such as non bank financial intermediaries and commercial paper market. But these alternatives are not easily accessible to all borrowers; there is still a segment of borrowers that is largely dependent on bank credit.

IIP, moving average of stock index, markup variable and export (all being independent variables) are the proximate measure of firms demand for credit .Per the statistical results positive relationship is evident between the demand for credit (dependent variable) and IIP, average of stock price till two months lag, markup variable with the time t and export. Negative relationship is evident between the demand for credit and markup variable with one and two month time lag. There is also an evident negative relationship evident between the bank credit and the repo rate. Hence, the contemporary fall in credit reduces the lending thus the output, likewise the decline in output causes the fall in loan demand.

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