



Manikya Lal Verma Shramjeevi College

A Constituent Unit of JNU, Paschim Medinipur, Odisha
MVC, Khandagiri, Bhubaneswar

ISSN - 2346-2089

Arthavati

An International Journal



ARTHAVATI

International Journal of
Humanities and Social Sciences
Volume 5 Issue 1
January - June 2018

Volume-5 | Issue-1 | January - June, 2018

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Impact of Monetary Policy on Financial Stability

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Abstract

Over the last two and a half decade since the introduction of deregulation and globalization, there has been a greater integration not only between financial and real market in the Indian economy but also at global level in form of inflow and outflow of cash. And financial stability has received much attention. Financial stability can be addressed either by monetary policy tools by the monetary authority or by the macro-prudential instruments by financial authority. Over the last few decades it has been a matter of great debate as to whom should control financial stability. The present paper is a contribution towards the theory. The paper uses six SVAR model on the basis of the empirical finding it can be concluded that macro-prudential measures can better address the financial stability but only for shorter durations as compare to the monetary policy instruments.

SECTION-I

Introduction

Over the last two and a half decade since the introduction of deregulation and globalization, there has been a greater integration not only between financial and real market in the Indian economy but also at global level in form of inflow and outflow of cash. This leads to the development of financial system. Financial system will be sound only when financial stability is maintained. Although there is no unique definition of financial stability. Different economists tries to define it in form of its role and function as " financial stability can be achieve with a goal of strong, sound and stable institutions, effective financial markets and efficient pricing perspectives".

Financial stability means that financial system can fulfill its three main functions:-

- ❖ Transforming savings i.e. mobilize savings for productive purpose
- ❖ Allowing risk management
- ❖ Sufficient resilience to disturbance arising from unanticipated shocks

Any imbalance in the financial system will pose great threat to the economic environment in form of credit or liquidity expansion (asset price boom). It will further spur unanticipated inflation and hence adversely affect price stability and economic growth. Maintaining financial stability is fruitful not only for the efficient working of the financial system but also in maintaining price stability by making the transmission

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mechanism process effective.

Financial stability and Price stability both are complementary to each other i.e financial stability affects price stability through interest rate and lending by banks. For example caps on loan to value adversely affect household borrowings and their demand. Thus it indirectly affects inflation and price stability. Similarly monetary policy affect credit, assets pricing, capital adequacy via change in interest rate and other non policy tools shows high degree of interaction between price stability and financial stability. It arise a question whether monetary policy should pursue a goal of financial stability along with price stability or not. This led to the introduction of Macro prudential approach to address the procyclicality of financial system. Macro prudential approach also involves cost in form of loss in GDP and inflation due to high capital and liquidity requirement in form of reserves. Therefore, it arise a legitimate question as to which instrument be use for controlling the financial stability i.e. whether Monetary policy or Macro-prudential approach. The study covers all these aspects.

Rest of the paper is organized as follows- Section II will be the review of the earlier studies based on pros and cons of adopting Monetary policy and Macro prudential approach for addressing the financial stability. Section III focus on methodology and estimation using SVAR Model from 1991 to 2017. Section IV presents suggestions for strengthening the financial system.

SECTION-II

Review of Literature

The literature on the relationship of financial stability with monetary policy and price stability is divided into two views whether there is tradeoff between them. And whether monetary policy alone is enough for maintaining financial stability and role of macro-prudential factors in maintaining the financial stability. There are two different views in this connection.

The first view argues on price stability and financial stability should be treated differently and controlled by different authorities i.e. macro prudential policy should pursue the financial stability task and price stability should be under the supervision of central bank. It is based on "Jackson Hole consensus". Collard, Dellas, D'Amico, and Loisel(2012) support this view. Adrian et al,(2013) also argues that financial stability be monitored by separate Macro prudential authorities.

Second view argues that financial stability concerns should be a part of the secondary objective of monetary policy strategy. This view considers "Leaning against the wind" strategy as proposed by Bernanke (2002), Lowe (2002), White (2006), Woodford (2012) and others.

The third view proposes a radical view suggesting that there is an interaction between financial stability and price stability so it is impossible to make a distinction. Rajan(2005) investigated the theoretical and empirical link between the monetary policy and risk taking behavior of the banking system. Bernanke (1995) considers price stability as a both necessary and a sufficient condition for financial stability. He argues that price stability lead to low risk of interest rate mismatches and low inflation risk premium. The minimization of risks resulted from accurate prediction of the interest rates due to credibly maintained

The proper risk pricing contribute to financial soundness.

Fahr et al (2010) argued that the relative stability of inflation did not come at the cost of large fluctuations in aggregate output, but, when the financial crisis hits, output volatility increase.

Some authors like Issing(2008); Padoa-Schioppa(2002); Mishkin(1996) believe that price stability can be necessary but not a sufficient condition for achieving financial stability. They argue that a high interest rate measure to control inflation, could negatively affect the balance sheets of both banks and firms and too lax a monetary policy can lead to inflation volatility and a very tight monetary policy can lead to disintermediation and hence financial instability. Driffil et.al.,(2005) provided a theoretical argument that central banks interest rate smoothing process might induce a moral hazard problem and promotes financial institutions to maintain riskier portfolios.

Granvile et. Al., (2009), Dovern et.al. 2010 have examined the relationship between financial and monetary stability and found that the level of stress in banking sector is strongly affected by monetary policy shocks.

Sarat dhal, purnendu kumar and jugnu ansari (2011) have provided an empirical assessment of linkages of financial stability with economic growth and inflation using CAMEL indicators envisaged under Basel principles

Cheang and choy(2010); Caraderelli et.al. (2008) Borio and Lowe(2002), Van den End(2006), Albulescu(2010), Gersl and Hermanek(2006), BIS(2001), Illing and Liu(2003) and (2006) Das et.al.,(2005), Balakrishnan,et.al.(2009), these studies have engaged in constructing aggregated and composite indices for gauging stability of banking and financial system as a whole in line with the macro-prudential framework envisaged under basel principles popularly known as camel indicators.

A sign of increased awareness of the macro prudential dimension is that the authorities have made a number of adjustments to the original proposals in order to address procyclicality concerns (BCBS (2001 and 2006b), Caruana(2005)).

Present paper is the contribution to the above arguments. Present paper will tries to compare the effectiveness of monetary policy and Macro prudential instruments in addressing the financial stability. Along with it, cost-benefit test of individual Macro prudential instrument will also be conducted by analyzing their impact on output, price and financial stability.

SECTION-III

Methodology and Estimation

It has been a great debate on whether financial stability should be included as a goal of monetary policy along with price stability or financial stability should be maintained through Macro-prudential instruments. The article develops models that speak to compare the effectiveness of monetary policy and macro-prudential measure in maintaining financial stability by taking the data from 1991 to 2017.

Six different SVAR model have been developed to analyze the above argument-

SVAR Model I ascertain the impact of monetary policy on price stability through all three channels of transmission mechanism i.e. credit, interest and exchange rate change.

$$\begin{pmatrix} y \\ p \\ r \\ cr \\ neer \end{pmatrix} = [y, p, r, cr, neer]$$

SVAR Model II tries to analyze the effectiveness of monetary policy if it pursue goal of financial stability along with price stability.

$$\begin{pmatrix} y \\ p \\ r \\ cr \\ neer \\ fs \end{pmatrix} = [y, p, r, cr, neer, fs]$$

SVAR Model III IV and V, we try to retrieve the impact of macro-prudential measure related to credit, capital and liquidity respectively on financial stability. Along with it cost-benefit analysis associated with the GDP, price and financial stability of individual macro-prudential measure will also be done.

$$\begin{pmatrix} y \\ p \\ Fs \\ \text{credit growth} \end{pmatrix} = (y, p, fs, \text{credit growth})$$

$$\begin{pmatrix} y \\ p \\ Fs \\ c \end{pmatrix} = (y, p, fs, cr)$$

$$\begin{pmatrix} y \\ p \\ Fs \\ Lq \end{pmatrix} = (y, p, fs, Lq)$$

Model IV tries to identify the combined effect of all the macro prudential variables on financial output and prices.

$$\begin{pmatrix} Y \\ P \\ Cr \\ Lq \\ Fx \end{pmatrix} = [y,p,cr,lq,fx]$$

Where, y = output (GDP at current prices), P = prices(WPI), r = rate of interest, $neer$ =nominal exchange rate, fs = financial stability estimated by using CAMEL indicators, lq =liquidity ratio and cr = growth.

Estimation

We will firstly transform the non-stationary data into stationary by taking log first difference. While in rate and exchange rate are only in log form whereas in liquidity ratio no change has been done.

The identification restriction imposed on the above SVAR model is stated as under:

Model -I

$$\begin{pmatrix} y \\ p \\ R \\ CR \\ NEER \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ NA & 1 & 0 & 0 & 0 \\ NA & NA & 1 & NA & 0 \\ NA & NA & NA & 1 & NA \\ NA & NA & NA & NA & 1 \end{pmatrix} \begin{pmatrix} e_1 \\ e_2 \\ e_3 \\ e_4 \\ e_5 \end{pmatrix}$$

MODEL-II

$$\begin{pmatrix} Y \\ P \\ R \\ CR \\ NEER \\ FS \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & NA \\ NA & 1 & 0 & 0 & 0 & NA \\ NA & NA & 1 & NA & 0 & NA \\ NA & NA & NA & 1 & 0 & NA \\ NA & NA & NA & 0 & 1 & NA \\ NA & NA & NA & NA & NA & 1 \end{pmatrix} \begin{pmatrix} e^y \\ e^p \\ e^r \\ e^{cr} \\ e^{nr} \\ e^{fs} \end{pmatrix}$$

Model-III

$$\begin{pmatrix} Y \\ P \\ FS \\ CR \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & NA \\ 0 & 1 & 0 & NA \\ 0 & 0 & 1 & NA \\ NA & NA & NA & 1 \end{pmatrix} \begin{pmatrix} e^y \\ e^p \\ e^{fs} \\ e^{cr} \end{pmatrix}$$

Model-IV

$$\begin{pmatrix} Y \\ P \\ FS \\ NET FORIEGN \\ EXCHANGE \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & NA \\ 0 & 1 & 0 & NA \\ 0 & 0 & 1 & NA \\ NA & NA & NA & 1 \end{pmatrix} \begin{pmatrix} e^y \\ e^p \\ e^{fs} \\ e^{fx} \end{pmatrix}$$

Model-V

$$\begin{pmatrix} Y \\ P \\ FS \\ LIQ \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & NA \\ 0 & 1 & 0 & NA \\ 0 & 0 & 1 & NA \\ NA & NA & NA & 1 \end{pmatrix} \begin{pmatrix} e^y \\ e^p \\ e^{fs} \\ e^{liq} \end{pmatrix}$$

MODEL-VI

$$\begin{pmatrix} Y \\ P \\ FS \\ CR \\ LIQ \\ FORGIEN EX \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 \\ NA & NA & 1 & NA & NA & NA \\ NA & NA & NA & 1 & NA & NA \\ NA & NA & NA & NA & 1 & 0 \\ NA & NA & NA & NA & NA & 1 \end{pmatrix} \begin{pmatrix} e^y \\ e^p \\ e^{fs} \\ e^{cr} \\ e^{liq} \\ e^{fx} \end{pmatrix}$$

Empirical Findings:-

Model-I

Model I represents the effectiveness of monetary policy instruments on Real variables i.e. GDP and Price. Any shock in policy variables interest and credit has similar impact on GDP but works in opposite directions i.e., any shock in interest rate leads to increase in GDP where credit channel, any shock in it leads to decline in GDP. A positive shock to interest rate leads to decline in credit growth from period one and persist for longer period. Whereas, NEER has similar impact as the credit channel, however its effectiveness is lower as compare to credit channel. Similarly, in case of any response to price due to any shock on policy variable it seems that similar impact of these policy variables but the impact on price occurs with a lag after the impact on growth. Result also shows the GDP growth & inflation are statistically significant for number of periods. It is however, important to note that exchange rate channel of monetary policy transmission to GDP growth is

weak but its impact by way of inflation is significant leads to depreciation of currency which further improves net export & ultimately the impact on inflation. Thus, to conclude we can say that credit channel works efficiently on GDP followed by interest rate and NEER and is most important channel for monetary policy transmission.

Model-II

Model - II shows impact of financial stability on macro indicators. All macro variable and policy variable affects GDP and price over long time.

1. Financial stability have significant and positive impact on GDP and prices and this impact raises over a passes of time but its relative impact on GDP is, about 3 times more as compare to its impact on price .
2. Impact of price on financial stability to show interaction between price and financial stability.
3. Impact of exchange rate (NEER) on financial stability is relatively high as compared to any other tools due to introducing financial stability. It seems impact of NEER on GDP became more as compared to its impact on price (reversal of model trend in model-I) i.e., there is lag impact 1st on GDP and gone price. It also suggests that the role of exchange rate became prime in maintaining financial stability. Further, it also reveals that impact of financial stability on price is less as compare to impact of price on financial stability i.e. price stability affects financial stability relatively high. Any instability in price lead to financial instability and it sustain for longer period. Thus, price stability is prerequisite for financial stability.

Model - III, Model - IV and Model - V, pertaining to operating the macro- prudential indicators credit growth; liquidity ratio and net foreign exchange assets separately i.e., use of single macro prudential indicator are blocked. in order to identify the response of individual indicator on GDP, price and financial stability. It also enables us to works on cost-benefit analysis of each macro prudential indicators.

Net foreign exchange assets significantly affect GDP for longer period. Similar impact can be seen for financial stability with comparatively lesser magnitude while for prices, its response is positive for short period (3 periods).

The behavior of credit on GDP and financial stability is modest with down ward trend. However, its impact on financial stability is for shorter period (4 periods). Credit shows negative impact on price for longer period.

Liquidity ratio has deterrent effect on financial stability and GDP with relatively higher impact on financial stability as compare to GDP. While it has lag effect on price up to 2 periods and thereafter its helpful in combating inflation with low magnitude. It also shows cost-benefit analysis of these macro-prudential indicators viz- credit, liquidity ratio and net foreign exchange assets. It can be also being seen that credit significantly affects GNP and financial stability. Also its impact on inflation is also mild. That overall impact of credit is significant. On other hand the overall effect of change in liquidity ratio least effect the GDP, financial stability and price. Which suggest that if any financial authorities want to regulate financial stability for short period and not much impact is require than it can change liquidity ratio. However, the impact of any change in Net foreign exchange assets on GDP and price is more or less same with moderate effect on

maintaining financial stability. It shows that Net foreign exchange tool for controlling financial stability should be kept as a last resort.

SVAR model 2 and SVAR Model 6 comparative analyze the effectiveness of monetary policy and macro prudential policy in addressing the financial stability. On the basis of the model selection criteria if we compare the response of financial stability by the explanatory variables in both the model, it is found that value of R2 for model 6 is 0.69 while that for model 2 it is 0.055 further looking towards the other criteria i.e. AIC, SIC and Sum square residuals their values are less for model 6. Thus it can be observe from the above analysis that model 6 fitted better as compare to model 2. i.e., macro-prudential polices can better work for resorting the financial stability. But at the same time it is also found that macro prudential indicators are having short term impact & less persistent as compare to the monetary policy tools.

SECTION IV

Suggestions:-

Suggestions for strengthening the financial system

- Financial stability should be considered as one of the main aim of the economic policies just as price stability. A Financial system supervisory body be set up which works to maintain the financial stability.
- Target should be impose on crucial macro-prudential indicators which serves as a barometer of financial stability especially the CAMEL indicator, Loan to total value, Deposits to total income and
- Constant eye should be kept on these indicators and Early warning be given in case any deviation takes place and accordingly preventive measures should be taken immediately.
- Since there is an interaction between monetary policy tools and financial instrument so monetary policy and Financial system supervisory body be work under one roof.
- Up to the target level set by the authority, both the authorities can be work independently, take their own decisions but if financial instability level surpass the target then monetary policy and financial supervisory authority should work in a coordinated manner. A high level committee be also constituted consisting of experts from both bodies (Monetary and financial) in case if conflict arise due to overlapping of the tools.

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