Fiscal Consolidation and efficiency in transmission mechanism of monetary policy: A Case study of Indian Economy in the post reform period

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Abstract

In the post reform period several measures have been implemented for the purpose of reducing fiscal deficit, which was one of the biggest sources of economic instability in the economy. Processes of fiscal consolidation has affected to working of Indian monetary policy very closely, which has got an autonomous status in the post reform period. It has also paved the way for development of different segments of Indian financial market. Development of Indian financial market has provided many new channels of monetary transmission, such as interest rate channel, exchange rate channel and asset price channel. Emergence of new channels has helped in effective transmission of monetary policy. Objective of the present paper is to assess the impact of fiscal consolidation processes on effectiveness of monetary transmission. For above objective, first of all theoretical framework of all the channels of monetary transmission has been defined and there after using simple regression analysis technique their significance have been found for the periods of 1971 to 1991, 1991 to 2013 and overall period of 1971 to 2013.

Results of the study show that overall effectiveness of monetary policy has improved in the post reform period. It is found true for almost all the channels of monetary transmission. However, only two channels viz. credit channel and interest rate channel found significant, remaining two channels; exchange rate and asset price channel were found insignificant. It has been argued in the paper that there is further scope for improvement in monetary transmission and development of specialised financial markets are very critical in this direction.

1. Introduction

Since 1991, Indian economy has gone through with substantial transformation in its functioning, monitoring and regulation of the system. There was consistent effort to strengthen the market mechanism to improve the efficiency of the economic activities by controlling Government activities and its interventions in economic activities. Public borrowing, which is done to fill the gaps between government revenue and expenditure, is the biggest source of intervention in economic activities. It generates crowding out effect, which is kind of direct intervention in investment decisions of private sector. Apart from its side effect on economic activities of private sector, it also generates direct bearing on autonomy and effectiveness of other economic policies such as Monetary and trade policies. Foreign exchange crisis episode of 1991, which was actually fiscal crisis, is very good example of bearing of fiscal policy on other sectors and policies. In this paper attempt is made to understand the bearing of fiscal policy on effectiveness of monetary policy. In the post reform period there is substantial shift in fiscal as well as monetary policy. To control the monetisation as well as overall level of fiscal deficit government has enacted acts like Ways and Mean Advances (WMA) system in 1997 and Fiscal Responsibilities and Budgetary Management (FRBM) Act in 2003. Simultaneously, following the recommendations of various committees (Chakrawarti committee, Narasinham committee I & II, Raghuramrajan committee), financial system has also got substantially reformed. It is viewed that substantial transformation in fiscal and monetary policy has contributed in autonomous and independent conduct of monetary policy. It is also said that all these reform measures helped to a great extent in development of financial market, which is ultimately contributing in efficient functioning of monetary policy. Many new channels (interest rate channel, exchange rate channel, asset price channel etc.) of monetary transmission have emerged in the post reform period, which are supposed to be more affective to reach targeted macro-variables. Fiscal deficit has great bearing on all these new emerged channels of monetary transmission. Fiscal deficit affects directly to interest rate through its crowding out effect while it affect to exchange rate indirectly through its effect on current account balances of foreign trade. Availability of credit in to system is also determined in great extent by borrowing plan of Government, which is again decided by fiscal deficit level of Government. However, the ultimate channel through which fiscal deficit affects to these critical variables is the money supply.

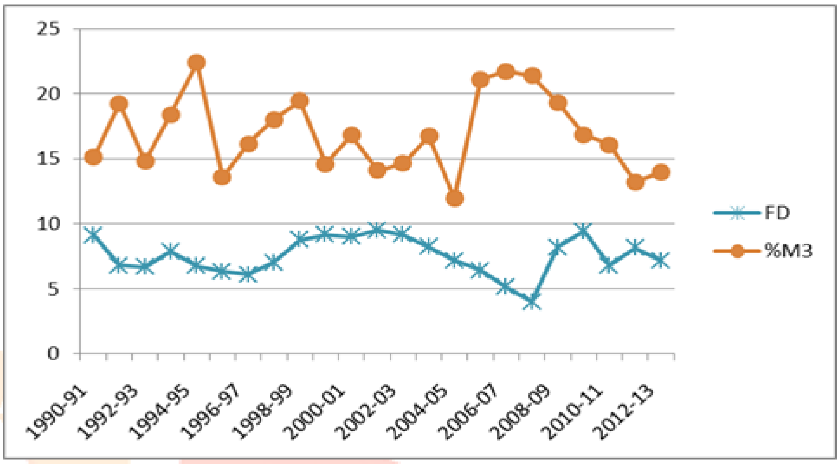
In this context it will be interesting to analyse the effect of fiscal consolidation processes on efficiency of different transmission channels and shift in overall effectiveness of monetary policy. Paper aims to explore the pattern of fiscal consolidation in the post reform period and its association with money supply. It is also been attempted to understand the impact of fiscal consolidation processes on efficiency and significance of transmission mechanism of different monetary channels.

Rest of the paper is organised in to four sections. Second section discusses the nature of fiscal consolidation processes and its association with money supply. Third section analyse the impact of fiscal consolidation on different channels of monetary transmission. Last and forth section presents the conclusion and policy suggestion of the paper.

2. Fiscal consolidation processes and money supply:

As mentioned earlier, WMA Act and FRBM Act are considered as two mile stone in direction of fiscal consolidation of Indian economy. Since enactment of these acts many significant changes have taken place in Indian fiscal system. Therefore, before analysing the impact of fiscal consolidation on money supply, it will be useful to understand the fiscal consolidation processes in the post reform period.

Year	FD	%M3
1990-91	9.1	15.1
1991-92	6.8	19.27
1992-93	6.67	14.81
1993-94	7.89	18.42
1994-95	6.77	22.39
1995-96	6.31	13.57
1996-97	6.11	16.16
1997-98	7.01	18.01
1998-99	8.76	19.44
1999-00	9.17	14.6
2000-01	8.99	16.81
2001-02	9.5	14.1
2002-03	9.16	14.66
2003-04	8.23	16.75
2004-05	7.19	11.97
2005-06	6.42	21.1
2006-07	5.14	21.72
2007-08	4	21.38
2008-09	8.17	19.34
2009-10	9.43	16.85
2010-11	6.79	16.09
2011-12	8.16	13.23
2012-13	7.19	13.94



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Source: Database of RBI, 2015

If we see the trend of fiscal deficit in the post reform period, it can be divided in to three sub-periods. First sub-period, from 1990-91 to 1996-97, shows continuous declining trend in fiscal deficit. It has declined from 9.1 percent in 1990-91 to 6.11 per cent in 1996-97. Average fiscal deficit in this sub-period was 7.09 per cent. Second sub period, which is spread from 1996-97 to 2002-03, shows continuous increasing trend. Fiscal deficit has again reversed back from 6.11 percent to 9.16 percent in this period. Average deficit of this period was 8.38 per cent. After enactment of FRBM Act in year of 2003-04, there is declining trend in fiscal deficit, which is up to 2007-08. It has declined to its lowest level of 4 percent since 1991, which was also in direction of target of FRBM Act. But this position could not be continued because of US financial crisis led world deep recession, which has also pulled down the growth rate of Indian economy form above 8 percent to below 6 percent. Government of India has implemented an expansionary fiscal policy, which has pushed the fiscal deficit to above 9 percent. If we compare the growth of money supply with growth pattern of fiscal deficit in the same corresponding period, it is found that they do not follow to each other. In the first period, i.e. 1990-91 to 1996-97 there is increase of 1 percent in the growth of money supply from 15.1 percent to 16.1, with average growth of 17.1 percent, in spite of significant decline of 3 percent in fiscal deficit in the same corresponding period. This trend is also true in the second period, where fiscal deficit is increasing by 2 percent but growth of money supply is registering decline of 4 percent. Third period also depicts also depicts almost same kind of picture where there is significant decline of 4 percent in fiscal deficit growth in money supply registered significant increase of 5 percent. And in fourth period which was a recessionary period also portrait same kind of picture where both of them do not follow each other.

Theoretically it is being explained that fiscal deficit and money supply are inversely related because of increase in RBM (Reserve Bank Money) due to deficit in Government account. However empirical evidences of the post reform period do not support to theoretical ground and gives reverse trend. It shows that fiscal deficit is not the dominating factor in deciding the money supply and also indicates to increasing independence of monetary policy. But the question of great relevance is that whether increased independence of monetary policy is also reflecting in terms of its effectiveness. Effectiveness of any policy is assessed in terms of efficiency of its transmission mechanism and accomplishment of objectives assigned to it. In the next section we will discuss the impact of increased independence of monetary policy (which is due to fiscal consolidation) on efficiency of its transmission mechanism.

3. Fiscal Consolidation and efficiency of transmission mechanism:

First it should be made very clear that traditionally monetary policy has very limited channel of transmission for affecting the values of real variables. It was mainly due to the high level of fiscal deficit of Government. Fiscal consolidation and due to that increased independence of monetary policy has paved the way for many new channels. At present RBI have mainly four channels, viz. credit channel, interest rate channel, exchange rate channel, and asset price channel, to affect the values of real variables. Emergence of new channels itself shows that now RBI is in better position than past to intervene in to the economy. However, in which extent this task has been accomplished is the question of great relevance. Before assessing this aspect empirically, it would be rational to present theoretical mechanism of different channels for understanding the processes and relevant information to be gathered.

Credit channel, which is traditionally most used channel for affecting real variables in India, works through affecting aggregate deposits by controlling the money supply. Changes in aggregates deposits with banks affect their capacity to create credit and lending. Size of lending by banks affect to size of capital formation in economy, which ultimately affect to growth rate of economy. Sequential pattern of above mechanism is depicted below:

MS↑↓ » AD↑↓ » AC↑↓ » CF↑↓ » GR↑↓

Interest rate channel, which has emerged after deregulation of interest rate policy in the post reform period, is also governed by changes in money supply. Changes in money supply inversely affect to interest rate, which has further inverse effect on capital formation. Ultimately capital formation directly affect to growth of GDP.

MS↑↓ » IR↓↑ » CF↑↓ » GR↑↓

Exchange rate channel is the result of flexible exchange rate policy and free trade agreement on external account. Its mechanism is explained through processes of interest rate parity, which takes place by inflow and outflow of foreign capital. Money supply affects to rate of interest and rate of interest further affects to exchange rate. Variation in exchange rate affects to trade account, particularly to export, which ultimately affects to growth rate of GDP.

MS↑↓ » IR↓↑ » ER↑↓ » EX↑↓ » GR↑↓

Development of different segments of Indian financial system in the post reform period provided a new channel for transmission of monetary policy, i.e. asset price channel. Asset prices have two dimensional effects on real variables; first through its impact on capital formation and another through changes in consumption because of wealth effect. Sequential two dimensional effect of asset price channel is depicted below:

MS↑↓ » IR↓↑ » AP↓↑ » CD↓↑» CF↑↓ » GR↑↓

In next sections empirical evaluations have been done for assessing the effectiveness of all these channels of monetary transmission. An attempt has also been made to explain the causes of effectiveness or ineffectiveness of all these channels of monetary transmission.

3.1 Effectiveness of Credit Channel:

As it has been discussed in last section credit channel is the only channel which has been mainly used for affecting real variables through monetary transmission. Reserve Bank of India (RBI) has controlled to credit creating capacity of commercial banks for achieving the desired objectives of monetary policy. For assessing the effectiveness as well as the changes which has taken place in credit channel of monetary transmission, annual data of relevant variables has been collected for the period of 1970-71 to 2012-13. Simple regression analysis technique has been used for finding the consequential coefficients of credit channel mechanism. Results of regression analysis have been presented below:

MS —[B1 = .63***]→ AD —[B2 = .22(.16)]→ AC —[β3=.43**]→ CF —[B4 = .35***]→ GR

Empirical result, calculated in terms of regression coefficient, shows that mechanism of credit channel explained theoretically is meaningful and significant. All the coefficients follow same direction and except β2 coefficient, which explains the per unit effect of aggregate deposit on aggregate credit, all are also significant.

When the same coefficients are being calculated for the post reform period, which is depicted below, it shows that effectiveness of channel is improving in comparison to last considered period. The β2 coefficient, which was insignificant in last case, became significant at 10 per cent level of significance.

MS —[B1=.60***]→ AD —[B1 = .34*]→ AC —[B1=.58**]→ CF —[B1 = .48***]→ GR

For comparing the relative effectiveness of channel to the pre reform period, value of coefficients have been calculated for the period of 1970-71 to 1990-91, which has been depicted below. Its comparison with the post reform period shows that relative effectiveness has very much improved. In the pre reform period except β1 coefficient others are insignificant, while in post reform period almost all coefficients are significant at different level of significance.

$MS \xrightarrow{B1=.67^{***}} AD \xrightarrow{B1=.096} AC \xrightarrow{B1=.057} CF \xrightarrow{B1=.311} GR$

3.2 Effectiveness of Interest Rate Channel:

In the pre reform period India's interest rate policy was administered. It was decided by Government on its discretion keeping multiple factors in mind. Because of this kind of policy there was plethora of interest rate, where RBI has very less role to play. Because of limited intervention of RBI in determination of interest rate, interest rate channel was inefficient in pre reform period. Coefficients values of interest rate channel in pre reform period also support to above claim, which are insignificant and do not contain desired sign.

In the post reform period Government has deregulated to interest policy in certain extent and left it on business decision of commercial banks, which has promoted to competitively determine the interest rate in the market. It has also generated scope for RBI to intervene in market rate of interest by changing the policy rates. Regression coefficients of interest rate channel in the post reform period also support to this explanation. All the coefficients are significant and also follow the desired direction relationship.

Considering both the period (pre and post reform period) together shows that interest rate channel is effective, however comparatively less effective than the post reform period. When the coefficients of whole period are compared with coefficients of post reform period, it shows that value as well as significance level is improving.

$MS \xrightarrow{B1=.219} IR \xrightarrow{B2=.211} CF \xrightarrow{B3=.075} GR$

$MS \xrightarrow{B1=.405^{**}} IR \xrightarrow{B2=-.448^{**}} CF \xrightarrow{B3=.643^{***}} GR$

$MS \xrightarrow{B1=.33^{**}} IR \xrightarrow{B2=-.273^{*}} CF \xrightarrow{B3=.473^{***}} GR$

3.3 Effectiveness of Exchange Rate Channel:

In the pre reform period, India's exchange rate policy was governed by Foreign Exchange Regulatory Act (FERA), which imposes very strict regulation on foreign exchange as well as on variation of exchange rate. Perennial crisis of foreign exchange due to fundamental imbalance in external account, restrict RBI to intervene in economy through exchange rate channel. Because of this reason exchange rate channel was ineffective in the pre reform period, which is also supported by regression analysis done for this period. Value of regression coefficients, which is presented below, shows that almost all the coefficients are insignificant.

In spite of some very fundamental reform in foreign exchange policy (i.e. from FERA Act to FEMA Act and controlled exchange rate policy to flexible exchange rate policy), situation has not changed much in the post reform period. Though there is improvement in significance of first two steps of channel, as the coefficients are significance and are also having meaning full directional relation, but in advanced step, which are more critical for intervening in to real variables, are becoming insignificant. It is also true when we consider whole period, i.e. from 1970-71 to 2012-13. Graph depicted below for this period shows that first two coefficients are significant and having meaning full direction relation. However, values of coefficients as well as their significance are less in comparison to post reform period.

$$MS \xrightarrow{B1=.099} IR \xrightarrow{B2=.578^{*}} ER \xrightarrow{B3=.249} EX \xrightarrow{B4=-.002} GR$$

$$MS \xrightarrow{B1=.405^{**}} IR \xrightarrow{B2=-.83^{***}} ER \xrightarrow{B3=-.239} EX \xrightarrow{B4=-.176} GR$$

$$MS \xrightarrow[B1=.33^{**}]{} IR \xrightarrow[B2=-.277^{*}]{} ER \xrightarrow[B3=.077]{} EX \xrightarrow[B4=-.012]{} GR$$

3.4 Effectiveness of Asset Price Channel:

In developed countries asset price channel is the most efficient channel to intervene in to economy through monetary policy. For intervening in to economy through asset price channel, the very essential condition which is required is the development of financial market. Until unless different segments of financial market are not developed asset price channel cannot be used effectively. Unfortunately due to under development of financial market in India, asset price channel of monetary policy is not working effectively in India. There is lack of specialised segment as well as some very fundamental financial market such as secondary market of Government securities.

Empirical evaluation of asset price channel, which is depicted below, also support to ineffectiveness of asset price channel in India. For measuring the changes in asset price, BSE Stock Index has been considered as proxy. Because Information of BSE Stock Index is not available before 1978-79, regression analysis for pre reform period could not be done. First figure presents the effectiveness of channel in the post reform period while second figure consider the period of 1978-79 to 2012-13. Analysis of post reform period shows that β2 and β3 coefficients are insignificant, which are very critical for establishing the relationship of channel to advanced steps. Almost same situation is when we consider the period of 1978-79 to 2012-13. Insignificance of β2 and β3 coefficients shows under development of financial market by which monetary policy intervene in to economy.

$$MS \xrightarrow{B1=.4^{**}} IR \xrightarrow{B2=.22} AP \xrightarrow{B3=-.06} CD \xrightarrow{B4=.78^{***}} CF \xrightarrow{B5=.63^{***}} GR$$

$$MS \xrightarrow{B1=.38^{**}} IR \xrightarrow{B2=.19} AP \xrightarrow{B3=-.027} CD \xrightarrow{B4=.67^{***}} CF \xrightarrow{B5=.55^{***}} GR$$

4. Conclusion:

Developments of the post reform period shows that Indian financial system have got substantial transformation. Ways and Mean Advances (WMA) Act and Fiscal Responsibility and Budgetary Management (FRBM) Act have played very significant role in this direction. These changes in fiscal and financial system have also affected to working of Indian Monetary Policy. Functioning of Indian Monetary Policy has got substantial autonomy and efficiency in terms of designing its policy and achievement of its objectives. Emergence of new channels for monetary transmission have played very significant role in this direction. Monetary policy operates through management of money supply at desired level, which should be according to production capacity of economy. Traditionally it has been assumed that deficit in Government account is the measure source of money supply in Indian Economy. However, experience of the post reform period shows that role of fiscal deficit in determination of money supply have got substantially reduced. Association between fiscal deficit and money supply has been found negative in the post reform period. Development of different segments of Indian financial system paved the way for emergence of many mew channels such as interest rate channel, exchange rate channel and asset price channel along with more effectiveness of credit channel, which was traditionally only available channel for monetary transmission. Empirical evidence shows that effectiveness of almost all the channels have improved in the post reform period. While credit channel and interest rate channel are working significantly, asset price channel and exchange rate channel are still not significant. Development of specialised segment of financial market is very critical in this direction to make significant the remaining insignificant channels of monetary transmission. At last it can be concluded that due to new economic policies overall effectiveness of monetary transmission has improved, however there is further scope for improvement through developing specialised segments of financial market, which will help in improving the significance of new emerged channels.

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