

# Chapter Five

## SUMMARY AND CONCLUSIONS

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This chapter presents the summary and conclusions of the entire study. To start with highlights of the study are first presented. A few explanations are also provided to clarify these findings although details can be found in chapter four. This is followed by a thorough summary of all findings. Macroeconomic policy suggestions are next presented with special emphasis on policies aimed at fiscal corrections. Some of these are structural in nature and may take time to implement. Finally, possible extensions of the present study are pointed out as no thesis can cover every aspect of a particular topic due to both space and time constraint. However the extensions would pave the way for enrichment of the present research.

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### 5.1 Highlights of the Study

- ✓ There exists a long run equilibrium relationship between WPI and money supply.
- ✓ Money supply expansion is closely associated with fiscal deficit. In fact fiscal deficit causes money. So fiscal deficit actually influences WPI in the long run.
- ✓ Monetary expansion is associated with GDP. In fact money causes GDP.
- ✓ Unidirectional causality exists between money supply and GDP, from money to GDP.
- ✓ Broad money has a greater impact on prices.

- ✓ For some nations broad money has a greater impact on prices and the impact lasts longer.
- ✓ In India bi-directional causality between money supply and GDP is observed over the study period. Impacts vary for M1 and M3.
- ✓ In India, monetary policy is triggered by the fiscal authority. Fiscal deficit is found to cause money supply expansion, converse in not true. Thus independent monetary policy is not practiced in India.
- ✓ Inflation has been slightly higher in high growth decades.
- ✓ Money supply causes real GDP but is inflationary.
- ✓ Co-integrating relationship between G – GDP – M – WPI – FD found.

The transmission channel as found in this study is as follows:

G → GDP, M → GDP, M → WPI, FD → M, which implies  
 FD → M → WPI

Moreover broad money also causes industrial production which is a significant finding.

## 5.2 Summary of the Study

The present study may be briefly summarized in the following points.

**First**, the present study has tested for short run causality between money supply (narrow and broad) and real GDP in India during 1961-2010 adopting the Toda-Yamamoto (1995) modified Granger causality approach under a VAR setup. Exponentially detrended annual time series data on constant price GDP, narrow money supply and broad money supply are used for this purpose. Bai-Perron tests for structural breaks of the detrended data series reveal significant breaks in the variables

around the period 2001-04. The findings are suggestive of a bi-directional causality between broad money and GDP. However the study suggests unidirectional causality from narrow money to GDP. Further, both narrow and broad money have a long-run co-integrating relationship with real GDP and short run causal relations may be anticipated. But to a certain extent monetary expansion in India may be fiscal expansion triggered and thus may not be independent.

**Second**, this study has tested for short-run causality between government expenditure and GDP. Findings are further suggestive of a unidirectional causality from government expenditure to GDP which supports the Keynesian prescription and Wagner's law is found to be invalid. Further both real GDP and government expenditure have a long-run co-integrating relationship. Hence short run causal relations may be expected.

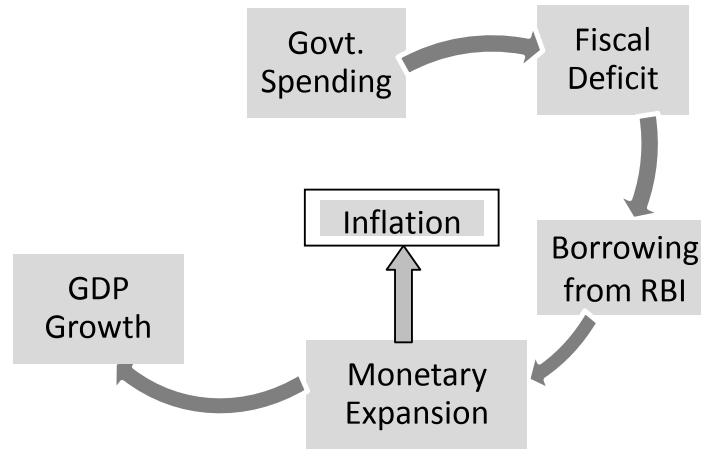
**Third**, this study has also tested for short run causality between broad money supply and WPI in India during 1961-2010 adopting the Toda-Yamamoto (1995) modified Granger causality approach under a VAR environment. Exponentially detrended annual time series data on WPI and broad money supply are used for this purpose. Bai-Perron tests for structural breaks of the detrended data series reveal significant breaks in the variables around the period 1990-2001. The findings are suggestive of a unidirectional causality from broad money supply to WPI. Further both real WPI and broad money supply have a long-run co-integrating relationship. Hence short run causal relations may exist. But to a certain extent monetary expansion in India is not independent of fiscal expansion and fiscal deficits have caused broad money supply over the same period in India. In India, long run experience shows that monetary expansion is inflationary, the short run impact being felt for over a year. The VAR result supports this view.

**Fourth**, the present study has tested for short run causality between fiscal deficit and broad money supply in India during 1970-2010 adopting the Toda-Yamamoto (1995) modified Granger causality approach under a VAR environment. Exponentially detrended annual time series data on WPI and broad money supply are used for this purpose. Bai-Perron tests for structural breaks of the detrended data series reveal significant breaks in the variables between 1990 and 2001. The findings are suggestive of a unidirectional causality from fiscal deficit to broad money supply. Further both fiscal deficit and broad money supply are found to have a long-run co-integrating relationship. Hence short run causal relations could be expected. In sum monetary expansion in India is not independent of fiscal expansion but is rather triggered by the latter. To further validate the results of the present study both structural VAR and ARDL approaches need to be separately undertaken.

Finally, the present study has tested for pair-wise short run causality between IIP, broad money supply and BR in India during 1960-2010 adopting the Toda-Yamamoto (1995) modified Granger causality approach under a VAR environment. Exponentially detrended annual time series data on each variable are used for this purpose. Bai-Perron tests for structural breaks of the detrended data series reveal significant multiple breaks in the variables. The findings are suggestive of a unidirectional causality from bank rate to IIP, and also from broad money supply to IIP. Further both fiscal deficit and broad money supply are found to have a long-run co-integrating relationship. Hence short run causal relations could be expected. In sum monetary expansion in India is not independent of fiscal expansion but is rather triggered by the latter. To further validate the results of the present study both structural VAR and ARDL approaches need to be separately undertaken.

In India, the monetary policy framework underwent a considerable change with the onset of the macroeconomic reforms in 1991. Monetary policy emerged as the chief instrument of macroeconomic stabilization as well as a precursor to subsequent structural reforms in the entire financial system. The objective was to create a competitive environment in the financial sector besides ensuring price stability and sustained GDP growth. Since the 1950s fiscal control affected the conduct of monetary policy in India. It was necessary for the RBI to implement policies aimed at better fiscal-monetary coordination. The RBI replaced *ad hoc* treasury bills by a system of ways and means advances to the central government. In this backdrop the present study clearly demonstrates that both broad and narrow money expansion has in fact significantly augmented India's GDP in the long run, whether or not the monetary expansion was brought about by fiscal factors such as increasing government expenditure, or else, burgeoning fiscal deficits.

The causality channel or cycle is depicted in the following figure.



**Fig. 5.2.1** The Cycle between G, FD, M3 and GDP.

### 5.3 Macroeconomic Policy Suggestions

This study suggests the following changes in India's macroeconomic in policy and outlook.

1. Persistent and high fiscal deficits in India cannot be sustained. Double digit growth of revenue expenditure over the last three and a half decades is the principal cause behind burgeoning fiscal deficits. Thus revenue deficits should be controlled.
2. High fiscal deficits have triggered money supply in the economy creating inflationary spirals throughout.
3. Taxes must grow rapidly and new tax payers have to be included in the tax payer's pool in order to raise collection. This coupled with cut in revenue expenditures can control revenue deficits.

4. Capital expenditures should not be cut in order to control fiscal deficit. This would slow down the industry and the economy amidst global recessionary trends.
5. Interest rate cut would enable industrial growth and expansion but at the cost of the savings of the middle class and the poor. With moderate to high inflation, a low interest rate implies near zero rate of real returns on savings and investment for the poor and the middle class.
6. Deficit financing in the form of automatic monetisation of debt through issue of ad-hoc treasury bills has been stopped by RBI since 1997. But despite that the present study shows a massive growth of broad money even during post 1997 years. This is on account of heavy government borrowing from the RBI, the non-bank public and the commercial banking system besides foreign exchange inflows. If the government emerges as the single largest borrower from the banking system there is crunch of loanable funds for both industry and the household sectors. Moreover this capital crisis can push interest rates upwards crowding out private investment.
7. Monetary expansion is desirable to a certain extent in developing economies especially when it comes to financing for development (social overhead capital). However inflation on account of such money injections may be controlled to a large extent if the supply system or supply mechanism of the country can be made more flexible. A rise in G through M implies a demand expansion but the extent of price rise depends on elasticity of supply. In India money injections have directly been inflationary on account of inflexible supply leading to the old classical-monetarist saying that “inflation is the result of too much money chasing too few goods”, is applicable. Thus all state governments along with the

centre have to ensure irrigation network development to enable multiple cropping and crop rotation, efficient road-ways, efficient PDS and rapid implementation of central and state schemes. Monsoon failures and erratic weather conditions still lead to crop failures in India resulting in food inflation.

8. If leakages in government expenditure can be checked (by controlling corruption) it can enhance the supply system on the one hand and can help to control inflation on the other. Thus for a less corrupt economy government spending would not be inflationary.
9. India's oil import bills are one of the highest in the world due to its overdependence on petroleum for its transportation sector and consequently massive oil imports from the Gulf. Any oil price shock at the international level has had its domestic repercussions. Thus if overdependence on petroleum can be controlled by shifting to CNG, electricity or other green and renewable energy sources then oil price shocks would have limited inflationary impacts.
10. Inflation targeting has to be the primary focus of the monetary authority as inflation lowers the real worth of income and wealth hurting the poor and the middle class. But growth prospects of the economy cannot be compromised.

Regarding fiscal prudence the study comes up with the following conclusions. Over the years, various instruments of fiscal policy *viz.*, taxation, public expenditure and public borrowings have been employed, with varying degrees of importance, to achieve higher economic growth and stability, efficient resource allocation and equitable distribution of income. Furthermore, in India, as in many developing countries, fiscal policy does not operate in isolation as it has close macroeconomic linkages with real, monetary and external sectors. Thus, the macroeconomic impact of



fiscal policy is critical for achieving the broader economic goals. Indian public finance today has reached a turning point. The future course of public finance would critically hinge upon the following developments. **First**, fiscal policy can be a powerful tool for accelerating growth, provided resources are raised efficiently without causing distortions and utilised for delivering public goods and services, including physical and social infrastructure and helping the underprivileged. Total government expenditure as proportion of GDP needs to be maintained, and raised at the State level, in order to ensure the maintenance of existing infrastructural facilities and create new ones. This calls for a change in the composition of expenditure. **Second**, adherence to fiscal legislation, both at Centre and State level, is critical for macroeconomic, financial, external sector and budgetary sustainability. **Third**, fiscal empowerment *i.e.*, expanding the scope and size of revenue flows into the budget, through tax reforms appropriate user charges and restructuring of public sector undertakings assumes critical importance. **Fourth**, as the Indian economy becomes more open and integrated with the rest of the world, fiscal policy would have to face greater challenges. **Fifth**, the approach to fiscal federalism, both in terms of addressing the vertical and horizontal imbalances, would have to focus on institutional reforms which align needs with revenue capacities. **Sixth**, the changing demographic profile would make designing an appropriate fiscal policy more complex.

#### **5.4 Possible Extensions**

Any research with a given set of streamlined objectives and a limited time-frame would have its limitations and the present work is no exception. The study could be extended in further research. A few limitations are identified.

1. Sim's structural VAR approach may be undertaken to understand the existing problem better.
2. Alternative approaches to Error Correction and Co-integration may be undertaken although testing long run equilibrium relationships and stability dynamics among variables is not an objective in the present study.
3. Each causal relation may be further tested by means of an ARDL approach using the bound tests.
4. The causality between money supply and the price level (as captured by WPI) has been tested but not between money supply and inflation rate.
5. The external sector in the form of nominal and real exchange rates, foreign exchange inflows, and foreign exchange reserves are not considered. Borrowing from abroad, net exports and exchange rates can influence domestic monetary policy in the age of globalisation. This aspect has been neglected in the study keeping in mind India's protectionist macroeconomic policy regimes since 1950s.
6. Sterilization in refers to the actions taken by a country's central bank to counter the effects on the money supply caused by a balance of payments surplus or deficit. This can involve open market operations undertaken by the central bank whose aim is to neutralize the impact of associated foreign exchange operations. The opposite is unsterilized intervention, where monetary authorities have not insulated their country's domestic money supply and internal balance against foreign exchange intervention. *Sterilization* is most often used in the context of a central bank that takes actions to negate potentially harmful impacts of capital inflows –

such as currency appreciation and inflation – both of which can reduce export competitiveness. More generally, it may refer to any form of monetary policy which seeks to hold the domestic money supply unchanged despite external shocks or other changes, including the flow of capital out of India. This study has not dealt with the external sector angle of monetary policy.