

*The assessment of the medium-term outlook for fiscal-monetary policy co-ordination is based on the estimation of a linear relationship between the call rate (which is the operating target of monetary policy and can be generally used as a proxy for the monetary policy rate) and the output gap, inflation gap and the fiscal deficit to GDP ratio. The results of the exercise showed that an increase in the fiscal deficit to GDP ratio tends to put upward pressure on the call rate after a lag, even after controlling for the output gap and inflation gap. At the present juncture, with the likelihood of inflation moderating and the output gap remaining negative, stimulating investment with a view to reverting to the trend rate of growth of the economy over the medium-term is high priority. In this context, an orderly and qualitative fiscal adjustment would provide more headroom to monetary policy to address macroeconomic stability, in general, and the growth objective, in particular, over the medium-term. On the issue of institutional arrangements for debt/cash management, international experience with regard to the global financial crisis highlights the intertwining of fiscal, monetary and debt management and, thus, underscores the need for closer co-ordination between monetary and debt managers and fiscal authorities. At the present juncture in India, government borrowing continues to be large and the general economic environment warrants close monitoring of the evolving fiscal situation. In this context, persisting with the central bank's engagement with government debt management coupled with more intensive co-ordination with the government appears to be the appropriate approach for the medium-term.*

### I. Introduction

5.1 The global financial crisis marked an inflexion point in the history of monetary-fiscal co-ordination, with governments and central banks in almost all countries working on an unprecedented and unconventional scale to restore financial stability. While governments in many advanced economies acted decisively in bailing out and even outright nationalising failed investment banks, non-banks and insurance companies and provided sizeable fiscal stimulus to minimise the impact of the crisis on the real economy, central banks opened liquidity windows to banks and non-banks alike and started currency swap lines.

5.2 A similar degree of coherence was, however, not observed in the exit from unconventional fiscal and monetary policies that were initiated during the crisis. In advanced economies, as fiscal exit seems to be an arduous and protracted process given the size of the extant deficit as well as the lack of political consensus towards austerity measures, monetary policy has continued to be accommodative

to provide the requisite boost to the fragile state of economic recovery. In the euro area, the seemingly recalcitrant sovereign debt problems, despite several initiatives to restore fiscal discipline, have entailed a persistent accommodative monetary policy stance, even as the pace of contraction of the economy has shown some remission in the recent period. Emerging market economies, on the other hand, had been pursuing both fiscal and monetary consolidation contemporaneously, in view of the early recovery from the crisis and emergence of inflationary pressures. Subsequently, however, the slackening of global growth, domestic structural impediments and (past) monetary tightening to address commodity and/or asset price pressures, impacted the prospective growth trajectory of emerging market countries. This has triggered some monetary easing in the recent period even as the policy space for further accommodation has reduced in some countries.

5.3 In general, post-crisis, there has been a gradual realisation that as globalisation matures, and, more particularly, as financial globalisation

deepens and exposes economies to invisible risks, the scope for collective action is likely to broaden where governments and central banks might have to work in unison more frequently while respecting each other's domain of activities. An immediate manifestation of the underlying turn in international policy thinking testifying to the need for increased fiscal-monetary co-ordination are the newly institutionalised collegial arrangements involving the central bank, other regulators and the government, which have been entrusted with the primary responsibility for fostering financial stability.

5.4 Notwithstanding the positive experience gained on fiscal-monetary co-ordination and the reduction in government deficits in many countries in 2011, the IMF's latest Fiscal Monitor (October 2012) highlighted the elevated fiscal vulnerabilities emanating from the still very high public debt rollover requirements in many advanced and some emerging market economies, even as it recommended an orderly pace of fiscal adjustment in the context of the general slackening of activity in many countries. The document also observed that putting public finances on a sounder footing over the medium-term should be a priority as this remains a key pre-requisite for growth.

5.5 In India too, the resumption of fiscal consolidation efforts after shaking off the indirect drag of the global financial crisis has been beset with challenges. Indeed during the first year (2012-13) of the Twelfth Plan, notwithstanding a modest improvement, significant risks remain to global economic prospects. Additionally, further reduction in WPI inflation, despite the recent easing, is contingent upon the alleviation of supply constraints and progress on fiscal consolidation. Moreover, as the fiscal deficit during 2012-13 so far remains high, a turnaround in the fiscal position would be imperative for generating the required resources for the Twelfth Plan. The Union Budget for 2012-13 had, in fact, proposed to reduce the fiscal deficit to 5.1 per cent of GDP from 5.9 per cent in the revised estimates of the previous year. The Budget had also introduced some amendments to the FRBM Act. On October 29, 2012, the Finance Minister

announced the government's decision to adopt a fiscal consolidation plan during the Twelfth Five Year Plan that would progressively bring down the fiscal deficit from 5.3 per cent of GDP in 2012-13 to 3.0 per cent of GDP in 2016-17. Significant steps since taken by the government largely to reduce fuel subsidies have an important signalling impact even though their effect on the fiscal deficit of 2012-13 is expected to be negligible.

5.6 Against this backdrop, Section II of this chapter assesses the entrenched relationship between fiscal and monetary policies in the post-reforms period and draws some implications for their evolutionary path over the medium-term. This exercise, which is based on Zoli (2005), estimates a linear function with the call rate – which is the operating target of monetary policy and can be generally used as a proxy for the monetary policy rate – as the dependent variable and the inflation gap (*i.e.* the difference between the WPI inflation rate and its trend component), output gap (*i.e.*, the de-trended or cyclical component of GDP), the ratio of the Centre's fiscal deficit to GDP (with a one-period lag) and the one-period lagged call rate as explanatory variables. Annual data largely over the post-reforms period are used for the estimation. The estimated equation provides broad guidance on the implications of the evolving path of fiscal deficit, output gap and inflation gap for monetary policy over the medium-term.

5.7 Section III of this chapter discusses the evolution and intertwining of debt management policies with fiscal and monetary policies, particularly in the context of the recent global financial crisis, which has thrown up challenges to well-entrenched paradigms, internationally. As far as India is concerned, an important watershed in the institutional arrangements for the central government's debt management – which have been entrusted to the Reserve Bank of India by statute – was the setting up of a Middle Office in the Ministry of Finance in 2008, to formulate the debt management strategy of the central government. Taking this forward, the Union Budget 2011-12, presented in end-February 2011, stated, "The Government has

been in the process of setting up an independent Debt Management Office in the Finance Ministry. A Middle Office is already operational. As a next step, I propose to introduce the Public Debt Management Agency of India Bill in the next financial year.” (Budget Speech of the Finance Minister, Paragraph 20). The Union Budget for 2012-13, presented in mid-March 2012, has, in fact, proposed to move the Public Debt Management Agency of India Bill, 2012 in the Budget Session of Parliament. An important rethink in this process, however, was earlier set in motion by Governor Subbarao of the Reserve Bank at the meeting of the Central Bank Governance Group on May 9, 2011 at the Bank for International Settlements, where he averred, “...as long as there are institutionalised mechanisms to negotiate various trade-offs in a given context within the overarching objective of achieving monetary and financial stability, separation of debt management from the central bank seems to be a sub-optimal choice. Even internationally, the emerging post-crisis wisdom recognises the interdependence between the functions of monetary policy, financial stability and sovereign debt management and the need for close association of the central bank with sovereign debt management.” In the context of the post-global financial crisis, this section discusses issues that could impinge on the institutional arrangements for co-ordinating monetary and debt management over the medium-term. The last section sums up the discussion.

## II. Fiscal-Monetary Co-ordination: Outlook for the Medium-Term

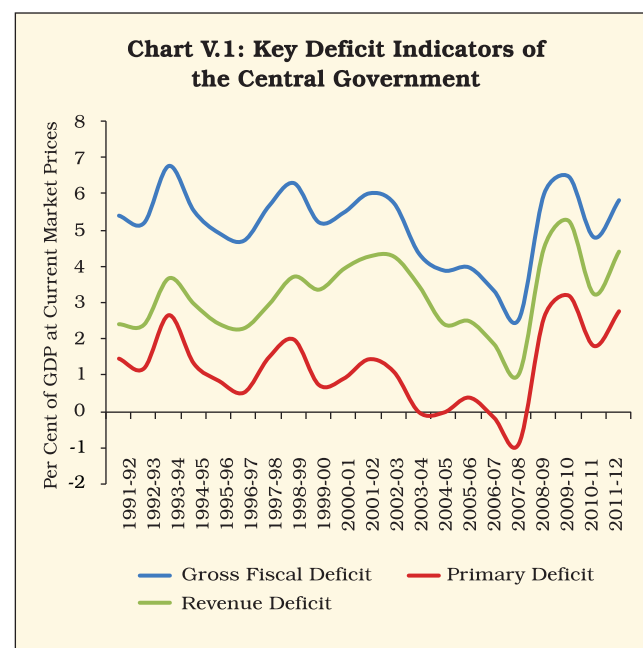
### *Recapitulation of Past Trends*

5.8 To begin, a recapitulation of the fiscal and monetary management story since 1991-92 is necessary, because the evolving trends will be used to assess the medium-term outlook.

### *Fiscal Trends*

5.9 Following the initiation of structural reforms, including fiscal reforms, in the aftermath of the external payments crisis in 1990-91, fiscal

imbalances generally declined during the first half of the 1990s but started increasing during the second half, largely due to the slacking of tax revenue induced by the growth slowdown and rising interest payments and wages and salaries (Chart V.1). Subsequently, fiscal imbalances again started declining as interest payments relative to GDP began falling (due to general monetary easing) and, more substantially because of the enactment and implementation of the Fiscal Responsibility and Budget Management (FRBM) Act in 2004-05 as well as the strong growth of over 9 per cent during three consecutive years ending in 2007-08 that helped boost revenues. A primary surplus was, in fact, obtained during 2003-04, 2004-05, 2006-07 and 2007-08. The fiscal deficit, in fact, declined to 2.5 per cent of GDP in 2007-08, the lowest level since the initiation of reforms. Fiscal stimulus measures to stave off the adverse indirect impact of the global financial crisis on growth during 2008-09 and 2009-10, however, resulted in a sharp increase in deficit measures. With the economy recovering fairly quickly, fiscal consolidation efforts resumed in 2010-11, which was supported by substantial one-off increase in revenues from telecommunication services. The sharp decline in growth in 2011-12 coupled with large direct tax refunds and higher



subsidies, however, resulted in a sharp increase in fiscal imbalances. Disconcertingly, the share of capital expenditure, as conventionally defined, in total government expenditure has generally declined from around 26 per cent in 1991-92 to around 12 per cent in 2011-12.

#### *Evolution of the Monetary Policy Stance*

5.10 Monetary policy formulation in the *milieu* of structural reforms beginning in 1991-92 was facilitated by a reduction in fiscal imbalances and institutional arrangements to limit unbridled government access to monetisation through *ad hoc* treasury bills. After recording double digit rates in the first half of the 1990s, inflation subsequently declined, reflecting global trends as well as the impact of domestic reforms. Reflecting the easing of the monetary policy stance, the Bank Rate was progressively reduced from 12 per cent in October 1991 to 6 per cent in April 2003; after the institution of the full-fledged Liquidity Adjustment Facility (LAF) in June 2000, the Bank Rate was kept unchanged at 6 per cent between April 2003 and January 2012 when it was aligned with the Marginal Standing Facility (MSF) rate which, in turn, was linked to the LAF repo rate. On the other hand, the LAF repo rate was brought down from 9 per cent in April 2001 to 6 per cent in end-March 2004. The Cash Reserve Ratio (CRR) was also progressively reduced from 15 per cent in 1991-92 to 4.5 per cent in August 2003. Subsequently, with the significant increase in the growth rate and an upsurge in capital inflows, the CRR was steadily hiked to 7.5 per cent by November 2007. Open Market Operations, LAF and the Market Stabilisation Scheme (MSS) (introduced in April 2004) also helped restrain the growth of domestic liquidity in the face of strong capital inflows.

5.11 The LAF repo rate was increased from 6 per cent in end-March 2004 to 7.75 per cent in end-March 2007, as inflation had picked up somewhat during this period. During the first half of 2008-09, inflation increased sharply under the pressure of hardening international commodity prices, which necessitated an anti-inflationary policy response in the form of increases in the CRR and the LAF repo rate to 9.0

per cent each by July/August 2008. The monetary policy stance had to be changed abruptly in October 2008 to deal with domestic liquidity shortages and the growth slowdown induced by the global financial crisis. Reflecting this, the CRR was reduced sharply to 6.5 per cent in October 2008 and further to 5.0 per cent by January 2009. The LAF repo rate was also brought down progressively to 4.75 per cent by April 2009. Unconventional monetary policy measures were also taken to enhance domestic liquidity. Along with the accommodative monetary policy, fiscal policy too turned expansionary to support the recovery process, as alluded to earlier.

5.12 As the economy recovered fairly quickly from the indirect effects of the global financial crisis and inflationary pressures started taking root, the LAF repo rate was progressively increased to 8.5 per cent by October 2011 and the CRR was raised to 6.0 per cent by April 2010. With growth declining sharply to below-trend in 2011-12 and with the moderation in the inflation rate, the CRR was reduced to 4.75 per cent by March 2012 and the LAF repo rate was reduced to 8.0 per cent in April 2012 (*i.e.*, during 2012-13). Further reduction in the LAF repo rate was subsequently put on hold as the expected complementary policy actions towards fiscal adjustment and improving the investment climate did not follow. However, credit and liquidity conditions were eased through a 100 basis point reduction in the SLR in July 2012 and a cumulative 50 basis point reduction in CRR in September-October 2012. With the announcement of a series of reforms by the government beginning in September 2012 and the moderation in inflation rate, even as growth declined significantly below trend, the LAF repo rate and the CRR were reduced by 25 basis points each to 7.75 per cent and 4.0 per cent, respectively, in the third quarter review of monetary policy in January 2013.

#### *Changes in Sources of Reserve Money and Money Supply*

5.13 Over the period 1991-92 to 2007-08, the steady decline in the share of net RBI credit to the central government in the outstanding amount of

reserve money and the corresponding increase in the share of net foreign exchange assets of the RBI was clearly evident (Chart V.2). This reflected the impact of the general reduction in fiscal imbalances and institutional arrangements to limit monetisation of budget deficits coupled with the initiatives aimed at the development of the government securities market, on the one hand, and the liberalisation of foreign exchange markets and capital inflows, on the other. In fact, from 1999-2000 onwards, net foreign exchange assets replaced net RBI credit to the Centre as the predominant source of reserve money. Furthermore, the period from 2004-05 to 2007-08 was marked by substantial mopping up of excessive domestic liquidity to the sequestered government account through MSS operations in the face of strong capital flows. The trends in the shares of net RBI credit to the Centre and foreign exchange assets of the RBI in reserve money reversed sharply, beginning in 2008-09 under the indirect impact of the global financial crisis.

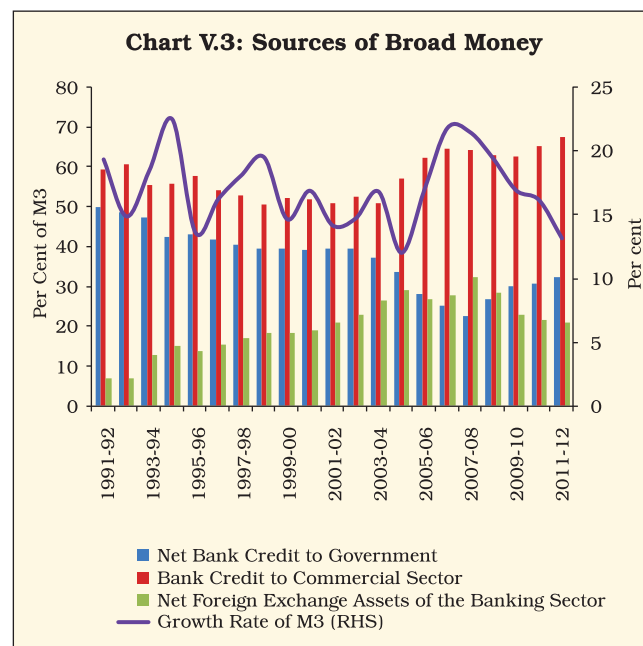
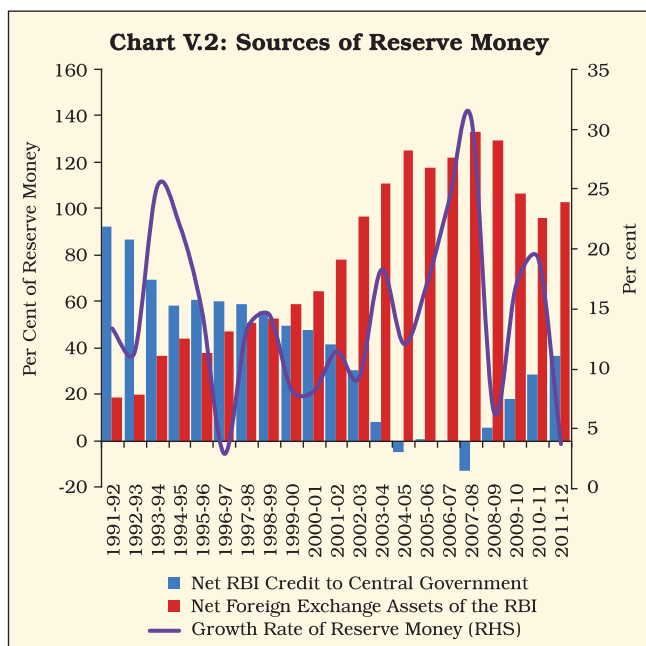
5.14 The crisis induced a reversal of capital flows and the consequent exchange market pressures triggered RBI's market operations to stem volatility in the exchange rate, which exacerbated the stressed

domestic liquidity conditions. In response, domestic liquidity was augmented through (i) monetary support to the government's fiscal stimulus-engendered large market borrowing programme through OMOs; (ii) the unwinding and de-sequestering of MSS balances; and (iii) substantial liquidity injection to the banking system through LAF. In 2011-12, the shares of both net RBI credit to the Centre and net foreign exchange assets in reserve money increased; the increase in the share of net foreign exchange assets was mainly due to currency revaluations, on account of Rupee depreciation.

5.15 Similar trends were evident in the sources of broad money as far as the share of bank credit to the government and foreign exchange assets of the banking system were concerned (Chart V.3). Bank credit to the commercial sector, however, remained the predominant component of broad money right through the period, with its share increasing significantly after 2003-04.

*Trends in Call Rate, GDP Growth and Inflation*

5.16 Post-reforms, with the market determination of interest rates, the call rate has generally moved in line with the monetary policy rate, responding to the



liquidity and inflation conditions (Chart V.4). After the institution of LAF in 2000, the volatility in the call rate declined significantly. The inflation rate declined significantly after the mid-1990s, even though there was a sharp increase after 2010-11, reflecting a combination of different factors on the supply and demand sides during the year. The real GDP growth rate picked up consequent upon the initiation of structural reforms in 1991-92, but slackened in the late 1990s mainly as the industrial reform process lost momentum. The growth rate picked up again and more substantially after 2003-04 supported by fiscal consolidation, moderate inflation, substantial capital inflows and high rates of savings and investment. The growth rate slipped in 2008-09 in the aftermath of the global financial crisis but staged a quick recovery in the following two years, supported by co-ordinated fiscal-monetary policy actions. The worsening of global economic conditions and the persistence of structural impediments adversely impacted the growth process during 2011-12.

5.17 Having reviewed the broad trends in fiscal-monetary interactions since the initiation of structural reforms in the early 1990s, the theoretical constructs underlying such interactions as also

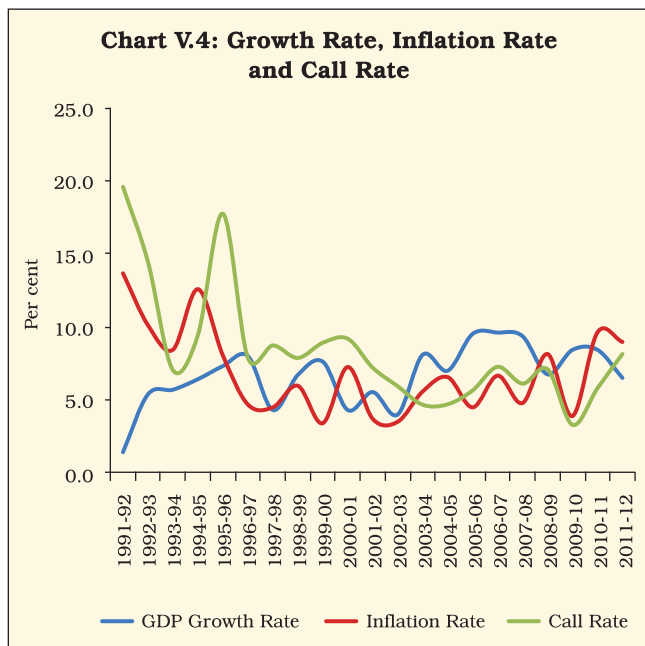
some of the empirical literature on the subject are briefly discussed next.

*Channels of Interaction between Fiscal and Monetary Policies – An Eclectic Review of Theoretical and Empirical Issues*

5.18 Both fiscal and monetary policies are instruments of macroeconomic stabilisation. Co-ordination between the two policies is necessary to judiciously harmonise the attainment of the objectives of growth, price stability and financial stability, which are often complicated by the differential weights assigned to these objectives by the fiscal and monetary authorities and by the uncertainty about evolving macroeconomic and financial conditions. For example, an increase in aggregate demand brought about through an (excessively) expansionary fiscal policy to stimulate growth could shunt the inflation rate over the comfort zone of the monetary authority. Similarly, a tight monetary policy could translate into higher market interest rates and an increase in the outgo of interest payments and the budget deficit.

5.19 The interaction between the two policies could also be analysed from the financing side of the budget deficit, *i.e.*, broadly in terms of bonds and money. Bond financing of budget deficits could lead to a general pressure on interest rates that could crowd out private sector investment and, beyond a point, adversely impact growth prospects. The crowding-out effect plays out only in the case of non-Ricardian behaviour on the part of the private entities, *i.e.*, they do not perceive that, for instance, an increase in budget deficit today implies an increase in future tax burden, and accordingly do not increase their savings to the same extent as the decline in public savings. On the flip side, to the extent that (large) budget deficits are (disproportionately) financed through money creation, these inevitably interfere with, if not compromise, the avowed monetary policy objectives of price stability.

5.20 At the same time, as the Indian experience with the recent global crisis showed, the substantial increase in the budget deficit, engendered by



fiscal stimulus measures, was supported by an accommodative monetary policy stance so as to preclude financial market instability and more generally to sustain the process of recovery, even as the inflation rate remained subdued initially. Another channel through which fiscal deficits could impinge on monetary policy is *via* their impact on the current account deficit (through higher imports) and country risk premium and, in turn, on the exchange rate (Mohanty and Scatigna, 2003).

5.21 From a theoretical perspective, Sargent and Wallace's 'Unpleasant Monetarist Arithmetic' (1981) showed that whenever the real rate of interest exceeded the growth rate of the economy, any attempt to curtail monetary financing of the budget deficit by the monetary authorities in the short run (from the viewpoint of maintaining price stability) would eventually result in even more monetary financing and higher inflation in the future. This is because a reduction in monetary financing in the short run would imply more bond financing, which would push up interest rates. This, in turn, would lead to higher interest payments and, thus, larger budget deficits over time. Given the perceived limits to the government's ability to service a progressively higher order of bond obligations, monetary financing would be inevitable and large eventually, which would have inflationary consequences.

5.22 On the other hand, even if the central bank does not acquiesce to monetary financing of deficit, the fiscal theory of price level (FTPL) maintains that inflation control can still be compromised (for example, Cochrane, 1999; Woodford, 1995). This is because, according to the FTPL, the government's inter-temporal budget constraint is an equilibrium condition and the only variable that can adjust to equate the nominal value of the extant stock of bonds to the present value of exogenously given primary surpluses is the price level. It is, thus, fiscal policy that determines the price level. The FTPL has, however, been criticised on theoretical grounds and empirical support has also been mixed (Zoli, 2005).

5.23 From an empirical standpoint, a number of studies have analysed the interaction between fiscal

and monetary policies in a VAR framework. For instance, Muscatelli *et al.* (2002), showed that the response of monetary policy to a fiscal policy shock was not uniform in a set of select OECD countries: while in the UK and the US such a shock led to a significant decline in the interest rate within the first quarter (signifying accommodative monetary policy), there was no clear monetary reaction in Germany and France. Raj *et al.* (2011) assessed fiscal-monetary interaction in India using quarterly data over the period 2000 to 2010 and found, *inter-alia*, that while monetary policy reacted to output and inflation shocks in a counter-cyclical manner, fiscal policy reaction was primarily pro-cyclical. The positive impact of expansionary fiscal policy on output was found to be temporary, with the impact turning significantly negative over the medium to long term. A fiscal policy shock (*i.e.* an increase in fiscal deficit) led to a tightening of the monetary policy stance, which peaked after three quarters and reverted to equilibrium after seven quarters. A monetary policy shock (*i.e.* an increase in the call rate) similarly led to an initial increase in the fiscal deficit, with the effect petering out after the fourth quarter.

5.24 The more traditional approach towards empirical assessment of fiscal-monetary interaction is the monetary policy reaction function. As alluded to earlier, Zoli (2005) empirically ascertained for a set of seven emerging market countries whether fiscal stance at all impacts monetary policy decisions or, more technically, whether fiscal variables enter significantly in the reaction function of the central bank. In a linear-type (Taylor, 1993) monetary policy reaction function – with the central bank's policy rate as the dependent variable and the output gap and inflation rate as the independent variables – an additional variable, *viz.*, real primary balance was included, as a measure of fiscal stance. The rationale for the inclusion was based on previous empirical work conducted by Melitz (1997, 2002) and Wyplosz (1999) for industrialised countries.

5.25 Zoli (2005), however, found that in all the seven countries monetary policy did not respond to

changes in primary balances or, in other words, fiscal policy did not impinge on monetary policy. Aisen and Hauner (2008) in their study of a set of 60 advanced and emerging market countries over the period 1970 to 2006 found that in a GMM framework, budget deficits tend to have a positive and statistically significant impact on interest rates. The impact was, however, conditional on whether the budget deficits were high, how it was funded (largely domestically financed or whether it interacted with high domestic debt), and whether financial openness was low, interest rates were liberalised and financial depth was low. In essence, the exercise brought to the fore the non-linear impact of budget deficit on interest rates. More recently, Tillmann (2011) found that US data over the period 1982 to 2004 supported a non-linear Taylor rule. Such non-linearity did not arise from the non-linearity of the Phillips curve or non-quadratic central bank preferences but from the monetary policy approach to the uncertainty about the slope of the (linear) Phillips curve. In effect, with a view to avoiding “very bad” outcomes, the monetary policy response to inflation becomes stronger the higher the inflation rate and the larger the output gap.

*Impact of Fiscal Policy on Monetary Policy Stance in India – An Empirical Assessment*

5.26 Against this backdrop, the impact of fiscal policy on monetary policy in India over the period of reforms in India is assessed using Zoli’s (2005) approach, which estimates the following:

$$INT_t = \alpha + \beta INT_{t-1} + \gamma INFL_{t-1} + \delta OUTPUTGAP_{t-1} + \theta \Delta RPB_{t-1} + \varepsilon_t$$

where INT is the monetary policy intervention rate, INFL is the annual inflation rate, OUTPUTGAP is the difference between actual output and potential output,  $\Delta RPB$  is the change in real primary balance and  $\varepsilon$  is the error term. For inflation-targeting countries, the term “INFL” in the equation was replaced with the term “expected inflation less the inflation target”. Real primary balances were incorporated in the above equation in difference form because the series was found to be non-stationary in all the countries in the sample. Zoli conceded that even though such a specification of the monetary

policy reaction function was not obtained from theoretical constructs, it facilitated an assessment of the direct impact of fiscal policy on monetary policy that transcends the indirect impact *via* aggregate demand pressure (output gap) and inflation.

5.27 The above approach was adopted for India with some modifications, using annual data for the period 1988-89 to 2011-12. Even though broad-based structural reforms were initiated in 1991-92, money market reforms started somewhat earlier with the setting up of the Discount and Finance House of India (DFHI) in 1988 followed by the deregulation of call money rates in 1989. This period also broadly covers two monetary policy frameworks: monetary targeting which started in 1985-86 and the multiple indicators approach since 1998-99. The weighted average call rate (CALLRATE), which is the operating target of monetary policy, was taken as a proxy for the monetary policy rate. Following the introduction of the full-fledged LAF in June 2000, the weighted average call rate has generally hovered around the effective policy rate, *i.e.*, the repo rate in the case of banking system liquidity deficit and the reverse repo rate in the case of banking system liquidity surplus. To the extent that changes in banking system liquidity also reflect monetary policy actions through direct instruments such as the CRR or through indirect instruments such as OMOs, LAF and the MSS, the call rate can be reasonably expected to reflect the overall monetary policy stance right through the period (Singh 2010).

5.28 The output gap (OUTPUTGAP) variable in the equation was taken as the de-trended or the cyclical component of the log of real GDP using HP filter. The equation also included an ‘inflation gap’ variable instead of just the inflation rate, as proposed by Zoli for non-inflation targeting countries. Even though India is not an inflation-targeting country, price stability (along with growth) has remained a key objective of monetary policy and the Reserve Bank provides indicative projections of inflation and growth as a guide to such policy; these indicative projections, set out at the beginning of the year (usually in April), are reassessed periodically in the light of evolving developments. Moreover,



the emphasis between price stability and growth objectives varies from year-to-year, depending upon the evolving macroeconomic situation. Keeping this in view, the inflation gap (INFLGAP) was defined as the deviation of the year-on-year WPI inflation rate from its (HP-filter-based) trend rate and was incorporated in the equation.

5.29 In line with typical Taylor-rule specifications, the contemporaneous output gap and inflation gap were incorporated in the equation. The real primary balance was replaced by the ratio of the Centre's Gross Fiscal Deficit to GDP (GFDR) (lagged one period), not only to get a sense of the impact of the overall net borrowing requirements on the call rate but also because in India annual targets in the Budget and the FRBM statements are specified in terms of the fiscal deficit-GDP ratio (apart from the revenue deficit/effective revenue deficit). Although this specification is not a typical policy reaction function, as in vogue in many advanced countries, it aims to capture some of the dynamics of the multiple indicators approach<sup>1</sup> to monetary policy formulation that was adopted in India in the late 1990s.

5.30 All the variables were found to be stationary as corroborated by both the ADF and KPSS tests. Granger Causality F-tests showed that over the period 1988-89 to 2011-12 the fiscal deficit to GDP ratio uni-directionally caused a change in the call rate (at one lag, lag length being decided on the basis of Schwarz information criterion) (Table 5.1). This showed that past values of the fiscal deficit-GDP ratio have tended to influence the call rate (or the monetary policy rate).

**Table 5.1: Granger Causality Test**

Null Hypothesis:	F-Statistic	Prob.
GFDR does not Granger Cause CALLRATE	3.90	0.06
CALLRATE does not Granger Cause GFDR	0.57	0.46

1 As a part of the multiple indicators approach, information content from a host of quantity variables such as money, credit, output, trade, capital flows and fiscal position, as well as from rate variables such as rates of return in different markets, inflation rate and exchange rate, are analyzed for drawing monetary policy perspectives.

5.31 Next, the call rate was regressed on its lag, the output gap, the inflation gap and the lagged GFD-GDP ratio. Two dummy variables were included to take cognisance of year-specific outliers; DUM1 for the year 1995-96 took into account the sharp increase in the call rate following the temporarily stressed domestic liquidity conditions as a result of the RBI's operations in the foreign exchange market to stem volatility; and DUM2 captured the sizeable easing of domestic liquidity conditions during the years 1996-97 (that reflected the base effect of the previous year's forex market operations) and 2008-09 to 2011-12 (that largely resulted from the policy responses to the global financial crisis as well as sovereign debt crisis). The results of the estimation are set out below:

$$\begin{aligned} \text{CALLRATE} = & 0.58 + 0.50 \text{ CALLRATE}(-1) + 0.88 \text{ INFLGAP} + 0.72 \text{ OUTPUTGAP} \\ & (0.79) (0.00) \qquad\qquad\qquad (0.00) \qquad\qquad\qquad (0.03) \\ & + 0.72 \text{ GFDR}(-1) + 7.89 \text{ DUM1} - 2.37 \text{ DUM2} \\ & (0.07) \qquad\qquad\qquad (0.00) \qquad\qquad\qquad (0.06) \end{aligned}$$

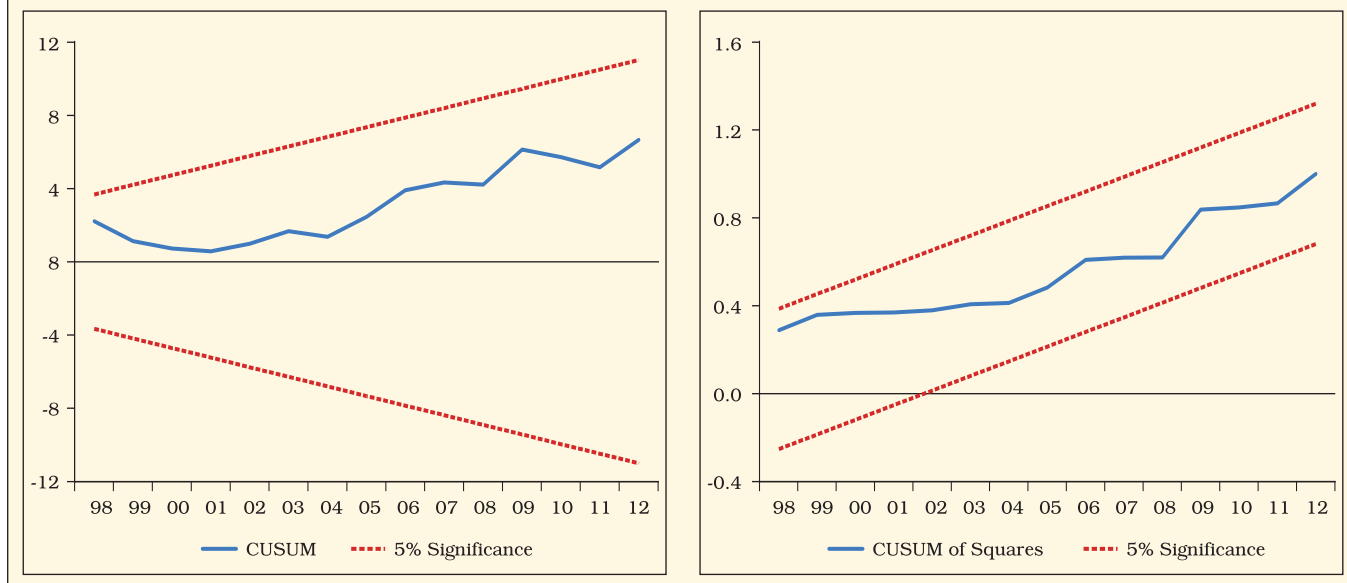
Adj R-Square: 0.75  
 Prob (F-statistic): 0.00  
 LM-stat: 0.96

Note: Figures in parentheses are p-values

5.32 The Adjusted R-square value indicates good explanatory power of the model, especially in the emerging market context. All the coefficients of the independent variables, viz., lagged call rate, inflation gap, output gap and fiscal deficit-GDP ratio were found to be statistically significant, individually as well as jointly, and had the expected signs. Statistical tests (CUSUM and CUSUM squares) confirmed the stability of the parameters in the estimated equation, as depicted in Chart V.5.

5.33 In the estimated equation, the contemporaneous coefficients of output gap and inflation gap were both positive, and the magnitude of the latter was greater than that of the former indicating greater sensitivities of monetary policy to inflation outcomes. The estimated coefficient also indicates that, on average, a one percentage point

Chart V.5: Parameter Stability Tests



increase in the GFD-GDP ratio leads to a direct increase of 0.72 percentage point in the call rate, with a one-period lag, in addition to the indirect impact of the increase in the fiscal deficit on the call rate that may be felt *via* increases in the inflation rate and the output gap. The positive relation between the call rate and the GFD-GDP ratio is along expected lines since a higher fiscal deficit would tend to put pressure on the level of lendable resources, which in turn, would impact money market liquidity. In this context, it may be pointed out that since the share of capital expenditure in budgetary expenditures has generally declined over the years, the impact of the fiscal deficit on the potential output growth rate may have been somewhat muted, amplifying the output gap. The negative coefficient of DUM2 underlines the significance of liquidity enhancing measures by the Reserve Bank generally in the aftermath of the global financial as well as sovereign debt crises.

5.34 The results (*i.e.* the size of the coefficients of the inflation gap and output gap) need to be viewed in light of the fact that the specification is not that of a typical monetary policy reaction function as it is augmented by the inclusion of a fiscal variable. Moreover, as the equation is estimated using ordinary least squares, it may be viewed as an approximation

in the light of more advanced estimation techniques being used in the literature. Notwithstanding these issues, from the monetary policy perspective, this exercise suggests that the fiscal context matters for the conduct of monetary policy in economies like India.

### III. Institutional Arrangements Relating to Debt and Cash Management – Quo Vadis?

5.35 The Reserve Bank is the debt and cash manager of the central government by statute (RBI Act). The Reserve Bank also manages the debt and cash of the state governments by mutual agreement, as provided in the same Act. The issue of separating monetary and debt management and, more specifically, of taking the debt management function out of the Reserve Bank has been intensively debated in official forums at least since the mid-1990s, with forceful arguments from both sides (Box V.1). The recent global financial crisis led to a re-think to the debate.

#### *Pre-Global Crisis Philosophy*

5.36 The treatment of public debt management as a separate macroeconomic policy with its own objectives and instruments and not merely as an

### Box V.1

## Evolution of Views on Institutional Arrangements for the Separation of Debt and Monetary Management in India

The policy stance on the issue of separation of debt and monetary management has evolved over the years, in tandem with institutional, macroeconomic and financial developments. In particular, the advent of wide-ranging structural reforms in 1991-92, fiscal consolidation and the transition from an administered to a market-oriented price discovery mechanism for government securities were important initiatives that impacted the interaction of monetary and debt management.

The Committee on Capital Account Convertibility, 1996 (Chairman: Shri S.S. Tarapore) was perhaps the first official committee set up in India in the post-reforms period to specifically recommend the separation of monetary and debt management and the setting up of an Office of Public Debt by the government.

In March 1997, automatic monetisation of the central government's budget deficit through the issue of *ad hoc* treasury bills was abolished and a system of Ways and Means Advances was put in place. This provided greater headroom to monetary policy.

An internal Working Group of the RBI, which submitted its Report in December 1997, also suggested that the two functions be separated and that debt management should be taken over by an independent corporation as a wholly-owned subsidiary of the RBI under the Companies Act.

In June 2000, a full-fledged Liquidity Adjustment Facility put in place by the RBI emerged as the principal operating instrument of monetary policy. This provided greater flexibility in operating monetary policy.

The RBI Annual Report 2000-01 stated, "The separation of the functions of debt management and monetary management is regarded as a desirable medium-term objective, conditional upon development of the government securities market, durable fiscal correction and an enabling legislative framework...The Reserve Bank has proposed amendments to the Reserve Bank of India Act, 1934 which would take away the mandatory nature of management of public debt by the Reserve Bank and vest the discretion with the central government to undertake the management of the public debt either by itself or to assign it to some other independent body, if it so desires." (Paragraph 11.25).

The RBI's Annual Policy Statement 2001-02 mentioned "... while no view was taken on the details of implementation, a decision to separate the two functions was considered desirable in principle.....[O]nce legislative actions with regard to Fiscal Responsibility Bill and amendments with regard to the Reserve Bank of India Act are accomplished, it is proposed to take up with the government the feasibility of and further steps for separation of government debt management function from RBI." (Paragraph 90)

An internal Expert Group of the Ministry of Finance, 2001 (Chairman: Shri A. Virmani) recommended a two-stage process to separate the two functions, viz., setting up a centralised middle office in the Ministry of Finance to develop a comprehensive risk management framework and then establishing an autonomous Public Debt Office.

The Fiscal Responsibility and Budget Management (FRBM) Act that came into force in July 2004 provided for a mandated and time-bound reduction in the fiscal deficit and revenue deficit of the central government. It also provided for prohibiting participation of the Reserve Bank in the primary market for government securities with effect from April 2006. This, combined with the institution of LAF in 2000 and the auction-based mechanism for selling government securities in the primary market put in place in the early 1990s, considerably reduced the conflict of interest between debt management and monetary management, even though both remained under the purview of the RBI.

In the context of the FRBM Act, the Annual Policy Statement of the RBI for the year 2005-06 indicated a re-orientation of government debt management operations while simultaneously strengthening monetary operations within the Reserve Bank in order to move towards a functional separation of the debt management and monetary operations. Towards this objective, the Financial Markets Department (FMD) was constituted in the RBI on July 6, 2005 to provide an integrated market interface for the Reserve Bank and to bring about integration in the Bank's conduct of monetary operations. The FMD is functionally separate from the Internal Debt Management Department of the RBI.

The Committee on Fuller Capital Account Convertibility July 2006 (Chairman: Shri S.S. Tarapore) recommended the setting up of an Office of Public Debt to operate independently outside the RBI for effective functional separation, enabling more efficient debt management as also monetary management.

The Union Budget 2007-08 announced, "World over, debt management is distinct from monetary management. The establishment of a Debt Management Office (DMO) in the government has been advocated for quite some time. The fiscal consolidation achieved so far has encouraged us to take the first step. Accordingly, I propose to set up an autonomous DMO and, in the first phase, a Middle Office will be set up to facilitate the transition to a full-fledged DMO." (Budget Speech, Paragraph 106).

Subsequently, the Ministry of Finance, Government of India, set up an Internal Working Group on Debt Management, 2008 (Chairman: Dr. Jahangir Aziz) to analyse how best to establish a DMO. Highlighting internationally accepted best practices

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(citing, *inter alia*, the guidelines on public debt management issued by the IMF and the World Bank in 2003) that debt management should be disaggregated from monetary policy and taken out of the realm of the central bank, the Working Group recommended the establishment of a statutory body (the National Treasury Management Agency) to perform debt and cash management of the central and state governments in India. The Working Group provided the following rationale for a separate debt management agency:

- Important gains would be achieved by consolidating the debt management function and the consequent unification of related information in one agency instead of it being dispersed across several departments, as is the case in several emerging market countries including India, that obfuscate lines of action and accountability.
- A conflict of interest becomes manifest if the central bank also manages government debt in that it could be tempted to keep interest rates relatively low to minimise the cost of debt, even in the face of inflationary pressures. A conflict of interest can also occur since the central bank, as the regulator and supervisor of the banking system, has an incentive to mandate that banks hold a large amount of government securities.
- A conflict of interest could arise if the central bank which owns/administers the operating system of the government securities market is also a participant in the market.

The Chairman of the Committee on Financial Sector Assessment (CFSA), 2009, Dr. Rakesh Mohan, concurred with the proposal to set up a Middle Office, which is akin to the role of the DMO in the US Treasury, but personally viewed that setting up an independent DMO and the decision about the complete separation of debt management from the Reserve Bank needs to be revisited on several grounds, such as:

- Even a combined (Centre and States) fiscal deficit of 6 per cent of GDP, as envisaged under Fiscal Responsibility Legislations, would be among the highest among the major economies and, combined with an overall debt-GDP ratio of over 80 per cent, would necessitate maintaining overall consistency between fiscal and monetary management in the future.
- A reduction in the SLR would be conditional upon further reduction in the combined fiscal deficit and, until then, monetary management, debt management and bank regulation would continue to remain interlinked.
- In the context of volatile capital flows, the forex market operations of the RBI would be necessary on a fairly continuous basis. The concomitant sterilization of these operations through the MSS and their harmonisation with the market borrowing programme of the government would be difficult if the debt management operations are separated out of the RBI.

- Since 70 per cent of the banking assets relate to public sector banks, setting up a DMO in the Ministry of Finance may result in a conflict between the government's role as a debt manager and its status as the owner of a substantial portion of the banking sector.
- There is a need to ensure that further deepening of the government securities market (which is, in turn, necessary for debt management) is undertaken along with the maintenance of monetary and financial stability.
- There is a need to harmonise the market borrowing programmes of the central and state governments. Moreover, it may not be appropriate for a central government authority to also undertake state government debt management.
- While setting up a DMO in the Ministry of Finance would facilitate an integrated approach to overall (external and internal) debt management policy, the Reserve Bank could continue to conduct all market borrowing operations as the agent of the government, in a manner very similar to the functions of the Federal Reserve Bank of New York on behalf of the US Treasury.
- It has always been difficult to set up new government authorities. Due to government rules on service, these institutions have usually been staffed by officers on deputation from different government departments, which makes it difficult to develop appropriate expertise.
- The RBI is able to handle debt management operations because of the large size of its staff and expertise developed in managing regulation and supervision of banks, money market operations and debt market operations. The staff of the DMO will need to be conversant with financial markets and also be able to interact continuously with market players. Moreover, technical infrastructure for, *inter alia*, issuance and trading, would have to be set up, which would involve avoidable expense.

The Financial Sector Legislative Reforms Commission (FSLRC), which was constituted by the Government of India in March 2011 to review and recast the legal and institutional structures of the Indian financial sector in line with the contemporary requirements of the sector, in its Approach Paper of October 2012, observed that public debt management requires specialized investment banking capability. The FSLRC endorsed the view of several expert committees that a professional debt management agency should undertake this function because (i) unifying information on onshore and offshore liabilities of the government that is, at present, fragmented across the RBI and Ministry of Finance, would lead to more efficient debt management; and (ii) there is a conflict of objectives of the RBI that is required to manage public debt and maintain price stability. FSLRC also proposed to integrate the tasks of cash management and obtain a comprehensive picture of contingent liabilities of the government into a new debt management law.

extension of monetary and fiscal policy generally began in the 1980s, mainly because the trade-offs between the three policies began to be increasingly felt (Togo, 2007). While this change in thinking was triggered by the pernicious effects of fiscal activism of the previous decades on inflation and fiscal sustainability, it was facilitated by the development and liberalisation of financial markets (Hoogduin *et al.*, 2010).

5.37 The classic conflict between monetary policy and debt management policy related to the decision on setting the policy interest rate. Similarly, the conflict between fiscal policy and debt management policy related to the choice of keeping debt-servicing costs low (and hence meeting deficit targets) over the short term (which generally fell within the electoral cycle) or over the medium/long term. Separation of the policies was expected to avoid such conflicts and improve policy credibility. Accordingly, countries such as New Zealand, Belgium, France, Ireland, Portugal, Sweden, Denmark and the United Kingdom decided to decentralise debt management to varying extents.

5.38 It was also recognised that the efficacy of policy decentralisation and its credibility depended on (i) the Tinbergen rule, *i.e.*, the availability of as many independent policy instruments as there were objectives, a requirement that is difficult to meet in practice; and (ii) the consistency of the overall policy mix. Policy co-ordination, thus, became necessary to get the ‘desired’ policy mix. Fiscal Responsibility Legislations and the Stability and Growth Pact in the euro area that provided for deficit and/or debt ceilings are examples of such co-ordination mechanisms.

5.39 This kind of separation of policies was also considered desirable by the IMF and World Bank, as reflected in the guidelines on public debt management issued by them in 2003 and, in particular, “...where the level of financial development allows, there should be a separation of debt management and monetary policy objectives and accountabilities.” (Guideline 1.3). The same Guideline also emphasised, “Debt managers, fiscal policy advisors, and central bankers should

share an understanding of the objectives of debt management, fiscal, and monetary policies given the interdependencies between their different policy instruments” and “debt management, fiscal, and monetary authorities should share information on the government’s current and future liquidity needs.”

5.40 The recommended separation of the two functions conditional upon the level of financial development is important. As Blommenstein and Turner (2011) explain, when monetary policy and debt management frameworks become more sophisticated, the central bank is able to influence the spectrum of interest rates by acting only in the very short end of the inter-bank market. With the development of the local capital market, the central bank’s role in developing the government securities market becomes smaller. With the principal objective of public debt management being to minimise the risk-adjusted cost of long-term market-based funding, the separation of the two functions then becomes desirable as well as pragmatic.

#### ***Post-Crisis Experience: What has changed?***

5.41 The perception about government debt management changed in the context of the global financial crisis. A Study Group (Chairman: Mr. Paul Fisher) in May 2011, commissioned by the Committee on the Global Financial System, observed that the strength of the interactions between sovereign debt management, monetary policy and financial stability have increased in the aftermath of the global financial crisis on account of (i) a sharp increase in government deficit and debt, reflecting fiscal stimulus programmes to support economic recovery. In addition, the average maturity of outstanding debt has declined in a number of advanced economies; (ii) the use of unconventional monetary policy, mainly in the form of large-scale purchases of government securities of varying residual maturities by central bank, thereby blurring the zones of operation of the monetary authority and the debt manager; (iii) the imposition of new prudential liquidity requirements that have increased the demand by banks and financial

institutions for government securities, even as the riskiness of government securities has increased in some countries; and (iv) an increase in the foreign ownership of government debt, facilitated by the general process of liberalisation and globalisation.

5.42 As a consequence, decisions regarding maturity, indexation and issuances as part of sovereign debt management (SDM), which earlier had limited impact on other policy areas, have begun to significantly affect monetary policy and financial stability.

#### *Impact of Debt Management on Financial Stability*

5.43 An increase in the share of short-term debt (which cannot be easily inflated away, unlike long-term debt) leads to an increase in refinancing and rollover risks, particularly when investors (mostly banks) hold only a small portion of government bonds in their portfolios to maturity. This, in turn, sets off systemic and financial stability risks. The problems get amplified when the level of debt itself evokes fiscal sustainability concerns. Foreign ownership of government debt results in rapid transmission of overseas shocks to the domestic G-Sec market which can result in mark-to-market (MTM) losses to the investors. Issuances of sovereign bonds in foreign currencies expose governments to currency mismatches between their domestic currency denominated assets and partly foreign currency denominated liabilities that have financial stability implications.

#### *Impact of Debt Management on Monetary Policy*

5.44 An increase in short-term debt issuance results in more intensive participation by the government in the money market, which is the operating area for monetary policy. This can interfere with the setting of policy (short-term) interest rates. Moreover, since central banks purchased government bonds as part of their monetary policy response to the financial crisis, the impact of debt management on monetary policy was also felt at the longer end of the market. This apart, a high level of debt that triggers sovereign risk concerns (as in

the case of some euro area countries) can dilute the eligibility of government bonds as collateral in monetary policy operations and, thus, impede monetary policy transmission.

5.45 In this context, the Fisher Study Group (2011) observed that the separation of sovereign debt management (SDM) from other policy functions is generally underscored in economies with deep financial markets. This is in contrast with the practice in developing economies, where the central bank may issue securities for sterilisation purposes or may manage the government's debt and cash balances, wherein policy co-ordination or debt management by the central bank has generally been the norm. The Study Group did not detect substantive impediments engendered by the extant arrangements for operational independence of SDM and monetary policy functions. Altering such arrangements, in the opinion of the Study Group would be prone to risk. Rather, the Group felt that in the present *milieu*, or where financial systems are still developing, it would be useful if debt managers took a broad view of cost and risk and central banks kept abreast of SDM activities.

5.46 Recent experience has corroborated that medium-term strategic outcomes for the maturity structure and risk characteristics of outstanding debt matter for financial stability. In this context, the Study Group observed, "This underscores the importance of close communication among the relevant agencies, yet with each agency maintaining independence and accountability for its respective role. Such an approach is consistent with Principle 6 from the Stockholm Principles: Guiding principles for managing sovereign risk and high levels of public debt, which were recently promulgated by debt managers and central bankers from 33 advanced and emerging market economies."

5.47 It is evident that the Fisher Study Group (2011) and the Stockholm Principles (2010) have stopped short of recommending the separation of debt management out of the central bank. Even the guidelines on public debt management issued by the IMF-World Bank in 2003 (*i.e.*, in the pre-crisis period)

had recommended this separation conditional on the level of financial development in the economy. The difference between the two sets of views is the recognition now of the closer inter-linkages between government debt management, monetary policy and financial stability and the concomitant enhanced emphasis on close communication between debt managers and central banks, even while each agency maintains its independence and accountability.

5.48 A similar case is made by Blommenstein and Turner (2011). They argue that while policy responses to the global financial crisis have led to some blurring of the lines between public debt management and monetary policy and that the conventional microeconomic approach to debt management is likely to conflict with macroeconomic considerations, they caution against drawing any implications for changing the extant responsibilities of central bankers, debt managers and fiscal authorities, which have the (proven) advantage of assigning clear accountabilities and precluding myopic policies. They indicate that any contemplated change in the existing arrangements would, however, benefit from a fuller understanding of and consensus on the macroeconomics of government debt management and the recognition about political or institutional constraints as well as appropriate governance mechanisms.

5.49 A different case is, however, made by Goodhart (2010), who observes, “but now many countries face the prospect of sharply rising debt levels, to a point that may, once more, test the confidence of market participants. Debt management is again becoming a critical element in the overall conduct of policy, as events in Greece have evidenced. Debt management can no longer be viewed as a routine function which can be delegated to a separate, independent body. Instead, such management lies at the cross-roads between monetary policies (both inflation targets and systemic stability) and fiscal policy. When markets get difficult, and government bond markets are likely to do so, the need is to combine an overall fiscal strategy with high-calibre market tactics. The latter

is what Central Banks have as their metier. During the coming epoch of Central Banking, they should be encouraged to revert to their role of managing the National Debt.”

#### *The Indian Case*

5.50 Governor Subbarao (May 2011) has argued that while the progress towards fiscal consolidation and institutional developments in the pre-crisis years indicated prospective efficiency gains from separating out debt management from the central bank to a DMO, in the post-crisis scenario, there is a need to reconsider the content and pace of this process. In this context, it is worth reiterating that the RBI’s record of public debt management has been impressive. As Governor Subbarao stated, “With the average maturity of government debt at around 10 years, India has one of the longest maturity profiles in the world, which proved to be a source of major strength and comfort during the crisis.”

5.51 The Reserve Bank’s deft handling of debt management operations during 2008-09 and 2009-10, when the Indian economy faced the indirect effects of the global financial crisis, has vindicated its past record. In fact, by synchronising liquidity management operations with those of exchange rate management and non-disruptive internal debt management operations, the RBI was able to ensure that appropriate liquidity was maintained in the system so that all legitimate requirements of credit were met, particularly for productive purposes, consistent with the objective of price and financial stability. The liquidity injection efforts of the Reserve Bank, despite being large, could be achieved without compromising either on the eligible counterparties or on the asset quality in the Reserve Bank’s balance sheet, in contrast to many other central banks.

5.52 Liquidity expansion achieved through unwinding (redemption, buy-back and de-sequestration) of MSS and reduction in reserve requirements (CRR) ensured that the Reserve Bank’s balance sheet did not expand, again unlike in several other central banks. In addition, auction-based open market purchases of government securities

were launched in February 2009 for more effective liquidity management and the smooth conduct of the government market borrowing programme. This synchronisation of liquidity management, exchange rate management and internal debt management, particularly during periods of stress, was immensely facilitated because these operations were housed within the same organisation, even as monetary and debt management remained functionally separate.

5.53 More generally, given the magnitude of the government borrowing programme in India, debt management becomes part of overall macroeconomic management, rather than an exercise in resource mobilisation. Consequently, central banks, which have the overall perception, necessary expertise and instruments, are better placed to conduct debt management rather than a DMO with a limited mandate. If, on the other hand, debt management were to be shifted out of the central bank, conflict resolution would become even more difficult as the central bank would be expected to manage market volatility and market expectations emanating from the government borrowing programme. Finally, as argued by the Chairman of the CFSA, the need to harmonise the market borrowing programme of the state governments – given its magnitude – with that of the Centre and the political economy considerations of the Indian federal structure, weakens the case for separating out the debt management function from the central bank.

5.54 Going forward, therefore, there is perhaps a need to reconsider the proposed separation of debt management out of the Reserve Bank at this stage. Instead, the expertise at the Middle Office that has already been set up in the Ministry of Finance may be suitably enhanced to deal with the post-crisis challenges that have been highlighted by international experience and the research literature. There is also a need for close co-operation between the RBI and the Middle Office in matters relating to debt management.

### **Cash Management**

5.55 In recent years, the importance of sound cash management, *viz.*, managing the timing

and volume of the government's short-term cash inflows and outflows in a cost-effective manner that minimises various risks, such as operational, credit and market risks, is increasingly being recognised. Governments have been, accordingly, developing a more sophisticated cash management function, and, particularly in advanced economies, the trend has been towards transiting from relatively passive to more active cash management. Active cash management aims at minimising idle cash balances in the Treasury Single Account (TSA) maintained with the central bank and maximising returns on excess balances in the main treasury operational account held at the central bank. Active cash management involves financial market intervention by the government cash manager (which could also be the central bank) with the aim of smoothing the daily mismatches in net cash flows and adding flexibility to the ways in which the timing of government cash inflows and outflows can be matched. Central government cash management operations in India too have undergone substantial reforms since the mid-1990s (Box V.2).

5.56 The Government of India's Internal Working Group on Debt Management, 2008 (Chairman: Dr. Jahangir Aziz) underscored the close relationship between cash management and monetary policy given that large inflows and outflows of cash to/from government accounts can have a significant impact on the money market. Further, treasury bills, which are the usual instrument for cash management, were observed to be a potential source of (i) additional volatility in short-term interest rates and (ii) interference with the signalling impact of monetary policy. The Working Group also observed that government cash management in India was largely passive due to "a lack of end-day balance management, presence of surplus funds in the form of idle balances, and delay in the remit of cash balance information to the Budget Division."

5.57 The policy conflict and the passive nature of cash management were stated to make a case for moving government cash management to the National Treasury Management Agency (NTMA). International experience, however, revealed that



### Box V.2 Central Government Cash Management in India

The existing cash management operations of the government are being undertaken through a two-tier system, with commercial banks acting as the first tier and the Reserve Bank [Central Accounts Section (CAS), Nagpur] forming the second tier of the system. The arrangement works through a system of accredited commercial banks (accredited by Comptroller and Auditor General of Accounts) with which different departments/ministries of the Government of India maintain their accounts. All receipts of the department/ministry are credited to the account maintained by the accredited bank and the concerned bank, in turn, is required to transfer them to the Treasury Single Account (TSA) of the Government of India maintained at CAS, Nagpur. Cash receipts are credited the same day, while receipts by cheque are credited based on T+1 in case of electronic mode, T+3 for locations (where the branch is within the clearing zone) and T+5 (for outside locations).

In terms of the Second Supplementary Agreement signed by the Reserve Bank and the Government of India on March 6, 1997, automatic monetisation of the government's deficit was discontinued and replaced by a scheme of Ways and Means Advances (WMA) and Overdraft (OD) to meet the short-term funding requirements of the government, effective April 1, 1997. If the cash balance of the government slides below the minimum cash balance that it is required to be maintained on any day (₹100 million on any day, except for every Friday, March 31 and June 30 when it is ₹1 billion), a short-term advance is automatically extended by the Reserve Bank to the government under its WMA facility, up to a pre-announced limit that is usually fixed on a half-yearly basis, to restore the cash balance to the minimum stipulated

level. The advances under the WMA system are extended at a mutually agreed rate of interest, currently at the Repo Rate, and have to be repaid in full by the government within three months. The Reserve Bank also provides an OD facility to the government under which additional advances, over and above the WMA limit, are made available at a higher interest rate, which is currently at the Repo Rate plus 2 percentage points. The government is not allowed to be in OD at a stretch for more than 10 consecutive working days.

Conversely, upto 2003-04, whenever the accounts of the government showed a surplus position, funds in excess of the minimum stipulated cash balances were automatically invested in central government dated securities made available by the Reserve Bank from its own portfolio. With the depletion of government securities from the Reserve Bank's portfolio due to its sterilisation operations, the Reserve Bank, in consultation with the government, placed a limit on the investment of the surplus balance of the Government of India. The ceiling is subject to the availability of securities in the Reserve Bank's portfolio after meeting the requirement of securities arising from the Bank's monetary policy operations under the Liquidity Adjustment Facility (LAF). The government surplus balance in excess of the limit is kept as an idle cash balance with the Reserve Bank at CAS, Nagpur and does not earn any interest.

Besides using treasury bills, the central government introduced cash management bills (CMBs) in 2010-11 for cash management purposes. CMBs are non-standard maturity instruments with all generic characteristics of Treasury Bills. A large volume of CMBs were issued during 2011-12.

government cash management usually migrates to a debt management office at a later stage than debt management, particularly because of the daily and dynamic nature of the function. In this context, observing that "cash management by the NTMA may be difficult in the short-term because it is operationally intensive, requires more staff and close co-ordination between different agencies and systems", the Working Group recommended that the present arrangements for government cash management in India may be maintained in the short-term and this function should gradually transit to the NTMA over the medium-term.

5.58 While government cash management would continue to be vested with the RBI for some time, further reforms are being contemplated. As the Working Group on Operating Procedure of Monetary Policy, 2011 (Chairman: Shri Deepak Mohanty) observed, "Given the impact that government cash balances have on liquidity management, there is a need for closer co-ordination between the RBI and the fiscal authority. In this context, the Group understands that the issue of auctioning of government cash balances is under consideration of the Government and the RBI. The Group, therefore, recommends that a scheme of auctioning of

**Box V.3****Conflicts between Government Cash Management and Liquidity Management**

Strains can emerge between cash management and liquidity management if the government invests its surplus cash balance in a market that is characterised by surplus liquidity and the central bank does not have adequate securities in its portfolio to mop up the excess liquidity or the central bank is forced to issue its own securities (e.g., central bank bills) with implications for the central bank balance sheet and the availability of surplus for transfer to the government. Effective co-ordination between cash management and monetary policy would involve the parking of the idle surplus cash balance with the central bank, which facilitates passive sterilisation of liquidity.

If the government is in cash deficit while the market is in a surplus mode and the central bank and the government use two different instruments (but of similar maturities) for liquidity management and cash management, respectively, market liquidity may get fragmented, thereby increasing the illiquidity premium. For example, before 2004, Croatia's Ministry of Finance and the central bank each issued their own bills. For similar maturity bills, the discount for T-bills was about 8 per cent, while the discount for Central Bank (CB) bills was only 1 per cent (Mu, 2006).

To avoid market fragmentation, a more appropriate option would be to use add-ons to treasury bill auctions, as the appropriate instrument for monetary policy implementation (World Bank and International Monetary Fund, 2001). Alternatively, or as complement, reissuance of existing government dated securities issued earlier under the market borrowing program can be considered if surplus liquidity is perceived to be of a more durable nature. To avoid confusion among the market participants, transparency needs to be ensured by announcing the amount of add-ons by the central bank for each treasury bill auction. Further, explicit and well-defined arrangements should be made to ensure that the proceeds from the sale of securities issued for the purpose of liquidity management should not be available for the financing of government expenditure but would remain impounded in the central bank. Whether there should be a cost-sharing agreement or whether the government will meet the expenditure out of its budgetary resources would need to be clearly specified. The exceptional circumstances under which government balances could be utilised to finance the fisc also need to be specified.

Many countries have issued government securities in the past in place of central bank securities for the purpose of liquidity management. These countries include Brazil (since 2002), India (under MSS since 2004; the exceptional circumstances under which sequestered government balances could be utilised to finance the fisc was specified

in 2008-09), Mexico, Croatia and Macedonia. In the UK, the DMO and the Bank of England have agreed to such an arrangement (although it has not been drawn on) (Williams, 2010). This process is reversed in Mozambique as the central bank issues central bank bills from its own balance sheet, but some of the stock can be hypothecated to the government. In New Zealand, the central bank can issue Treasury Bills at its own discretion (within a framework agreed on with the Treasury) with the proceeds directly passed to the government's account. Cross-country experiences indicate that these arrangements have not worked satisfactorily in some countries, as the government may not always be willing to issue additional Treasury Bills for monetary policy purposes.

An alternative option would be for the central bank and the Treasury to issue securities of different maturities. While the central bank can issue short-term papers to absorb liquidity, the Treasury may issue dated securities to fund its deficit. In that event, the government may not have any cash management tool to fund temporary liquidity mismatches. In China and Indonesia, for example, the money market is dominated by CB bills and the near absence of Treasury Bills (Williams, 2010). The option of issuing short- and long-term securities at low costs presumes the development of a wide, deep and liquid government securities market. Nonetheless, the conflict cannot be entirely avoided if the residual maturity of government securities declines to that of primary issuance of CB bills leading to market fragmentation.

The government's borrowing from the central bank can also conflict with the central bank's liquidity absorption operations when the market operates in a surplus mode. The government can modulate the auction size of Treasury Bills or issue cash management bills to fund its temporary cash mismatch. Hence, the policy option for the central bank would be to use the same instrument for liquidity management as used by the government for its cash management operations, share information with the government on its financing plan and, accordingly, modulate the amount of Treasury Bills to be issued for the purpose of liquidity absorption.

*Cash Management and Volatility of Government Cash Balances*

One indicator of the successful co-ordination between cash and liquidity management could be the ability of the DMO and the central bank to limit the volatility of the government balance at the central bank.

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In the UK, the outstanding daily balance varied significantly prior to the transfer in 2000 of the government's day-to-day sterling cash management from the Bank of England to the DMO, which is an Executive agency of the Treasury. After the transfer, borrowing from the Bank of England under the 'Ways and Means' facility was not used to facilitate day-to-day cash management and the balance was stable at around £13.4 billion until the facility was repaid during 2008 (Cross *et al.*, 2010). At the end of December 2008, at the height of the global financial crisis, HM Treasury borrowed temporarily from the Bank of England.

In the euro area, government deposits, aggregated at the euro area level, have been the most volatile autonomous factor, causing a large part of the errors in the forecast of liquidity needs. In 2006, the highest volatility of government deposits was experienced in Italy, followed by Spain, Ireland

and Greece. Among these countries, debt management in Italy and Spain are conducted departmentally within the Ministry of Finance (MoF). In Greece, debt management is conducted by an executive agency of the MoF, while Ireland has a statutory DMO. In Belgium, Germany, France, Luxembourg, the Netherlands, Austria, Portugal and Finland, the volatility of government deposits is low. Among these countries, while Austria, Germany and Portugal have statutory DMOs, in Belgium, France, Luxembourg, Netherlands and Finland, the DMOs are located in the MoF. While countries that established statutory DMOs (*viz.*, Austria, Ireland, Portugal, Sweden, Germany, Hungary, Slovakia and Ireland) are part of the European Union, not all euro area countries have statutory DMOs/independent agencies. Furthermore, the performance of cash management by the DMO appears to be independent of the institutional structure of debt management.

Government surplus cash balances at the discretion of the RBI be put in place in consultation with the Government to address a major source of volatility in frictional liquidity in the system.”

5.59 Even on the proposed auctioning of government cash balances, more intensive co-ordination between the government and the RBI may be necessary not only because surplus balances of the government with the Reserve Bank effectively act as a (very useful) instrument of liquidity management, but also because inter-institutional conflicts can potentially be exacerbated, as shown by international experience (Box V.3).

5.60 While the views from the government side seem to favour the retention of cash management with the RBI over the short-term, international experience and the imperatives of liquidity management in an emerging market country like India, underscore the need for close co-ordination between the RBI and the government on this matter, as in the case of debt management.

#### IV. Concluding Observations

5.61 Fiscal-monetary policy dynamics in India have changed significantly since the initiation of reforms. While the Agreement on Ways and Means

Advances (1997) has precluded the automatic monetisation of fiscal deficits and the adverse fallout of financial repression, the implementation of the FRBM Act has taken this forward by prohibiting the participation of the RBI in the primary market for government securities and, more generally, by placing a timeline on the reduction in fiscal imbalances. Similarly, the institution of a full-fledged LAF in June 2000 and the Market Stabilisation Scheme in April 2004 have added to the traditional arsenal of monetary policy instruments, such as Open Market Operations and the CRR, to deal with pressures emanating domestically (including the fiscal side) as also from inherently volatile capital flows. Following these institutional arrangements on both the fiscal and monetary sides, the general reduction in fiscal imbalances until 2007-08 was accompanied by robust growth, moderate inflation and lower order of volatility in the call money rate, even as capital inflows increased sharply. The challenges to fiscal-monetary co-ordination have, however, become more complex in the aftermath of the global financial crisis and the euro area crisis, as it is being felt that central banks may henceforth have to, at least partially, grapple with financial stability and sovereign debt sustainability apart from being exclusively responsible for price stability (Subbarao, 2012).

5.62 At the same time, with the liberalisation of financial markets, the use of a plethora of policy instruments (sometimes unconventional) and taking cognisance of the increasingly important role played by expectations, the interaction between macroeconomic, including monetary and fiscal variables has become complex. Nevertheless, the empirical exercise conducted in this chapter showed that the increase in fiscal deficit tends to put upward pressure on the monetary policy rate, though with some lag, even after controlling for the output gap and inflation gap. In this context, a durable and qualitatively superior correction in fiscal imbalances would provide more headroom to monetary policy to address growth and price stability objectives over the medium-term.

5.63 The thinking on institutional arrangements for the debt and cash management of the government has also been subject to fresh debate in the context

of the global financial crisis. With the intertwining of debt management not only with monetary policy but also with the maintenance of financial stability, as revealed by international experience, the move to separate government debt management from the central bank has been questioned in several forums. The lessons of the crisis clearly emphasise the need for closer co-ordination between debt/cash and monetary management. Moreover, the large volume of central government market borrowings would pose challenges to monetary management, especially if private investment demand picks up. Keeping in view the emerging economic situation and the lessons of the global financial crisis, the institutional arrangements for government debt management in India over the medium-term would require the continued involvement of the central bank coupled with more intensive co-ordination with the government.