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## **Governance of Fiscal Deficit in India**

Das, Rituparna

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**Paper for National Seminar on Reforms:  
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**Governance of Fiscal Deficit  
in India**

**Rituparna Das**

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"He is the best of kings all the sources of whose income are managed and supervised by contented and trustworthy men well acquainted with the means of increasing the finances."

*Krishna Dwaipayan Vyas*

## ABSTRACT

Indian legal frame compels the central bank of the country to increase money supply through financing fiscal deficits and thus fuels inflation, but, the liberalization of the economy has neutralized such inflationary potential. This chapter shows that the influence of such deficit financing on money stock became virtually nil during the post reform period, rather foreign exchange assets emerged as a powerful determinant of money stock.

**Keywords:** Net Foreign Exchange Assets, Vector Autoregression

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## **1. Introduction**

Fiscal governance is a part of economic governance and is guided in India by the articles from 265 to 293 of the Constitution, which has no provision to control monetization of fiscal deficit through central bank credit<sup>1</sup>. In the Indian context during the pre reform period the Reserve Bank of India (the Bank henceforth) detected close correspondence between the money stock and the central budget deficit (CBD), which was quite indicative of inflation potential. Over three decades 1960s,'70s and '80s CBD remained the single largest determinant of money stock. This relationship could be deemed as the result of making the Bank a statutory body subjected to legislative and executive governance instead of a Constitutional functionary like the Comptroller and Auditor General. It seems that sections 20 and 30 of the Reserve Bank of India Act 1934 (the RBIA henceforth) are responsible for deficit financing as well as the subordination of the Bank to the central government. On the one hand

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<sup>1</sup> Mitra et al (2000, p 351)

Section 20 of the RBIA empowers the central government to entrust the Bank with issue of new loans whereas on the other hand Section 30 thereof provides the central government with the powers to supersede the Central Board of the Bank. Thus the Bank is not autonomous and is itself regulated by a player. Such non-autonomy can defeat the logics against the central bank independence as put forth by Rangarajan (1993) and go against article 39(a) in the case where fiscal deficit monetization bears inflationary potential<sup>2</sup>. This chapter tries to explore to what extent the non-autonomy of the Bank influences during the post reform period the relationship between M3 and CBD on the one hand and between RCG and CBD on the other.

## **2. Literature review**

The elasticity of wholesale price index (WPI) with respect to the policy variable broad money (M3) is found to be unity in the long run<sup>3</sup>. Evidences also exist of strong positive correlations during

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<sup>2</sup> Ramachandran (2000, p 3266)

<sup>3</sup> Singh et al (2005, p 182)

the pre reform period in India between money stock and CBD. For example in the early eighties the elasticity of money supply with respect to the CBD was found as high as 88%, whereas the elasticities with respect to other determinants like foreign exchange assets of the country and changes in commercial bank credit were much lower - 7% and 40% respectively<sup>4</sup>. Elasticity of y with respect to x means what % increase in y follows from every 1% increase in x. Again in the late nineties the RBI credit to the central government (RCG) is found to push up M3 by more than 300% for every additional one rupee increment<sup>5</sup>. Finally, during the post reform period net foreign assets (in stead RCG) appeared to be strong determinants of M3<sup>6</sup>.

### **3. The issues**

- a. How do CBD and RCG affect money stock?
- b. Is there any interdependence between RCG and CBD?

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<sup>4</sup> Sarma (1982, p 61)

<sup>5</sup> Rangrajan et al (1997, p 84)

<sup>6</sup> Soumya et al (2004-05, pp 91, 106-107)



#### **4. Methodology**

This chapter tries to detect with the help of monthly data from 1998-99 to 2004-05 whether money supply is influenced by net foreign exchange assets of the country (NFEA), CBD and RBI credit to the government (RCG) with the help of two time series econometric models:

- (a) Single Equation Model - Linear regression of the logarithm of M3 is run on the logarithms of NFEA, CBD and RCG.
- (b) Simultaneous Equation Vector Autoregression (VAR) Model – Linear regressions of two endogenous variables CBD and RCG on each other with one lag, two lags, four lags and six lags.

#### **5. Source of data**

The data are taken from the RBI sources<sup>7</sup>. But it is difficult for the data available on these variables during the post reform period because CBD is occasionally found negative e.g.

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<sup>7</sup> Reserve Bank of India (2005, pp 305-314)

December 1994, September 1995, August 1996, December 1996, December 1997, August 2001 and August 2002. Therefore what is permissible is to run regression of change in M3 on changes in CBD, NFEA and RCG.

### 6. The single equation model

With the help of above data the following relationship is estimated:

$$\Delta M3 = 9076.345 - 0.089 \Delta CBD + 0.314 \Delta RCG + 0.884 \Delta NFEA$$

(8.29)                      (-0.86)                      (2.22)

$$(4.22) \quad \bar{R}^2 = 0.12 \quad (1)$$

A meager t value of the  $\Delta CBD$  coefficient suggests the dropping the variable to run regression of  $\Delta M3$  on  $\Delta NFEA$  and  $\Delta RCG$ . This is indicative of multicollinearity between  $\Delta CBD$  and one of the rest two variables. The revised estimation is as follows:

$$\Delta M3 = 9143.5 + 0.28 \Delta RCG + 0.86 \Delta NFEA$$

(8.37)                      (2.06)                      (4.14)

$$\bar{R}^2 = 0.14 \quad (2)$$

Though t values improved in (2) relative to (1)  $\bar{R}^2$  did not improve much. It further suggests running regression of  $\Delta M3$  on  $\Delta NFEA$  and  $\Delta CBC$  individually. Individual regression of  $\Delta M3$  on  $\Delta RCG$  is not found insignificant in terms of both of t and  $\bar{R}^2$  values whereas individual regression of  $\Delta M3$  on  $\Delta NFEA$  is found relatively significant in the same terms. The regressions are given below:

$$\Delta M3 = 11860.65 + 0.12 \Delta RCG \quad (12.6) \quad (0.85)$$

$$\bar{R}^2 = -0.002 \quad (3)$$

$$\Delta M3 = 9566.8 + 0.74 \Delta NFEA \quad (8.8) \quad (3.7)$$

$$\bar{R}^2 = 0.104 \quad (4)$$

In the post reform sample period CBD did not at all influence money stock, instead NFEA appeared to be a relatively important determinant of money stock. This is evident by the very poor values of t statistics of the CBD variable and  $\bar{R}^2$  in regression of  $\Delta M3$  on  $\Delta CBD$ :

$$\Delta M3 = 17073.15 - 0.12685 \Delta CBD$$

$$(11.35635) \quad (-1.00068) \quad \bar{R}^2 = 0.012212$$

### 7. The VAR Model

We verify the above conclusion with the help of a different model where we assume CBD and RCG are affecting each other. RCG a major source of M3 is taken as the proxy of M3. VAR model is a popular tool for this purpose. We considered three alternative VAR models – one lag, two lags, four lags and six lags. The results are given below:

#### VAR (1 lag)

$$\text{CBD}_t = -3194.2 + 0.09 \text{ CBD}_{t-1} + 0.07 \text{ RCG}_{t-1} \quad (6)$$

$$(0.79) \quad (0.71) \quad (2.26)$$

$$\bar{R}^2 = 0.74 \text{ Akaike AIC} = 19.95, \text{ Schwarz SC} = 20.00$$

$$\text{RCG}_t = 7279.9 + 0.11 \text{ CBD}_{t-1} + 0.94 \text{ RCG}_{t-1} \quad (7)$$

$$(1.7) \quad (0.86) \quad (27.6)$$

$$\bar{R}^2 = 0.92 \text{ Akaike AIC} = 20, \text{ Schwarz SC} = 20.00$$

**VAR (2 lags)**

$$\text{CBD}_t = -2366.97 + 0.06 \text{ CBD}_{t-1} + 0.252 \text{ CBD}_{t-2} + 0.076 \text{ RCG}_{t-1} + 0.02 \text{ RCG}_{t-2}$$

(0.6)                      (0.46)                      (1.96)

(0.62)                      (0.16)

$\bar{R}^2 = 0.1$  Akaike AIC = 19.96, Schwarz SC = 20.12

$$\text{RCG}_t = 7614.4 + 0.1 \text{ CBD}_{t-1} + 0.06 \text{ CBD}_{t-2} + 0.9 \text{ RCG}_{t-1} - 0.008 \text{ RCG}_{t-2}$$

(1.75)                      (0.77)                      (0.5)

(7.3)                      (0.06)

$\bar{R}^2 = 0.92$  Akaike AIC = 20.07, Schwarz SC = 20.23

**VAR (4 lags)**

$$\text{CBD}_t = -3689.8 + 0.34 \text{ CBD}_{t-1} + 0.29 \text{ CBD}_{t-2} - 0.069 \text{ CBD}_{t-3} - 0.27 \text{ CBD}_{t-4} +$$

(0.84)                      (0.26)                      (2.23)

(0.05)                      (1.9)

$$0.176 \text{ RCG}_{t-1} - 0.11 \text{ RCG}_{t-2} + 0.23 \text{ RCG}_{t-3} - 0.22 \text{ RCG}_{t-4}$$

(1.4)                      (0.63)                      (1.4)                      (1.8)

$\bar{R}^2 = 0.14$  Akaike AIC = 19.99, Schwarz SC = 20.28

$$\begin{aligned} RCG_t = & 8226.29 + 0.07 \text{ CBD}_{t-1} + 0.08 \text{ CBD}_{t-2} + \\ & 0.255 \text{ CBD}_{t-3} - 0.065 \text{ CBD}_{t-4} + \\ & (1.75) \quad (0.5) \quad (0.6) \\ & (1.75) \quad (0.44) \end{aligned}$$

$$\begin{aligned} & 0.944 \text{ RCG}_{t-1} - 0.2 \text{ RCG}_{t-2} + 0.17 \text{ RCG}_{t-3} + 0.006 \\ & \text{RCG}_{t-4} \\ & (6.9) \quad (1.1) \quad (0.97) \quad (0.04) \end{aligned}$$

$\bar{R}^2 = 0.91$  Akaike AIC = 20.13, Schwarz SC = 20.42

**VAR (6 lags)**

$$\begin{aligned} \text{CBD}_t = & - 6185.4 - 0.12 \text{ CBD}_{t-1} + 0.23 \text{ CBD}_{t-2} + \\ & 0.02 \text{ CBD}_{t-3} - 0.18 \text{ CBD}_{t-4} - 0.32 \text{ CBD}_{t-5} \\ & (1.33) \quad (0.8) \quad (1.7) \end{aligned}$$

$$\begin{aligned} & (0.14) \quad (1.2) \quad (2.3) \\ & - 0.24 \text{ CBD}_{t-6} + 0.176 \text{ RCG}_{t-1} + 0.035 \text{ RCG}_{t-2} + \\ & 0.2 \text{ RCG}_{t-3} - 0.15 \text{ RCG}_{t-4} - 0.11 \text{ RCG}_{t-5} \\ & (1.7) \quad (0.9) \quad (0.2) \end{aligned}$$

$$\begin{aligned} & (1.16) \quad (0.9) \quad (0.66) \\ & + 0.04 \text{ RCG}_{t-6} \\ & (0.31) \end{aligned}$$

$\bar{R}^2 = 0.2$  Akaike AIC = 19.97, Schwarz SC = 20.4

$RCG_t = 10103.35 + 0.102 CBD_{t-1} + 0.08 CBD_{t-2} + 0.315 CBD_{t-3} - 0.062 CBD_{t-4} - 0.171 CBD_{t-5} - 0.03 CBD_{t-6} + 0.87 RCG_{t-1} - 0.18 RCG_{t-2} + 0.18 RCG_{t-3} - 0.27 RCG_{t-4} + 0.28 RCG_{t-5} + 0.02 RCG_{t-6}$

$\bar{R}^2 = 0.92$  Akaike AIC = 20.06, Schwarz SC = 20.4

We find that VAR (1 lag) consisting of equations 6 and 7 gives the best result in terms of minimum values of Akaike AIC and Schwarz SC<sup>8</sup>. These equations show that RCG influences CBD in one period lag but not the reverse. This means the assurance of monetizing deficit given by the central bank encourages the government to be imprudent fiscally.

## 8. Conclusion

In above exercise it is found that in the post reform sample period the net foreign exchange assets of the economy instead of the central

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<sup>8</sup> Gujarati (2004, p 849)

government budget deficit (CBD) influenced money stock, but the RBI credit to central government influenced CBD at one period lag. This result, though obtained in a different frame, corroborates Soumya et al (2005).

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