Chapter 3

Exchange Rate Management in India
Some Stylised Facts

After the collapse of Bretton Woods system, intervention by the policy authorities in the foreign exchange market has been increased. The nature and the degree of intervention have varied from one country to another, but main intention has been to prevent excessive fluctuations in exchange rate. In the international economy, during eighties, there was a prolonged current account deficit and massive fiscal deficits along with large capital flows. This raises a serious doubt on the complete monetary autonomy of the policy authorities to secure internal stability under pure float system. India, after switching over to the market determined exchange rate regime, was closely monitoring the market to ensure orderly conditions in the market through various policy measures in addition to direct intervention. However, internal stability has been the ultimate concern of the policy authorities. In an economy with a market determined exchange rate regime and a lot of capital inflows, exchange rate management while ensuring internal stability has been a challenging task for the RBI.

International experiences, particularly of developed countries, show that the exchange rate volatility is highly pronounced under market based exchange rate regime. In contrast, the experience in India shows that the exchange rate behaviour during the market based regime seems to be relatively calm. However, as compared to earlier regime, the exchange rate witnessed a sharp rise in the 1990s, but volatility has not risen much (see Fig 3.1). This could be a reflection of the management of exchange rate by the RBI since a stable exchange rate is one of the explicit objectives of monetary policy. In the market determined exchange rate regime, reserves changes are much higher than in the previous period, which is very clear from the Fig 3.2. This reflects both the fact of management of exchange rate, and the liberalisation of trade and removal of foreign exchange controls in the later period. Further, the optimal holding of foreign exchange reserves increases in an economy.
with autonomous flows of capital. This has meant that the building up of reserves is one of the objectives of RBI's actions in the foreign exchange market.

In this context, this chapter takes a preliminary look at the behaviour of some of the fundamental macroeconomic variables vis-à-vis exchange rate movement in the period of the market based exchange rate regime.

The movement of exchange rate is plotted in Fig 3.3. During March 1993 to March 1995 exchange rate was stable around Rs.31.37 per dollar. After 1995, it has been rising steadily. In the latter period, there have been two sub-periods of extreme volatility between September 1995 and June 1996, and again between August 1997 and June 1998.

Fig 3.4 shows the changes in net foreign exchange assets (NFA). Between 1993 and 1995, this takes both positive and negative values. After 1995, it is mainly positive indicating net purchase of foreign assets except for two phases. Between September 1995 and June 1996 negative and positive values are seen; and once again between September 1997 and May 1998. Again in mid-2000 it has been negative. Overall, the volume of purchases has been much larger after 1995, and net foreign exchange assets holding of the RBI has steadily increased (Fig 3.5). This suggests that exchange rate has been managed tightly between 1993 and 1995, with considerable intervention by the RBI. Later it has been allowed to depreciate in line with the market with no intervention, except in the periods of extreme volatility.

Fig 3.6 shows the trade balance deficit. During the period 1993 to 2000, on an average, there has been a continuous increase in the deficit but after that there has been a fall in the trade balance deficit. Between March 1993 and March 1995, there had been a large capital inflow into the country, which could have put pressure on exchange rate to appreciate. Throughout this period there were net purchases by the RBI from the market (see Fig 3.4) reflecting an effort to prevent exchange rate appreciation.

The high trade balance deficit could explain why the policy authorities have been undertaking exchange rate depreciation. Immediately after switching over to a
market based exchange rate regime, increasing export competitiveness has been a major concern.

After 1995, policy authorities have allowed depreciation, perhaps even aiding it, as long as it is stable. But in periods of marked instability they appear to have actively intervened in the market. All this is consistent with trying to improve the trade balance. The government has stated that its “focus (is) on smoothing out excessive volatility in the exchange rate to ensure that the exchange rate remains consistent with the economic fundamentals” (Economic Survey, 1997).

The facts also suggest that there has been a focus on building up reserves after 1995 (particularly in recent years). To understand this we first note that both the periods of volatility after 1995 have corresponded to speculative attacks. In September 1995, this was perhaps triggered by expectations of depreciation, given that the rupee was out of synchronisation with the fundamentals. During this period the RBI intervened to defend the rupee initially, but after allowing a readjustment, it withdrew.

The second period of volatility corresponds to the south-east Asian crisis. This attack probably originated in expectations of future depreciation in line with south-east Asian countries, and not because of any changes in the fundamentals. This kind of crisis shows that in recent years, the financial market in India has, witnessed frequent inflow and outflow of short-term capital, change in payment technology, and integration of worldwide markets across different time zones. With increasing capital flows and dismantling of foreign exchange restrictions, the scale of intervention required, in order to be effective, is very high. Thus building up a significant level of reserves would be a valid policy objective. This seems to have brought “a fundamental shift in the policy emphasis reflect the fact that capital flows and speculative activities of market players emerged as important determinants of exchange rate as against trade deficit and other fundamental factors” (Reddy, 2002).

Since exchange rate management in line with the fundamentals is a stated focus of the RBI, it is of interest to see the movement of other related variables.
The movement of domestic and foreign interest rates are shown in Fig 3.7. From the figure it is seen that domestic interest rate (call money rate) was quite high and volatile till 1997. With the introduction of liquidity adjustment facilities the call money rate was stabilised at lower levels. But the foreign interest rate has been stable around 5 per cent. However since 1999, both the rates are moving in the same direction indicating that the movement of the domestic interest rate is allowed in the line with the movement of foreign interest rate. This co-movement may also reflect the stability of the expected exchange rate appreciation and reduction in risk premium. This suggests that the RBI policy of reserve accumulation has succeeded in sending the right signal.

In Fig 3.9 monthly movements of exchange rate (nominal) and the ratio of domestic to foreign prices (the ‘PPP rate’) are shown. The purchasing power parity theory says that the inflation differential between the countries will be offset by exchange rate changes. So in a market determined exchange rate regime it is expected that PPP rate and market rate should coincide. However, from the figure, it is seen that quite often the two series move in opposite directions. This suggests that relative rates of inflation do not provide a satisfactory explanation for the exchange rate behaviour during the study period. So PPP does not seem to hold in the short run, indicating sluggishness of the output prices.

If exchange rates move more than the national price levels, there should be a high correlation between nominal and real exchange rates. Monthly percentage changes in nominal and real exchange rates are portrayed in Fig 3.10. The figures show that nominal and real exchange rates are moving in the same direction (correlation is 0.76), but magnitude is different. This suggests that output prices move more slowly, and is evidence against PPP in the short run.

However the differential between nominal exchange rate and the PPP rate seems to be decreasing over time, and so also the differential between nominal and real exchange rate. This suggests that the RBI is guided by the PPP rule in the long run.
The aims of building up reserves, ensuring exchange rate stability in line with the fundamentals and maintaining export competitiveness may lead to conflicts in the conduct of monetary policy. One way of resolving the conflict is to sterilise the reserve inflows. To see whether this is being done, the movements in the changes in NDA and NFA are examined from Fig 3.8. It is clear from the figure that both changes in NDA and NFA quite often move in opposite directions. There is a negative correlation (-0.32) between these two variables. This suggests that indirect intervention and direct intervention are not used in a coordinated way to stabilise exchange rate. This could be treated as evidence of sterilised intervention. But it may also mean that direct intervention is used merely to smooth out exchange rate changes caused by autonomous changes in domestic credit.

We may summarise the above in terms of the following stylized facts. (1) The RBI uses direct intervention to manage the exchange rate. (2) The reserve flows that this involves are sterilised. (3) Purchasing power parity does not hold in the short run. (4) Domestic interest rates move in line with foreign interest rates. We draw upon these facts while formulating the model of the economy in the next chapter. This also helps us in the discussion and interpretation of our results in chapter 6.
Fig 3.3: Movement in Exchange Rate (Monthly Series)

Fig 3.4: Movement in Changes in NFA (Monthly Series)
Fig 3.5: Movement in NFA (Monthly Series)

Fig 3.6: Movement in Trade Balance (Monthly Series)
Fig 3.7: Movements in Interest Rates (Monthly series)

Fig 3.8: Movements in Changes in NDA and NFA (Monthly Series)
Fig 3.9: Movements in Changes in Exchange Rate and PPP
(Monthly Series)

Changes in Exchange Rate and PPP (%)

Month/Year

Fig 3.10: Movements in Changes in Nominal and Real Exchange Rate (Monthly Series)

Changes in Nominal and Real Exchange Rates (%)

Month/Year