Introduction

In flexible exchange rate system the theoretical link, which was there in Bretton Woods system, between exchange rate and the stock of reserve has broken. Exchange rate of a currency gets determined in the foreign exchange market. By the end of the decade of 70s', all the industrially developed countries adopted the flexible exchange rate system and many of the developing countries used to peg their currency for a official exchange rate against a weighted basket of developed countries currencies. But now most of the countries have foreign exchange market determined exchange rate. Either they follow managed float or independent floating exchange rate system. As many countries are following managed floating exchange rate system the stock of reserve is continuing to be an important factor behind the stability of the exchange rate. Even the countries that follow independent floating exchange rate system, have preserved the Central bank's right to intervene in the foreign exchange market or they have sizeable intervention in the foreign exchange market. So foreign exchange reserve should continue to be one of the important factors behind the exchange rate stability. But most of the theories of exchange rate behaviour have ignored foreign exchange reserve as an important determinant for exchange rate. The monetarists link up reserve change and exchange rate through the change in money
supply. They say, intervention in the foreign exchange market by any central bank will be effective in changing the exchange rate only to the extent that it constitutes a change in money supply. Thus, according to this view, reserve-exchange rate linkage get established through the change in money supply. But there are attempts to show that there can be other mechanisms for a linkage between reserves and the exchange rate.

Many\(^1\) have tried to establish that sterilized intervention is also effective to change the exchange rate. There are two channels through which they claim that this exchange rate change take place. The first is the need for portfolio balance and second is through signaling.

The portfolio balance channel says, because of foreign exchange risk, domestic and foreign securities are imperfect substitutes. So investors have to be compensated by a risk premium for holding foreign securities. Sterilized intervention changes the supply of foreign relative to domestic securities. So, equilibrium in investors’ portfolio gets disturbed. To restore balance a change in risk premium measured as the deviation from uncovered interest rate is required. Hence, change in the asset return will change the spot exchange rate. Suppose, the Central bank is selling the foreign currency denominated assets and buying back the domestic currency

\(^1\) Dominguez, K and Frankel, J A (1993), Schwartz, A. J. (2000),
denominated assets to sterilize the reduction in money supply. Supply of foreign currency denominated assets will increase. So the risk premium for holding domestic currency denominated assets will come down. For a given real rate of interest differential, the present exchange rate appreciates or expectation about future rate of appreciation of exchange rate comes down. As expectation about future rate of appreciation of exchange rate depends upon the present exchange rate\(^2\), if regressive expectation operates, then, as exchange rate appreciates, expectation about future rate of appreciation of exchange rate comes down. If it does not, then reduction of risk premium will completely depend upon appreciation of present exchange rate.

The second channel, signaling says that sterilized intervention is supposed to signal a change in the monetary policy intentions of the central banks. The signal activates a response by the private sector to move exchange rate in the direction that the monetary authority seeks.

Anyway, keeping monetary policy in center stage has constituted the whole linking up between the reserve change and exchange rate.

We shall try to show, in this part of the thesis, that there is no need to bring in monetary policy to establish the linkage between exchange rate and reserve. The level of reserve stock will itself create

\(^2\) As assumed by the mainstream macroeconomists.
the expectation regarding future exchange rate. If the expectation is that the exchange rate will appreciate the actual exchange rate will appreciate. It is because we assume that actions flow from the judgement about the future. Suppose, the majority of foreign exchange traders believe that a particular currency is expected to appreciate. These traders will buy the currency because by doing so they will realize capital gains. A net increase in the demand for this currency will lead to its actual appreciation i.e. actual exchange rate of a period depends upon the expected exchange rate of that period and if the average expectation is exchange rate will appreciate the actual exchange rate will appreciate. This expectation about exchange rate will change with the change in the stock of reserves. This change in expectation about exchange rate will influence the capital flow and capital flow will also influence the expectation about the exchange rate. And ultimately, the exchange rate will change. The validity of this result will depend upon one thing, i.e., capital inflow should be autonomous to current account, or to be precise, current account deficit should not have significant influence on exchange rate and capital flow should not be significantly sensitive to rate of interest differential.

In Bretton Woods system, the fixed rate used to offer only the profit of limited arbitrage. The new flexible exchange rate system has created massive scope for short run speculation about the future exchange rate of a currency. This short run speculation about
exchange rate has given added incentive, apart from rate of interest
differential, to capital movements across the national boundaries.
This has, coupled with the gradual removal of restrictions on capital
movement, resulted in a gradual increase in capital flows. By early
90s, a large number of countries have removed the exchange
restriction to a large extent. In 1973, Canada, Germany and
Switzerland abolished all restrictions on capital movements. In 1974,
USA followed them. Britain scrapped all controls in 1979, Japan in
1980, France and Italy in 1990, and Spain and Portugal in 1992.\(^3\) We
shall try to formulate our exchange rate behaviour model by putting
capital flows and foreign exchange reserve as the major determinants
of exchange rate behaviour.

In the Gold Standard system, the countries, which had greater
influence on trade and finance, had greater use as international
reserve currency, were less required to keep gold reserve to keep its
exchange rate stable. They had the greater power to attract capital
flow also. In Bretton Woods system also, the countries that had
greater influence on trade and finance, had greater use as
international reserve currency, and were less required to keep
sufficient reserve to maintain exchange rate stability. As developing
countries have hardly any influence on world trade and finance, the
use of any such currency as international currency was very little. So
the requirement of keeping sufficient reserve should be higher for the

\(^3\) For detail of the present situation see Tamirisa(1999)
developing countries compared to the developed world for exchange rate stability. Also the developed world should have the greater power to attract capital flow on its need, as we have seen in the Gold Standard System.

We shall check the persistence of these asymmetries between the developed and developing countries, those adopted flexible exchange rate system also. In the process of checking these, we shall examine the implications on the theories of exchange rate behaviour by these discrepancies between the developed and developing countries. We have divided the existing theories broadly into three categories. The first one says that if there is any change in relative prices (say exchange rate, rate of interest etc.), it will first affect the current account and then the capital account may be affected. In the second category, the causality starts with the capital account and then it goes into the current account. For the third category, the causality is as follows: expected depreciation in exchange rate will cause a capital outflow and increase in capital outflow will depreciate the exchange rate.

Using the data of both developed and developing countries, we shall examine these categories of causalities. As we have mentioned that in the context of the Gold Standard and Bretton Woods systems, the importance of reserve for maintaining the stability of exchange rate increases as the exchange restrictions are reduced. So, we shall proceed to test with the data of the period of 90s.