UNIT-VI

Balance of Payments

CHAPTER 9

FOREIGN EXCHANGE RATE: MEANING AND DETERMINATION

A country's economic stability is indicated, among other things, by the stability in its exchange rate. The strength of domestic currency of a country is seen against that of currencies of other countries in the world. Earnings from exports and payments for imports would directly be affected by the exchange rate. Therefore, it is important to know the forces that operate upon the determination of foreign exchange rate and the implications of changes in it for the country concerned. In this chapter we shall explain foreign exchange rate determination.

Meaning

Foreign exchange rate is the price of one currency in terms of another. It is the rate at which exports and imports of a nation are valued at a given point in time. The foreign exchange rates, by linking the currencies of different countries, make the comparisons of international costs and prices. They also govern and are governed by the flow and direction of foreign trade.

Foreign Exchange Market

The foreign exchange market is the market where the national currencies are traded for one another. *Foreign exchange market* performs, mainly, three functions viz., to transfer the purchasing power between countries (*transfer function*), to provide credit channels for foreign trade (*credit function*), and to protect against foreign exchange risks (also known as *hedging function*).

In view of the above three functions, demand for foreign exchange is the demand for foreign currencies by the residents of a country. When people wish to operate in the foreign exchange market they intend to buy or sell foreign exchange depending on their demand for and supply of foreign exchange.

Transactions in the foreign exchange market are reflected in the balance of payments account. The value of Indian residents' expenditure abroad represents a supply of rupees to the foreign exchange market. This is because if an Indian buys a Japanese radio from abroad, he will pay for it in rupees. Now this total expenditure also represents the demand for foreign exchange that is Japanese Yen, since the Japanese dealer will expect

payment in Yen. So rupees have to be exchanged for Yen in the foreign exchange market.

Similarly, the foreign earnings of Indian residents reflect equal earnings of foreign exchange. For example, Indian exporters will expect to be paid in rupees. So in order to buy our goods, foreigners have to sell their currency and buy rupees in return. Hence, there is inflow of foreign exchange into India.

Demand and Supply Side

We have already pointed out that people's intention to transact in the foreign exchange market depends upon their demand and supply position with respect to foreign exchange. The causal factors behind the demand and supply sides are mentioned below:

Demand Side

People desire to have or acquire foreign exchange for the following reasons:

(a) to purchase goods and services from other countries;
(b) to send a gift abroad;
(c) to purchase financial assets in a particular country; and
(d) to speculate on the value of foreign currencies.

Supply Side

Foreign currencies, flow into the domestic economy due to the following:

(a) foreigners purchasing home country's goods and services through exports.
(b) foreign investment in home country through joint ventures or through financial market operations; and
(c) foreign currencies flow into the economy due to currency dealers and speculators.

Hence the foreign exchange markets are influenced by the above mentioned underlying factors. The dominance of demand or supply side is linked with the nature of business fluctuations in a given time period.

Equilibrium in the Foreign Exchange Market

Foreign exchange market like any other market is characterised by a downward sloping demand curve and an upward sloping supply curve. The price on the vertical axis is stated in terms of domestic currency (that is, how many rupees for one US dollar, for instance). The horizontal axis measures the quantity demanded or supplied. The intersection of the supply and demand curves determines the equilibrium exchange rate (Req) and the equilibrium quantity (Q^{eq}) of foreign currency, that US ($). This is shown in Figure 9.1.

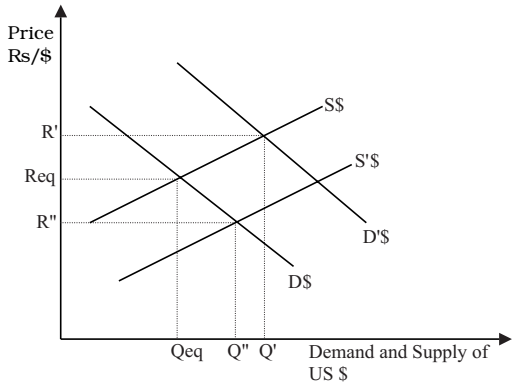

Fig. 9.1 : *Equilibrium in the Foreign Exchange Market*

Now, it is necessary to understand the slopes of demand and supply curves. In this figure the demand curve (D$) is downward sloping. This means that less foreign exchange is demanded as the exchange rate increases. This is due to the fact that the rise in the price of foreign exchange will increase the rupee cost of foreign goods, which makes them more expensive. As a result, imports will decline. Thus, the demand for foreign exchange will also decrease.

The supply curve (S$) is upward sloping which means that supply of foreign exchange increases as the exchange rate increases. This makes home country's goods become cheaper to foreigner since the rupee is depreciating in value. The demand for our exports should therefore increase as the exchange rate increases. The increased demand for our exports will translate into greater supply of foreign exchange. Thus, the supply of foreign exchange increases as the exchange rate increases.

Having shown the equilibrium in the foreign exchange market, let us now analyse disequilibrium conditions.

An increase in the demand for US dollars in India will cause the demand curve to shift to D'$ and the exchange raise rises. Note that the increase in the exchange rate means that more rupees are required to buy one US dollar. When this occurs, Indian rupee is said to be depreciating. *Currency depreciation* takes place when there is an increase in the domestic currency price of the foreign currency. The domestic currency is thus relatively less valuable.

Similarly, an increase in the supply of US dollars will cause the supply curve shift to S$ and exchange rate falls to R. In this case rupee cost of US dollar is decreasing and the Indian rupee is said to be appreciating. *Currency appreciation* takes place when there is a decrease in the domestic currency price of the foreign currency. In this case domestic currency is more valuable.

Types of Exchange Rate Regimes

The determination of foreign exchange depends on specific international arrangement of procedure to determine the exchange rate of one country vis-à-vis others. Exchange rate regimes have evolved over time in response to global economic events. We shall present below major international monetary systems that India has implemented so far.

Fixed Exchange Rate Systems

Under this system, exchange rate is officially declared and it is fixed. Only a very small deviation from this fixed value is possible. A typical fixed exchange rate system was associated with the Gold Standard Systems of 1880-1914. Under the Gold Standard systems each currency value was defined in terms of gold and hence, the exchange rate was fixed according to the gold value of currencies that have to be exchanged. This was referred to as mint par value of exchange. For example, if one Indian Rupee is exchangeable for 125 grams of fine gold and the US dollar ($) for 25 grams. Then one rupee is equal to 125/25 = 5 US dollars. So, the price is fixed at Re.1=$5.

Adjustable Peg System

The gold standard was abandoned in the 1920's as it failed to automatically correct the disequilibrium in countries' balance of payments. An alternate system of fixed exchange rate called the Bretton Woods system was established in 1944. Under this arrangement, the US dollar was made directly convertible into gold at a fixed price. Member countries fixed their rates of exchange as against the US dollar. The Bretton Woods system was an adjustable peg system. The member countries were required to fix the parity of their currencies with gold. A change in the parity was possible only through a direction from the IMF. This system was slightly modified from the fixed exchange rate system but the role of gold as ultimate unit of parity was pre-eminent.

Fixed exchange rate system was supported due to its advantages as given below:

(a) Fixed exchange rates ensure that major economic disturbances which will weaken the economic policies of member countries, do not occur.

(b) Fixed exchange rates contribute to the coordination of macro policies of countries in an interdependent world economy.

(c) Fixed exchange rates are more conducive to expansion of world trade as they prevent risk and uncertainty in transactions.

But the critics of fixed exchange rates have identified several drawbacks of this system. Hence, they suggest a system of flexible exchange rates.

Flexible Exchange Rate System

Flexible exchange rates point to an extreme situation where there is no intervention by Central Banks. The foreign exchange market is busy at all times with changes in the exchange rates.

Following are the advantages associated with flexible exchange rates.

(a) Flexible exchange rates eliminate the need for central banks to hold international reserves.

(b) Flexible exchange rates are helpful to do away with barrier to trade and capital movements.

(c) Flexible exchange rate enhances the efficiency in the economy by achieving optimum resources allocation.

We have not provided a detailed critique of both fixed and flexible rate of exchange as it is beyond the scope of our study here. But it must be borne in mind that these are two extreme positions and hence the debate on their desirability is a continuing one.

Therefore, there have been numbers of alternative systems suggested as 'hybrid' systems combining advantages of fixed and flexible exchange rates. We shall briefly describe their salient features.

Wider Bands

This proposal considers the point that Bretton Woods system allowed only 1 per cent variation on either side of the parity values. The proposal for wider bands states that the permissible

variations around parity should be set at 10 per cent, for all member - countries to carry on balance of payment adjustment easily. For example, if a country has a balance of payments deficit, the currency could be depreciated up to 10 per cent from its parity value to correct the disequilibrium in the balance of payments.

Crawling Peg

This is also a compromise between fixed and flexible rates. According to crawling peg scheme, a country specifies a parity value for its currency and permits a small variation around that parity (such as ±1 per cent from parity). However, the parity rate is adjusted regularly by small amounts as warranted by the position of international reserves held by a country, changes in money supply or prices, or recent variations in the exchange rate around the parity. In the crawling peg concept there is ceiling and floor limits so that it can provide for some discipline on the part of monetary authorities. Figure 9.2 shows the working of crawling peg.

In this crawling peg example, the exchange rate fluctuates within its narrow band until point A is reached. The loss of reserves from A to B and any other indicators of currency weakness trigger a small devaluation in the parity value. When difficulties again occur from point C to point D, another small official devaluation takes place. This new parity value continues until a reserve buildup occurs from point F to point G, whereupon the parity value of the home currency is raised.

Managed Floating

The final hybrid in management of exchange rates is the managed floating. This is characterised by some

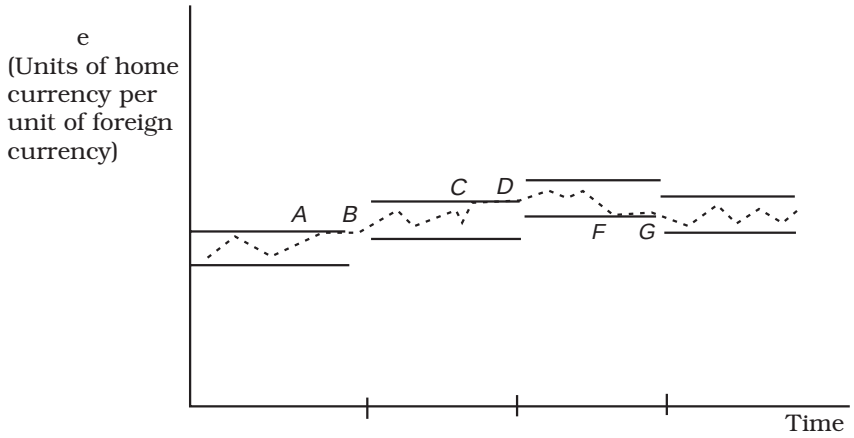

Fig. 9.2 : *A Crawling Peg*

hindrances with exchange rate movements but the intervention is discretionary on the part of monetary authorities.

In other words, there is official declaration of rules or guidelines for intervention, no prefixed parity values, and no announced times for variations. Authority take a decision to intervene if a particular situation in their judgement requires it. Sometimes, this intervention may be coordinated with other countries as well.

Managed floating, in the absence of rules and guidelines, could be vulnerable to abuse of intervention. A particular country could manipulate its managed float to the detriment of other countries. This behaviour is called dirty floating.

This section has so far summarized the two major systems of exchange rates, namely, fixed and flexible rates of exchange. Since the arguments in favour of and against these two systems are inconclusive, attempts have been made to devise hybrid systems such as wider bands, crawling peg and managed floating. The main object in providing these details is to highlight the point that determination of exchange rate is a complex process in the international monetary system.

Operation of Foreign Exchange Market

Foreign exchange markets could be studied in terms of period of transaction carried out. If the operation is of daily nature, it is called current market or the *spot market*. On the other hand market for foreign exchange for future delivery is known as the *forward market*.

Spot Market for Foreign Exchange

Spot rate of foreign exchange is certainly useful for current transactions. But we should find what the spot rate is. Besides, it is also important to find the strength of the domestic currency with respect to that of the home country's trading partners. The measure of average relative strength of a given currency is called the Effective Exchange Rate (EER). As we do not eliminate the effect of price changes, this may also be called as Nominal Effective Exchange Rate (NEER).

If the domestic country (India) has 'n' trading partners then

$$\text{NEER} = \sum_{i=1}^{n} (R^{i}_{index})(W_i)$$

Where, for the i^{th} trading partner (say the USA)

R^i = exchange rate in Rupees/$

R^i_a = exchange rate in year 'a'

R^i_b = exchange rate in base year 'b'

$R^i_{index} = \dfrac{R^i_a}{R^i_b}$ for the year 'b'

W_i = ratio of trade volume with i^{th} partner to total trade volume of domestic country

$$= \frac{X_i + M_i}{X_{total} + M_{total}}$$

Where, X_i = Exports to i^{th} partner

M_i = Imports from i^{th} partner

X_{total} = Total experts of domestic country

M_{total} = Total imports of domestic country

Secondly, we must have a measure that could eliminate the effect of price changes that is, an exchange rate that would be based upon constant prices. For this purpose we find out Real Exchange Rate (RER).

In the year 'a' for the partner 'i'

$$RER^{i}_{index} = R^{i}_{a} \frac{\left[\begin{array}{l}\text{Price index in country 'i' in}\\ \text{year 'a' with base year as 'b'}\end{array}\right]}{\left[\begin{array}{l}\text{Price index in India in year}\\ \text{'a' with base year as 'b'}\end{array}\right]}$$

Thirdly, the Real Effective Exchange Rates (REER) calculates an effective exchange rate based on real exchange rates instead of nominal rates.

For 'n' trading partners,

$$REER = \sum_{i=1}^{n} (RER^{i}_{index}(W_i)$$

Findings about exchange rate appreciation or depreciation should be made with reference to REER and not solely upon NEER.

Fourth measure of the spot rate is related to the equilibrium rate that would make the current account being in balance. This is based on the argument that it is the relative prices of goods and services between countries that drive the exchange rates. This argument is also referred to as Purchasing Power Parity (PPP) argument. There are two versions of it. The *absolute purchasing power parity* argument holds that commodities tend to have the same price world wide when measured in the same currency. There is no empirical support to this line of argument. The *relative purchasing power parity* argument relates the change in the exchange rate to the rates of inflation in the two countries.

Forward Market for Foreign Exchange

Unlike the spot market, the forward market for foreign exchange covers transactions which occur at a future date. It is common to see that most of the international transactions do not occur on the same day. Usually they materialise much later; that is beyond the value date when the transaction is signed. Since transactions contracted at one point of time are completed only at a later date, we should pay attention to the forward exchange rate. It helps both the parties involved to hedge against risk in exchange rate at a future date.

The forward market consists of parties that demand or supply a given currency at some future point in time. A forward contract is entered into for two reasons: one is to minimize risk of loss due to adverse change in exchange rate or to make a profit. First is called hedging and the second is called speculation.

We have thus far explained the meaning and determination of foreign exchange rates. For an economy, the exchange rate stability is an important objective of its macroeconomic policies.

Today, we find that any problem with the exchange rate could create enormous difficulties not only for the country concerned but to others as well. Recently, in the mid-1990's we witnessed the East Asian currency crisis mainly triggered by fluctuation and instability of the currencies in East Asia. Those interested could study similar disturbances that have occurred in other parts of the world as well.

SUMMARY

- Foreign exchange rate has become an important variable that engages the attention of all those who are concerned with foreign trade.
- Foreign exchange market plays many roles to transfer purchasing power, to provide credit and help in hedging operations.
- Equilibrium in the freely fluctuating foreign exchange market is brought about by the intersection demand for and supply of foreign exchange.
- Apart from two extremes of fixed exchange and flexible exchange rates, some hybrid systems such as wider bands, crawling peg and managed floating are also followed by some countries.
- Distinction between spot and forward markets help understand the complex operation in the foreign exchange market.
- Instability in the exchange rate could give rise to currency crises.

EXERCISES

1. What is a foreign exchange rate?
2. Define foreign exchange market.
3. Describe the equilibrium in the foreign exchange market.
4. What are: (a) spot, and (b) forward markets in foreign exchange?
5. Define: (a) NEER (b) REER and (c) RER.
6. Differentiate between fixed and flexible exchange rates.
7. What is a parity value?
8. Explain the meaning of crawling peg and managed float.