UNIT 17 EXCHANGE RATES

Structure

17.0 OBJECTIVES

After going through the Unit, you should be able to:

- define exchange rates;
- explain the workings of foreign exchange markets;
- assess the comparative merits of fixed and flexible exchange rate systems;
- discuss the factors influencing the determination of exchange rates; and
- describe the working of the Indian exchange rate regime as it has evolved over time.

17.1 INTRODUCTION

In this unit we discuss the financial dealings in international markets. You have read about balance of payments and exchange rates in block 3 of Course MEC 007 on international trade and finance. The current unit focuses on exchange rates and is a more in-depth study of foreign exchange markets from the perspective of financial economics.

You have been acquainted with balance of trade and balance of payments and various approaches to balance of payments. In the present unit, we get behind these theories and focus on trading of various currencies for each other. We look at foreign exchange markets as markets for financial assets and see who the actors in these markets are, what the mechanisms and devices for trade in these assets are, and how the prices of these currencies are determined.

In the subsequent section we begin with a description and analysis of the workings of foreign exchange markets. We will see that it is the biggest market for assets and round-the-clock trading takes place. In Section 17.3 we explain the workings of different exchange rate regimes, particularly, fixed and flexible, but also their variants. The foreign exchange markets function under flexible exchange rate regime. We see

the relative merits of the two systems and explore why many countries gave up the fixed exchange rate regime in 1973. Having explained different exchange rate regimes, we return in section 17.4 to the functioning of foreign exchange markets and explore how exactly exchange rates (price of one currency for another) are determined in a situation of exchange rate risk, and briefly explore some strategies to deal with these risks. Finally, we look in detail at the functioning of the exchange rate system of India: how it functions, how it has changed over the years, how exchange controls were carried out, whether total convertibility of currency is a good idea, and so on.

17.2 FOREIGN EXCHANGE MARKETS

A foreign exchange market (sometimes informally called the forex market, or denoted FEM) is a market in which different currencies are bought and sold. Foreign exchange markets arise because various countries have different monetary systems and require different currencies to buy goods, services and financial assets. So people demand different currencies since they have demand for goods, services and financial assets of other countries. Naturally, there is a supply element to this as well. To carry out these transactions between individuals and firms of different countries, there arises a demand and supply of various currencies. So related but independent markets arise, big organised markets, where *currencies* themselves are all the time being *traded for each other*. *The markets for foreign exchange facilitate foreign trade*. The forex market is not a market say, where Germans give dollars to import jeans from America. Or the American exporter of jeans says, "fine, you can pay me in Marks and I will get the marks changed to dollars in my country." The forex market is a *cash* inter-bank or inter-dealer market. To understand how foreign exchange markets work, we need to understand the concept of exchange rates.

The exchange rate represents the number of units of one currency that exchanges for a unit of another. There are two ways to express an exchange rate between two currencies (e.g. the $ and rupee). One can either write $/Rs. or Rs./$. These are reciprocals of each other. Thus if E is the $/Rs. exchange rate and V is the Rs./$ exchange rate then E = 1/V. It is important to note that the value of a currency is always given in terms of another currency. Thus the value of a US dollar in terms of Indian rupees is the Rs/$ exchange rate. The value of the Japanese yen in terms of dollar is the $/¥ exchange rate.

We always express the value of all items in terms of something else. Thus, the value of a litre of milk is given in rupees, not in milk units. The value of car is also given in rupee terms, not in terms of cars. Similarly, the value of a rupee is given in terms of something else, usually another currency. Hence the rupee/dollar exchange rate gives us the value of the dollar in terms of rupees.

Exchange rate quotes by participants in the forex market may be direct or indirect. A direct quote is the number of units of a local currency exchangeable for one unit of a foreign currency. An indirect quote is the number of units of a foreign currency exchangeable for one unit of a local currency. Thus indirect quote is the reciprocal of a direct quote. We know that a **currency** *appreciates* **with respect to another when** *its value rises* **in terms of the other**. The Rupee appreciates with respect to the yen if the ¥/Re exchange rate rises. On the other hand, **a currency** *depreciates* **with respect to another when** *its value falls* **in terms of the other**. The Rupee depreciates with respect to the yen if the ¥/Re exchange rate falls. Note that if the ¥/Re rate rises, then its reciprocal, the Re/¥ rate falls. Since the Re/¥ rate represents the value of the yen in terms of rupees, this means that when the rupee appreciates

with respect to the yen, the yen must depreciate with respect to the rupee. The **rate of appreciation** (or depreciation) is the percentage change in the value of a currency over some period of time. Thus, an appreciation means a decline in the direct quotation.

The foreign exchange market operates worldwide, that is, the reach of the foreign exchange market is global. The foreign exchange is by far the largest market in the world, in terms of cash value traded, and includes trading between large banks, central banks, currency speculators, multinational corporations, governments, and other financial markets and institutions. The trade happening in the forex markets across the globe currently exceeds $1.9 trillion/day (on average). The FEM is not a physical place; rather, it is an electronically linked network of big banks, dealers and foreign exchange brokers who are all the time bringing buyers and sellers together. It is spread throughout the big and small financial centres in the world. The biggest FEM centre is London. The dealing in foreign exchange in these centres goes on round-the-clock through computers, telephones, telex, fax etc., there is a satellite-based communications network called Society of Worldwide International Financial Telecommunications (SWIFT). The FEM operates on a very narrow spreads between buying and selling prices. But since the volumes traded are very large, dealers in foreign exchange markets stand to make huge profits or losses.

The foreign exchange market has two parts: wholesale and retail. The retail market deals with exchange of bank notes, bank drafts, currency, and travellers' cheques between private customers, tourists and banks. The wholesale FEM includes the central bank, but is mainly composed of an inter-bank market in which major banks trade in currencies held in different currency-denominated bank accounts, that is, they transfer bank deposits from sellers' to buyers' accounts. A physical transfer of currency is not involved; rather, there is a bookkeeping entry among banks. The inter-bank market has two parts: direct and indirect. In the direct market, banks deal directly with each other. Banks quote buying and selling prices directly to each other and all participating banks are market makers. It is a decentralised market, characterised by double-auctions and open bids. The indirect part of the wholesale markets, banks put orders with brokers who try to match purchases and sales of different currencies. The brokers charge commission to both buyers and sellers of these currencies.

The currencies are traded on different types of markets and on different basis. There is the "spot" or cash market, where there is immediate exchange (it actually takes two days) and forward basis. Let us now understand some of the used terms, and the basis of these trades.

Arbitrage: Arbitrage, generally means buying a product when its price is low and then reselling it after its price rises in order to make a profit. Currency arbitrage means buying a currency in one market (say New York) at a low price and reselling, moments later, in another market at a higher price.

Spot Exchange Rate: The spot exchange rate refers to the exchange rate that prevails *on the spot*, that is, for trades to take place immediately. In reality, however, even payment for transactions under spot exchange rates take about two days to take place.

Forward Exchange Rate: The forward exchange rate refers to the rate which appears on a contract to exchange currencies either 30, 60, 90,180 or sometimes even more, days in the future.

For example a corporation might sign a contract with a bank to buy DMs for dollars 60 days from now at a predetermined exchange rate (ER). The predetermined rate is called the 60-day forward rate. Forward contracts can be used to reduce exchange rate risk.

When the forward ER is such that a forward trade costs more than a spot trade today costs, there is said to be a *forward premium*. If the reverse were true, such that the forward trade were cheaper than a spot trade then there is a *forward discount*.

Hedging: A currency trader is hedging if he or she enters into a forward contract to protect oneself from a downside loss. However, by hedging the trader also forfeits the potential for an upside gain.

Check Your Progress 1

1) Briefly mention the structure of foreign exchange markets.

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2) Explain the difference between spot and forward exchange rates. What is foreign exchange premium?

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3) Explain the retail and the wholesale parts of the foreign exchange market.

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17.3 FIXED VERSUS FLOATING EXCHANGE RATES

To begin with, we will briefly review the balance of payments (BOP) table of a nation that you studied in the course on international economics as that will give us an idea of how exactly exchange rate regimes work. A country's BOP accounts summarises its dealings with the rest of the world. The BOP table has two main parts: (a) the current account and (b) the capital account.

The current account includes exports and imports of merchandise; exports and imports of services; inflows and outflows of investment *income*; and grants, remittances and transfers. The current account shows all flows that directly affect the national income accounts. Every transaction in the current account is an income-related flow.

The capital account includes direct investment by foreigners into the domestic economy and direct investment by citizens in foreign countries; portfolio investment, which includes net purchases of Indian securities and net lending to Indian residents; net purchases by Indian residents of foreign securities and net lending to foreigners; and changes in cash balances. The capital account shows all flows that directly affect the national balance sheet. Every transaction in the capital account is an asset-related flow.

There are two basic systems that can be used to determine the exchange rate between one country's currency and another's: a **floating exchange rates** (also called a **flexible exchange rates**) system and a **fixed exchange rates system**. Under a floating exchange rate system, the value of a country's currency is determined by the supply and demand for that currency in exchange for another in a private market operated by major international banks. In contrast, in a fixed exchange rate system a country's government announces, or decrees, what its currency will be worth in terms of "*something else*" and also sets up the "*rules of exchange.*" The "something else" to which a currency value is set and the "rules of exchange" determines the type of fixed exchange rate system, of which there are many. For example, if the government sets its currency value in terms of a fixed weight of gold then we have a gold standard. If the currency value is set to a fixed amount of another country's currency, then it is a reserve currency standard.

When a country has a regime of flexible exchange rates, it will allow the demand and supply of foreign currency in the exchange rate market to determine the equilibrium value of the exchange rate. So the exchange rate is market determined and its value changes at every moment in time depending on the demand and supply of currency in the market.

Some countries (for e.g. China, Mexico and many others), instead, do not allow the market to determine the value of their currency. Instead they "peg" the value of the foreign exchange rate to a fixed parity, a certain amount of rupees per dollar. In this case, we say that a country has a regime of **fixed exchange rates**. In order to maintain a fixed exchange rate, a country cannot just announce a fixed parity: it must also commit to defend that parity by being willing to buy (or sell) foreign reserves whenever the market demand for foreign currency is greater (or smaller) than the supply of foreign currency.

We have seen that banks are big players in the foreign exchange markets. Changes in flexible exchange rates are brought about by banks' attempts to regulate their inventories. However, these inventory changes reflect more basic underlying forces of demand and supply that come from the attempts of households, firms and financial institutions to buy and sell goods, services and assets across nations. Changes in exchange rates, in turn, modify the behaviour by households, firms and financial institutions. Under a fixed.

The forex market that we studied in Section 17.2 was hugely expanded in 1971, when the fixed exchange rate system of the Bretton Woods began to be abandoned and floating exchange rates began to appear. Under the fixed exchange rate system there was no inter-bank markets for national currencies, no dealers carrying out

huge transactions. The Bretton Woods agreement prevented speculation in currencies. The Bretton Woods Agreement was set up in 1945 with the aim of stabilizing international currencies and preventing money fleeing across nations. This agreement fixed all national currencies against the dollar and set the dollar at a rate of $35 per ounce of gold.

If we consider capital flows, then under a flexible exchange rate, capital movements affect the domestic economy, by having expenditure-switching effects income, output and employment, and they can also change domestic prices. Under a fixed exchange rate, capital movements do not affect the domestic economy directly, but may affect it indirectly by altering the money supply, interest rates, and so on. In fact, with high capital mobility, the central bank is unable to control the money supply and thus loses control of the domestic interest rates.

Let us now look at the relative merits of fixed and flexible exchange rates and see when it is better to have a flexible rate regime. What is the case for and against flexible exchange rates? Basically, a flexible exchange rate regime, the case for which was always quite popular among many economists and became attractive to policymakers of many countries in the wake of currency crises in the late 1960s in Western countries, is a system where the central bank does not intervene in the foreign exchange markets to fix rates, is supposed to automatically ensure exchange rate flexibility. Moreover, this system is supposed to confer other benefits as well. Let us look at these putative benefits now.

First, under flexible rates, there is monetary policy autonomy. If central banks were no longer required and obliged to intervene in currency markets to fix exchange rates, governments would be able to use monetary policy to reach internal and external balance. No country would be able, moreover, to export inflation or unemployment to other nations. Secondly, under a system of flexible exchange rates, the underlying asymmetries of power prevalent under fixed exchange rate system, like that of the US under the Bretton Woods arrangement, would vanish, and powerful countries like the US will not be able to set world monetary conditions all by themselves. Finally, and this is related to the first point above, under a flexible exchange rate regime, the exchange rates would act as automatic stabilisers. Even in the absence of an active monetary policy, the quick adjustment of market determined exchange rates would help countries maintain internal and external balance in the presence of fluctuating aggregate demand.

What is the case against floating exchange rates? The experience with floating exchange rates has not been uniformly nice, so that some scepticism about floating exchange rates have arisen. The following points are put forward as reasons for lack of faith in flexible exchange rates. First, since central banks are freed from the obligation to fix exchange rates, it is feared that some indiscipline may creep in, and they may embark on an inflationary policy. The discipline imposed on them would be lost. Secondly, flexible exchange rates allow speculators to step in, and speculation on changes in exchange rates, it is feared, could lead to instability in foreign exchange markets, and this instability, in turn, might have negative effects on countries' external and internal balance. Moreover, floating exchange rates could cause more disruptions to a country's home money markets than fixed exchange rates. Third, floating exchange markets can make relative international prices more predictable and hence damage international trade and investment.

A floating exchange rate regime indicates that coordination on adjustment is less than under fixed exchange rate regime, which had an architecture like the Bretton

Woods system. Under flexible exchange rates, countries might follow a policy without thinking of possible beggar-thy-neighbour effects. The poor countries might be hurt by competitive currency practices. This is the fourth point against floating exchange rates. Finally, proponents of flexible exchange rates claim that a flexible exchange rate regime provides greater autonomy to policymaking by countries. Sceptics of floating exchange rate regimes claim that such autonomy is largely illusory. Fluctuations in exchange rates would have such large and wide-ranging macroeconomic effects that central banks would be forced to intervene in foreign exchange markets, even though they may not have a formal commitment to peg. Floating exchange rates would thus increase the uncertainty without giving macroeconomic policy greater liberty.

How does the central bank intervene in the foreign exchange market under fixed exchange rates? In technical terms, the central bank intervenes in the foreign exchange rate market by selling foreign currency. Therefore, a country can defend a fixed exchange rate parity that differs from the equilibrium exchange rate (that would hold under flexible rates) only as long as it has a sufficient amount of foreign exchange reserves to satisfy the market excess demand for the foreign currency. If the country runs out of foreign exchange reserves, the fixed parity becomes unsustainable and the central bank will be forced to give up the defence of the currency: the exchange rate will depreciate to its flexible rate value or it will lead to developing of the black market for buying and selling of foreign exchange (as has been the case in many countries as well as in India, before 1993).

Note also that foreign exchange rate intervention affects the money supply of the country under consideration. In fact, when the central bank intervenes to defend its parity, it is selling foreign exchange currency in the market; in exchange of its sale of foreign currency the central bank receives domestic currency that is therefore taken out of circulation: investors pay with domestic currency their purchase of foreign currency from the central bank. In this sense, foreign exchange intervention taking the form of a sale of foreign reserves has an effect on the money supply that is identical to an open market sale of government securities; in both cases, the money supply is reduced. Therefore, foreign exchange rate intervention taking the form of a sale of foreign reserves leads to a reduction in the money supply. Conversely, foreign exchange rate intervention taking the form of a purchase of foreign reserves leads to an increase in the money supply.

We discussed in Unit 13, in the Section on the money market equilibrium how monetary policy affects the money supply and the interest rate of an economy. *Open market operations* are the standard instrument way in which a central bank controls the money supply and interest rates. We should consider now the effects of such open market operations when the economy is open. Open market operations have very different effects under flexible and fixed exchange rate regimes.

Consider first the effect of an open market purchase of government bonds under flexible exchange rates. Under flexible rates, the central bank does not intervene to defend its currency when market pressures lead to its weakening. Therefore, an open market purchase of domestic bonds will lead to an increase of the money supply. In turn, this increase in the money supply will cause a reduction of the domestic interest rate (please refer to Unit 13). What will be the effect of this monetary expansion on the exchange rate? The exchange rate will depreciate: in fact, as interest rate at home are now lower than before, investors will want to reduce their holding of domestic bonds and increase their holding of foreign bonds that are now relatively

more attractive in terms of their return. Therefore, investors will try to sell domestic bonds, buy foreign currency and buy foreign bonds. The attempt to sell domestic currency in order to buy foreign bonds will, in turn, cause a depreciation of the domestic currency.

The effects of the open market purchase of bonds on the money supply under flexible exchange rate will be identical to the one obtained in a closed economy: the money supply will increase and interest rates will fall. The increase in the money supply and reduction in the interest rate will lead to a depreciation of the domestic currency but since the central bank does not defend the current parity under flexible exchange rates, no foreign reserve intervention will occur and foreign reserves will remain the same as before: then, the exchange rate will depreciate.

One key advantage of fixed exchange rates is the elimination of exchange rate risk, which can greatly enhance international trade and investment. A second key advantage is the discipline a fixed exchange rate system imposes on a country's monetary authority, likely to result in a much lower inflation rate.

Some have argued that it is impossible to have simultaneously a combination of: full capital account convertibility, domestic monetary policy interdependence and a stable currency. Suppose a country wants capital account convertibility. Then it has to give up the latter two. Let us briefly mention some of the exchange rate arrangements that obtain in practice, that are not fully flexible but some variants of flexible exchange rates. These are called intermediate exchange rate systems. There are the systems of "crawling peg", mixed flexible and fixed rates", "target zone", and "managed or pegged or dirty float". When the range of deviations is allowed to be wider, say 2.5 or 3 per cent, it is known as the wider band system. It is also known as a target zone system. In practice, most countries opt for fixed pegs or crawling pegs, or managed floats. No country at present seems to favour fixed exchange rates. However, an entirely freely floating exchange rate system also appears to be rare.

Check Your Progress 2

1) Explain how floating exchange rates work.

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2) How does the Central Bank of a country intervene to control the money supply in the presence of fixed exchange rates?

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3) Briefly state the basic structure and components of a balance-of payments accounts table.

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17.4 DETERMINATION OF EXCHANGE RATES

When we study the determinants of exchange rates, we must distinguish between long run determinants and short run because the determinants in the two situations are different and exchange rates are more volatile.

In the long run, the exchange rates are determined by the movement of the important variables, called the fundamentals, like price and real incomes in different countries. The long run exchange rates between two currencies are determined by supply and demand. There are other factors that affect the exchange rates by shifting the demand and supply curves. An important such factor is real income in an economy, which reflects the productivity of the country's resources. Change in real income at home relative to that abroad will shift the demand and supply curves in the foreign exchange market. In the long run the equilibrium exchange rate is determined by the intersection of supply and demand curves. Shifts in the supply curve or demand curves are brought about by variables such as real income and price levels. Another important long-run determinant of exchange rates is the domestic price level compared to that abroad. A basic result is that all things remaining equal, an increase in a country's price level will lead to long-run depreciation of the country's currency. The third factor influencing exchange rates are tariffs, trade barriers and preferences. These affect the ability of domestic residents to purchase foreign goods and hence affect demand for foreign currencies. This altered demand changes the exchange rate. Of course, the same kind of effect works for foreign consumers to buy domestic goods and services. Finally, it is suggested that interest rates prevailing in the domestic financial markets as well as in foreign markets influence long run exchange rates. However, if interest rate parity holds, interest rates affect exchange rates mainly in the short run. If interest rates in country A are higher relative to those in country B, holders of deposits in country B's currency in B's domestic economy find it worthwhile to convert the currency of B into currency of A. this raises the demand for A's currency. Thus a rise in interest rate in A leads to a decrease in the currency of A in the domestic market.

We have put forward several determinants of exchange in the long run. There is a simpler theory, called **purchasing power parity (PPP)** that asserts that in the long run the exchange rate between two currencies is determined only by differences in the price level in the two countries. The idea of PPP derives from the law of one price, which states that two identical goods within a same market must sell at the same price. Violations of the law will be corrected by consumers buying only the cheaper one. Applied to international economics, the law of one price assets that an identical good must sell at the same price expressed in the same currency. The law of one price applies to identical goods, but has extended to purchasing power parity, which is a relationship not between prices of identical goods but between price

levels in different countries. Purchasing power parity states that the price level in the domestic economy times the exchange rate (expressed as foreign currency per unit of domestic currency) equals the price level in a foreign country:

$$P_d \times e = P_f$$

where P_d is price level in the domestic economy, P_f is price level in a foreign country, and e is the exchange rate.

When PPP holds, the domestic currency has the same purchasing power at home and in any other country. PPP also implies that a foreign currency will depreciate if the country's price level rises relative to the foreign price level and appreciate if the foreign price level rises relative to the country's own price level. The question is, does the PPP hold in reality. The empirical evidence seems to suggest that it does not always hold particularly in the short run. The reason is that there are substantial transaction costs. Moreover, goods are really not identical across markets and countries. There are also substantial amount of non-traded goods. But the PPP does a good job of explaining the *direction* of change in the exchange rate.

Now let us try to look at the determinants of exchange rates in the short run. In the short run, there is tremendous volatility and fluctuations in exchange rates. The determinants of exchange rates in the long run do not explain the fluctuations in exchange rates in the short run. Since in modern times foreign exchange markets are linked with computers, banks and other dealers can very quickly convert domestic currency into foreign currency, they can very quickly buy at a lower price in one market and try to sell in the same or other market very soon. Thus in the short run, exchange rates are largely determined by expectations of future exchange rates.

Banks and other traders of currency are continually seeking out profit opportunities. To them foreign bank deposits are close substitutes for deposits in foreign currency because these can be easily converted from one currency to another via the foreign exchange market. So these dealers are constantly monitoring movements of interest rates and exchange rates to determine the most profitable kind of deposits to hold. If Ee_{t+1} denotes the trader's expectations of the future exchange rate, and e_t the current exchange rate, then the expected rate of return of holding foreign deposits is:

$$R_f = i_f - \frac{(Ee_{t+1} - e_t)}{e_t}$$

If i_d is domestic interest rates, traders are continually comparing i_d with R_f. if the latter is greater, then the traders will like to hold deposits abroad. They switch continually across countries to maximise their expected returns, and this goes on until in equilibrium

$$R_f = i_d = i_f - \frac{(Ee_{t+1} - e_t)}{e_t}$$

This relation is called **interest rate parity**, because it depicts the equality of interest rate on domestic deposits and *expected* return on foreign deposits. When interest rate parity holds, traders cannot profit by switching currency holdings, and this effectively determines the short run current exchange rate e_t.

The interest rate parity relation shows that R_f depends not only on e_t and I_f but also

on traders' expectations about future exchange rates Ee_{t+1}. traders are continually updating this expectation based on all the relevant current information. Hence, short run exchange rates are hard to predict and arise mainly due to traders' minute-to-minute changes in expectations that take place as new information becomes available.

17.5 AN ILLUSTRATION: THE EXCHANGE RATE SYSTEM OF INDIA

It is interesting to look at a case study of a country like India for several reasons: first it is a small country in terms of imports and exports as a proportion of world imports and exports. Secondly, it is a developing nation that had an experience of being colonised. Thirdly, the government intervened heavily in the foreign exchange market, and over the lat 15 years or so, there has been liberalisation, whereby the government has liberalised the exchange rate policy. Finally, and related to the above point is the fact that India has changed its exchange rate regime from an earlier fixed one to a new one. Also the exchange control system has changed. Let us now study the exchange rate mechanism and system operative in India and explore how it has undergone changes over the years.

Before the IMF came into being, the rupee was linked to the pound sterling. In India, there was a sterling exchange standard till 1947. When India became a member of the IMF, the rupee-pound sterling link was severed, and the rupee's par value came to be expressed in gold. Since in the Bretton Woods system, gold was linked to the US dollar, the dollar in effect became the intervention currency. But the exchange value of the rupee in terms of the pound sterling was not disturbed. When the pound was devalued in 1949, the rupee was devalued to an identical extent. However, the devaluation of the rupee in 1949 and later in 1966 led to the reduction of the par value of the rupee in terms of gold.

In 1971, after the USA left the fixed exchange regime, the rupee-pound rate was allowed to fluctuate with reference to the par value of the rupee in terms of the US dollar, even though the gold parity as well as the US dollar parity of the rupee as fixed in June 1966 remained unchanged. This arrangement lasted only from August to December 1971. In December 1971, the pegging of the exchange rate of the rupee to the dollar was given up and a central rate of the rupee as an average of the buying and selling rates of the RBI for the pound came to be adopted. This arrangement continued till September 24, 1975 when the rupee was de-linked from the pound sterling. The rupee was pegged to gold and sterling till 1966, to gold and dollar from 1966 to 1971, and again to sterling from 1971 to 1975.

From September 25, 1975, the exchange value of the rupee was determined with reference to the daily exchange rate movements of a selected number of currencies of countries that were major trading partners of India. The selection of the currency units and the weights to be assigned to them was left to the discretion of the RBI, subject to the approval of the government. Thus, the rupee came to be linked to an undisclosed basket of currencies. It was undisclosed in order to discourage speculation in the foreign exchange market. Even when the rupee was pegged to the basket of currencies, the pound sterling continued to be the currency of intervention. Under this arrangement, the value of the domestic currency (rupee) with respect to the intervention currency (pound) was changed in line with the movements in the weighted average of the value of the trading partners' currencies *vis- a-vis* the intervention currency.

India chose basket peg over single-currency peg to give stability to the exchange rate. Pegging to a single currency injects greater volatility to the exchange rate emanating from the fluctuations in the currency to which the pegging has been done. However, in reality, this stability seems to have been absent as the rupee was adjusted vis a vis the pound 3 times in 1975, 13 times in 1979, 71 times in 1981, 154 times in 1985, 200 times in 1988, and 252 times in 1998-90. Over the entire period that the basket-peg system was in operation, the RBI gave daily announcements of its buying and selling rates to authorised dealers for transactions.

The basket-peg was given up when India liberalised her economy in 1991. The basket-peg arrangement was replaced by the system of "Liberalised Exchange Rate Management" (LERM) or the Dual Exchange Rate System in March 1992. The dollar replaced the pound sterling as the intervention currency. The LERM was a tentative shift towards a flexible exchange rate regime. Under LERM, or the Dual Exchange Rates, there were two exchange rates, one officially determined and one market determined. Authorised dealers had to surrender 40 per cent of all current account receipts to the RBI at the official rate, while the remaining 60 per cent could be traded at the market rate. In February 1993, India moved to a floating exchange rate regime, with the introduction of the "Unified Exchange Rate System " (UERS). As part of the UERS, trade account convertibility of the rupee was introduced on March 2, 1993. Since then convertibility has been extended in scope and from August 20, 1994, convertibility of many current account transactions was introduced. However, there is still some scepticism in official circles over full capital account convertibility. Thus India now has a floating exchange rate system with intervention by the authorities to moderate changes in the exchange rate and to avoid undue speculation. RBI occasionally purchases and sells currencies to ensure that market operations and exchange rate operations are smooth and not speculative in nature.

India thus had a basket peg system from September 1975 to March 1992, a dual exchange rate system from March 1992 to February 1993, and a floating exchange rate system thereafter. The pound was the intervention currency from 1966 to 1992 and subsequently the dollar became the intervention currency. Some subsequent developments may be mentioned. In August 1993, the direct quotation system was abolished. In October 1995, the RBI discontinued quoting its buying and selling rates. In April 1997, the RBI permitted banks to borrow and invest in foreign markets. There has also occurred a liberalisation of gold policy. This has had a significant impact on the Indian forex market. This policy has created new channels of gold import, which led to shrinking of difference in the domestic and international prices of gold. Consequently, the unofficial market in foreign exchange all but disappeared.

To end this section, let us now look at the process of Central Bank intervention, and the exchange control system that has been in operation in India. The RBI has the authority to enter into foreign exchange dealings both on its own accord an on behalf of the government. Foreign exchange intervention in India is the joint responsibility of the RBI and the Ministry of Finance. The RBI, however does not deal in foreign exchange directly with the public. Rather, it does so through authorised dealers (ADs). The public has to carry out transactions in foreign exchange through authorised dealers, of whom at present there are about 85. These authorised dealers have formed an organisation called the Foreign Exchange Dealers' Association of India (FEDAI) since 1958, which determines the rules for the fixation of commission and other charges. Before this till 1958, the RBI exercised control over foreign exchange dealings through the Exchange Banks' Association.

The RBI determines the exchange rate regime and monitors and supervises the foreign exchange market. Previously, the RBI used to establish the day's buying and selling rate of the rupee in terms of pound sterling at the beginning of the day. During the fixed exchange rate regime, in order to maintain the prevailing exchange value of the rupee, the RBI was obliged to buy and sell foreign exchange against rupee on demand without limit at fixed rates. Since 1947, after Independence, the RBI was to buy and sell any currency; before 1947, it was only pound sterling. But even after 1947, in actual practice, the RBI did not buy and sell any currency other than the pound for a long time, because the pound was the intervention currency till 1971. Dollar purchases were started on October 9, 1972, and dollar sales from February 2, 1987. Deutsche mark and yen purchases were started in 1974.

Till February 1992, the RBI used to buy US dollars, pound sterling, deutsche mark, and yen spot and forward for varying maturities up to 12 months, but sold only dollar and sterling on spot basis. From March 1992, the dollar replaced the pound sterling as the intervention currency.

There has been in operation an exchange control system that arose in the late 1930s when India was not only a colonised economy but was in the midst of World War II and controls were imposed in many areas of the economy. Exchange control was first imposed under the Defence of India Act, 1939. Later, a statutory basis was given to it by the Foreign Exchange regulation Act, 1947. This Act was replaced by a more comprehensive, forceful and expanded legislation, the Foreign Exchange Regulation Act, 1973, which came into force on January1, 1974. This was replaced later by the Foreign Exchange Management Act. The exchange control was related to and complemented by the trade controls imposed by the Chief Controller of Imports and Exports in terms of Imports and exports (Control) Act, 1947. Exchange control was relaxed in the 1990s after liberalisation.

Check Your Progress 3

1) What are the main determinants of exchange rates in the short run?

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2) Write a brief note on the exchange rate arrangement in India.

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3) What do you understand by currency convertibility? Do you think India should have full capital account convertibility?

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17.6 LET US SUM UP

In this unit, we studied the functioning of foreign exchange markets. We looked at this financial market that is the biggest financial market in the world. We saw who the main actors are, and how transactions take place. We then looked at the question of whether fixed exchange rates are better than flexible ones and looked at different arrangements. We observed that most nations are now opting for flexible exchange rates, and we explored why. We then looked at the determination of exchange rates with spot and forward trading, and the presence of risks.

We finally looked as an illustration the case of exchange rate regime in India. We saw how the earlier fixed rate regime was replaced by the flexible rate system. We learnt about the exchange control system that was in operation and that has been modified.

17.7 KEY WORDS

Arbitrage : Arbitrage, generally means buying a product when its price is low and then reselling it after its price rises in order to make a profit. Currency arbitrage means buying a currency in one market (say New York) at a low price and reselling, moments later, in another market at a higher price.

Currency Appreciation : A currency *appreciates* with respect to another when *its value rises* in terms of the other.

Currency Convertibility : Under full currency convertibility, institutional exchange arrangements exist whereby people can freely and without limit exchange without limit domestic currency for any foreign currency or gold at the market rate of exchange

Exchange Rate : The exchange rate represents the number of units of one currency that exchanges for a unit of another.

Forward Exchange Rate : The forward exchange rate refers to the rate that appears on a contract to exchange currencies either 30, 60, 90,180 or sometimes even more, days in the future.

Interest Rate Parity : This occurs when interest on domestic deposits equals the expected return on foreign deposits. When interest rate parity holds, traders cannot profit by switching currency holdings.

Purchasing Power Parity : It is a principle according to which states that the equilibrium exchange rate makes the cost of foreign and domestic goods expressed in the same currency equal.

Spot Exchange Rate : The spot exchange rate refers to the exchange rate that prevails *on the spot*, that is, for trades to take place immediately. In reality, however, even payment for transactions under spot exchange rates take about two days to take place.

17.8 SOME USEFUL BOOKS

Coyle, B.(2001) *Foreign Exchange Markets*, Glenlake Publishing Company, Chicago.

Kenen, Peter B. (1994) *The International Economy*, Cambridge University Press, Cambridge.

MacDonald, Ronald (1988) *Floating Exchange Rates: Theories and Evidence*, Routledge, London.

17.9 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) See Section 17.2 and answer.

2) See Section 17.2 and answer.

3) See Section 17.2 and answer.

Check Your Progress 2

1) See Section 17.3 and answer.

2) See Section 17.3 and answer.

3) See Section 17.3 and answer.

Check Your Progress 3

1) See Section 17.4 and answer.

2) See Section 17.5 and answer.

3) See Section 17.5 and answer.