

FOREIGN EXCHANGE RATE

1. MEANING OF FOREIGN EXCHANGE RATE

The foreign exchange rate or exchange rate is the rate at which one currency is exchanged for another. It is the price of one currency in terms of another currency. It is customary to define the exchange rate as the price of one unit of the foreign currency in terms of the domestic currency. The exchange rate between the dollar and the pound refers to the number of dollars required to purchase a pound. Thus the exchange rate between the dollar and the pound from the US viewpoint is expressed as $\$ 2.50 = \pounds 1$. The Britishers would express it as the number of pounds required to get one dollar, and the above exchange rate would be shown as $\pounds 0.40 = \$ 1$.

The exchange rate of $\$ 2.50 = \pounds 1$ or $\pounds 0.40 = \$ 1$ will be maintained in the world foreign exchange market by arbitrage. *Arbitrage refers to the purchase of a foreign currency in a market where its price is low and to sell it in some other market where its price is high.* The effect of arbitrage is to remove differences in the foreign exchange rate of currencies so that there is a single exchange rate in the world foreign exchange market. If the exchange rate is $\$ 2.48$ in the London exchange market and $\$ 2.50$ in the New York exchange market, foreign exchange speculators, known as arbitrageurs, will buy pounds in London and sell them in New York, thereby making a profit of 2 cents on each pound. As a result, the price of pounds in terms of dollars rises in the London market and falls in the New York market. Ultimately, it will equal in both the markets and arbitrage comes to an end. If the exchange rate between the dollar and the pound rises to $\$ 2.60 = \pounds 1$ through time, the dollar is said to depreciate with respect to the pound, because now more dollars are needed to buy one pound. When the rate of exchange between the dollar and the pound falls to $\$ 2.40 = \pounds 1$, the value of the dollar is said to appreciate because now less dollars are required to purchase one pound. If the value of the first currency depreciates that of the other appreciates, and vice versa. Thus a depreciation of the dollar against the pound is the same thing as the appreciation of the pound against the dollar, and vice versa.

2. DETERMINATION OF EQUILIBRIUM EXCHANGE RATE

The exchange rate in a free market is determined by the demand for and the supply of foreign exchange. The equilibrium exchange rate is the rate at which the demand for foreign exchange equals to supply of foreign exchange. In other words, it is the rate which clears the market for foreign exchange. Ragner Nurkse defined the equilibrium exchange rate as, "that rate which over a certain period of time, keeps the balance of payments in equilibrium." There are two ways of determining the equilibrium exchange rate. The rate of exchange between dollars and pounds can be determined either by the demand and supply of dollars with the price of dollars in pounds, or by the demand and supply of pounds with the price of pounds in dollars. Whatever method is adopted, it yields the same result. The analysis that follows is based on the dollar price in terms of pounds.

THE DEMAND FOR FOREIGN EXCHANGE

The demand for foreign exchange is a derived demand from pounds. It arises from import of British goods and services into the US and from capital movements from the US to Britain. In fact, the demand for pounds implies a supply of dollars. When the US businessmen buy British goods and services and make capital transfers to Britain, they create demand for British pounds in exchange for US dollars because they cannot make payments to Britain in their currency, the US dollars.

The demand curve for pounds DD is downward sloping from left to right in Figure 1. It implies that the lower the exchange rate on pounds, the larger will be the quantity of pounds demanded in the foreign exchange (US) market, and vice versa. This is because a lower exchange rate on pounds make British exports of goods and services cheaper in terms of dollars. The opposite happens if the exchange rate on pound is higher. It will make British goods and services dearer in terms of dollars, and the demand for pounds will fall in the foreign exchange (US) market. But the shape of the demand curve for foreign exchange will depend on the elasticity of demand for imports. "If a country imports necessities and raw materials, we may expect the elasticity of demand for imports to be low and the quantity imported to be insensitive to price changes. If, on the other hand, the country imported luxury goods and goods for which suitable substitutes exist, demand elasticities for imports might be high... If the country has many well-developed import competing industries, the elasticity of demand for imports most certainly is high... In the short run, elasticity of demand for imports may not be very high. In the long run, however it is much more probable that the production pattern will alter according to price changes, and the demand for imports, therefore, will be more elastic."¹

THE SUPPLY OF FOREIGN EXCHANGE

The supply of foreign exchange in our case is the supply of pounds. It arises from the US exports of goods and services and from capital movements from the US to Britain. Pounds are offered in exchange for dollars because British holders of pounds wish to make payments in dollars. Thus the supply of foreign exchange reflects the quantities of pounds that would be supplied in the foreign exchange market at various dollars prices of pounds.

The supply curve for pounds SS is an upward sloping curve, as shown in Figure 1. It is a positive function of the exchange rate on pounds. As the exchange rate on pounds increases, the greater

is the quantity of pounds supplied in the foreign exchange market. This is because with increase in the exchange rate (lower pounds price of dollars), US goods, services and capital funds become better bargains to holders of pounds. Therefore the holders of pounds will offer larger quantities of pounds with the increase in the exchange rate.

But the shape of supply curve of foreign exchange will be determined by the elasticity of the supply curve. "As the value of the country's own currency increases, imports become relatively cheaper, and more is imported. As more is imported, more of the home currency is supplied on the foreign exchange market, provided elasticity is greater than unity. When imports become relatively cheap, new goods will start to be imported, and domestic import-competing industry will be gradually eliminated by imports. These are two important reasons why we expect the supply of foreign exchange to be quite elastic. Further, the larger the time perspective we take into account, the more elastic will be the supply."²

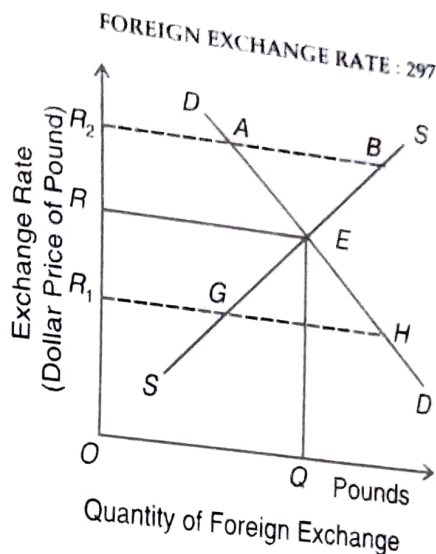


FIG. 1

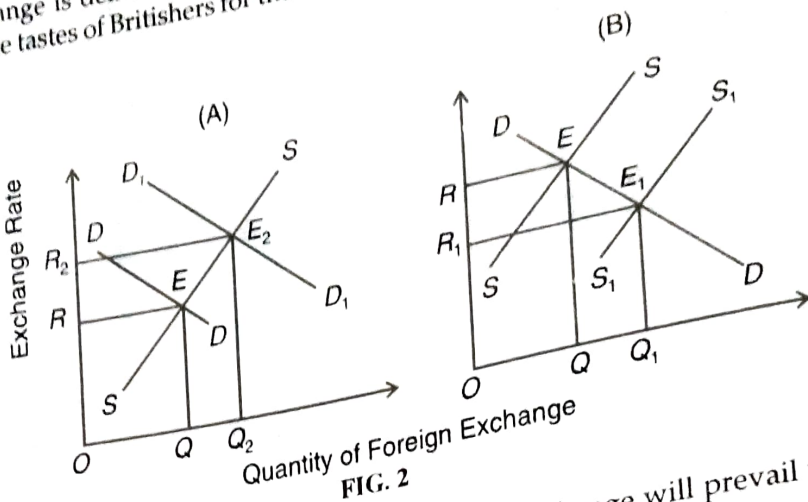
EQUILIBRIUM EXCHANGE RATE

Given the demand and supply curves of foreign exchange, the equilibrium exchange rate is determined where DD , the demand curve for pounds intersects SS , the supply curve of pounds. They cut each other at point E in Figure 1. The equilibrium rate is OR and OQ of foreign exchange is demanded, and supplied. At OR exchange rate the US demand for pounds equals the British supply of pounds, and the foreign exchange market is cleared. At any higher rate than this, the supply of pounds would be larger than the demand for pounds so that some people who wish to convert pounds into dollars will be unable to do so. The price of pounds will fall, less pounds will be supplied and more will be demanded. Ultimately, the equilibrium rate of exchange will be re-established. In Figure 1 when the exchange rate increases to OR_2 , the supply of pounds $R_2B > R_2A$ the demand for pounds. With the fall in the price of pounds, the equilibrium exchange rate OR_2 is again established at point E . On the contrary, at an exchange rate lower than this, say OR_1 , the demand for pounds R_1H is greater than the supply of pounds R_1G . Some people who want pounds will not be able to get them. The price of pounds will rise which will reduce the demand and increase the supply of pounds so that the equilibrium exchange rate OR is re-established at point E where the two curves DD and SS intersect.

Suppose there is a shift upward in the US demand for pounds, as shown by the upward shifting of the DD curve to D_1D_1 in Figure 2 (A). This may be due to increase in the US tastes for British goods, an increase in the US national income, etc. which increases the demand for imported goods in the US. With the shifting up of the demand curve to D_1D_1 , the US dollar depreciates and the British pound appreciates which re-establish the new equilibrium exchange rate OR_2 at point E_2 where OQ_2 quantity of foreign exchange is demanded and supplied. On the other hand, if the supply of pounds increases and the supply curve shifts down from SS to S_1S_1 , as shown in Figure 2 (B), the value of pounds depreciates and that of dollars appreciates. This automatically brings about a new equilibrium exchange rate OR_1 at point E_1 in Figure 2 (B) where the S_1S_1 curve intersects the DD curve. At the new-equilibrium exchange rate OR_1 , OQ_1 of

² Ibid. 214-15. Students who find it difficult may also leave this para.

foreign exchange is demanded and supplied. The supply of pounds may increase due to the increase in the tastes of Britishers for the US goods, the increase in the national income of Britain, etc.



Thus under flexible exchange rates, equilibrium rate of exchange will prevail which will clear the market and keep the balance of payments in equilibrium.

3. THEORIES OF FOREIGN EXCHANGE RATE

There are three theories of the determination of foreign exchange rate. The first is the Mint Parity Theory, the second is the Purchasing Power Parity Theory, and the third is the Balance of Payments Theory. We discuss these theories one by one.

1. THE MINT PARITY THEORY : DETERMINATION UNDER GOLD STANDARD

This theory is associated with the working of the international gold standard. Under this system, the currency in use was made of gold or was convertible into gold at a fixed rate. The value of the currency unit was defined in terms of certain weight of gold, that is, so many grains of gold to the rupee, the dollar, the pound, etc. The central bank of the country was always ready to buy and sell gold at the specified price. The rate at which the standard money of the country was convertible into gold was called the *mint price* of gold. If the official British price of gold was £6 per ounce and the US price of gold \$ 36 per ounce, they were the mint prices of gold in the respective countries. The exchange rate between the dollar and the pound would be fixed at \$ 36 / £6 = \$ 6. This rate was called the mint parity or mint par of exchange because it was based on the mint price of gold. Thus under the gold standard, the normal or basic rate of exchange was equal to the ratio of their mint par values ($R = \$/\pounds$).

But the actual rate of exchange could vary above and below the mint parity by the cost of shipping gold between the two countries. To illustrate this, suppose the US has a deficit in its balance of payments with Britain. The difference between the value of imports and exports will have to be paid in gold by US importers because the demand for pounds exceeds the supply of pounds. But the transshipment of gold involves transportation cost and other handling charges, insurance, etc. Suppose the shipping cost of gold from the US to Britain is 3 cents. So the US importer will have to spend \$ 6.03 (\$ 6 + .03c) for getting £ 1. This could be the exchange rate which is the US gold export point or upper specie point. No US importer would pay more than \$ 6.03 to obtain one pound because he can buy \$ 6 worth of gold from the US treasury and ship it to Britain at

cost of 3 cents per ounce. Similarly, the exchange rate of the pound cannot fall below \$ 5.97 in the case of a surplus in the US balance of payments. Thus the exchange rate of \$ 5.97 to a pound is the US gold import point or lower specie point.

ASSUMPTIONS

This theory is based on the following assumptions:

1. The price of gold is fixed by a country in terms of its currency.
2. It buys and sells gold in any amount at that price.
3. Its supply of money consists of gold or paper currency which is backed by gold.
4. Its price level varies directly with its money supply.
5. There is movement of gold between countries.
6. Capital is mobile within countries.
7. The adjustment mechanism is automatic.

EXPLANATION

Given these assumptions, the exchange rate under the gold standard is determined by the forces of demand and supply between the gold points and is prevented from moving outside the gold points by shipments of gold.

Figure 3 shows the determination of the exchange rate under the gold standard. The exchange rate OR is set up at point E where the demand and supply curves DD_1 and SS_1 intersect. The exchange rate need not be at the mint parity. It can be anywhere between the gold points depending on the shape of the demand and supply curves. The mint parity is simply meant to define the US gold export point (\$ 6.03) and the US gold import point (\$ 5.97). Since the US treasury is prepared to sell any quantity of gold at a price of \$ 36 per ounce, no American would pay more than \$ 6.03 per pound, because he can get any quantity of pounds at that price by exporting gold. That is why, the US supply curve of pounds becomes perfectly elastic or horizontal at the US gold export point. This is shown by the horizontal portion S_1 of the SS_1 supply curve. Similarly, as the US treasury is prepared to buy any quantity of gold at \$ 36 per ounce, no American would sell pounds less than \$ 5.97 because he can sell any quantity of pounds at the price by gold imports. Thus the US demand curve for pounds becomes perfectly elastic at the US gold import point. This is shown by the horizontal portion D_1 of the demand curve DD_1 .

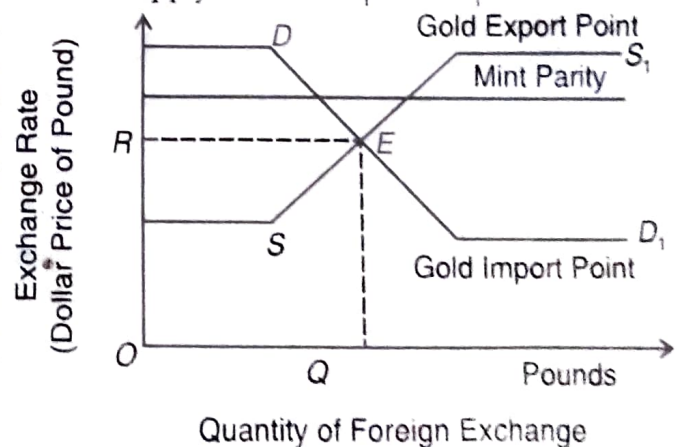


FIG. 3

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The mint parity theory has been criticised on the following grounds :

1. The international gold standard does not exist now ever since it broke down after the Depression of the 1930s.
2. The theory is based on the assumption of free buying and selling of gold and its movement between countries. But governments do not allow such sales, purchases and movements.
3. The theory fails to explain the determination of exchange rates as most countries are on inconvertible paper standard.
4. This theory assumes flexibility of internal prices. But modern governments follow independ-

ent domestic price policy unrelated to fluctuations in exchange rate.
Conclusion. The mint parity theory has long been discarded ever since the gold standard broke down. No country is on the gold standard now. There are neither free movements of gold nor gold parities. So this theory has only an academic interest.

2. THE PURCHASING POWER PARITY THEORY

The purchasing power parity (PPP) theory was developed by Gustav Cassel in 1920 to determine the exchange rate between countries on inconvertible paper currencies. The theory states that equilibrium exchange rate between two inconvertible paper currencies is determined by the equality of the relative change in relative prices in the two countries. In other words, the rate of exchange between two countries is determined by their relative price levels.

There are two versions of the PPP theory: the absolute and the relative. The absolute version states that the exchange rate between two currencies should be equal to the ratio of the price indexes in the two countries. The formula is $R_{AB} = P_A / P_B$ where R_{AB} is the exchange rate between two countries A and B and P refers to the price index. This version is not used because it ignores transportation costs and other factors which hinder trade, non-traded goods, capital flows and real purchasing power. Economists, therefore, use the relative version which we discuss.

The theory can be explained with the help of an example.

Suppose India and England are on inconvertible paper standard and by spending Rs. 60, the same bundle of goods can be purchased in India as can be bought by spending £ 1 in England. Thus according to the purchasing power parity theory, the rate of exchange will be Rs. 60 = £ 1. If the price levels in the two countries remain the same but the exchange rate moves to Rs. 50 = £ 1. This means that less rupees are required to buy the same bundle of goods in India as compared to £ 1 in England. It is a case of *overvaluation* of the exchange rate. This will encourage imports and discourage exports by India. As a result, the demand for pounds will increase and that of rupees will fall. This process will ultimately restore the normal exchange rate of Rs. 60 = £ 1. In the converse case, if the exchange rate moves to Rs. 70 = £ 1, the Indian currency becomes *undervalued*. As a result, exports are encouraged and imports are discouraged. The demand for rupees will rise and that for pounds will fall so that the normal exchange rate of Rs. 60 = £ 1 will be restored.

According to the theory, the exchange rate between two countries is determined at a point which expresses the equality between the respective purchasing powers of the two currencies. This is the purchasing power parity which is a moving par and not fixed par (as under the gold standard). Thus with every change in price level, the exchange rate also changes. To calculate the equilibrium exchange rate, the following formula is used:

$$R = \frac{\text{Domestic Price of a Foreign Currency} \times \text{Domestic Price Index}}{\text{Foreign Price Index}}$$

$$\text{or } R = R_0 \times \frac{P_{A1} / P_{A0}}{P_{B1} / P_{B0}}$$

where 0 = base period, 1 = period 1, A and B countries, P = price index and R_0 = exchange rate at base period.

According to Cassel, the purchasing power parity is "determined by the quotients of the purchasing powers of the different currencies." This is what the formula does. Let us explain it

terms of our above example. Before the change in the price level, the exchange rate was Rs. 60 = £ 1. Suppose the domestic (Indian) price index rises to 300 and the foreign (England) price index rises to 200, thus the new equilibrium exchange rate will be

$$R = \text{£ } 1 \times \frac{300}{200} = \text{£ } 1.5$$

or

$$\text{Rs. } 60 = \text{£ } 1.5$$

This will be the purchasing power parity between the two countries. In reality, the parity will be modified by the cost of transporting goods including duties, insurance, banking and other charges. These costs of transporting goods from one country to another are, in fact, the limits within the exchange rate can fluctuate depending upon the demand and supply of a country's currency. There is the upper limit, called the commodity export point; and the lower limit, known as the commodity import point. (These limits are not as definite as the gold points under the mint par theory).

The PPP theory is illustrated in Figure 4 where DD is the demand curve for foreign currency

(pound in our example) and SS is the supply curve of currency. OR is the rate to exchange of rupees per £, which is determined by their intersection at point E so that the demand for the supply of foreign exchange equals OQ quantity. Suppose the price level rises in India and remains constant in England. This makes Indian exports costly in England and imports from England relatively cheaper in India. As a result, the demand for pounds increases and the supply of pounds decreases. Now the DD curve shifts upward to the right to D_1D_1 and the SS curve to the left to S_1S_1 . The new equilibrium exchange rate is set at OR_1 rupees per pound, which represents the new purchasing power parity. The exchange rate rises by the same percentage as the Indian price level. The purchasing power curve shows that with relative change in the price levels, the exchange rate tends to fluctuate along this curve above or below the normal exchange rate. But there is a limit upto which the purchasing power parity curve can move up and down. The upper and lower limits are set by the commodity export point and the commodity import point respectively.

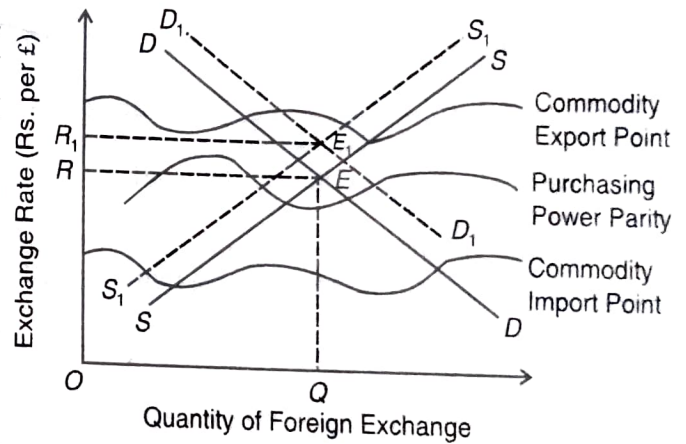


FIG. 4

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Cassell's PPP theory became very popular among economists during 1914-24 and was widely accepted as a realistic explanation of the determination of foreign exchange rate under inconvertible paper currencies. But it has been severely criticised for its weak theoretical base. Some of the criticisms are discussed as under :

1. Defects in Calculating Price Level. One of the serious defects of the theory is that of calculating the price levels in the two countries. The use of index number in calculations presents many difficulties such as the base year, coverage and method of calculation. These may not be the same in both countries. The two countries may not include the same types of commodities in calculating the index numbers. Such difficulties make the index numbers only a rough guide for

measuring the price levels and thus fail to give the correct purchasing power parity between the two countries.

2. Comparison of General Price Level a Difficult Problem. According to the theory, the purchasing power parity between two countries is determined by comparing their general price levels. But the price level may be made up of internally traded plus internationally traded goods, or of the internationally traded goods. If the price level is calculated in terms of the internally traded goods, then the prices tend to equality in both countries, even allowing for the cost of transportation, tariffs, etc. Thus, according to Keynes, "confined to internationally traded commodities, the purchasing power parity becomes an empty truism."³ On the other hand, if the price level includes both internally and internationally traded goods, then price of internally traded goods may move in the opposite direction of internally traded goods, at least in the short period. Thus the real exchange rate may not conform to the parities. Further, if the price level includes both types of goods, there is technical difficulty of people spending their money differently in the two countries, so that the basis for complete and accurate comparisons of price levels is lacking.

3. Not Applicable to Capital Account. Another weakness of the purchasing power parity theory is that it applies to countries whose balance of payments is determined by the merchandise trade account. It is, therefore, not applicable to such countries whose exchange rate is influenced more by capital account.

4. Difficult to Find Base Year. The theory assumes the balance of payments to be in equilibrium in the base period for the determination of the new equilibrium exchange rate. This is a serious defect, because it is difficult to find the base year when the exchange rate was initially in equilibrium.

5. Structural Changes in Factors. The theory is also based on the assumption that there have been no structural changes in the factors underlying the equilibrium in the base period. Such factors are changes in technology, resources, tastes, etc. This assumption is highly unrealistic because changes are bound to take place in these factors which, in turn, are likely to affect exchange rate.

6. Capital is Mobile. The theory is based on the assumption of zero-capital movements. There are many items in the balance of payments such as insurance, shipping, and banking transactions, capital movements, etc. which are not affected by changes in the general price level. But these items affect the exchange rate by influencing the demand for and supply of foreign currencies. The theory is thus weak for it neglects the influence of these factors in determining the exchange rate.

7. Changes in Exchange Rates affects Price Level. The theory further assumes that changes in the price level bring about changes in exchange rates. But changes in exchange rates do affect the price level. For instance, if the external value of rupee falls, imports will become dearer. As a result, the costs and prices of goods using imported materials will rise. On the other hand, exports will become cheaper with fall in the external value of the rupee. Consequently, their demand will increase which will raise the demand for factors used for producing exports, and their prices will also rise. Thus changes in exchange rate do influence the price level.

8. Barter Terms of Trade Change. The theory assumes that the barter terms of trade do not change between the two trading countries. This assumption is unrealistic because the barter terms of trade constantly change due to changes in the demand for foreign goods, in the volume of external loans, in the supply of exported goods, in transport costs, etc.

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9. **No Free Trade.** The theory is based on the assumption of free trade and *laissez-faire* policy. But governments do not follow these policies these days. Rather, they impose a number of restrictions on the movement of goods between countries. Such trade restrictions are tariff, import quotas, customs duties and various exchange control devices which tend to reduce the volume of imports. These, in turn, cause wide deviations between the actual exchange rate and the exchange rate set by the purchasing power parity.

10. **Only Purchasing Power Parity does not Determine Exchange Rate.** The equilibrium exchange rate may not be determined by the purchasing power parity between the two countries. Rather, a sudden increase in the demand for goods of one country may raise the demand for its currency on the part of the other country. This will lead to a rise in the exchange rate.

11. **Neglect of Elasticities of Reciprocal Demand.** According to Keynes, one of the serious defects of this theory is that it fails to consider the elasticities of reciprocal demand. In fact, the exchange rate is determined not only by changes in relative prices, but also by the elasticities of reciprocal demand between the two trading countries.

12. **It is One Sided.** Ragner Nurkse points out that the theory is one-sided in that it is based exclusively on changes in relative prices and neglects all factors that influence the demand for foreign exchange. The theory treats demand as a function of price but neglects the influence of aggregate income and expenditure on the volume and value of foreign trade, these are important factors which affect the exchange rate of a country.

13. **No Direct Relation between Exchange Rate and Purchasing Power.** The theory assumes direct relation between exchange rate and purchasing powers of two currencies. In reality, there is no such relation between the two.

14. **Static Theory.** This is a static theory because it assumes no changes in tastes, incomes, technology, tariffs, etc. These make the theory unrealistic.

15. **Long Run Theory.** This theory is applicable in the long run and fails to determine exchange rate in the short run.

16. **Relevant for Bilateral Trade.** The theory is relevant only for bilateral exchange rate determination and fails to determine exchange rate in the present multilateral trade relations.

17. **Not Possible to Compute Equilibrium Exchange Rate.** According to Halm⁴, "Purchasing power parities cannot be used to compute equilibrium exchange rates or to gauge with precision deviations from international payments equilibrium."⁴

Conclusion. Despite these criticisms, Haberler finds the theory useful. According to him, "While the price levels of different countries may diverge, their price systems are nevertheless interrelated and interdependent, although the relation need not be that of equality. Moreover, supporters of the theory are quite right in contending that the exchanges can always be established at any desired level of appropriate changes in the volume of money."⁵

3. THE BALANCE OF PAYMENTS THEORY

According to this theory, under free exchange rates, the exchange rate of the currency of a country depends upon its balance of payments. A favourable balance of payments raises the exchange rate, while an unfavourable balance of payments reduces the exchange rate. Thus the theory implies that the exchange rate is determined by the demand for the supply of foreign exchange.

The demand for foreign exchange arises from the debit side of the balance of payments. It is

4. G.N. Halm, *Monetary Theory*, p. 228.

5. G. Haberler, *op. cit.*, p. 38.

equal to the value of payments made to the foreign country for goods and services purchased from it plus loans and investments made abroad. The supply of foreign exchange arises from the credit side of the balance of payments. It equals all payments made by the foreign country to our country for goods and services purchased from us plus loans disbursed and investments made in this country. The balance of payments balances if debits and credits are equal. If debits exceed credits, the balance of payments is unfavourable. On the contrary, if credits exceed debits it is favourable. When the balance of payments is unfavourable, it means that the demand for foreign currency is more than its supply. This causes the external value of the domestic currency to fall in relation to the foreign currency. Consequently, the exchange rate falls. On the other hand, in case the balance of payments is favourable, the demand for foreign currency is less than its supply at a given exchange rate. This causes the external value of the domestic currency to rise in relation to the foreign currency. Consequently, the exchange rate rises.

When the exchange rate falls below the equilibrium exchange rate in a situation of adverse balance of payments, exports increase and the adverse balance of payments is eliminated, and the equilibrium exchange rate is re-established. On the other hand, when under a favourable balance of payment situation, the exchange rate rises above the equilibrium exchange rate, exports decline, the favourable balance of payments disappears and the equilibrium exchange rate is re-established. Thus at any point of time, the rate of exchange is determined by the demand for and the supply of foreign exchange as represented by the debit and credit side of the balance of payments. "Any change in the conditions of demand or of supply reflects itself in a change in the exchange rate, and at the ruling rate the balance of payments balances from day to day or from moment to moment."

The determination of exchange rate under the balance of payments theory is illustrated in Figure 5. *DD* is the demand curve for foreign currency. It slopes downward to the left because when the rate of exchange rises, the demand for foreign currency falls, and vice versa. *SS* is the supply curve of foreign exchange which slopes upwards from left to right. This is because when the exchange rate falls, the amount of foreign currency offered for sale will be less, and *vice versa*. The two curves intersect at *E* where *OR* equilibrium exchange rate is determined. At this rate, the quantity of foreign exchange demanded and supplied equals *OQ*. *E* is also the point where balance of payments is in equilibrium. Any exchange rate above or below *OR* will mean disequilibrium in the balance of payments. Suppose the exchange rate rises to *OR₁*. The demand for foreign exchange *R₁A* is less than its supply *R₁B* ($R_1A < R_1B$). It means that there is a favourable balance of payments. When the exchange rate is more than the equilibrium rate, exports decline and imports increase. Consequently, the demand for foreign exchange will rise and the supply will fall. Ultimately, the equilibrium exchange rate *OR* will be restored where demand and supply of foreign exchange equals at point *E*. In the opposite case, when the exchange rate falls below the equilibrium rate to *OR₂*, the demand for foreign exchange *R₂H* is greater than its supply *R₂G* ($R_2H > R_2G$). It implies an unfavourable balance of payments. But fall in the exchange rate leads to increase in exports and decline in imports. As a result, the demand for foreign currency starts falling and the supply starts rising till the equilibrium exchange rate *OR* is re-established with the equality of demand and supply of foreign exchange at point *E*.

However, it is the shape of the demand and supply curves of foreign exchange that determine

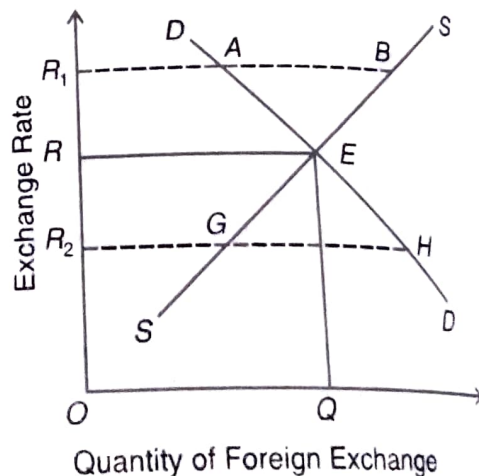


FIG. 5

the exchange rate. For this purpose, four elasticities are relevant : (i) the foreign elasticity of demand for exports, (ii) the domestic elasticity of supply for exports, (iii) the domestic elasticity of demand for imports, and (iv) the foreign elasticity of supply for imports. The equilibrium exchange rate tends to be stable if the demand elasticities are high and the supply elasticities are low.

However, according to this theory, the demand and supply of foreign exchange are determined by factors that are independent of changes in the exchange rate. Such factors are interest on foreign loans, reparation payments, etc. Further, the demand for many items that enter into import trade is perfectly inelastic so that exchange rate changes do not affect them at all. Raw materials come in this category which are required to be imported from certain countries whatever be their prices.

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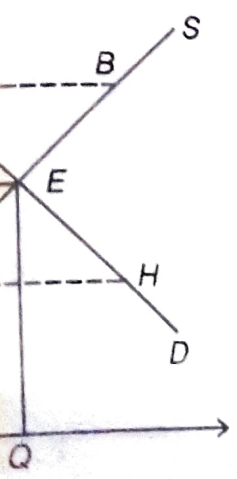
The balance of payments theory has been criticised by economists on the following counts :

- 1. Balance of Payments Independent of Exchange Rate.** The main defect of the theory is that the balance of payments is independent of the exchange rate. In other words, the theory states that the balance of payments determines the exchange rate. This is not wholly true because it is changes in the exchange rate that bring about equilibrium in the balance of payments.
- 2. Neglects the Role of Price Level.** The theory neglects the role of the price level in influencing the balance of payments of a country and hence its exchange rate. But the fact is that price changes do affect the balance of payments and the exchange rates between countries.
- 3. No Free Trade and Perfect Competition.** The theory is based on assumptions of free trade and perfect competition . This is unrealistic because free trade is not practised these days. Governments impose a number of restrictions to reduce imports and adopt measures to encourage exports. This is how they try to correct disequilibrium in the balance of payments.
- 4. Truism.** The theory presupposes that there is an equilibrium exchange rate where balance of payments balances. This is a truism. But the equilibrium exchange rate may not be one of balance of payments equilibrium. In fact, exchange rates between countries continue to prevail under conditions of surplus or deficit in the balance of payments and there is no tendency for the balance of payments to be in equilibrium over the long run.
- 5. Demand for Imported Raw Materials not Inelastic.** The theory has been criticised for the assumption that the demand for imported raw materials is inelastic. There is no raw materials in the world the demand for which is perfectly inelastic.

Its Superiority. Despite these criticisms, the balance of payments theory is the most satisfactory explanation of the determination of exchange rate. It studies the problem of determination of exchange rate under the framework of the general equilibrium analysis in terms of demand and supply. It studies the actual forces which lie behind the demand and supply of foreign exchange, such as the current account and the capital account of the balance of payments. An important implication of the theory is that adjustments in balance of payments can be made through devaluation and revaluation of some currency in case of deficit and surplus in balance of payments respectively. That is why, it is regarded superior to the mint par and purchasing power parity theories of exchange rate.

4. CAUSES OF CHANGES IN THE EXCHANGE RATE

The exchange rate between countries changes due to changes in demand or supply in the foreign exchange market. The factors which cause changes in demand and supply are discussed as under :



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- 1. Changes in Prices.** It is changes in the relative price levels that cause changes in the exchange rate. Suppose the price level in Britain rises relative to the US price level. This will lead to the rise in the prices of British goods in terms of pound. British goods will become dearer in the US. This will lead to reduction in British exports to the US. So the supply of dollars to Britain will diminish. On the other hand, the American goods become cheaper in Britain and their imports into Britain increase. So the demand for dollars will increase. Thus the supply curve for dollars will shift to the left so that the exchange rate is established at a higher level from the point of view of the US. It implies appreciation of the value of the dollar and depreciation of the value of the pound.
- 2. Changes in Interest Rates.** Changes in interest rates also lead to changes in the exchange rate. If interest rates rise in the home country, there is a large inflow of capital from foreign countries. As a result, the exchange rate of the domestic currency will appreciate, relative to the foreign currency. The opposite will be the case, if interest rates fall in the home country.
- 3. Changes in Exports and Imports.** The demand and supply of foreign exchange is also influenced by changes in exports and imports. If exports of the country are more than imports, the demand for its currency increases so that the rate of exchange moves in its favour. Conversely, if imports are more than exports, the demand for the foreign currency increases and the rate of exchange will move against the country.
- 4. Capital Movements.** Short-term or long-term capital movements also influence the exchange rate. Capital-flows tend to appreciate the value of the currency of the capital-importing country and depreciate the value of the capital-exporting country. The exchange rate will move in favour of the capital-importing country and against the capital-exporting country. The demand for the currency of the capital-importing country will rise and its demand curve will shift upward to the right and the exchange rate will be determined at a higher level, given the supply curve of foreign exchange.
- 5. Influence of Banks.** Banks also affect the exchange rate through their operation. They include the purchase and sale of bank drafts, letters of credit, arbitrage, dealing in bills of exchange, etc. These banking operations influence the demand for and supply of foreign exchange. If the commercial banks issue a large number of drafts and letter of credit on foreign banks, the demand for foreign currency rises.
- 6. Changes in Bank Rate.** The bank rate also influences the exchange rate. If the bank rate rises relative to other countries, more funds will flow into the country from abroad to earn high interest rate. It will tend to raise the demand for the domestic currency and the exchange rate will move in favour of the country. Converse will be the case when the bank rate falls.
- 7. Influence of Speculation.** The growth of speculative activities also influences the exchange rate. Speculation causes short-run fluctuations in foreign exchange. If the speculators expect a fall in the value of currency in the near future, they will sell that currency and start buying the other currency they expect to appreciate in value. Consequently, the supply of the former currency will increase and its exchange rate will fall. While the demand for the other currency will increase and its exchange rate will go up.
- 8. Stock Exchange Influences.** Stock exchange operations in foreign securities, debentures, stocks and shares, etc. exert significant influence on the exchange rate. If the stock exchanges help the sale of securities, debentures, shares etc. to foreigners, the demand for the domestic currency will rise on the part of the foreigners and the exchange rate also tends to rise. The opposite will be the case if the foreigners purchase securities, debentures, shares, etc. through the domestic stock exchanges.
- 9. Structural Influences.** Structural change is another important factor which influences the

change rate of a country. Structural changes are those which bring changes in the consumer demand for commodities. They include technological changes, innovations, etc. which also affect the cost structure along with the demand for domestic products. Such structural changes tend to increase the foreign demand for domestic products. It implies increase in exports, greater demand for domestic currency, appreciation of its value and rise in the exchange rate.

10. Political Conditions. Stable political and industrial conditions and peace and security in the country have a significant influence on the exchange rate. If there is political stability and the government is stable, strong and efficient, foreigners will have tendency to invest their funds into the country. With the inflow of capital, the demand for domestic currency will rise and the exchange rate will move in favour of the country. On the contrary, if the government is weak, inefficient and dishonest and there is no safety to life and property, capital will flow out of the country and the exchange rate will move against the country.

11. Policies of Exchange Control and Protection. Policies of exchange control and protection discourage imports and lead to fall in the demand for foreign currency. As a result, the exchange rate of the home country appreciates in relation to the foreign country.

12. Type of Economy. If a country is developing, it needs to import large quantities of raw materials, and capital goods for its development along with capital. But its capacity to export is low. Therefore, its demand for foreign exchange is more which leads to the depreciation of its exchange rate vis-a-vis a developed country whose exchange rate appreciates.

EXERCISES

1. What is an equilibrium rate of exchange? How is it determined?
2. How is the rate of exchange determined under gold standard?
3. Explain how foreign exchange rate is determined under inconvertible paper currencies.
4. Critically examine the Purchasing Power Parity Theory of exchange rates.
5. Discuss the Balance of Payments Theory of foreign exchange rates.
6. Examine the factors influencing the foreign exchange rates.