Purchasing Power Parity (PPP) Theory

Background

- The purchasing-power parity (PPP) theory was elaborated and brought back into use by the Swedish economist **Gustav Cassel** in order to estimate the equilibrium exchange rates at which nations could return to the gold standard after the disruption of international trade and the large changes in relative commodity prices in the various nations caused by World War I.

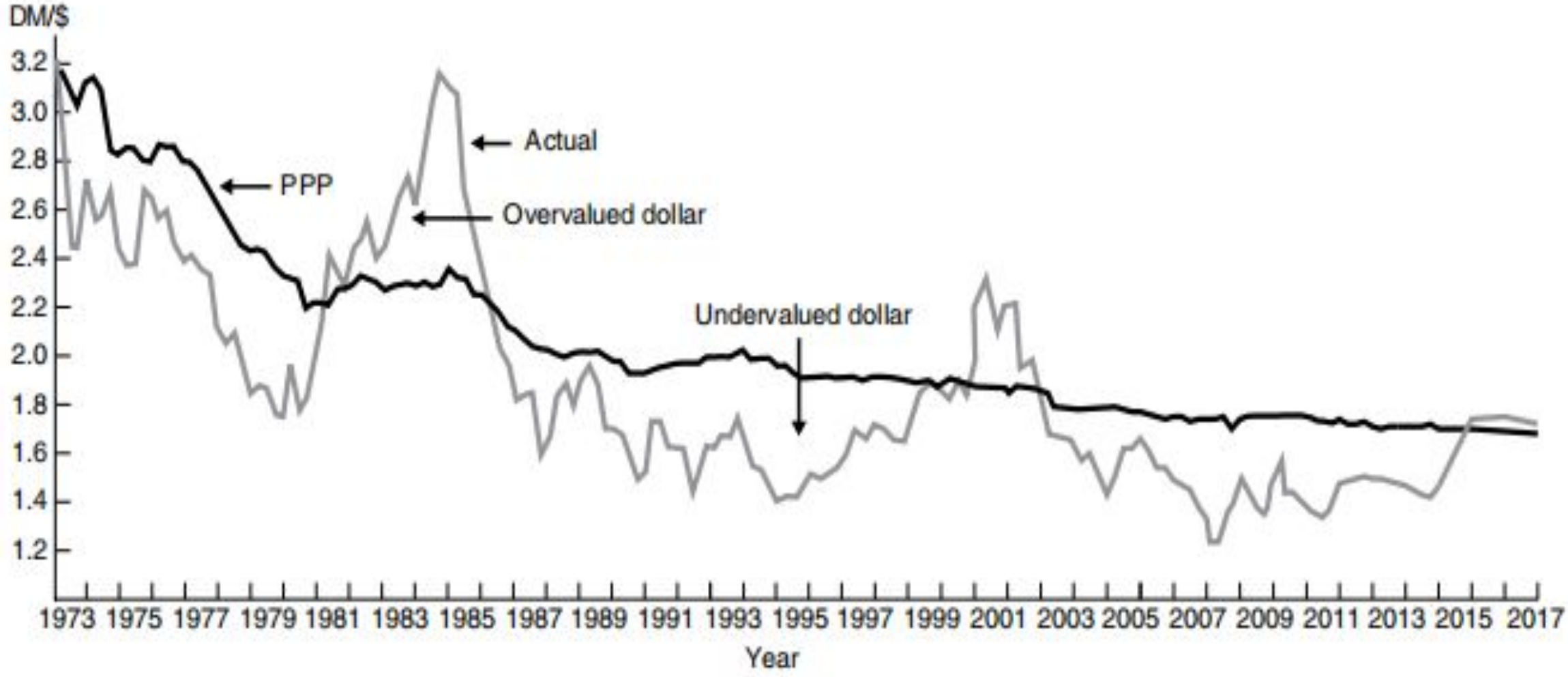
Meaning

- The PPP theory focuses on the inflation-exchange rate relationships. If the law of one price were true for all goods and services, we could obtain the theory of PPP.
- In other words, a unit of currency should have the same purchasing power in different countries when expressed in a common currency.
- Example:- Let's consider two countries, Country A and Country B, **Initial Exchange Rate:** Initially, the exchange rate between Country A's currency (UnitsA) and Country B's currency (UnitsB) is 1:2. This means 1 UnitA can be exchanged for 2 UnitsB.
- **Price of a Basket of Goods:** Now, let's consider a basket of goods that costs 10 UnitsA in Country A and 20 UnitsB in Country B. This basket represents a collection of goods commonly purchased by consumers.
- **Change in Price of a Basket of Goods:** let there is inflation in country B, so the 30 UnitsB required to purchase the same basket of goods.
- **How Exchange rate will move ?**

Two type of PPP theory

- There is an **absolute** and a **relative** version of the PPP theory.
- The **absolute purchasing-power parity** (APPP) theory postulates that the equilibrium exchange rate between two currencies is equal to the ratio of the price levels in the two nations.
- It proposing that the absolute price levels of goods and services in different countries should be equal when expressed in a common currency.
- In other words, APPP posits that the exchange rate between two currencies is determined by the ratio of the absolute price levels in the two countries.
- $E = \frac{P_A}{P_B}$ Where: E is the exchange rate (units of currency B per unit of currency A).
- P_B is the price level in Country B. P_A is the price level in Country A.
- If $P_B > P_A$, then the exchange rate E should be greater than 1, indicating that one unit of currency A should be worth more in terms of goods and services in Country B.

Absolute Purchasing-Power Parity in the Real World



- The actual exchange rate of the dollar in terms of the German mark (i.e., DM $ prevailing in the market—the gray curve) and the PPP exchange rate (measured by the ratio of the German to the U.S. consumer price index—the black curve) during the flexible exchange rate period since 1973.
- The dollar was undervalued (the gray curve was below the black curve) from 1973 to 1980, 1985 to 2000, and 2002 to 2014, and overvalued in the other years. The figure shows that at its peak (at the beginning of 1985), the dollar was overvalued by nearly 40 percent in terms of marks.

Relative Purchasing Power Parity (RPPP)

The theory suggests that the percentage change in the exchange rate between two currencies over time is approximately equal to the difference in the inflation rates of the two countries.

The basic idea is that if one country experiences higher inflation than another, its currency should depreciate relative to the currency of the country with lower inflation.

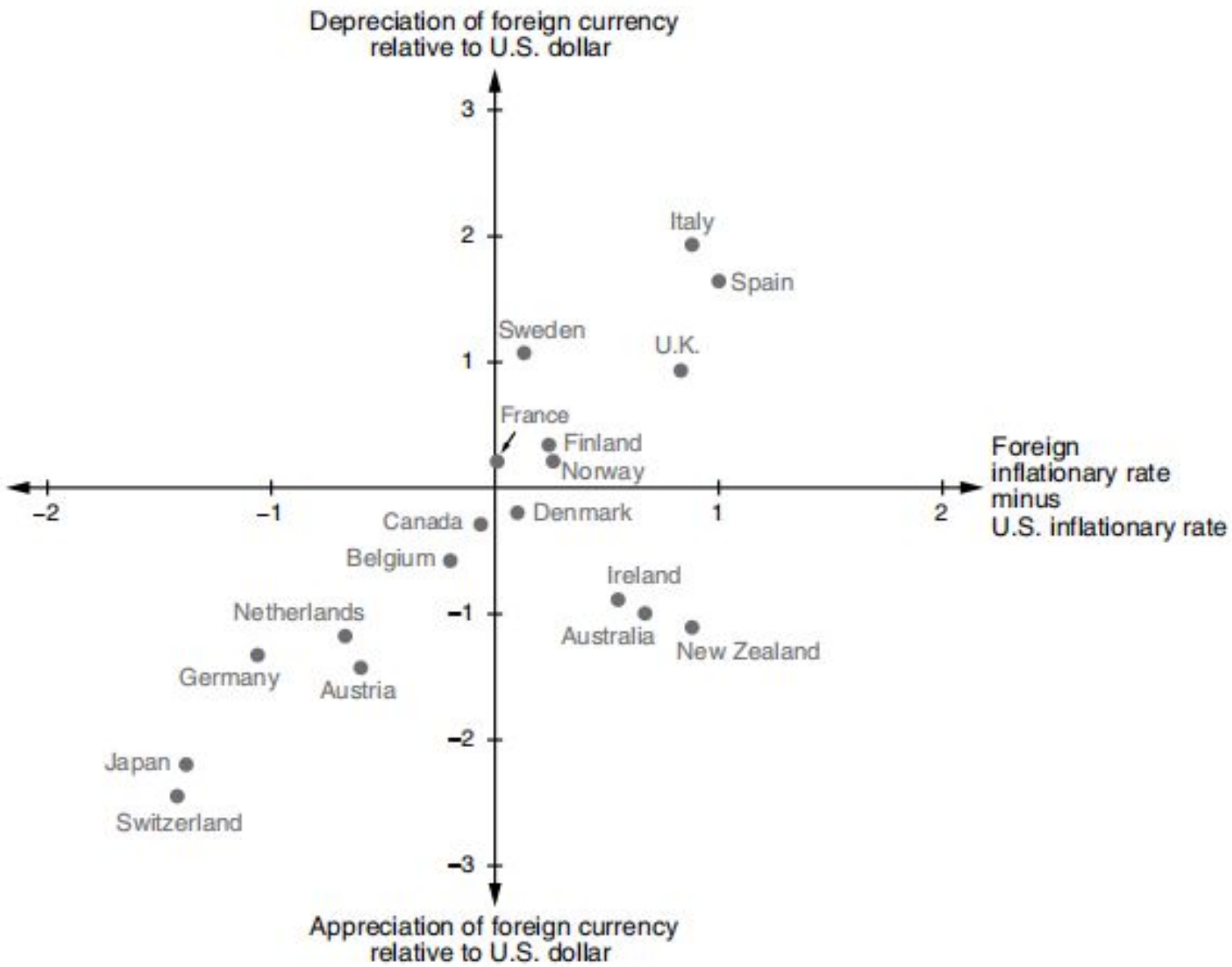
This is because higher inflation erodes the purchasing power of a currency.

where R1 and R0 are, respectively, the exchange rates in period 1 and in the base period.

$$R_1 = \frac{P_1 / P_0}{P_1^* / P_0^*} \cdot R_0$$

- For example, if the general price level does not change in the foreign nation from the base period to period 1 (i.e., P^*_1 , P^*_0), while the general price level in the home nation increases by 50 percent, the relative PPP theory postulates that the exchange rateshould be 50 percent higher (i.e., the home nation's currency should depreciate by 50 percent) in period 1 as compared with the base period.
- **Conclusion:-**
- If Country A has a higher inflation rate than Country B, the currency of Country A should depreciate relative to the currency of Country B.
- If Country A has a lower inflation rate than Country B, the currency of Country A should appreciate relative to the currency of Country B.
- Currency Depreciation = Domestic Inflation - foreign inflation
- Price level in the country and rate of exchange move opposite direction
- If both country price level changes in similar rate, there will be no change in exchange rate.

Relative Purchasing-Power Parity in the Real World



- The relationship between changes in relative national price levels and changes in exchange rates for 18 industrial nations from 1973 to 2017 (the period of flexible exchange rates).
- The horizontal axis measures the average inflation rate in each country minus the average inflation rate in the United States.
- The vertical axis measures changes in the foreign exchange rate, defined as the foreign-currency price of the U.S. dollar.
- According to the relative Purchasing-Power Parity (PPP) theory, nations with higher inflation rates than in the United States should experience depreciating currencies, while nations with lower inflation rates should have appreciating currencies.
- The countries with higher inflation rates than the United States experienced depreciating currencies with respect to the U.S. dollar, while countries with lower inflation rates experienced appreciating currencies. For the theory to hold perfectly,
- However, the plotted points in Figure 15.2 should fall on a straight line with a positive slope of 1. Since this is not the case, the relative PPP theory holds only approximately

criticism

1. **Defect of Index Number:** - Price Index (Inflation Calculation) differes across country, Price Index includ those comudities which are not traded internationally, Different weight is attached with Price Index number in diffreent countries, Different countries have different base year in calculation of Price Index number.
2. **No direct relation between price level and Exchange number**
3. **Difficulty regarding Equilibrium Rate**
4. **Wrong Causal Relation:** PPP theory assume that price level causes changes in exchange rate (undirectional causation). actually, Exchange rate governs the price level.
5. **Quality of goods ignored**
6. **Invisible goods Ignored**
7. **Effect of business cycle ignored**

Balance of Payment Theory of Exchange Rate

Meaning

- An imbalance in any market is corrected by an adjustment in price and/or quantity.
- In currency markets, excess demand or excess supply will be corrected by a change in exchange rates.
- Under the BOP approach, the domestic price of a foreign currency is determined just like the price of any commodity, i.e., by the intersection of the market demand and supply curves for that foreign currency.
- According to the BOP theory of exchange rates, the supply and demand for a currency arise from the flows related to the BOP, that is, trade in goods and services, portfolio investment, and direct investment.
- Equilibrium exchange rates are determined when the BOP is in equilibrium. Exchange rates will move in response to a BOP imbalance and, therefore, will restore the equilibrium to the BOP.

BOP link with exchange rate

- The BOP is usually divided in three parts: the current account (CA), the capital and financial account (KA), and the official reserve (OR) account.
- BOP = CA + KA + OR = 0.
- The **current account (CA)**, or balance of trade, includes the balance of goods and services, income received or paid on existing investment, and unrequited transfers. Exports and income received from foreign countries appear as credits to the balance.
- The **capital and financial account (KA)** includes all short-term and long-term capital transactions. The KA includes direct investment, portfolio investment and other capital flows (especially short-termcapital), and net errors and omissions.
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- Transactions made by the central bank, which are assigned to the official reserve account (OR). The OR has two components: one that reflects the change of the holdings of foreign assets, and a second one that reflects the change in the netborrowing position.
- There is also an item that reflects omitted and badly recorded transactions. This item is called Statistical Discrepancy (SD).

Example

	Credits	Debits
Current Account (CA)		
Exports (X)	1,229.649	
Imports (M)		1,651.657
Unilateral transfers (UT)		58.853
Balance on CA (X+M+UT)		-480.861
Capital and Financial Account (KA)		
Capital Account Net		-1.285
Financial Account		
U.S.-owned assets abroad (net change) (USOA)		175.304
Foreign-owned assets in the U.S. (net change) (FOA)	706,983	
Balance on Financial Account (USOA+FOA)		531.679
Balance on KA (Capital + Financial Account)		530.394
Statistical discrepancy (SD)		-45.852
Overall balance (CA+KA+SD)		3.681
Official Reserve (OR)		
Balance on OR		-3.681

Effect of BOP on Exchage rate

- A **deficit in the balance of payments** of a country signifies a situation in which the demand for foreign exchange (currency) exceeds the supply of it at a given rate of exchange. The demand for foreign exchange arises from the demand for foreign goods and services.
- The demand pressure results in an appreciation in the exchange value of foreign currency. As a consequence, the exchange rate of home currency to the foreign currency undergoes depreciation.
- A **balance of payments surplus** signifies an excess of the supply of foreign currency over the demand for it. In such a situation, there is a depreciation of foreign currency but an appreciation of the currency of the home country.

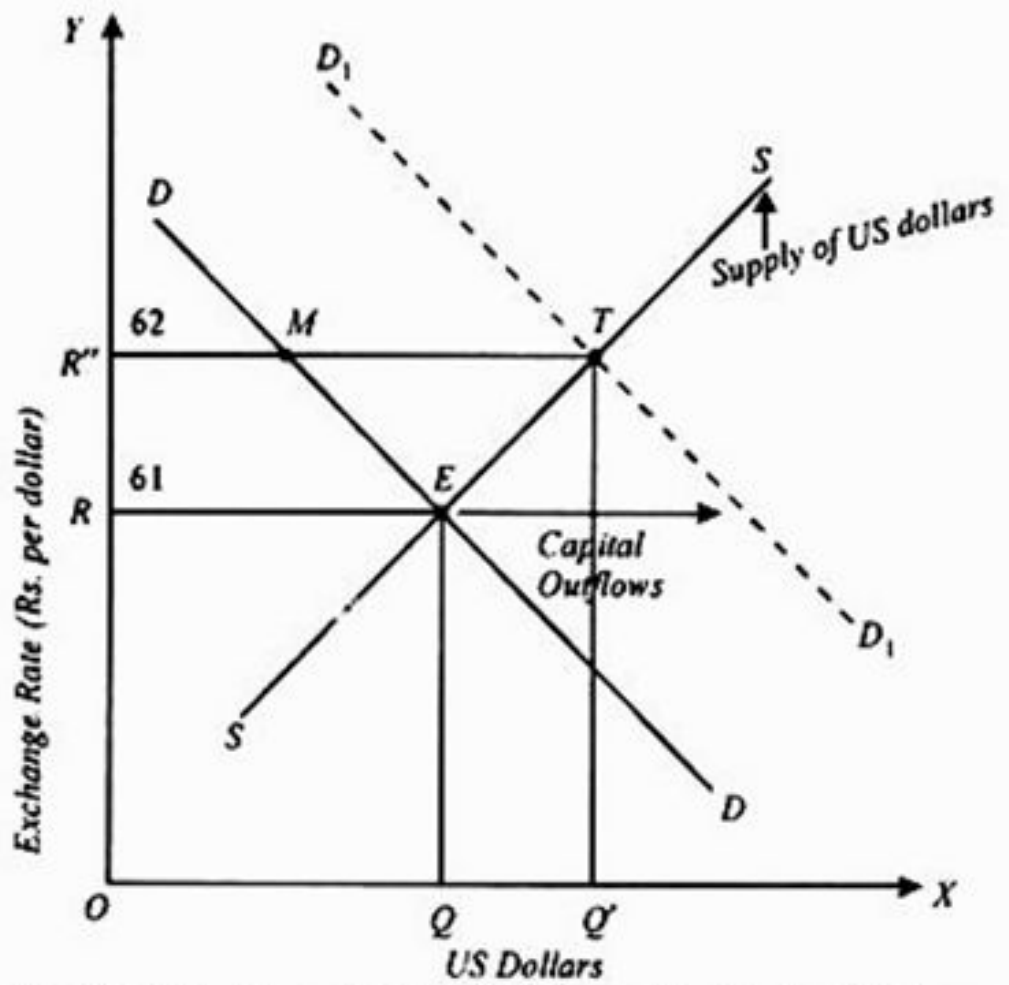

Fig. 28.5(b). *Depreciation of Rupee with Capital Outflows*

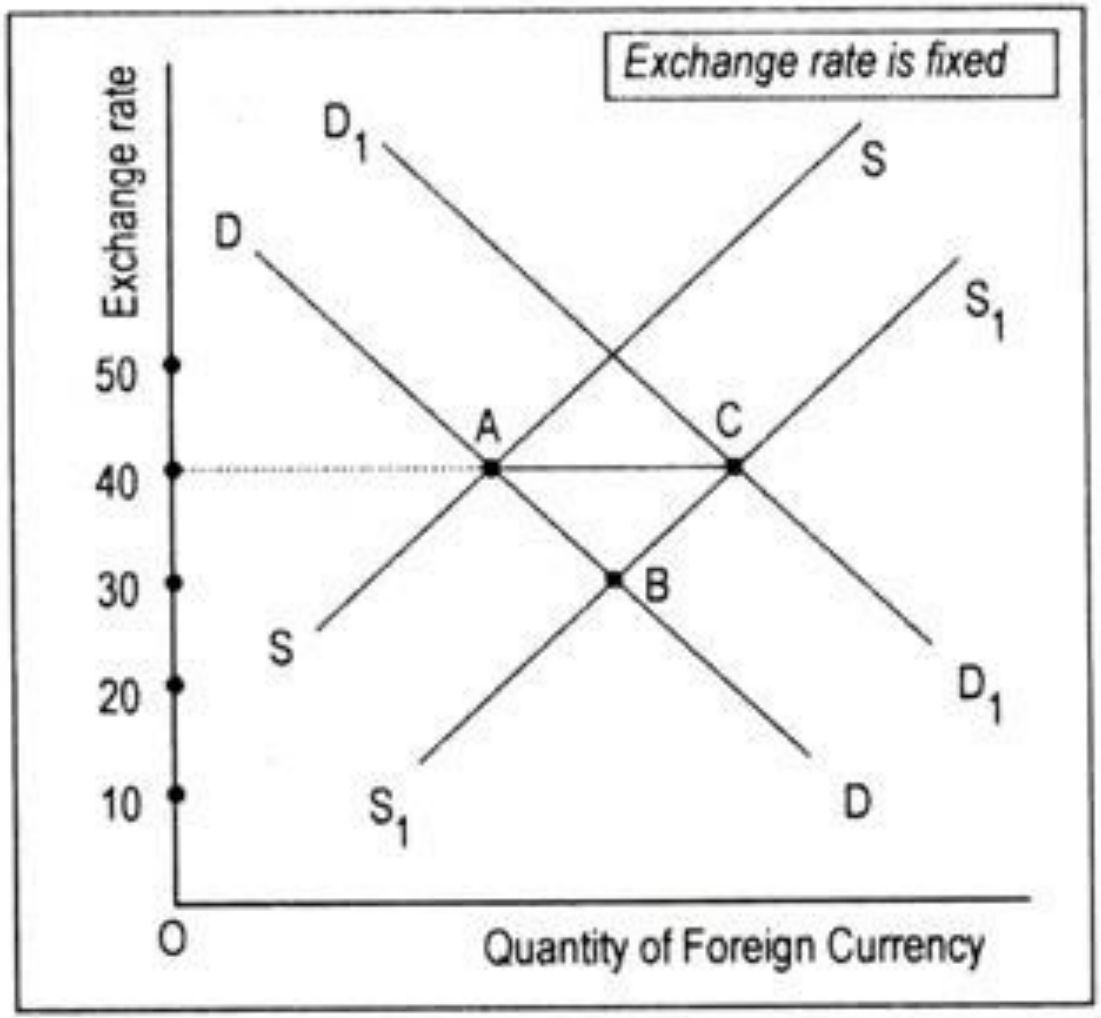

Fig. 5.7: Fixed Exchange Rate Mechanism

Relevance of the BOP theory

1. The theory attempts to determine the rate of exchange through the forces of demand and supply and thus brings exchange rate determination in purview of the general theory of value.
2. Relates the rate of exchange to the BOP situation. It means this theory, unlike PPP theory, does not restrict the determination of rate of exchange only to merchandise trade. It involves all the forces which can have some effect on the demand for and supply of foreign currency or the BOP position.
3. The theory is superior to both the PPP theory and mint parity theory from the policy point of view. It suggests that the disequilibrium in the BOP can be adjusted through marginal variations in the exchange rate, viz., devaluation or revaluation.
4. The PPP or mint parity theories, on the opposite, could correct BOP disequilibrium through deliberate policies to cause inflation or deflation. The price variations are likely to have more widespread destabilizing effects compared with the variations in exchange rates.

Criticism

- **Assumption of Perfect Competition** - In fact there are serious imperfections in the market on account of trade and exchange restrictions imposed by the different countries.
- **No Causal Connection between Rate of Exchange and Price Level** - The BOP theory assumes that no causal connection exists between the exchange rate and the internal price level. Such an assumption is false.
- **Neglect of Basic Value of Currency** - Under the gold standard, the metallic content of the standard unit of money indicates the basic or optimum value of the currency.
- **Truism** - If it is recognized that the BOP must necessarily be in a state of balance, the possibility of change in the exchange rate will stand completely ruled out.
- **Indeterminate Theory -** This theory holds that the rate of exchange is a function of balance of payments. The variations in the rate of exchange, at the same time, are supposed to bring about adjustment in the BOP deficit or surplus. It implies that the BOP itself is a function of the rate of exchange.

Factors Influencing Exchange Rates

- **Inflation Differential:** - Inflation differential is the difference in the rate of inflation between two countries. A country with a higher inflation rate will experience a decrease in the value of its currency relative to the currency of the country with a lower inflation rate.
- **Interest Rates**: - Exchange rates are significantly influenced by interest rates. A country with a higher interest rate attracts more foreign investment, leading to an increase in demand for its currency. This increase in demand leads to an increase in the value of the currency.
- **Trade Balance**: - A country's trade balance can also influence its exchange rate. When a country imports more than it exports, it experiences a trade deficit, leading to a decrease in demand for its currency. This decrease in demand causes the exchange rate to decline.
- **Government/Public Debt:** - A country's debt level also influences its exchange rate. Countries with high levels of debt are perceived as riskier investments, leading to a decrease in demand for their currency. The value of the currency falls as a result of this decline in demand.

Factors Influencing Exchange Rates

- **Economic recession**: - It is commonplace for interest rates to fall in a recession and when this happens, we see a flow of money out of the country to countries with higher interest rates.
- **Terms of Trade**: - A greater demand for a country's exports means an improvement in terms of trade resulting in rising revenues and, consequently, an increased demand for that country's currency. This will naturally increase the value of that currency.
- **Confidence and speculation**: - If speculators believe the Euro will fall, they will sell now for a currency they feel will rise in value. For this reason, sentiments in the financial markets can heavily influence foreign exchange rates.
- **The stock markets**: - Both the stock market and foreign exchange are the most financially traded markets on the globe. When the stock market is underperforming, a lack of confidence means investors will take their funds back to their own currencies.