

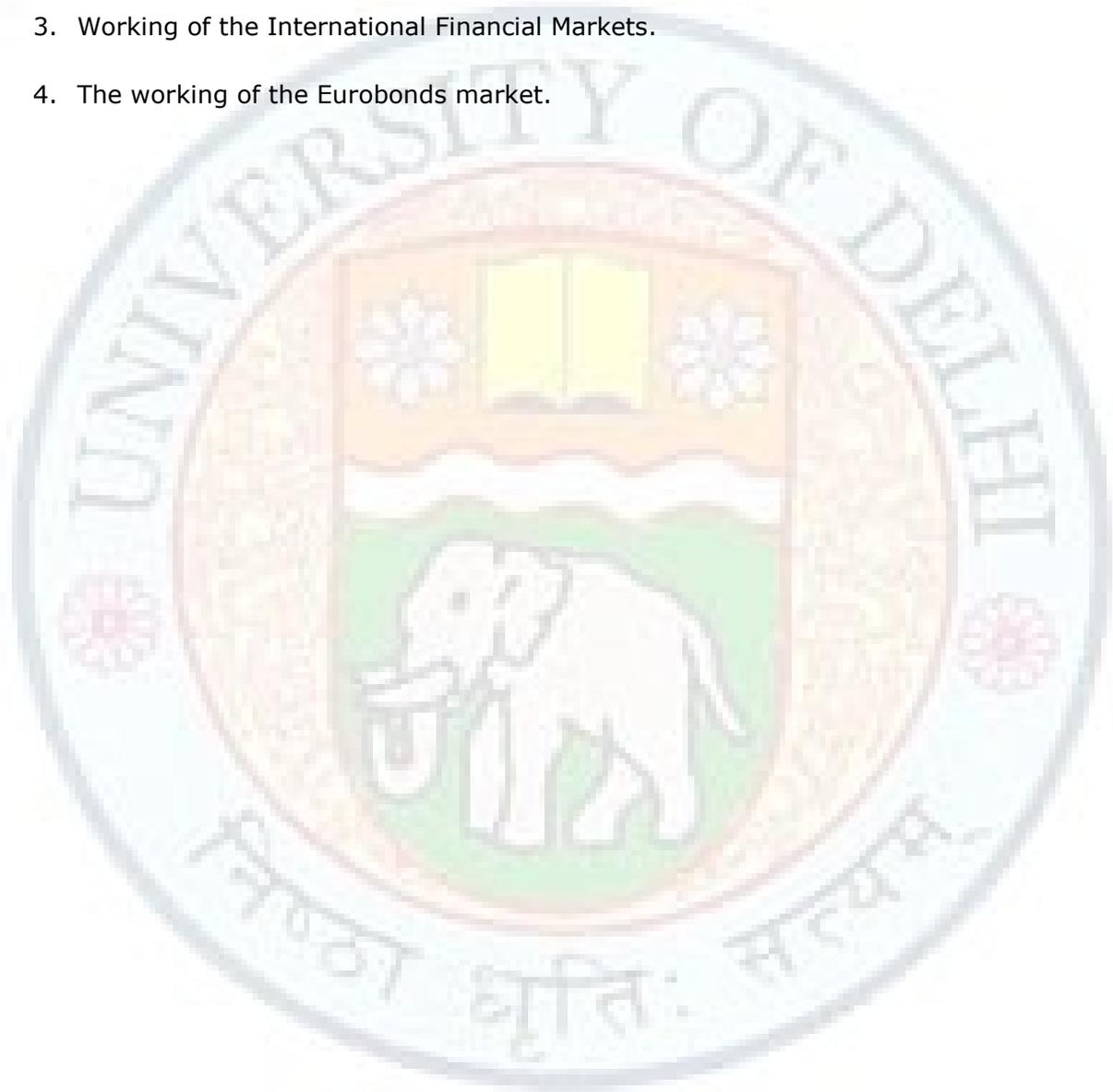
The logo of the University of Delhi is a circular emblem. It features a central shield with a yellow book, a green field with a white elephant, and two white floral motifs. The shield is set against a light blue background. The text "UNIVERSITY OF DELHI" is written in a semi-circle at the top, and the Sanskrit motto "सत्यमेव जयते" is written at the bottom.

**LESSON: Monetary Approach to Balance of Payments and
International Financial Markets**
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Monetary Approach to Balance of Payments and International Financial Markets

After reading this chapter, the students will get insights into:

1. Monetary approach to balance of payments
2. Monetary approach under fixed and flexible exchange rate regimes.
3. Working of the International Financial Markets.
4. The working of the Eurobonds market.



1. Introduction

In the era of International trade taking place among nations across the globe, the volume of this trade is somewhat regulated by the exchange rates which are determined to a large extent by free flow of market forces. This is because; unrestricted flow of trade between nations may cause deficits and surpluses in the trade and capital accounts of the nations vis-à-vis their trading partners. Experiencing sustained surplus or deficits in the trade and capital accounts is not healthy for the Balance of Payment positions of any nation as it may cause nation's currency to appreciate or depreciate in unlimited amounts.

Reverting this unlimited appreciation or depreciation of the nations' currency in such situations becomes an unmanageable task of the monetary authorities. Thus, nations in the present era follows an approach of managed floating or dirty floating where monetary authorities continue to intervene in the free functioning of the foreign exchange markets.

It is generally argued in international economics, that the balance of payments problems are monetary in nature. The balance of payments deficits are recognized as an essential repercussion of excess of money supply whereas balance of payments surpluses are recognized to be reflections of shortage in the stock of money supply.

It should however be noted that a balance of payment deficit can be corrected either by a contractionary monetary or tightened fiscal policy. However, the monetary approach establishes the link between balance of payment deficits, the intervention required in the foreign exchange market and the amount of money supply to prevail in a fixed exchange regime. Since the alterations in the monetary stock leads to the external balance via operating through the links of foreign exchange intervention, therefore, this approach to balance of payments is called as "Monetary Approach to Balance of Payments."

2. The monetary Approach to balance of Payments

It is widely acknowledged in macroeconomics that external balance or the balance of payments phenomenon is monetary in character. This is so because the deficits or surplus in this account can be corrected by altering the money stock in the economy. Since the external balance is thus claimed to be corrected or maintained by changes in the money stock in the economy, this process is termed as "Monetary Approach to Balance of Payments". The stock of money supply thus acts as the sole contributing element that brings about disturbance and adjustments in the nations' external balance or BOP account in the long run.

Did You Know?

The monetary approach to balance of payments was developed by Robert Mundell and Harry Johnson during the end of 1960s.

In this section, we shall examine the monetary approach to balance of payments in a fixed and flexible exchange rate regime.

2.1 Monetary Approach under Fixed Exchange Rate Regime

The monetary approach begins by first defining the equations for demand for money and supply of money. The money demand is defined as positively related to the nations' nominal national income and is assumed to be a stable function in the long run. The money demand function can be grasped from the following equation:

$$M^d = kPY \quad \dots \text{eqn (1)}$$

Where M^d = Quantity demanded of nominal money balances

K = the proportion of nominal money supply that people demand.

P = the price level prevailing in the domestic economy.

Y = the full employment level of output of the domestic economy.

Thus, from equation (1), it appears that at any given point of time, the total amount of money demanded in the nation is a stable fraction of the nominal output of the economy. The desired fraction is assumed to vary inversely with the velocity of money and is often written as : $k = 1/V$ where V is the Velocity of money that is defined as the no. of times a unit of money is circulated to conduct transactions during a given year. The velocity of money is assumed to be determined by institutional factors such as the payment modes which generally stay unaltered for a long period of time, making V almost stable or constant. Thus, Money demand is recognized as a stable and positive function of the nominal output in an economy.

On the other end of establishing equilibrium in money market lies the money supply in an economy which is to a large extent given by the monetary authorities of the nation exogenously. However, the money supply function is tantamount to be identical to the following equation:

$$M_s = m (D+F) \dots \text{eqn (2)}$$

Where, M_s = the national money supply.

m = money multiplier

D = Domestic component of a nations' monetary stock

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F = Foreign exchange component of a nations' monetary base.

The component of D or domestic component of a nations' monetary stock is analogous to the credit created by domestic monetary authorities or the stock of domestic assets based on which money supply in a nation is created. Similarly, the foreign component of the money supply equation comprises the reserves of the foreign nations' currency upheld by the domestic nations' monetary authorities. The (D+F) is recognized as the monetary base of the economy which is alternatively termed as high-powered money. It is this money that ultimately determines the stock of money supply that will prevail in a nation based on the money multiplier. The banking system in a nation expands the credit based on high powered money.

To conduct this analysis, the money multiplier is assumed to remain constant over time. Stating the equilibrium condition required to maintain stability in the money market:

$$M_d = M_s \quad \dots \text{eqn (3)}$$

Let us now suppose that the money market is currently in disequilibrium experiencing a higher demand for money. Since the disequilibrium has to be corrected by altering the stock of money supply, it is evident from equation (2) that it can be done by either increasing the domestic component of the money supply or by a rise in the inflow of foreign nations' currency. The inflow of foreign nations' currency is equivalent to having a balance of payment surplus whereby inflow outturn the outflow of nations' currency abroad. If the increased money demand is not satisfied by the monetary authorities through a rise in the domestic component of the money supply, then the foreign exchange component shall increase creating imbalance in the external account of the nation.

Similarly, if the disequilibrium in the money market exists in the form of a higher money supply or a shortage in money demand, then the foreign component of the monetary base flows out of the nation thereby creating deficit in the nations' balance of payments account.

This clarifies the stance that surplus in the balance of payments account results from an excess in the stock of money demand which is not satisfied by the rise in domestic

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components of the nations' monetary base and BOP deficit results from the excess in the stock of money supply which is corrected by the outflow of foreign nations' currency reserves from the domestic economy.

This is the scenario of a nations' monetary stance when it is operating in a fixed exchange regime where a nations' monetary authorities have no control over its money supply in the long run. The size of money supply is equivalent to the level that is consistent to the balance required in nations' external accounts. However, it should be noted that this is a self-operating mechanism, and a nations' external account always balances in the long run.

2.2 Monetary Approach and Flexible Exchange Rate Regime

Flexible exchange rate as the name suggests, is driven by the free flow of market forces whereby the nations' monetary authorities are under no obligation to maintain a fixed price of its currency vis-à-vis any other nations' currency assets. Under a flexible exchange rate regime, nations' monetary authorities uphold dominant control over the stock of its money supply and can therefore implement monetary policies to suite its country's monetary environment.

Under a flexible approach to balance of payments, the external balance is immediately corrected by automated changes in the level of exchange rates and thus no inflow or outflow of domestic or foreign nations' currency assets are required to maintain equilibrium unlike in the fixed exchange rate regime.

The money demand function can be grasped from the following equation:

$$M^d = kPY \quad \dots \text{eqn (3)}$$

Where M^d = Quantity demanded of nominal money balances

K = the proportion of nominal money supply that people demand.

P = the price level prevailing in the domestic economy.

Y = the full employment level of output of the domestic economy.

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The money supply function is tantamount to be identical to the following equation:

$$M_s = m (D+F) \dots \text{eqn (4)}$$

Where, M_s = the national money supply.

m = money multiplier

D = Domestic component of a nations' monetary stock

F = Foreign exchange component of a nations' monetary base

In a flexible exchange rate regime, let us suppose that the nation is experiencing an increase in the demand for money. Since $M_d > M_s$, it represents a situation of money market disequilibrium. Like any other demand supply phenomenon operating for any given commodity, a rise in the demand for nations' currency which is identical with the situation of BOP surplus causes its currency to appreciate which makes the domestic currency and the commodities produced in the domestic nation expensive thereby curtailing the excess in the stock of money demanded and restoring the balance in the BOP account of the nation.

Similarly, a deficit in the nations' external balance that results from an excess of money supply over money demanded is automatically corrected by a depreciation of the domestic nations' currency which restores balance in the BOP account of the nation.

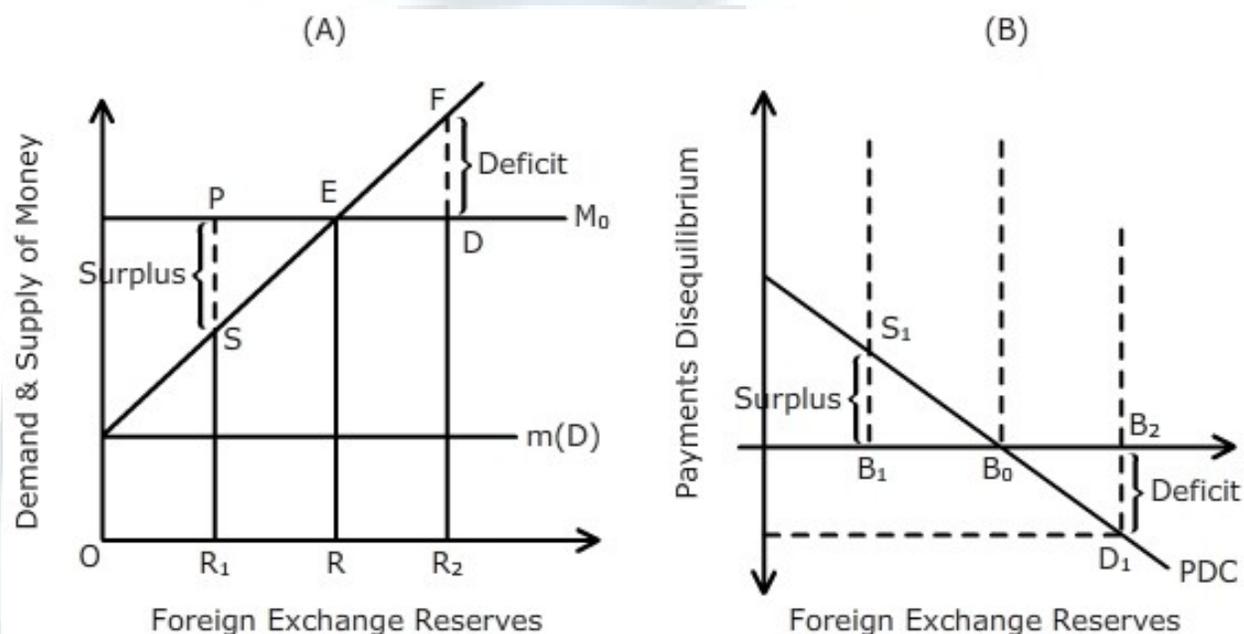
Thus the monetary approach under flexible exchange rate can be summarized as one, where currency depreciation results from an excess in the stock of money supply whereas a currency appreciation results from an excess in the stock of money demanded in a given economy at a point of time. Since a higher stock of money supply is equivalent to having inflation in the domestic nation, it can be stated that a nation experiencing inflationary trends will experience depreciation in the foreign currency price of its domestic currency or will find its exchange rate rising. Alternatively, a nation which experiences lower inflation in its nation as compared to other nations' will experience appreciation of its domestic currency or will find its exchange rate falling.

Under Flexible exchange rate, a benefit occurs to the nations in the form that a nation experiencing higher inflationary pressures will tend to transmit their inflation to the other nations through their rising imports rather than directly by exports of money

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reserves. Since alterations in the stock of imports and exports of goods and services is a real phenomenon which usually takes more time than any monetary change, the nations are somewhat shielded from the inflationary pressures as this phenomenon of rising imports is largely determined by structural conditions prevailing in any given nation.

This can also be depicted graphically in the following figures.



In the panel A and B of the above figure, there are three schedules drawn. The horizontal line M_D represents the stable money demand curve while the M_S schedule depicts the Money Supply curve. Also the horizontal $m(D)$ curve indicates the monetary base in the economy which is a function of domestic credit. The horizontal shape of the monetary base schedule thus implies that the domestic credit is constant and thus monetary base is also stable in the given economy. Since $m(D)$ represents the domestic component of money supply, thus the money supply schedule is upward sloping from point C and not from origin. The PDC curve in panel (B) represents the Payments Disequilibrium schedule. It indicates the magnitude of difference between M_S and M_D curve in the panel (A) for a given level of Foreign exchange reserves. It can be noted from Panel (A) that Money supply equals Money demand at point E for the foreign exchange reserves of the magnitude R. This corresponds to point of equilibrium in balance of payments. The point E is mapped as point B_0 in panel (B) where the payment disequilibrium is zero or the balance of payment account is in equilibrium.

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Let us concentrate on point P where the demand for money is in excess of money supply. Since demand for money is more, it will lead to higher interest rates or higher return to be prevailed on money saving assets such as bonds etc. This higher interest rate then acts as a stimulus to attract investments from foreign countries. This leads to higher inflow of foreign exchange reserves in the country and thus point P corresponds to the level of level of surplus at foreign exchange reserves of OR_1 . Since there is a surplus in the balance of payments account, this leads to increase in the level of foreign reserves in the country. This foreign component of money supply thus augments the money supply in the domestic economy and the money supply thus increase to equalize the level of money demand at point E with higher foreign exchange reserves of OR . The surplus situation corresponding to point P in panel (A) can also be mapped at point B_1 in panel (B).

Similarly, let us now concentrate on the region indicating deficit. In panel (A) of the figure drawn above, the point F indicates a point of Deficit in the balance of payments. This is because at point F, the supply of money exceeds the demand for money. From the general phenomenon of money market equilibrium we know that a higher supply of money by increasing the demand for money investing outlets such as bonds etc increases their price and reduces their returns. It can also be understood alternatively as that with higher supply of money, banks may find an increase in the supply of funds available for investments and thus will be willing to offer only small return for this increased supply. Having understood this, we arrive at the conclusion that higher supply of money leads to lower interest rates to be offered for investment assets in the domestic economy. Corresponding to point F in panel B the foreign exchange reserves are higher at level OR_2 than what is required to establish equilibrium. This is mapped as point B_2 in panel (B) of the figure drawn above which is a point of balance of payments account deficit. Since M_s is greater than money demand and this leads to lower return to be offered on domestic investment assets, this leads to foreign investors withdrawing their money balances from the domestic economy. Since this lowers the Foreign exchange component of the domestic money supply, the overall level of money supply in the economy decreases and the level of foreign exchange reserves decrease in the economy from OR_2 to OR_1 . The equilibrium in money market is thus established at point E in the Panel (A) and corresponding to equilibrium in money market, the balance of payment also balances as indicated by point B_0 in panel (B) of the diagram.

2.3 Criticisms of Monetary Approach to Balance of Payment

However the monetary approach to balance of payments has been criticized on several grounds such as:

1. Demand for money is not constant as assumed in the monetary approach to balance of payments. In fact, in the real world, demand for money is only found to be stable in the long run and not in short run.
2. There is a direct link assumed between money supply and equilibrium in the balance of payments account. The direct link assumes that the central monetary authority or the Central Bank has control over the inflow and outflow of foreign exchange reserves in the country in consonance with surplus or deficit in the balance of payments' accounts. However, it has been argued by economists that such sterilization operations' are not feasible in the present era of globalization where financial markets are highly integrated and the countries are following an approach of flexible exchange rates.
3. The automatic self-adjustment mechanism highlighted in the monetary approach is feasible in long run. However, it completely disregards the balance of payment disequilibria that exist in the short run. This is because the adjustments in the real sectors of the economy that is adjustments in the balance of trade account is also inherent in this approach of adjustment in the BOP accounts of the country. And the real-sector adjustments are not feasible to be made in short period of time. Thus, it will not be wrong to call monetary approach as a long run approach to adjustments in balance of payments.
4. The approach completely disregards the factors other than monetary factors such as expansion or contraction of domestic credit that may create disequilibrium in the balance of payments account. It is asserted that completely disregarding the real sector disturbances is not a realistic assumption as such disequilibrium may lead to adjustments through different routes in the balance of payments accounts.

2.4 Sterilization

As explained in the previous section that under flexible exchange rate regime, the balance of payments is automatically maintained through the changes in the exchange rates that are brought about by the free flow of market forces. However, sometimes the suspension of this automatic mechanism becomes essential when the exchange rates turn extremely unfavorable for any nation. This suspension is often termed as Sterilization whereby central banks intervene in the foreign exchange markets to alter the rise in the money supply brought about by the exchange rate movements through open market operations. Thus a nation experiencing deficit in its BOP account that is selling its foreign exchange reserves and thereby reducing its stock of money supply can alter this reduction by open market purchase of bonds etc to restore the stock of money supply to the previous level.

Having understood the meaning of the sterilization process and its significance for a nations' stock of money supply, it should also be acknowledged that with sterilization, a deficit in the nations' BOP or external account can persist indefinitely or for a long period of time. This is because by conducting open market operations, the link that the monetary approach establishes between the money supply and the external account balance for a given nation gets broken.

Thus, the persistent deficits in the nations' BOP accounts can also be termed as a monetary phenomenon. This is so because, by conducting open market purchase of bonds to restore a higher money supply stock for the nation that got reduced due to depreciation as occurs in a deficit scenario in a flexible exchange rate regime. This stock of money supply thus remains too high for external balance to be established for the given nation.

2.5 Monetary Approach and IMF

In a typical balance of payment account of any nation, the high powered money is listed on the liabilities side of the account, while the stock of domestic and foreign exchange is recorded on the asset side of the BOP account.

The BOP identity can be stated as:

$$\Delta NFA = \Delta HH - \Delta DC \dots (2)$$

Here the term NFA indicates the changes in net foreign assets of the nation, which comprise of the foreign exchange held by the nation, gold, reserves and claims on other nations' central banks or governments. H stands for High powered money while DC indicates the domestic assets of the nation which includes the claims of monetary authorities on public and private entities.

In following a monetary approach to achieve balance in the external account of the economy, the IMF first decides the balance of payment target or NFA* for any given nation. Then it asks the nation about the level of deficit in the external account that it aims to maintain. The IMF then suggests policies to make this deficit no larger.

The IMF then asks the nation about the projected increase in the money demand. In this way, the nation is asked to produce that level of high powered money of H* which is just sufficient to meet the increased money demand. Having fixed the level of NFA and H, the nation can expand the domestic credit which is just enough to maintain external balance.

The monetary approach to balance of payments in this way establishes a link between link between, money supply and external balance.

However it should be acknowledged that changes in money stock do not immediately translate into equilibrium in the country's external account. This is so because in a nation which is growing and relies on fixed exchange rate, a rise in interest rate implies an increase in demand for the nations' currency. This leads to a BOP improvement for

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the nation. Since balance in external account is to be achieved, to forgo this improvement, the Central Bank must slow down the supply of domestic nation which is less than the demand for it. But since the nation is operating in fixed exchange, it cannot intervene to control the flow of foreign exchange assets and has to supply the amount that is being demanded. However, the other way, the central bank slows down this improvement process is by slowing down the growth of domestic credit. However, this tightened monetary policy or the slow growth of domestic credit, produces recession in the economy.

3. International Financial Markets

An international financial market comprises of a market where assets of different nations are traded between individuals and organizations of various nations. In this market, the financial institutions regulate the functioning of the market by laying down the terms and conditions for effective functioning of such markets. Financial markets deal with the trading of stocks, bonds, currency and derivatives etc. The functioning of such a market can be explained with the help of an instance of Eurocurrency market and how it effects the functioning of international financial markets.

A Eurocurrency may be defined as an offshore currency denominated in Euros and deposited in European Central Bank. For instance, a Eurodollar refers to the deposits in European bank denominated in U.S. dollars. The market in which such transactions between European nation and other nations take place is referred to as a "Eurocurrency Market".

The Eurocurrency market consists mostly of short-term funds with maturity of less than six months. These Eurocurrencies are for the most part, time deposits and thus are recognized as near money or narrow money. The Eurocurrency market does not function like any credit creation society, but rather act as financial intermediaries who bring together the network of lenders and borrowers for mobilizing their savings in the form of loans thereby serving the needs of both borrowers and lenders. These are basically savings and loan associations and this differs them from any commercial bank that operates in the country.

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Though it serves the needs of borrowers and lenders, it at the same time creates certain problems for the liquidity regulatory steps of the central bank of the nations. The entities that face liquidity constraints in the domestic market resort to the Eurocurrency market, and thus restricting the national government's policies to constraint credit supply in their nations to fight domestic inflations. The financial transactions from outside nations in the Eurocurrency market also create great volatility in terms of interest rates and foreign exchange rates. The uncontrolled nature of transactions in such market presents a great threat to the financial institutions globally, as it works as a network of spilling over the recessionary trends in one nation across a large number of countries.

3.1 Eurobonds and Euronote Markets

- A Eurobond is a long term debt instrument/security which is sold outside borrowers' nation to raise long term capital in any currency other than the currency of the borrowing nation. These bonds differ from the foreign bonds since foreign bonds are simply bonds that are sold in foreign nations in the borrowing nations' currency.
- Euronotes are medium term debt securities. These notes are used by entities other than individuals to borrow medium term funds in any currency other than the currency in which these notes are sold.

Some Eurobonds are denominated in more than one currency to offer the lender a choice to get the loan repaid in the currency of its choice to gain protect itself against unfavorable exchange rate movements. To gain this benefit, the lender lends the funds at a lower rate. Eurobonds and Euronotes usually possess floating rates in that these rates are re-fixed every three to six months as per the market conditions.

Exercises:

Ques.1: Explain the adjustments that take place in the money supply and foreign exchange market to maintain balance in a nations' external account?

Ques.2: In a fixed exchange rate regime, how does an excess in the stock of money demand corrected? What reflections can one have for the balance of payments accounts for the nation experiencing higher money demand?

Ques.3: In a flexible exchange rate regime, how does an excess in the stock of money supply corrected? What reflections can one have for the balance of payments accounts for the nation experiencing higher money supply?

Ques.4: Define the term "International Financial Market"?

Ques.5: Explain the mechanism with which it can be argued that nations' monetary authorities uphold dominant control over its monetary policy under a flexible exchange rate regime? And how does this shields an economy from the inflationary pressures being experienced by any given trading nation?

Ques.6: Briefly discuss the various criticisms offered for the monetary approach to balance of payments?

Ques.7: What are Eurobonds and Euro markets? How does these investment outlets different from the bonds and investment outlets available in the other parts of countries.?

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Ques.8: Which of the following will prevail in the BOP account when money supply exceeds money demand?

- a) Deficit
- b) Surplus
- c) Neither deficit nor surplus

Ques.9: What condition prevails in the BOP account when money demand exceeds the level of money supply?

- a) Deficit
- b) Surplus
- c) Neither deficit nor surplus

Ques.10 : Monetary approach to balance of payments is essentially a:

- a) Short Run Phenomenon
- b) Long Run Phenomenon
- c) A phenomenon of short and long run both



References:

- D. Salvatore (2008), *International Economics*, 8th edition, Wiley(Aisa).
- Rudiger Dornbusch and Stanley Fischer (1994), *Macroeconomics* 6th edition, McGraw Hill.

