MONETARY ECONOMICS

II MA ECONOMICS

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SEMESTER –III

UNIT-I

Supply of money meaning –

Definition: The total stock of money circulating in an economy is the money supply. The circulating money involves the currency, printed notes, money in the deposit accounts and in the form of other liquid assets.

Description: Valuation and analysis of the money supply help the economist and policy makers to frame the policy or to alter the existing policy of increasing or reducing the supply of money. The valuation is important as it ultimately affects the business cycle and thereby affects the economy.

Periodically, every country's central bank publishes the money supply data based on the monetary aggregates set by them. In India, the Reserve Bank of India follows M0, M1, M2, M3 and M4 monetary aggregates.

Determinants of money supply –

In order to explain the determinants of money supply in an economy we shall use M, concept of money supply which is the most fundamental concept of money supply. We shall denote it simply by M rather than M_1. This concept of money supply is composed of currency held by the public (C_p) and demand deposits with the banks (D). Thus

$M = C_p + D$ …(1)

Where, M = Total money supply with the public

C_p = Currency with the public

D = Demand deposits held by the public

The two important determinants of money supply as described in equation (1) are (a) the amounts of high-powered money which is also called Reserve Money by the Reserve Bank of India and (b) the size of money multiplier.

We explain below the role of these two factors in the determination of money supply in the economy:

1. High-Powered Money (H):

The high-powered money which we denote by H consists of the currency (notes and coins) issued by the Government and the Reserve Bank of India. A part of the currency issued is held by the public, which we designate as C_p and a part is held by the banks as reserves which we designate as R.

A part of these currency reserves of the banks is held by them in their own cash vaults and a part is deposited in the Reserve Bank of India in the Reserve Accounts which banks hold with RBI. Accordingly, the high-powered money can be obtained as sum of currency held by the public and the part held by the banks as reserves. Thus

$H = C_p + R$ …(2)

Where, H = the amount of high-powered money

C_p = Currency held by the public

R = Cash Reserves of currency with the banks.

It is worth noting that Reserve Bank of India and Government are producers of the high-powered money and the commercial banks do not have any role in producing this high-powered money (H). However, commercial banks are producers of demand deposits which are also used as money like currency.

But for producing demand deposits or credit, banks have to keep with themselves cash reserves of currency which have been denoted by R in equation (2) above. Since these cash reserves with the banks serve as a basis for the multiple creation of demand deposits which constitute an important part of total money supply in the economy, it provides high-powered-ness to the currency issued by Reserve Bank and Government.

A glance at equations (1) and (2) above will reveal that the difference in the two equations, one describing the total money supply and the other high-powered money, is that whereas in the former, demand deposits (D) are added to the currency held by the public, in the latter it is cash reserves (R) of the banks that are added to the currency held by the public.

In fact, it is against these cash reserves (R) that banks are able to create a multiple expansion of credit or demand deposits due to which there is large expansion in money supply in the economy. The theory of determination of money supply is based on the supply of and demand for high- powered money.

Some economists therefore call it 'The H Theory of Money Supply'. However, it is more popularly called 'Money-multiplier Theory of Money Supply' because it explains the determination of money supply as a certain multiple of the high- powered money. How the high-powered money (H) is related to the total money supply is graphically depicted in Fig. 16.1.

The base of this figure shows the supply of high-powered money (H), while the top of the figure shows the total stock of money supply. It will be seen that the total stock of money supply (that is, the top) is determined by a multiple of the high-powered money (H). It will be further seen that whereas currency held by the public (C_p) uses the same amount of high-powered money, that is, there is one-to-one relationship between currency held by the public and the money supply.

In sharp contrast to this, bank deposits (D) are a multiple of the cash reserves (R) of the banks which are part of the supply of high-powered money. That is, one rupee of high- powered money kept as bank reserves gives rise to much more amount of demand deposits. Thus, the relationship between money supply and the high-powered money is determined by the money multiplier.

The money multiplier which we denote by m is the ratio of total money supply (M) to the stock of high-powered money, that is, $m = M/H$. The size of money multiplier depends on the preference of the public to hold currency relative to deposits, (that is, ratio of currency to

deposits which we denote by K) and banks' desired cash reserves ratio to deposits which we call r. We explain below the precise multiplier relationship between high-powered money and the total stock of money supply.

It follows from above that if there is increase in currency held by the public which is a part of the high-powered money with demand deposits remaining unchanged, there will be a direct increase in the money supply in the economy because this constitutes a part of the money supply.

2. Money Multiplier:

Money multiplier is the degree to which money supply is expanded as a result of the increase in high-powered money. Thus

$m = M/H$

Rearranging we have, $M = H.m$ …(3)

Thus money supply is determined by the size of money multiplier (m) and the amount of high- powered money (H). If we know the value of money multiplier we can predict how much money will change when there is a change in the amount of high-powered money.

Change in the high-powered money is decided and controlled by Reserve Bank of India, the money multiplier determines the extent to which decision by RBI regarding the change in high-powered money will bring about change in the total money supply in the economy.

Size of Money Multiplier:

Now, an important question is what determines the size of money multiplier. It is the cash or currency reserve ratio r of the banks (which determines deposit multiplier) and currency-deposit ratio of the public (which we denote by k) which together determines size of money multiplier. We derive below the expression for the size of multiplier.

From equation (1) above, we know that total money supply (M) consists of currency with the public (C_p) and demand deposits with the banks. Thus

From above it follows that money supply in the economy is determined by the following:

1. H, that is, the amount of high-powered money, which is also called reserve money

2. r, that is, cash reserve ratio of banks (i. e., ratio of currency reserves to deposits of the banks)

This cash reserve ratio of banks determines the magnitude of deposit multiplier.

3. k, that is, currency-deposit ratio of the public.

From the equation (4) expressing the determinants of money supply, it follows that money supply will increase:

1. When the supply of high-powered money (i.e., reserve money) H increases;

2. When the currency-deposit ratio (k)' of the public decreases; and

3. When the cash or currency reserves-deposit ratio of the banks (r) falls.

ORDINARY MONEY AND HIGH POWERED MONEY –

Theory of Money Supply: Ordinary Money and High-Powered Money!

So far we have assumed money supply to be policy – determined. This is not true, because the supply of money is determined jointly by the monetary authority, banks, and the public. No doubt, most of the time, in this determination the monetary authority plays the active and also the dominant role. But the role of the public and banks cannot be ignored, nor even taken for granted. Proper recognition and understanding of this role is important for a successful policy of monetary control.

As a preliminary to the study of the theory of money supply, it is essential to understand the distinction between two kinds of money:

(a) Ordinary money (M) and (b) high-powered money (H).

They are all measures of ordinary money (M), or money as generally understood. There it was also stated that in this book we shall define M 'narrowly' as the sum of currency and demand deposits of banks (including the RBI) held by the public; and that since 'other deposits' of the RBI included in the measure of M are a very small proportion (less than one per cent) of the total supply of M, no harm will be done if in our future discussion we ignore these 'other deposits' of the RBI. For simplification of our theoretical discussion, this is what we shall do. Accordingly, for our theoretical analysis, we define

M=C+ DD (15.1)

High-powered money (H) is money produced by the RBI and the Government of India (small coins including one-rupee notes) and held by the public and banks. The RBI calls H 'reserve money'.

H is the sum of:

(i) Currency held by the public (C),

(ii) Cash reserves of banks (R), and

(iii) Other deposits' of the RBI (OD).

Again, for simplicity, we leave out of our theoretical analysis OD, as they constitute only about one per cent of total H. Accordingly, for our theoretical analysis, we define

H= C+ R. (15.2)

The empirical definition of H in H= C+ R. (15.2) is by its uses or by its holders, not by its producers (the RBI and the government). At a later stage, we shall find it fruitful to look at H from the latter angle. On comparing equations M = C + DD (15.1) and H= C+ R. (15.2) we find that C is common to both M and H and that the only difference between the latter two is due to the second component of each, namely DD in M and R in H. This difference is of crucial importance for the theory of money supply.

It arises from the presence of banks as the producers of demand deposits, which are counted as money at par with C. But to be able to produce DD, banks have to maintain R, which is a part of H, produced only by the monetary authority and not by banks themselves.

Since in a fractional-reserve banking system, DD are a certain multiple of R, which are a component of H, it lends to H the quality of high-powered-ness (as compared to M) the power of serving as the base for the multiple creation of DD. For this reason, H is also called 'base money'.

THE DEMAND FOR MONEY: THE CLASSICAL VIEW –

The classical economists did not explicitly formulate demand for money theory but their views are inherent in the quantity theory of money. They emphasized the transactions demand for money in terms of the velocity of circulation of money. This is because money acts as a

medium of exchange and facilitates the exchange of goods and services. In Fisher's "Equation of Exchange".

MV=PT

Where M is the total quantity of money, V is its velocity of circulation, P is the price level, and T is the total amount of goods and services exchanged for money.

The right hand side of this equation PT represents the demand for money which, in fact, "depends upon the value of the transactions to be undertaken in the economy, and is equal to a constant fraction of those transactions." MV represents the supply of money which is given and in equilibrium equals the demand for money. Thus the equation becomes

Md = PT

This transactions demand for money, in turn, is determined by the level of full employment income. This is because the classicists believed in Say's Law whereby supply created its own demand, assuming the full employment level of income. Thus the demand for money in Fisher's approach is a constant proportion of the level of transactions, which in turn, bears a constant relationship to the level of national income. Further, the demand for money is linked to the volume of trade going on in an economy at any time.

Thus its underlying assumption is that people hold money to buy goods.

But people also hold money for other reasons, such as to earn interest and to provide against unforeseen events. It is therefore, not possible to say that V will remain constant when M is changed. The most important thing about money in Fisher's theory is that it is transferable. But it does not explain fully why people hold money. It does not clarify whether to include as money such items as time deposits or savings deposits that are not immediately available to pay debts without first being converted into currency.

It was the Cambridge cash balance approach which raised a further question: Why do people actually want to hold their assets in the form of money? With larger incomes, people want to make larger volumes of transactions and that larger cash balances will, therefore, be demanded.

The Cambridge demand equation for money is

Md=kPY

where Md is the demand for money which must equal the supply to money (Md=Ms) in equilibrium in the economy, k is the fraction of the real money income (PY) which people wish to hold in cash and demand deposits or the ratio of money stock to income, P is the price level, and Y is the aggregate real income. This equation tells us that "other things being equal, the demand for money in normal terms would be proportional to the nominal level of income for each individual, and hence for the aggregate economy as well."

Its Critical Evaluation:

This approach includes time and saving deposits and other convertible funds in the demand for money. It also stresses the importance of factors that make money more or less useful, such as the costs of holding it, uncertainty about the future and so on. But it says little about the nature of the relationship that one expects to prevail between its variables, and it does not say too much about which ones might be important.

One of its major criticisms arises from the neglect of store of value function of money. The classicists emphasized only the medium of exchange function of money which simply acted as a go-between to facilitate buying and selling. For them, money performed a neutral role in the economy. It was barren and would not multiply, if stored in the form of wealth.

This was an erroneous view because money performed the "asset" function when it is transformed into other forms of assets like bills, equities, debentures, real assets (houses, cars, TVs, and so on), etc. Thus the neglect of the asset function of money was the major weakness of classical approach to the demand for money which Keynes remedied.

The Keynesian Approach: Liquidity Preference:

Keynes in his General Theory used a new term "liquidity preference" for the demand for money. Keynes suggested three motives which led to the demand for money in an economy: (1) the transactions demand, (2) the precautionary demand, and (3) the speculative demand.

The Transactions Demand for Money:

The transactions demand for money arises from the medium of exchange function of money in making regular payments for goods and services. According to Keynes, it relates to "the need of cash for the current transactions of personal and business exchange" It is further divided into income and business motives. The income motive is meant "to bridge the interval between the receipt of income and its disbursement."

Similarly, the business motive is meant "to bridge the interval between the time of incurring business costs and that of the receipt of the sale proceeds." If the time between the incurring of expenditure and receipt of income is small, less cash will be held by the people for current transactions, and vice versa. There will, however, be changes in the transactions demand for money depending upon the expectations of income recipients and businessmen. They depend upon the level of income, the interest rate, the business turnover, the normal period between the receipt and disbursement of income, etc.

Given these factors, the transactions demand for money is a direct proportional and positive function of the level of income, and is expressed as

$L_1 = kY$

Where L_1 is the transactions demand for money, k is the proportion of income which is kept for transactions purposes, and Y is the income.

This equation is illustrated in Figure 70.1 where the line kY represents a linear and proportional relation between transactions demand and the level of income. Assuming k= 1/4 and income Rs 1000 crores, the demand for transactions balances would be Rs 250 crores, at point A. With the increase in income to Rs 1200 crores, the transactions demand would be Rs 300 crores at point B on the curve kY.

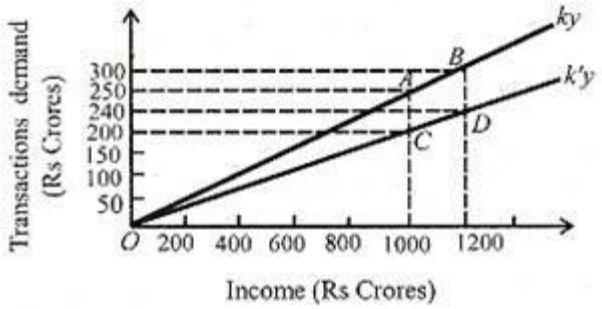

Fig. 70.1

If the transactions demand falls due to a change in the institutional and structural conditions of the economy, the value of κ is reduced to say, 1/5, and the new transactions demand curve is kY. It shows that for income of Rs 1000 and 1200 crores, transactions balances would Rs 200 and 240 crores at points C and D respectively in the figure. "Thus we conclude that the chief determinant of changes in the actual amount of the transactions balances held is changes in income. Changes in the transactions balances are the result of movements along a line like kY rather than changes in the slope of the line. In the equation, changes in transactions balances are the result of changes in Y rather than changes in k."

Interest Rate and Transactions Demand:

Regarding the rate of interest as the determinant of the transactions demand for money Keynes made the L_T function interest inelastic. But the pointed out that the "demand for money in the active circulation is also the some extent a function of the rate of interest, since a higher rate of interest may lead to a more economical use of active balances." "However, he did not stress the role of the rate of interest in this part of his analysis, and many of his popularizes ignored it altogether." In recent years, two post-Keynesian economists William J. Baumol and James Tobin have shown that the rate of interest is an important determinant of transactions demand for money.

They have also pointed out the relationship, between transactions demand for money and income is not linear and proportional. Rather, changes in income lead to proportionately smaller changes in transactions demand.

Transactions balances are held because income received once a month is not spent on the same day. In fact, an individual spreads his expenditure evenly over the month. Thus a portion of money meant for transactions purposes can be spent on short-term interest-yielding securities. It is possible to "put funds to work for a matter of days, weeks, or months in interest-bearing securities such as U.S. Treasury bills or commercial paper and other short-term money market instruments.

The problem here is that there is a cost involved in buying and selling. One must weigh the financial cost and inconvenience of frequent entry to and exit from the market for securities against the apparent advantage of holding interest-bearing securities in place of idle transactions balances.

Among other things, the cost per purchase and sale, the rate of interest, and the frequency of purchases and sales determine the profitability of switching from ideal transactions balances to earning assets. Nonetheless, with the cost per purchase and sale given, there is clearly some rate of interest at which it becomes profitable to switch what otherwise would be transactions balances into interest-bearing securities, even if the period for which these funds may be spared from transactions needs is measured only in weeks. The higher the interest rate, the larger will be the fraction of any given amount of transactions balances that can be profitably diverted into securities."

The structure of cash and short-term bond holdings is shown in Figure 70.2 (A), (B) and (C). Suppose an individual receives Rs 1200 as income on the first of every month and spends it evenly over the month. The month has four weeks. His saving is zero.

Keynesian approach:

THE TRANSACTION MOTIVE, THE PRECAUTIONARY MOTIVE, THE SPECULATIVE MOTIVE –

Some of the major motives for which money is wanted by the people are as follows: (a) Transaction Motive (b) Precautionary Motive (c) Speculative Motive.

People demand commodities such as rice, wheat, clothes, etc. because these goods possess utility. However, money does not possess any utility to directly satisfy the consumers. Then, why do people demand money?

Broadly stating, there are three main motives, for which money is wanted by the people:

(a) Transaction Motive;

(b) Precautionary Motive;

(c) Speculative Motive.

(a) Transaction Motive:

It refers to demand for money for conducting day-to-day transactions. This motive can be looked at from the perspective of consumers, who want income to meet their household expenditure (income motive) and from the perspective of businessmen, who require money to carry on their business activities (business motive).

The transaction motive relates to demand for money to meet the current transactions of individuals and business units. The income, which a person gets, is not continuous whereas, expenditure is continuous. So, to bridge the gap between receipt of income and its expenditure, people hold cash.

According to Keynes, transaction demand for money is positively associated with the level of income, i.e. higher the level of income, larger would be the size of money holdings for transactions.

(b) Precautionary Motive:

It refers to the desire of people to hold cash balances for unforeseen contingencies. People wish to hold some money to provide for the risk of unforeseen events like sickness, accident, etc. The amount of money held under this motive, depends on the nature of individual and on the conditions in which he lives. The demand of money for precautionary balances is also

closely related to the level of income. Higher the level of income, more will be the cash balances for contingencies.

Transaction Motive Vs. Precautionary Motive:

1. In case of transaction motive, money is held for ordinary transactions, while under precautionary motive, cash is kept to meet unforeseen transactions.

2. Under transaction motive, holding of money is very convenient and value of money, in terms of other goods, is relatively certain. However, under precautionary motive, holding of money depends on the degree of uncertainty i.e. more money is kept in the events of war or financial crisis and less money during normal conditions.

In general, the cash balances held for transaction and precautionary motives are directly dependent on the level of income.

(c) Speculative Motive:

It refers to desire of the holder to keep cash balance as an alternative to financial assets like bonds. Under speculative motive, it is presumed that people can hold their wealth either in the form of bonds or in the form of cash balances. The decisions regarding holding of bonds or cash balances depend upon the expectations about changes in the rate of interest or capital value of assets (bonds) in future.

The interest rate varies inversely with the market value of securities (bonds), i.e. when interest rate rises, market value of bonds falls. Hence, demand for money for speculative motive becomes less at high interest rates and becomes large at low interest rates.

UNIT-II

FISHER'S TRANSACTIONS APPROACH TO DEMAND FOR MONEY:

In his theory of demand for money Fisher and other classical economists laid stress on the medium of exchange function of money, that is, money as a means of buying goods and services. All transactions involving purchase of goods, services, raw materials, assets require payment of money as value of the transaction made.

If accounting identity, namely value paid must equal value received is to occur, value of goods, services and assets sold must be equal to the value of money paid for them. Thus, in any given period, the value of all goods, services or assets sold must equal to the number of transactions 7 made multiplied by the average price of these transactions. Thus, the total value of transactions made is equal to PT.

On the other hand, because value paid is identically equal to the value of money flow used for buying goods, services and assets, the value of money flow is equal to the nominal quantity of money supply M multiplied by the average number of times the quantity of money in circulation is used or exchanged for transaction purposes. The average number of times a unit of money is used for transactions of goods, services and assets is called transactions velocity of circulation and is denoted by V.

Symbolically, Fisher's equation of exchange is written as under:

$MV = PT$ …(1)

Where, M = the quantity of money in circulation

V = transactions velocity of circulation

P = Average price

T = the total number of transactions.

The above equation (1) is an identity, that is true by definition. However by taking some assumptions about the variables V and T, Fisher transformed the above identity into a theory of demand for money.

According to Fisher, the nominal quantity of money M is fixed by the Central Bank of a country (note that Reserve Bank of India is the Central Bank of India) and is therefore treated as an exogenous variable which is assumed to be a given quantity in a particular period of time.

Further, the number of transactions in a period is a function of national income; the greater the national income, the larger the number of transactions required to be made. Further, since Fisher assumed that full employment of resources prevailed in the economy, the level of national income is determined by the amount of the fully employed resources.

Thus, with the assumption of full employment of resources, the volume of transactions T is fixed in the short run. But most important assumption which makes Fisher's equation of exchange as a theory of demand for money is that velocity of circulation (V) remains constant and is independent of M, P and T.

This is because he thought that velocity of circulation of money (V) is determined by institutional and technological factors involved in the transactions process. Since these institutional and technological factors do not vary much in the short run, the transactions velocity of circulation of money (V) was assumed to be constant.

As we know that for money market to be in equilibrium, nominal quantity of money supply must be equal to the nominal quantity of money demand.

In other words, for money market to be in equilibrium:

$M_s = M_d$

where M_s is fixed by the Central Bank of a country.

With the above assumptions, Fisher's equation of exchange in (1) above can be rewritten as

$M_d = PT/V$

or $M_d = 1/V. PT$ …(2)

Thus, according to Fisher's transactions approach, demand for money depends on the following three factors:

(1) The number of transactions (T)

(2) The average price of transactions (P)

(3) The transaction velocity of circulation of money

It has been pointed out that Fisher's transactions approach represents some kind of a mechanical relation between demand for money (M_d) and the total value of transactions (PT). Thus Prof. Suraj Bhan Gupta says that in Fisher's approach the relation between demand for money M_d and the value of transactions (PT) "betrays some kind of a mechanical relation between it (i.e. PT) and M_d as PT represents the total amount of work to be done by money as a medium of exchange. This makes demand for money (M_d) a technical requirement and not a behavioural function".

In Fisher's transactions approach to demand for money some serious problems are faced when it is used for empirical research. First, in Fisher's transactions approach, not only transactions involving current production of goods and services are included but also those which arise in sales and purchase of capital assets such as securities, shares, land etc. Due to frequent changes in the values of these capital assets, it is not appropriate to assume that T will remain constant even if Y is taken to be constant due to full-employment assumption.

The second problem which is faced in Fisher's approach is that it is difficult to define and determine a general price level that covers not only goods and services currently produced but also capital assets just mentioned above.

THE CAMBRIDGE EQUATION:

The Cambridge economists explained their cash-balance approach to the quantity theory of money by formulating equations known as Cambridge equations.

The Marshallian cash-balance equation is expressed as follows:

$M = KPY$

where,

M is the quantity of money (currency plus demand deposits);

P is the price level;

Y is aggregate real income; and

K is the proportion of the real income which people desire to hold in money form.

Thus, using this equation, the value of money (I/P) is found out by dividing the total amount of goods which the people want to hold out of the total income (KY) by the amount of cash held by the public (M). Thus,

The cash balance approach implies that the price level (P) is directly proportional to the money supply (M) and indirectly proportional to the aggregate real income (Y) and the proportion of the real income which individuals choose to keep in the form of money (K). M and Y being constant, P falls with the increase in K and P rises with the decrease in K.

The supply of money curve (M_s) is a horizontal line indicating that the money supply is exogenously fixed by the monetary authority and is not influenced by the income level. M_d is the demand for money curve drawn as a function (K) of real income (Y). Real income has been assumed to the constant ($\overline{Y}$). Initially, the supply and demand for money are equal at point A where the nominal income level is $P_0\overline{Y}$.

Given the demand for money (M_d = KPY), an increase in the money supply from M_s to M'_s will create an excess of supply of money over the demand for money at the old income ($P_0\overline{Y}$). As a result, the individuals will rid themselves of excess money balances by increasing their spending on goods.

Because the output (or the real income) is constant (i.e., $\overline{Y}$), the increased money expenditures cause the price level to rise from P_0 to P_1 and the nominal income increases from P_0 $\overline{Y}$ to $P_1\overline{Y}$. Thus, by assuming K and Y as constant and setting M_d = M, the Cambridge equation yields the classical quantity theory of money and prices.

Similarly, assuming the money supply (M_s) to be given, a decrease in the demand for money as a result of decrease in K (say from 1/2 to 1 /3) causes a shift in the demand for money curve from M_d = KPY to M'_d = KPY. This creates an excess of the supply of money over the demand for money which, in turn, will increase spending on goods. Again, output being constant, this increased money expenditure will raise only the price level from P_0 to P_1 and hence the nominal income level from P_0 $\overline{Y}$ to P_1 $\overline{Y}$.

PIGOU'S EQUATION:

Pigou's cash-balance equation is as follows:

where,

P is the price level and 1/P is the purchasing power;

R is the total real income or the real resources;

K is the proportion of real income held by the people in the form of money; and

M is the total money supply

Since money is held by the community not merely in the form of cash but also in the form of bank deposits, Pigou extended his equation by dividing cash into two parts, i.e., cash with the public and deposits with the banks.

Thus his modified equation:

Pigou has given his equation in the form of purchasing power (1/P). According to him, K was more important than M in explaining changes in the purchasing power of money. This means that the value of money depends upon the demand for money to hold cash balances. Moreover, assuming K and R (and also c and h in the modified equation) to be constant, there is direct and proportional relationship between money supply (M) and price level (P).

ROBERTSON'S EQUATION:

Robertson's cash-balance equation is similar to that of Pigou but with a slight difference that in place of Pigou's real resources (R), he includes total transactions (T).

Robertson's equation is as follows:

$M = KPT$

where,

P is the price level;

M is the money supply;

T is the total amount of goods and services to be purchased during a year; and

K is the proportion of T which people wish to hold in the form of cash.

The equation clearly shows that P changes directly with M and inversely with K and T. Robertson's equation is generally preferred to that of Pigou because it is easily comparable with Fisher's equation.

KEYNES EQUATION:

Keynes gives his real-balance quantity equation as an improvement over the other Cambridge equations. According to him, the demand for money is with reference only to consumer goods. In other words, people hold money to buy or to represent only goods and services.

Keynes' equation is as follows:

Again, assuming k, k' and r to be constant, the same conclusion emerges, i.e., there is direct and proportionate relationship between n and p.

FRIEDMAN'S THEORY OF DEMAND FOR MONEY:

A noted monetarist economist Friedman put forward demand for money function which plays an important role in his restatement of the quantity theory of money and prices. Friedman believes that money demand function is most important stable function of macroeconomics.

He treats money as one type of asset in which wealth holders can keep a part of their wealth. Business firms view money as a capital good or a factor of production which they combine with the services of other productive assets or labour to produce goods and services. Thus, according to Friedman, individuals hold money for the services it provides to them.

It may be noted that the service rendered by money is that it serves as a general purchasing power so that it can be conveniently used for buying goods and services. His approach to demand for money does not consider any motives for holding money, nor does it distinguish between speculative and transactions demand for money. Friedman considers the demand for money merely as an application of a general theory of demand for capital assets.

Like other capital assets, money also yields return and provides services. He analyses the various factors that determine the demand for money and from this analysis derives demand for money function. Note that the value of goods and services which money can buy represents the real yield on money.

Obviously, this real yield of money in terms of goods and services which it can purchase will depend on the price level of goods and services. Besides money, bonds are another type of asset in which people can hold their wealth. Bonds are securities which yield a stream of interest income, fixed in nominal terms. Yield on bond is the coupon rate of interest and also anticipated capital gain or loss due to expected changes in the market rate of interest.

Equities or Shares are another form of asset in which wealth can be held. The yield from equity is determined by the dividend rate, expected capital gain or loss and expected changes in the price level. The fourth form in which people can hold their wealth is the stock of producer and durable consumer commodities.

These commodities also yield a stream of income but in kind rather than in money. Thus, the basic yield from commodities is implicit one. However, Friedman also considers an explicit yield from commodities in the form of expected rate of change in their price per unit of time.

Friedman's nominal demand function (M_d) for money can be written as:

$M_d = f(W, h, r_m, r_b, r_e, P, \Delta P/P, U)$

As demand for real money balances is nominal demand for money divided by the price level, demand for real money balances can be written as:

$M_d/P = f(W, h, r_m, r_b, r_e, P, \Delta P/P, U)$

where M_d stands for nominal demand for money and M_d/P for demand for real money balances, W stands for wealth of the individuals, h for the proportion of human wealth to the total wealth held by the individuals, r_m for rate of return or interest on money, r_b for rate of interest on bonds, r_e for rate of return on equities, P for the price level, $\Delta P/P$ for the change in price level (i.e. rate of inflation), and U for the institutional factors.

1. Wealth (W):

The major factor determining the demand for money is the wealth of the individual (W). In wealth Friedman includes not only non-human wealth such as bonds, shares, money which yield various rates of return but also human wealth or human capital. By human wealth Friedman

means the value of an individual's present and future earnings. Whereas non-human wealth can be easily converted into money, that is, can be made liquid. Such substitution of human wealth is not easily possible. Thus human wealth represents illiquid component of wealth and, therefore, the proportion of human wealth to the non-human wealth has been included in the demand for money function as an independent variable.

Individual's demand for money directly depends on his total wealth. Indeed, the total wealth of an individual represents an upper limit of holding money by an individual and is similar to the budget constraint of the consumer in the theory of demand. The greater the wealth of an individual, the more money he will demand for transactions and other purposes.

As a country becomes richer, its demand for money for transaction and other purposes will increase. Since as compared to non- human wealth, human wealth is much less liquid, Friedman has argued that as the proportion of human wealth in the total wealth increases, there will be a greater demand for money to make up for the illiquidity of human wealth.

2. Rates of Interest or Return (r_m, r_b, r_e):

Friedman considers three rates of interest, namely, r_m, r_b and r_e which determine the demand for money. r_m is the own rate of interest on money. Note that money kept in the form of currency and demand deposits does not earn any interest.

But money held as saving deposits and fixed deposits earns certain rates of interest and it is this rate of interest which is designated by r_m in the money demand function. Given the other rates of interest or return, the higher the own rate of interest, the greater the demand for money.
In deciding how large a part of his wealth to hold in the form of money the individual will compare the rate of interest on money with rates of interest (or return) on bonds and other assets. The opportunity cost of holding money is the interest or return given up by not holding these other forms of assets.

As rates of return on bond (r_b) and equities (r_e) rise, the opportunity cost of holding money will increase which will reduce the demand for money holdings. Thus, the demand for

money is negatively related to the rate of interest (or return) on bonds, equities and other such non-money assets.

3. Price Level (P):

Price level also determines the demand for money balances. A higher price level means people will require a larger nominal money balance in order to do the same amount of transactions, that is, to purchase the same amount of goods and services.

If income (Y) is used as proxy for wealth (W) which, as stated above, is the most important determinant of demand for money, then nominal income is given by Y.P which becomes a crucial determinant of demand for money. Here Y stands for real income (i. e. in terms of goods and services) and P for price level. As the price level goes up, the demand for money will rise and, on the other hand, if price level falls, the demand for money will decline. As a matter of fact, people adjust the nominal money balances (M) to achieve their desired level of real money balance (M/P).

4. The Expected Rate of Inflation (ΔP/P):

If people expect a higher rate of inflation, they will reduce their demand for money holdings. This is because inflation reduces the value of their money balances in terms of its power to purchase goods and services.If the rate of inflation exceeds the nominal rate of interest, there will be negative rate of return on money. Therefore, when people expect a higher rate of inflation they will tend to convert their money holdings into goods or other assets which are not affected by inflation. On the other hand, if people expect a fall in the price level, their demand for money holdings will increase.

5. Institutional Factors (U):

Institutional factors such as mode of wage payments and bill payments also affect the demand for money. Several other factors which influence the overall economic environment affect the demand for money. For example, if recession or war is anticipated, the demand for money balances will increase. Besides, instability in capital markets, which erodes the confidence of the people in making profits from investment in bonds and equity shares, will also raise the demand for money.

UNIT III

MONEY MARKET –

Money Market is a segment of the financial market in India where borrowing and lending of short-term funds take place. The maturity of money market instruments is from one day to one year. In India, this market is regulated by both RBI (the Reserve bank of India) and SEBI (the Security and Exchange Board of India). The nature of transactions in this market is such that they are large in amount and high in volume. Thus, we can say that the entire market is dominated by a small number of large players.

Objectives of the money market in India

The following are the important objectives of an Indian money market –

Facilitate a parking place to employ short-term surplus funds.

Aid room for overcoming short-term deficits.

To enable the Central Bank to influence and regulate liquidity in the economy through its intervention in this market. Help reasonable access to users of short-term funds to meet their requirements quickly, adequately and at reasonable costs.

Segments of the Indian money market

The Indian money-market has the following two segments. The existence of the unorganized market, though illegal, yet operates. However, we that is out of the scope of the present article. So we will concentrate exclusively on the organized money-markets in India. Wherever, in the blog article or elsewhere in the site we refer money-markets, it is in organized money-market only.

1. Unorganized money-market

The unorganized money market is an old and ancient market, mainly it made of indigenous bankers and money lenders, etc.

2. Organized money-market

The organized money market is that part which comes under the regulatory ambit of RBI & SEBI. Governments (Central and State), Discount and Finance House of India (DFHI), Mutual

Funds, Corporate, Commercial or Cooperative Banks, Public Sector Undertakings, Insurance Companies, and Financial Institutions and Non-Banking Financial Companies (NBFCs) are the key players of the organized Indian money market.

Structure of organized money market of India

The organized money market in India is not a single market. It is a combination of markets of various instruments. The following are the instruments that are integral parts of the **Indian money market system.**

1. Call money or notice money

Call money, notice money, and term money markets are sub-markets of the Indian money market. These markets provide funds for very short-term. Lending and borrowing from the call money market for 1 day.

Whereas lending and borrowing of funds from notice money market are for 2 to 14 days. And when there are borrowing and lending of funds for the tenor of more than 14 days, it refers to "Term Money".

2. Treasury bills

The Bill market is a sub-market of this market in India. There are two types of the bill in the money market. They are treasury bills and commercial bill. The treasury bills are also known as T-Bills, T-bills are issued by the Central bank on behalf of Government, whereas Commercial Bills are issued by Financial Institutions. Treasury bills do not yield any interest, but it is issued at discount and repaid at par at the time of maturity. In T-bills there is no risk of default; it is a safe investment instrument.

3. Commercial bills

Commercial bill is a money market instrument which is similar to the bill of exchange; it is issued by a Commercial organization to raise money for short-term needs. In India, the participants of the commercial bill market are banks and financial institutions.

4. Certificate of deposits

Certificate of Deposits also known as CDs. It is a negotiable money market instrument. It is like a promissory note. Rates, terms, and amounts vary from institution to institution. CDs are not supposed to trade publically neither it is traded on any exchange.

In general institutions issue certificate of deposit at discount on its face value. The banks and financial institutions can issue CDs on a floating rate basis.

5. Commercial paper

The commercial paper is another money market instrument in India. We also call commercial paper as CP. CP refers to a short-term unsecured money market instrument. Big corporations with good credit rating issue commercial paper as a promissory note. There is no collateral support for CPs. Hence, only large firms with considerable financial strength can issue the instrument.

6. Money market mutual funds (MMMFs)

The money-market mutual funds were introduced by RBI in 1992 and since 2000 they are brought under the regulation of SEBI. It is an open-ended mutual fund which invests in short-term debt securities. This kind of mutual fund solely invests in instruments of the money market.

7. Repo and the reverse repo market

Repo means "Repurchase Agreement". It exists in India since December 1992. REPO means selling a security under an agreement to repurchase it at a predetermined date and rate. Those who deal in government securities they use the repo as an overnight borrowings.

Features of the Indian money market

The following are the important features of the money market in India –

The money market is purely for short-term funds or assets called near money.

All the instruments of the money market deal only with financial assets that are financial in nature. Also, such instruments have maturity period up to one year.

It deals assets that can convert into cash readily without much loss and with minimum transaction cost.

Generally, transactions take place through oral communication (for eg. phone or mobile). The exchange of relevant documents and written communications take place subsequently. There is no formal place for the trading (like a stock exchange). Brokers free transactions are there.

The components of a money market are the Central Bank, Commercial Banks, Non-banking financial companies, discount houses, and acceptance house. Commercial banks are dominant player of this market.

Functions of Indian money markets

The instruments of this market are liquid when we compare it with other financial instruments. We can convert these instruments into cash easily. Thus, they are able to address the need for the short-term surplus funds of the lenders and short-term fund requirements of the borrowers.

The major functions of such market instrument are to cater to the short-term financial needs of the economy. Some other functions are as following:

It helps in effective implementation of the RBI's monetary policy.

This market helps to maintain demand and supply equilibrium with regard to short-term funds.

It also meets the need for short-term fund requirement of the government.

It helps in maintaining liquidity in the economy.

One important consideration about money market investment is that retail investors have very limited scope for directly participating in it. Recently with NSE being offering some instruments of the money market for retail investors. However, due to the large ticket size of trade and low liquidity, it is out of reach of retail investors. But nothing to worry much on this front. As retail investors of India, you can passively invest in any of such instruments through money market mutual funds.

COMPOSITION –

The money market is not a single homogeneous market. It consists of a number of sub-markets which collectively constitute the money market. There should be competition within each sub-market as well as between different sub-markets. The following are the main sub-markets of a money market:

Call Money Market.

Commercial Bills Market or Discount Market.

Acceptance Market.

Treasury bill Market.

Indian money market was highly regulated and was characterized by limited number of participants. The limited variety and instruments were available. Interest rate on the instruments was under the regulation of Reserve Bank of India. The sincere efforts for developing the money market were made when the financial sector reforms were started by the government.

Money markets are the markets for short-term, highly liquid debt securities. Examples of these include bankers' acceptances, repos, negotiable certificates of deposit, and Treasury Bills with maturity of one year or less and often 30 days or less. Money market securities are generally very safe investments, which return relatively; low interest rate that is most appropriate for temporary cash storage or short term time needs.

Importance of Money Market

A developed money market plays an important role in the financial system of a country by supplying short-term funds adequately and quickly to trade and industry. The money market is an integral part of a country's economy. Therefore, a developed money market is highly indispensable for the rapid development of the economy. A developed money market helps the smooth functioning of the financial system in any economy in the following ways:

Development Of Trade And Industry: Money market is an important source of financing trade and industry. The money market, through discounting operations and commercial

papers, finances the short-term working capital requirements of trade and industry and facilities the development of industry and trade both — national and international.

Development Of Capital Market: The short-term rates of interest and the conditions that prevail in the money market influence the long-term interest as well as the resource mobilization in capital market. Hence, the development of capital depends upon the existence of a development of capital money market.

Smooth Functioning of Commercial Banks: The money market provides the commercial banks with facilities for temporarily employing their surplus funds in easily realizable assets. The banks can get back the funds quickly, in times of need, by resorting to the money market. The commercial banks gain immensely by economizing on their cash balances in hand and at the same time meeting the demand for large withdrawal of their depositors. It also enables commercial banks to meet their statutory requirements of cash reserve ratio (CRR) and Statutory Liquidity Ratio (SLR) by utilizing the money market mechanism.

Effective Central Bank Control: A developed money market helps the effective functioning of a central bank. It facilities effective implementation of the monetary policy of a central bank. The central bank, through the money market, pumps new money into the economy in slump and siphons if off in boom. The central bank, thus, regulates the flow of money so as to promote economic growth with stability.

Formulation Of Suitable Monetary Policy: Conditions prevailing in a money market serve as a true indicator of the monetary state of an economy. Hence, it serves as a guide to the Government in formulating and revising the monetary policy then and there depending upon the monetary conditions prevailing in the market.

Non-Inflationary Source Of Finance To Government: A developed money market helps the Government to raise short-term funds through the treasury bills floated in the market. In the absence of a developed money market, the Government would be forced to print and issue

more money or borrow from the central bank. Both ways would lead to an increase in prices and the consequent inflationary trend in the economy.

FEATURES AND SIGNIFICANCE OF THE MONEY MARKET –

Main Features of Money Market:

1. Market for short term.
2. No fixed geographical location.
3. Major Institutions involved in money market are R.B.I., Commercial Banks, LIC, GIC, etc.
4. Common Instruments of money market are Call money, Treasury Bill, CP, CD, Commercial bill, etc.

Instruments of Money Market:

The common instruments of money market are:

1. Call Money:

The money borrowed or lent on demand for a short period which is generally one day. Sundays and other holidays are excluded for this purpose. Mostly Banks use call money. When one bank faces temporary shortage of cash then the bank with surplus cash lends to bank in shortage for one or two days.

Call money is called interbank call money market. But even other organisations such as insurance companies, mutual fund companies etc. also deal with call money. It is a market over the telephone. The maturity periods of call money are extremely short and its liquidity is just next to cash.

Most of the time banks require call money to meet the minimum requirement of Cash Reserve Ratio (CRR). The interest paid on call money is called call rate. It is very volatile rate which varies from day to day and sometimes from hour to hour. There is an inverse relation between the rate of interest of call money and other securities as when rate of interest of call money increases the other securities become cheap.

2. Treasury Bills (T. Bills):

Treasury bills are issued by Reserve Bank of India on behalf of the Government of India. These bills enable government to get short term borrowings as these bills are sold to banks and general public. These bills are negotiable instruments and are freely transferable. These are issued at a discount. These are considered safest investment as these are issued by R.B.I. The maturity period of Treasury Bills varies from 14 to 364 days.

Treasury Bills are also called Zero Coupon Bonds. They are issued at a price lower than their face value and repaid at par. These are available for minimum amount of Rs 25000 and in multiples thereof.

3. Commercial Bills:

Trade bills or accommodation bills are bills drawn by one business firm on another. These are common instruments used in credit purchase and sale. These have short term maturity period generally 90 days and can be discounted with bank even before the maturity period.

These are negotiable instruments and can be easily transferred. The drawee of the bill honours the bill on due date. A trade bill is nothing but written acknowledgement of debt where the maker or drawer instructs or directs the payee or drawee to make payment within a fix period of time. The drawee accepts the bill and becomes liable to make payment on due date.

4. Commercial Paper (C.P.):

The commercial paper was introduced in India for the first time in 1990. It is an unsecured promissory note issued by public or private sector companies with a fixed maturity period which varies from 3 to 12 months. Since commercial papers are unsecured so these can be issued by companies having good reputation and creditworthiness. The commercial banks and mutual funds are the main investors of commercial papers.

Funds raised through commercial paper are used to meet the floatation cost. This is known as bridge financing. For example firm wants to raise long term funds to buy a new office building and machinery. To raise long term funds by issue of shares, debentures the company

will have to incur floatation cost such as brokerage, commission, printing of prospectus etc. The firm can meet this cost by issue of commercial papers.

5. Certificate of Deposits (C.D.):

It is a time or deposit which can be sold in the secondary market. Only a bank can issue C.D. It is a bearer certificate or document of title. It is also a negotiable instrument and can be transferred easily. C.D. is issued by banks against the deposits kept by companies and institutions. The time period of C.D. ranges from 91 days to one year. Banks are not allowed to discount these documents.

CHARACTERISTICS OF THE INDIAN MONEY MARKET – DEFECTS – SUGGESTIONS.

Features of the Indian Money Market:

In money market short term surplus funds with banks, financial institutions and others are bid by borrowers, i.e., individuals, companies and the Government. In the Indian money market RBI occupies the pivotal position. The Indian money market can be dividend into two sectors i.e. unorganised and organised.

The organised sector comprises of Reserve Bank of India, SBI group and commercial banks-foreign, public sector and private sector. The financial institutions also participate to a limited extent. The unorgnaised sector consists of indigenous bankers and money lenders.

The orgnaised money market in India has number of sub-markets such as the treasury bills market, the commercial market and inter-bank call money market.

Defects of the Indian Money Market:

1. Existence of Un-organised Money Market:

The most important defect of the Indian money market is the existence of unorganised segment. In this segment of the market the purpose as well period are not clearly demarcated. In fact, this segment thrives on this characteristic.

This segment undermines the role of the RBI in the money market. Efforts of RBI to bring indigenous bankers within statutory frame work have not yielded much result.

2. Lack of Integration:

Another important deficiency is the lack of integration of different segments or functionaries. However, with the enactment of the Banking Companies Regulation Act 1949, the position has changed considerably. The RBI is now almost fully effective in this area under various provisions of the RBI Act and the Banking Companies Regulation Act.

3. Disparity in Interest Rates:

There have been too many interest rates prevailing in the market at the same time like borrowings rates of government, the lending rates of commercial banks, the rates of co-operative banks and rates of financial institutions.

This was basically due to lack of mobility of funds from one sub- segment to another. However, with changes in financial sector the different rates of interest have been quickly adjusting to changes in the bank rate.

4. Seasonal Diversity of Money Market:

A notable characteristic is the seasonal diversity. There are very wide fluctuations in the rates of interest in the money market from one period to another in the year. November to June is the busy period. During this period crops from rural areas are moved to cities and parts. The wide fluctuations create problems in the money market. The Reserve Bank of India attempts to lessen the seasonal fluctuations in money market.

5. Lack of Proper Bill Market:

Indian Bill market is an underdeveloped one. A well orgnaised bill market or a discount market for short term bills is essential for establishing an effective link between credit agencies and Reserve Bank of India. The reasons for this situation are historical, like preference for cash to bills etc.

Reserve Bank of India started making efforts in this direction in 1952. However, a new and proper bill market was introduced in 1970. There has been substantial improvement since then.

6. Lack of a well Organised Banking System:

Till 1969, the branch expansion was very slow. There was tremendous effort in this direction after nationalisation. A well-developed banking system is essential for money market. Even, at present the lack of branches in rural areas hinders the movement of funds. With emphasis on profitability, there may be some problems on this account.

In totality it can be said that Indian Money Market is relatively under developed. In no case it can be compared with London Money Market or New York Money Market. There are number of factors responsible for it in addition to the above discussed characteristics.

For example, lack of continuous supply of bills, a developed acceptance market, commercial bills market, dealers in short term assets and co-ordination between different sections of the money market.

REFORMS IN THE INDIAN MONEY MARKET:

Since its inception, particularly after independence, the Reserve Bank of India has been making efforts to remove the defects of the Indian money market. The organised sector of the market is relatively well knit and differences between various sectors of the market have been reduced.

The bill market scheme was one very important step. But the Indian money market is still centred on the call money market although efforts have been made to develop secondary market in post 1991 period.

Vaghul Committee on Money Market, Sukhmoy Chakravarty Committee on the Review of the working of the Monetary System and Narasimham Committee on the working of Financial System has made important recommendations on the Indian money market. The Reserve Bank of India has started the process of implementation of these recommendations.

1. Development of Money Market Instruments:

The Reserve Bank of India has played an important role in the introduction of new money market instruments. These new instruments are 182 days treasury bills, longer maturity bills, dated Government securities, certificates of deposits and commercial papers, 3—4 days repos and 1 day repos from 1998-99.

Traditionally, the 91 days treasury bills have been the main instrument used by Government of India for raising short term funds. The investments came from commercial banks. In January 1993, the Government of India introduced the system of weekly out time, which has become quite popular.

The Government has been raising nearly Rs. 16,000 crores through his measurement. The interest rate variations in these bills have been between 7.15 to 11 per cent. Indian money market is following the unique practice of converting treasury bills into dated securities of 2 years or 5 years, normally carrying interest rate of 12 per cent.