

# CHAPTER – 8 MONEY MARKET

## UNIT: I

### THE CONCEPT OF MONEY DEMAND: IMPORTANT THEORIES

#### INTRODUCTION

Money is at the centre of every economic transaction and plays a significant role in all economies. In simple terms money refers to assets which are commonly used and accepted as a means of payment or as a medium of exchange or for transferring purchasing power. For policy purposes, money may be defined as the set of liquid financial assets, the variation in the stock of which will have impact on aggregate economic activity. As a statistical concept, money could include certain liquid liabilities of a particular set of financial intermediaries or other issuers (RBI, 2007).



Money has generalized purchasing power and is generally acceptable in settlement of all transactions and in discharge of other kinds of business obligations including future payments. Anything that would act as a medium of exchange is not necessarily money. For example, a bill of exchange may also be a medium of exchange, but it is not money since it is not generally accepted as a means of payment. Money is a totally liquid asset as it can be used directly, instantly, conveniently and without any costs or restrictions to make payments. At the fundamental level, money provides us with a convenient means to access goods and services.

Money represents a certain value, but currency which represents money does not necessarily have intrinsic value. When money takes the form of a commodity with intrinsic value, it is called commodity money. For e.g. gold, silver or any other such elements may be used as money. As you know, fiat money (also known as token money) has no intrinsic value, that is, it has no value if it were not used as money. Fiat money is used as a medium of exchange because the government has, by law, made them “legal tender,” which means, they serve, by law, as means of payment. In modern days, money is not necessarily a physical item; it may also constitute electronic records. Money is, in fact, only one among many kinds of financial assets which households, firms, governments and other economic units hold in their asset portfolios. Unlike other financial assets, money is an essential element in conducting most of the economic transactions in an economy.

‘There is no unique definition of ‘money’, either as a concept in economic theory or as measured in practice. Money can be defined for policy purposes as the set of liquid financial assets, the variation in the stock of which could impact on aggregate economic activity. As a statistical concept, money could include certain liquid liabilities of a particular set of financial intermediaries or other issuers’. (Reserve Bank of India Manual on Financial and Banking Statistics, 2007)

## **FUNCTIONS OF MONEY**

Money performs many important functions in an economy which not only remove the difficulties of barter but also support trade and industry. These functions are as follows:

(i) Money is a convenient medium of exchange :

Money is a convenient medium of exchange or it is an instrument that facilitates easy exchange of goods and services. Money, though not having any inherent power to directly satisfy human wants, by acting as a medium of exchange, it commands purchasing power and its possession enables us to purchase goods and services to satisfy

our wants. By acting as an intermediary, money increases the ease of trade and reduces the inefficiency and transaction costs involved in a barter exchange. In a barter economy every transaction has to involve an exchange of goods (and /or services) on both sides of the transaction. By decomposing the single barter transaction into two separate transactions of sale and purchase, money eliminates the need for double coincidence of wants. Money also facilitates separation of transactions both in time and place and this in turn enables us to economize on time and efforts involved in transactions.



(ii) Unit of value :

Money is an explicitly defined unit of value or unit of account. A unit of account is the yardstick people use to post prices and record debts. All economic values are measured and recorded in terms of money. As a measure of value, money works as a common denominator, as a unit of account. We know, Rupee is the unit of account in India in which the entire money is denominated.



The monetary unit measures and express the value of all goods and services. In fact, money helps in expressing the value of each good or service in terms of price, which is nothing but the number of monetary units for which the good or service can be exchanged. It is convenient to trade all commodities in exchange for a single commodity. So also, it is convenient to measure the prices of all commodities in terms of a single unit, rather than record the relative price of every good in terms of every other good. Thus, an obvious advantage of having a single unit of account is that it greatly reduces the number of exchange ratios between goods and services. Use of money as a unit of account can encourage trade by making it easier for individuals to know how much one good is worth in terms of another.

A common unit of account facilitates a system of orderly pricing which is crucial for rational economic choices. Goods and services which are otherwise not comparable are made comparable through expressing the worth of each in terms of money.

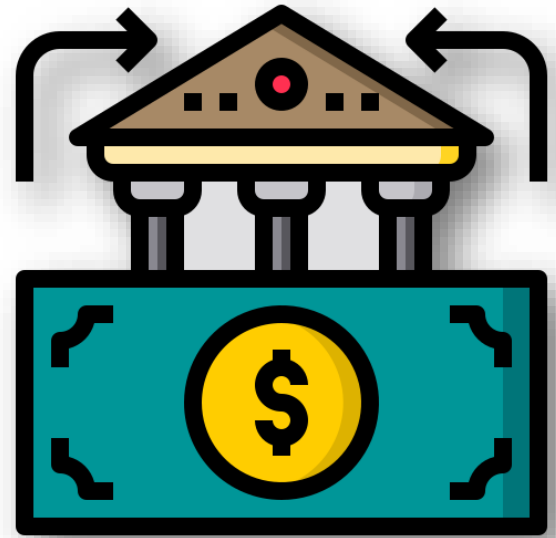
Money is a useful measuring rod of value only if the value of money remains constant. The value of money is linked to its purchasing power, i.e the quantity of goods and services that can be bought with a unit of money. Purchasing power of money is the inverse of the average or general level of prices as measured by the consumer price index. As such the value of money decreases when prices rise and increase when prices fall.

(iii) Standard deferred payment: Money serves as a unit or standard of deferred payment i.e money facilitates recording of deferred promises to pay. Money is the unit in terms of which future payments are contracted or stated. It simplifies credit transactions. By acting as a standard of deferred payments, money helps in capital formation both by the government and business enterprises. This function of money enables the growth of financial and capital markets and helps in the growth of the economy. However, variations in the purchasing power of money due to inflation or deflation reduce the efficacy of money in this function.



(iv) Store of value: Like nearly all assets such as stocks, bonds and other forms of wealth, money is a store of value. A store of value is an item that people can use to transfer purchasing power from the present to the future. People prefer to hold it as an asset, that is, as part of their stock of wealth. The splitting of purchases and sale into two transactions involves a separation in both time and space. This separation is possible because money can be used as a store of value or store of means of payment during the intervening time. Again, rather than

spending one's money at present, one can store it for use at some future time. Thus, money functions as a temporary abode of purchasing power in order to efficiently perform its medium of exchange function.



### **CHARACTERISTICS OF MONEY**

Money also functions as a permanent store of value. There are many other assets such as government bonds, deposits and other securities, land, houses etc. which also store value. Despite having the advantages of potential income yield and appreciation in value over time, these other assets are subject to limitations such as storage costs, lack of liquidity and possibility of depreciation in value. Money is the only asset which has perfect liquidity. Additionally, money also commands reversibility as its value in payment equals its value in receipt. All assets other than money lack perfect reversibility in the sense that their value in payment is not equal to their value in receipt. Even financial assets like the riskless government bonds do not command perfect reversibility as their purchase and sale are subject to certain brokerage costs although this may be quite small.

The effectiveness of an asset as a store of value depends on the degree and certainty with which the asset maintains its value over time. Hence, in order to serve as a permanent store of value in the economy, the purchasing power or the value of money should either remain stable or should monotonically rise over time.

There are some general characteristics that money should possess in order to make it serve its functions as money. Money should be:

- generally acceptable
- durable or long-lasting
- Effortlessly recognizable.
- difficult to counterfeit i.e. not easily reproducible by people
- relatively scarce, but has elasticity of supply
- portable or easily transported
- possessing uniformity; and
- Divisible into smaller parts in usable quantities or fractions without losing value.

## The Six Characteristics of Money

The coins and paper bills used as money in a society are called **currency**. A currency must meet the following characteristics:



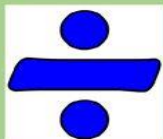
### Durability

Objects used as money must withstand physical wear and tear.



### Portability

People need to be able to take money with them as they go about their business.



### Divisibility

To be useful, money must be easily divided into smaller denominations, or units of value.

### Uniformity

Any two units of money must be uniform, that is, the same, in terms of what they will buy.



### Limited Supply

Money must be available only in limited quantities.



### Acceptability

Everyone must be able to exchange the money for goods and services.



## TOPIC - 1 MEANING OF MONEY MARKET



### **Question 1**

Which of the following is are examples for money?

1. Currency notes and coins
2. Savings account deposits
3. Time deposits
4. Current account deposits

Select the right answer.

- |                  |               |
|------------------|---------------|
| a) Only 1        | b) 2, 3 and 4 |
| c) All the above | d) 1, 2 and 4 |

**Answer:**

**Explanation:**

**Key Points**

Currency notes and coins are examples for money. Money is anything that serves as a medium of exchange. The money came into existence to overcome the drawbacks of the barter system. The form of money that is issued by the government is known as fiat money. Ex: INR, Dollar, Pounds, etc. The term legal tender states the money that is legally issued by the government. Ex: Coins and Banknotes. Others three options cannot be treated as money as they can be treated as medium of exchange.

### **Question 2**

\_\_\_ is the money which is accepted as a medium of exchange because of the trust between the payer and the payee.

- |                 |                      |
|-----------------|----------------------|
| a) Credit money | b) Fiduciary money   |
| c) Fiat money   | d) Full bodied money |

**Answer: b**

**Explanation:**

**Key Points**

Fiduciary money is money that is accepted as a medium of exchange due to the trust that exists between the payer and the payee. Cheques are fiduciary money as these are accepted as a means of payment on the basis of trust but not on the basis of any order of the government. Fiduciary money, or currency, refers to banknotes and coins in

circulation in the economy. This is the liquidity available to economic sectors to carry out transactions.

### **Question 3**

**Choose the incorrect statement**

- a) Anything that would act as a medium of exchange is money
- b) Money has generalized purchasing power and is generally acceptable in settlement of all transactions
- c) Money is a totally liquid asset and provides us with means to access goods and services
- d) Currency which represents money does not necessarily have intrinsic value.

**Answer: a**

**Explanation:**

Anything that would act as a medium of exchange is money.

### **Question 4**

**Money performs all of the three functions mentioned below, namely**

- a) medium of exchange, price control, store of value
- b) Unit of account, store of value, provide yields.
- c) medium of exchange, unit of account, store of value
- d) medium of exchange, unit of account, income distribution

**Answer: c**

**Explanation:**

Medium of exchange, unit of account, store of value

### **Question 5**

**Which among the following is considered to be the most liquid asset?**

- a) Gold
- b) Money
- c) Land
- d) Treasury bonds

**Answer: b**

**Explanation:**

(b) Money



**Question 6**

Paper money is called fiat money because

- a) It is issued with authority of government
- b) It is convertible into gold
- c) It can be easily printed
- d) It is light weight

Answer: a

Explanation:

It is issued with authority of government.

## **THE DEMAND FOR MONEY**

Having understood the role of money in an economy, we shall now examine the concept of demand for money. If people desire to hold money, we say there is demand for money. As we are aware, the demand for money is in the nature of derived demand; it is demanded for its purchasing power. The demand for money is a demand for real balances. In other words, people demand money because they wish to have command over real goods and services with the use of money. Demand for money is actually demand for liquidity and demand to store value. The demand for money is a decision about how much of one's given stock of wealth should be held in the form of money rather than as other assets such as bonds. Although it gives little or no return, individuals, households as well as firms hold money because it is liquid and offers the most convenient way to accomplish their day to day transactions.



When we study demand for money, our interest is in why consumers and firms hold money as opposed to an asset with a higher rate of return. One might think why is it important to study about demand for money? Demand for money has an important role in the determination of interest, prices and income in an economy. Understanding money demand and how various factors affect that demand is the basic requirement in setting a target for the monetary authority.

The role of money in the macro economy is usually examined in a supply/demand framework. Before we go into the theories of demand for money, we shall have a quick look at some important variables on which demand for money depends on. The quantity of nominal money or how much money people would like to hold in liquid form depends on many factors, such as income, general level of prices, rate of interest, real GDP, and the degree of financial innovation etc. Higher the income of individuals, higher the expenditure; richer people hold more money to finance their expenditure. The quantity which people desire to hold is directly proportional to the prevailing price level; higher the prices, higher should be the holding of money. As mentioned above, one may hold his wealth in any form other than money, say as an interest yielding asset. It follows that the opportunity cost of holding money is the interest rate a person could earn on other assets. Therefore, higher the interest rate, higher would be opportunity cost of holding cash and lower the demand for money. Innovations such as internet banking, application based transfers and automated teller machines reduce the need for holding liquid money. Just as households do, firms also hold money essentially for the same basic reasons.

**TOPIC - 2**  
**DEMAND FOR MONEY**



**QUESTION 1**

**Demand for money is**

- a) **Derived demand**
- b) **Direct demand**
- c) **Real income demand**
- d) **Inverse demand**

**Answer: a**

**Explanation:**

Demand for money means demand for holding cash. Unlike demand for consumer goods, money is not demanded for its own sake. It is due to these two functions that money is considered as indispensable by the society. Therefore, demand for money is a derived demand.

**QUESTION 2**

**Higher the -----, higher would be -----of holding cash and lower will be the -----.**

- a) **demand for money, opportunity cost, interest rate**
- b) **price level , opportunity cost, interest rate**
- c) **real income , opportunity cost, demand for money**
- d) **interest rate, opportunity cost, demand for money**

**Answer: d**

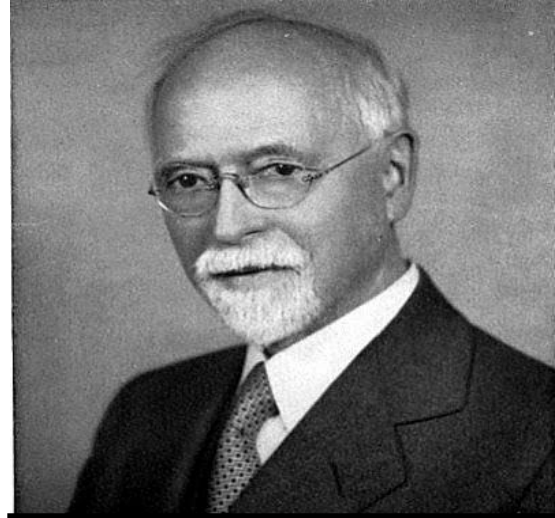
**Explanation:**

Interest rate, opportunity cost, demand for money.

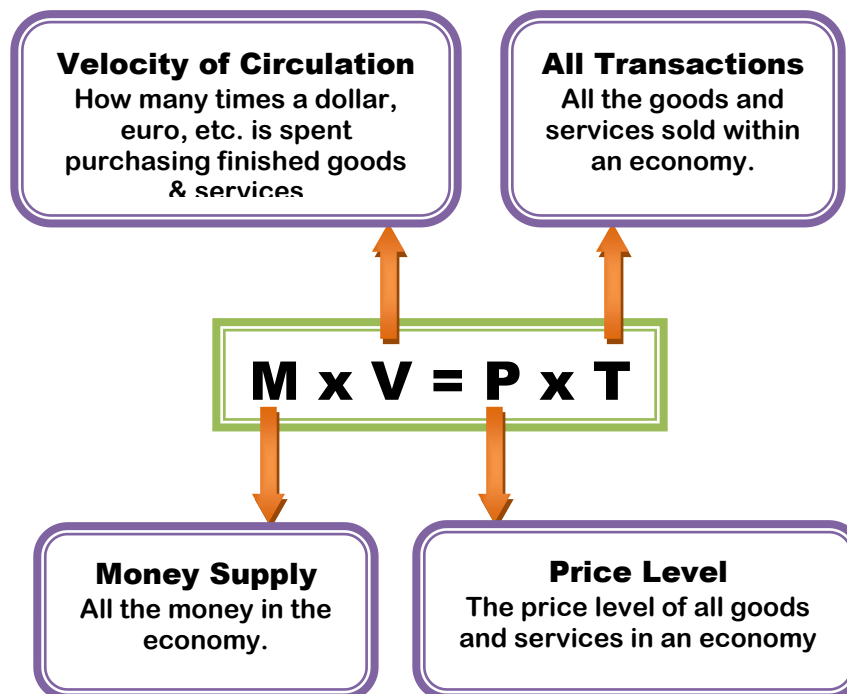
## THEORIES OF DEMAND FOR MONEY

### CLASSICAL APPROACH: THE QUANTITY THEORY OF MONEY (QTM)

The quantity theory of money, one of the oldest theories in Economics, was first propounded by Irving Fisher of Yale University in his book 'The Purchasing Power of Money' published in 1911 and later by the neoclassical economists. Both versions of the QTM demonstrate that there is strong relationship between money and price level and the quantity of money is the main determinant of the price level or the value of money. In other words, changes in the general level of commodity prices or changes in the value or purchasing power of money are determined first and foremost by changes in the quantity of money in circulation.



Irving Fisher



Fisher's version, also termed as 'equation of exchange' or 'transaction approach' is formally stated as follows:

$$MV = PT$$

Where, M = the total amount of money in circulation (on an average) in an economy  
V = transactions velocity of circulation i.e. the average number of times across all transactions a unit of money (say Rupee) is spent in purchasing goods and services

P = average price level ( $P = MV/T$ )

T = the total number of transactions. (Later economists replaced T by the real output Y).  
Subsequently, Fisher extended the equation of exchange to include demand (bank) deposits (M') and their velocity (V') in the total supply of money. Thus, the expanded form of the equation of exchange becomes:

$$MV + M'V' = PT$$

Where M' = the total quantity of credit money

V' = velocity of circulation of credit money

The total supply of money in the community consists of the quantity of actual money (M) and its velocity of circulation (V). Velocity of money in circulation (V) and the velocity of credit money (V') remain constant. T is a function of national income. Since full employment prevails, the volume of transactions T is fixed in the short run. Briefly put, the total volume of transactions (T) multiplied by the price level (P) represents the demand for money. The demand for money (PT) is equal to the supply of money (MV + M'V'). In any given period, the total value of transactions made is equal to PT and the value of money flow is equal to MV + M'V'.

We shall now look into the classical idea of the demand for money. Fisher did not specifically mention anything about the demand for money; but the same is embedded in his theory as dependent on the total value of transactions undertaken in the economy. That is people would hold money in a quantity proportional to total transactions irrespective of interest rate. Thus, there is an aggregate demand for money for transactions purpose and more the number of transactions people want, greater will be the demand for money. The total volume of transactions multiplied by the price level (PT) represents the demand for money.

## TOPIC - 3

### CLASSICAL APPROACH (QUANTITY THEORY OF MONEY)



#### **Question 1**

The quantity theory of money holds that

- a) changes in the general level of commodity prices are caused by changes in the quantity of money
- b) there is strong relationship between money and price level and the quantity of money is the main determinant of the price
- c) changes in the value of money or purchasing power of money are determined first and foremost by changes in the quantity of money in circulation
- d) All the above

Answer: d

Explanation:

(d) All the above

#### **Question 2**

In the quantity theory of money, V represents:

- a) The velocity of a dollar
- b) The value of a dollar
- c) The velocity of production
- d) The value of a good.

Answer: a

Explanation:

The velocity of a dollar.

#### **Question 3**

According to the Quantity Theory of Money, the value of money depends upon

- a) Quantity theory of money in circulation
- b) Purchasing power of money
- c) Demand for money
- d) Price level

Answer: a

Explanation:

A Quantity theory of money in circulation.

#### **Question 4**

In the equation  $MV = PY$ , M represents

- a) Money supply
- b) Money demand
- c) Maximum output
- d) Minimum output

Answer: a

Explanation:

Money supply

#### **Question 5**

Equation of exchange is associated with

- a) Pigou
- b) J.B. Say
- c) Marshall
- d) Irving Fisher

Answer: d

Explanation:

The equation of exchange is an economic identity that shows the relationship between money supply, the velocity of money, the price level, and an index of expenditures.

#### **Question 6**

The classical economists believed that if the quantity of money doubled,

- a) output would double
- b) prices would fall
- c) prices would double
- d) prices would remain constant

Answer: c

Explanation:

Prices would double.



## **THE CAMBRIDGE APPROACH**

In the early 1900s, Cambridge Economists Alfred Marshall, A.C. Pigou, D.H. Robertson and John Maynard Keynes (then associated with Cambridge) put forward a fundamentally different approach to quantity theory, known as cash balance approach. The Cambridge version holds that money increases utility in the following two ways:

1. enabling the possibility of split-up of sale and purchase to two different points of time rather than being simultaneous ,and
2. being a hedge against uncertainty.

While the first above represents transaction motive, just as Fisher envisaged, the second points to money's role as a temporary store of wealth. Since sale and purchase of commodities by individuals do not take place simultaneously, they need a 'temporary abode' of purchasing power as a hedge against uncertainty. As such, demand for money also involves a precautionary motive in Cambridge approach. Since money gives utility in its store of wealth and precautionary modes, one can say that money is demanded for itself.

Now, the question is how much money will be demanded? The answer is: it depends partly on income and partly on other factors of which important ones are wealth and interest rates. The former determinant of demand i.e. income, points to transactions demand such that higher the income, the greater the quantity of purchases and as a consequence greater will be the need for money as a temporary abode of value to overcome transactions costs. The demand for money was primarily determined by the need to conduct transactions which will have a positive relationship to the money value of aggregate expenditure. Since the latter is equal to money national income, the Cambridge money demand function is stated as:

Where

$$M_d = k PY$$

$M_d$  = is the demand for money balances,

$Y$  = real national income

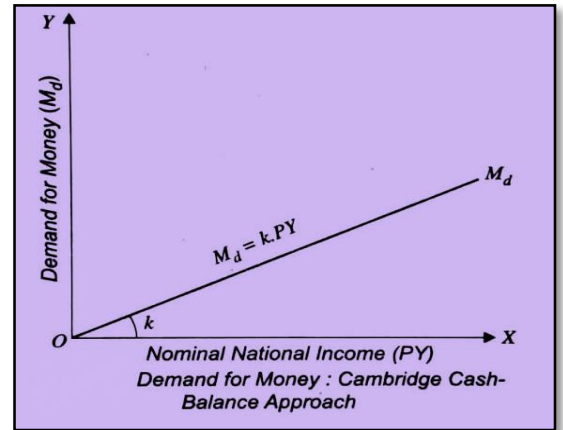
$P$  = average price level of currently produced goods and services

$PY$  = nominal income

$k$  = proportion of nominal income ( $PY$ ) that people want to hold as cash balances

The term 'k' in the above equation is called 'Cambridge k' is a parameter reflecting economic structure and monetary habits, namely the ratio of total transactions to income and the ratio of desired money balances to total transactions. The equation above explains that the demand for money (M) equals k proportion of the total money income.

Thus we see that the neoclassical theory changed the focus of the quantity theory of money to money demand and hypothesized that demand for money is a function of only money income. Both these versions are chiefly concerned with money as a means of transactions or exchange, and therefore, they present models of the transaction demand for money.



## TOPIC - 4

### THE NEO CLASSICAL APPROACH: THE CAMBRIDGE APPROACH



#### **Question 1**

The Cambridge approach to quantity theory is also known as

- a) Cash balance approach
- b) Fisher's theory of money
- c) Classical approach
- d) Keynesian Approach

Answer: a

Explanation:

The Cambridge equation formally represents the Cambridge cash-balance theory, an alternative approach to the classical quantity theory of money. Both quantity theories, Cambridge and classical, attempt to express a relationship among the amount of goods produced, the price level, amounts of money, and how money moves.

#### **Question 2**

The cash balance equation  $M = KPY$  was given by:-

- a) Keynes
- b) Pigou
- c) Robertson
- d) Marshall

Answer: d

Explanation:

d) Marshall

#### **Question 3**

The Keynesian theory of money demand emphasizes the importance of

- a) a constant velocity
- b) irrational behavior on the part of some economic agents
- c) interest rates on the demand for money
- d) all of the above.

Answer: c

Explanation:

Interest rates on the demand for money.

#### **Question 4**

Keynes argued that the precautionary component of the demand for money was primarily determined by the level of people's \_\_, which he believed were proportional to \_\_.

a) incomes; wealth

b) incomes; age

c) transactions; income

d) transactions; age

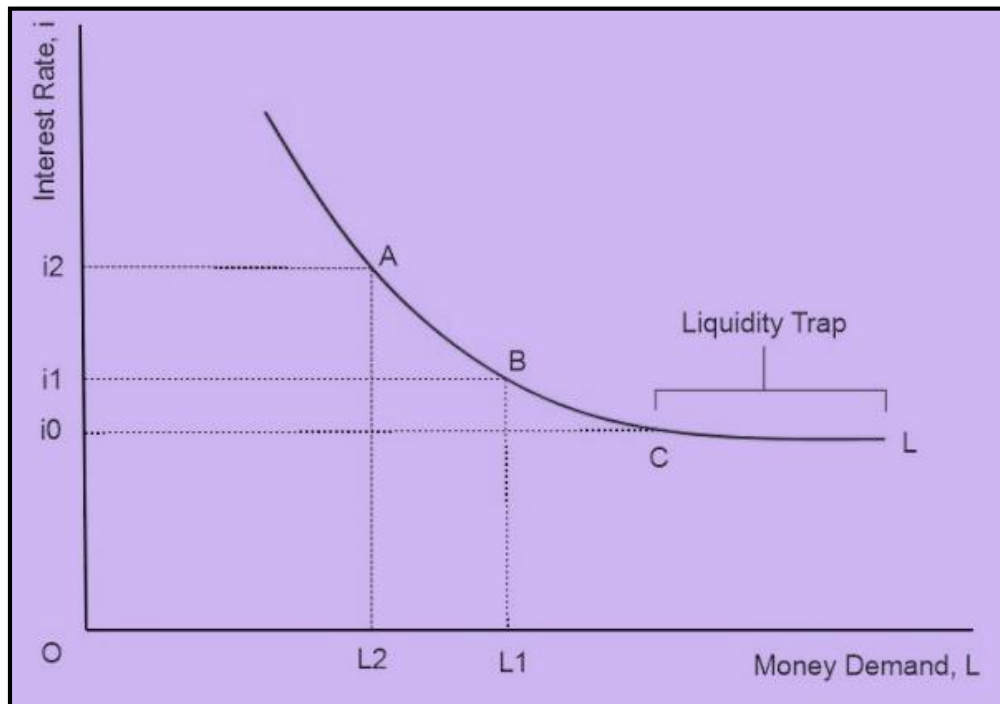
Answer: c

Explanation:

Transactions; income

## THE KEYNESIAN THEORY OF DEMAND FOR MONEY

Keynes' theory of demand for money is known as 'Liquidity Preference Theory'. 'Liquidity preference', a term that was coined by John Maynard Keynes in his masterpiece 'The General Theory of Employment, Interest and Money' (1936), denotes people's desire to hold money rather than securities or long-term interest-bearing investments.



According to Keynes, people hold money (M) in cash for three motives:

- (i) Transactions motive,
- (ii) Precautionary motive, and
- (iii) Speculative motive.

(a) The transactions motive

The transactions motive for holding cash relates to 'the need for cash for current transactions for personal and business exchange.' The need for holding money arises because there is lack of synchronization between receipts and expenditures. The transaction motive is further classified into income motive and business (trade) motive, both of which stressed on the requirement of individuals and businesses respectively to bridge the time gap between receipt of income and planned expenditures.



Keynes did not consider the transaction balances as being affected by interest rates. The transaction demand for money is directly related to the level of income. The transactions demand for money is a direct proportional and positive function of the level of income and is stated as follows:

$$L_r = kY$$

Where

$L_r$ , is the transactions demand for money,

$k$  is the ratio of earnings which is kept for transactions purposes

$Y$  is the earnings.

Keynes considered the aggregate demand for money for transaction purposes as the sum of individual demand and therefore, the aggregate transaction demand for money is a function of national income.

(b) The precautionary motive

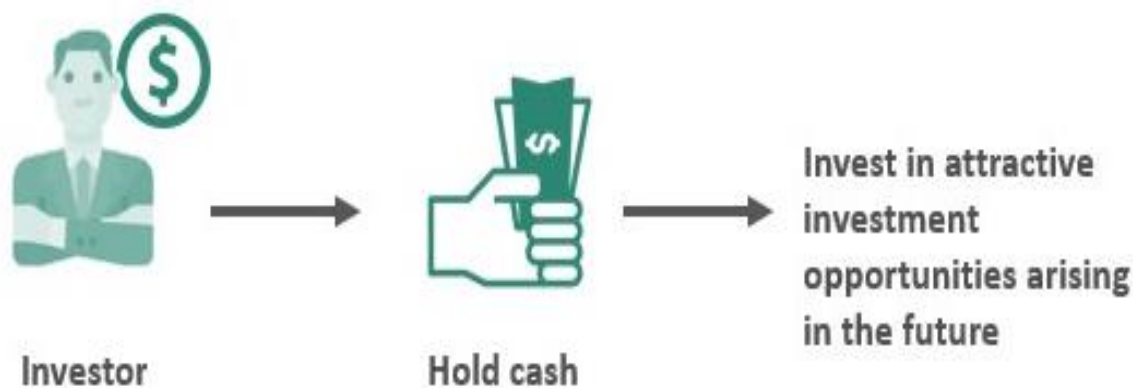
Many unforeseen and unpredictable contingencies involving money payments occur in our day to day life. Individuals as well as businesses keep a portion of their income to finance such unanticipated expenditures. The amount of money demanded under the precautionary motive depends on the size of income, prevailing economic as well as political conditions and personal characteristics of the individual such as optimism/ pessimism, farsightedness etc. Keynes regarded the precautionary balances just as balances under transactions motive as income elastic and by itself not very sensitive to rate of interest.



(c) The speculative demand for money

The speculative motive reflects people's desire to hold cash in order to be equipped to exploit any attractive investment opportunity requiring cash expenditure. According to Keynes, people demand to hold money balances to take advantage of the future changes in the rate of interest, which is the same as future changes in bond prices. It is implicit in Keynes theory, that the 'rate of interest',  $i$ , is really the return on bonds. Keynes assumed that that the expected return on money is zero, while the expected returns on bonds are of two types, namely:

- (i) the interest payment
- (ii) the expected rate of capital gain.



The market value of bonds and the market rate of interest are inversely related. A rise in the market rate of interest leads to a decrease in the market value of the bond, and vice versa. Investors have a relatively fixed conception of the 'normal' or 'critical' interest rate and compare the current rate of interest with such 'normal' or 'critical' rate of interest.

If wealth-holders consider that the current rate of interest is high compared to the 'normal or critical rate of interest', they expect a fall in the interest rate (rise in bond prices). At the high current rate of interest, they will convert their cash balances into bonds because:

- (i) they can earn high rate of return on bonds
- (ii) they expect capital gains resulting from a rise in bond prices consequent upon an expected fall in the market rate of interest in future.

Conversely, if the wealth-holders consider the current interest rate as low, compared to the 'normal or critical rate of interest', i.e., if they expect the rate of interest to rise in future (fall in bond prices), they would have an incentive to hold their wealth in the form of liquid cash rather than bonds because:

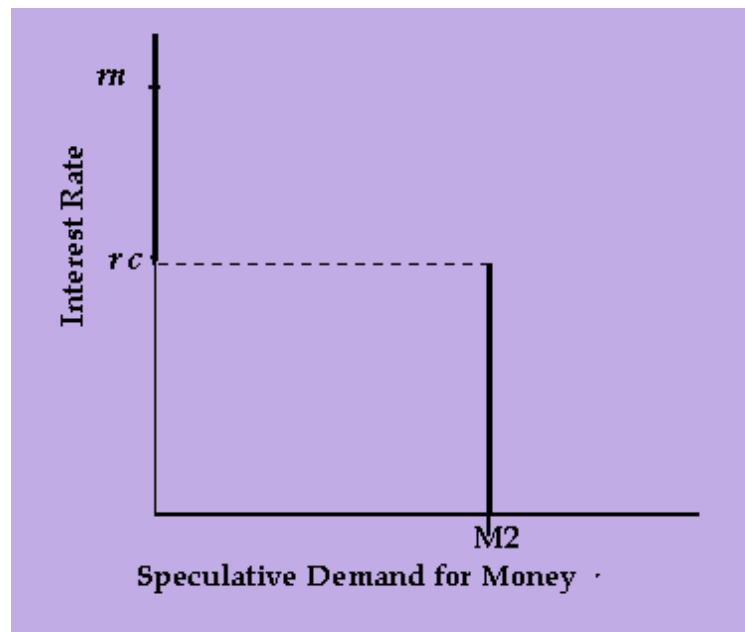
- (i) the loss suffered by way of interest income forgone is small,
- (ii) they can avoid the capital losses that would result from the anticipated increase in interest rates, and
- (iii) the return on money balances will be greater than the return on alternative assets
- (iv) If the interest rate does increase in future, the bond prices will fall and the idle cash balances held can be used to buy bonds at lower price and can thereby make a capital-gain.

Summing up, so long as the current rate of interest is higher than the critical rate of interest, a typical wealth-holder would hold in his asset portfolio only government bonds, and if the current rate of interest is lower than the critical rate of interest, his asset portfolio would consist wholly of cash. When the current rate of interest is equal to the critical rate of interest, a wealth-holder is indifferent to holding either cash or bonds. The inference from the above is that the speculative demand for money and interest are inversely related.



The speculative demand for money of individuals can be diagrammatically presented as follows:

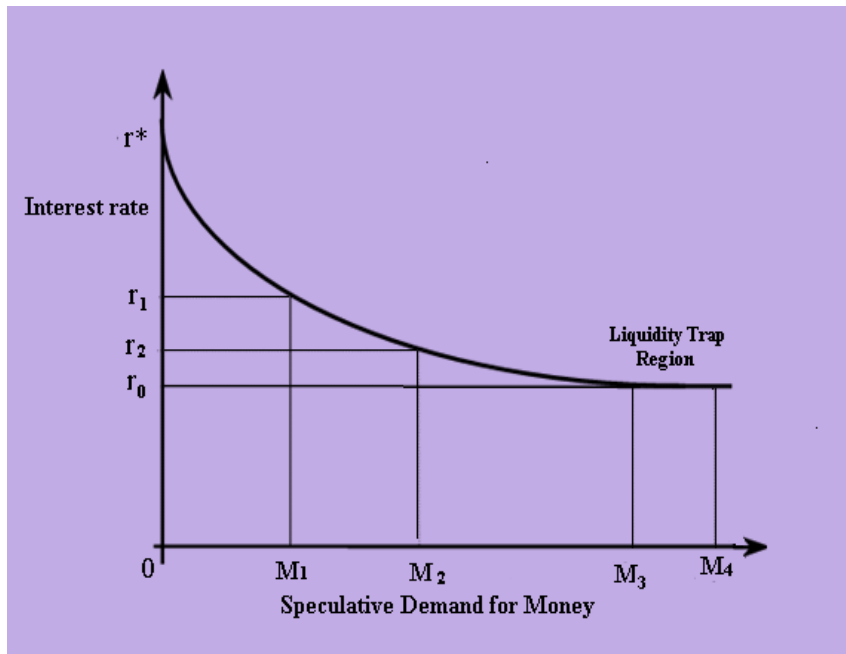
### Individual's Speculative Demand for Money



The discontinuous portfolio decision of a typical individual investor is shown in the figure above. When the current rate of interest  $r_n$  is higher than the critical rate of interest  $r_c$ , the entire wealth is held by the individual wealth-holder in the form of government bonds. If the rate of interest falls below the critical rate of interest  $r_c$ , the individual will hold his entire wealth in the form of speculative cash balances.

When we go from the individual speculative demand for money to the aggregate speculative demand for money, the discontinuity of the individual wealth-holder's demand curve for the speculative cash balances disappears and we obtain a continuous downward sloping demand function showing the inverse relationship between the current rate of interest and the speculative demand for money as shown in figure below:

### Aggregate Speculative Demand for Money



According to Keynes, higher the rates of interest, lower the speculative demand for money, and lower the rate of interest, higher the speculative demand for money.

**TOPIC - 5**  
**THE KEYNESIAN THEORY OF DEMAND FOR MONEY**



**Question 1**

The demand for money as a cushion against unexpected contingencies is called the

- a) transactions motive
- b) precautionary motive
- c) insurance motive
- d) speculative motive

Answer: b

Explanation:

Precautionary motive

**Question 2**

Of the three motives for holding money suggested by Keynes's, which did he believe to be the most sensitive to interest rates?

- a) The transactions motive
- b) The precautionary motive
- c) The speculative motive
- d) The altruistic motive

Answer: c

Explanation:

The speculative motive

**Question 3**

Because Keynes's assumed that the expected return on money was zero, he argued that

- a) people would never hold money
- b) people would never hold money as a store of wealth
- c) people would hold money as a store of wealth when the expected return on bonds was negative
- d) people would hold money as a store of wealth only when forced to by government policy

Answer: c

Explanation:

People would hold money as a store of wealth when the expected return on bonds was negative

#### **Question 4**

According to Keynes' theory of liquidity preference, velocity increases when

- a) income increases
- b) wealth increases
- c) brokerage commissions increase
- d) interest rates increase

Answer: d

Explanation:

Interest rates increase.

#### **Question 5**

Because interest rates have substantial fluctuations, the \_\_ theory of the demand for money indicates that velocity has substantial fluctuations as well.

- a) classical
- b) Cambridge
- c) liquidity preference
- d) Pigouvian

Answer: c

Explanation:

Liquidity preference

#### **Question 6**

Keynes's theory of the demand for money (the liquidity preference function) is consistent with \_\_ movements in \_\_

- a) countercyclical; velocity
- b) Procyclical; velocity
- c) countercyclical; expectations
- d) Procyclical; expectations

Answer: b

Explanation:

Procyclical; velocity

## **THE CONCEPT OF LIQUIDITY TRAP**

At a very high interest rate, say  $r^*$ , the opportunity cost of holding money (in terms of foregone interest) is high and therefore, people will hold no money in speculative balances. When interest rates fall to very low levels, the expectation is that since the interest rate is very low it cannot go further lower and that in all possibility it will move upwards. When interest rates rise, the bond prices will fall (interest rates and bond prices are inversely related). To hold bonds at this low interest rate is to take the almost certain risk of a capital loss (as the interest rate rises and bond prices fall). Therefore, the desire to hold bonds is very low and approaches zero, and the demand to hold money in liquid form as alternative to bond holding approaches infinity. In other words, investors would maintain cash savings rather than hold bonds. The speculative demand becomes perfectly elastic with respect to interest rate and the speculative money demand curve becomes parallel to the X axis. This situation is called a 'Liquidity trap'.

In such a situation, the monetary authority is unable to stimulate the economy with monetary policy. Since the opportunity cost of holding money is zero, even if the monetary authority increases money supply to stimulate the economy, people would prefer to hoard money. Consequently, excess funds may not be converted into new investment. The liquidity trap is synonymous with ineffective monetary policy.

Empirical evidence of liquidity trap is found during the global financial crisis of 2008 in the United States and Europe. Short-term interest rates moved close to zero. Some economists argued that these developed economies were in a liquidity trap. Even tripling of the monetary base in the US between 2008 and 2011 failed to produce significant effect on the domestic prices.

The sum of the transaction and precautionary demand, and the speculative demand, is the total demand for money. To sum up, an increase in income increases the transaction and precautionary demand for money and a rise in the rate of interest decreases the demand for speculative demand money.

## TOPIC - 4 THE LIQUIDITY TRAP



### **Question 1**

In the liquidity trap

- a) a small change in interest rates produces a small change in the quantity of money demanded
- b) a small change in interest rates produces no change in the quantity of money demanded
- c) money demand is not affected by interest rates
- d) a small change in interest rates produces a very large change in the quantity of money demanded

**Answer: d**

**Explanation:**

A small change in interest rates produces a very large change in the quantity of money demanded.

### **Question 2**

In the liquidity trap, monetary policy

- a) has a large impact on interest rates
- b) has a small impact on interest rates
- c) has no impact on interest rates
- d) has a proportionate impact on interest rates

**Answer: c**

**Explanation:**

Has no impact on interest rates

### **Question 3**

In the liquidity trap, the money demand curve

- a) is horizontal
- b) is vertical
- c) is negatively sloped
- d) is positively sloped

**Answer: a**

**Explanation:**

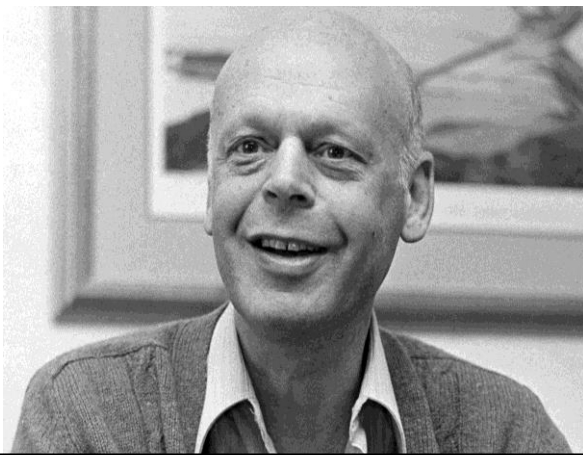
Is horizontal

## **POST - KEYNESIAN DEVELOPMENTS IN THE THEORY OF DEMAND FOR MONEY**

Most post-Keynesian theories of demand for money emphasize the store-of-value or the asset function of money.

### **INVENTORY APPROACH TO TRANSACTION BALANCES**

Baumol (1952) and Tobin (1956) developed a deterministic theory of transaction demand for money, known as Inventory Theoretic Approach, in which money or 'real cash balance' was essentially viewed as an inventory held for transaction purposes.



Baumol (1952)



Tobin (1956)

Inventory models assume that there are two media for storing value:

- a) money and
- b) An interest-bearing alternative financial asset.

There is a fixed cost of making transfers between money and the alternative assets e.g. broker charges. While relatively liquid financial assets other than money (such as, bank deposits) offer a positive return, the above said transaction cost of going between money and these assets justifies holding money.

Baumol used business inventory approach to analyze the behaviour of individuals. Just as businesses keep money to facilitate their business transactions, people also hold cash balance which involves an opportunity cost in terms of lost interest. Therefore, they hold an optimum combination of bonds and cash balance, i.e., an amount that minimizes the opportunity cost.

Baumol's propositions in his theory of transaction demand for money hold that receipt of income, say Y takes place once per unit of time, but expenditure is spread at a constant rate over the entire period of time. Excess cash over and above what is required for transactions during the period under consideration will be invested in bonds or put in an interest-bearing account. Money holdings on an average will be lower if people hold bonds or other interest yielding assets.

Just as businesses would like to hold an optimal inventory to reduce cost, individuals would like to keep optimal inventory of money and thus ensure minimum cost of money holding. The more cash the individual holds, the less would be the cost on account of broker's fee; but then the opportunity cost in terms of interest forgone would be more. The opposite would be the case if an individual holds less money. Therefore the individual faces a trade off which he should resolve by choosing the level of optimal money holding that would minimise the interest income foregone and broker's fee.

The higher the income, the higher is the average level or inventory of money holdings. The level of inventory holding also depends upon the carrying cost, which is the interest forgone by holding money and not bonds, net of the cost to the individual of making a transfer between money and bonds, say for example brokerage fee. The individual will choose the number of times the transfer between money and bonds takes place in such a way that the net profits from bond transactions are maximized.

The average transaction balance (money) holding is a function of the number of times the transfer between money and bonds takes place. The more the number of times the bond transaction is made, the lesser will be the average transaction balance holdings. In other words, the choice of the number of times the bond transaction is made determines the split of money and bond holdings for a given income.

The inventory-theoretic approach also suggests that the demand for money and bonds depend on the cost of making a transfer between money and bonds e.g. the brokerage fee. An increase the brokerage fee raises the marginal cost of bond market transactions and consequently lowers the number of such transactions. The increase in the brokerage fee raises the transactions demand for money and lowers the average bond holding over the period. This result follows because an increase in the brokerage fee makes it more costly to switch funds temporarily into bond holdings. An individual combines his asset portfolio of cash and bond in such proportions that his overall cost of holding the assets is minimized.



## **FRIEDMAN'S RESTATEMENT OF THE QUANTITY THEORY**

Milton Friedman (1956) extended Keynes' speculative money demand within the framework of asset price theory. Friedman treats the demand for money as nothing more than the application of a more general theory of demand for capital assets. Demand for money is affected by the same factors as demand for any other asset, namely

1. Permanent income.
2. Relative returns on assets. (which incorporate risk)



Milton Friedman

Friedman maintains that it is permanent income— and not current income as in the Keynesian theory – that determines the demand for money. Permanent income which is Friedman's measure of wealth is the present expected value of all future income. To Friedman, money is a good as any other durable consumption good and its demand is a function of a great number of factors.

Friedman identifies the following four determinants of the demand for money. The nominal demand for money:

- Is a function of total wealth, which is represented by permanent income divided by the discount rate, defined as the average return on the five asset classes in the monetarist theory world, namely money, bonds, equity, physical capital and human capital.
- Is positively related to the price level,  $P$ . If the price level rises the demand for money increases and vice versa.
- Rises if the opportunity costs of money holdings (i.e. returns on bonds and stock) decline and vice versa.
- Is influenced by inflation, a positive inflation rate reduces the real value of money balances, thereby increasing the opportunity costs of money holdings.

## **THE DEMAND FOR MONEY AS BEHAVIOUR TOWARD RISK**

In his classic article, 'Liquidity Preference as Behaviour towards Risk' (1958), Tobin established that the risk-avoiding behaviour of individuals provided the foundation for the liquidity preference and for a negative relationship between the demand for money and the interest rate. The risk-aversion theory is based on the principles of portfolio management. According to Tobin, the optimal portfolio structure is determined by

- (i) the risk/reward characteristics of different assets
- (ii) the taste of the individual in maximizing his utility consistent with the existing opportunities



In his theory which analyzes the individual's portfolio allocation between money and bond holdings, the demand for money is considered as a store of wealth. Tobin hypothesized that an individual would hold a portion of his wealth in the form of money in the portfolio because the rate of return on holding money was more certain than the rate of return on holding interest earning assets and entails no capital gains or losses. It is riskier to hold alternative assets vis-à-vis holding just money alone, because government bonds and equities are subject to market price volatility, while money is not. Thus, bonds pay an expected return of  $r$ , but as asset, they are unlike money because they are risky; and their actual return is uncertain. Despite this, the individual will be willing to face this risk because the expected rate of return from the alternative financial assets exceeds that of money.

According to Tobin, the rational behaviour of a risk-averse economic agent induces him to hold an optimally structured wealth portfolio which is comprised of both bonds and money. The overall expected return on the portfolio would be higher if the portfolio were all bonds, but an investor who is 'risk-averse' will be willing to exercise a trade-off and sacrifice to some extent the higher return for a reduction in risk.

Tobin's theory implies that the amount of money held as an asset depends on the level of interest rate. An increase in the interest rate will improve the terms on which the expected return on the portfolio can be increased by accepting greater risk. In response to the increase in the interest rate, the individual will increase the proportion of wealth held in the interest-bearing asset, say bonds, and will decrease the holding of money. Within Tobin's framework, an increase in the rate of interest can be considered as an increase in the payment received for undertaking risk. When this payment is increased, the individual investor is willing to put a greater proportion of the portfolio into the risky asset, (bonds) and thus a smaller proportion into the safe asset, money. His analysis implies that the demand for money as a store of wealth will decline with an increase in the interest rate. Tobin's analysis also indicates that uncertainty about future changes in bond prices, and hence the risk involved in buying bonds, may be a determinant of money demand. Just as Keynes' theory, Tobin's theory implies that the demand for money as a store of wealth depends negatively on the interest rate.

**TOPIC - 5**  
**POST KEYNESIAN DEVELOPMENT IN THE THEORY OF DEMAND  
FOR MONEY**



**Question 1**

The Baumol-Tobin analysis suggests that

- a) velocity is relatively constant
- b) The transactions component of the demand for money is negatively related to the level of interest rates.
- c) the speculative motive is nonexistent
- d) both (a) and (b) of the above are true

**Answer: b**

**Explanation:**

The transactions component of the demand for money is negatively related to the level of interest rates.

**Question 2**

In the Baumol-Tobin analysis, the transactions demand for money is

- a) Positively related to the level of income.
- b) negatively related to the level of interest rates
- c) negatively related to the expected return on other assets
- d) all of the above

**Answer: d**

**Explanation:**

d) all of the above

### **Question 3**

The Baumol-Tobin analysis suggests that a decrease in the brokerage fee for buying and selling bonds will cause the demand for money to \_\_ and the demand for bonds to \_\_.

- a) increase; increase
- b) increase; decrease
- c) decrease; decrease
- d) decrease; increase

Answer: d

Explanation:

d) decrease; increase

### **Question 4**

According to Friedman's modern quantity theory approach, the return to money includes

- a) the services provided by banks on checkable deposits
- b) the interest payments on money balances
- c) both of the above
- d) none of the above

Answer: c

Explanation:

c) both of the above

### **Question 5**

According to Milton Friedman, the demand for money is insensitive to interest rates because

- a) the demand for money is insensitive to changes in the opportunity cost of holding money
- b) competition among banks keeps the opportunity cost of holding money relatively constant
- c) people base their investment decisions on expected profits, not interest rates
- d) transactions are not subject to scale economies as wealth increases

Answer: b

Explanation:

Competition among banks keeps the opportunity cost of holding money relatively constant.

### **Question 6**

In Friedman's modern quantity theory, velocity depends upon

- a) Interest rates.
- b) the ratio of actual to permanent income
- c) the ratio of interest rates to actual income
- d) the ratio of prices to interest rates

Answer: b

Explanation:

The ratio of actual to permanent income.

### **Question 7**

Tobin's model of the speculative demand for money shows that people hold money as a \_\_ as a way of reducing \_\_.

- a) medium of exchange; transaction costs
- b) medium of exchange; risk
- c) store of wealth; transaction costs
- d) store of wealth; risk

Answer: d

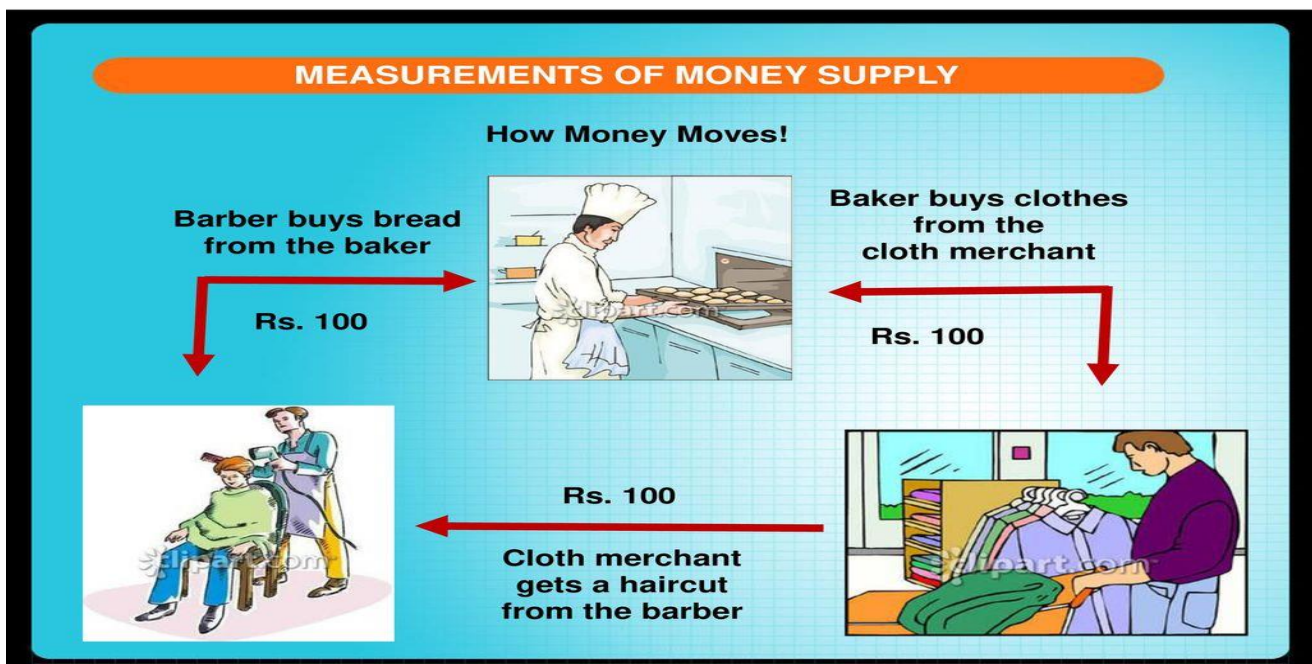
Explanation:

d) Store of wealth; risk.

## UNIT - II CONCEPT OF MONEY SUPPLY

### INTRODUCTION

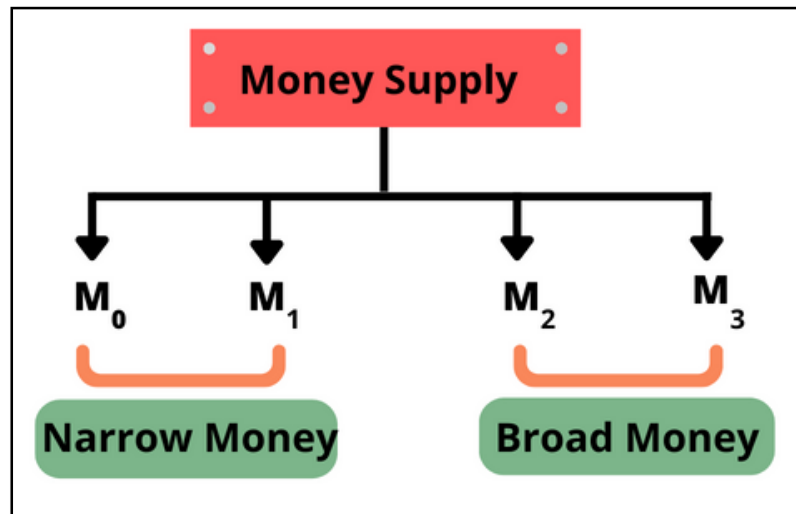
In the previous unit, we have discussed the theories related to demand for money. Money plays a crucial role in the smooth functioning of an economy. Money supply is considered as a very important macroeconomic variable responsible for changes in many other significant macroeconomic variables in an economy and is therefore considered as a matter of considerable interest to the economists and policy makers.



Economic stability requires that the supply of money at any time should to be maintained at an optimum level. A pre-requisite for achieving this is to accurately estimate the stock of money supply on a regular basis and appropriately regulate it in accordance with the monetary requirements of the country. In this unit, we shall look into various aspects related to the supply of money.



## **MONEY SUPPLY**



The term money supply denotes the total quantity of money available to the people in an economy. The quantity of money at any point of time is a measurable concept. It is important to note two things about any measure of money supply:

- (i) The supply of money is a stock variable i.e. it refers to the total amount of money at any particular point of time. It is the change in the stock of money (say, increase or decrease per month or year,), which is a flow.
- (ii) The stock of money always refers to the stock of money available to the 'public' as a means of payments and store of value. This is always smaller than the total stock of money that really exists in an economy.

The term 'public' is defined to include all economic units (households, firms and institutions) except the producers of money (i.e. the government and the banking system). The government, in this context, includes the central government and all state governments and local bodies; and the banking system means the Reserve Bank of India and all the banks that accept demand deposits (i.e. deposits from which money can be withdrawn by cheque mainly CASA deposits). The word 'public' is inclusive of all local authorities, non-banking financial institutions, and non-departmental public-sector undertakings, foreign central banks and governments and the International Monetary Fund which holds a part of Indian money in India in the form of deposits with the RBI. In other words, while discussing the definition of 'supply of money' and the standard measures of money, interbank deposits and money held by the government and the banking system are not included.



## **RATIONALE OF MEASURING MONEY SUPPLY**

The empirical analysis of money supply is important for two reasons:

1. It facilitates analysis of monetary developments in order to provide a deeper understanding of the causes of money growth.
2. It is essential from a monetary policy perspective as it provides a framework to evaluate whether the stock of money in the economy is consistent with the standards for price stability and to understand the nature of deviations from this standard. The central banks all over the world adopt monetary policy to stabilise price level and GDP growth by directly controlling the supply of money. This is achieved mainly by managing the quantity of monetary base. The success of monetary policy depends to a large extent on the controllability of the monetary base and the money supply.

**TOPIC - 1**  
**INTRODUCTION**



**Question 1**

## **THE SOURCE OF MONEY SUPPLY**

The supply of money in the economy depends on:

- a) the decision of the central bank based on the authority conferred on it , and
- b) the supply responses of the commercial banking system of the country to the changes in policy variables initiated by the central bank to influence the total money supply in the economy.

The central banks of all countries are empowered to issue currency and, therefore, the central bank is the primary source of money supply in all countries. In effect, high powered money issued by monetary authorities is the source of all other forms of money. The currency issued by the central bank is 'fiat money' and is backed by supporting reserves and its value is guaranteed by the government.

The currency issued by the central bank is, in fact, a liability of the central bank and the government. Therefore, in principle, it must be backed by an equal value of assets mainly consisting of gold and foreign exchange reserves. In practice, however, most countries have adopted a 'minimum reserve system' wherein the central bank is empowered to issue currency to any extent by keeping only a certain minimum reserve of gold and foreign securities.

The second major source of money supply is the banking system of the country. The total supply of money in the economy is also determined by the extent of credit created by the commercial banks in the country. Banks create money supply in the process of borrowing and lending transactions with the public. Money so created by the commercial banks is called 'credit money'. The high powered money and the credit money broadly constitute the most common measure of money supply, or the total money stock of a country. (For a brief note on the process of creation of credit money, refer to Box 1, end of this chapter).

**The Crypto currencies face significant legislative uncertainties and are not legally recognized in India as currency. Hence, these are not categorized as money.** In a massive development for crypto traders in India, the Reserve Bank of India (**RBI**) has said that banks or other financial entities cannot cite **RBI's** 2018 order that barred them from dealing with virtual **cryptocurrencies**.

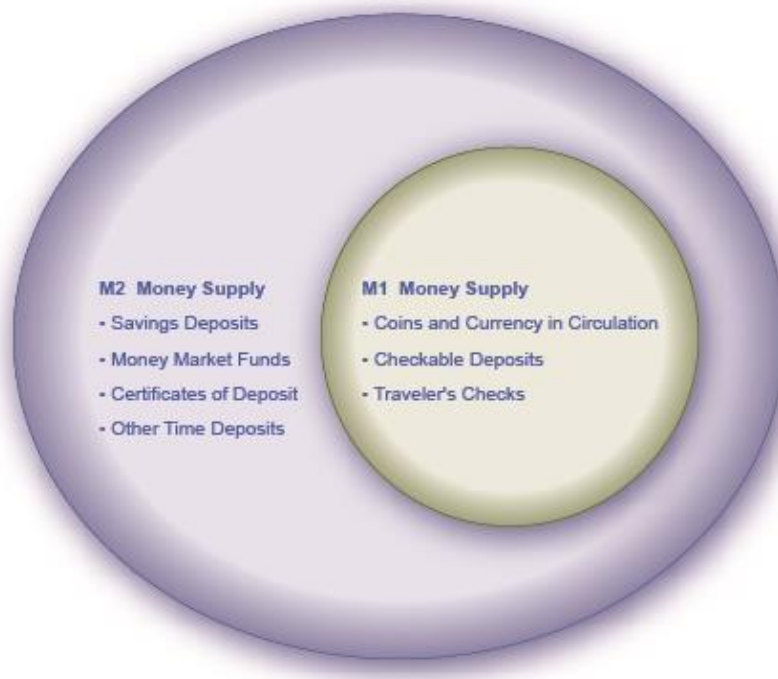
**TOPIC - 2**  
**SOURCES OF MONEY SUPPLY**



**Question 1**

## **MEASUREMENT OF MONEY SUPPLY**

There is virtually a profusion of different types of money, especially credit money, and this makes measurement of money supply a difficult task. Different countries follow different practices in measuring money supply. The measures of money supply vary from country to country, from time to time and from purpose to purpose. Reference to such different measures is beyond the scope of this unit. Just as other countries do; a range of monetary and liquidity measures are compiled and published by the RBI. Money supply will change if the magnitude of any of its constituents changes.



In this unit, we shall be concentrating on the Indian case only and in the following discussion, we shall focus on the alternative measures of money supply prepared and published periodically by the Reserve Bank of India.

Since July 1935, the Reserve Bank of India has been compiling and disseminating monetary statistics. Till 1967-68, the RBI used to publish only a single 'narrow measure of money supply' ( $M_1$ ) defined as the sum of currency and demand deposits held by the public. From 1967-68, a 'broader' measure of money supply, called 'aggregate monetary resources' (AMR) was additionally published by the RBI. From April 1977, following the recommendations of the Second Working Group on Money Supply (SWG), the RBI has been publishing data on four alternative measures of money supply denoted by  $M_1$ ,  $M_2$ ,  $M_3$  and  $M_4$  besides the reserve money. The respective empirical definitions of these measures are given below:

**$M_1$  = Currency notes and coins with the people + demand deposits with the banking system (Current and Saving deposit accounts) + other deposits with the RBI.**

**$M_2$  =  $M_1$  + savings deposits with post office savings banks.**

**$M_3$  =  $M_1$  + time deposits with the banking system.**

**$M_4$  =  $M_3$  + total deposits with the Post Office Savings Organization (excluding National Savings Certificates).**

The RBI regards these four measures of money stock as representing different degrees of liquidity. It has specified them in the descending order of liquidity,  $M_1$  being the most liquid and  $M_4$  the least liquid of the four measures.



We shall briefly discuss the important components of each.

- Currency consists of paper currency as well as coins.
- Demand deposits comprise the current-account deposits and the demand deposit portion of savings deposits, all held by the public. These are also called CASA deposits and these are cheapest sources of finance for a commercial bank.
- It should be noted that it is the net demand deposits of banks, and not their total demand deposits that get included in the measure of money supply. The total deposits include both deposits from the public as well as inter- bank deposits. Money is deemed as something held by the 'public'. Since inter-bank deposits are not held by the public, they are netted out of the total demand deposits to arrive at net demand deposits.
- 'Other deposits' with the RBI are its deposits other than those held by the government (the Central and state governments), and include demand deposits of quasi-government institutions, other financial institutions, balances in the accounts of foreign central banks and governments, and accounts of international agencies such as IMF and the World Bank.

Empirically, whatever the measure of money supply, the 'other deposits' of the RBI constitute a very small proportion (less than one per cent) of the total money supply. Following the recommendations of the Working Group on Money (1998), the RBI has started publishing a set of four new monetary aggregates on the basis of the balance sheet of the banking sector in conformity with the norms of progressive liquidity. The new monetary aggregates are:

**Reserve Money = Currency in circulation + Bankers' deposits with the RBI + Other deposits with the RBI**

**= Net RBI credit to the Government + RBI credit to the Commercial sector + RBI's Claims on banks + RBI's net Foreign assets + Government's Currency liabilities to the public - RBI's net non - monetary Liabilities**

**NM<sub>1</sub> = Currency with the public + Demand deposits with the banking system + 'Other' deposits with the RBI.**

**NM<sub>2</sub> = NM<sub>1</sub> + Short-term time deposits of residents (including and up to contractual maturity of one year).**

**NM<sub>3</sub> = NM<sub>2</sub> + Long-term time deposits of residents + Call/Term funding from financial institutions**

In the monetary literature, money is usually defined in alternative ways ranging from narrow to broad money.

- Empirically  $M_1$  (narrow money) is defined as the sum of currency held by the public, demand deposits of the banks and other deposits with the RBI. Banks include commercial and co-operative banks.
- Reserve money is comprised of the currency held by the public, cash reserves of banks and other deposits of the RBI.
- On comparison, we find that there is difference between  $M_1$  and reserve money. Bank reserves, which are a component of the monetary base, are not included in  $M_1$ . In addition, bank deposits, which are a component of  $M_1$ , are not a part of the monetary base. Reserves are commercial banks' deposits with the central bank for maintaining cash reserve ratio (CRR) and as working funds for clearing adjustments.

Reserve money, also known as central bank money, base money or high-powered money, needs a special mention as it plays a critical role in the determination of the total supply of money. Reserve money determines the level of liquidity and price level in the economy and, therefore, its management is of crucial importance to stabilize liquidity, economic growth, and price level in an economy.

The central bank also measures macroeconomic liquidity by formulating various 'liquidity' aggregates in addition to the monetary aggregates. While the instruments issued by the banking system are included in 'money', instruments, those which are close substitutes of money but are issued by the non-banking financial institutions are also included in liquidity aggregates.

$L_1 = NM_3 +$  All deposits with the post office savings banks (excluding National Savings Certificates).

$L_2 = L_1 +$  Term deposits with term lending institutions and refinancing institutions (FIs) + Term borrowing by FIs + Certificates of deposit issued by FIs.

$L_3 = L_2 +$  Public deposits of non-banking financial companies



## **DETERMINATION OF MONEY SUPPLY**

There are two alternate theories in respect of determination of money supply. According to the first view, money supply is determined exogenously by the central bank. The second view holds that the money supply is determined endogenously by changes in the economic activities which affect people's desire to hold currency relative to deposits, rate of interest, etc. The current practice is to explain the determinants of money supply based on 'money multiplier approach' which focuses on the relation between the money stock and money supply in terms of the monetary base or high-powered money. The monetary base is the sum of currency in circulation and bank reserves. This approach holds that total supply of nominal money in the economy is determined by the joint behaviour of the central bank, the commercial banks and the public. Before we discuss the determinants of money supply, it is necessary that we know the concept of money multiplier.

**TOPIC - 3**

**MEASUREMENT OF MONEY SUPPLY & IT'S DETERMINANTS**



**Question 1**

## **THE CONCEPT OF MONEY MULTIPLIER**

The money supply is defined as

$$M = m \times MB$$

When M is the money supply, m is money multiplier and MB is the monetary base or high powered money. From the above equation we can derive the money multiplier (m) as

Money multiplier m is defined as a ratio that relates the changes in the money supply to a given change in the monetary base. It is the ratio of the stock of money to the stock of high powered money. It denotes by how much the money supply will change for a given change in high-powered money. The money- multiplier process explains how an increase in the monetary base causes the money supply to increase by a multiplied amount. For instance, if there is an injection of Rs.100 Cr through an open market operation by the central bank of the country and if it leads to an increment of Rs.500 Cr. of final money supply, then the money multiplier is said to be 5. Hence, the multiplier indicates the change in monetary base which is transformed into money supply.

$$\text{Money Multiplier (m)} = \frac{\text{Money Supply}}{\text{Monetary base}}$$

The multiplier indicates what multiple of the monetary base is transformed into money supply. In other words, money and high powered money are related by the money multiplier. We make two simplifying assumptions as follows;

- Banks never hold excess reserves.
- Individuals and non-bank corporations never hold currency.

What determines the size of the money multiplier? The money multiplier is the reciprocal of the reserve ratio. Deposits, unlike currency held by people, keep only a fraction of the high-powered money in reserves and the rest is lent out and culminate in money creation. If R is the reserve ratio in a country for all commercial banks, then each unit of (say Rupee) money reserves generates  $1/R$  money.

Therefore, for any value of R, the Money Multiplier is  $\frac{1}{R}$

For example, if  $R = 10\%$ , the value of money multiplier will be 10. If the reserve ratio is only 5 %, then money multiplier is 20. Thus, the higher the reserve ratio, the less of each deposit banks loan out, and the smaller the money multiplier.

If some portion of the increase in high-powered money finds its way into currency, this portion does not undergo multiple deposit expansion. The size of the money multiplier is reduced when funds are held as cash rather than as demand deposits. In other words, as a rule, an increase in the monetary base that goes into currency is not multiplied, whereas an increase in monetary base that goes into supporting deposits is multiplied.

### **THE MONEY MULTIPLIER APPROACH TO SUPPLY OF MONEY**

The money multiplier approach to money supply propounded by Milton Friedman and Anna Schwartz, (1963) considers three factors as immediate determinants of money supply, namely:

- a) the stock of high-powered money (H)
- b) the ratio of reserves to deposits or reserve-ratio  $r = \{\text{Reserves/Deposits } R/D\}$  and
- c) the ratio of currency to deposits, or currency-deposit ratio  $c = \{C/D\}$

You may note that these represent the behaviour of the central bank, behaviour of the commercial banks and the behaviour of the general public respectively. We shall now describe how each of the above contributes to the determination of aggregate money supply in an economy.

#### a) The Behaviour of the Central Bank

The behaviour of the central bank which controls the issue of currency is reflected in the supply of the nominal high-powered money. Money stock is determined by the money multiplier and the monetary base (H) is controlled by the monetary authority. If the behaviour of the public and the commercial banks remains unchanged over time, the total supply of nominal money in the economy will vary directly with the supply of the nominal high-powered money issued by the central bank.

### b) The Behaviour of Commercial Banks

By creating credit, the commercial banks determine the total amount of nominal demand deposits. The behaviour of the commercial banks in the economy is reflected in the ratio of their cash reserves to deposits known as the 'reserve ratio'. If the required reserve ratio on demand deposits increases while all the other variables remain the same, more reserves would be needed. This implies that banks must contract their loans, causing a decline in deposits and hence in the money supply. If the required reserve ratio falls, there will be greater expansions of deposits because the same level of reserves can now support more deposits and the money supply will increase. To sum up, smaller the reserve ratio larger will be the money multiplier.

In actual practice, however, the commercial banks keep only the required fraction of their total deposits in the form of cash reserves. However, for the commercial banking system as a whole, the actual reserves ratio may be greater than the required reserve ratio since the banks keep a higher than the statutorily required percentage of their deposits in the form of cash reserves as a buffer against unexpected events requiring cash.

The excess reserves (ER) which are funds that a bank keeps back beyond what is required by regulation form a very important determinant of money supply. 'Excess reserves' are the difference between total reserves (TR) and required reserves (RR). Therefore,  $ER = TR - RR$ . If total reserves are Rs 800 billion, whereas the required reserves are Rs 600 billion, then the excess reserves are Rs 200 billion.

The additional units of high-powered money that goes into 'excess reserves' of the commercial banks do not lead to any additional loans, and therefore, these excess reserves do not lead to creation of money. Therefore, if the central bank injects money into the banking system and these are held as excess reserves by the banking system, there will be no effect on deposits or currency and hence no effect on money supply.

When the costs of holding excess reserves rise, we should expect the level of excess reserves to fall; when the benefits of holding excess reserves rise, we would expect the level of excess reserves to rise. Two primary factors namely market interest rates and expected deposit outflows affect these costs and benefits and hence in turn affect the excess reserves ratio.

We know that the cost to a bank while holding excess reserves is in terms of its opportunity cost, i.e. the interest that could have been earned on loans or securities if the bank had chosen to invest in them instead of excess reserves. If interest rate increases, it means that the opportunity cost of holding excess reserves rises because the banks have to sacrifice possible higher earnings and hence the desired ratio of excess reserves to deposits falls. Conversely, a decrease in interest rate will reduce the opportunity cost of excess reserves, and excess reserves will rise. Therefore, we conclude that the banking system's excess reserves ratio  $r$  is negatively related to the market interest rate.

If banks fear that deposit outflows are likely to increase (that is, if expected deposit outflows increase), they will want more assurance against this possibility and will increase the excess reserves ratio. Conversely, a decline in expected deposit outflows will reduce the benefit of holding excess reserves and excess reserves will fall.

As we know, money is mostly held in the form of deposits with commercial banks. Therefore, money supply may become subject to 'shocks' on account of behaviour of commercial banks which may present variations overtime either cyclically and more permanently. For instance, in times of financial crises, banks may be unwilling to lend to the small and medium scale industries who may become credit constrained facing a higher risk premia on their borrowings. The rising interest rates on bank credit to the commercial sector reflecting higher risk premia can co-exist with the lowering of policy rates by the central bank. The lower credit demand can lead to a sharp deceleration in monetary growth at a time when the central bank pursues an easy monetary policy.

c) The Behaviour of the Public

We shall now turn to the next determinant viz. the behaviour of the public represented by the currency-deposit ratio  $c$ . The payment habits of the public determine how much currency is held relative to deposits. The public, by their decisions in respect of the amount of nominal currency in hand (how much money they wish to hold as cash) is in a position to influence the amount of the nominal demand deposits of the commercial banks. The behaviour of the public influences bank credit through the decision on ratio of currency to the money supply designated as the 'currency ratio'.

What would be the behaviour of money supply when depositors decide to increase currency holding, with all other variables unchanged? In other words, you decide to keep more money in your pocket and less money in your bank. That means you are converting some of your demand deposits into currency. If many people like you do so, technically we say there is an increase in currency ratio.

As we know, demand deposits undergo multiple expansions while currency in your hands does not. Hence, when bank deposits are being converted into currency, banks can create only less credit money. The overall level of multiple expansion declines, and therefore, money multiplier also falls. Hence, we conclude that money multiplier and the money supply are negatively related to the currency ratio  $c$ .

The Currency-deposit ratio ( $c$ ) represents the degree of adoption of banking habits by the people. This is related to the level of economic activities or the GDP growth and is influenced by the degree of financial sophistication in terms of ease and access to financial services, availability of a richer array of liquid financial assets, financial innovations, institutional changes etc.

The smaller the currency-deposit ratio, the larger would be the money multiplier. This is because a smaller proportion of high powered money is being used as currency and therefore, a larger proportion is available to be reserves which get transformed into money.

The time deposit-demand deposit ratio i.e. how much money is kept as time deposits compared to demand deposits, also has an important implication for the money multiplier and, hence for the money stock in the economy. An increase in TD/DD ratio means that greater availability of free reserves and consequent enlargement of volume of multiple deposit expansion and monetary expansion.

To summarise the money multiplier approach, the size of the money multiplier is determined by the required reserve ratio ( $r$ ) at the central bank, the excess reserve ratio ( $e$ ) of commercial banks and the currency ratio ( $c$ ) of the public. The lower these ratios are, the larger the money multiplier is. In other words, the money supply is determined by high powered money ( $H$ ) and the money multiplier ( $m$ ) and varies directly with changes in the monetary base, and inversely with the currency and reserve ratios. Although these three variables do not completely explain changes in the nominal money supply, nevertheless they serve as useful devices for analysing such changes. Consequently, these variables are designated as the 'proximate determinants' of the nominal money supply in the economy. We may now rewrite the money multiplier including the above variables.

$$M = C+D \quad (1)$$

$$H = C + \text{reserves} \quad (2)$$

Where  $C$  is currency and  $D$  is deposits which are assumed to be demand deposits. We summarise the behaviour of the public, banks and the central bank by three variables namely, currency-deposit ratio  $c = C/D$ , reserve-ratio  $r = \text{Reserves}/D$ , and the stock of high-powered money ( $H$ )

Rewriting equation (1) and (2) above as

$$M = (c+1) D,$$

$$H = (c+ r) D$$

$$M = \frac{1+c}{r+c} \times H = m \times H$$

$$m = \frac{1+c}{r+c}$$

When there are excess reserves, the money multiplier  $m$  is expressed as

$$M = \frac{1+c}{r+c} \times H = m \times H$$

$$m = \frac{1+c}{r+c}$$

When there are excess reserves, the money multiplier  $n$  is expressed as

$$m = \frac{1+c}{r+e+c}$$

$$\text{Money Supply } M = \frac{1+C}{r+e+c} \times H$$



The money Multiplier is function of:

- a) the currency ratio set by depositors  $c$  which depends on the behaviour of the public
- b) excess reserves ratio set by banks  $e$ , and
- c) The required reserve ratio set by the central bank  $r$ , which depends on prescribed CRR and the balances necessary to meet settlement obligations.

## **MONETARY POLICY AND MONEY SUPPLY**

If the central bank of a country wants to stimulate economic activity it does so by infusing liquidity into the system. Let us take the example of open market operations (OMO) by central banks. Purchase of government securities injects high powered money (monetary base) into the system. Assuming that banks do not hold excess reserves and people do not hold more currency than before, and also that there is demand for loans from businesses, the credit creation process by the banking system in the country will create money to the tune of the effect of an open market sale is very similar to that of open market purchase, but in the opposite direction. In other words, an open market purchase by central bank will reduce the reserves and thereby reduce the money supply.

$$\Delta \text{ Money supply} = \frac{1}{R} \times \Delta \text{ Reserves}$$

Is it possible that the value of money multiplier is zero? It may happen when the interest rates are too low and the banks prefer to hold the newly injected reserves as excess reserves with no risk attached to it.

**TOPIC - 4**

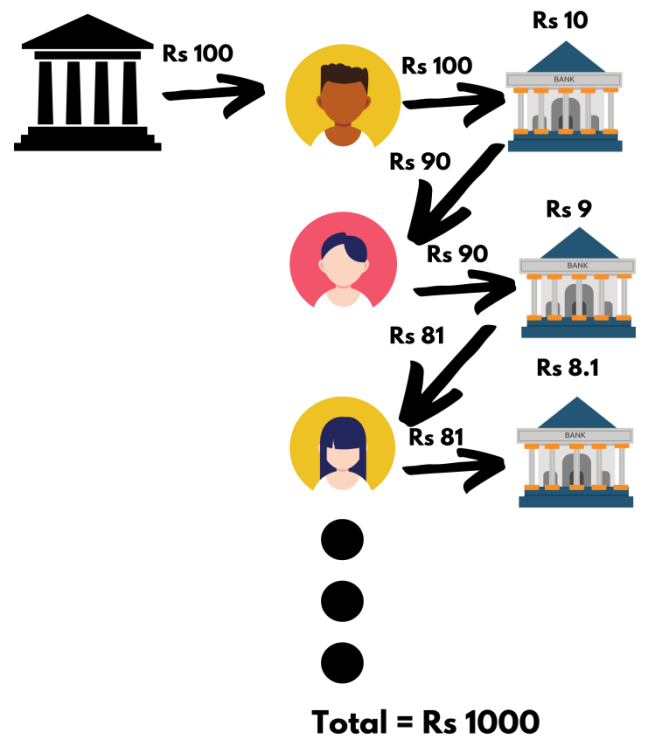
**THE CONCEPT OF MONEY MULTIPLIER& IT'S APPROACH**



**Question 1**

## **EFFECT OF GOVERNMENT EXPENDITURE ON MONEY SUPPLY**

Whenever the central and the state governments' cash balances fall short of the minimum requirement, they are eligible to avail of a facility called Ways and Means Advances (WMA)/overdraft (OD) facility. When the Reserve Bank of India lends to the governments under WMA /OD, it results in the generation of excess reserves (i.e., excess balances of commercial banks with the Reserve Bank). This happens because when government incurs expenditure, it involves debiting the government balances with the Reserve Bank and crediting the receiver (for e.g., salary account of government employee) account with the commercial bank. The excess reserves thus created can potentially lead to an increase in money supply through the money multiplier process.



Reserve Ratio "R"	Multiplier (1/r)
100%=1	1x
10% = 1/10	10x
5%=1/20	20x
4%=1/25	25x

## **THE CREDIT MULTIPLIER**

The Credit Multiplier also referred to as the deposit multiplier or the deposit expansion multiplier, describes the amount of additional money created by commercial bank through the process of lending the available money it has in excess of the central bank's reserve requirements. The deposit multiplier is, thus inextricably tied to the bank's reserve requirement. This measure tells us how much new money will be created by the banking system for a given increase in the high-powered money. It reflects a bank's ability to increase the money supply.

The credit multiplier is the reciprocal of the required reserve ratio. If reserve ratio is 20%, then credit multiplier =  $1/0.20 = 5$ .

$$\text{Credit Multiplier} = \frac{1}{\text{Required Reserve Ratio}}$$

The existence of the credit multiplier is the outcome of fractional reserve banking. It explains how increase in money supply is caused by the commercial banks' use of depositors' funds to lend money. When a bank uses the deposited money for lending, the bank generates another claim on a given amount of deposited money. For example, if A deposits ` 1000/ in cash at a bank (Bank X), this constitutes the bank's current total cash deposits. If the required reserve is 10 percent, the bank would lend ` 900/ to B. By lending B ` 900/, the bank creates a deposit for Rs. 900/ that B can now use. It is as though B owns ` 900/. This in turn means that A will continue to have a claim against ` 1000/ while B will have a claim against ` 900/. The bank has ` 1000/ in cash against claims of `1900/. In short, the bank has created ` 900/ out of "thin air" since these ` 900/ are not supported by any genuine money. At any time, the fractional reserve commercial banks have more cash liabilities than cash in their vaults.

Now suppose B buys goods worth Rs. 900/ from C and pays C by cheque. C places the cheque with his bank, Bank Y. After clearing the cheque, Bank Y will have an increase in cash of Rs. 900/, which it may take advantage of and use to lend out Rs. 810/ to D which may again be deposited in another bank, say Bank Z. Again 10 per cent of Rs. 810 (Rs. 81) has to be kept as required reserves and the remaining Rs. 719/ can be lent out, say to E. This sequence keeps on continuing until the initial deposit amount Rs. 1,000 grows exactly by the multiple of required reserves (in this case, 10%). Ultimately, the expanded credit availability would be  $1000 + 900$  (90% of 1000)  $+ 810$  (90% of 900)  $+ 729$  (90% of 810)  $+ (90\% \text{ of } 719) + \dots$ . This summation would end with an amount which is equivalent to  $1/10\%$  of 1000, which is ` 10,000. Thus, in our example, the initial deposit is capable of multiplying itself out 10 times. In short, we find that the fact that banks make use of demand deposits for lending it sets in motion a series of activities leading to expansion of money that is not backed by money proper. It is interesting to know that there is no difference between the type of money created by commercial banks and that which are issued by the central bank.

The deposit multiplier and the money multiplier though closely related are not identical because:

- a) Generally banks do not lend out all of their available money but instead maintain reserves at a level above the minimum required reserve.
- b) All borrowers do not spend every Rupee they have borrowed. They are likely to convert some portion of it to cash.

We need to keep in mind that creating money through credit by banks does not mean creating wealth. Money creation is not the same as wealth creation.

#### ▪ **1 NOTE**

While the Reserve Bank of India was pursuing all possible measures to encourage lending to combat the negative outcomes of COVID pandemic, the banks were risk averse to lending and were comfortable parking funds under reverse repo despite the very low reverse repo rate of 3.35 per cent. The average deposit of funds in the overnight reverse repo window in India increased more than three times – from an average of Rs 2.4-lakh crore during the March quarter to Rs 7- lakh crores during the June quarter. In the month of May, banks parked nearly Rs.8-lakh crores under reverse repo on a daily average basis.

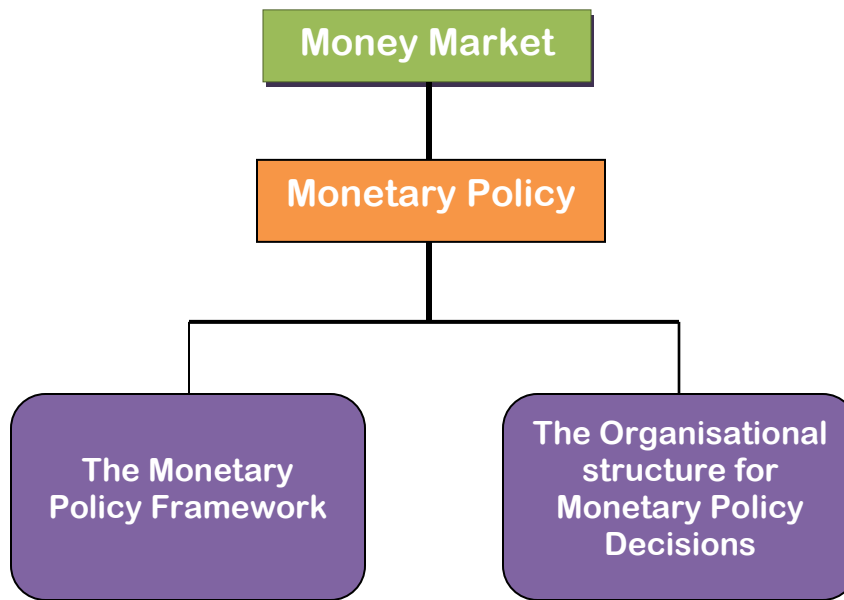
**TOPIC - 5**  
**EFFECT OF GOVT EXPENDITURE ON MONEY SUPPLY**



**Question 1**

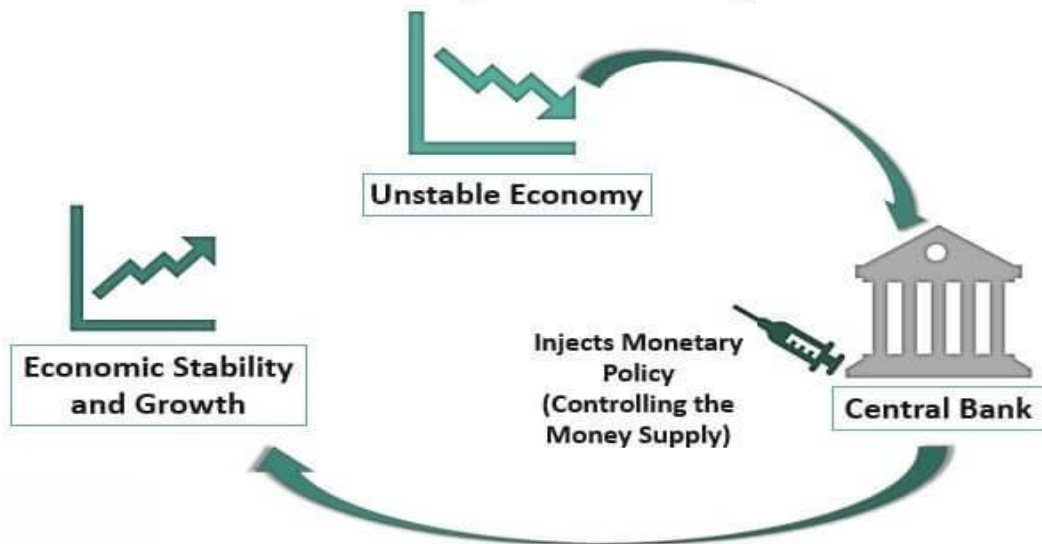
## UNIT - III MONETARY POLICY

### INTRODUCTION



As citizens of a free nation, we have many dreams about what ought to be the state of affairs in our economy. We value stable prices and low rates of inflation. We share a quest for well-being through high levels of growth which ensure jobs and prosperity and we work towards it. Unfortunately, in reality, we live in a crisis prone economy with nightmares of financial downturns, of being laid-off or being battered by financial crises. We observe that the Reserve Bank of India is occasionally manipulating policy rates for maneuvering liquidity conditions with reasons thereof explicitly notified. In fact, we have only a limited understanding of the monetary phenomena which could strengthen or paralyse the domestic economy. The discussion that follows is an attempt to throw light on the well-acknowledged monetary measures undertaken by governments to fight economic instability.

# Monetary Policy





**TOPIC - 1**  
**INTRODUCTION**

## **MONETARY POLICY DEFINED**

Monetary policy refers to the use of monetary policy instruments which are at the disposal of the central bank to regulate the availability, cost and use of money and credit to promote economic growth, price stability, optimum levels of output and employment, balance of payments equilibrium, stable currency or any other goal of government's economic policy. In other words, monetary policy is essentially a programme of action undertaken by the monetary authorities, normally the central bank, to control and regulate the demand for and supply of money with the public and the flow of credit with a view to achieving predetermined macroeconomic goals.

Monetary policy encompasses all actions of the central bank which are aimed at directly controlling the money supply and indirectly at regulating the demand for money. Monetary policy is in the nature of 'demand-side' macroeconomic policy and works by stimulating or discouraging investment and consumption spending on goods and services. It is no surprise that monetary policy is regarded as an indispensable policy instrument in an economy.

## **THE MONETARY POLICY FRAMEWORK**

The Central bank, in its execution of monetary policy, functions within an articulated monetary policy framework which has three basic components, viz.

- (i) the objectives of monetary policy,
- (ii) the analytics of monetary policy which focus on the transmission mechanisms, and
- (iii) The operating procedure which focuses on the operating targets and instruments.

## **THE OBJECTIVES OF MONETARY POLICY**

The objectives set for monetary policy are important because they provide explicit guidance to policy makers. Monetary policy of a country is in fact a reflection of its economic policy and therefore, the objectives of monetary policy generally coincide with the overall objectives of economic policy.

There are significant differences among different countries in respect of the selection of objectives, implementation procedures and tools of monetary policy either due to differences in the underlying economies or due to differences in the financial systems and in the infrastructure of financial markets. Coverage of aspects related to monetary policies of different countries would be beyond the scope of this unit. Therefore, the following discussions relate to the monetary policy situations in the context of Indian economy.

In the pre-Keynesian period, monetary policy, with its conventional objective of establishment and maintenance of stability in prices, was the single well-acknowledged instrument of macroeconomic policy. The Great Depression in 1930s and the associated economic crises marked a turning point resulting in a major shift in the objective of governments' economic policy in favour of maintenance of full employment, more generally described as economic stability. The most commonly pursued objectives of monetary policy of the central banks across the world are maintenance of price stability (or controlling inflation) and achievement of high level of economy's growth and maintenance of full employment

The Reserve Bank of India Act, 1934, in its preamble sets out the objectives of the Bank as 'to regulate the issue of bank notes and the keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage'. It is to be noted that though price stability as an objective is not explicitly spelt out, the monetary policy in India has evolved towards maintaining price stability and ensuring adequate flow of credit to the productive sectors of the economy. Price stability, as we know, is a necessary precondition for sustainable growth. Fundamentally, the primary objective of monetary policy has been maintenance of a judicious balance between price stability and economic growth.

Multiple objectives, all of which are equally desirable, such as rapid economic growth, debt management, moderate long-term interest rates, exchange rate stability and external balance of payments equilibrium were incorporated as objectives of monetary policy by policy makers in later years. The need for simultaneous achievement of several objectives brings in the possibility of conflict among the different monetary policy objectives. For example, there is often a conflict between the objectives of holding down both inflation and unemployment; a policy targeted at controlling inflation is very likely to generate unemployment. As such, based on the set national priorities, the monetary policymakers have to exercise appropriate trade-offs to balance the conflicting objectives.

Given the development needs of developing countries, the monetary policy of such countries also incorporate explicit objectives such as:

- i. maintenance the economic growth,
- ii. ensuring an adequate flow of credit to the productive sectors,
- iii. sustaining - a moderate structure of interest rates to encourage investments, and
- iv. Creation of an efficient market for government securities.

Considerations of financial and exchange rate stability have assumed greater importance in India recently on account of increasing openness of the economy and the progressive economic and financial sector reforms.

### **ANALYTICS OF MONETARY POLICY**

As we are aware, just as fiscal policy, monetary policy is intended to influence macro-economic variables such as aggregate demand, quantity of money and credit, interest rates etc, so as to influence overall economic performance. The process or channels through which the change of monetary aggregates affects the level of product and prices is known as 'monetary transmission mechanism'. It describes how policy-induced changes in the nominal money stock or in the short-term nominal interest rates impact real variables such as aggregate output and employment.

Generally central banks use the short-term interest rate as the policy instrument. Therefore, monetary policy transmission is the process through which a change in the policy rate gets transmitted primarily to the short-term money market rate and subsequently to the entire range of interest rates namely, banks' deposit and lending rates and interest rates in bond markets. These interest rate changes affect macro economic variables such as consumption, investment and exports which in turn influence aggregate demand, output and employment.

Although we know that monetary policy does influence output and inflation, we are not certain about how exactly it does so, because the effects of such policy are visible often after a time lag which is not completely predictable

There are mainly five different mechanisms through which monetary policy influences the price level and the national income. These are:

- a) the interest rate channel,
- b) the exchange rate channel,
- c) the quantum channel (e.g., relating to money supply and credit),
- d) the asset price channel i.e. via equity and real estate prices. and
- e) the expectations channel

We shall have a brief discussion on each of the above transmission mechanisms.

According to the traditional Keynesian interest rate channel, a contractionary monetary policy-induced increase in interest rates increases the cost of capital and the real cost of borrowing for firms with the result that they cut back on their investment expenditures. Similarly, households facing higher real borrowing costs, cut back on their purchases of homes, automobiles, and all types of durable goods. A decline in aggregate demand results in a fall in aggregate output and employment. Conversely, an expansionary monetary policy induced decrease in interest rates will have the opposite effect through decreases in cost of capital for firms and cost of borrowing for households.

In open economies, additional real effects of a policy-induced change in the short-term interest rate come about through the exchange rate channel. Changes in monetary policy cause differences between domestic and foreign interest rates leading to capital flows (inflow or outflow) and exchange rate. Typically, the exchange rate channel works through expenditure switching between domestic and foreign goods. Appreciation of the domestic currency makes domestically produced goods more expensive compared to foreign-produced goods. This causes net exports to fall; correspondingly domestic output and employment also fall.

Two distinct credit channels- the bank lending channel and the balance sheet channel – also allow the effect of monetary policy actions to spread through the real economy. Credit channel operates by altering access of firms and households to bank credit. Most businesses and people mostly depends on bank for borrowing money. “An open market operation” that leads first to a contraction in the supply of bank reserves and then to a contraction in bank credit requires banks to cut back on their lending. This, in turn makes the firms that are especially dependent on banks loans to cut back on their investment spending. Thus there is decline in the aggregate output and employment following a monetary contraction.

Now we shall look into how the balance sheet channel works. Logically, as a firm's cost of credit rises, the strength of its balance sheet deteriorates. A direct effect of monetary policy on the firm's balance sheet comes through an increase in interest rates leading to an increase in the payments that the firm must make to repay its floating rate debts. An indirect effect occurs when the same increase in interest rates works to reduce the capitalized value of the firm's long-lived assets. Hence, a policy-induced increase in the short-term interest rate not only acts immediately to depress spending through the traditional interest rate channel, it also acts, possibly with a time-lag, to raise each firm's cost of capital through the balance sheet channel. These together aggravate the decline in output and employment.

The standard asset price channel suggests that asset prices respond to monetary policy changes and consequently affect output, employment and inflation. A policy-induced increase in the short-term nominal interest rates makes debt instruments more attractive than equities in the eyes of investors leading to a fall in equity prices. If stock prices fall after a monetary tightening, it leads to reduction in household financial wealth, leading to fall in consumption, output, and employment.

Finally, changes in monetary policy may have impact on people's expectations about inflation and therefore on aggregate demand. This in turn affects employment and output in the economy.

The manner in which these different channels function in a given economy depends on:

- i. the stage of development of the economy, and
- ii. the underlying financial structure of the economy

## **OPERATING PROCEDURES AND INSTRUMENTS**

The operating framework relates to all aspects of implementation of monetary policy. It primarily involves three major aspects, namely,

- (i) Choosing the operating targets,
- (ii) choosing the intermediate targets, and
- (iii) choosing the policy instruments,

- The operating targets refer to the financial variables that can be controlled by the central bank to a large extent through the monetary policy instruments (reserve money and short-term money market interest rates or weighted average call rate (WACR)).
- The intermediate targets (e.g. monetary aggregates and short-term and long-term interest rates) are variables which the central bank can hope to influence to a reasonable degree through the operating targets. The intermediate targets display a predictable and stable relationship with the goal variables (e.g. stability, growth etc.)
- The monetary policy instruments are the various tools that a central bank can use to influence money market and credit conditions and pursue its monetary policy objectives. The day-to-day implementation of monetary policy by central banks through various instruments is referred to as 'operating procedures'. For example, liquidity management is the operating procedure of the Reserve Bank of India

For implementing monetary policy, a central bank can act directly, using its regulatory powers, or indirectly, using its influence on money market conditions as the issuer of reserve money (currency in circulation and deposit balances with the central bank).

In general, the direct instruments comprise of:

- a) The required cash reserve ratios and liquidity reserve ratios prescribed from time to time.
- b) directed credit which takes the form of prescribed targets for allocation of credit to preferred sectors (for e.g. Credit to priority sectors), and
- c) administered interest rates wherein the deposit and lending rates are prescribed by the central bank.

### **THE INDIRECT INSTRUMENTS MAINLY CONSIST OF:**

- a) Repos
- b) Open market operations
- c) standing facilities, and
- d) Market-based discount window.

We shall now discuss in detail how these instruments are put to use for meeting the stated objectives of monetary policy.

## **1. CASH RESERVE RATIO (CRR)**

Cash Reserve Ratio (CRR) refers to the average daily balance that a bank is required to maintain with the Reserve Bank of India as a share of its total net demand and time liabilities (NDTL). This percentage will be notified from time to time by the Reserve Bank. The RBI may set the ratio in keeping with the broad objective of maintaining monetary stability in the economy. This requirement applies uniformly to all scheduled banks in the country irrespective of its size or financial position. Non-Bank Financial Institution (NBFIs) are outside the purview of this reserve requirement.

The Reserve Bank does not pay any interest on the CRR balances maintained by the scheduled commercial banks (SCBs) with effect from the fortnight beginning March 31, 2007; however, failure of a bank to meet its required reserve requirements would attract penalty in the form of penal interest charged by the RBI.

CRR has, in recent years, assumed significance as one of the important quantitative tools aiding in liquidity management. Higher the CRR with the RBI, lower will be the liquidity in the system and vice versa. During slowdown in the economy, the RBI reduces the CRR in order to enable the banks to expand credit and increases the supply of money available in the economy. In order to contain credit expansion during period's high inflation, the RBI increases the CRR. The cash reserve ratio as on 20th September, 2020 was 4.00 percent

## **2. STATUTORY LIQUID RATIO (SLR)**

The Statutory Liquidity Ratio (SLR) is a prudential measure. As per the Banking Regulations Act 1949, all scheduled commercial banks in India are required to maintain a stipulated percentage of their total Demand and Time Liabilities (DTL) / Net DTL (NDTL) in one of the following forms:

- i. Cash
- ii. Gold, or
- iii. Investments in un-encumbered Instruments that include:



- a) Treasury-bills of the Government of India.
- b) Dated securities including those issued by the Government of India from time to time under the market borrowings programme and the Market Stabilization Scheme (MSS).
- c) State Development Loans (SDL<sub>s</sub>) issued by State Governments under their market borrowings programme.
- d) Other instruments as notified by the RBI. These include mainly the securities issued by PSE<sub>s</sub>.

While CRR has to be maintained by banks as cash with the RBI, the SLR requires holding of assets in one of the above three categories by the bank itself. The banks which fail to meet its SLR obligations are liable to be imposed penalty in the form of a penal interest payable to RBI. As on 20th September, 2020, the SLR was 18 per cent.

The SLR is also a powerful tool for controlling liquidity in the domestic market by means of manipulating bank credit. Changes in the SLR chiefly influence the availability of resources in the banking system for lending. A rise in the SLR which is resorted to during periods of high liquidity, tends to lock up a rising fraction of a bank's assets in the form of eligible instruments, and this reduces the credit creation capacity of banks. A reduction in the SLR during periods of economic downturn has the opposite effect. The SLR requirement also facilitates a captive market for government securities.

### **3. LIQUIDITY ADJUSTMENT FACILITY (LAF)**

A central bank is a 'bankers' bank.' It provides liquidity to banks when the latter face shortage of liquidity. This facility is provided by the Central Bank through its discount window. The scheduled commercial banks can borrow from the discount window against the collateral of securities like commercial bills, government securities, treasury bills, or other eligible papers. This type of support earlier took the form of refinance of loans given by commercial banks to various sectors (e.g. exports, agriculture etc). By varying the terms and conditions of refinance, the RBI could employ the sector-specific refinance facilities as an instrument of credit policy to encourage /discourage lending to particular sectors. In line with the financial sector reforms, the system of sector-specific refinance schemes (except export credit refinance scheme) was withdrawn. From June 2000, the RBI has introduced Liquidity Adjustment Facility (LAF).

The Liquidity Adjustment Facility (LAF) enables the RBI to modulate short-term liquidity under varied financial market conditions to ensure stable conditions in the overnight (call) money market. It is extended by the Reserve Bank of India to the schedule commercial banks (RRBS) and primary dealers to avail to liquidity in case of requirement (or park excess funds with the RBI in case of excess liquidity) on an overnight basis against the collateral of government securities including state government securities. The LAF consists of overnight as well as term repo auctions. The aim of term repo is to help develop the inter-bank term money market. This move is expected to set market based benchmarks for pricing of loans and deposits, and hence improve transmission of monetary policy.

The introduction of LAF is an important landmark since it triggered a rapid transformation in the monetary policy operating environment in India. As a key element in the operating framework of the RBI, its objective is to assist banks to adjust their day to day mismatches in liquidity. Currently, the RBI provides financial accommodation to the commercial banks through repos/reverse repos under the Liquidity Adjustment Facility (LAF).

Repurchase Options or in short 'Repo', is defined as 'an instrument for borrowing funds by selling securities with an agreement to repurchase the securities on a mutually agreed future date at an agreed price which includes interest for the funds borrowed'. The repo rate is the (fixed) interest rate at which the Reserve Bank provides overnight liquidity to banks against the collateral of government and other approved securities under the liquidity adjustment facility (LAF). In other words, repo is a money market instrument, which enables collateralised short term borrowing and lending through sale/purchase operations in debt instruments.

The Repo transaction in India has two elements: - in the first, the seller sells securities and receives cash while the purchaser buys securities and parts with cash. In the second, the securities are repurchased by the original holder. The user pays to the counter party the amount originally received, plus the return on the money for the number of days for which the money was used, which is mutually agreed. All these transactions are reported on the electronic platform called the Negotiated Dealing System (NDS). The Clearing Corporation of India Ltd. (CCIL) has put in an anonymous online repo dealing system in India, with an anonymous order matching electronic platform. Repo or repurchase option is a collateralised lending. Repo operations thus inject liquidity into the system.

## **THE POLICY RATE**

You might have read in business dailies about the 'policy rate'. In India, the fixed repo rate quoted for sovereign securities in the overnight segment of Liquidity Adjustment Facility (LAF) is considered as the policy rate. (It may be noted that India has many other repo rates in operation). The RBI used the single independent 'policy rate' which is the repo rate (in the LAF window) for balancing liquidity. The policy rate is in fact, the key lending rate of the central bank in a country. A change in the policy rate gets transmitted through the money market to the entire the financial system and alters all other short term interest rates in the economy, thereby influencing aggregate demand – a key determinant of the level of inflation and economic growth. If the RBI wants to make it more expensive for banks to borrow money, it increases the repo rate. Similarly, if it wants to make it cheaper for banks to borrow money, it reduces the repo rate. In other words, an increase in the repo rate will lead to liquidity tightening and vice- versa, other things remaining constant.

The Monetary Policy committee (MPC) at its meeting on August 4-6, 2020 decided to: has decided to reduce the policy repo rate under the liquidity adjustment facility (LAF) by 40 bps to 4.0 per cent from 4.40 per cent with immediate effect; accordingly, the marginal standing facility (MSF) rate and the Bank Rate stand reduced to 4.25 per cent from 4.65 per cent; and the reverse repo rate under the LAF stands reduced to 3.35 per cent from 3.75 per cent.

\*Learners are requested to refer the RBI website ([www.rbi.org.in](http://www.rbi.org.in)) for up- to- date information on the prevailing policy rates.

'Reverse Repo Rate: The (fixed) interest rate at which the Reserve Bank absorbs liquidity, on an overnight basis, from banks against the collateral of eligible government securities under the LAF. It is a monetary policy instrument and in effect it absorbs the liquidity from the system. This operation takes place when the RBI borrows money from commercial banks by selling them securities (which RBI permits) with an agreement to repurchase the securities on a mutually agreed future date at an agreed price which includes interest for the funds borrowed. The interest rate paid by the RBI for such borrowings is called the "Reverse Repo Rate". Thus, reverse repo rate is the rate of interest paid by the RBI on its borrowings from commercial banks.

The 'repo rate' and the reverse repo rate' are changed only through the announcements made during the Monetary Policy Statements of the RBI. From May, 2011 onwards, the reverse repo rate is not announced separately, it will be linked to repo rate. The Reserve Bank also conducts variable interest rate reverse repo auctions, as necessitated under the market conditions.

There are three types of repo markets operating in India namely:

- i. Repo on sovereign securities
- ii. Repo on corporate debt securities, and
- iii. Other Repos

In addition to the existing overnight LAF (repo and reverse repo) and MSF, from October 2013, the Reserve Bank has introduced 'Term Repo' (repos of duration more than a day) under the Liquidity Adjustment Facility (LAF) for 14 days and 7 days tenors. LAF is conducted at a fixed time on a daily basis on all working days in Mumbai (excluding Saturdays).

#### **4. MARGINAL STANDING FACILITY (MSF)**

The Reserve Bank of India, being a bankers' bank, acts as a lender of last resort. The Marginal Standing Facility (MSF) announced by the Reserve Bank of India (RBI) in its Monetary Policy, 2011-12 refers to the facility under which scheduled commercial banks can borrow additional amount of overnight money from the central bank over and above what is available to them through the LAF window by dipping into their Statutory Liquidity Ratio (SLR) portfolio up to a limit ( a fixed per cent of their net demand and time liabilities deposits (NDTL) liable to change every year ) at a penal rate of interest. This provides a safety valve against unexpected liquidity shocks to the banking system. The scheme has been introduced by RBI with the main aim of reducing volatility in the overnight lending rates in the inter-bank market and to enable smooth monetary transmission in the financial system.

Banks can borrow through MSF on all working days except Saturdays, between 7.00 pm and 7.30 pm, in Mumbai. The minimum amount which can be accessed through MSF is `1 crore and more will be available in multiples of `1 crore.

The MSF would be the last resort for banks once they exhaust all borrowing options including the liquidity adjustment facility on which the rates are lower compared to the MSF. The MSF rate being a penal rate automatically gets adjusted to a fixed per cent above the repo rate. MSF is at present aligned with the Bank rate. Practically, MSF represents the upper band of the interest corridor with repo rate at the middle and reverse repo at the lower band. In fact, the MSF rate and reverse repo rate determine the corridor for the daily movement in the weighted average call money rate.

## **5. MARKET STABILISATION SCHEME (MSS)**

This Instrument for monetary management was introduced in 2004 following a MoU between the Reserve Bank of India (RBI) and the government of India (GoI) with the primary aim of aiding the sterilization operations of the RBL. (Sterilization is the process by which the monetary authority sterilizes the effect of significant foreign capital inflows on domestic liquidity by off-loading parts of the stock of government securities held by it). Surplus liquidity of a more enduring nature arising from large capital inflows is absorbed through sale of short-dated government securities and treasury bills. Under this scheme, the Government of India borrows from the RBI (such borrowing being additional to its normal borrowing requirements) and issues treasury-bills/dated securities for absorbing excess liquidity from the market arising from large capital inflows.

## **BANK RATE**

Under Section 49 of the Reserve Bank of India Act, 1934, the Bank Rate has been defined as 'the standard rate at which the Reserve Bank is prepared to buy or re-discount bills of exchange or other commercial paper eligible for purchase under the Act'. The bank rate once used to be the policy rate in India i.e. the key interest rate based on which all other short term interest rates moved. Discounting/rediscounting of bills of exchange by the Reserve Bank has been discontinued on introduction of Liquidity Adjustment Facility (LAF). As a result, the bank rate has become dormant as an instrument of monetary management.

The bank rate has been aligned to the Marginal Standing Facility (MSF) rate and, therefore, as and when the MSF rate changes alongside policy repo rate changes, the bank rate also changes automatically. Briefly put, MSF assumed the role of bank rate and currently the bank rate is purely a signalling rate and most interest rates are delinked from the bank rate. Now, bank rate is used only for calculating penalty on default in the maintenance of Cash Reserve Ratio (CRR) and the Statutory Liquidity Ratio (SLR).

## **6. OPEN MARKET OPERATIONS**

Open Market Operations (OMO) is a general term used for market operations conducted by the Reserve Bank of India by way of sale/ purchase of Government securities to/ from the market with an objective to adjust the rupee liquidity conditions in the market on a durable basis. When the RBI feels there is excess liquidity in the market, it resorts to sale of securities thereby sucking out the rupee liquidity. Similarly, when the liquidity conditions are tight, the RBI will buy securities from the market, thereby releasing liquidity into the market.

**TOPIC - 3**

**THE ORGANISATIONAL STRUCTURE FOR MONETARY POLICY  
DECISIONS**

## **THE ORGANISATIONAL STRUCTURE FOR MONETARY POLICY DECISIONS**

We have discussed above the instruments of monetary policy. An understanding of the organisational structure for monetary policy decisions is necessary to understand the way monetary policy is conducted in India.

## **THE MONETARY POLICY FRAMEWORK AGREEMENT**

The Reserve Bank of India (RBI) Act, 1934 was amended on June 27, 2016, for giving a statutory backing to the Monetary Policy Framework Agreement (MPFA) and for setting up a Monetary Policy Committee (MPC). The Monetary Policy Framework Agreement is an agreement reached between the Government of India and the Reserve Bank of India (RBI) on the maximum tolerable inflation rate that the RBI should target to achieve price stability. The amended RBI Act (2016) provides for a statutory basis for the implementation of the 'flexible inflation targeting framework'.

Announcement of an official target range for inflation is known as inflation targeting. The Expert Committee under Urijit Patel to revise the monetary policy framework, in its report in January, 2014 suggested that RBI abandon the 'multiple indicator' approach and make inflation targeting the primary objective of its monetary policy. The inflation target is to be set by the Government of India, in consultation with the Reserve Bank, once in every five years. Accordingly,

- The Central Government has notified 4 per cent Consumer Price Index (CPI) inflation as the target for the period from August 5, 2016 to March 31, 2021 with the upper tolerance limit of 6 per cent and the lower tolerance limit of 2 per cent.
- The RBI is mandated to publish a Monetary Policy Report every six months, explaining the sources of inflation and the forecasts of inflation for the coming period of six to eighteen months.
- The following factors are notified by the central government as constituting a failure to achieve the inflation target:
  - a) The average inflation is more than the upper tolerance level of the inflation target for any three consecutive quarters; or
  - b) The average inflation is less than the lower tolerance level for any three consecutive quarters.

The choice of CPI was made because it closely reflects cost of living and has larger influence on inflation expectations compared to other anchors. With this step,



India is following countries such as the New Zealand, the USA, the UK, European Union, and Brazil. In recent times many countries are moving away from this approach and are targeting nominal GDP growth.

## **THE MONETARY POLICY COMMITTEE (MPC)**

An important landmark in India's monetary history is the constitution of an empowered six-member Monetary Policy Committee (MPC) in September, 2016 consisting of the RBI Governor (Chairperson), the RBI Deputy Governor in charge of monetary policy, one official nominated by the RBI Board and the remaining three central government nominees representing the Government of India who are persons of ability, integrity and standing, having knowledge and experience in the field of Economics or banking or finance or monetary policy.

The Committee is required to meet at least four times a year and the decisions adopted by the MPC are published after conclusion of every meeting of the MPC. Based on the review of the macroeconomic and monetary developments in the economy, the MPC shall determine the policy rate required to achieve the inflation target. The fixing of the benchmark policy interest rate (repo rate) is made through debate and majority vote by this panel of experts.

With the introduction of the Monetary Policy Committee, the RBI will follow a system which is more consultative and participative similar to the one followed by many of the central banks in the world. The new system is intended to incorporate:

- diversity of views,
- specialized experience,
- independence of opinion,
- representativeness, and
- Accountability.

The Reserve Bank's Monetary Policy Department (MPD) assists the MPC in Formulating the monetary Policy. The Views of key stakeholders in the economy and analytical work of the Reserve Bank contribute to the process for arriving at the decision on the policy repo rate.

The Financial Markets Operations Departments (FMOD) operationalises the monetary policy, mainly through day-to-day liquidity management operations. The Financial Markets Committee (FMC) meets daily to review the liquidity conditions so as to ensure that the operating target of monetary policy (weighted average lending rate) is kept close to the policy repo rate.

Before the constitution of the MPC, a Technical Advisory Committee (TAC) on monetary policy with experts from Monetary Economics, Central Banking, Financial Markets and Public Finance advised the RBI on the standpoint of monetary policy. However, its role was only advisory in nature. With the formation of MPC, the TAC on Monetary Policy ceased to exist.