Money Supply: Importance, Concepts, Determinants and Everything Else

Let us make in-depth study of the importance, concept, measurement, measures, determinants, factors determining, relation with budget deficit and effect of open economy of money supply.

Importance of Money Supply:

Growth of money supply is an important factor not only for acceleration of the process of economic development but also for the achievement of price stability in the economy.

There must be controlled expansion of money supply if the objective of development with stability is to be achieved. A healthy growth of an economy requires that there should be neither inflation nor deflation. Inflation is the greatest headache of a developing economy.

A mild inflation arising out of the creation of money by deficit financing may stimulate investment by raising profit expectations and extracting forced savings. But a runaway inflation is highly detrimental to economic growth. The developing economies have to face the problem of inadequacy of resources in initial stages of development and it can make up this deficiency by deficit financing. But it has to be kept strictly within safe limits.

Thus, increase in money supply affects vitally the rate of economic growth. In fact, it is now regarded as a legitimate instrument of economic growth. Kept within proper limits it can accelerate economic growth but exceeding of the limits will retard it. Thus, management of money supply is essential in the interest of steady economic growth.

Concept of Money Supply and Its Measurement:

By money supply we mean the total stock of monetary media of exchange available to a society for use in connection with the economic activity of the country.

According to the standard concept of money supply, it is composed of the following two elements:

1. Currency with the public,

2. Demand deposits with the public.

Before explaining these two components of money supply two things must be noted with regard to the money supply in the economy. First, the money supply refers to the total sum of money available to the public in the economy at a point of time. That is, money supply is a stock concept in sharp contrast to the national income which is a flow representing the value of goods and services produced per unit of time, usually taken as a year.

Secondly, money supply always refers to the amount of money held by the public. In the term public are included households, firms and institutions other than banks and the government. The rationale behind considering money supply as held by the public is to separate the producers of money from those who use money to fulfill their various types of demand for money.

Since the Government and the banks produce or create money for the use by the public, the money (cash reserves) held by them are not used for transaction and speculative purposes and are excluded from the standard measures of money supply. This separation of producers of money from the users of money is important from the viewpoint of both monetary theory and policy.

Let us explain the two components of money supply at some length:

Currency with the Public:

In order to arrive at the total currency with the public in India we add the following items:

1. Currency notes in circulation issued by the Reserve Bank of India.

2. The number of rupee notes and coins in circulation.

3. Small coins in circulation.

It is worth noting that cash reserves with the banks has to be deducted from the value of the above three items of currency in order to arrive at the total currency with the public. This is because cash reserves with the banks must remain with them and cannot therefore be used for making payments for goods or by any commercial bank's transactions.

It may further be noted that these days paper currency issued by Reserve Bank of India (RBI) are not fully backed by the reserves of gold and silver, nor it is considered necessary to do so. Full backing of paper currency by reserves of gold prevailed in the past when gold standard or silver standard type of monetary system existed.

According to the modern economic thinking the magnitude of currency issued should be determined by the monetary needs of the economy and not by the available reserves of gold and silver. In other

developed countries, since 1957 Reserve Bank of India follows Minimum Reserve System of issuing currency.

Under this system, minimum reserves of Rs. 200 crores of gold and other approved securities (such as dollars, pound sterling, etc.) have to be kept and against this any amount of currency can be issued depending on the monetary requirements of the economy.

RBI is not bound to convert notes into equal value of gold or silver. In the present times currency is inconvertible. The word written on the note, say 100 rupee notes and signed by the governor of RBI that 'I promise to pay the bearer a sum of 100 rupees' is only a legacy of the past and does not imply its convertibility into gold or silver.

Another important thing to note is that paper currency or coins are fiat money, which means that currency notes and metallic coins serve as money on the bases of the fiat (i.e. order) of the Government. In other words, on the authority of the Government no one can refuse to accept them in payment for the transaction made. That is why they are called legal tender.

Demand Deposits with the Public:

The other important component of money supply are demand deposits of the public with the banks. These demand deposits held by the public are also called bank money or deposit money. Deposits with the banks are broadly divided into two types: demand deposits and time deposits. Demand deposits in the banks are those deposits which can be withdrawn by drawing cheques on them.

Through cheques these deposits can be transferred to others for making payments from whom goods and services have been purchased. Thus, cheques make these demand deposits as a medium of exchange and therefore make them to serve as money. It may be noted that demand deposits are fiduciary money proper.

Fiduciary money is one which functions as money on the basis of trust of the persons who make payment rather than on the basis of the authority of Government. Thus, despite the fact that demand deposits and cheques through which they are operated are not legal tender, they function as money on the basis of the trust commanded by those who draw cheques on them. They are money as they are generally acceptable as medium of payment.

Bank deposits are created when people deposit currency with them. But far more important is that banks themselves create deposits when they give advances to businessmen and others. On the basis of small cash

reserves of currency, they are able to create a much larger amount of demand deposits through a system called fractional reserve system which will be explained later in detail.

In the developed countries such as USA and Great Britain deposit money accounted for over 80 per cent of the total money supply, currency being a relatively small part of it. This is because banking system has greatly developed there and also people have developed banking habits.

On the other hand, in the developing countries banking has not developed sufficiently and also people have not acquired banking habits and they prefer to make transactions in currency. However in India after 50 years of independence and economic development the proportion of bank deposits in the money supply has risen to about 50 per cent.

Four Measures of Money Supply:

Several definitions of money supply have been given and therefore various measures of money supply based on them have been estimated. First, different components of money supply have been distinguished on the basis of the different functions that money performs. For example, demand deposits, credit card and currency are used by the people primarily as a medium of exchange for buying goods and services and making other transactions.

Obviously, they are money because they are used as a medium of exchange and are generally referred to as M_1. Another measure of money supply is M_3 which includes both M_1 and time deposits held by the public in the banks. Time deposits are money that people hold as store of value.

The main reason why money supply is classified into various measures on the basis of its functions is that effective predictions can be made about the likely effects on the economy of changes in the different components of money supply. For example, if M_1 is increasing firstly it can be reasonably expected that people are planning to make a large number of transactions.

On the other hand, if time-deposits component of money supply measure M_3 which serves as a store of value is increasing rapidly, it can be validly concluded that people are planning to save more and accordingly consume less.

Therefore, it is believed that for monetary analysis and policy formulation, a single measure of money supply is not only inadequate but may be misleading too. Hence various measures of money supply are prepared to meet the needs of monetary analysis and policy formulation.

Recently in India as well as in some developed countries, four concepts of money supply have been distinguished. The definition of money supply given above represents a narrow measure of money supply and is generally described as M_1.

From April 1977, the Reserve Bank of India has adopted four concepts of money supply in its analysis of the quantum of and variations in money supply. These four concepts of measures of money supply are explained below.

Money Supply M1 or Narrow Money:

This is the narrow measure of money supply and is composed of the following items:

Ml = C + DD + OD

Where, C = Currency with the public

DD = Demand deposits with the public in the commercial and cooperative banks.

OD = Other deposits held by the public with Reserve Bank of India.

The money supply is the most liquid measure of money supply as the money included in it can be easily used as a medium of exchange, that is, as a means of making payments for transactions.

Currency with the public (C) in the above measure of money supply consists of the following:

(i) Notes in circulation.

(ii) Circulation of rupee coins as well as small coins

(iii) Cash reserves on hand with all banks.

Note that in measuring demand deposits with the public in the banks (i.e., DD), inter-bank deposits, that is, deposits held by a bank in other banks, are excluded from this measure.

In the other deposits with Reserve Bank of India (i.e., OD) deposits held by the Central and State Governments and a few others such as RBI Employees Pension and Provident Funds are excluded.

However, these other deposits of Reserve Bank of India include the following items:

(i) Deposits of Institutions such as UTI, IDBI, IFCI, NABARD etc.

(ii) Demand deposits of foreign Central Banks and Foreign Governments.

(iii) Demand deposits of IMF and World Bank.

It may be noted that other deposits of Reserve Bank of India constitute a very small proportion (less than one per cent).

Money Supply M2:

M2 is a broader concept of money supply in India than M1. In addition to the three items of M1, the concept of money supply M_2 includes savings deposits with the post office savings banks. Thus,

M2 = M1 + Savings deposits with the post office savings banks.

The reason why money supply M2 has been distinguished from M1 is that saving deposits with post office savings banks are not as liquid as demand deposits with commercial and cooperative banks as they are not chequable accounts. However, saving deposits with post offices are more liquid than time deposits with the banks.

Money Supply M3 or Broad Money:

M3 is a broad concept of money supply. In addition to the items of money supply included in measure M1, in money supply M3 time deposits with the banks are also included. Thus

M3= M1+ Time Deposits with the banks.

It is generally thought that time deposits serve as store of value and represent savings of the people and are not liquid as they cannot be withdrawn through drawing cheque on them. However, since loans from the banks can be easily obtained against these time deposits, they can be used if found necessary for transaction purposes in this way. Further, they can be withdrawn at any time by forgoing some interest earned on them.

It may be noted that recently M3 has become a popular measure of money supply. The working group on monetary reforms under the chairmanship of late Prof. Sukhamoy Chakravarty recommended its use for monetary planning of the economy and setting target of the growth of money supply in terms of M3.

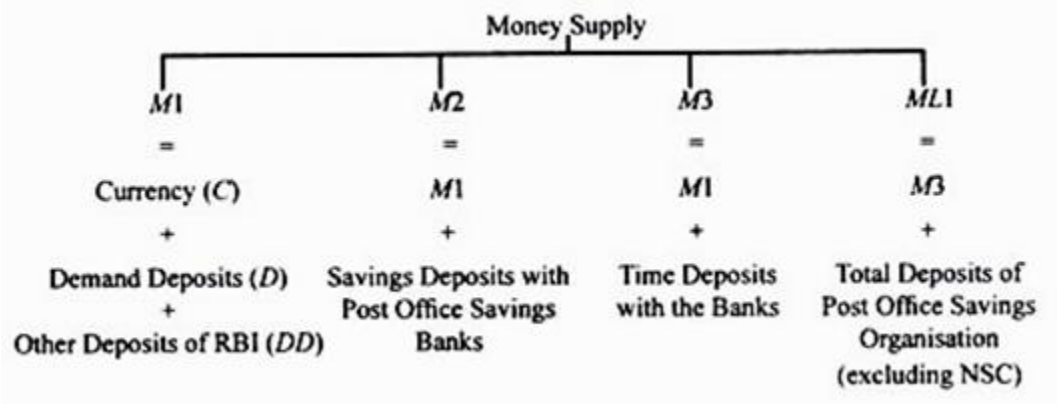
Therefore, recently RBI in its analysis of growth of money supply and its effects on the economy has shifted to the use of M3 measure of money supply. In the terminology of money supply employed by the Reserve Bank of India till April 1977, this M3 was called Aggregate Monetary Resources (AMR).

Money Supply M4:

The measure M4 of money supply includes not only all the items of M3 described above but also the total deposits with the post office savings organisation. However, this excludes contributions made by the public to the national saving certificates. Thus,

M4 = M3 + Total Deposits with Post Office Savings Organisation.

Let us summaries the four concepts of money supply as used by Reserve Bank of India in the following tabular form:



Determinants of Money Supply:

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

$M = C_p + D$ ...(1)

Where, M = Total money supply with the public

C_p = Currency with the public

D = Demand deposits held by the public

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

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

1. High-Powered Money (H):

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

A part of these currency reserves of the banks is held by them in their own cash vaults and a part is deposited in the Reserve Bank of India in the Reserve Accounts which banks hold with RBI. Accordingly,

the high-powered money can be obtained as sum of currency held by the public and the part held by the banks as reserves. Thus

$H = C_p + R$ ...(2)
Where, H = the amount of high-powered money

C_p = Currency held by the public
R = Cash Reserves of currency with the banks.

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

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

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

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

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

The base of this figure shows the supply of high-powered money (H), while the top of the figure shows the total stock of money supply. It will be seen that the total stock of money supply (that is, the top) is determined by a multiple of the high-powered money (H). It will be further seen that whereas currency

held by the public (C_p) uses the same amount of high-powered money, that is, there is one-to-one relationship between currency held by the public and the money supply.

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

The money multiplier which we denote by m is the ratio of total money supply (M) to the stock of high-powered money, that is, m = M/H . The size of money multiplier depends on the preference of the public to hold currency relative to deposits, (that is, ratio of currency to deposits which we denote by K) and banks' desired cash reserves ratio to deposits which we call r. We explain below the precise multiplier relationship between high-powered money and the total stock of money supply.

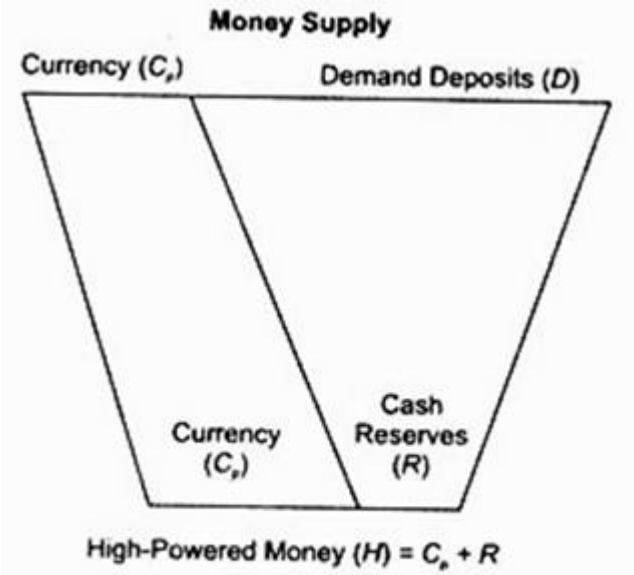


Fig. 16.1. *The High-Powered Money and the Stock of Total Money Supply*

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

If instead currency reserves held by the banks increase, this will not change the money supply immediately but will set in motion a process of multiple creation of demand deposits of the public in the banks. Although banks use these currency reserves held by the public which constitutes a part of the high-powered money to give more loans to the businessmen and thus create demand deposits, they do not affect either the amount of currency or the composition of high-powered money. The amount of high-

powered money is fixed by RBI by its past actions. Thus, changes in high-powered money are the result of decisions of Reserve Bank of India or the Government which owns and controls it.

2. Money Multiplier:

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

$m = M/H$

Rearranging we have, $M = H.m$ ...(3)

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

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

Size of Money Multiplier:

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

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

$$M = C_p + D \quad \text{...(1)}$$

The public hold the amount of currency in a certain ratio of demand deposits with the banks. Let this currency-deposit ratio be devoted by k,

$$C_p = kD$$

Substituting kD for C_p in equation (1) we have

$$M = kD + D = (k + 1)D \quad \text{...(2)}$$

Now take equation which defines high-powered money (H) as

$$H = C_p + R \quad \text{...(3)}$$

where R represents cash or currency reserves which banks keep as a certain ratio of their deposits and is called cash-reserve ratio and is denoted by r. Thus

$$R = rD$$

Now substituting rD for R and kD for C_p in equation (3) we have

$$H = kD + rD$$

$$H = (k + r)\,D \quad \text{...(4)}$$

Now, money multiplier is ratio of total money supply to the high-powered money, therefore we divide equation (1) by equation (4), to get the value of multiplier, which we denote by m. Thus

$$m = \frac{M}{H} = \frac{(k+1)D}{(k+r)D} = \frac{k+1}{k+r}$$

or, $$\text{Money multiplier} = \frac{M}{H} = \frac{1+k}{r+k}$$

or, $$M = H = \frac{1+k}{r+k} \quad \text{...(5)}$$

where r = Cash-reserve ratio of the banks

k = Currency-deposit ratio of the public.

where H is the high-powered money and $\frac{1+k}{r+k}$ is money multiplier

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

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

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

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

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

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

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

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

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

Cash Reserve Ratio of the Banks and the Deposit Multiplier:

Because of fractional reserve system, with a small increase in cash reserves with the banks, they are able to create a multiple increase in total demand deposits which are an important part of money supply. The ratio of change in total deposits to a change in reserves is called the deposit multiplier which depends on cash reserve ratio.

The value of deposit multiplier is the reciprocal of cash reserve ratio, ($d_m = 1/r$) where d_m stands for deposit multiplier. If cash reserve ratio is 10 per cent of deposits, then $d_m = 1/0.10 = 10$. Thus deposit multiplier of 10 shows that for every Rs. 100 increase in cash reserves with the banks, there will be expansion in demand deposits of the banks by Rs. 1000 assuming that no leakage of cash to the public occurs during the process of deposit expansion by the banks.

Currency-Deposit Ratio of the Public and Money Multiplier:

However, in the real world, with the increase in reserves of the banks, demand deposits and money supply do not increase to the full extent of deposit multiplier. This is for two reasons. First, the public does not hold all its money balances in the form of demand deposits with the banks.

When as a result of increase in cash reserves, banks start increasing demand deposits, the people may also like to have some more currency with them as money balances. This means during the process of creation of demand deposits by banks, some currency is leaked out from the banks to the people.

This drainage of currency to the people in the real world reduces the magnitude of expansion of demand deposit and therefore the size of money multiplier. Suppose the cash reserve ratio is 10 per cent and cash or currency of Rs. 100 is deposited in bank A. The bank A will lend out Rs. 90 and therefore create demand deposits of Rs. 90 and so the process will continue as the borrowers use these deposits for payment through cheques to others who deposit them in another bank B.

However, if borrower of bank A withdraws Rs. 10 in cash from the bank and issues cheques of the remaining borrowed amount of Rs. 80, then bank B will have only Rs. 80 as new deposits instead of Rs. 90 which it would have if cash of Rs. 10 was not withdrawn by the borrower. With these new deposits of Rs. 80, bank B will create demand deposits of Rs. 72, that is, it will lend out Rs. 72 and keep Rs. 8 as reserves with it (80x 10/100 = 8).

The drainage of currency may occur during all the subsequent stages of deposit expansion in the banking system. The greater the leakage of currency, the lower will be the money multiplier. We thus see that the currency-deposit ratio, which we denote by k, is an important determinant of the actual value of money multiplier.

It is important to note that deposit multiplier works both ways, positively when cash reserves with banks increase, and negatively when the cash reserves with the banks decline. That is, when there is a decrease in currency reserves with the banks, there will be multiple contraction in demand deposits with the banks.

Excess Reserves:

In the explanation of the expansion of demand deposits or deposit multiplier we have assumed that banks do not keep currency reserves in excess of the required cash reserve ratio. The ratio r in the deposit multiplier is the required cash reserve ratio fixed by Reserve Bank of India.

However, banks may like to keep with themselves some excess reserves, the amount of which depends on the extent of liquidity (i.e. availability of cash with them) and profitability of making investment and rate of interest on loans advanced to business firms. Therefore, the desired reserve ratio is greater than the statutory minimum required reserve ratio. Obviously, the holding of excess reserves by the banks also reduces the value of deposit multiplier.

Conclusion:

Theory of determination of money supply explains how a given supply of high-powered money (which is also called monetary base or reserve money) leads to multiple expansion in money supply through the working of money multiplier. We have seen above how a small increase in reserves of currency with the banks leads to a multiple expansion in demand deposits by the banks through the process of deposit multiplier and thus causes growth of money supply in the economy.

Deposit multiplier measures how much increase in demand deposits (or money supply) occurs as a result of a given increase in cash or currency, reserves with the banks depending on the required cash reserve ratio (r) if there are no cash drainage from the banking system. But in the real world drainage of currency does take place which reduces the extent of expansion of money supply following the increase in cash reserves with the banks.

Therefore, the deposit multiplier exaggerates the actual increase in money supply from a given increase in cash reserves with the banks. In contrast, money multiplier takes into account these leakages of currency from the banking system and therefore measures actual increase in money supply when the cash reserves with the banks increase.

The money multiplier can be defined as increase in money supply for every rupee increase in cash reserves (or high-powered money), drainage of currency having been taken into account. Therefore, money multiplier is less than the deposit multiplier.

It is worth noting that rapid growth in money supply in India has been due to the increase in high-powered money H, or what is also called Reserve Money (Lastly Reserve Bank of India, the money multiplier remaining almost constant.

The money supply in a country can be changed by Reserve Bank of India by undertaking open market operations, changing minimum required currency reserve-deposit ratio, and by varying the bank rate. The main source of growth in money supply in India is creation of credit by RBI for Government for financing its budget deficit and thus creating high-powered money.

Further, though the required currency reserve-deposit ratio of banks can be easily varied by RBI, the actual currency reserve-deposit ratio cannot be so easily varied as reserves maintained by banks not only depend on minimum required cash reserve ratio but also on their willingness to hold excess reserves.

Lastly, an important noteworthy point is that though money multiplier does not show much variation in the long run, it can change significantly in the short run causing large variations in money supply. This unpredictable variation in money multiplier in the short run affecting money supply in the economy prevents the Central Bank of a country from controlling exactly and precisely the money supply in the economy.