SEMESTER 3

MACROECONOMICS (UNIT 4)

Money supply, Monetary Policy & Government Budgetary Operations

Syllabus
- Measures of Money Supply with special reference to India (M1, M2, M3 and M4)   - Balance Sheet view of money supplied by the banking Sector as a whole   - High Powered Money – Definition   - Balance Sheet of RBI and High Powered Money   - Balance Sheet of Commercial Banks and basic ideas of money multiplier theory   - Deposit multiplier, Currency multiplier, Reserve multiplier, Credit multiplier and Money multiplier in the context of the theory of Money Supply   - Interest sensitivity of money supply and the slope of the LM curve   - Monetary policy – OMO, SLR, Bank rate, variable reserve ratio, repo rate   - Govt Budget Deficit and Deficit Financing – Indian illustrations. Deficit financing and monetary policy

In this lesson, we shall discuss only the yellow-highlighted portion of the syllabus.

1. **Money Supply**

Money Supply: Money supply is an autonomously determined variable which is determined by an exogenous authority, i.e. Reserve Bank of India for our country. There are several monetary aggregates used by the RBI to assess the money supply positions of the country. These are called M_1, M_2, M_3 and M_4 respectively, depending on their level of liquidity. Out of these, M_1 is called narrow money, as it is closest to our common perception about the characteristics of money. M_3 is, however, the most commonly used aggregate and is often called broad money.

- M_1 = **Currency with the public+**

   Demand deposits with banks + Other Deposits with RBI

- M_2 = M_1+ **Post Office Savings Deposits**

- M_3 = M_1+ **Time Deposits with Banks**

M_4 = M_3 + **Total Deposits with Post Office Savings Banks** (excluding National Savings Certificates)

Definitions and Concepts: Money, as we know, is something that acts as (i) a **Medium of Exchange**, (ii) a **Unit of Account**, and (iii) a **Store of Value.** Money supply is a stock variable that is measured at a point of time. For policy purposes, money can be defined 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 includes certain liquid liabilities of a particular set of financial intermediaries or other issuers.

'Currency in circulation' includes notes in circulation, rupee coins and small coins. **Currency with the public** is arrived at after *deducting cash with banks* from **total currency in circulation.**

'Other' Deposits with the Reserve Bank include deposits from foreign central banks, multilateral institutions, financial institutions and sundry deposits net of IMF Account No.1.

'Demand deposits' include all liabilities which are payable on demand and they include **current deposits, demand liabilities portion of savings bank deposits**, margins held against letters of credit/ guarantees, balances in overdue fixed deposits, cash certificates and cumulative/ recurring deposits etc.

M_1 is known as **narrow money,** while M_3 is known as **broad money.**

M_1 is most liquid and hence, nearest to our day-to-day concept of money. Clearly, M_4 is least liquid of all.

M_3 is the most commonly used measure of money supply, and when discussion is carried out on money supply trends in India, we usually refer to the RBI data on M_3.

2.   Balance Sheet view of money supplied by the banking sector as a whole

A balance sheet of a bank (in fact, of any economic unit) has two sides. Assets are what the bank **owns**, Liabilities are what it **owes**. In the case of a bank, its most important **assets** are the loans it has made. The bank's main **liabilities** are its deposits. When we make a deposit, we are essentially lending the bank our money. This is, however, an unusual kind of loan because usually we can withdraw it at any time. If somebody deposits Rs. 100 at a bank in a current (or savings) account, she/he can ask for the Rs. 100 back whenever she/he likes. As long as the amount is left with the bank, it's a loan to the bank, and the bank may also pay the depositor a little bit of interest for it.

 This gives us a first simple picture of a bank. We'll call the deposits *demand deposits*, to emphasize that depositors can get them back on demand -- whenever they like. Here's the balance sheet so far (ignoring other kinds of assets and liabilities):

Commercial Bank

ASSETS	LIABILITIES
Loans	Demand deposits

Now the problem faced by a bank is clearly noticeable. When the bank makes a loan, it will generally be for some length of time. Therefore, recovery will be over a medium/long period of time. However, its liabilities are payable on demand. So there is a time mismatch between the two.

One solution is for a bank to hold on to some of the deposits as reserves. Indeed, nowadays banks are required, by government or Central Bank regulation, to do so. We call this "fractional reserve banking."

Commercial Bank

ASSETS	LIABILITIES
Loans	Demand deposits
Required reserves	

Suppose the required reserve ratio is ten percent: for every rupee of deposits, the bank must hold ten cents of reserves. That means that if customers holding as much as ten percent of the bank's deposits all walk in asking for their money back, the bank has enough on hand. In normal times, this should be adequate: on any given day some people will make deposits and some will withdraw them, and reserves of ten percent of deposits should be enough to manage the deficit when withdrawals exceed new deposits. A further safeguard in almost all modern economies is a system of government provided insurance for depositors.

We assume now that our sample bank X faces a required reserve ratio of ten percent.

Commercial Bank X

ASSETS	Rs.	LIABILITIES	Rs.
Loans	450	Demand deposits	500
Required reserves	50		

This bank has no excess reserves and thus, it has fully lent out all it was legally permitted to do. There is nothing to stop the bank from holding more reserves than it is legally required to hold. In other words, this situation:

Commercial Bank X

ASSETS	Rs.	LIABILITIES	Rs.
Loans	420	Demand deposits	500
Required reserves	50		
Excess Reserves	30		

This situation is legally possible. Here the bank holds Rs. 80 of total reserves, of which only Rs. 50 are legally required. However, in this situation the bank could lend more, and since it is unprofitable not to lend, that bank generally tries to lend out as much as permissible. Here, the money supply of the country has Rs. 500 as a component. The cash deposited by depositors at the time of opening the deposit does not count as money supply, since **that cash is no longer 'currency with the public'.**

Therefore, it implies that if the bank happens to get Rs. 50 in new deposits, it will try to lend out Rs. 40 in new loans, keeping Rs. 10 as new reserves. This is, however, the story of only one bank X. If we wish to study the balance sheet of the banking system as a whole, we have to proceed a bit further.

Suppose our **bank X** gets a new deposit of Rs. 100. It keeps a reserve of Rs.10 (as legally required) and lends out Rs. 90 to **company A** (assuming that it is able to find willing and capable borrowers). Now the balance sheet of **bank X** looks like:

Commercial Bank X

ASSETS	Rs.	LIABILITIES	Rs.
Loans		Demand deposits	600
- Old Loan: Rs. 420	510	-Old: Rs. 500	
- New Loan: Rs. 90		-New: Rs. 100	
Required reserves	60		
Excess Reserves	30		

However, the flow does not end here. **Company A** uses the loan to make some expenditure, for example, to buy a new machine, or to expand its factory and so on. The payment it makes to other companies/persons must find its way to some bank account, may be of **bank Y** (assuming that all money received as payment from **company A** is put in a bank, and not partly retained by the recipient as cash). So, **bank Y** has a new deposit of Rs. 90, out of which it lends out Rs. 81, keeping Rs. 9 as reserves (again assuming that capable and willing borrowers can be found). Now the balance sheet of the system (comprising **bank X and bank Y**) looks like:

Banking System

ASSETS	Rs.	LIABILITIES	Rs.
Loans - Old Loan by X: Rs. 420 - New Loan by X: Rs. 90 - New Loan by Y: Rs. 81	591	Demand deposits - Bank X: Rs. 600 - Bank Y: Rs. 90	690
Required reserves - Of X: Rs. 60 - Of Y: Rs. 9	69		
Excess Reserves of X	30		

Therefore, money supply increases from Rs. 600 to Rs. 690, without any fresh printing of notes by the Central Bank. The chain, of course, will continue much longer but the additional injection to money supply will become smaller and smaller in each round.

3. **High powered Money**

High powered money or Reserve money (H) represents those liabilities of the Central   Bank and the government that are eligible to be held as reserves (by banks) for the purpose of deposit creation. H is the **sum of:**

(i)   currency in circulation **(C),**
(ii)   bankers' reserves **(R_b)**, including vault cash and deposits with the RBI and
(iii)   'Other' deposits with the RBI **(OD).** It is also called 'Base money', because it provides a base on which deposit money may be created.

The significance of H originates from the fact that it is closely linked to the aggregate money supply of the country. Thus, any effort by the government (rather the Central Bank) to control money supply has to keep a close track of H.
As we know, the money supply has a close connection with the rate of inflation. Also, money supply affects aggregate output through the credit channel and interest rate channel. **As a consequence, volatility of H is linked with the rate of inflation and output in the economy.**

Therefore, H is important because uncontrolled H may cause inflation, and may affect growth and employment.
Let us now explain the relationship between money supply and high powered money. By definition, money supply is equal to currency plus deposits, that is,

M = C + D = (1 + cdr) D (assuming 'other deposits' held by the Central Bank to be equal to zero)

Where, currency-deposit ratio cdr = C/D.

High powered money, as we know, consists of currency held by the public and reserves of the commercial banks. Thus

H = C + **R_b** = (C/D).D + (**R_b/D**).D = (cdr + rdr)D, where rdr is nothing but the reserve-deposit raio we have discussed in detail earlier.

Therefore, we have:

$$\frac{M}{H} = \big[(1 + cdr)\,D\big] \big/ \big[(cdr + rdr)D\big]$$
$$= \big[(1 + cdr)\big] \big/ \big[(cdr + rdr)\big] > 1$$

As, the reserve ratio rdr < 1

This is the famous money-multiplier equation. It tells us that any increase in H will raise M more than proportionately.