Economics of Banking and Finance Markets
Prof. Sukumar Vellakkal
Department of Economic Sciences
Indian Institute of Technology, Kanpur

Lecture - 38
Central Banking - I

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Hi everyone, welcome to this session. The main objective of this session is to discuss the Central Banking and the role of central banks in the money supply process.

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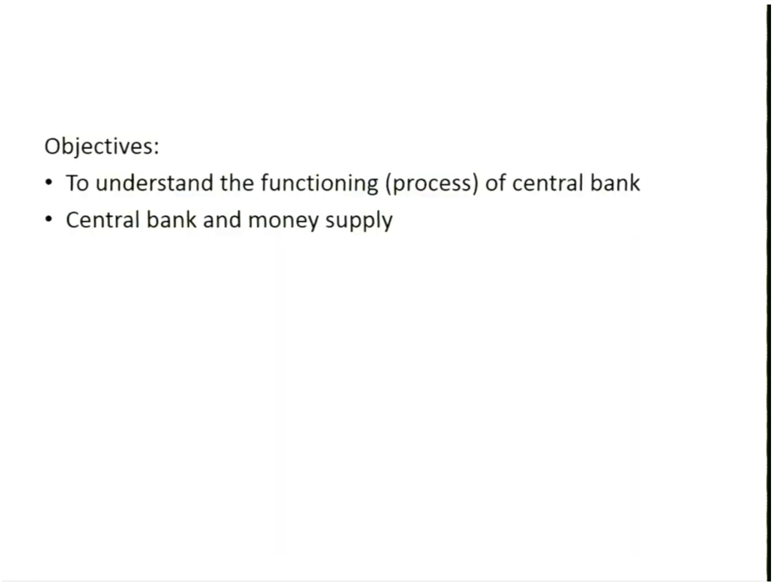

So, the more specifically in this session, we will cover what are the functions of central bank. or especially the process through which central bank influence the money supply in an economy.

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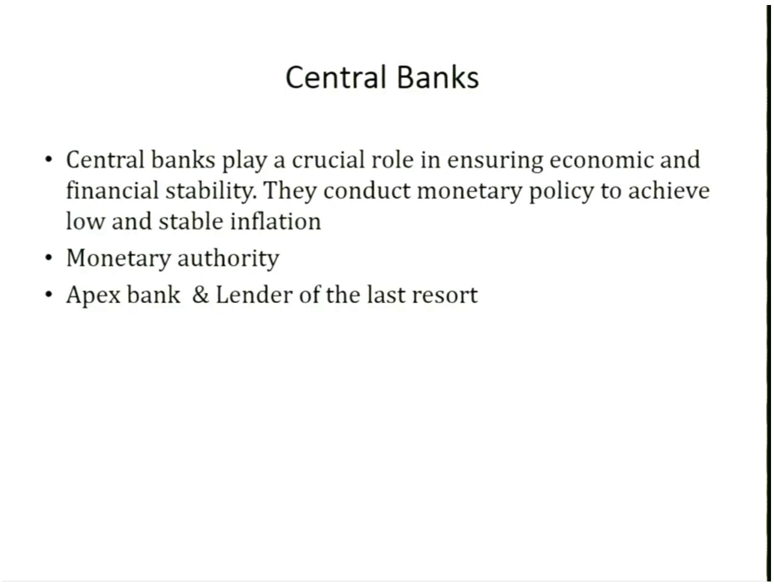

So, coming to central banks, central banks play a crucial role in ensuring economic and financial stability. So, they conduct monetary policy to achieve low and stable inflation. And overall, the central banks across the globe are considered as the monetary authority and their tasks is to act as the apex banks that the bankers' bank and to act as the lender of the last resort. Overall, the role of central bank is to ensure economic and financial stability in an economy.

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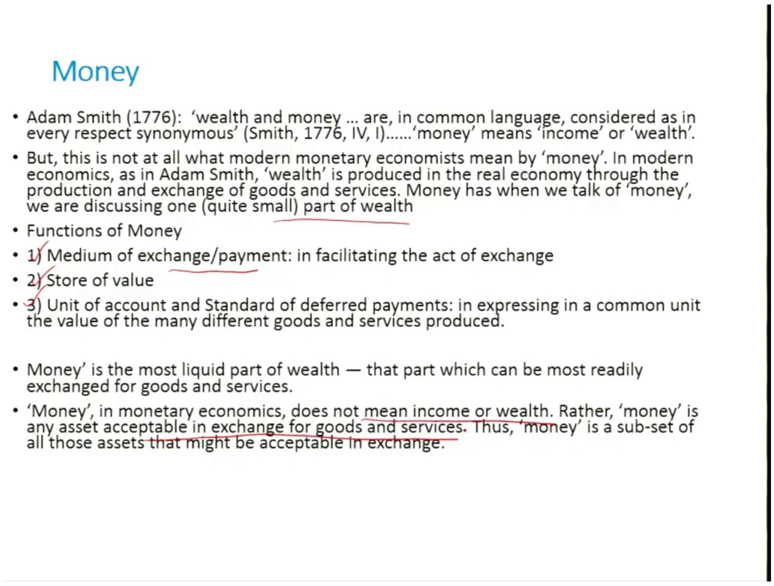

So, coming to the first thing, an important function is to influence the money supply to ensure monetary stability in an economy. So, that it also positively affects the economic growth. I hope you are already familiar with the concept of money. Let us just have a quick overview of what is money.

Money, according to Adam Smith, is synonymous with wealth, money means income or wealth according to the very old that old conventional definition. But this is not at all what modern monetary economist mean by money. In modern economies, as in Adam Smith wealth is produced in the real economy through the production and exchange of goods and services.

When we talk of money, we are discussing one part of wealth. So that means, if you recall our discussion in the previous session, money is one of the assets, one of the alternative assets. In that way, we can say that money is a part of wealth, but not all wealth is money. So, importantly, money is one part of asset or one part of wealth.

Overall, the main function of money is to act as a medium of exchange or payment. That means, in facilitating the act of exchange.

2nd one is money to act as a store of value. To store the wealth of someone. Then the 3rd one is to act as the unit of account and a standard of deferred payments; that means, in expressing in a common unit; a unit of account for the value of goods and services produced. Money is the most liquid part of wealth, which can be most readily exchanged for goods and services. So, this also we have seen in the previous sessions; that means we discussed money as one of the most liquid.

So, among all the assets, we said that the most liquid asset is our money. The demand for money is also called as demand for liquidity preference. That means, the liquidity preference means people are holding more money. So, money in monetary economics does not mean income or wealth alone, that is the main takeaway from here. Rather money is any asset acceptable in exchange for goods and services. Money is a subset of all those assets that might be acceptable in exchange.

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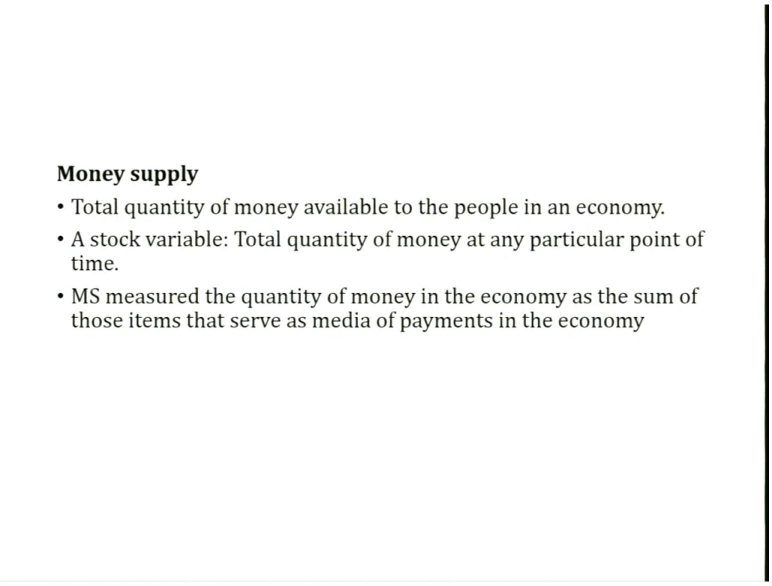

So, coming to the money supply, this is the concept that we often use. So, the money supply means the total quantity of money available to the public in an economy.

Though we use supply as a flow variable, but when it comes to money supply, money supply is money stock, it is a stock variable; that means the total quantity of money at any point of time.

So, when we refer, when we talk about money supply, we mean total quantity of money at any specific point of time. And the money supply is measured as the sum of those items that serve as a medium of payments in the economy.

So, any item that we can easily use as a medium of exchange, we can call it as money supply.

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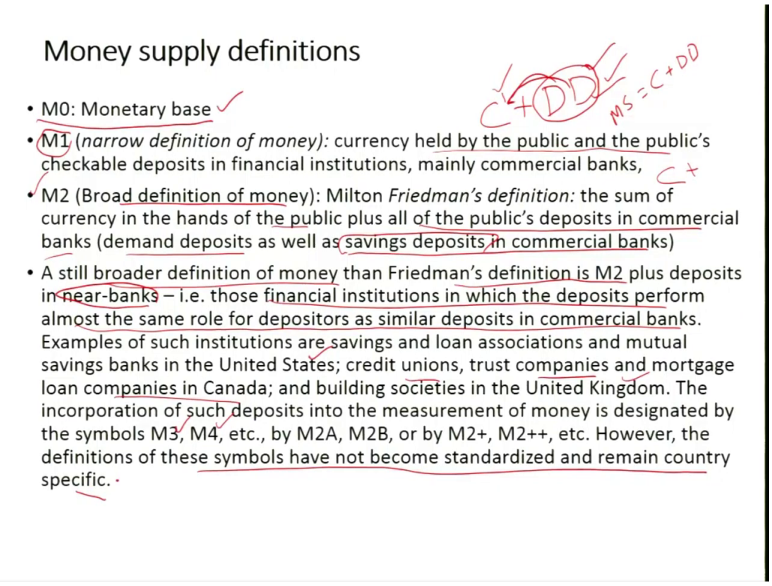

There are various definitions for money supply. The first one, we will call monetary base we will explain it in detail. Monetary base means the high-power money. After a couple of minutes, we will give a proper definition of monetary base, what constitute monetary base by using appropriate relevant variable.

But for short, monetary base is the high-power, the money based on which the central bank can generate or multiply money supply. Then, coming to first definition called M1 money supply. M1 money supply is called the narrow definition of money. So, narrow definition of money here means a currency held by the public, that is one component C plus the public's checkable deposits in financial institution, especially with the commercial banks.

So, checkable deposit means, we can also call it as demand deposits; that means, the money that you can withdraw at any time. Because, currency means, the currency in circulation with you; that means, you can use it for as a medium of payment at any time. Then, how demand deposit, the money with the banking system by the public, that is demand deposit, which can be withdrawn at any time.

That is one of the features of checkable deposit, that it can be withdraws at any time, whenever you want you can withdraw at any time in the 24 hours, right. So that means, there is no restriction at all. So then, because it can be withdrawn at any time; that means, your money with the bank, that is demand deposit, it is almost equivalent to currency, means, you can spend it at any time.

You can spend it at any time. So, because of that, the M1 definition, the narrow definition says that the checkable deposit also should be part of money supply. That means, money supply is C plus demand deposits because both are highly liquid and can be used for purchase of goods and services at any time.

Then comes to the 2nd definition that is called M2 definition. M2 definition is more broad definition of money. This is given by Milton Friedman, the sum of currency in the hands of the public C plus all the public's deposit in commercial banks; it not only includes demand deposit but also includes savings deposit in commercial banks. Because, saving deposit, these days due to the development of the banking system, you can even withdraw savings deposit at any time.

A broader definition of money is also there, it is M2 plus deposit with non-banking financial institution. That means, those financial institution in which the deposit perform almost the same role as deposits in commercial banks.

So, examples of such institutions are savings and loan association and mutual savings bank in the United States; and credit union, trust companies and mortgage loan companies in Canada, and building societies in the UK. So, accordingly there are several further definitions that are little bit addition with the M1 and M2 definition that is M2, M3, M4 like that. However, the definitions have not become standardized and remain country specific.

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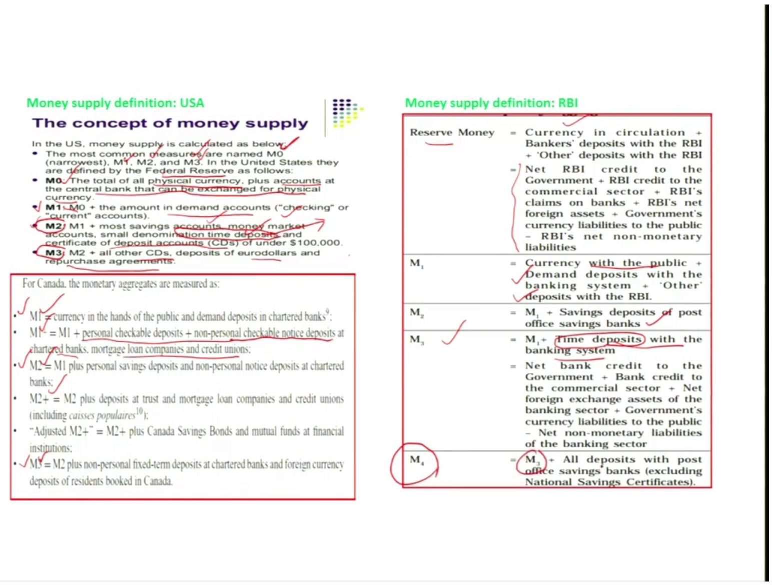

Let me now show you the money supply definition that is being used in the USA, they have M1, M2 and M3 definition and starting with the M0, that is the monetary base. So, the concept of money supply in the USA we can see that this one M0, M1, M2 and M3.

So, as per the definition given by Federal Reserve System, the US central banking system is like this; M0 means the total of all physical currency plus accounts at the central bank that can be exchanged for physical currency; that is the monetary base or high-powered money.

Then comes M1; M1 means the monetary base plus amount in demand account that is checking or current accounts that the money can be withdrawn at any time whenever the depositors wish. And then, comes the M2 money supply definition. M2 means M1 plus savings bank accounts, money market accounts and small denomination time deposit, and certificates of deposit accounts. So, coming to M2 here, one of the things you might have observed here is the time deposit.

So, the time deposit means, there is an expiry date, the maturity date, may be for 1 year, 5 years or 10 years or mostly it is for 1 year or 2 years. Though is called as a time deposit, but over the time, but you can see that because of the development of the banking system, the time depositors the who deposited money for a fixed period of time can also withdraw the money at withdraw their deposit at any time, but at a penal rate of interest.

They must compromise or sacrifice some of their agreed rate of interest, but that means at a reduced rate of interest, they can withdraw their fund. So that means, even time deposit also having a characteristic that it can be withdraw at any time. So that means, the money that you are keeping in your bank as time deposits also serve as money; that means, you can withdraw at any time. So, because of that, it becomes part of money supply.

Then comes M3 money definition, this is a very broad definition that means, M2 plus all other deposit accounts deposit in euro dollars that in foreign role foreign banks and repurchase agreements everything become part of money supply. So, that is M3 that is very broad definition of money. And for Canada the money definition is given like that that is M1 money that is a currency in the hands of public and demand deposit in chartered banks.

And then, M1 plus M2 plus then M3 money. So, you can see that M1. then M1 plus some of that is personal checkable deposit, non personal checkable notice deposit at the chartered banks, mortgage loan companies, credit unions etcetera.

Then, coming to India, the definition given by Reserve Bank of India is like this, that means, reserve money means currency in circulation plus bankers' deposit with the RBI and other deposit with the RBI. So, here, this is the expanded form of this one, that is the reserve money. Then coming to M1 money, M1 money means currency with the general public and demand deposit with the banking system and other deposit with the RBI.

Then, coming to M2, M2 means M1 plus savings deposit with post office savings bank that is M2 definition. M3 definition this is widely used in India that is, M1 plus time deposit with the banking system. That is, currency in circulation plus demand deposits plus other deposit with the RBI plus the time deposit.

Time deposit includes fixed deposit is and recurring savings deposit account. That means, a fixed deposit means deposited for certain period, 1 year 2 years like that. And recurring bank deposit means, like time deposit, but a fixed amount is deposited in the bank on a regular period, right. Recurring savings deposits are savings made by people in a bank at a regular period. Then, comes to the M4 money definition that means, M3 plus all deposit with post office savings bank, excluding National Savings DEPO Certificates. So, these are all the broad definitions of money across the country.

And as I mentioned before, the money supply definition is country specific, but overall, we can see that there is a broad agreement with this money definition, everyone agree with that M0 is the monetary base, then M1 and then the M3. That means, currency in circulation plus all kinds of deposit including demand deposit and time deposits. So, that is informal general agreement among countries.

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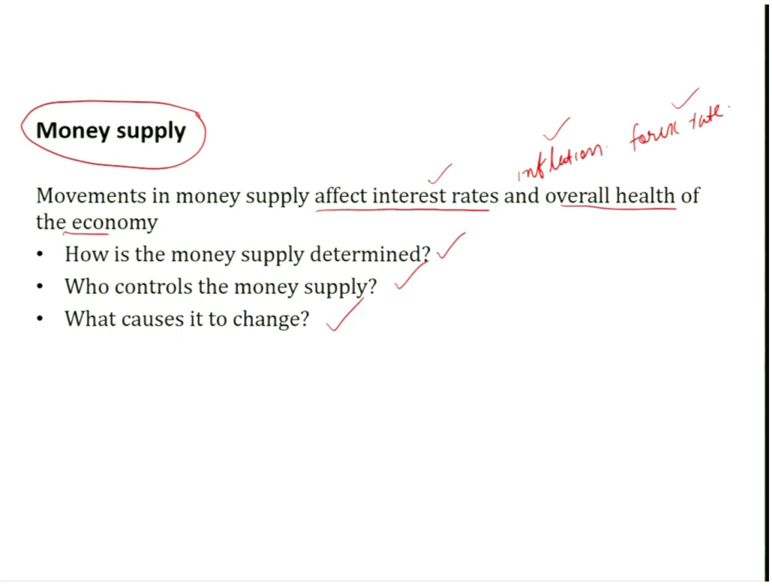

So, let us now see why money supply is important? Importantly, you know that movements in money supply affects interest rates and overall health of the economy. So, when the economies are becoming more and more monetized, then you know that money supply plays very crucial role.

And it has impact on interest rate as well as on inflation, it also has an impact on in exchange rate, it has influence on forex rate and we will also see that money is going to affect the GDP, that means, money supply affects the overall level of economic activity, including the production of goods and services and employment.

The movement of money supply also has impact on the stability in the system. That means stability in interest rate, stability in inflation, stability in forex rate and it has impact on the stability of key economic variables. And because of all these and or many other factors, we are going to see that money supply is a very important variable.

And already, we said that the central bank of a country is the monetary authority and who has more control over determining the money supply. So, with this backdrop, let us see how is the money supply determined? And who controls the money supply? And what causes it to change? This is what we are going to discuss in the next couple of minutes and in the subsequent sessions.

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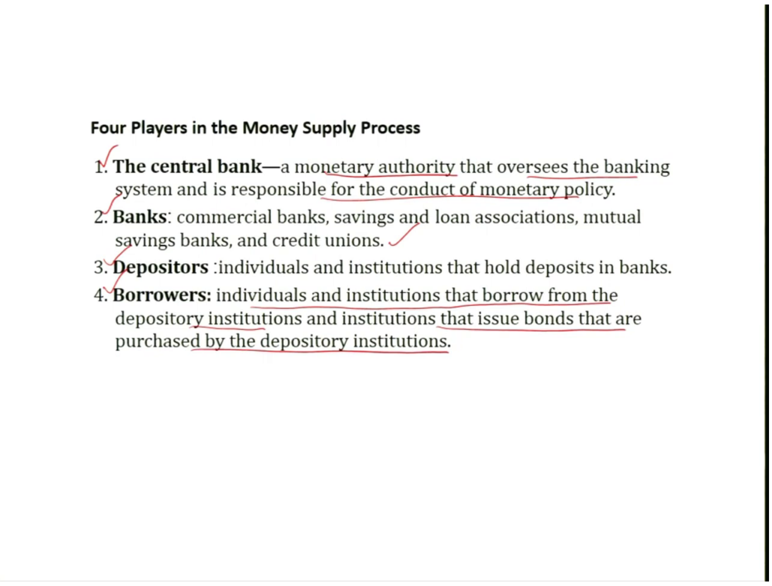

So, in the money supply process, there are mainly 4 players. The 1st one is the central bank and as we already seen that, a central bank is a monetary authority that oversees the banking system and responsible for the conduct of monetary policy.

And the 2nd key player is the banking system, especially commercial banks, savings and loan associations mutual savings banks and credit unions. That is another key player.

And then comes depositors, the depositors mean individual and institutions that hold deposits in banks. And in addition to that, the borrowers from the banks they are also key player in the money supply process. That means, borrowers mean individuals and institutions that borrow from the depository institutions.

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- Central Bank (CB) is the most important.
- The CB conduct of monetary policy involves actions that affect its **balance sheet** (holdings of assets and liabilities)

These are the four key players and what we are going to do now is that we now focus on the central bank who is the key player in this process. Then, how central bank through the central bank activity, that is through the balance sheet, its liability and asset side, we are going to see that how central banks conducts monetary policy. When central bank conducts monetary policy, it involves actions that affects its balance sheet.

That means, holding of assets and liabilities. So, we are now going to discuss, how conducting of monetary policy by a central bank, how does it affect the balance sheet. That the asset side and the liability side; using a T account we are going to discuss that.

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Fed's Balance Sheet

ASSETS

1. **Government securities**. The Fed provides reserves to the banking system by purchasing securities.

An increase in government securities held by FED leads to an **increase in MS**

➢ Open market Operations...NBR... → Reserve

Fed → 10 million $

$10 million ↓ R

•2. **Discount loans**. The Fed can provide reserves to the banking system by making discount loans to banks. An increase in discount loans can also be the source of an **increase in the MS**.

➢ Discount rate (bank rate)..Borrowed reserve (BR)...lender of the last resort

R ↑

Federal Reserve System (Central Bank)	
Assets	
Government securities (OMR - NBR)	
Discount loans (lender of last resort - BR)	

So, coming to Feds balance sheet, Fed means the central bank. The Fed which I mentioned here is the Federal Reserve System, the US central banking system. In the Indian context, we can use Reserve Bank of India, just for the sake of simplicity and international standardization of our learning materials, let us call it as Fed; Fed means the central bank.

So, in the Fed's balance sheet, let us now discuss the assets and liabilities. So, coming to the asset side of the central bank, one of the assets is the government securities held by the central bank. So, Fed provides reserves to the banking system by purchasing securities; that means, buying and selling of government securities from the banking system, it called as open market operations.

So, that means in this process, the asset that the central bank is having is the government securities. So, an increase in government securities held by Fed leads to an increase in money supply, that we are going to see in the subsequent sessions. One of the assets is asset by held by the Fed is the government securities that is purchased from the commercial banks.

Obviously, you know that securities with the banking system, they bought it from the treasury, that means, from the federal government. The securities purchased by the banking system, when it is purchased by the Fed, then it becomes the asset of the federal reserve system. This is also called as open market operation, which I just mentioned.

Suppose Fed buys, for example, 10 million of government securities from the banking system, then as proceeds of this transaction, when they sell these 10 million securities to central bank, the proceeds of currency, that is, 10 million, this one will be credited to the account of the banking system.

And it will be credited and will be immediately reflected as the reserve increase in the banking system. So, this is also we are also going to call it as a non-borrowed reserve, because the increase in this reserve of the banking system happening through the open market operation, not through borrowing from the central bank, but because of selling of securities to the central bank.

So, as a result you can see that they will be getting 10 million with the central bank and it will be immediately credited to the banking system as reserve.

And the second component is discount loans; discount loans mean Fed can provide reserve to the banking system by making discount loans to banks. So, here an increase in discount loans can also be a source of increase in money supply. The discount loans are given at a discount rate, and in India, we call it a bank rate. So, here what happened that, when the central bank gives loans to the banking system at a discount rate; that means, the reserve of the banking system increases.

Here we are going to see that the reserve of the banking system increases, we are going to call it as borrowed reserve because, borrowed reserve means banking system borrowed it from the central bank. So, we can see that there are two main assets for a central bank, one is government securities and the second one is the discount loans made to the banking system.

So, it is given at a discount rate and for the banking system, this will increase reserve due to the borrowing from the central bank. So, we are going to call it as borrowed reserve. So, these are the two major assets of the central bank.

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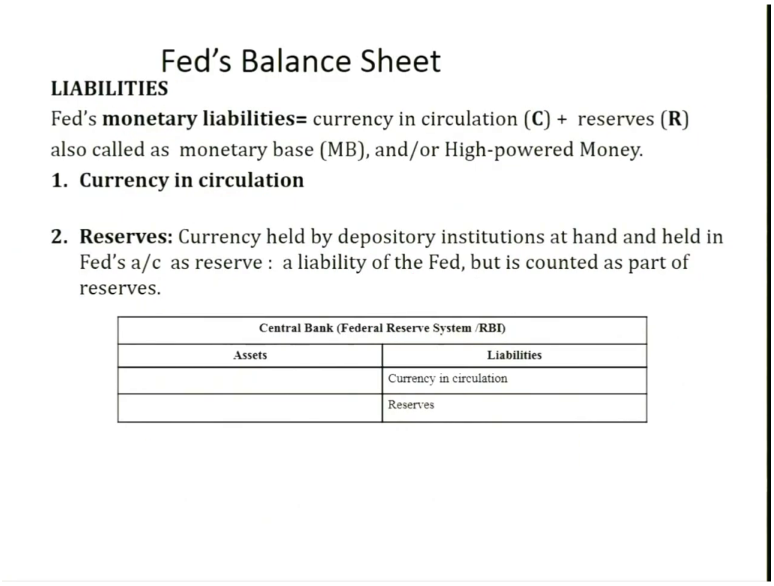

And in the next session, we are going to discuss the liability side of the balance sheet.

Thank you.

Keywords: money, medium of exchange, unit of account, money supply, monetary base, M1, M2, M3, central bank, commercial bank, currency in circulation, reserves