**Economics of Banking and Finance Markets**
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**Lecture - 42**
**Structure of Fed Reserve System**

Welcome to this session. In the last sessions we had discussed the money supply creation process, where we discussed the deposit multiplier and subsequently, we had discussed money multiplier as well. So, there we have seen that in addition to Central Banks, there are other participants who also influence the level of money supply in an economy.

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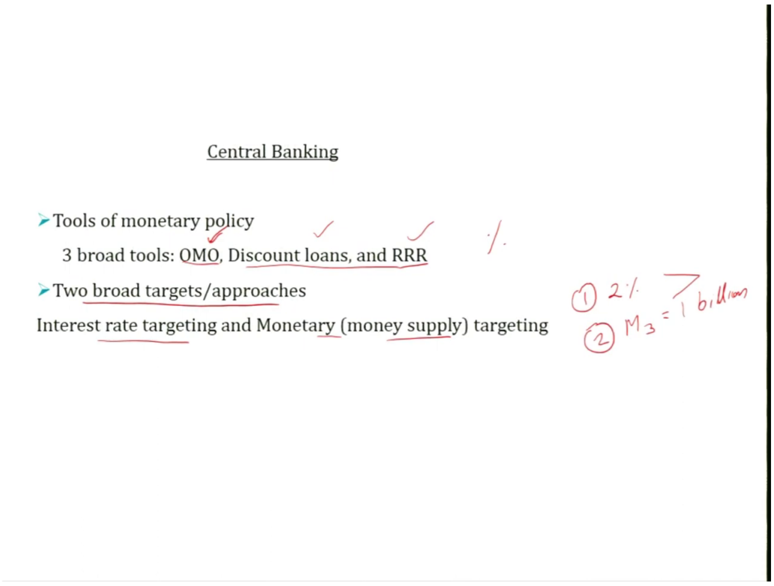


So, today our focus is on central bank's monetary policy. So, in the case of monetary policy, we are going to discuss what are the tools of monetary policy and then what are the approaches. So, this is the broad aim of this session, and subsequent sessions we will be discussing each tool of monetary policy.

We had discussed concepts of the open market operation, discount loans and required cash reserve ratio. We will discuss these tools in appropriate context and then see how using each tool the central bank is able to determine the level of money supply in an economy.

So, to begin with, we can see that there are three broad tools, that is quantitative tools, of monetary policy. In addition, there are several other tools, most of them are qualitative and little bit advisory kind of tools, we will discuss these in the later sessions. In this session we focus on how monetary policy is conducted and what are their targets etcetera.

There are three tools, one is open market operation that is open market purchase or sale of government securities by Central Bank among the commercial banks. Central Bank and the commercial banking system are involved in the open market operations.

And then about discount loans; discount loans mean giving loans to the commercial banks by the Central Bank. Required reserve ratio is the certain fraction of the total demand and time liabilities demand and time deposits that the banks must keep with the Central Bank.

There are two broad targets or approaches in the monetary policy regime. One is called interest targeting, then the second one is called monetary targeting or money supply targeting. So, in the case of interest rate targeting, the Central Bank targets the interest rate as their main outcome target, for example, 2 percentage, a short-term interest target rate is 2 percentage.

Another approach is targeting the money supply itself. So, see that this should be the money supply in the country for M3 money, say for example, 1 billion dollars, this is one of the targets.

Later, we will make a detailed discussion of the pros and cons of both approaches; what are the pros and cons if the Central Bank follows interest rate targeting and what are the pros and cons if the Central Bank follows monetary targeting, we will discuss these in the future sessions and also, we will be applying in different country settings how do they use different types of targeting.

And ultimately what we are going to see that all these will be affecting the level of liquidity in an economy and then subsequently also affecting the level of economic activity.

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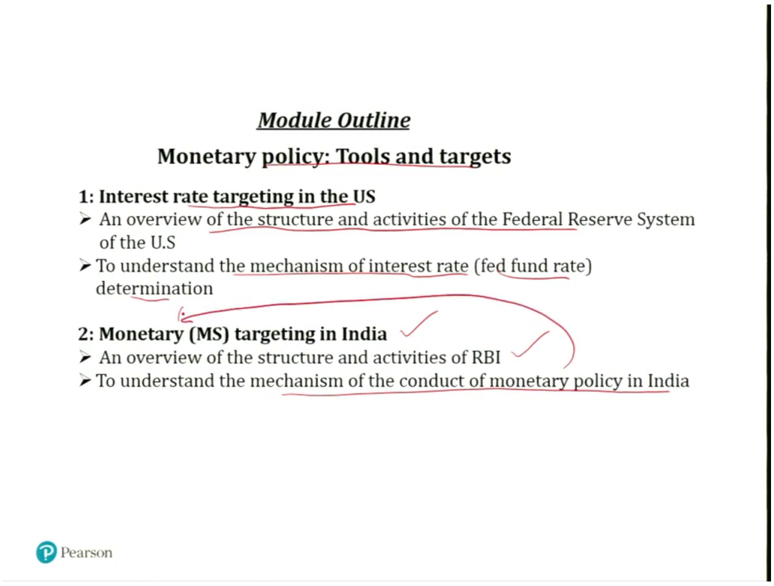


the U.S, recently have been following interest rate targeting. we will discuss how interest rate has been determined in their economy, and in order to discuss that we will be making an overview of the structure and activities of the U.S central banking system that is called Federal Reserve System in the U.S, and subsequently we will discuss what are the mechanism of interest rate determination in the U.S, that is Fed fund rate determination in the U.S.

And after completion of this discussion, we will focus on India's monetary policy in contrast to the interest rate targeting in the U.S. India had been following the monetary targeting, that is, the money supply targeting until 2017. But 2017 onwards, India has been employing interest targeting. So, here we will do an overview of the structure and activities of the Reserve Bank of India.

And then we will discuss the mechanism of the conduct of monetary policy in India, what are the tools used and how do these tools are being used to attain the goals.

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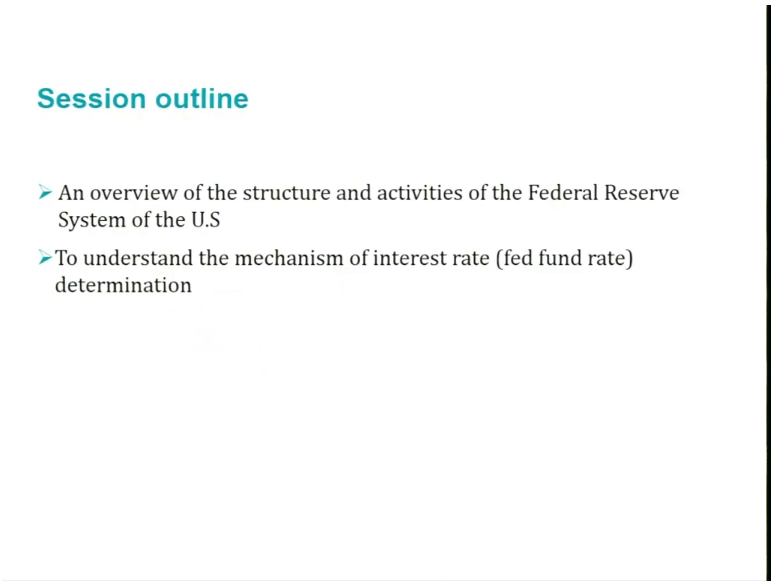


So, these are the overall module outline, let me now start with this session, here we will be discussing the structure and activities of the Federal Resource system and then subsequently we will move into the mechanism of interest rate determination.

So, since we are talking about the Central Bank who is the monetary authority and the apex bank in the country and who is also vested with the responsibility to ensure monetary stability, the financial stability as well as economic stability, it is important to know what are the structure of the U.S central banking system, and what are their activities, then you will be in a better position to relate their monetary policy activities, monetary policy interventions in the economy in different context.

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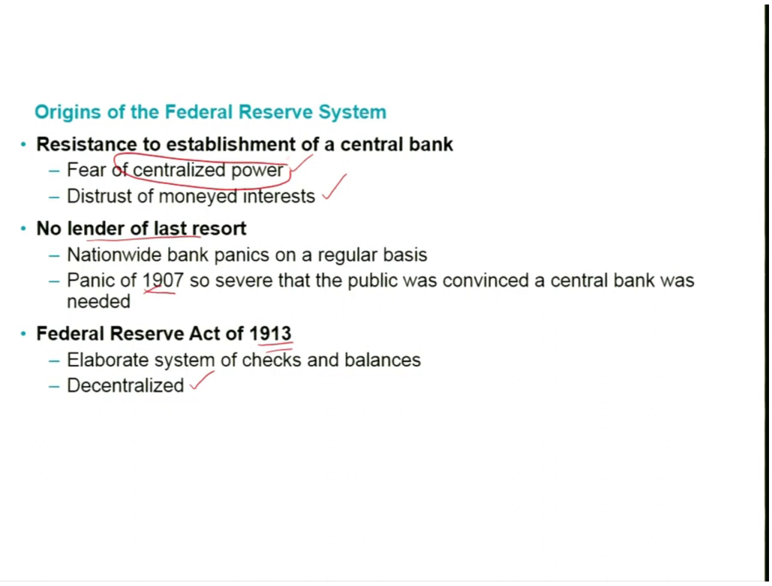


So, coming to the federal resource system, the origin of federal resource system in the U.S, initially there was a resistance among different stakeholders in the economy especially from bankers and different financial institutions about setting up of a Central Bank. It was mainly because a fear of a centralized power. In addition, there was distress of such a moneyed interest; against one monetary authority, one Central Bank, controlling all the banking system and all the financial system.

So, until 1900s, there was no Central Bank but later the early beginning of 1900s, the importance of setting up of a regularized Central Bank was considered as relevant. So, what we can see here is that there was no lender of last resort when there was nationwide bank panics on a regular basis.

So, you can see that there was panic of 1907. So, severe that public was convinced a Central Bank was needed and, we have seen that in during great recession, that is, great depression of 1930s that was also characterized by bank failures; many banks failed at that time.

The frequent bank panic was one of the reason the public behind to think that we need a Central Bank because their money is with the banking system, their savings are with the banking system. So, they need someone who can control and ensure a sound banking system in the country.

So, accordingly the Federal Reserve Act of 1913 was passed. So, it was mainly an elaborate system of checks and balances in the act and how to control the banking system and the financial system, and how to ensure monetary and financial stability in the country. And the act proposed mainly a decentralized structure, not like Central Bank, it was they proposed a more decentralized central banking system.

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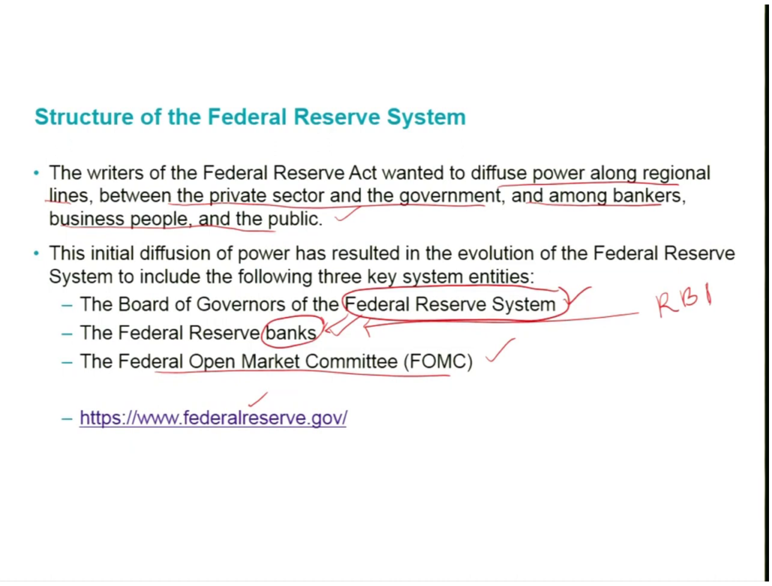


So, accordingly, the writers of the Federal Reserve Act wanted to diffuse power along regional lines between private sector and government, and among bankers, businesspeople, and the public.

So, you can see here that a private sector is involved because private sector including firms, they are dominant borrowers from the financial market, then the government and the bankers. So, that banking system is another important pillar, then businesspeople and the public all are involved there.

So, the initial diffusion of power has resulted in the evolution of the federal reserve system to include the following three key system entities: one is the setup of the Board of Governors of the federal reserve system, second one is Federal Reserve Banks and the third one is the Federal Open Market Committee.

So, here what we can see that, unlike India's Central Bank where we have only one Central Bank called RBI Reserve Bank of India, there are groups of Central Banks; that means, regional Central Banks.

So, that means, there are Federal Reserve Banks. So, because of that though all the central banking, we called with federal reserve system we do not call a single Central Bank as such in the U.S. So, we call it as a Federal Reserve system, it has many regional Central Bank. Another pillar is that the Federal Open Market Committee, which was set up with the central banking system, who is entrusted to conduct the open market operation to attain the monetary policy targets.

So, I would suggest you visit the website of federal reserve system where you will get detailed information about the federal reserve system, what is the structure how it evolved and what are the functions, and other activities overtime.

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So, where is Fed located? So, you can see here that there are 12 Federal Reserve Banks. So, that is called federal reserve district. So, you can see that there are 12 banks started from here like that so; that means, its located across the country. We can call it as a regional central bank.

So, here is the area of Federal Reserve Bank, one. So, this map is to show that there are 12 Federal Reserve Banks that located across the country.

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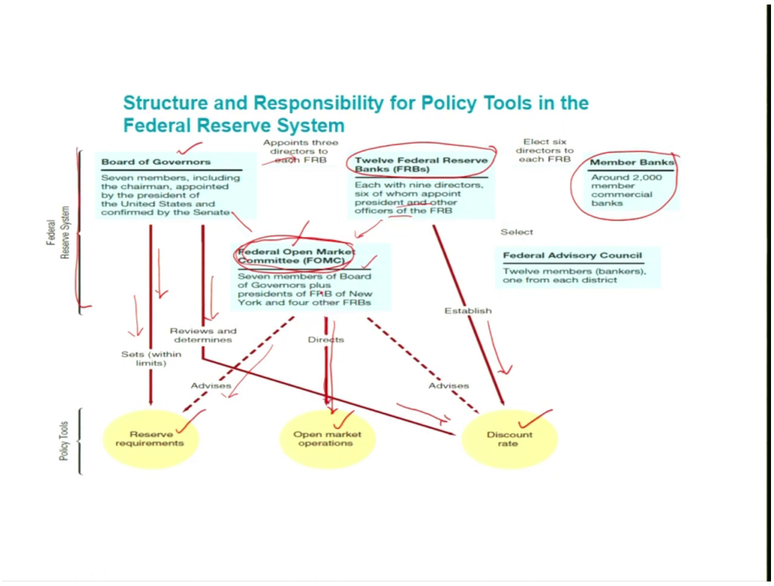


This is the structure and the responsibility and policy tools in the federal reserve system. You can see this is the federal reserve system, the board of governors. So, you can see the Board of Governors seven members including the chairman appointed by the President of the United States and confirmed by the senate and appoints 3 directors to each FRB and there are 12 Federal Reserve Banks each with 9 directors, 6 of whom appoint president and other officers of the FRB and they elect 6 directors to each Federal Reserve Bank.

So, there are more than 2000-member commercial banks. So, this is the structure, then there is the Board of Governors, and this 12 Federal Reserve Banks, they form a Federal Open Market Committee. So, here there are seven members of Board of Governors plus presidents of Federal Reserve Bank of New York and four other Federal Reserve Banks.

The Federal Open Market Committee was set up through Board of Governors and 12 Federal Reserve Banks representative. The Federal Open Market Committee is the main agency who carry out the monetary policy. So, whatever we see in the newspapers and media about the Fed fund rate determination, we are referring to the decision of the Federal Open Market Committee, their announcement is referred to as ‘Fed announces changes in rate of interest or Fed fund rate’.

So, shortly this is the Federal Open Market Committee, that FOMC is the main committee that is entrusted to do the monetary policy. So, you can also see that open market operation is one tool, we know that as part of monetary policy. So, this FOMC that you can see that they direct the open market operations and the board of governance, you can see that this is one of the tools, open market operation is one of the tools, and another tool you know that discount rate, and the third one is a reserve requirement.

So, here you can see that the 12 Federal Bank Reserve Bank, they establish the discount rate, then the board of governor reviews and determines the discount rates, then you can also see the reserve requirement, this is sets within the limits by Board of Governors, and the FOMC advises for the setting up of the reserve requirements.

So, here the important thing is that the most widely used tool or more powerful tool in the determination of interest rate in the U.S is mainly the Open Market Operation, that is directly set up by the FOMC.

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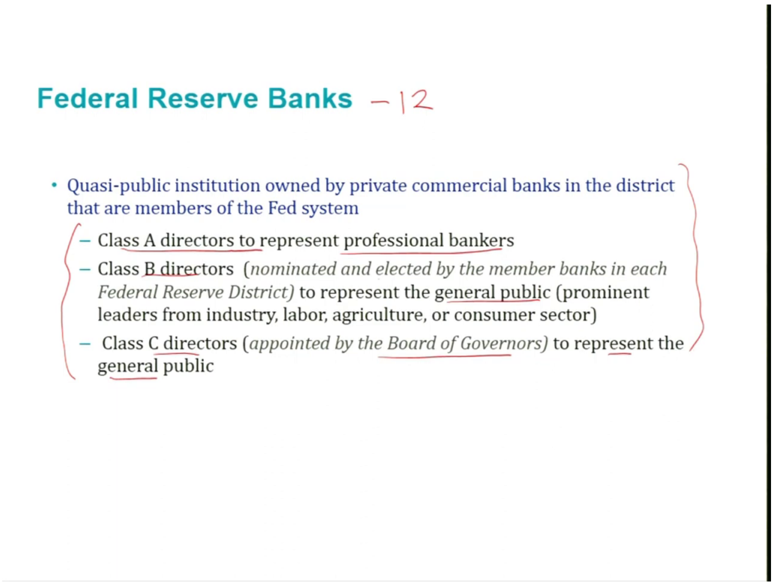


So, what you can see here is that there are 12 FRBs, each of these FRB are quasi-public institution owned by private commercial banks in the district that are members of the Fed system. About the board of the members, there are class A directors to represent the professional bankers, and in addition there is class B directors nominated and elected by member banks in each Federal Reserve district to represent the public; that means, prominent leaders from industry, labor, agriculture or consumer sector.

And in addition, there are class C directors appointed by the Board of Governors to represent the public. So, my objective here is to put all these aspects to highlight the fact that the U.S federal reserve system is highly decentralized, and this consist of not only the banking system but also includes public from different sectors of the economy and society.

As compared to this, we can see that India's reserve banking system does not have this kind of structure. India's RBI, you know that it is a quasi-constitutional authority set up by the constitution, and you also know that we do not have this kind of decentralized structure with the Reserve Bank of India.

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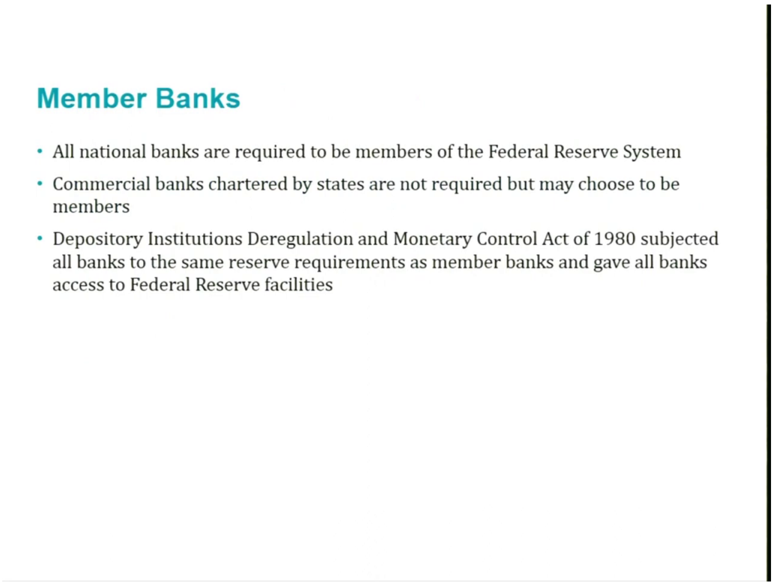


In the U.S, all national banks are required to be members of the federal reserve system and commercial banks started by states are not required but may choose to be members. Depository Institution Deregulation and Monetary Control Act of 1980 subjected all banks to the same reserve requirements as member banks and gave all banks to access to federal reserve facilities.

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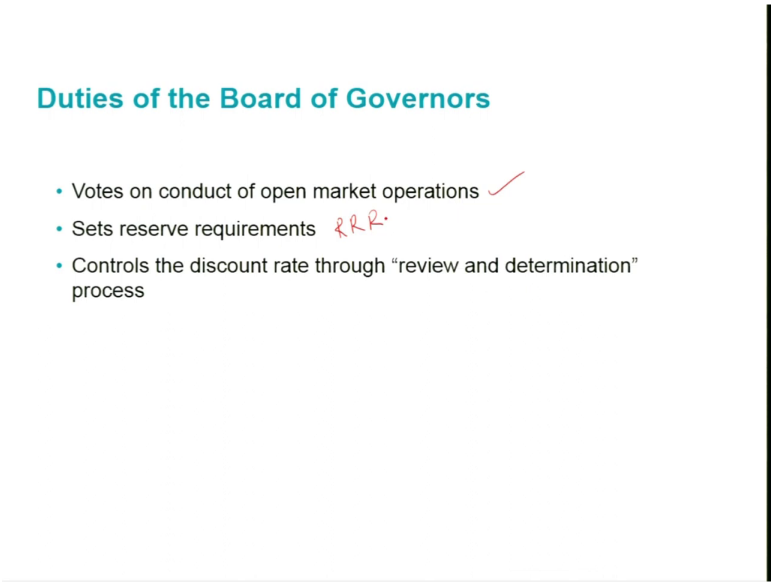


So, the duties of the Board of Governors, especially regarding the monetary policy, we can see that this is votes on conduct of an open market operation, and sets a reserve requirement, that is the required reserve ratio.

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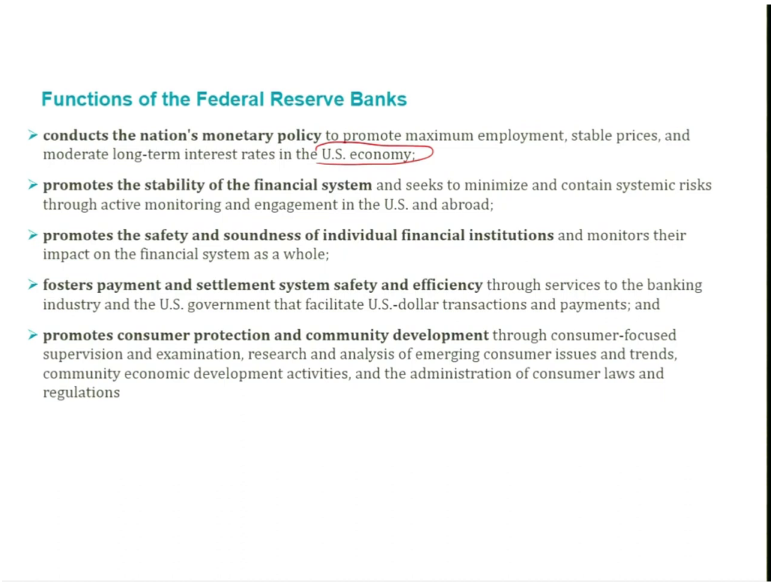


Before going further, let us see what the specific functions of the Federal Reserve Banks are. So, one is to conducts nation's monetary policy to promote maximum employment, stable prices, and moderate a long-term interest rate in the U.S economy.

We can say that the federal reserve system is the most powerful Central Bank in the world, and their rate of interest for example, when they determine the Fed fund rate, that is the interbank rate, its influence is not only limited to the U.S. Whenever Fed reserve system announce Fed fund rate change, the tremors are seen felt across the globe and even the stock markets of many countries also get affected.

Second one is, to promotes the stability of financial system and seeks to minimize and contain systemic risk through active monitoring and engagement in the U.S and abroad, and third one is to promote the safety and soundness of individual financial institutions and monitors their impact on the financial system.

Fourth one is to foster payments and settlement system, safety, and efficiency through services to the banking industry and the U.S government that facilitate U.S dollar transactions and payments and finally, to promote consumer protection and community development through consumer focus supervision and examination and research and analysis of emerging consumer issues and trends community economic development activities and the administration of consumer laws and regulation.

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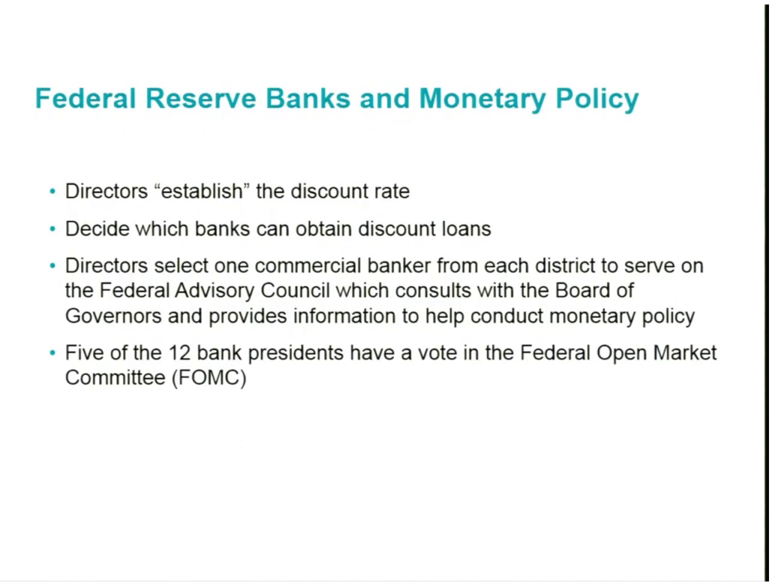


Let us now see how Federal Reserve Banks formulate the Monetary Policy. The directors establish the discount rate, the rate at which commercial banks can take loans from the Federal Reserve Banks, and the directors select one commercial banker from each district to serve on the Federal Advisory Council, which consults with the Board of Governors and provides information to conduct monetary policy.

So, 5 of the 12 bank presidents have a vote in the Federal Open Market Committee on a rotational basis.

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About the Federal Open Market Committee: they meet eight times a year and you know that the implication globally. Every time when the Fed announces the decision of the Federal Open Market Committee, the FOMC, their decision is regarding the Fed Fund Rate.

Fed fund rate, we call it Fed rate for short, that is the rate of interest between banks, that is, interbank loans that banks borrow between each other to meet their reserve requirements. So, you know that when Fed fund rate is increased, when the FOMC increase the Fed fund rate, then you know that the rate of interest in the economy increases.

When the Fed fund rate increases, you also need the see that other rate of interest also increase. So, as a result there is capital inflow to the U.S, which also affect other countries.

And the Chairman of the Board of Governor is also the chair of FOMC. The FOMC consists of seven members of the Board of Governors, president of the Reserve Bank of New York and presidents of four other Federal Reserve banks. They issue directives to the trading desk at the Federal Reserve Bank of New York.

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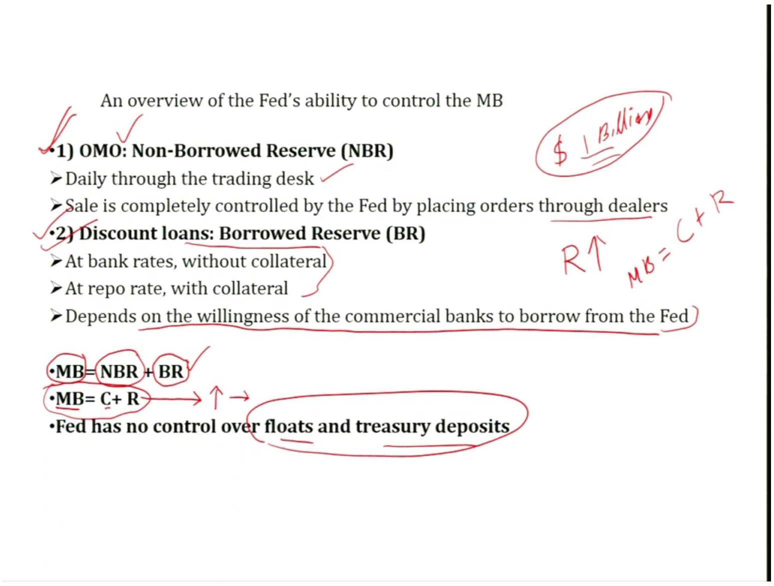


Before we proceed with discussion on the Fed fund rate determination, let us see what the Fed's ability is to control the monetary base in the economy. So, we see we see that there are several tools, one tool is open market operation, we also call it as non-borrowed reserves.

The open market operations have been carried out daily through the trading desk, the sale is completely controlled by the open market sale or purchase desk by placing orders through dealers in the security market. We can see that they have more control suppose the Fed wants to inject this much money supply, for example, one billion dollars in the economy. So, here if they want to inject this much in the economy and accordingly, they can carry out an open market operation. So, they can place order through the dealers; that means, they are going to buy this much worth of government securities from the banking system.

Another tool is discount loans, we can call it as the borrowed reserve; that means, this is the rate at which the commercial banks can borrow from the Central Bank without any collateral.

So, but in India, for example, there is we have the repo rate with collateral ,this is about Indian context, but in the U.S they use the term called discount loans and we what we can see here is that federal reserve system announces the discount rate and then banks make the decision about whether to borrow or not; that means, using this tool the amount of fund that the amount of money that can be injected into the economy not only decided by the central bank, but also by the willingness of the banking system to borrow.

So, in this way what we can see here is that totally when Central Bank want to inject money, they have two options. When they inject money, the reserve is going to increase. As we know the monetary base MB is C plus R, that what we have already written it here; that means, MB is equal to C plus R, when open market operation is carried out, we can see that this reserve is going to increase, the reserve is going to increase.

So, when they do inject money, the first sign is that the reserve of the banking system increases; so, we call the reserve through open market operation as non-borrowed reserve when they do open market operation. So, when they purchase government securities, then the non-borrowed reserve increases, and in contrast if central bank sells government securities to the banking system, then the non-borrowed reserve decreases.

And coming to the second part the discount loans, this we are going to say that again the objective is same, that is, the Fed wants to change the money supply in the country. So, when they increase the rate, when the discount rate is increased then you know that the borrowing from the Central Bank by the commercial bank decreases, then the reserve decreases, in contrast if Fed reduces the discount rate and we can see that the banks will be borrowing more from the central bank.

And the immediate effect of this injection of money through this is that the reserve of the banking system increases, and we are going to call it as a Borrowed Reserves. So, in that way, we can reclassify monetary base as NBR plus BR and we can also define MB as currency plus reserve. So, these are the two ways of defining the monetary base here.

To see here, mainly we can see that the Fed's ability to control the monetary base is mainly through open market operation, and to some extent by discount loans. So, we can say that if you want to rank it, we are going to say that using open market operation the Fed has more control in influencing the money supply because as the amount of open market purchase or sale is completely controlled by the Fed placing orders with the dealers in the bond market.

And, using the discount window, the Central Bank cannot unilaterally determine and therefore cannot perfectly predict the amount of borrowing by the commercial bank so; that means, they have more control over OMO, accordingly they can clearly determine the monetary base, but using discount loans they do not have that perfect control, but they can influence.

We have also seen that floats and treasury account have influence on the monetary base, but these two things are not on the hands of the Fed; however, these are very short-term phenomena. So, a Fed will be having a clear idea how much will be the float and how much will be the treasury deposit.

In the next session we will continue this discussion and see how Fed Fund Rate is determined by the Fed Reserve System.

Thank you.

**Keywords:** central banking, decentralized central bank, federal reserve system, Regional Federal Reserve Bank, FOMC, discount loans, borrowed reserve, non-borrowed reserve