Economics of Banking and Finance Markets
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Lecture - 07
Interest rate: Liquidity preference framework-II

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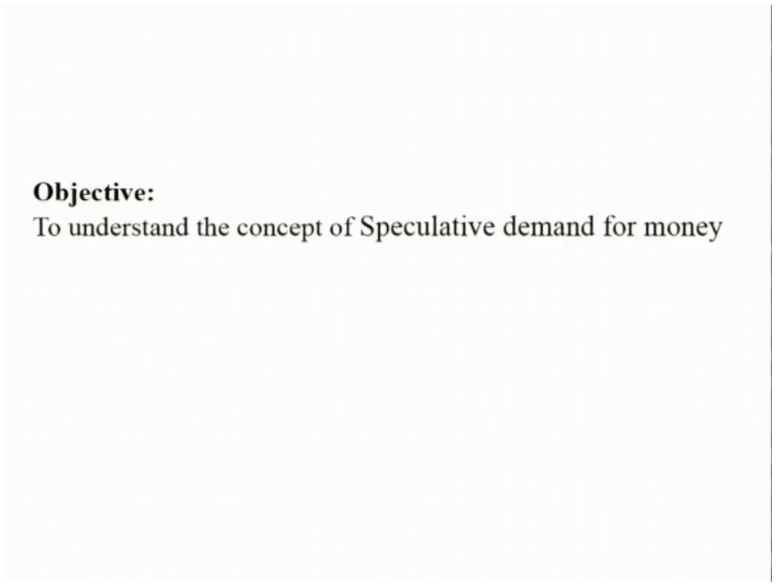

Welcome to this session. The objective of this session is to continue our discussion on the market for money and then, subsequently discuss the factors that affect the fluctuations in rate of interest. The last session, while discussing the market for money, we discussed transaction and precautionary demand for money, and there using the demand and supply of money framework we saw that how rate of interest are determined in the money markets.

At that time, we had left little bit to discuss another aspect of demand for money, that is, the speculative demand for money. In the first part of this session, we will complete the discussion about the speculative demand for money.

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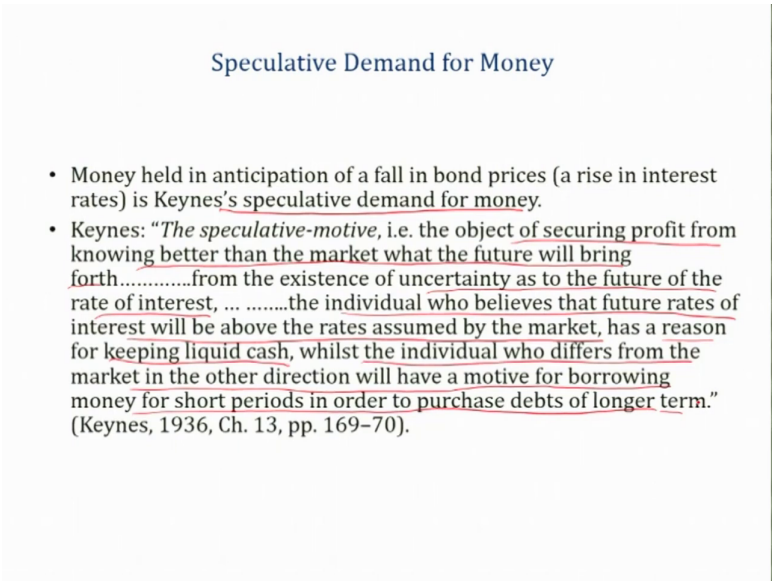

The idea of the concept of Speculative Demand for Money was introduced by John Maynard Keynes. He defined a speculative demand for money is the money held in anticipation of a fall in bond prices.

In some of the Keynesian writings, we can see that he introduced concept called speculative motive: "the speculative-motive the object of securing profit from knowing better than the market what the future will bring forth…… from the existence of uncertainty as to the future of rate of interest."

According to Keynes: "the individual who believes that future rates of interest will be above the rates assumed by the market, has a reason for keeping liquid cash; that means, demanding cash demanding money whilst the individual who differs from the market in other direction will have a motive for borrowing money for short periods in order to purchase debt of long term."

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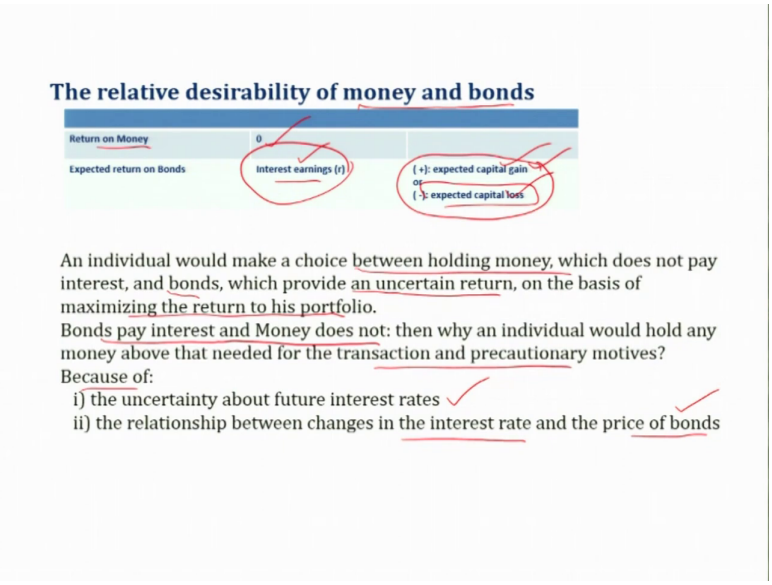

As we had already seen in the previous session, in our model there are two assets, one is money and other one is bonds. About the relative desirability of both money and bonds: about return on money, we know that money does not pay any rate of interest; that means, 0 and about bond, bond actually pay interest earnings, bonds pay interest earnings, and, in addition, there is capital gain either capital gain or capital loss.

Capital gain happens you know that when the rate of interest declines in the future and then the bond price will increase. As a result, there will be capital gain in addition to the interest earnings. In contrast, if the rate of interest increases in the future which means the bond price is going to decline, and as a result there is going to be capital loss.

About the bond, we know that there are interest earnings. The interest rate is also uncertain. There is uncertainty about expected return and it includes both interest earnings plus either capital loss or capital gain, and this is subject to fluctuation in rate of interest.

An individual would make a choice between holding money, which does not pay interest and bonds, the choice between money and bonds you know that bonds, which you provide provides an uncertain return, based on maximizing return to his portfolio. And the question here is since bonds pay interest, money does not: then why an individual would hold any money above that is needed for the transaction and precautionary motives?

The question is then why an individual would hold any money above that is needed for transaction and precautionary motive?

And the answer given by Keynes was that one is because of uncertainty about the future interest rates, and second one is the relationship between changes in interest rate and the price of bonds, as we know that there is an inverse relationship. Because of the uncertainty about the future interest rates and the inverse relationship between interest rate and price of bonds would lead to the speculative demand for money; that is demanding money above the transaction and precautionary motive.

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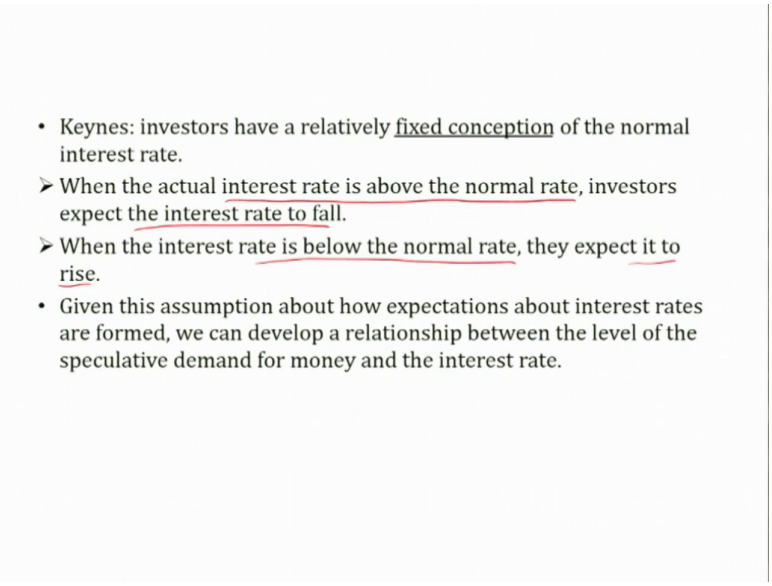

How Keynes introduces this idea, you see, according to Keynes investors have a relatively fixed conception of the normal interest rate in an economy. So, suppose whether the interest rate is 5 percent, interest rate in an economy is 5 percent, whether it is normal interest rate or above the normal rate or below the rate, people have a fixed conception about the normal interest rate based on their understanding about the historical interest rate.

When the actual interest rate is above the normal rate, you see when the actual interest rate is above the normal interest rate, investors expect that interest rate would fall in the future. In contrast, when the interest rate is below the normal rate, investors expect the interest rate to rise in the future. So, this is the two trend that we can see here. Given this assumption about how expectations about interest rates are formed, we can develop a relationship between the level of the speculative demand for money and the interest rate.

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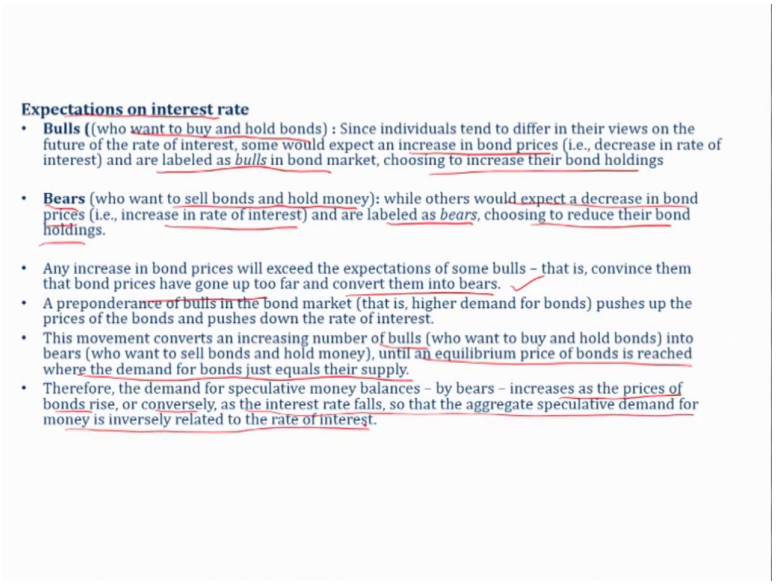

Keynes built his speculative demand for money concept based on the notion of expectation on interest rate. And there will be bulls in the bond market bulls means who want to buy and hold bonds. Since individuals tend to differ in their views on the future rate of interest, some would expect an increase in bond price; that means, decrease in the rate of interest.

Obviously, you know that when someone expecting that the there is an increase in bond price; (means, decrease in rate of interest); they will be willing to buy more bonds and they can be labelled as bulls in the bond market; that means, they expect that rate of interest is going to decline, and thus, bond price is going to increase; which translate it into an increase in capital gain. It means they can make more profit, more return from this movement. So, they are called bulls.

And, what how about bears? Bears are those who want to sell bonds and hold money. When bears expect increase in rate of interest, that is, a decrease in bond prices. When they expect that rate of interest is going to increase in the future. That means, bond price is going to decrease and they expect there is going to be a capital loss if they buy or keep bond, they are called as labelled as bears choosing to reduce their bond holdings; instead, they will be holding more money.

Any increase in bond price will exceed the expectation of some bulls - that is, convince them that bond price has gone up too far and convert them into bears. But they think that the rate of interest was declined beyond a level; that means, declined further and further gone up too far;

that means, in translating this into that in the bond prices already gone up too far and they think that the rate of interest is going to increase because the normal rate of interest is for example, 5 percentage.

But, when they see that rate of interest has declined to 4 percentage, 3 percentage, 2 percentage and when they think that rate of interest has declined to the bottom. Because of that, you know that bond price has gone up too far, then as a result they think that the rate of interest is going to increase in the future. And because of that, some bulls will become bears expecting that bond price is going to decline in the future.

A preponderance of bulls in the bond market, that is higher demand for bonds pushes up the prices of the bonds and pushes down the rate of interest. This movement converts an increasing number of bulls who want to buy and hold bonds into bears until an equilibrium price of bond is reached where the demand for bonds just equals their supply.

Therefore, the demand for speculative money balances - by bears - increases as the prices of bonds rise, or conversely as the interest rate falls, so that aggregate speculative demand for money is inversely related to the rate of interest.

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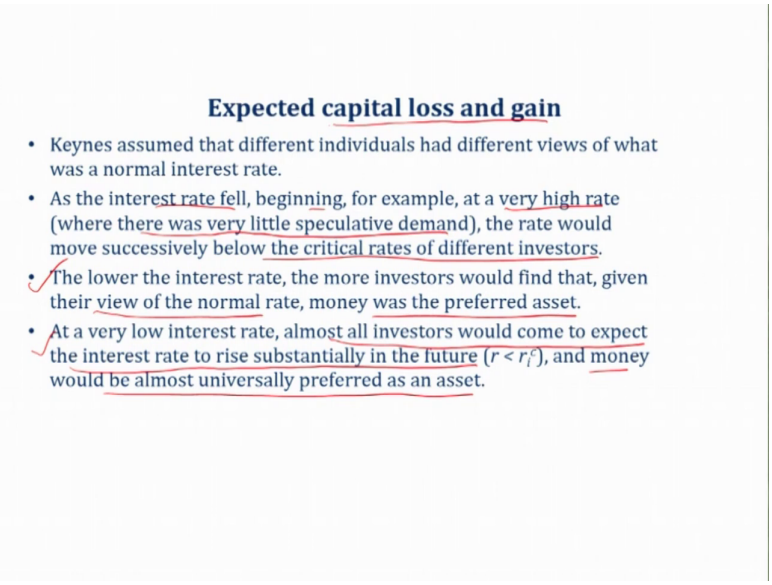

This point, mainly here, due to the changes in future rate of interest, which can lead to capital loss or capital gain; that means, expected future rate of interest, this also leads to change that the building up of expected capital loss and gain. Keynes assumed that different individuals

had different views of what was a normal rate of interest, because he is talking about macroeconomy there are different people with different views of when it comes to normal interest rate.

As I mentioned just before about the perception about normal rate of interest, it was based upon each individual's perception of what is normal. Maybe, they may build this one based on the adaptive expectation based on the historical data; that means, for the last one year this has been the rate of interest for this economy, and this is normal, and the current rate of interest may be normal or above the normal or below the normal, this is just a perception.

As the interest rate fell, beginning, for example, at a very high rate where there was very little speculative demand, the rate would move successively below the critical rates of different investors. So, the lower the interest rate, the more investors would find that, given their view of the normal interest rate money was the preferred asset.

At a very low interest rate, there is a key point here at a very low interest rate, almost all investors would come to expect the interest to rise substantially in the future, because already at the current rate of interest is much below the normal rate of interest and they expect that future rate of interest is going to rise substantially, and money would be almost universally preferred as an asset. Because when they see that a future rate of interest is going to increase; that means, they think that bond price is going to decline, and they would incur a capital loss.

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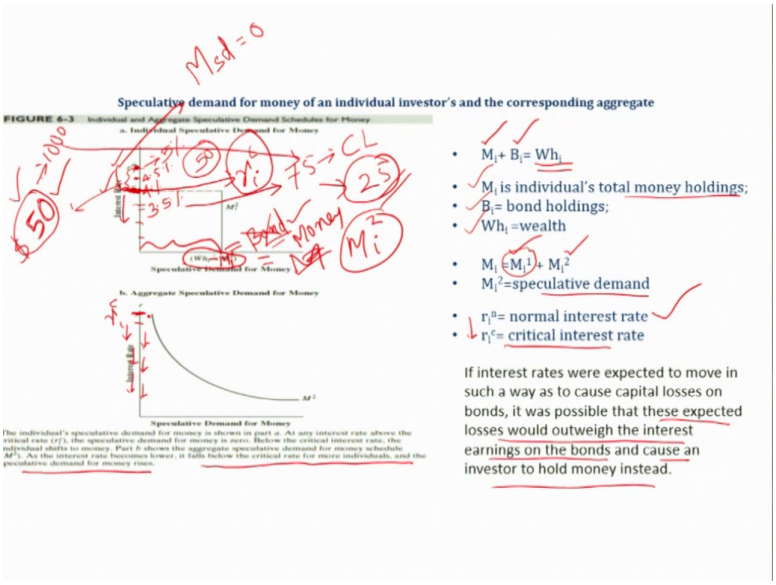

This can be explained using a diagram. We are assuming that in this economy there are only two assets and the total wealth the total wealth is distributed between demand for money and bonds, money and bonds are the two assets.

So, where we see that Mi is the individual's total money holdings and Bi is bond holdings, where Wh_i is wealth. Again, we categorize group; total money holdings into transactions; transaction means transaction and precautionary when we combine. So, normally we put both the transaction and precautionary demand for money as transaction demand for money. In fact, both are transaction demand for money where in the original transaction is more certain whereas uncertainty is associated with precautionary demand for money; that is the main difference, otherwise we just put both as transaction demand for money.

In this diagram, the first part in panel 1 we denote rate of interest on the y axis and the speculative demand for money on the x axis. So, what you can see here that, assume this one r_i^n, this one is called the normal interest rate; this is only a perception we are just taking case of n individual a hypothetical n individual, then his perception is that the normal interest rate is this much, maybe we can give one numerical value for example, if you want, say 5 percentage.

Let us now see what would happen when the rate of interest declines. So, this is the initial normal rate of interest as per this individual's perception and then the suppose then rate of interest keeps on declining. See for example, 4.5 then become 4 percentage then again it will decline further.

Let us see that what would happen if the rate of interest become 4.5 and you know that when the rate of interest become 4.5, normally a kind of perception started building; that means, rate of interest is below the normal rate of interest maybe in the future, in the future it can bounce back, it can increase. The moment we see the rate of interest is going to increase in the future, the investors' fears that when the rate of interest increase their bond price will decline and they will incur a capital loss.

But here you know that bond also give a return, that the coupon income, that is, bond will be giving the agreed coupon income. About the return from bond, you know that two components are there; one is from in the form of the interest income (coupon payment) and second one is either capital gain or capital loss.

From this point, that for example, rate of interest is 5 percentage when we see that rate of interest has become 4.5 and this individual anticipate the rate of interest will bounce back to 5 percentage, then he is going to make some capital loss, but then he may not he continue to demand bond because there is return from the coupon.

Suppose here that this rate of interest declined further to here; that means, 4 percent day suppose this is a perpetual bond the coupon income is for example, 50 dollar per 1000 bond, suppose you see that when the rate of interest becomes this much, suppose, and if the rate of interest fall from 5 percentage to 4 percentage and you know that when they see that the rate of interest is going to bounce back to 5 then; obviously, they are going to make a capital loss.

Suppose the capital loss is 50, and from this is 50, then they will be indifferent, because you see they are going to make a capital loss of 50, but anyway they are going to get 50 as a coupon income from this bond. Because of that they will be little bit pessimistic about the scenario, but they will still hold the bond.

Because they anticipate that anyway they may make a capital loss of this much that 50, but it will be compensated with 50 of coupon payment, but then we say that this rate this 4-percentage let us call this one as the critical rate we denote it with the critical rate. And below this, what if the rate of interest becomes 3.5 percentage and you know that 3.5 percentage when it bounces back to again 5; obviously, the capital loss would not be 50 it will be for example, let us say 75 is the capital loss.

So, in this case you know that this bond is going to give only the coupon of only 50, then you can see that the expected losses the expected capital losses because the rate of interest is below this critical rate, they see that these expected losses would outweigh the interest earning (coupon payment) on the bonds.

And then this would cause the investors to hold more money instead, you know why? Because below the critical rate, when the rate of interest go goes below the critical rate of interest if they demand money as the expected capital loss would outweigh the interest earning and they will make a capital loss.

Suppose this 1000 bond if they make a capital loss of 75 and, but the interest income (coupon payment) will be just 50, it means they are going to make the net capital loss of 25. Therefore, when the rate of interest go below the critical rate of interest they would prefer to

hold more money instead of bond, and this money demand is called a speculative demand for money.

You can see that until this one, that this point from rate of interest movement from normal interest rate to critical rate of interest, you can see that the total speculative demand for money is going to be 0.

There you can see that the total wealth minus transaction demand for money. This is going to be full of bonds; only bonds that the wealth minus transaction demand for money, this distance is going to be full of bond holding; that means, the total asset total wealth what is left after transaction demand, all will be in the portfolio allocation is going to be bond when the rate of interest is above the normal rate of interest or even below the normal rate of interest but till the critical rate of interest.

But the moment when the rate of interest fall below the critical rate, this point, then instead of bond, people anticipate that they are going to make capital loss, they are going to demand money and this money demand; that means, Wh minus this Wh minus transaction demand for money, this one is going to be speculative demand for money, which we can which we can denote as $M_i^{2.}$ So, this demand for money, here, is going to be speculative demand for money, according to Keynes analysis.

This one, when we translate it into aggregate macroeconomic level, what you can see that, when the rate of interest, for example, this is below the critical rate for the economy for most of the people when this point is below that critical rate, then you can see that any decline in rate of interest when the rate of interest keep on declining people think that money is the most preferred asset.

Here you can see that the aggregate speculated demand for money as the interest rate becomes lower and lower, it falls below the critical rate for more individuals and the speculative demand for money rises. This is the concept of speculative demand for money in a macroeconomic context at an aggregate level. Let’s summarise the main points that we have discussed.

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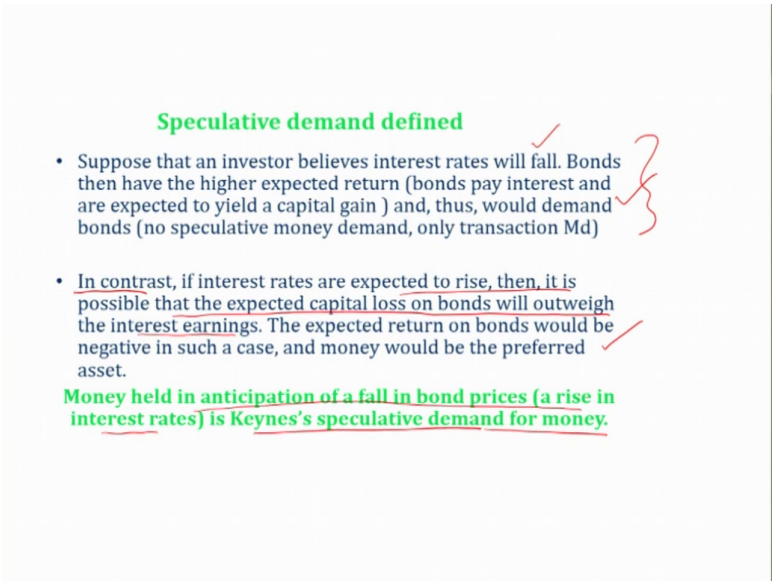

Suppose that an investor believes interest rates will fall, it means that their expected bond price will increase and will make a capital gain, and thus would demand bonds. At this point, no speculative demand for money, only transaction money demand. That is, when investors believe that interest rate will fall in the future so; obviously, he/she would incur capital loss, thus, no speculative demand for money.

But in contrast, this scenario if the interest rates are expected to rise, then it is possible that expected capital loss on bonds will outweigh interest earning. And then expected return on bonds would be negative, in such a case and money would be the preferred asset. So, to start the main definition; money held in anticipation of a fall in bond prices; that means, a rise in rate of interest is Keynes's speculative demand for money.

And this concept was introduced by Keynes in the context of economic depression. When the economy is undergoing a recessionary stage or a depressionary stage, then, normally the rate of interest goes below the normal rate, because overall the economic activity is very low; that means, economy is undergoing a recessionary phase, and as a result, the supply of bonds will be very less, and people demand for bonds also will be relatively less. So, as a result, overall, during recessionary time, the rate of interest will be very low. So, at that time what is going to happen?

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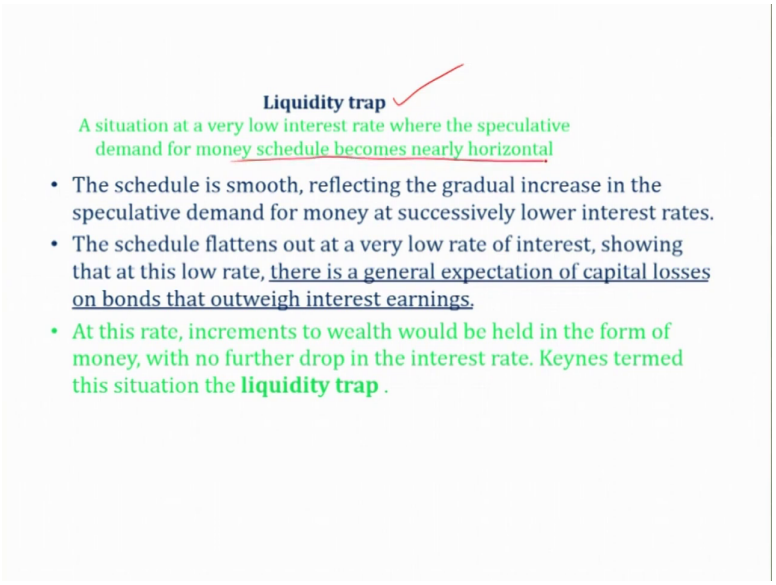

Keynes's argument was that, when the rate of interest is very low which is much below the normal rate, and also below the critical rate, people always anticipate that the rate of interest will increase in the future and they will make a capital loss.

At that time, suppose monetary policy, the central bank of a country, for example, try to when they inject more money in the economy with the anticipation that, with the expectation that, the rate of interest can be reduced, and the investment can be rejuvenated. But what is going to happen here is that there is a liquidity trap.

That means, even when the central bank or the monetary authority inject more money in the economy, it would not be invested in the bond market, it will be just held as cash, just held as money; that means, held as a liquid asset, that is money, then at that time, the monetary policy is going to be very ineffective. At the diagram, here is the liquidity trap; that means a situation at a very low interest rate where the speculative demand for money schedule becomes nearly horizontal.

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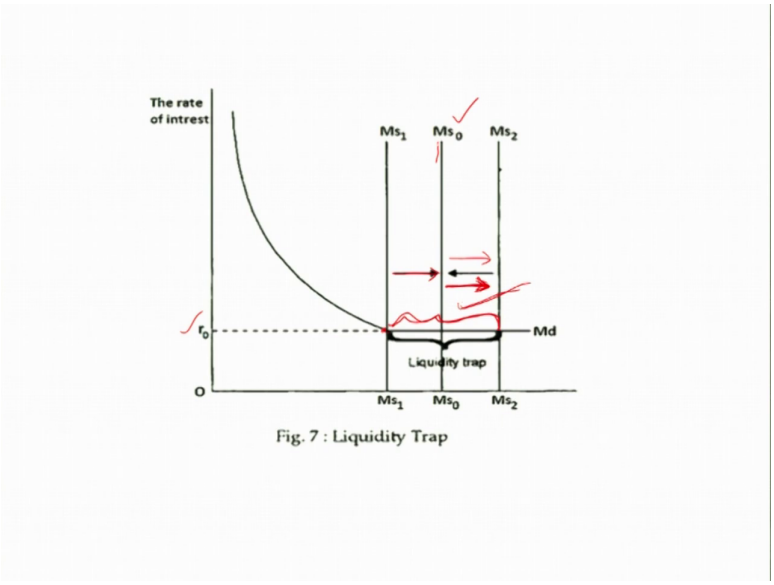

Fig. 7 : Liquidity Trap

What we can see here is that, look at this, is the money demand; suppose that there is speculative demand for money, then what happens that after certain point of time when the rate of interest become really, low, suppose r_0 at this point, is very low. And after that, the perception is so strong among the public (among the investors) that the rate of interest is low, it can increase at any time.

Suppose the initial money supply is this one, M_s^0, this is the initial money supply. Then what is going to happen, if even if the central bank increase money supply, money supply is not going to reduce rate of interest because the additional money supply coming to the economy, that is the money supply (money injected in the economy) will be just held in the form of money by the people, just they keep it as just in the form of money it would not be invested in the bond market.

As we have studied in the previous session, in the normal scenario if there is an increase in money supply, people will be contended with more money supply, they will be demanding more bonds. Then, the bond price will increase and then the rate of interest will decline; that is, when the rate of interest decline in the economy, the investment will increase, that is, there will be more investment in production, that is, more investment in setting factories and buying machines. It will rejuvenate the economy, that is, it will increase the economic activity, then the GDP will start increasing.

But when the economy is in a liquidity trap during recession, Keynes argument is that even if we increase money, suppose we increase from here, from here to Ms_1 to Ms_0, then the rate of interest will be still below the critical rate, that is at $r_{0,}$ and even if we increase further, it is not going to make any impact. Even if we reduce the money supply, from Ms_2 to Ms_0, it is not going to increase the rate of interest.

It means, this point this area; the money demand curve is going to be horizontal; that means, perfectly interest elastic: a horizontal line; it means, any increase in money supply is not going to make any changes in the interest rate here; any additional money supply will be fully absorbed by the households as money (liquid asset), it would not be invested in any bonds. In other words, not invested in bonds means this addition money supply is not invested in the purchase of capital goods in terms of setting factories and buying machines.

In this session we completed our discussion on the demand for money, mostly our discussion was confined to the speculative demand for money, where we related it with the bond market and the rate of interest. And in the next section, we will discuss the differences in interest rate for different debt instrument, and subsequently, we will also discuss what are the factors that explain these differences, that is, the factors explaining the differences and fluctuations in the rate of interest.

Thank you.

Key words: Speculative demand for money, expectation about future interest rate, capital loss, normal interest rate, liquidity trap, money supply