Financial Institutions and Markets
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Lecture - 38
Treasury Bills Market

So, after the discussion on the call money market, we can move into another segment which is a part of the money market, but mostly this kind of market is driven by the government securities. And if you see that broadly the government securities can be divided into two parts; one is your short term government securities another one is a long term government securities or the long term bonds; what we call them the dated securities.

So, whenever we talk about the short term securities mostly there are different instruments which available under the short term securities. And the most prominent instrument which comes under the short term government securities is the Treasury Bills. And the treasury bills is the measure instrument through which government basically always trying to raise the money from the public or try to inject the money to the market by selling and buying the government securities like treasury bills. And this instrument is also used for financing the government deficits whatever the government has.

So, that is why this market has his own relevance. And as well as there are some other kind of instruments like; cash management bill, ways and means advances which are also available and provided by the central bank on behalf of the government.

And they are also considered as the short term securities. So, in today's class we will be discussing some issues related to the treasury bills and as well as some brief idea about the other type of instruments like cash management bill and ways and means advances etcetera.

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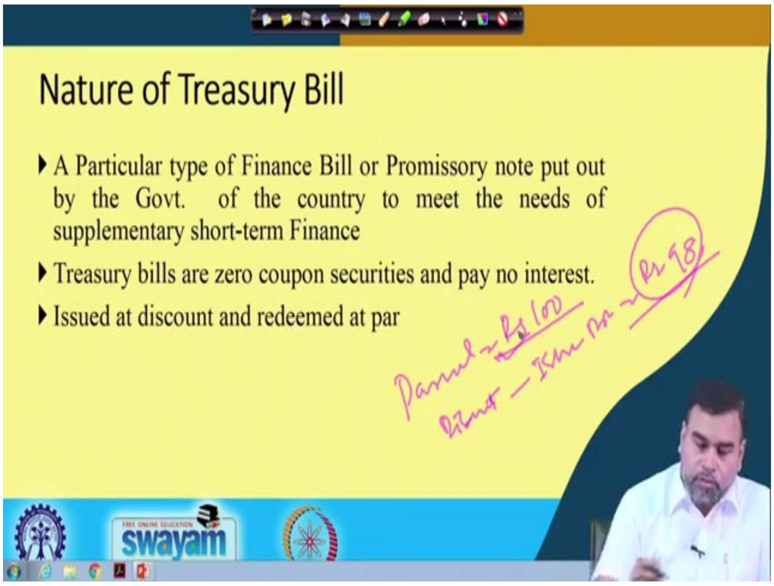

So, let us see that what exactly the treasury bill is? If you see that already I told you treasury bill is a short term government security. If you go for a formal definition, if you define the treasury bill formerly, it is basically a particular type of finance bill or promissory note put out by the government of the country to meet the needs of supplementary short term finance.

If any type of short term deficit happens in the market or for the government when government try to finance that particular short term deficit by issuing the treasury bills to the market or to the public and that has been always done by the central bank. In the Indian context these are basically issued by the reserve bank of India on behalf of central government. So, RBI basically issues the treasury bills on behalf of the central government of India and the treasury bills; that means, is the short term security short term bond which is issued by RBI.

Treasury bills are zero coupon securities and pay no interest you know bond. There are some coupon bonds where every periodical basis every 6 months or 1 year you get certain amount of coupon on the basis of the coupon rate. But here this treasury bill is a zero coupon securities it does not basically pay any interest in between. It is issued at discount and redeemed at par. What do mean by this? If the par value of the securities treasury bill is 100 rupees.

Then it must be discount or it must be issued with a discount then the issue price maybe 98 rupees. So, by that particular asset at the price of 98 rupees and at the time of maturity you will get back your 100 rupees. So, that is why it is always issued at discount and redeemed at par. So, that is the major nature or characteristics of the treasury bill; there is no coupon involved in between because coupons are again paid on the basis of the par value. But whenever we are talking about treasury bill; treasury bill does not carry any kind of coupon interest.

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Then if you see that what are those other characteristics which are related to the treasury bills highly liquid money market instrument because it is a very short term in nature. Previously it was vary from 14 days to 364 days, but most popular treasury bills which are available in Indian market is a 91 days.

No risk of default because government is the guarantor remember; no risk of default because it is issued by the central bank on behalf of the government. As it is issued on behalf of the government; that means, we are assuming there is no default risk involved in that particular security. Readily available; gives you assured yield because already there is no default risk. Obviously, whatever yield basically is calculated or whatever the discount price of that particular bond and whatever the par value of the bond on that basis deal from that particular bond is quite assured that is another thing.

Low transaction cost whenever we invest or we basically go for trading in this kind of securities the transaction cost is relatively less. The most important thing is any bank which basically involves in this transactions of treasury bills or they basically by the treasury bills or they invest in the treasury bills. This is basically a part of the SLR investments already you know that is mandatory some amount of total deposit has to be invested in a SLR instruments and treasury bill is the foremost important SLR instruments.

So, any bank which basically uses the money for investing in the treasury bills there a part of the statutory liquidity ratio instruments and; that means, there fulfilling that cap fulfilling the requirement whatever they want to further investment in the SLR's. Negligible capital depreciation, there is as such there is no capital depreciation because the prices or the yield is quite assured in that particular context by that any kind of problem which may there is no possibility of credit risk or any kind of default.

Whenever we invest in this kind of security that is why the negligible capital depreciation may be expected whenever anybody any bank invest in the treasury bills. So, these are the typical characteristics as it is issued by the government. So, those are the things what we can observe or always we expect whenever any commercial bank invest in the treasury bills.

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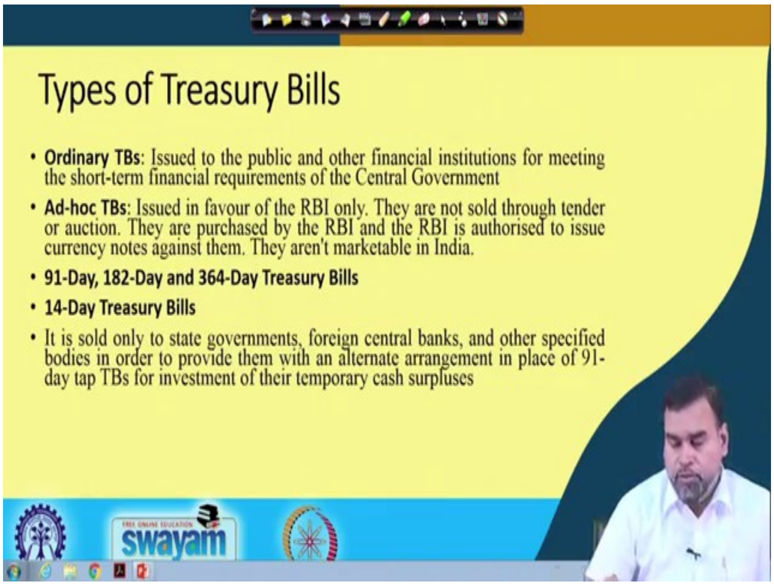

Already I told you there are different type of treasury bills; we have ordinary treasury bills, we have the Ad-hoc Treasury Bills. Whenever we talk about the ordinary treasury bills it can be classified in this way. It is issued to the public and other financial institutions for meeting the short term financial requirements of the central government, that already you know that at the basic definition of the treasury bill.

And whenever you talk about the Ad-hoc treasury bill the concept is no more that we used in the Indian market. The Ad-hoc treasury bills are issued in favor of RBI. There not sold through the auction process because treasury bills are sold through the auction process. But the Ad-hoc treasury bills are purchased by RBI and the RBI is authorized to issue the currency note against them and they are not marketable in India.

The Ad-hoc treasury bills the measure investors are not commercial bank the transaction always happens between the government and the RBI. And RBI basically takes the bond from the government and against that they issue the notes. So, that is why it is called the Ad-hoc treasury bills. So, those things are not that way applicable means used in Indian context more, but the concept of Ad-hoc treasury bills is defined in this way.

This treasury bills are issued in favor of RBI they are not sold through the auction process and their purchased by RBI only and RBI is authorized to issue the currency note against that. Government issued the bond to RBI and against that RBI pays them by printing the currency that is why they are not marketable in India. But which are popular treasury bills, which are existing in the Indian market they are basically the ordinary treasury bills and they are defined in this way on the basis of the term to maturity.

They have 90 days, 91-day treasury bills 182-day treasury bills and 364-days treasury bills. These are the different type of treasury bills which comes under the ordinary Treasury Bills. And these are popularly used in the Indian market. And we have another treasury bill which was the 14 day Treasury Bill.

Say it this treasury bill was sold only to the state governments foreign central banks and other specified bodies in order to provide them with an alternative arrangements in place of the 91 day tap treasury bills for investment of their temporary cash surpluses. The 14 day treasury bills also was restricted. This was only applicable to the state governments and over the period the use of the fourteen day treasury bills also has gone down by the reserve bank of India.

So, these are the treasury bills which are basically applicable or which are used in the Indian market and out of them this 91-days, 182-days and 364-day these are quite prominent in comparison to the other treasury bills which are available. Then if you see that whenever you talk about this who are the investors?

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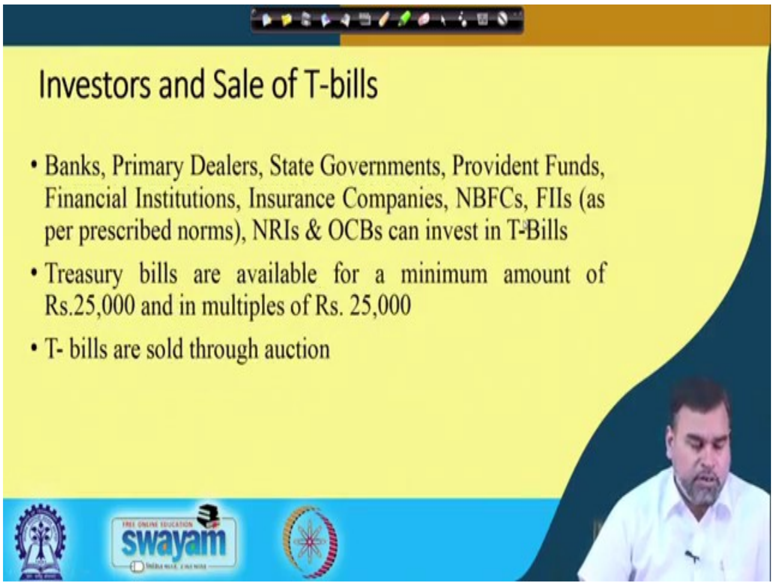

It is clear that RBI issues the treasury bills. But who are the investor? Investors are basically banks, primary dealers, state governments, provident funds, other financial institutions, insurance companies, non banking financial companies, FIIs, NRIs everybody; these are the different kind of investors which always go and invest in the treasury bills market. And the treasury bills are available in the minimum amount of 25000 and a multiple of 25000.

That means, one treasury bill amount is either one bond is 25000 all the multiple of that. So, if you are investing 100000 rupees then you will be getting four bonds. So, the minimum one bond value is 25000 rupees and already I told you the T-bills or the treasury bills are sold through the auctions. The auctions take place to provide the treasury bills or determine the price and yield of the treasury bills. On that basis the treasury bills are issued to the different investors by the reserve bank of India.

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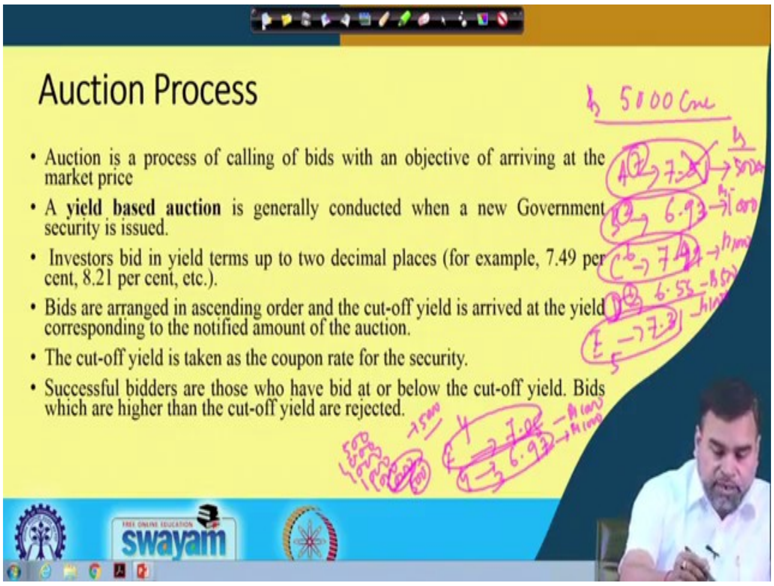

How the auction process works? If you see that already we have discussed that the treasury bills are issued through the auction process, then how the auction process in the treasury bills market work. You see there are two types of auctions in the treasury bills market always happens or in general government securities market always happen. All of you know that what is meaning of auction.

The auction is basically a process of calling for the bids with an objective of arriving at the market price. That means, somebody wants to sell something or somebody wants to sell some assets and they are going for an auction. Auction means some people will go for the bidding. And whenever they will go for the bidding one particular price will be decided in the end to issue that particular asset or to give that particular asset to the market.

So, in that process basically what we see whenever the auctions are taking place for the treasury bills we have two types of auctions. What are those? One is yield based auction and another one is the price based auction. These are the two types of auctions which basically happen in the treasury bills market or determine the yield and price of the treasury bills. And the yield based auction is generally conducted when a new government security is issued. So, here what is this investor's do? Investor basically go for the bidding. Mostly the commercial banks which are the investor for the treasury bills they go for the bidding. And they go to the particular price up to two decimal places; two decimal places.

For example, 7.49, 8.21 etcetera. That means, what do you mean by that yield that yield is basically nothing, but the interest rate or the price for the reserve bank of India will pay them; if the particular bonds the commercial bank will buy from a reserve bank of India right this is the interest rate what the RBI has to pay them. So, then what the RBI will do? RBI will take those biddings and after taking those biddings what they will do; they will arrange it in the ascending order.

And how it works? For example, let RBI wants to go for auctioning the treasury bill amount of 5000 crore. So, they have given the advertisement that this 5000 crore rupees treasury bills will be issued to the banks or to the different investors. Let there is a bank A; who has bidded for 7.51 and they have asked for 500 crore rupees.

Bank B, they have bidded for 6.93 they have asked for 1000 crore. Bank C, let 7.49 they asked for another 1000 crore. Bank D, will go for 6.55 they have asked for 500 crore. Bank E, later asked for a 6.31 asked for another 1000 crore ok. Then another bank F, they have bidded for let 7.05 and asked for another 1000 crore. Bank G, asked for let 6.97 and they have asked for another thousand crore. Let this much banks have gone for the bidding.

Then what is happening what the RBI will do? RBI will arrange them in the ascending order. Obviously, the lowest one will be 6.55, D is 1. The next one is 6.93, this is 2. Then after that 6.97 this is 3, then you have 7.05 which is 4, then 7.31 which is 5 then this is your 7.49 this is your 6 this is your 7. Then what will happen that; obviously, the one which is basically what 6.55 they have asked for the 500 crore; 500 crore will be given to them. What is 2? 2 is 6.93 they have asked for 1000 crore, it will be given to them.

And then what is a number 3? 6.97 has asked for 1000 crore they will get that 1000 crore. Then what is that 4? They will get this 1000 crore. Then what is 5? 5 is 7.31 they have asked for 1000 crore they will also get 1000 crore. Then 6 is 7.4 or 49 they have also asked for 1000 crore then we have to see that; 1 2 3 4 4500. So, total amount available is 5000 so; obviously, this 7 one will not get. And this thousand crore which was asked by the last one after five means all these people we will get that is 4500.

Then this particular bank will not get 1000 although they have asked for thousand they will be get only 500 crore left out; so, the 500 crore will be given to them. For example, the 7.49 was also given by another bank the same what they have given. And they have also asked for the 1000 crore then remaining 500 crore will be distributed equally between them. You will get 250 and that another bank we will get 250. So, that is divided on the basis of the product. Then that is the way basically the treasury bills are always given or maybe always allotted to the different investors on the basis of the yield.

So, bids are arranged on the ascending order in the cut off yield is arrived at the yield corresponding to the notified amount of the auction. When the cut off yield is taken as a coupon rate for that particular security, successful bidders are those who bid at the below cut off yields. So, here your cutoff yield is basically the highest one which is your 7.49 and below that whatever yield will be there everybody we will get that particular allotment. And more than 7.49 allotment will not be given and those particular bids will be rejected. So, this is basically the process what the RBI follows whenever they go for the yield based auction.

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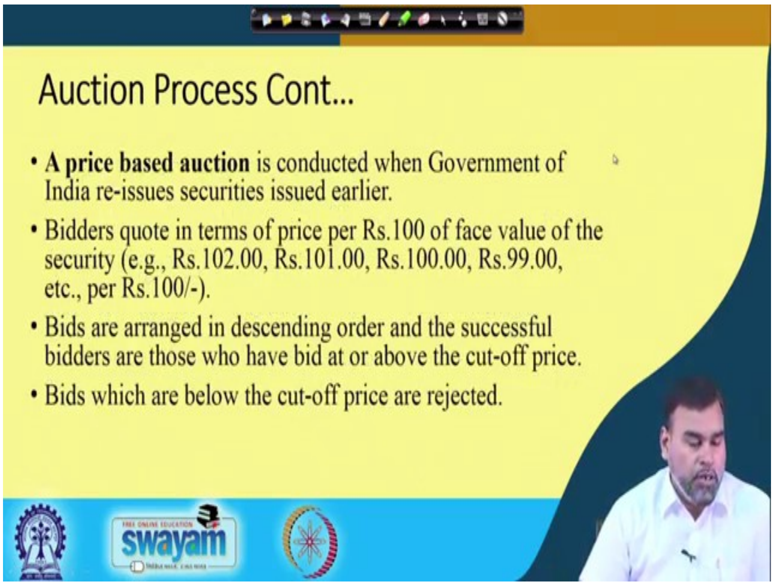

But whenever they will go for the price based auction that if any government securities are reissued in the market so the price and the yield goes inversely. So, here whatever price bids the commercial bank will do; the price bids will be done in the descending order. That means, what do mean by this price? The price is how much money the commercial banks are ready to pay against that particular bonds.

So, this bids are arranged in the descending order and the successful bidders are those who have the build at above the cutoff price. Above the cutoff price and bids which are below the cutoff price will be rejected and this much money basically the banks are ready to pay to invest in that particular bond. So, because of that the yield end price which basically moves in the different direction. And this is the way the bids are basically done. And already I told you that this particular bids are calculated on the basis of the descending order whenever it is a price based auction.

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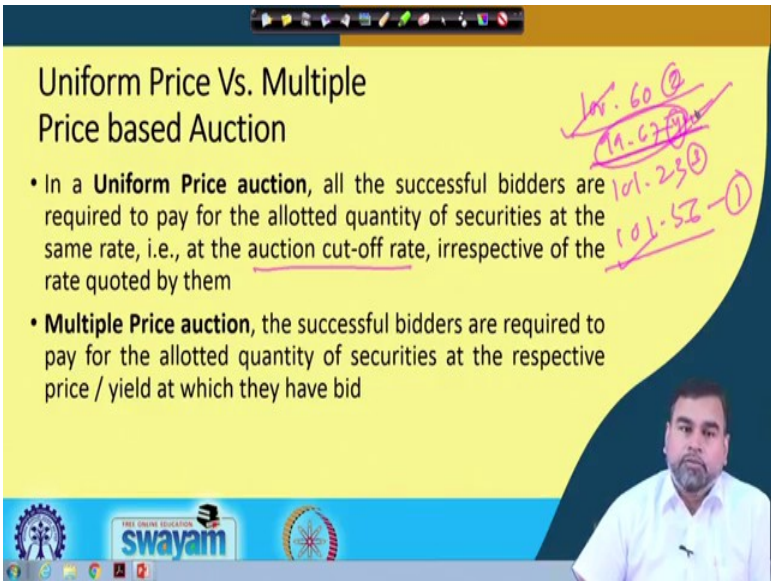

And again if you see that the auctions can be uniform price versus the multiple price. What is the meaning of that? The meaning is for example, if you see the prices bids are like this. Let bank A 100.5, Bank b has quoted for a 99.8, bank C has quoted for 100.675 then a bank D has gone for the 101.6 so like that. So, we have arranged it 101.60 two decimal points.

Then you have 100 101.60 99.67 101.23 101.56 for example. Then we will arranged it; obviously, this is number 1, this is your number 2, this is number 3, this is number 4, let what is the cut off? The cutoff was basically the lowest one that is basically your 99.67. So, here the question is, but this bank has gone for bidding 101.56 this bank has gone for 100.60 and this bank is going to get at a price of 99.67. And the question is what price will be charged on this banks. So, if it is the uniform price based auction then what is happening?

Whatever is the cutoff price everybody will get the allotment and that price. If the cut off price is 99.67 then even if this bank has bidded for 101 and this bank has bidded for 100 the price basically will be charged on them is 99.67 that is called the uniform price. The successful bidders are required to pay for the allotted quantity of securities at the same rate and that is the cutoff rate irrespective of the rate quoted by them.

So, once the cutoff rate is decided whatever rates they might have bidded that is a different issue, but the particular allotment will be made on the basis of the cutoff rate which was decided by RBI on the basis of the auction process. But if it is a multiple price based auction then what is happening whatever price you have bidded the same price you have to pay. If this bank has bidded 101.56 then they will get this treasury bills at a price of 101.56 and this one will get 99.67.

So, therefore, from the beginning it should be clear that whether it is a uniform price based auction or it is a multiple price based auction. So, if there are some issues related to both multiple price based auction and the uniform price based auction. But these are the two ways the auction can be taken place or these are the way basically. It is clear that whether what kind of process we are going to follow whenever the final price allotment or price basically will be imposed upon the securities what we are allotting that actually we have to keep in our mind.

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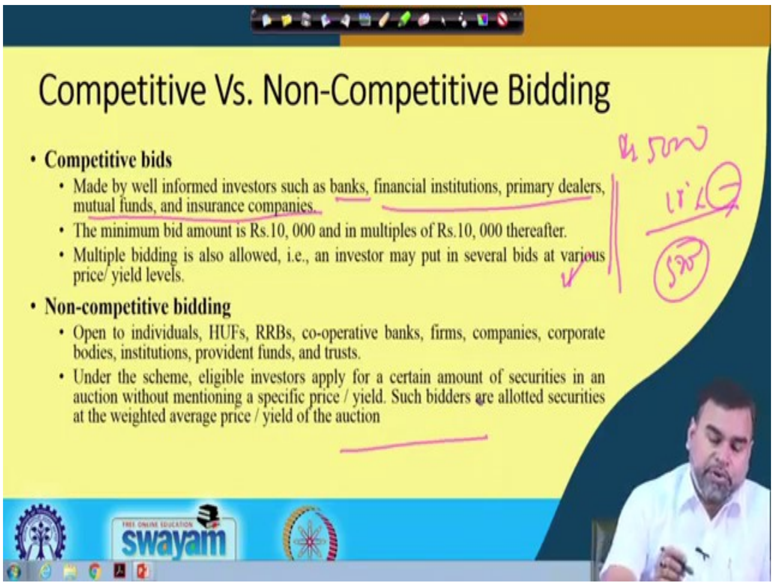

Then whenever we go for the bidding; we have two types of biding; we have competitive bidding, we have noncompetitive bidding. What do you mean by competitive bidding? The competitive bidders are the banks, financial institutions, primary dealers, mutual funds, insurance companies. The minimum bid amount is 10000 and in the multiple of 10000 thereafter; multiple biddings also allowed and investor may put in several bids at various price or the yield.

One investor can go for the different price quotations that is also allowed in the competitive bidding and why there is a concept called non competitive bidding? The non competitive bidding are open to the individuals, Hindu undivided families, regional rural banks, cooperative banks, firms companies institutions, provided fund trust who are not able to participate in the process because these are basically bigger organizations who has lot of competence in term of the bidding process.

So, certain percentage of the total fund is always reserved for the non competitive bidders. And whatever prices are determined through the competitive bidding the same price or same yield will be charged upon the non competitive bidders. For example, the total amount was 5000 crore let 10 percent will be reserved for them with the 10 percent is 500 crore, which is reserve for them then whatever price will be decided from this process the competitive bidding process the same price will be imposed upon the non competitive bidders.

Let 5.498 which was the cutoff yield then the 7.49 yield will be also always applicable for the non competitive bidders. So, under this scheme eligible investors apply for a certain amount of securities in an auction without mentioning the specific price of the yield such bidders are allotted securities are the weighted average price or the yield of the auction whatever auction price are cut off yield will be decided accordingly the allotment will be made.

And again in the product basis these are 4 5 investors who are bidded for this then everybody we will get some chunk of that particular or some amount of that particular available securities in that particular slot. So, this is what basically the non competitive bidding which happens in the treasury bill market.

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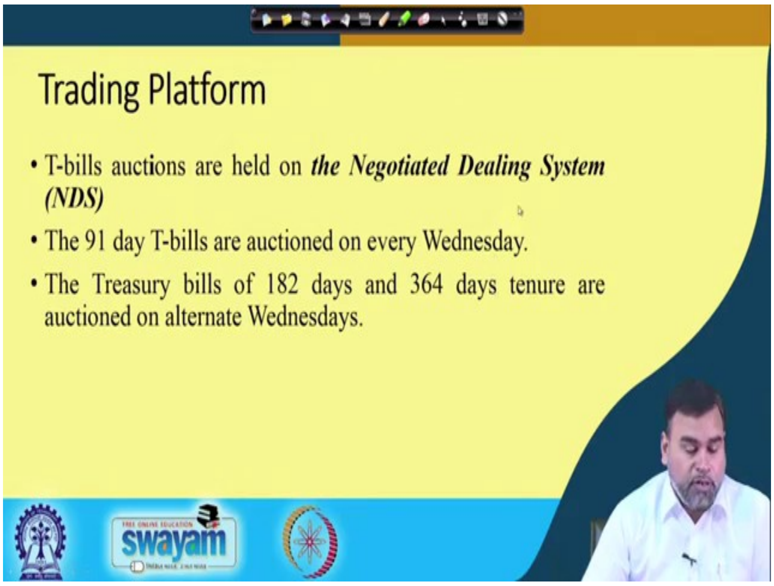

The trading platform for the treasury bill is the auctions are always carried out in the negotiated dealing system. And the 91-day treasury bills are auctioned on every Wednesday and the treasury bills have 182 day and 364 days are auctioned on alternative Wednesday. So, every week in the 91 treasury bills are auctioned, but every 15 days the 182 days and that is 364 days are auctioned. So, these are the auction which takes place.

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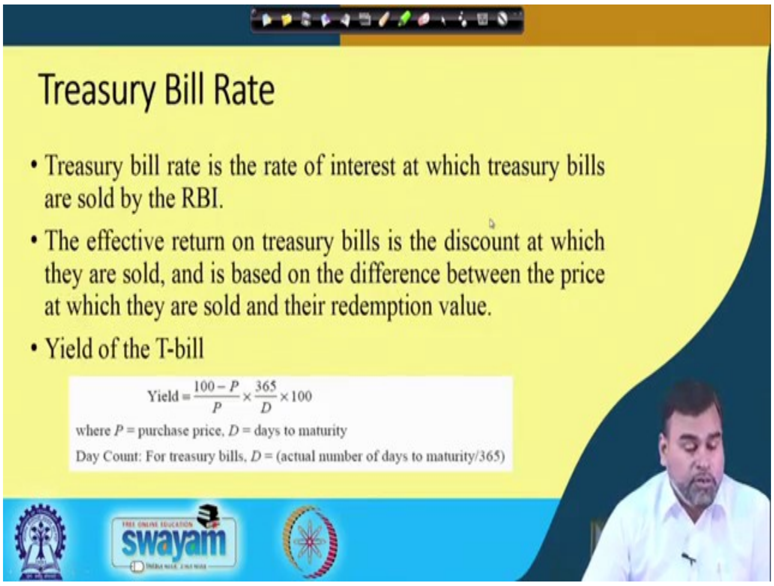

How the yield of the treasury bill rate is calculated? It is basically the discount at which they are sold the calculation is based on the difference between the price at which they are sold and the redemption value. So, if you want to calculate the yield of the treasury bill is nothing, but if the pair value is 100 then it is

$$\frac{100-P}{P}\times\frac{365}{D}\times100$$

D means the days to maturity. So, P is the purchase price, D is the days to maturity and D is nothing, but the actual number of days to maturity divided by the 365 days. So, if you see this example then you can come to know that how this treasury bill is calculated.

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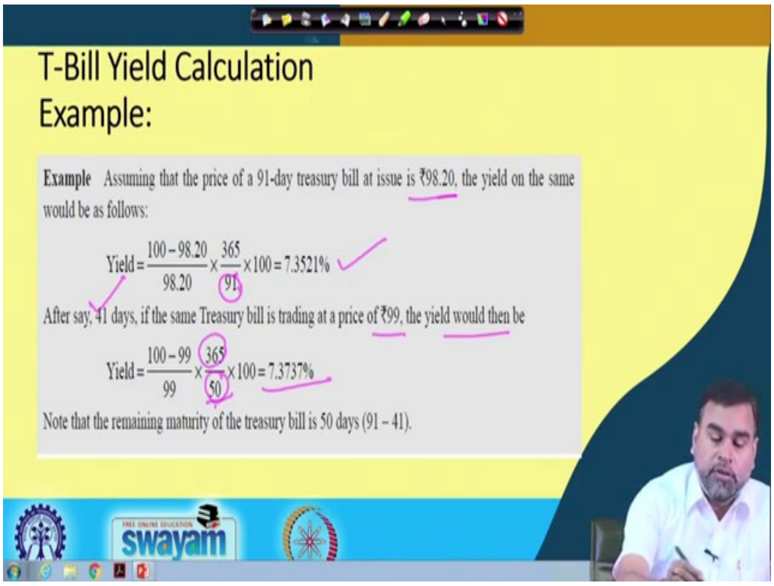

Assume that the price of a 91 day treasury bill is 98.20 rupees yield on the same would be 100 minus 98.20 divided by 98.2 into 365 by 91 into 100 that is 7.3521 percent. For example after 41 days if the same treasury bill is trading at a price of 99 in the market; then what is the yield? The yield will be

$$\frac{100-99}{99}\times\frac{365}{50}\times100$$

50 because already 41 days are over. So, days to maturity is only 50 days remaining because total maturity is 91, 91 minus 41 that is 50 then the yield become 7.373 and 35 percent. So, that actually you have to keep in the mind; on that days versus trading price and how much day’s maturity is remaining those are the factors which is deciding the yield of that particular

treasury bill on that particular day. So, this is the way the treasury bill yields are calculated in the market.

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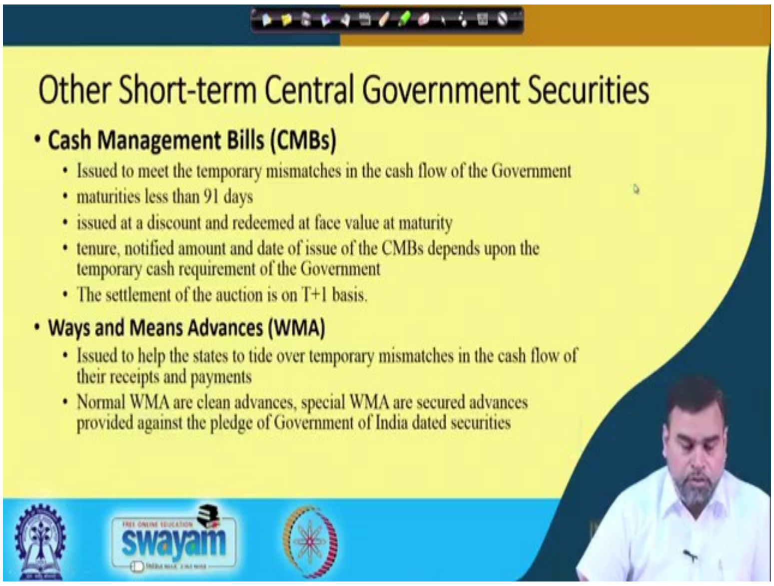

So there are two other instruments already told you one is cash management bill. This is basically issue to made the temporary mismatch of the cash flow of the government maturity period is less than 91 days. Issued at discount and redeemed that face value same thing with the treasury bills. The date of issue notified amount tenure depends upon the temporary cash requirement. It is not periodical or it is not regular the settlement of that auction is taken place in T plus 1.

And ways and means advances this is basically to help the states to cover the temporary mismatches in their cash flow. And these are the clean advances there are normal ways and means advances and there are special as means advances. Ways and means advances in terms of the normal category or the clean advances the loans which are taken from RBI. And the special agent means advances are basically secured advances which provide this the collateral which are nothing, but the government of India dated securities.

So, the collaterals or the mortgage is basically whatever government of India dated securities these state governments that can be used as the collateral. So, these are the some of the other government short term securities which are available for some specific reasons or to fulfill the short term requirements of the government. So, this is about the different short term securities which are issued by the government or on behalf of the government RBI issues that. Then we will discuss the other short term securities which are available in the market in the next class.

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Please go through these particular references for this particular session.

Thank you.