Security Analysis & Portfolio Management
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Lecture: 09
Money Market Instruments, Bond Terminology

Welcome back. So, towards the end of the last lecture, I introduced the concept of money markets. Money markets are those markets, in which we have lending and borrowing and trading in financial instruments with maturities of 1 year or less than 1 year.

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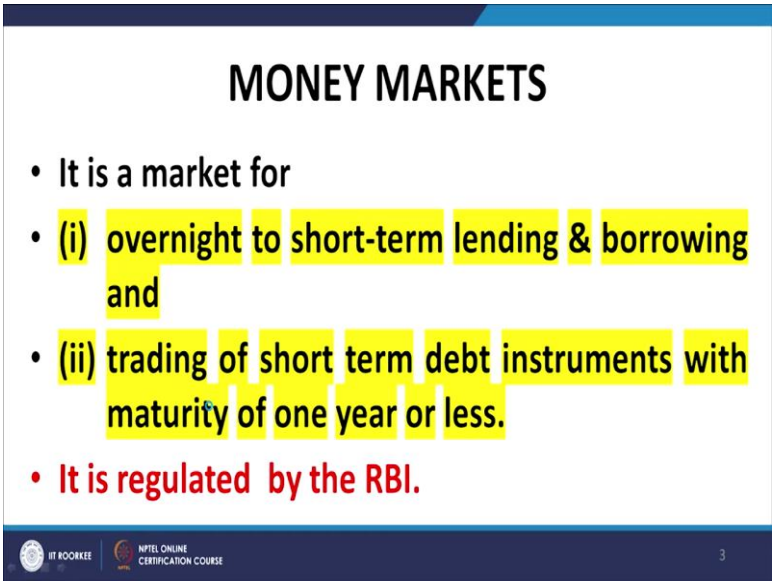

So, money market is a trading marketplace for short-term financial instruments where we have lending and borrowing of money with maturities of less than or equal to one year.

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The participants in the money market include the Reserve Bank of India, commercial banks, financial institutions, FIIs or foreign institutional investors, mutual funds, brokers, and large corporate houses.

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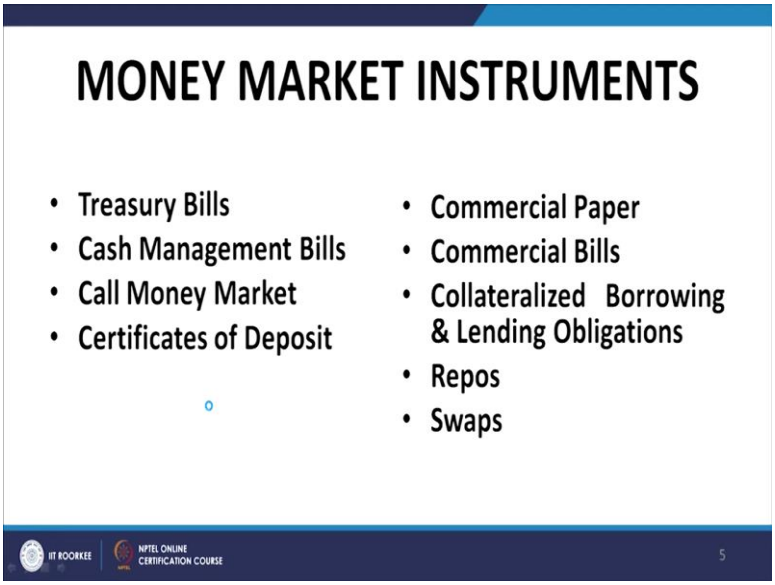

Typical money market instruments: The most important are the treasury bills, I shall talk briefly about them, cash management bills, call money market (that is a segment of the money market where short term funds trading between banks or lending and borrowing of money takes place, we will come back to it), certificates of deposits (negotiable instruments issued by banks, and financial institutions), commercial paper (which are instruments usually issued by high creditworthy corporate houses and privately placed with banks or financial institutions, again, we will come back to the), commercial bills, collateralized borrowing, and lending obligations, repos, reverse repos, and swaps.

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But before we got into these instruments in detail, I also introduced the concept of the various yield measures that are relevant to investments in the money market. Let us recap some of them. Before I get into that, the instruments that are traded in the money markets are of two types:

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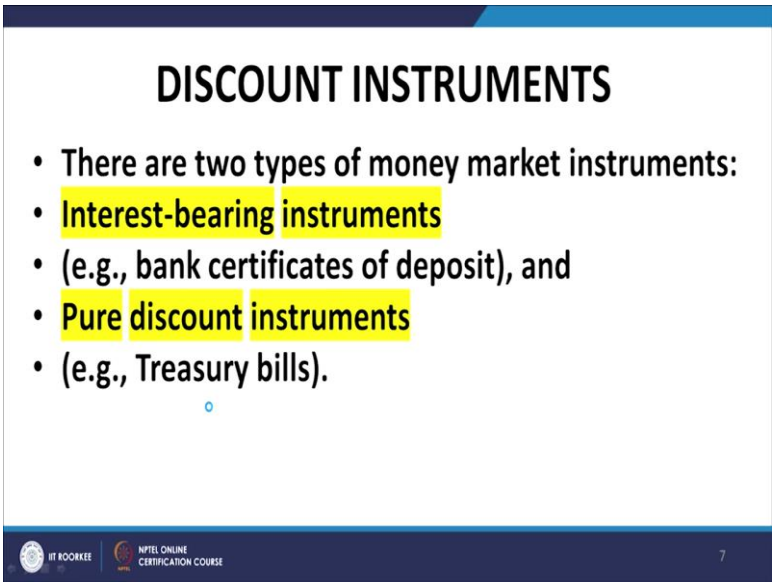

First type are the discount instruments, where the instruments are issued at a discount to face value and they are later on redeemed on the maturity date at face value. The other type of instruments are the conventional instruments, which are issued at face value and redeemed at face value plus the interest payable for the period of holding thereon.

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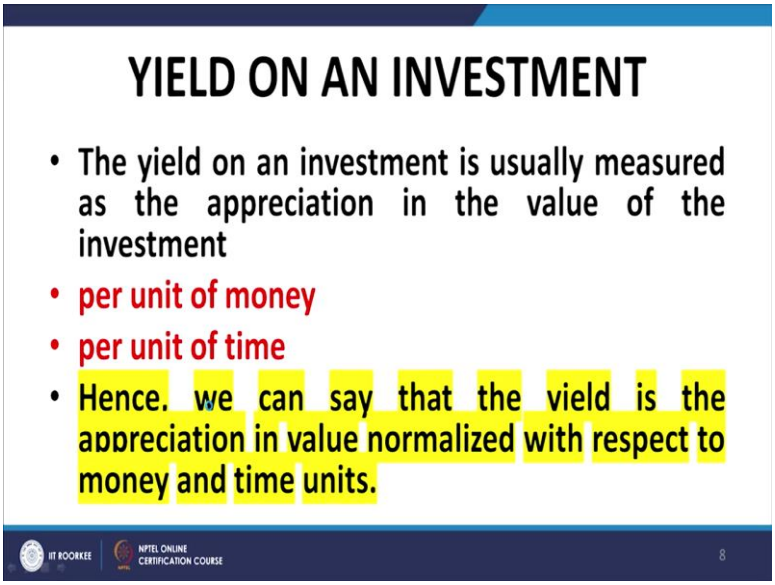

Before I get into the measures of yield, let us recap on what exactly we mean by yield. Now, the yield on an investment is usually measured in terms of the appreciation of the value of the investment per unit of the value of investment, and per unit of time. So, there are two normalizations that are carried out when we convert the appreciation in value into a yield that is, firstly, we convert it to a per unit of money basis, and then we also convert it to a per unit of time basis. So, a normalization in terms of money and normalization in terms of time, both types of normalization are carried out when we define a measure of yield.

Now, based on the approach to normalization that we adopt, the yield measures in money markets are divided into four measures. Let us recap these four measures.

The first is the discount yield. The discount yield is more applicable to discount instruments like the treasury bills. Therefore, it is sometimes called the T-bill yield. In the case of discount yield, the normalization with respect to money, that is, when we compute the return per unit of money, the normalization or the denominator is the face value of the instrument, it is the redemption value of the instrument rather than the initial value of the instrument at which the position was taken or the investment was made.

So, that is one speciality of this particular measure. The second speciality is that normalization with respect to time is carried out on a 360-day year basis and not the 365-day year conventional basis. The third feature of this particular measure of yield is that it is computed on a simple interest basis, no account is taken of compounding of interest. So, these are three special features of discount rate. The money normalization is carried out with

respect to the final value of the investment and time normalization is carried out with respect to a 360-day year.

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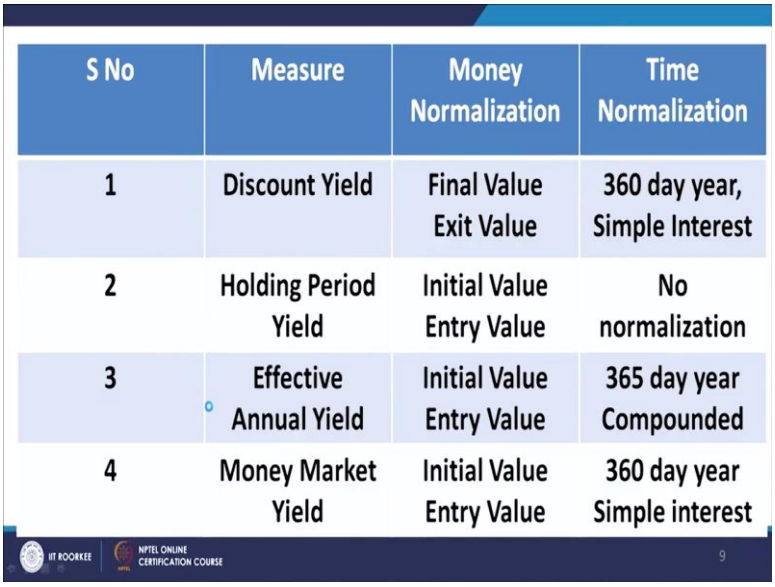

Then we have the holding period yield. In the holding period yield, the money normalization is carried out with respect to the initial value of the investment i.e. the amount at which the investment has been made or the entry value of the investment and there is no normalization with respect to time. In other words, it is the actual yield for the period of holding without any extrapolation to yearly basis. So, that is one drawback of the holding period yield, but it does give you the appreciation of wealth per unit of money. However, it is measured only over the period of holding without any annualization.

Then we have the effective yield which takes into account all the three shortfalls of the discount yield. It uses money normalization with respect to the initial value of the investment (as indeed it should be) or the entry value of the investment i.e. the price at which the investment has been taken up and not on the basis of the final value (as in the case of the discount yield). The second thing is, it also takes into account that one year is equal to 365 days. So, it is normalized with respect to time on the basis of a 365-day year. The third feature is that it also takes care of the compounding.

Money market yield involves normalization with respect to the initial value or the entry value of the investment, or the price at which the investment has been made. However, it normalizes with respect to time, on the basis of a 360-day year, and it uses only the simple interest based extrapolation to a per annum basis not the compounding factor.

I have tabulated the features of all the yield measures in this slide. These are the three distinguishing factors of the various measures of yield.

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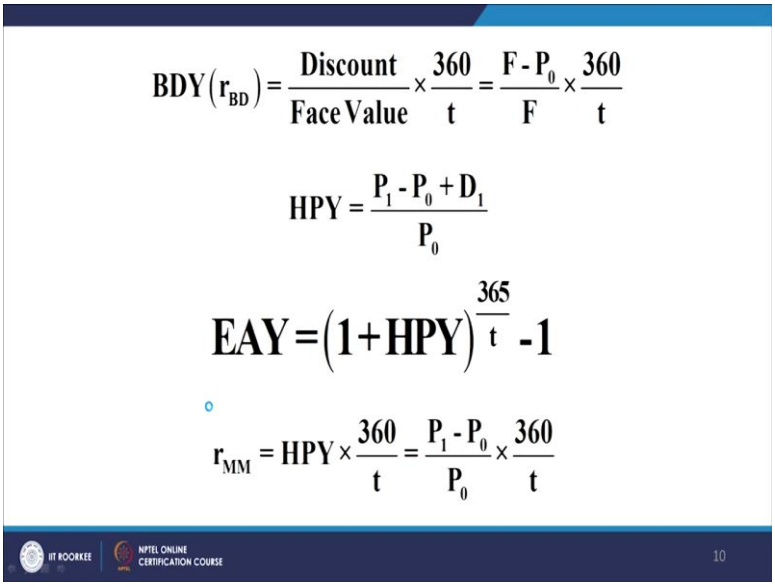

The above slide gives the formula for the various measures of yield. You can easily see that in the case of the discount yield, which is also called the bankers discount rate or the T-bill yield, the value appreciation is normalized with respect to the face value (which is the final value of the treasury bill or the redemption value of the treasury bill) and on a simple interest basis.

For the holding period yield, the formula is more or less the same except that the normalization is with respect to the entry value of the investment i.e. the price at which the investment is made rather than the redemption value.

The effective annual yield, as you can see, takes care of the 365-day year factor, it is extrapolated on the basis of a 365-day year, and it also takes care of the compounding of the returns over the annual period which is 365 days incidentally.

The money market yield computes the annual yield i.e. annualization is done, but it is done on the basis of a 360-day year and it is done on that simple interest basis. So, these are the special features.

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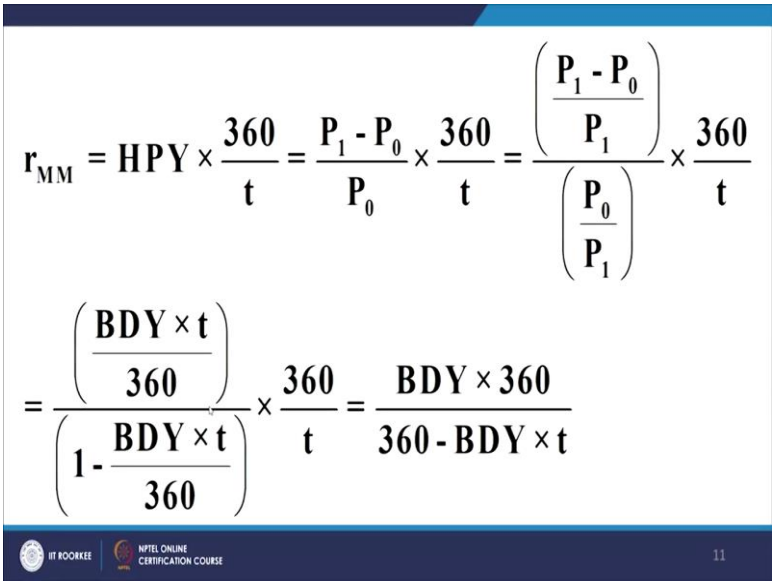

This slide brings to you the relationship between the money market yield and the discount yield.

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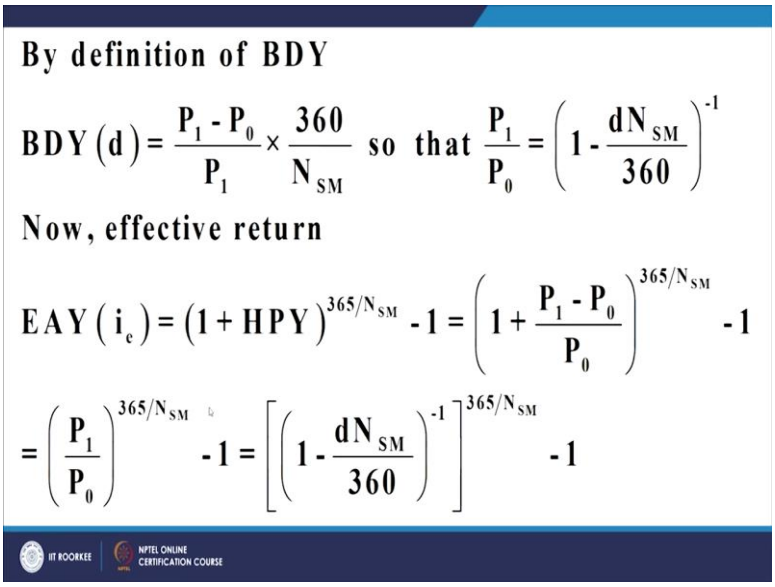

And this slide brings to you the relationship between the discount yield and the effective annual. The computation of this formula is pretty much straightforward algebra and so we will not devote time to this.

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Let us move on to money market instruments. Now, here again, I will not devote too much time to this. I shall largely read from the slides that follow because there is little to explain and secondly, this is not the thrust area of the course. So, just for the sake of completeness, we will go through the salient features of the money market instruments.

The first instrument is the treasury bills. Treasury bills are short term instruments. They are auctioned by the Reserve Bank of India on behalf of the Central Government. The redemption of the treasury bills is guaranteed by the Central Government. T-Bills are short term instruments issued by the Central Government and auctioned by the Reserve Bank of India on behalf of the Central Government to tide over short term liquidity shortfalls in the government treasury.

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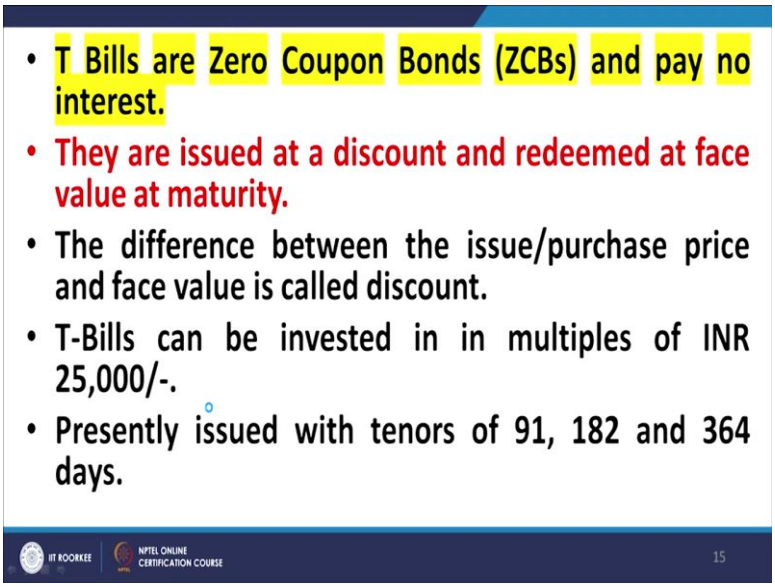

They are zero-coupon instruments that are issued at a discount and redeemed at the face value with no intermediate coupon payment. I repeat, they are issued at a discount and they are redeemed at face value without any intermediate coupon payments. So, the difference between the discount and the face value (which is the redemption value), constitutes the return to the investor and it is called the discount.

The T-bills are issued in denominations of INR 25,000. Investments can be made in multiples of INR 25,000, and multiples thereof. Presently the instruments are issued with maturities of 91 days, 182 days, and 364 days, and the auction is done by Reserve Bank of India on every Wednesday, the 91-day T-bills are auctioned every Wednesday. The other two T-bills are auctioned at every alternate Wednesday, with alternation between the 182-day T-bills and the 364-day T-bills.

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Major participants in the T-bills market are Reserve Bank, the State Governments, the Central Bank of Nepal, commercial banks, financial institutions, mutual funds, and primary dealers. What are primary dealers? I will come back to this in a minute.

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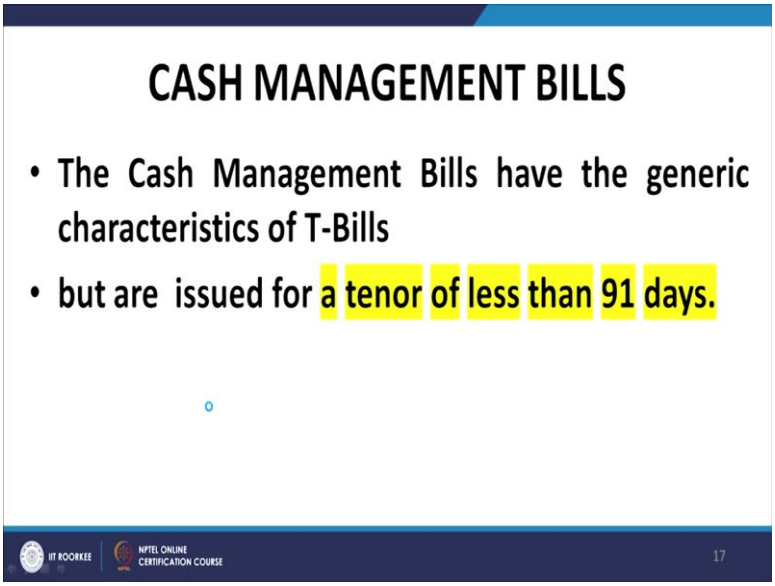

Cash management bills are similar to treasury bills, but they have maturities of less than 91 days. So, these are very short-term instruments which are issued by the Central Government to tide over very short-term liquidity crisis.

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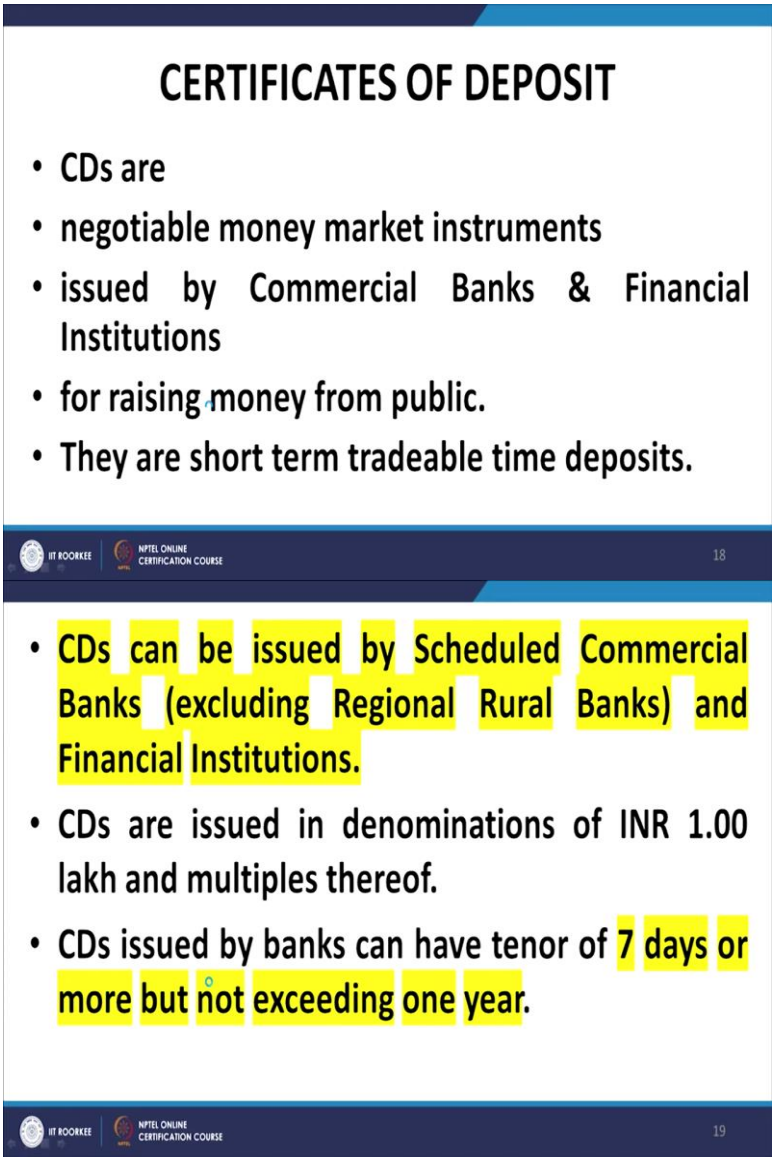

Then we have certificates of deposit (CDs). Certificates of deposits are negotiable, money market instruments, which are issued by commercial banks and financial institutions. They are issued to the public for raising funds by the issuing entities which are commercial banks and financial institutions. They are tradable time deposits in a sense, the maturities ranging from 7 days to 1 year.

Now, CDs can be issued by scheduled commercial banks (excluding regional rural banks (RRBs)) and financial institutions, as I just mentioned. They are issued in denominations of rupees 1 lakh and multiples thereof. And as I mentioned, they can have maturities ranging from 7 days to 1 year.

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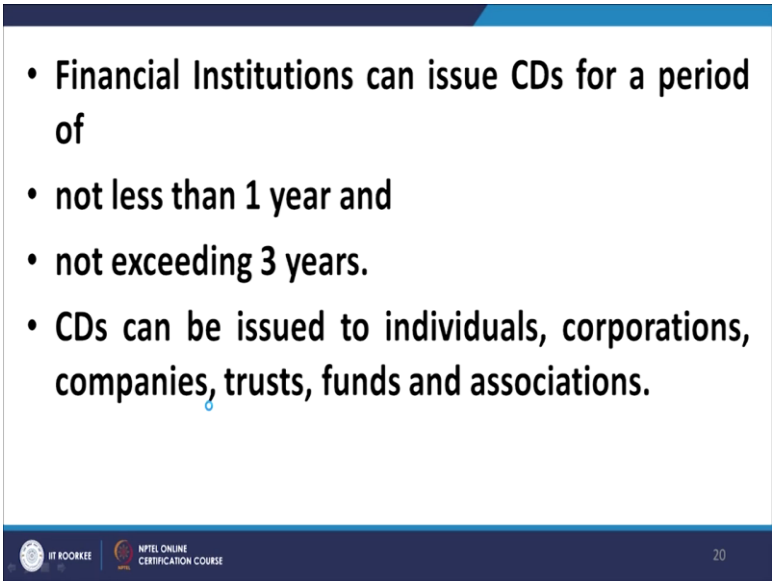

Financial institutions can issue CDs for a period of not less than 1 year, not exceeding 3 years. And CDs can be issued to individuals, corporations, companies, trusts, mutual funds, and associations.

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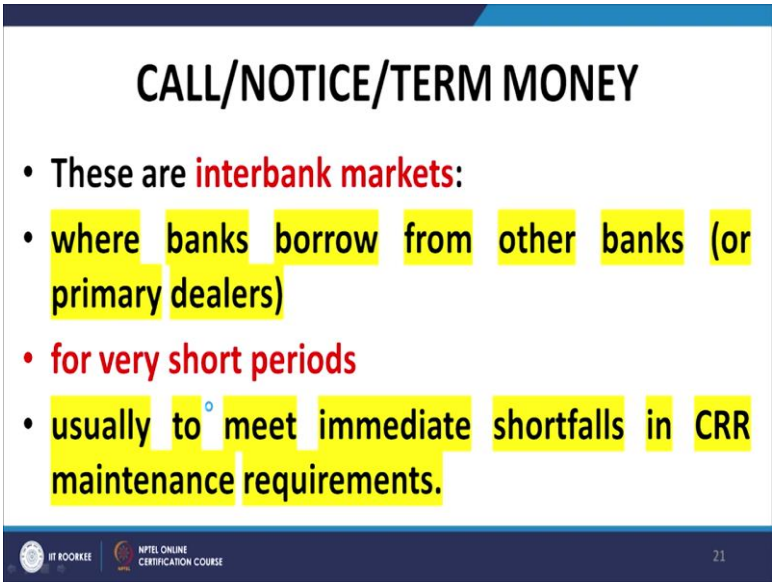

Call/ notice/ term money markets are segments of the interbank market. They are all different segments of the interbank market, where banks lend and borrow amongst themselves to tide over short term crisis arising from shortfalls in the CRR requirements of the Reserve Bank of India. They borrow for a short period. Call money relates to borrowing or lending between banks for overnight periods, that is up to the next day or 1 day. For borrowing from 2 days to 14 days, the market segment is known as the notice money market. For larger maturity

borrowing and lending, the market is known as the term money market. Maximum period for which borrowing can be made in this particular market is one year.

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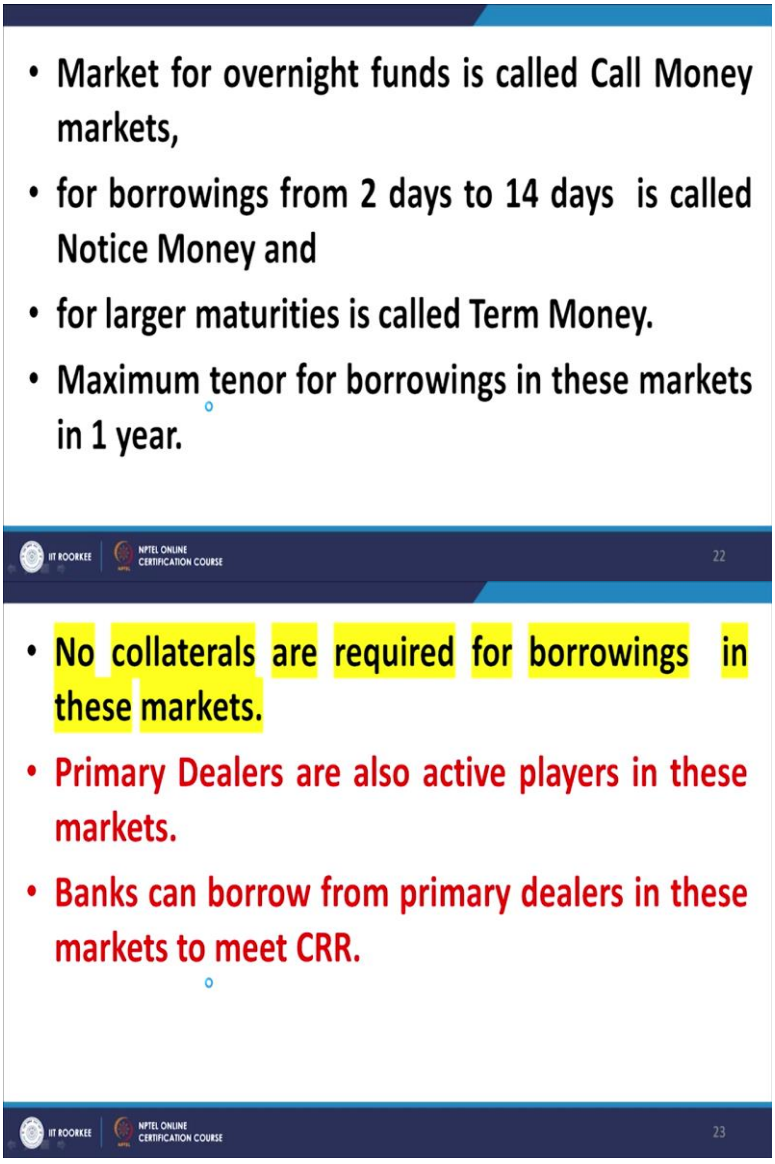

The important feature of these markets is that no collateral security is required for borrowings in these particular markets. I reiterate, no collateral securities are required for borrowings in these.

Primary dealers are also active players in these markets and banks can borrow from primary dealers in these markets to meet their CRR requirements, as I mentioned. In fact, this is the main reason why banks approach call money market. When banks find that their CRR is turning out to be short of the RBI guidelines, they approach the banks which have surplus of

funds and borrow money for very short periods of time to tide up their CRR requirement and thereby avoid default on this issue. Now, what are primary dealers?

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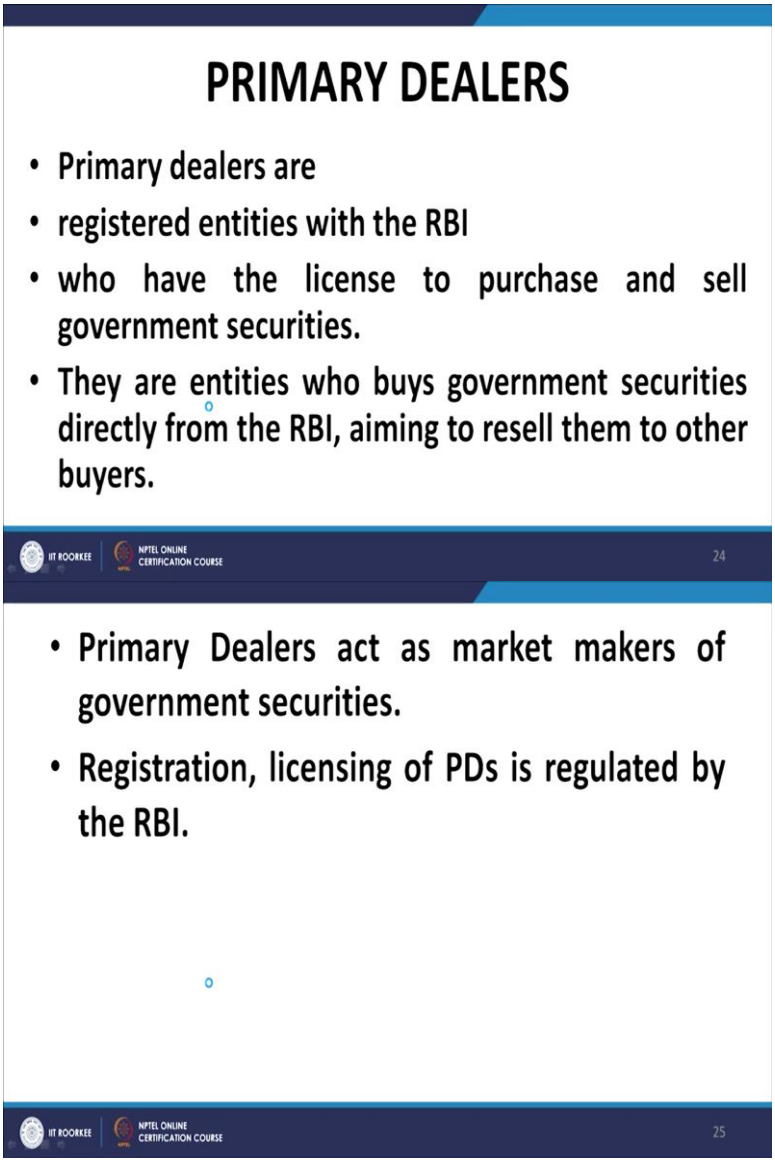

Primary dealers are registered entities with the Reserve Bank of India who have the license to purchase and sell government securities. They are entities who buy government securities directly from the Reserve Bank of India under the auction usually carried out on the National Dealing System (NDS) and these securities are then sold by the primary dealers or offloaded by the primary dealers in the money markets, to the money market investors.

Primary dealers act as market makers for government securities. In other words, they provide quotes for both, the purchase and sale of government securities and thereby provide liquidity to these securities. This is, in fact, the primary objective of registering primary dealers. The

primary dealers create some kind of liquidity for the government securities by providing two-way quotes at all points of time. Registration, licensing of primary dealers is done by the RBI.

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Participants in the call money market include the Reserve Bank, scheduled commercial banks, cooperative banks, land development banks, and primary dealers.

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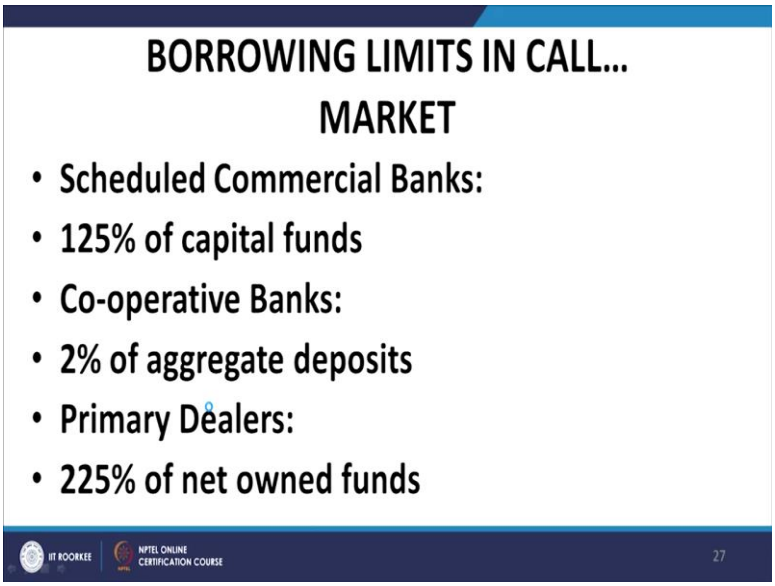

Borrowing limits in call markets are given in this slide. Scheduled commercial banks can borrow up to 125% of their capital funds. cooperative banks can borrow up to 2% of their aggregate deposits, and primary dealers can borrow up to 225% of the net owned funds.

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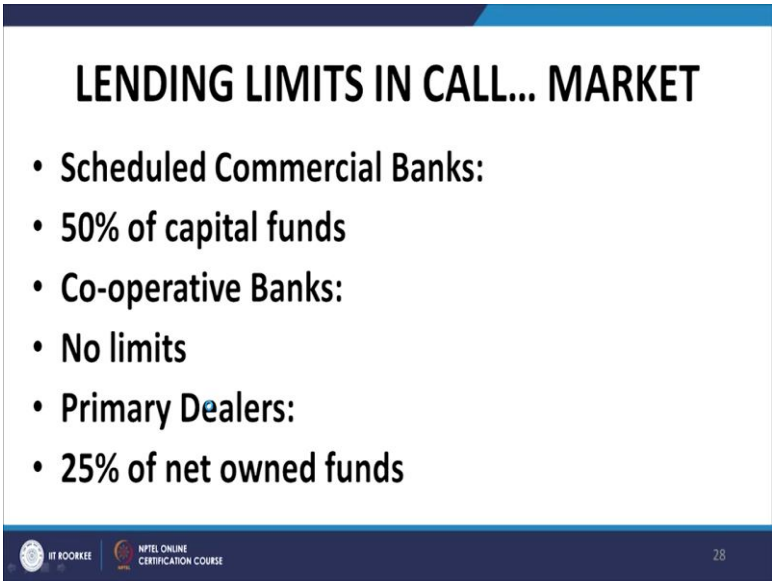

As far as the lending limits are concerned, scheduled commercial banks can lend up to 50% of capital funds. Cooperative banks have no limits to the amount they can lend, and primary dealers can lend up to 25% of their net-owned funds.

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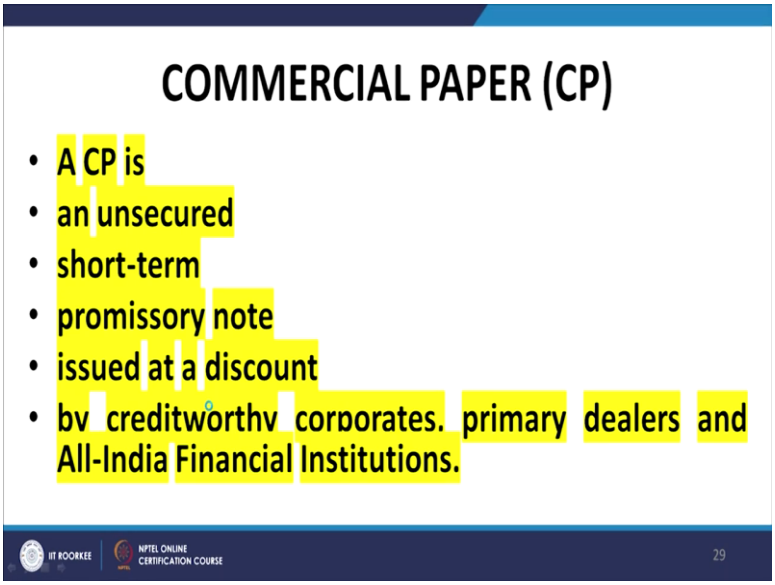

Then we have commercial paper. Commercial paper is an unsecured short-term promissory notes issued at a discount by creditworthy corporates, primary dealers, and all India financial institutions. So, they are negotiable instruments which are issued at a discount usually by corporates, although primary dealers and financial institutions also have the right to offer commercial paper.

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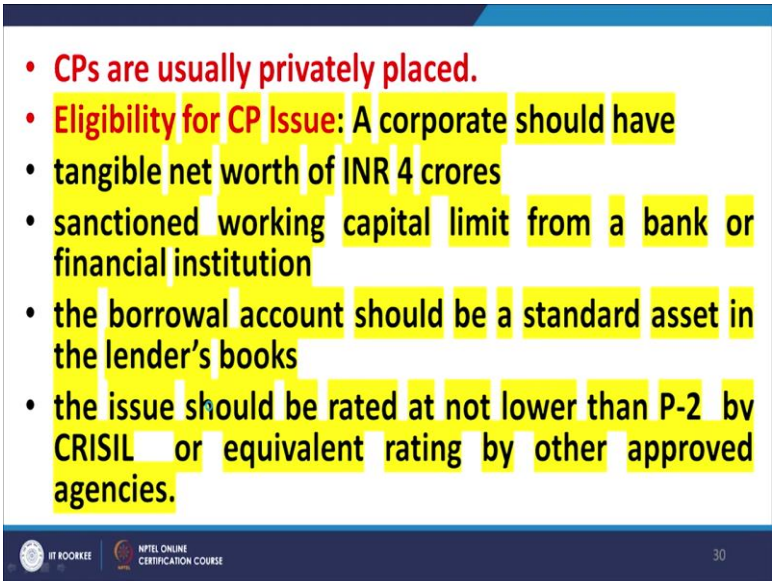

This particular instrument is usually privately placed. It is not issued as a public offer. The eligibility for a CP issue is: (i) corporates should have a tangible net worth of not less than 4 crores, (b) issuer should enjoy sanctioned working capital limit from a bank or a financial institution, (c) the borrowal account should be a standard asset in the lenders books (that means there should be no default as far as the borrower account is concerned, it should not be classified as a non-substandard asset or a non-performing asset), (d) the issue should be rated not lower than P-2 by CRISIL or equivalent rating by other rating agencies, which are approved for this purpose.

So, let me repeat, (i) corporate should have a tangible net worth of INR 4 crores or more, (b) corporates should have sanctioned working capital limit from a bank or a financial institution. (c) the borrowal account should be regular, that is, it should be a standard asset in the books of the lender and (d) the issue should be rated at not lower than P-2 by CRISIL or equivalent rating by other approved agencies. Maturity of the CP should not be less than 7 days and should not exceed 1 year. Although it is usually between 3 and 6 months. CPs are issued in denominations of rupees 5 lakhs or multiples thereof. CPs can be issued to individuals, banks, corporates, NRIs, FIIs etc although they are usually privately placed.

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- Maturity of CP should not be less than 7 days or exceed one year.
- The maturity of CP is usually between 3 and 6 months
- CPs are issuable in denominations of INR 5 lakhs or multiples thereof.
- CPs can be issued to individuals, banks, corporates, NRIs, FIIs etc.

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COMMERCIAL BILLS (BOE)

- Bills of Exchange (BOE)
- are negotiable instruments
- drawn by the seller of goods or services (drawer) on the buyer (drawee)
- for the value of goods sold or services rendered.

- Such bills
- contain an unconditional order
- by the drawer to pay to or to the order of the seller,
- a certain sum of money
- on a specified date and other terms.

Commercial bills now, or bills of exchange. Bills of exchange are also negotiable instruments. A bill of exchange is an unconditional order, which is drawn by the seller of goods (who is called a drawer), on the buyer of goods (the drawee) instructing the drawee to transfer a stated sum of money at a stated point in time to the seller or to the order of the seller (payee). This bill is usually sent to the buyer of the goods either through a bank or directly and the buyer of the goods gives an unconditional acceptance on the bill. When the seller receives the unconditional acceptance on the bill of exchange, he releases the documents of title to the goods to the buyer. On the basis of these documents of title, the buyer can take physical possession of the consignment.

So, this is the standard procedure that is followed insofar as the bill of exchange is concerned. When these bills are discounted with the bank by the seller, these bills are termed as commercial bills.

So, let me quickly repeat once again, a bill of exchange is a negotiable instrument which is drawn up by the seller of goods in favour of the buyer of goods, instructing the buyer of goods, or making an unconditional order on the buyer of goods to pay a certain sum of money to either the seller of goods, that is, the drawer of the bill or to the order of the seller to any other party, at a certain point in time which is specified in the bill.

When the buyer of the goods receives the bill, through whatever channel it may be, he puts his unconditional acceptance thereon and returns it to the seller of goods. On receipt of this acceptance, the seller of goods forwards the documents of title to the goods to the buyer, and the buyer can claim physical possession of the goods from the transporter.On the due date of the payment, the bill is presented to the drawee (acceptor) whence he makes the payment to the payee of the bill.

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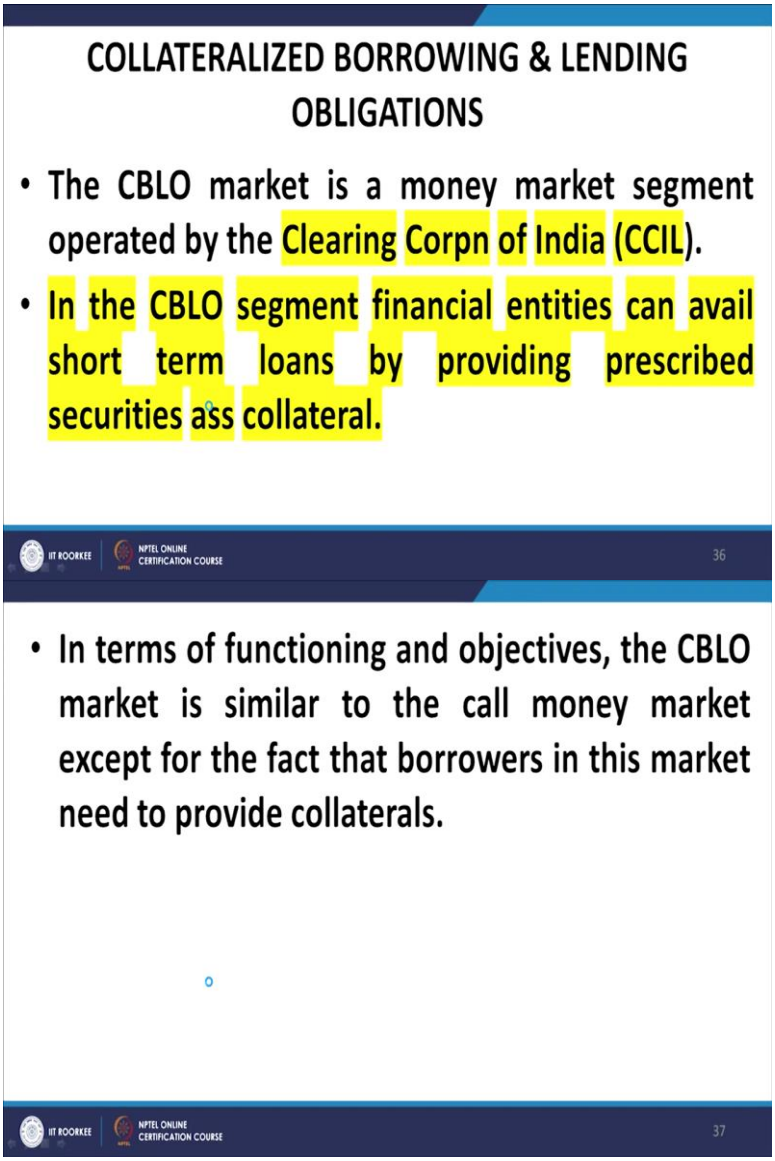

Collateralized borrowing and lending obligations is a money market segment, which is administered by the Clearing Corporation of India. The objective of this segment is pretty much similar to that of the call money market, except for the fact that entities that are not eligible to borrow in the call money market can approach this segment. However, in this segment, the parties can borrow only against collaterals comprising of eligible instruments.

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Participants in the CBLO market are entities who have no access or restricted access to interbank call money market and include nationalized banks, private banks, foreign banks, cooperative banks, insurance companies, mutual funds, primary dealers, NBFCs, large corporate houses, provident and pension funds. So, these are the participants in the CBLO market, which is administrated by the Clearing Corporation of India In the CBLO market, borrowings by these entities can be taken up, but only against the security of eligible financial instruments.

Then, we come to repos and reverse repos. Repos are re-purchase transactions, where usually a bank which is short of funds to meet certain obligations approaches the Reserve Bank of India for funds against the sale of specified or eligible securities with the condition and agreement to repurchase the same securities at a later date. So, it is a two-way agreement. In the first leg of the transaction, the bank who is to borrow, sells securities to the Reserve Bank of India and Reserve Bank of India replenishes funds to the to the borrower. But there is also a second leg of this agreement, which is also agreed upon at the same point in time at which the initial agreement is entered into. The second leg of the agreement stipulates that at the agreed upon future date, the commercial bank i.e. the borrowing bank shall repurchase the securities at the pre-determined price from the RBI. So, it is a two-way transaction. Firstly, the borrower sells securities to the Reserve Bank of India and then the Reserve Bank of India sells securities back to the borrower. The difference between the two prices would naturally constitute a return to the lender of money, that is, the Reserve Bank of India. If this transaction was to operate in the reverse direction, then it would be called a reverse repo.

So, in the reverse repo, what would happen? The Reserve Bank of India would borrow money from the commercial bank against the sale of securities with the undertaking to buy back those securities at a later date at a predetermined price. The return on the repos is usually referred to at a repo rate.

So, that is as far as money market instruments are concerned. I have given a brief capsule of the salient features of money market instruments. I repeat, this is not the thrust area of this course. We now come to one of the major thrust areas of this course, which is bond analysis and valuation. So, let us start with the definition of a bond. What is a bond?

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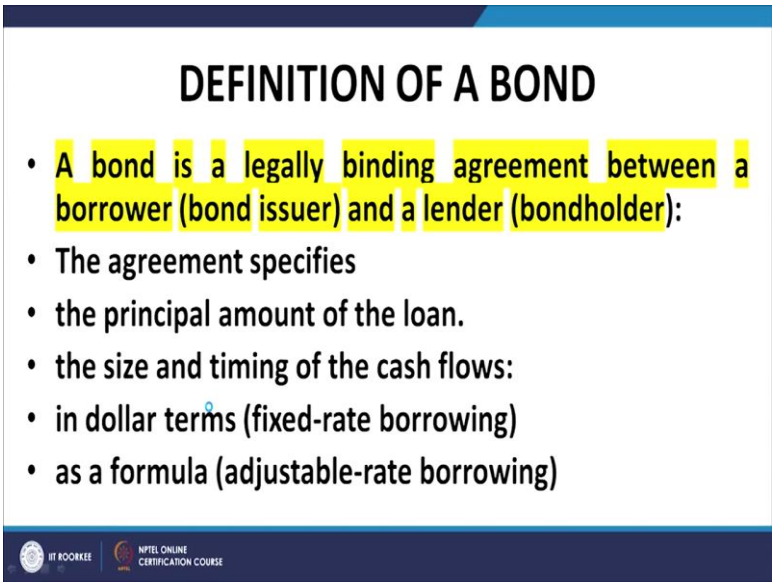

A bond is a legally binding agreement between the borrower i.e.the bond issuer, and the lender i.e. the bondholder of this agreement. So, there is a binding contract, enforceable contract between the borrower and the lender which is represented by the bond. And the agreement specifies the principal amount of the loan, the size and timing of the cash flows in money terms or as percentage of face value, that is, the cash flows/ return/interest on the bond may be specified, either in absolute money terms or a percentage of face value. The cash flows /interest may also be tagged to a particular economic variable like the LIBOR. or certain other interest rates, which are commonly used in these markets, bond markets. But the important thing is either the interest rate is fixed or the rate is floating. Floating, in the sense that it is tagged to the value of another market influenced variable/ economic variable. In such cases, the interest rate may change from one period to another. It is called a floating rate.

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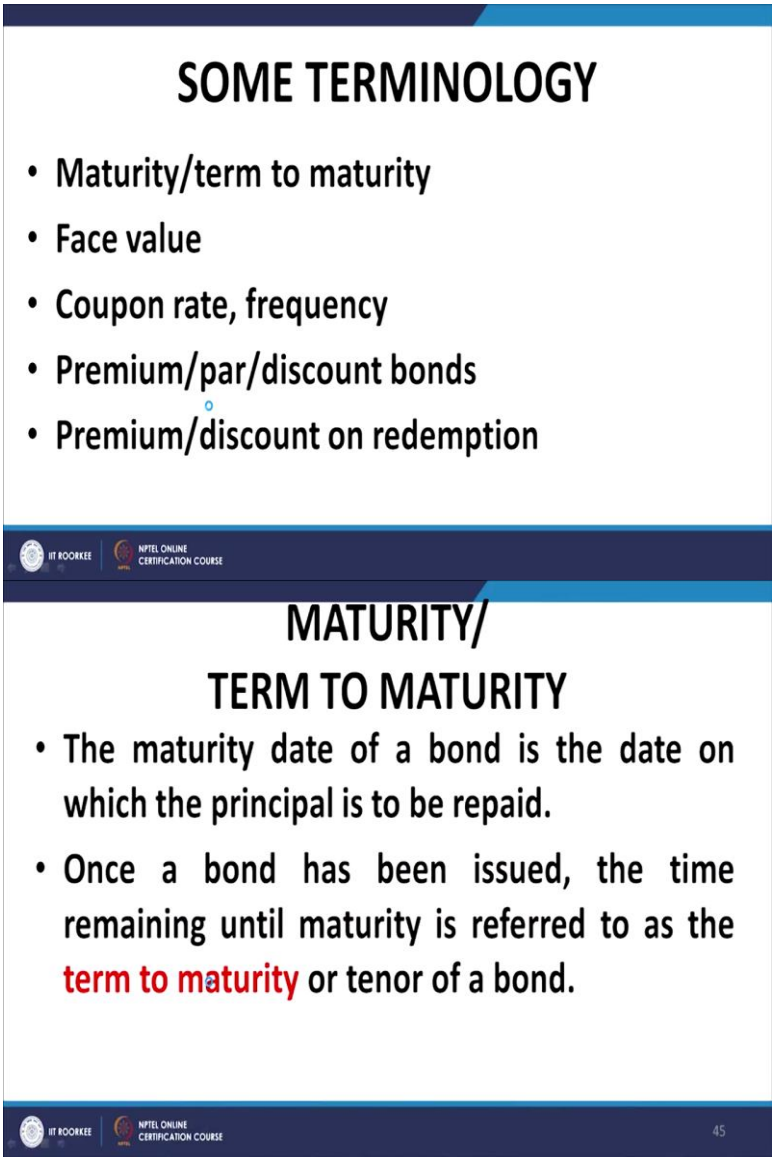

Some terminology: The maturity of a bond is the point in time at which the bond is redeemed or the principal on the bond is repaid, that is, the point in time at which the bond matures for payment is called the maturity. It is the date of expiry of the bond. The time interval remaining between today and the date on which the bond becomes payable for redemption is called the term to maturity.

The face value of the bond is a very interesting term. It is the nominal value of the bond as specified in the contract of issue. The importance of face value is that it is a constant parameter with respect to a particular bond. The amount of interest and the amount of repayment is fixed with reference to the face value. It is this face value that provides the reference for converting percentage to absolute money values. Please note this fact that the face value is not necessarily identical with the price of the bond. It may or may not be identical with the redemption value of the bond. It is a reference value, with respect to which

the interest payments and the final redemption value of the bond is computed or is usually given. So, face value is a very important feature. The important thing to note is that face value is not necessarily the exact redemption value or the price of the bond. It is a certain benchmark, a certain standard value which is mentioned in the contract ab initio and which does not change for a bond. It is a fixed value with respect to the bond and it is with respect to the face value that we calculate the actual cash outflow because of the coupon payments. The coupon/interest payments on the bonds are usually quoted in terms of percentages. So, to convert this percentages to actual money value that has to be paid on account of interest, recourse is taken to the face value i.e. by multiplying the coupon rate and the face value.

Similarly, the redemption value is given in terms of the face value, whether it is above face value, say, 50 percent above face value, or 10 percent above face value or 10 percent below face value or at face value, but the reference point is the face value of the bond.

Coupon rate is the rate of interest i.e. the nominal rate of interest that is specified in the contract of issue. ***It is not the market rate of interest, please note this point. Coupon rate may oy may not equal the market rate of interest. It is the rate of interest at which the bond is issued in the first instance by the issuer. It is fixed by the issuer. It may relate to the market in the special instance of floating rate bonds, that is a separate issue, but it is not obliged to be the market rate or a certain fraction or a certain add-on of the market rate. It is not necessarily so. At a point in time it may or may not be so, but it is fixed by the issuer, it is not fixed by the market. C***oupon rate is the nominal rate of interest. It is the contractual rate. It is the rate that is given in the contract of issue of the bond, the issuing document. For example, if 6% per annum is the coupon rate, it means if the interest is paid annually and if the bond is of face value of 1000, then the bondholder will get 60 at the end of each year.

So, that is how the coupon rate is computed and the relevance of the coupon rate. Then we have the frequency of payment of interest, payment of coupon rate. Usually, bonds in India have semi-annual coupon payments, although this is again not mandatory. The coupon payment or the interest payment may be annual, quarterly, even monthly. Usually, in the context of India, corporate bonds make interest payments on semi-annual basis. So, that is called the frequency of the interest payment or the frequency of coupon payments.

Now, premium, par and discount nonds. As I mentioned, the coupon rate is the rate which is fixed by the issuer of the bonds, not depending on what the market rate of interest is. A bond may be quoting, if the bond is trading in the market, above its face value or below its face

value or at face value. We will come back to this in a future slide. But the relationship between the coupon rate and the market rate will tell you whether the bond is quoting in the market at above face value or below face value. For instance, if the coupon rate is more than the market rate than the bond is naturally likely to quote above face value. This is called a premium bond. On the other hand, if the coupon rate is less than the market rate the bond would be quoting at a discount and it is called a discount bond or a bond quoting a discount. A bond which is quoting at its face value is called a par bond.

Now, I repeat once again, that the redemption of the bond need not necessarily be at its face value. The redemption value of a bond need not necessarily be at face value. It is not legally required. A bond may be redeemed at above face value, a bond may be redeemed at below it face value. And usually, if it is redeemed at above its value, we call it a bond which is redeemable at a premium. If a bond is redeemable at a discount to face value, it is called a bond redeemable at a discount. And a bond which is redeemable at face value is called a bond redeemable at par.

So, maturity and term to maturity I have already explained. The maturity date of a bond is the date on which the principal of the bond becomes repayable. And the time lag remaining between today and the date of maturity of the bond is called term to maturity.

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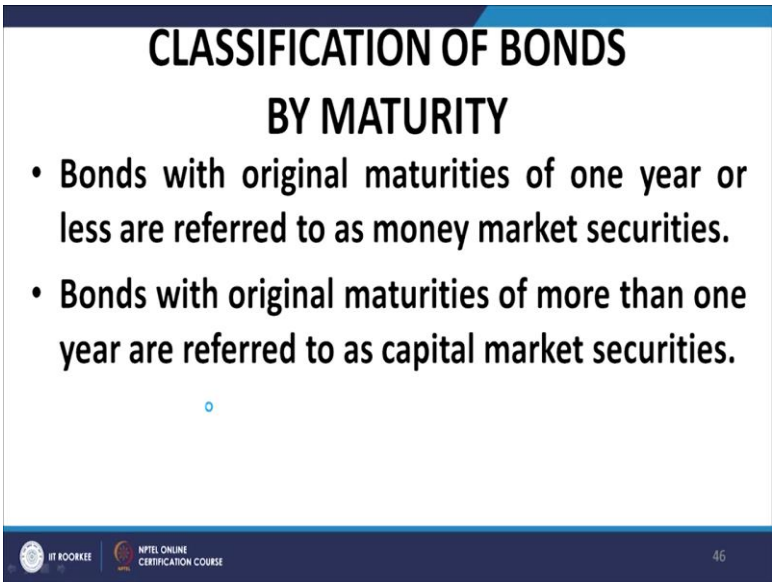

Now, classification of bonds by maturity. Well, usually bonds which have a maturity of one year or less are traded in money markets. We have already talked about that. Bonds which have maturities of more than one year and less than 10 years are usually called notes and bonds which have maturity of more than 10 years are usually called bonds. However, in India

we normally talk about instruments which have a maturity of more than one year as bonds. Technically, instruments having maturities of between one year and 10 years are called notes.

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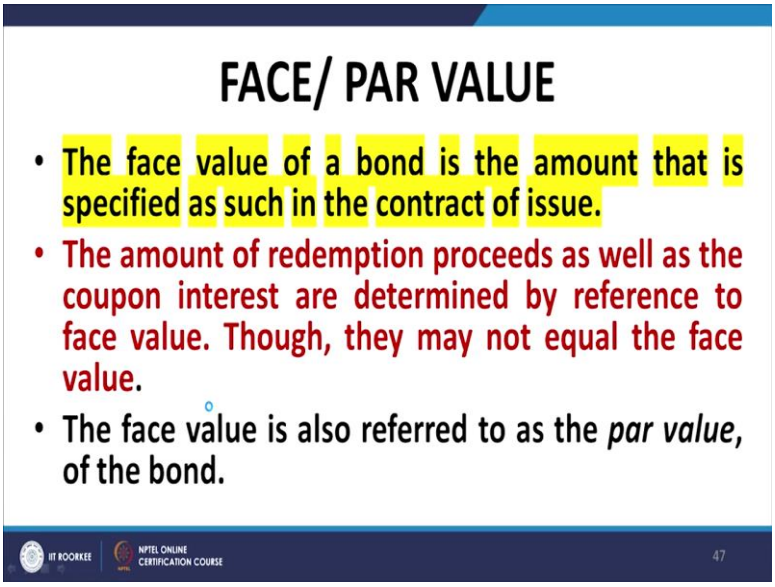

Face value I have discussed in a lot of detail. So, the face value is that value which is the nominal value given in the contract, and on the basis of which the actual outflow or actual payment in money terms is computed by applying that interest rate (the coupon rate) to the face value. Face value also determines how the redemption value is to be calculated or the amount of the redemption value.

So, I have discussed the issue of redemption at par, premium and discount.

Bond quotation: bonds are usually quoted on the basis of the amount of money or the value per 100 of face value. So, if a bond is being quoted at 98, for example, and it is a bond with a face value of 1,000, that means the value of the bond is 980. So, the quotation of the bond is with reference to 100 of face value, per 100 of face value. If a bond is quoting at 95, and the face value is 1,000, the value of the bond is 950. And if the face value of the bond is 10,000, the value of the bond is 9,500. So, I repeat, the quotation of the bond is with reference to 100 units of money as the face value. The quotation is given with reference to face value and is normalized with respect to 100 units of face value. I will come back to talk more about bonds after the break. Thank you.