Management of Commercial Banking
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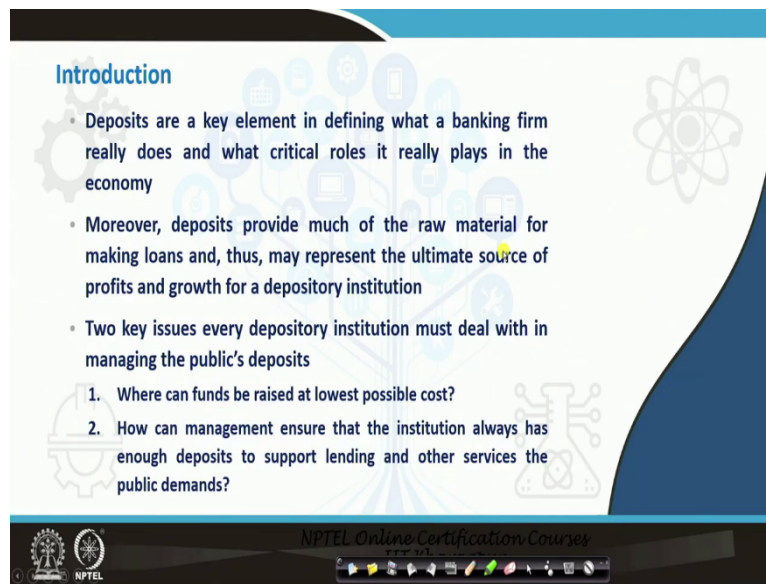**Lecture: 51**
Management of Deposits- I

Good morning. So in the previous class, we discussed about the liquidity management of the commercial bank and there we have seen that the commercial banks can manage both assets and liabilities to manage the liquidity and the first step is they have to estimate that how much liquidity requirement is there and after that they can use either the asset side or liability side to maintain that particular liquidity or to achieve that particular liquidity level which can maximize the objectives in terms of the record fulfilling the demand of the stakeholders and as well as the profitability.

And in today's session, we can start the discussion on the other liability management of the commercial banks and the most important liability of the commercial bank is the deposits. And here, we will talk about that whatever the different types of deposits the commercial banks always provide and how effectively the interest rates of the different deposits rates are calculated. So, whenever we talk about the interest rates for the deposits, mostly we are dealing with the two types of interest rates. One is nominal interest rates.

Other one is the effective interest rates. So, whenever we look at the deposit rates, mostly we always look at the nominal rates only but in the real terms, if you want to calculate the value of that particular asset, instead of using the nominal rate, we should use the effective rate. So, we should discuss also that what this effective interest rate is all about and how that particular effective interest rate is calculated.

So before that, we can first start the discussion on the types of deposit account that the commercial bank provide then after that we can try to estimate or try to calculate the effective interest rate and as well as the pricing of those particular securities or particular deposits what the commercial banks provide.

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You see that why the deposits are important because deposit is the only source or the we can say that critical source which the commercial banks can use for the lending activities and as well as, we can say that this is the base of the or the base capital for the commercial banks always have which can be utilised for the various reasons or various purposes.
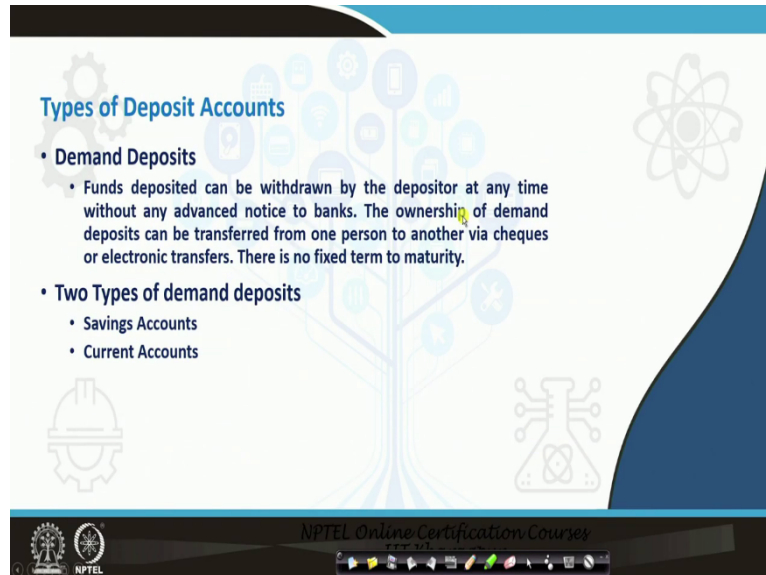
Moreover, the deposit basically provide the raw material for making the loans. So that is why, it represent the ultimate source of the profit for the depository institution like commercial banks. But whenever the deposits are basically managed by the commercial banks, there are 2 things basically they should keep in the mind that where the funds can be raised at a lowest possible cost? Because although there are various types of deposits are issued but effectively we have to find out that which is the best possible way the commercial bank raise the deposits by that the cost can be minimized, that is number one.

Number two; how the management can ensure that the particular bank always has enough deposit to support the lending activities and the other services the public demands. So, whenever the already we said that deposit is the core alternative or source of providing the loans and as well as other banking activities of the commercial bank, then we ensure that this particular deposit should be managed in such a way by that, that will be enough to fulfil the requirements of all types of banking activities what the commercial banks are basically doing. So, these are the 2 major issues in terms of the deposit management.

One is the cost and another one is the management of the deposit that means maintain the sufficient amount of deposit to fulfil the requirements. So, these are the 2 things what

basically we should keep in the mind or we should always consider whenever we are basically managing the deposits of the commercial bank.

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You see that whenever we talk about the types of deposits in the commercial banks, commercial banks provide different types of deposits. But the major types of deposits broadly if you categorise them, we have the demand deposits and the time deposits.

So, these are already whenever we are discussing about the balance sheets of the commercial bank, we have also discussed this particular topic this particular issue that how the commercial bank's assets are classified or the liabilities are classified. So in that liability part, we have discussed that, there are major types of deposits what the commercial banks provide. So, whenever we talk about the demand deposits, how the demand deposits certifying? The demand deposit, basically what here the funds deposited can be withdrawn by the depositor at any point of time without any advance notice to the banks.

When I am going to withdraw my money from my account that information is not required or information should be given to the bank in advance that is basically not required in that particular context. And the ownership of demand deposits can be transferred from one person to another person via cheques or any kind of electronic transfers. Whenever you can pay the money to somebody from your account or money will be given to somebody else from your account then you can always use the cheque facility what the commercial banks have provided or you can also transfer the money through the electronic transfer or the online banking.

So, that way the ownership of that particular deposit can be transferred. And the demand deposit case, there is no fixed term to maturity. The maturity period is not fixed whenever we discuss about the demand deposits. So, these are the different characteristics broad characteristics of the demand deposits whenever, generally we discuss. And whenever we talk about the demand deposit, there are 2 types of demand deposits in general. One is your savings account, another one is the current account. So, these are the mostly used accounts, which comes under the demand deposits of the commercial bank.

So, let us see that what basically the saving account and what the current accounts, basically are all about.

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So, whenever we talk about the savings account, this interest rate of the savings account is fixed by the commercial bank and interest rate can change from period to period, but that is solely depends upon the commercial bank itself. The commercial bank only can decide that how much interest rate should be kept against this savings account, this is number one. Number two; there are certain restrictions on the number of withdrawals that how many times you can withdraw the money in a particular period?

There are restrictions for that and also there are restrictions in the amount of withdrawals during that particular period. How much maximum money can be withdrawn that particular within that period that also can be specified by the commercial bank and as well as the restriction on the number of transactions or number of withdrawals also that also will be given whenever we are discussing about the savings account. And in some cases, the

minimum balances may be also prescribed by the commercial banks to offset the cost of the maintaining and the servicing of such deposits account.
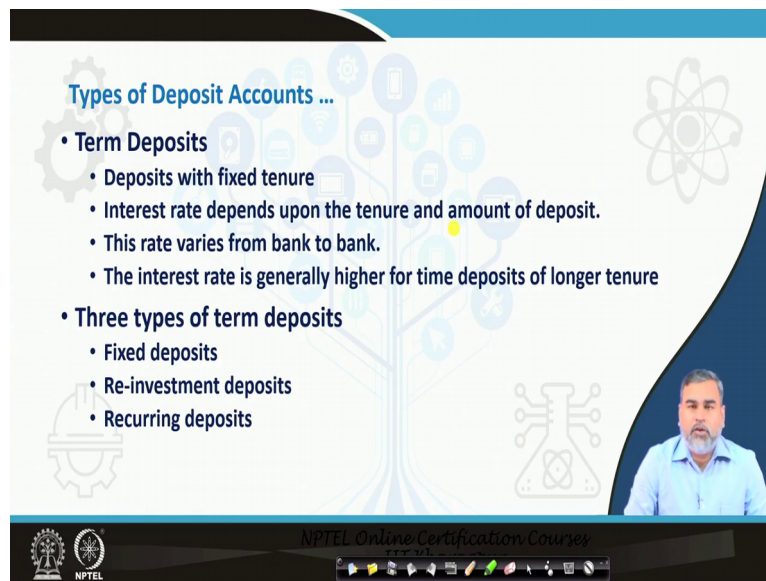
In a particular period basis, either quarterly basis or monthly basis, a minimum balance should be maintained with respect to that savings account that also can be considered whenever we talk about or we define this savings account of the commercial bank which comes under the broad category of the demand deposits. So, these are 3 major characteristics what we can say. One is, the interest rate is fixed by the bank itself, number one.

Number two, the number of withdrawals are restricted and sometimes also there is some kind of amounts will be fixed or limit amount can be given that how much money this particular customer can withdraw in that particular period and as well as in this account, the minimum balance, the concept is involved, while a minimum amount of money should be kept in that particular in a periodical basis. By that, the cost of that particular deposit account can be managed.

Then we have another account that is the current account. So here, the bank is basically obliged to pay the money on demand. Whenever the customer need the money, the bank is bound to pay that particular money and it does not bear any interest. It does not carry any interest that means the bank does not have to pay any interest against the current account deposits. And there also, the commercial banks can have some kind of restrictions on or can subscribe or can prescribe to maintain a minimum balance to avoid or to overcome the cost associated with this particular account.

So, these are the major differences. It does not carry any interest and as well as there is no such restrictions in terms of withdrawals or the number of withdrawals from that particular account. So, this is the typical characteristics of the current account. So, these are the basic difference between these savings account and current account. So in the commercial banks, basically try to use.

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Then we have the time deposits. So, in the time deposits or term deposits, the characteristics of the term deposit is they have a fixed tenure. The maturity period is fixed from the beginning that whenever the account is opened.

Then the interest rate, which is basically involved with respect to the term deposits, they are basically depend upon the tenure or the maturity period of that particular deposit and the amount of deposit and this particular rate varies from bank to bank. It is not that particular rate is fixed across the banks. The banks to banks the fixed deposit rates may vary and generally, the interest rate is higher for the term deposit or time deposits because they are generally long-term in nature.

Because the long-term returns are higher than the short-term returns in general because the long term is more risky than the short term. So, in this context also, the same risk- return principle applies that generally the interest rates are higher for the term deposits for the longer tenure, than the short tenure deposits. So, there are 3 types of terms deposits, which prevails in the commercial banks. One is your fixed deposit, then you have the reinvestment deposits and then recurring deposits.

So, these are the 3 major types of deposits what always we observe or always we find whenever we talk about the time deposits or the term deposits of the commercial bank.

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So, what basically the fixed deposit means that is a fixed rate of interest and it is fixed from the beginning and it can be renewed from period to period and on that particular point of time, whatever interest rate is prevailed against that particular deposit that can be revised accordingly. But whenever we talk about the reinvestment deposit, here the interest rate is compounded quarterly or monthly, whatever time period will be fixed and that will be paid on maturity along with the principle.

So, in the flexi-deposit amount in savings deposit account beyond a fixed limit is automatically converted into the term-deposits. You can have the idea about this that if you have a savings account then you have given option that can be considered as a flexi scheme or flexi deposit scheme then after a minimum amount can be kept in that particular savings account and the rest of the money can be converted into the term-deposits. But there is a that money can be withdrawn at any point of time but that will be converted into term-deposit after the minimum amount of balance will be maintain in that particular account.

But if anybody wants to withdraw money from that particular account that can be withdrawn but the interest rate on those kinds of deposits are higher than the normal savings deposits rates what basically is prevailed in the market in that particular point of time. So, another one is the recurring deposits. The recurring deposits means that a fixed amount is deposited at regular intervals for a fixed term and the repayment of the principal and accumulated interest is made at the end of the term. That means, periodically a particular amount of money is deposited.

Then once that particular—that period of that particular deposit is fixed, generally it can go up to five years. So once, let the frequency of the payment is monthly. So for month basis, you can pay certain amount of money. Let 1000, 5000 whatever it may be then after- you cannot withdraw the money within that particular five years and once that five years will be completed, whatever money you have deposited and you can get back that money with your accumulated interest. That is basically called the recurring deposits. So, that also comes under the time deposits or the term deposits of the commercial bank.

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Then we have another type typical deposit, which works in the Indian context that is called NRI deposits or NRI accounts. The non-resident, there are 3 types of the NRI accounts, which prevail in the Indian context. One is you non-resident ordinary accounts. So, in case of non-resident accounts, what happens any person or the resident, outside of India can open this account in India. When a resident becomes a non-resident, his domestic rupee account gets converted into the NRO account or the non-resident ordinary account and this helps the NRI to gets its credits which accrue in India in terms of investments, in terms of rent and all these things what he was supposed to get in the Indian Market that can be received through that account.

Previously that person was a resident of India. Now he is not the resident of India but even if he is not the resident of India that account will be converted into the NRI account and the interest and all kinds of rent or any kind of investments what he has made in the Indian market that will be deposited into that particular account. That is called the NRI account. Then you have the non-resident external rupee account.

So here, basically, it is a rupee account and the NRI can remit the money to India from funds abroad. So whatever money if somebody is some NRI is working in abroad so whatever money they will remit to India so that or that they can have this should have a non-resident rupee account where their money will be transferred from other countries to India through that particular account.

Then we have foreign currency non-resident account. So here, this account is opened by NRIs in 6 designated currencies. This particular money can be converted into different currencies and that can be deposited into that account and these 6 designated currencies are US dollar, Great Britain Pound, Euro, Japanese Yen, Canadian Dollar and Australian Dollar.

Either of these 6 currencies can be used to transfer that particular money into that particular account or the money can be transferred to that account in this particular currency. So, these are the 3 types of NRI deposits or NRI accounts, which prevails in the Indian market or for the Indian commercial banks.

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So, let us see that how this the concept of nominal and effective rate of interest basically works in the deposit case or any other interested case which prevails in the commercial banks. So generally, all the cases if you observe that every time this particular interest and all these things are not annually compounded.

So, that may be compounded quarterly, may be monthly. So, depending upon the nature of the deposits, the compounding frequency is different. So, the interest rate is compounded monthly, quarterly or half-yearly, then the concept of effective rate will be different from the

nominal rate. If this particular money is compounded yearly, then there is no difference between the effective rate and the nominal rate. But if the compounding frequency is more than annual that means it will more than annual in the sense the frequencies are more in a particular period that means it can be in a particular year, 4 times it is compounded or may be 12 times it is compounded, then there is a difference between the nominal rate and the effective rate.

So, if you want to calculate the effective rate from the nominal rate, then we have to find out how many times it is compounded in that particular year. So here, if you see, if your R is equal to your effective rate and your K is your nominal rate and M is going to be frequency of compounding per year, then your effective rate will be $(1+ K/M)^M -1$. That will give you the effective rate of that particular account or for that particular calculations. So if you see one example, then it will be more clear.

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For example, there is a 2 year term deposit, which gives you the interest of 10%, which is fixed from the beginning, but if the interest amount is compounded on a quarterly basis that means 4 times in a year, then the effective rate can be calculated in this way. That means, already we know that this is your 10% is your nominal rate and quarterly means it is 4 times compounded in a year, then $(1 + 0.1/4)^4$ is nothing but the number of times the particular money is compounded in a year minus 1, then that will give you the 10.38%. In a general context, if you see, that the actual interest rate, which is fixed at 10% but actual effective rate is more than that.

The reason is it is – this money is compounded more than once in a particular year. So, that is what basically the concept of effective rate which considers the frequency of compounding in that particular year.

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So then, we have so there are different kind of scheme what we have discussed. If you see that then how this particular money or interest rate can be calculated with respect to this different type of deposits that we can explain through the examples. Let there is a 2 year fixed deposit of 1-lakh rupees with bank ABC and the interest is let 11%. So, what basically you can do, may be whatever money you can get instead of spending that or waiting that particular period up to the maturity.

Somebody can withdraw the money and re-invest it in the market as a savings account. But generally, what happens that that particular thing does not prevail. But the return what you get it from that particular investment with respect to the fixed deposit that will be either equal or more than the return what you are getting or you are expected to get if you can re-invest that money in the savings account. So here, our issue is ascertain the interest amount if the payment is made quarterly, half yearly or annual basis and what should be the interest rate if the interest is withdrawn every month and transferred to the savings bank account?

You assume that the interest will be withdrawn every month and that will be transferred to the savings bank account then what is basically the interest rate what we can get whenever this kind of situation arises with respect to that particular kind of deposit. So here, if you see that the interest amount is 11%. So, quarterly if whatever interest you are going to get. Your principal amount is 1-lakh rupees. 1 lakh into 0.11, divided by 4, which is the quarterly

interest rate. If your month—annual interest rate is 11%, your quarterly interest rate will be 0.11 divided by 4, then your basically quarterly interest amount is 2750.If your half yearly interest amount is that 1 lakh into 0.11 divided by 2 that is 5500 rupees then we have if you go for the annual interest amount then this will be 11000 rupees. So, these are the interest what you can get in the different frequency. So here, the saving rate we are assuming is 4 %. The interest rate in the saving rate normal saving deposit is 4%. So, if you want to discount it with respect to that monthly interest then basically how much we are getting that is your 1 lakh into 0.11 divided by 12. 12 means this number of times this particular money is paid plus 0.04, which is 4%. The saving rate that is 913.62.

So, if you verify this in the monthly interest basis then how much we are getting? Basically, 913.62 into 3 plus 913.62 into 0.4 into 3 by 12 because this particular interest rate will be 0.04 divided by 12, multiplied by 3 because it is we are calculating quarterly then it will give you 2750. So here also, the quarterly interest rate what we are getting that is 2750. So, if the interest rate of ABC can for that particular bank is 1 lakh rupees FD. So, if the interest amount are withdrawn every month then they will be getting the interest rate of 10.96% that is 913.62 multiplied by 12 by 100000.

So, the effective rate basically we are getting 10.96%. So, the fixed deposit rate was something different that is 11%, which is more than the 10.96%. So, instead of depositing that particular money and that savings account in the periodical basis, we can go ahead with this particular fixed deposit scheme, which can give you the better return than the re-investment of that particular money while withdrawing the periodical basis, and again re-investing in the savings rate in the savings account.

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Then another one is the reinvestment scheme here, that your reinvestment scheme means that whatever money you have deposited in that particular account that is the initial deposit that is your RI. Your RI is the initial deposit. Then R is equal to basically already I have said the calculations will be always based upon the effective rate. The calculations should be always based on the effective rate, not on the nominal rate. So first of all, we have to calculate that what is the effective rate for that particular deposit and that effective rate can be utilised or can be used to calculate the total money we are going to receive from that particular investment in that particular deposit scheme.

So let your amount deposited amount at the end of the reinvestment period, it is RI_m and RI is equal to your initial deposit amount. The effective rate, already you know that 1 plus K by M to the power M minus 1 and K is equal to the nominal rate of interest and M is equal to the number of times the particular money is compounded in a particular year, then here, if you see, that and n is equal to the number of years you are g holding that particular deposit or particular kind of scheme with you.

So in this context, if you want to calculate the total value against that particular deposit then how much value we can effectively get from this.

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So here, if you take this example, let the depositor opens a re-investment account of this particular bank, ABC bank. The interest rate offered will be 10% for 1 year scheme and 11% for 2 year scheme and 12% for 3 years scheme, then find the maturity amount for a quarterly reinvestment of rupees 20000 for a period of 2 years. Here, the initial deposit amount is 20000, which will be reinvested in the periodical basis.

So here, what basically we are observing that already we know that RI_m is equal to RI into 1 plus r to the power n and here your 20000 is the initial deposit and r is the effective rate that we have to find out and period is the 2 years that is to the power 2. Since, it is a quarterly reinvestment that already we are assuming, then you effective rate will be 1 plus 0.11 that is 11% for 2 years, that is why we have to consider this one.

For 1 year, it is 10%, for 3 years, it is 12%. So that is why we have to consider this rate because this particular deposit reinvestment scheme is for 2 years only. So that 0.11, which is the interest rate for the 2 years scheme. 0.11 divided by 4 minus 1 that will give you 11.46%. So, your effective rate has become your effective rate has become 11.46%. So, now you can find out the ending value what we are going to receive from this particular deposit scheme that is your RI_m into 20000 is equal to 20000 into 1 plus r to the power 2. 1 plus r to the power 2 in the sense r is equal to in this case is 11.46%, then your period is 2 and effectively you are getting 24846.

So, if you are going for the nominal rate then this will be 0.1 divided by 4. So in this case, what basically we are trying to say that instead of using that 11% in this case, we are using 11.46 to find out this particular value. So, your nominal rate was 11% but your effective rate

has become 11.46% because it is compounded quarterly. So, that is what basically the reinvestment scheme is all about.

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Then we can see about another kind of scheme also in commercial banking sector, people can go for that is called the cash certificate. So, the cash certificate means you have to find out the issue price because that is basically issued at a particular discount and redeem that part. So, here your issue price is equal to your present value, which is nothing but the face value of the present value factor at a period n with a frequency k, then, your interest rate is k. So here, n is equal to your tenure and k is equal to your interest rate, then if you want to get this particular example then it will be more clear.

So, let there is an interest rate of 14% per annum on a cash certificate having a value of 100 after 1 year. The particular maturity value what you are going to get the face value is 100 rupees after 1 year, then find out the issue price of this. Then and you assume that it is reinvested quarterly. Then, first of all, we have to find out the effective rate then again we have to discount with respect to that effective rate only.

So, your effective rate has become $(1 + 0.14/4)^4$ - 1 that is 14.75%. So, now your effective rate has become 14.75% and your issue price, if you want to calculate from this, this is nothing but you actual face value of that particular scheme is or particular deposit is 100 then 100/1 + 0.1475 and this is for 1 year, then 1475 to the power 1 and that will give you 87.14. Then if you invest 87.14, which is compounded quarterly, then we can get if your 14% per annum is the nominal interest rate on this particular cash certificate. Then effectively you can

get 100 rupees after 1 year. So, this is what basically the price what we can get for the cash certificate.

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Then we have the recurring deposit scheme. So, recurring deposit scheme concept also, if you want to find out the amount on the maturity value of the deposit of the recurring deposit scheme, your future value of annuity can be calculated in this case that is your RDm is equal to RD × FVIFA, the Future Value Annuity Factor that is represented as FVIFA. Then your RDm is equal to the maturity value of the deposits and RD is equal to the instalment amount what you are paying in the different frequency or in the regular intervals, what you are depositing in that particular account.
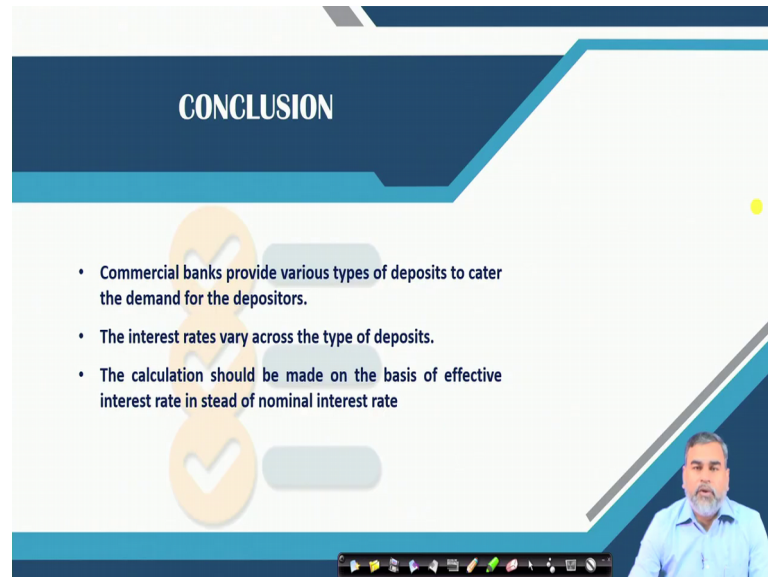
So in this case, if you take this example so, if you want to find out the maturity value of a monthly instalment of 1000 for 12 months and the interest rate for this is assumed that 8% per annum, then it also compounded quarterly. So in this case, what basically we find that the effective rate has become 8.24% and rate of interest, if you want to calculate that is 8.24% divided by 12 that is 0.69%. So, then if you want to find out the maturity value of this because it is month basis so, then it is your $[(1000 \times 1 + 0.0069)^{12} - 1]/\ 0.0069$, this concept already we have studied, then it will give you 12463.77.

That means effectively, you are paying 1000 rupees per month that is 12 months that means effectively, you are paying 12000 rupees and if it is compounded, the effective rate is calculated on the basis of the quarterly payment then the amount of money what we are going to receive that is 12463.77. So, 12000 rupees you have invested and you got this much money, which is relatively higher than the interest amount what you get from the savings

account and the other accounts. So, this is what the maturity value of the recurring deposits can be calculated.

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So, what basically we have discussed in this case that, the commercial banks provide various types of deposits to cater the demand for the depositors, which includes the savings account, current account. Then we have the different type of terms deposits like you have the fixed deposit, you have the recurring deposit, the cash certificate, reinvestment scheme deposits and all kinds of things and the interest rates generally vary across the time of deposits and the interest rate depends upon the term to maturity and as well as the amount of money which is invested in that particular fund and always remember the calculations should be made on the basis of the effective rate instead of the nominal interest rate.

So whenever, we are trying to find out the maturity value, do not consider the nominal rates what basically we are receiving. We basically consider the effective rate and the effective rate basically captures the impact of the compounding frequency of the payments or the compounding of the interest rates of that particular deposits.

So, this is about the types of deposits and the interest rates of involved in that particular case. So, these are the references you can go through about the different type of deposits, which is available in this case. Thank you.