International Finance
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Lecture - 19
Interest Rate Swaps

Welcome to session number nineteen, here we will be discussing about interest rate swaps. In the earlier session we have discussed about various tools of hedging currency hedging and we have discussed for foreign your forward market forward contract. We have also discussed future, we have also discussed currency options. Here we will be discussing about interest rate swaps, how interest rate swap can be useful for minimising what is called the currency risk, also as a strategy for the hedging purpose.

Here you are hedging the interest rate, because corporates are borrowings from different markets, the borrowing may be fixed rate, borrowing may be variable rate, that is the rate floating rate and fixed rate and floating rate borrowings are also depends upon the rates. The rates depends upon the rating of the company. So, a company is may be having high rating he can borrow as a fixed term variable rate, low interest rate, but company rating is not good need to pay very high interest rate.

At the same time it is we have seen in actual market scenario some companies are highly rated in one country, some companies are not good, not so good rating in other country. So, rating decide the interest rate, if you some company with the company which are good highly rated they can borrow from that market at lower interest rate and exchange the interest rate payment or swap the interest rate, actually those who are not in a position to borrow from that market.

So, that is called swapping of interest rate, possibilities are there and this swaps provide some kind of hedging instrument to reduce the corporate burden in paying interest rate. We will be discussing here how you can use the interest rate swaps for minimisation of interest rate risk and also improving the value of the corporate balance sheet. So, interest rate swap is very as old as the financial market itself.

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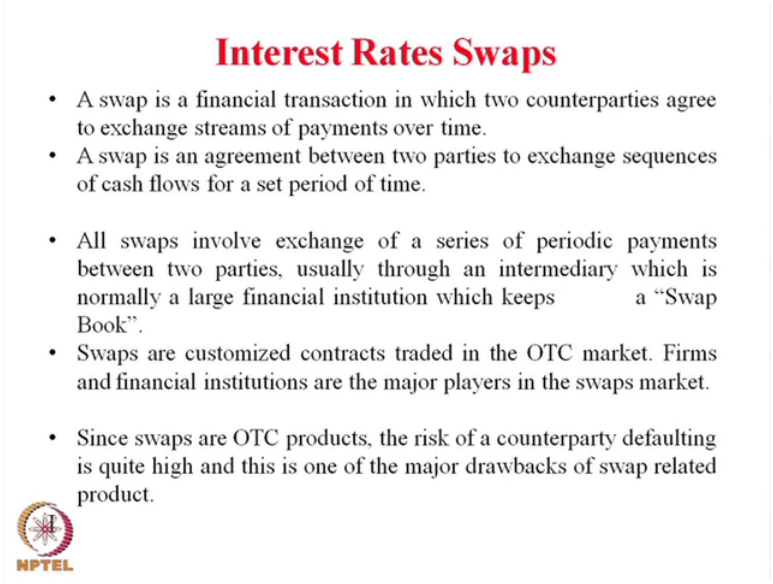

However the interest rate swap, though it was quite useful it was in practice I will prior to prior to nineties or early part of twentieth century, but nowadays corporates are using the interest rate swap very frequently to minimise the interest burden on their balance sheet. The question is what is interest rate swap what is the mechanism of interest mechanism the interest rate swap work, who are the player, how the player operate among themselves and also how actually the practical, in actual practice the interest rate swap works.

We will be discussing the same in the current session. So, what is actually swap, swap if you see literally meaning is a exchange. Literally meaning means when English literature dictionary tells a swap means exchange. What you are exchanging? Some underlying asset, but underlying assets you are not exchanging, the value on the underlying assets you are exchanging.

So, swap is a financial transaction, in two financial transaction among whom among two parties, two counterparty to agree to exercise exchange stream of cash flow or a payment over time. Swap as I mentioned is a financial transaction in where two party agree to exchange the cash flow or payment over a period of time. Swap is agreement between two party to exchange a sequence of cash flow for a set of time period. All swaps involve exchange of series of periodic payments and usually through a intermediary.

The two party they may not know each other, a intermediary may come in place a intermediary may introduce these two party and two party exchange the stream of cash flow, which is profitable to them, both of them through the intermediary. Generally the intermediary are financial institutions and intermediary keep the record or call book of books swap book, for that two party and in between by doing this the intermediary get a commission of from the two party.

The two party come to each other through intermediary, they exchange the exchange the series of periodic payment, the payment against underlying asset and the intermediary maintain the books of record, the swap book and by arranging the swap or exchange of periodic payment the intermediary get a commission out of that. The swap market swaps are customized product because they swaps are rarely traded, is a customized product as per the requirement of the two party the swaps design the periodic payment design and since is a intermediary it is a what is called customized product and it is a O T C product. The credit risk is very high, it may happens that, it may happens that one party may not adhere to the swap position or swap exchange, after some time the market is so volatile may not be in a position to adhere to the swap contract.

So, since it is a O T C product liquidity is not there, it is a O T C product there is a credit risk. So, however in some country swaps the intermediary provide the guarantee, so rarely happens this so intermediary only act as a acts as a intermediation between two party for maintaining the swap book, intermediary really provide any kind of guarantee for the swap payments or for that reason in case of swap the credit risk is very high. So however, despite the disadvantage swaps are being practiced as a financial instrument per transaction of exchange of exchange of swap payment, exchange of periodic payment. Generally it is huge in case of interest rate and currencies market. In this session we will be discussing about swap related interest rate payment. However in the next session we will be discussing about swap related currency transaction.

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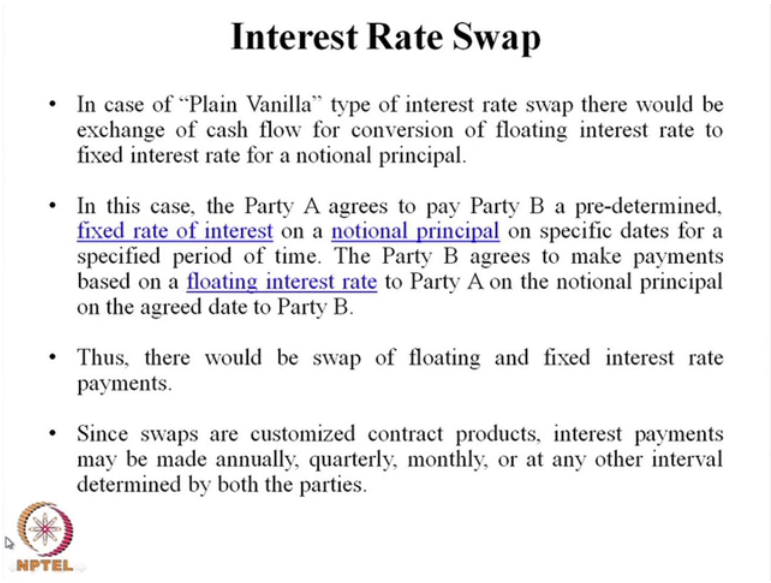

Now, let us come to the interest rate swap. Interest rate swap I mention it is a plain vanilla, it is a open, it is very plain, there is no such kind of complexity associated with this, it is a very plain vanilla type of product. Here interest rates interest rates has a periodic payments and there will be a notional principal again this principal the interest rates are related. Two party agreed to swap the interest payment notional principal will be the base calculation and the parties suppose there are two parties are A and B, suppose party A agree to pay party B a pre-determined fixed exchange rate against a on a notional principal, party B will, party B will pay a variable interest rate on the notional principal.

So, the fixed and variable interest rate exchange, periodic exchange will take place and party B, party the party who is having variable interest rate that risk will minimize and the risk will be taken over by the party A. So, in this position the fixed and variable interest rate swaps take place and on the basis of agreement the spot transaction take place. There is a intermediary between these two party, the intermediary maintain the record of swap transaction.

So, since it is a customized product, the customization take place on the payment of interest rate (( )) as annually or quarterly or monthly or any particular interval, there will be swap transaction or swap exchange of interest payment take place. So it is a very plain

vanilla type of product, but you have to understand this product there are some terminology associated with this.

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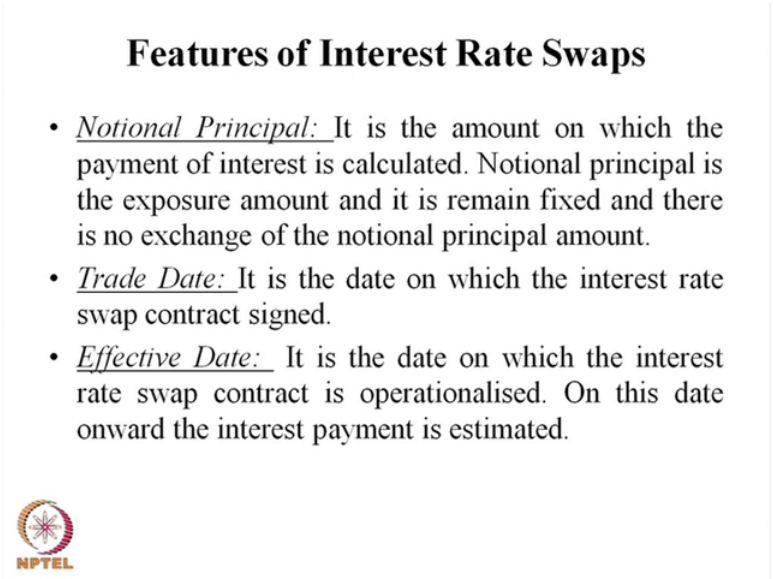

What are the features of the interest rate swap? There is a notional principal, the 1 million dollar, 2 million dollar or 100, 1000 dollar there is a notional. On this notional there is notional the interest rate calculation take place. There is no transaction of notional principal, notional principal only help in calculating the interest or series of payment. There is a trade date, the date on which swap contract sign, there is a trade date two party come to through the intermediary.

The intermediary through the intermediary they sign the contract for payment for exchange of exchange of series of payment that is called trade debt. Effective debt, the rate the date on which the interest rate swap operationalised. It may operationalise trade date is today, operationalised take place after 3 month the 3 month after 3 month thus effective date start. Effective date is essential, so on that date the interest payment the or the exchange of swap transaction take place, so three different terminology notional principal trade date and effective date.

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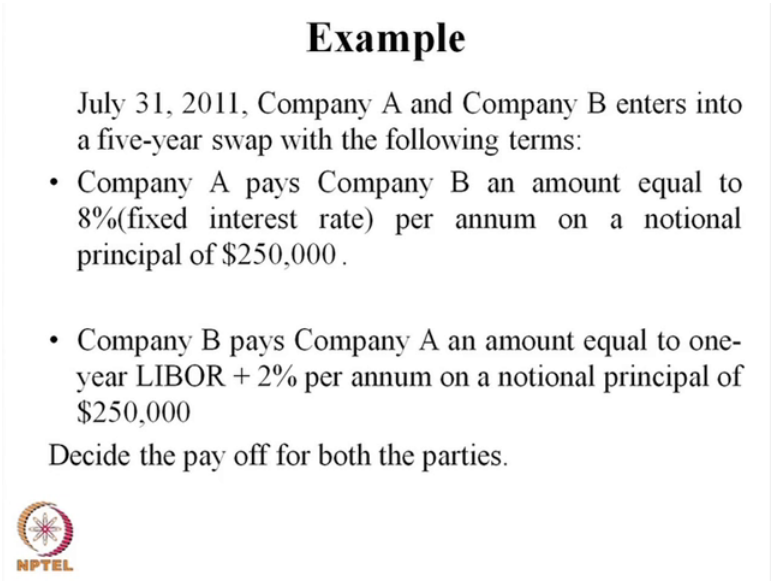

Then to understand the swap you have to go through the example because as I mention here the underlying is a asset, that is notional principal and on that principal the interest rate calculation take place and interest rate payments are the exchange or called swap exchange take place. So, to understand the swap exchange let us do a problem, the problem is here on July thirty first, two thousand twelve the company A and B enter into a 5 year swap with the following term. Company A pay company B a amount equal to 8 percent, that is a fixed interest rate per annum on a notional principal of 250,000. Company A pay company B an amount equal to 8 percent of fixed interest rate. The fixed interest is 8 percent company A pay to company B a notional principal is here 250000 company B pay a company A an amount equal to 1 year LIBOR plus 2 percent per annum on a notional principal of 250000. Here company A pay company B a fixed amount 8 percent, company B pay company A a amount 1 year LIBOR plus 2 percent and the notional principal is here, 250000 you decide what is the pay off for the both party.

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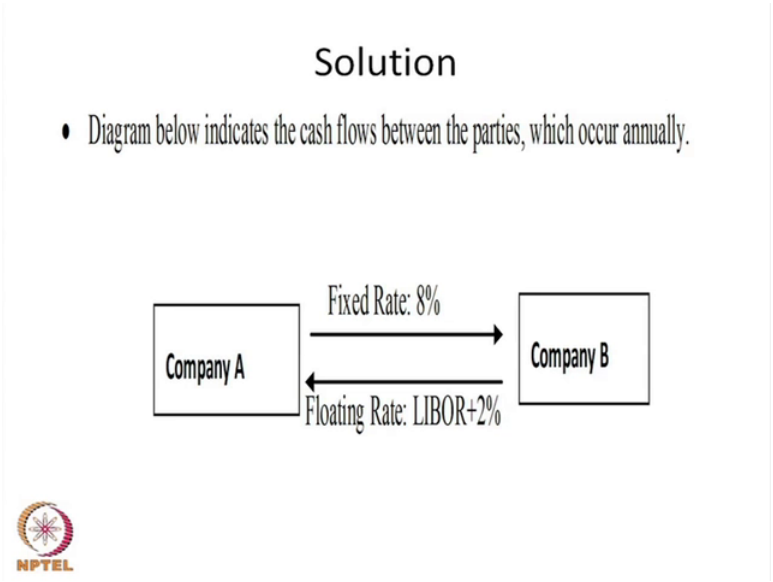

So, let us do the problem. What is the transaction here? You have to understand because while doing the swap transaction you have to do diagrammatic flow of swap transaction. Here company A and company B are there, two company interest rates are 8 percent fixed another is variable interest rate, that is a 1 year LIBOR plus 2 percent and notional principal is here 250,000. So there is no other variables available here.

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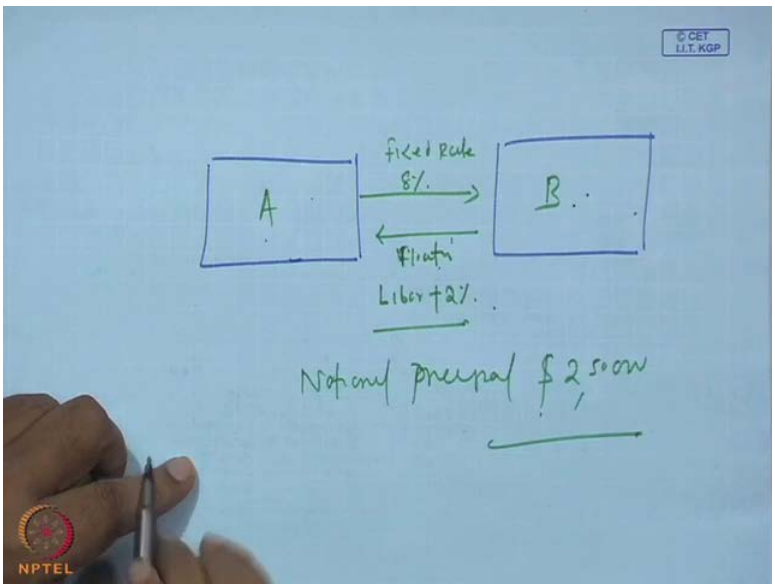

So, first you draw the transaction diagram, transaction diagram is here company A and company B. We have two company A and company B, company A and company B here.

So, company A exchange, company B if a provide fixed interest rate, fixed rate to A, to B fixed rate is 8 percent and company B give to A a variable interest rate or floating interest rate, floating interest rate LIBOR plus 2 percent. A transaction take place company A give 8 percent to company B fixed interest rate, company B provide LIBOR floating interest rate. That is LIBOR plus 2 percent. This is transaction what does it mean, it mean that company A, A is in a floating interest rate of company A, company B provide company A provide 8 percent to company B, company B provide floating LIBOR plus 2 percent to company A.

So, what does it mean here transaction take place from A to B one is a fixed interest rate another is a variable interest rate or floating interest rate. A here notional principal, notional principal is 250000 U S dollar, 250000 U S dollar. So, who is in variable interest rate, who is fixed interest rate? Here company A provide the fixed interest rate to B and company B provide the floating interest rate to company A.

So, company, company B or there is a transaction of floating and fixed. One wanted to convert its floating interest rate to fixed interest rate and another company, the other company wanted to take their risk of floating interest rate. So, there is a interest rate swap here. The swapping of swapping of what is called floating to fixed. It is the interest rate swaps here. So, there is a agreement within two party, two party is A and B, one party is in floating interest rate there is a risk for him, another party is a variable interest rate a fixed interest rate, he wanted to take the risk.

So, the other party surrender the variable interest rate to the party A, party A. And party A provide the fixed interest rate to party B. So, there is a exchange of interest rate swap what is called fixed to floating and in this process one company Accept the risk, another company surrender the risk.

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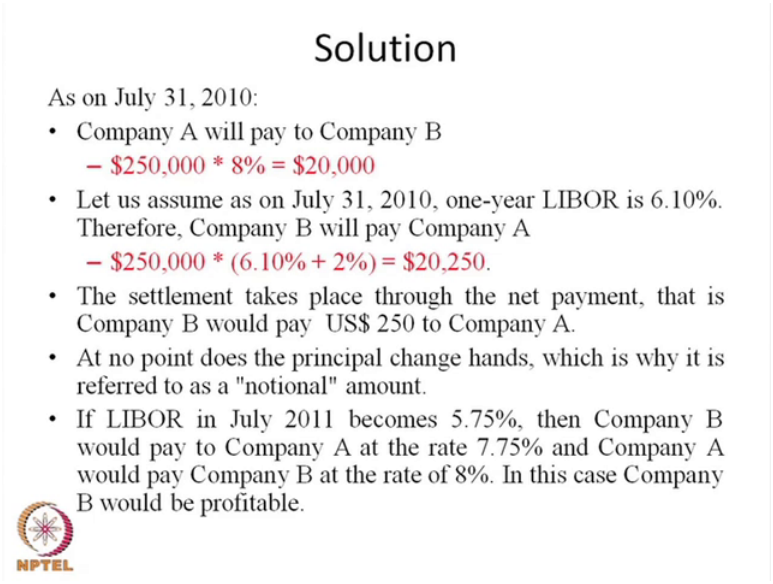

Now, how to do the calculation process the calculation process is here, if you see the calculation on the thirty first July. So, here company A pay to company B how much, 8 percent.

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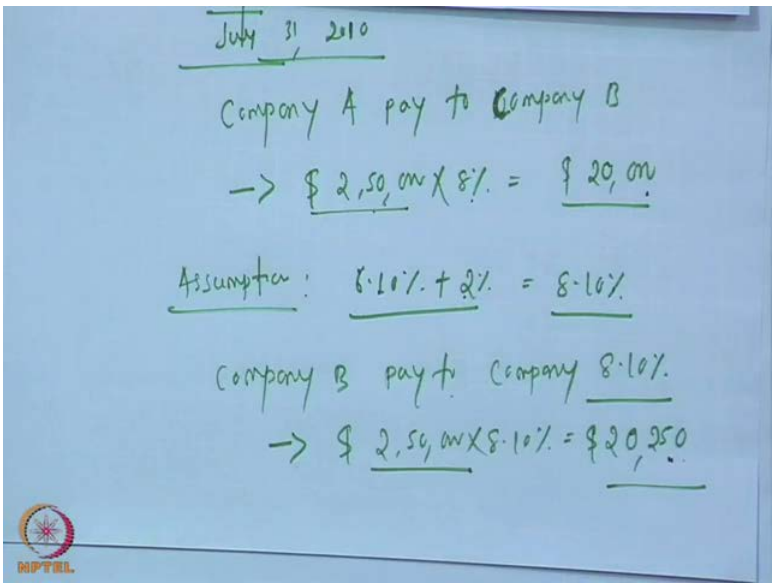

So, company on thirty first July suppose the date is starting date is July thirty first, company A, company A pay to company B what? Fixed interest rate of 8 percent, on what notional principal? Notional principal is 250000 dollar on that 8 percent, 8 percent,

that is dollar 20000 pay to company A, pay to company B. Our transaction here if you see our transaction company A surrender 8 percent to company B.

So, our transaction here company A pay to company B. Company B 8 percent of notional principal 250000, so that is 20,000 and suppose we assume that on thirty first July the 1 year LIBOR is something around 6.1 percent. So, assumptions are there, assumptions because we do not know LIBOR may change. One year LIBOR, LIBOR is floating so 1 year LIBOR assumption is there on thirty first July the LIBOR is 6.1 percent and plus 2 percent is added here, that is 8.10 percent is on thirty first July.

Though so thirty first July what will happen to company B? Company B will pay, company B pay to company A, how much? LIBOR plus 2 percent LIBOR is 6.10 percent on thirty first July, the assumption is there and 2 percent extra, so 8.10 percent. So 8.10 percent to pay, how much he is paying? He is paying on 250000, 8.10 percent that is dollar 20250.

So, there will be transaction take place. Now, if you see the diagram what we have done company B will surrender floating interest rate, LIBOR plus 2 percent to company A. Now we have done same thing company B surrender LIBOR is 6.10 plus 2 percent, 8.10 percent of notional principal 250000, 20250. So, what is the stream of transaction takes place? Company B 20000 company B will pay 20250 to company A, company A will pay 8 percent of 250000, that is 20000 to company B.

So, actually payment will take place only company B because company B is supposed to pay more. So, the company B will only pay 20,250 Rupee Dollar 250 dollar to company A because here the net transaction will swap, net transaction will swap, net amount who is suppose to pay more? Company B is suppose to pay more to company A. So net transaction is net amount, net surplus is only for company A. So company B will pay 250 Dollar to company A. Net surplus transfer will be there net transfer surplus transfer is 250 Dollar, 250 Dollar to company A.

The company is being paying A, suppose LIBOR become after suppose now this is transaction take place yearly basis. Now after 1 year, after 1 year LIBOR in place of 6.1 percent become 5.75 percent. What will happen? The transaction will change now.

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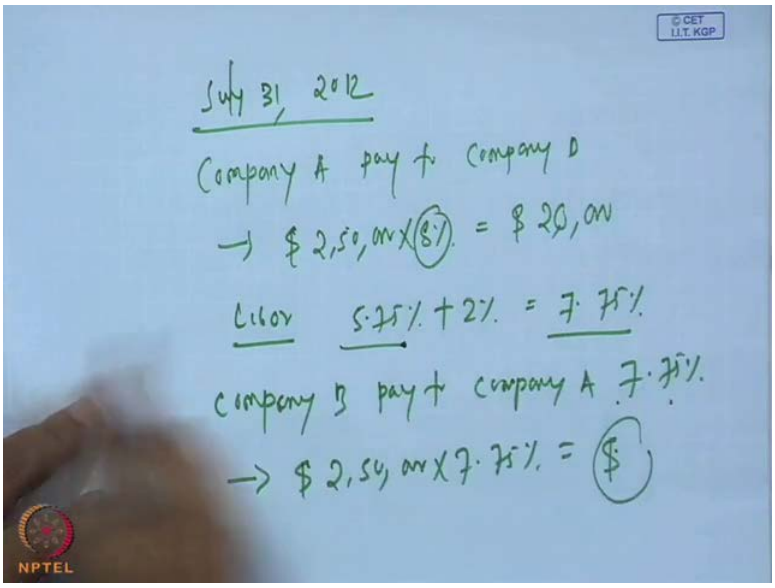

The transaction will be after 1 month, 1 year suppose we are going to July 31st 2012 after 1 year, so company A will pay how much? Company A will pay and company B will pay again so swap transaction after transaction will take place, company A will pay company A pay to company B how much? Now same notional principal remain the constant in same 8 percent fixed we will pay.

So Dollar will be 20,000 again, but now the LIBOR is LIBOR is 5.75 percent plus 2 percent, now it is 7.75 percent. So, what company B will pay now, company? Company B pay to company B pay to company A how much? Now LIBOR plus 2 percent LIBOR is 5.75, 2 percent extra. Company B will pay to A 7.75 percent. The transaction will be Dollar 250,000 of 7.75 percent that is amount company, company B pay to company A. Company B this is this amount definitely less because it is less than 8 percent, the so company B will pay less amount.

So, here company B pay to company A only 7.75 percent is a less amount. Now company A net transaction net transaction will be company A will pay to company B. If you calculate this, this definitely less than that company A will pay to company B. So since LIBOR is fluctuating the fluctuation on net cash flow will be there, since we are converting a, we are exchanging a fixed interest rate against a floating interest rate the interest rate swap design on the, on that basis.

Since LIBOR is fluctuating net surplus also fluctuate and who will be paying what depends upon the 8 percent, 8 percent which is fixed the payment date, due date of payment LIBOR plus 2 percent is less than 8 percent, then company A will pay to company B, LIBOR plus 2 percent is more than the 8 percent company B will pay to company A. That is the transaction process take place till the swap is end. Swap maturity date is here as I we had discussed about the problem, swap maturity date is 5 year. The every end of the 1 year the transaction will continue till the 5 year end that is size 5 contract between A and B company.

So, this is the process of transaction of fixed to variable and variable to fixed, the variable interest rate become fixed now and the party which accepting the variable interest rate is bearing the risk and depends upon the risk for him. Risk is for him is a variable interest rate and he will be in a position to get profit as long as the LIBOR plus 2 percent is more than 8 percent, if LIBOR plus 2 percent is less than 8 percent he will be a loser.

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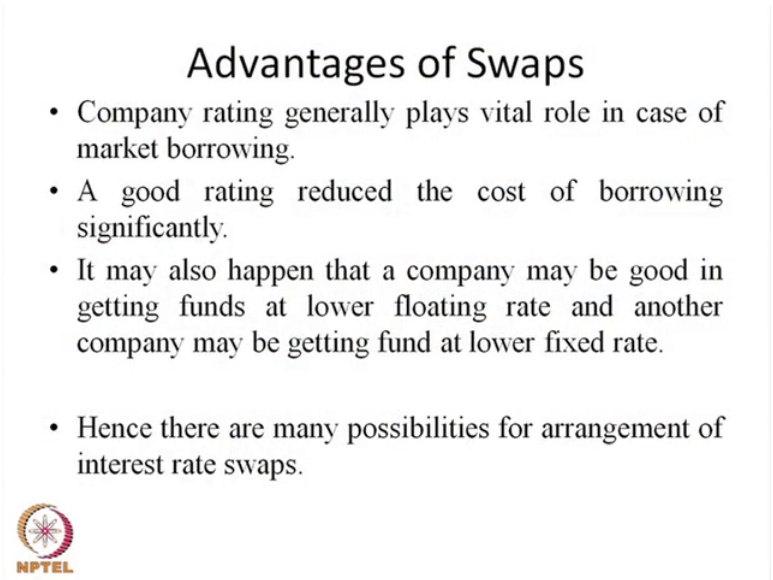

Now, let us do another problem, what is the advantage? Before doing another problem let us discuss about the advantages of swap. Advantages of swap is many are there. Primarily the rating side and the interest rate floating and fixed exchange rate, fixed rate, when company is good rated company borrow as a lower rate than the bad rated company and there will be swap between the two company. Bad company good

company will borrow and give it to the company which is which is not good for them they will borrow and there will be they get the profit out of that. Similarly, some companies are highly rated in one country, so they will borrow as a lower interest rate and they will transact to another company.

And third is the some companies are in a position to bear the risk, so they absorb the floating interest rate and there will be transaction of interest rate swap between fixed and floating interest rate. Thus the advantages are there in swap transaction as I mentioned earlier swaps all swaps are customized product and customized product through O T C market that is over the counter market, so there will, there is no such kind of exchange traded funds are available here. So the since they are O T C the credit risk is very high, the counterparty risk is very high so that is a disadvantage also there in case of swap transaction. To understand further about the swap interest rate swap, let us do another problem here.

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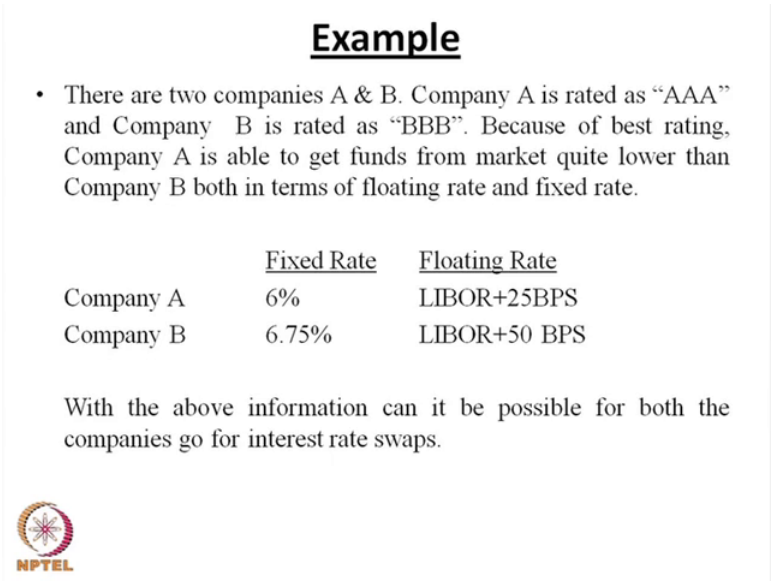

Here the problem is linked to floating to both are floating and both are fixed and here we will understand that even though two party can two party can borrow two different market or the same market, either in floating or in fixed, but there will be position that is one party is getting very high rate. Another party is getting very low rate because of rating.

How rating differentiate the interest rate and how it is help in interest rate swap transaction process. Let us do the problem, the problem is here there are two company A and B, company A company A is rated AAA, company B is rated double b company A is good company, company B is a bad company. So company A is getting good rating of double A company B is a bad, bad company he is getting a he is getting a rate he is getting a high low rating, so for him it is difficult to borrow at the difficult to borrow at the very high, difficult to borrow at the very high rate. So they wanted to go for a transaction they wanted to go for a transaction of interest rate swap.

So, what is the problem there are two company A and b company A is a AAA company B is a double BBB company because of best rating company A is able to get funds from the market quite lower rate than company B, both in terms of floating and fixed. The fixed rate company A is getting as a fixed rate 6 percent and floating rate LIBOR plus 25 basis point, company B is not a good rated company so he is getting as a higher fixed rate that is 6.75 and higher floating rate LIBOR plus 50 basis point.

So, is there any possibility of swap transaction between the two company, that is our problem. So, what you understand here? A good company get fund as a both in fixed market and floating market lowest possible rate a bad company get both in fixed market and in floating market higher possible rate. So, there may be transaction of interest rate swap between the two company, so why what is the process here. Same way so what will what you will do here?

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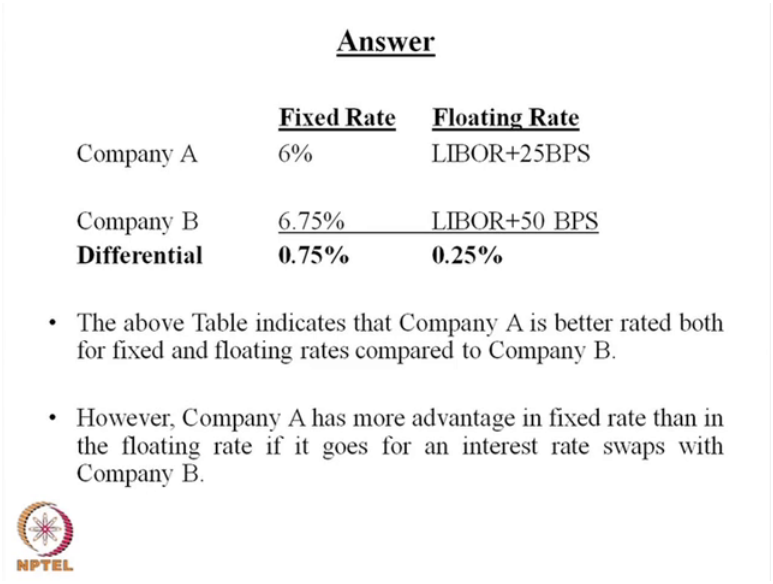

Now suppose there is we will, we will see which rate they should transaction take place whether fixed or floating rate. If you see the problem the company getting at the fixed rate 6 percent floating rate LIBOR plus 25 basis point, company B is getting 6.75 and LIBOR plus 50 basis point. So, the differential interest rate in case of fixed between company A and company B, the fixed interest rate between company A is getting 6 percent and company B is getting 6.75.

So, the differential interest rate is 0.75 percent that means company A is getting lower amount, low interest rate, company B is getting higher interest rate. So, if possibilities are there company B can, company A can borrow for company B and give the money to company B. So there will be a transaction take place between company A will get at 6 percent rate and borrow from the market and give it to company B and get a commission income for that. That is the transaction may take place between two company, but if you see the LIBOR side floating interest rate side, the company A is getting LIBOR plus 25 basis point and company B is getting LIBOR plus 50 basis point.

The differential interest rate between company A and company B for the floating interest rate side is 25basis point. So, what will be transaction take place? This table indicates the company A is better rated than both in fixed and floating. It is possibilities are there company A has a more advantage in fixed rate than the floating interest rate, company A is more advantage in floating interest fixed interest rate. Then company against the

company B for floating interest rate because company A is getting a differential interest rate between two company in fixed interest rate side 0.75, but in case of floating interest rate side it is 25 basis point.

So, company A suppose to borrow from for from the fixed market and transact to company B. So what is the rate take place? The two different position in interest rate swap can be designed here. One is fixed to fixed the higher fixed to lower fixed another is fixed to floating that is that is company A will borrow at 6 percent fixed and company B will borrow LIBOR plus 50 basis point, there will be fixed to floating interest rate swap can also possibilities are there.

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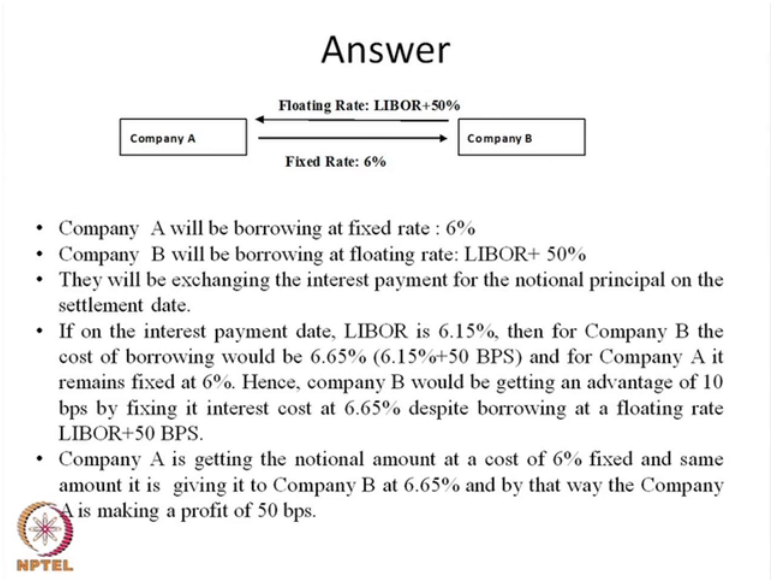

Now, let us do for one by one. So first is here company A that is company A and that is floating to fixed now will take place. What will do the answer here? Company A will borrow at 6 percent fixed, company B will borrow at variable plus 50 basis point and there will be transaction take place between these two. So what company, company A will borrow at 6 percent and company B will borrow at LIBOR plus 50 basis point and exchange of interest payment take place between the two party, against the notional principal. On the settlement date that is a due date that is a due date of payment the company effective date of swap, company B on the basis of LIBOR market company B will surrender, company B will surrender, company B will surrender 6 percent to

company A and company A will surrender LIBOR plus 50 basis point to company B and this process the transaction may take place

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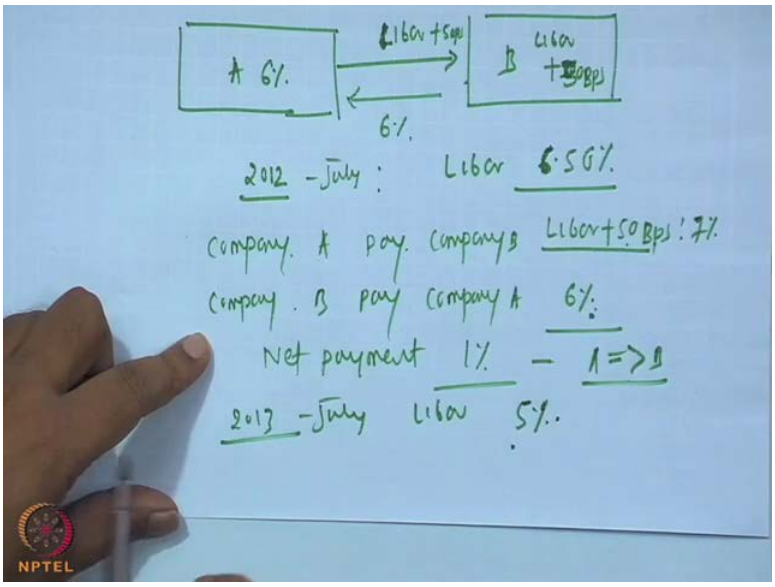

Suppose what is the transaction site here? If you see company A and company B, so what will be take place here? Company B company A will give company A will give borrow from the market at 6 percent and company B will borrow from the market LIBOR plus LIBOR plus 50 basis point. So company A will surrender 6, company A will surrender to company B a flow, what is called LIBOR plus 50 B P S and company B will give to company A 6 percent. In this process company B is making its interest rate fixed and company A is accepting the floating interest rate of LIBOR plus 50 basis point.

So, LIBOR suppose, suppose after 1 year suppose the swap transaction effective date is 1 year only after every year the swap transaction take place. So suppose in two thousand twelve this year, the effective date suppose July, July two thousand twelve company A, company A pay company B, company A pay company B LIBOR plus 50 basis point and company B pay company A 6 percent, this is the transaction take place, floating to fixed company A converting its company B is converting its floating to fixed company A is accepting the floating.

So, now suppose in July month, 2012 LIBOR 1 year LIBOR is suppose around 5.5 percent. So this LIBOR will be how much, 50 basis point. Now it is become suppose this is 6.5 percent in place of 5, 6.50 percent. So this will be, this will be 7 percent and this

will continue 6 percent so what will happen? The transaction take place what company pay company A pay company B 7 percent on notional principal, company B pay company A 6 percent. So there will be company A net transaction will be net payment will be 1 percent. Who will pay 1 percent extra? Company A will pay to company B, A will pay to company B. Suppose in two thousand thirteen, July again the interest rate become LIBOR will become LIBOR become 5percent. So now 5 plus 50 basis 5.5 the company A, will company A will pay to company B LIBOR plus 50 basis point 5.5, company B will pay to company A 6 percent here company A is receiving side.

So, net transaction is 50 basis point and company B will pay to company A LIBOR plus LIBOR plus 50 basis point is 5.50 the swap transaction take place and one party accepting the fixed another party absorbing the floating. So this is called this interest rate swap floating to fixed, but this question is here only floating to fixed possibilities are there. There is other way also possibilities are there.

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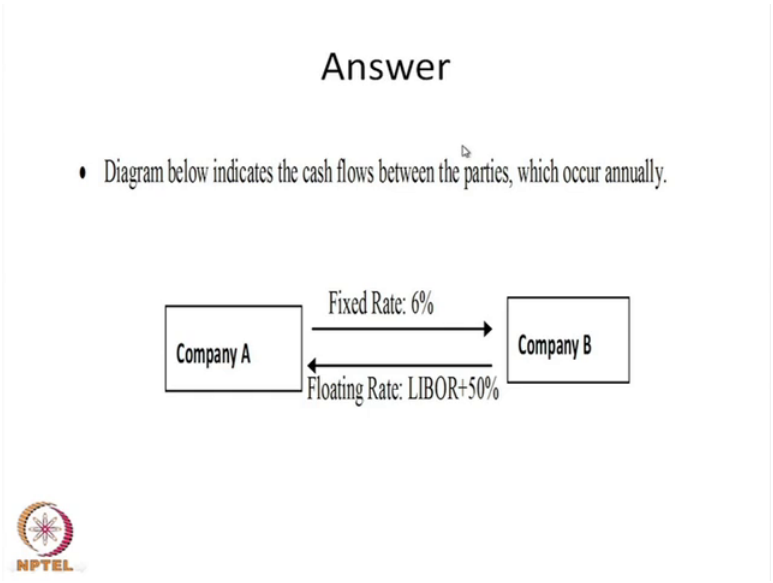

Here another possibilities are there, if you see the diagram I have given the diagram earlier also same diagram, diagrammatic transaction, company A surrender fixed in give the fixed 6 percent to company B and company B floating interest rate 50 percent to company A. So, that is different, but now suppose there other way possibilities are there for this question.

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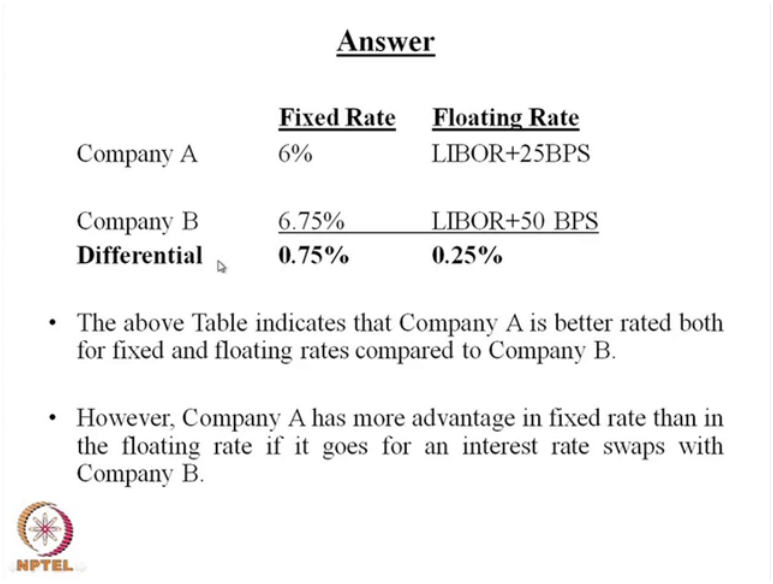

Here if you see here only one way one way we have done it that is a fixed to floating. Now it is possibilities are there company, company B will borrow 6.75 and company A will borrow at LIBOR plus 25 basis point, the possibilities are there here also. Now what will happen transaction take place company companies LIBOR is fluctuating here there may be possibilities are there, some profitable transaction may take place.

So company A will borrow from the market LIBOR 25 basis point and company B will borrow at 6.75 percent. So there will be transaction, company there will be transaction may take place also here, but depends upon LIBOR, LIBOR is highly volatile cost more than less market, then possibilities are there, there will be transaction may take place, but this transaction is viability depends upon the fluctuation of LIBOR.

However, the best transaction is here company A will borrow at 6 percent company B will borrow at LIBOR plus 50 basis point, so there will be transaction is profitable for both the party, but second transaction may be profitable depends upon the LIBOR fluctuation side.

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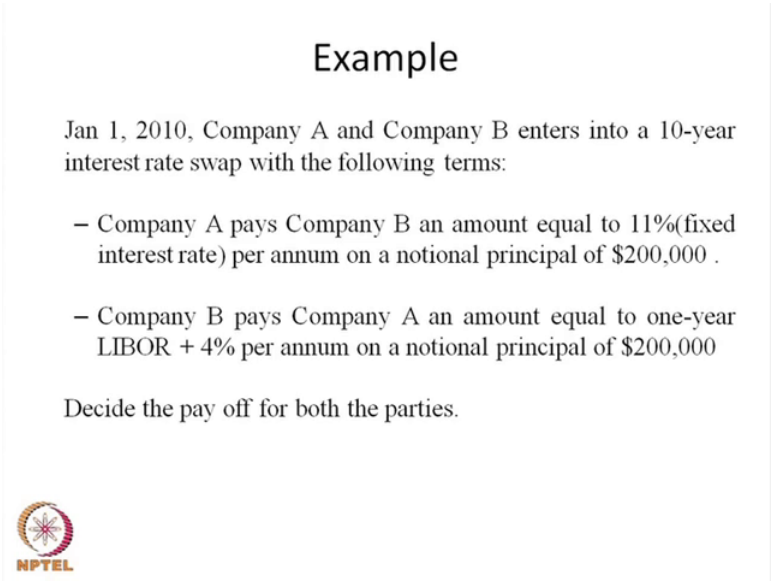

Let us do another problem here in two thousand, January two thousand ten company A and company B enter into 10 years interest rate swap with flow following term, 10 years interest rate swap with following term. Company A pay to company B an amount 11 percent fixed per annum on notional principal of 200000 and company B pay company A an amount equal to 1 year LIBOR plus 4 percent per annum or a notional principal of 200000 beside the pay off.

So, the company A is borrowing a fixed interest rate, company B is borrowing at variable interest rate and it may happen that there will be transaction between variable and fixed interest rate. Company A maybe we can say is borrowing at very high interest rate or 11 percent they wanted to accept a floating interest rate.

Company B is a not comfortable in floating interest rate they may be suitable for fixed interest rate. So there will be transaction take place between the two party which come in the form of conversion of fixed to floating.

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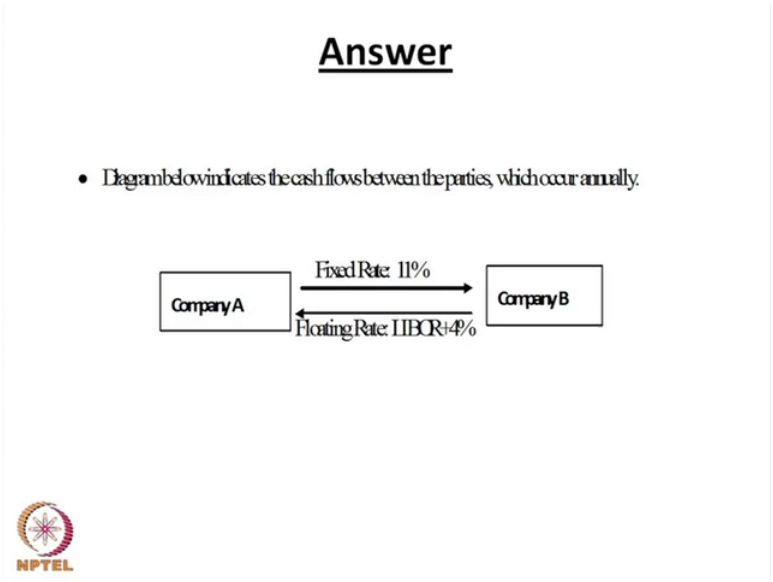

So, the transaction will be how? What is the transaction process? The company A by borrowing eleven percent give it to company B and company B borrowing at LIBOR plus 4 percent give it to A. So, company A 11 percent will pay by the company B and company B floating plus LIBOR will be paid by the company A. There is a transaction will take place like that.

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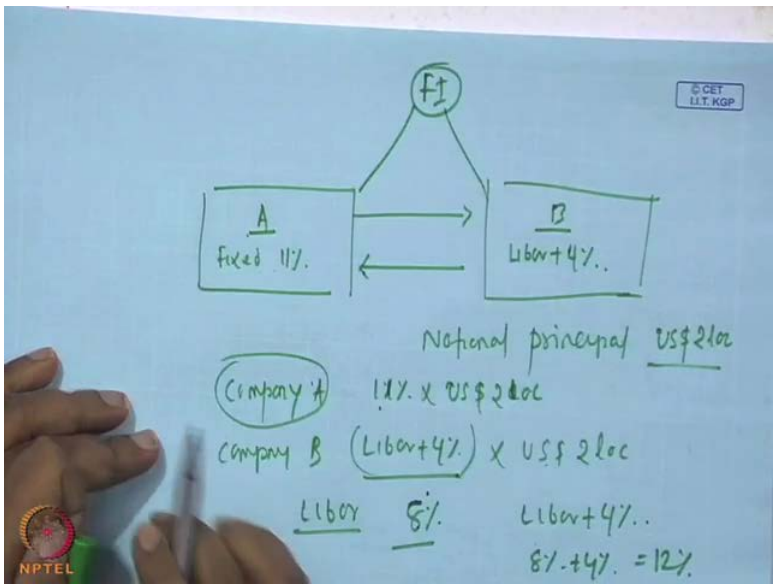

So what is the transaction here? So same thing the company A fixed 11 percent company B floating LIBOR plus LIBOR plus 4 percent floating. So company B will borrow from

the market LIBOR plus 4 percent and this LIBOR plus 4 percent transfer to company A. So company transfer to company A company A will borrow fixed interest rate 11 percent, the 11 percent amount will transfer to company B. Now transaction will take place and notional principal is here, notional principal is 200000 U S dollar 200000 U S Dollar. Now company A company A company A that 11 percent into U S Dollar 200000 U S Dollar 200000and company B LIBOR plus 4 percent into U S Dollar 200000.

So, now company B will pay company, company B interest rate that is LIBOR plus 4 percent will pay by the company A, company A 11 percent interest rate will pay by the company B. Now the transaction take place suppose after 1 year, suppose every year transaction take place. LIBOR after 1 year LIBOR become 1 year LIBOR becomes 7 percent, 8 percent. So what is the floating interest rate? LIBOR plus 4 percent for company B, company B is borrowing so now LIBOR plus 4 percent 8 percent becomes 4 percent is 8 percent plus 4 percent here it is 12 percent.

So, company B is borrowing at 12 percent company A is borrowing at 11 percent, 12 percent company A B transfer to the company A. 11 percent of borrowing company A transfer to company B, so in this process 1 percent payment extra which is suppose to be paid by the company A to company B. The transaction will take place like that. Here here what is the problems, here what is the advantages of both party? One party is borrowing at very high fixed interest rate is not comfortable.

Now, you thinking that interest rate may come down, so he is wanted to convert the fixed high interest rate to floating, floating interest rate. One party B another other party B is here is not comfortable LIBOR plus 4 percent. Every year LIBOR is fluctuating there is a risk for him, so he wanted to transfer the risk to other party. In this process the two party come to a intermediary, a financial institution. A financial institution they the financial institution act as a intermediary between the two party and there will be transaction a flow of interest, stream of interest flow will be there and the in this process they sign a agreement for converting the fixed to floating and floating to fixed and in this process interest rate swap take place.

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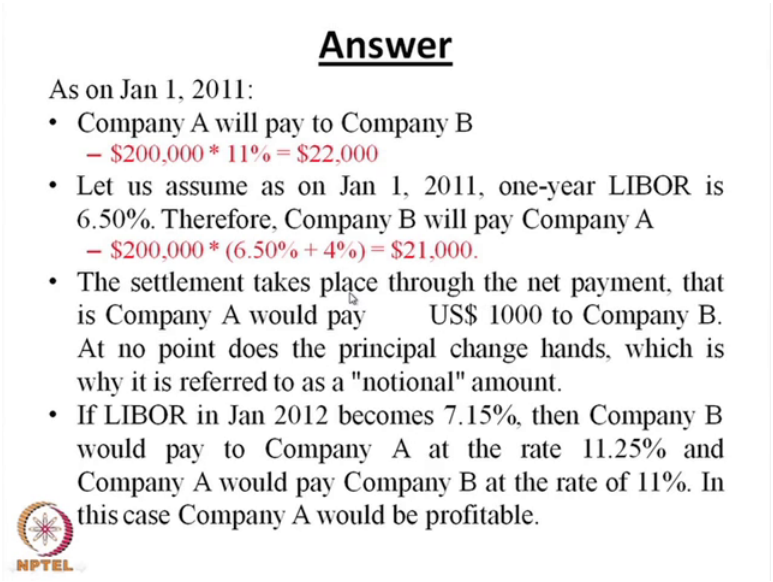

If you see the answer here, what is the position? If you see the answer here company A on January suppose first Jan two thousand eleven, company A will borrow at 200,000 at 11 percent, company A will pay to company B fixed interest rate transfer the fixed interest rate 200000 11 percent 22000 U S Dollar. Let us assume that on January two thousand eleven, January first two thousand eleven 1 year LIBOR is 6.5, so here 6.5 plus 4 percent that is the 10.5, 10.5 of 200000 (( )) 21000.Wwho will pay 21000? Company B will pay to A 21000.

So company A is paying to B 22000 company B is paying to a 21000 actual transaction will take place 1000 and in this process in this process company A, company A who is surrendering who is borrowing 10.5 percent and company B, is a company A is borrowing at 11 percent, company B is borrowing at 10.5 percent and there is a transaction among here two party a company A will be profitable because company A is accepting now the variable interest rate of 10.5.

So, company A is profitable now. So like that the transaction may take place between these two and transaction is profitable or a loss to a particular company that depends upon the variable of variability of LIBOR, 1 year LIBOR. Now in this process, let us, we have discussed about the interest rate swap. Interest rate swap as I mention here to you that interest rate swap is profitable to both party because the profitability of depends upon the how they predict the interest rate.

Generally the floating into fixed and fixed to floating interest rate conversion take place through interest rate swap. It may happens also higher floating and lower floating interest rate can also be take place because interest rate swap can be can also be designed. The interest rate swap generally the company they do not know each other, they may be having in different country. They come, they generally come through intermediary financial institution generally act as intermediary in interest rate swap transaction process.

They maintain the in swap book and in this process they get the get a commission income from the both party. Interest rate swap now a days are quite useful for the company because company generally borrowing at higher interest rate because of the their bad rating, they wanted to convert into a lower interest rate through a good rating company in this process interest rate swap design.

Similarly company may not, a domestic company may not be aware of the other market where interest rate is available as a lower amount, lower interest rate funds are available. They swap the position through other company, in this process they can design a interest rate swap also. Interest rate swap, interest rate swap is quite useful maintaining the books of account or the balance sheet position because in this process the two party get the profit out of the interest rate swap. So they reduce the interest burden and this affects this help in in in providing reducing the interest burden of the company.

However interest rate swap as I mention to you is a O T C product. It is high risk since O T C product are counterparty guarantees are not there, so counterparty may default. In this process counterparty default create some kind of default risk for the company, so however since some country the intermediary provide some kind of guarantee in counterparty guarantee for the interest rate swap, but that is highly in that is very few companies would financial institutions are there they generally provide counterparty guarantee, but they rarely available in actual market.

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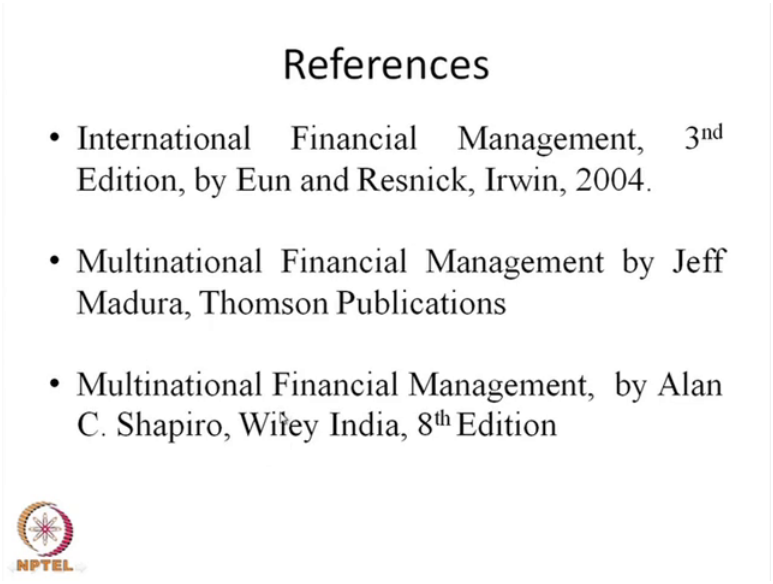

Let us discuss some references are here interest rate financial management site. If you see the Eun and Resnick book you can follow for interest rate swap side. Multinational financial management by Jeff and Madura, you can see the interest rate swap side here also and multinational financial management by Alan and Shapiro the Wiley, here also you can see the interest rate swap calculation process and model question here.

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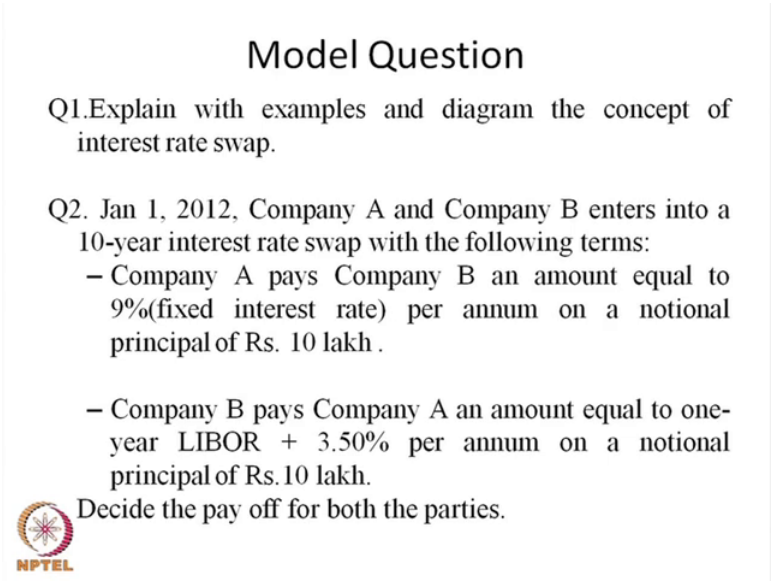

The model questions here explain with example and diagram the concept of interest rate swap. Here you have to design what is the meaning of interest rate swap and through a

two companies or two corporations you can design the diagram. How the interest rate swap can take place among these two companies? How the company can transfer the fixed to floating? Convert the fixed interest rate floating interest rate or fixed floating interest rate to fixed interest rate or two floating interest rate they can transact interest rate swap can be designed.

You also mention that what is the advantages are there in swap transaction, you also mention that what is the features of swap transaction, you also mention there the difficulty or the disadvantage of swap transaction. The role of the intermediary you also mention their interest rate in interest rate swap transaction process. Then we can give some kind of example, how the interest rate swap transaction take place when there is a floating interest rate and in fixed interest rate, when there is a very high few floating interest rate, very low floating interest rate. Also you can see, you can also mention how you can design a interest rate swap, when there is two companies are both are in floating interest rate.

That also it depends upon the which interest rate best there, therein LIBOR based or any other base. So base also fluctuation will be very high so you have to see the which base they are there. So in this process two is floating interest rate loan can be, loan or interest rate can be exchanged also. Second problem is here there is a two, one two companies are there here, January first two thousand twelve, a company A and company B enter into a 10 year interest rate swap with following term. Company A pay company B an amount equal to 9 percent fixed per annum on a notional principal of 10 lakh rupees, company B and B pay company A amount equal to 1 year LIBOR plus 3.5 percent per annum for a notional principal of 10 lakh, beside the payoff here.

The payoff here what is the diagrammatic, diagrammatic designing of the interest rate swap. Here two companies are there one company is in a fixed interest rate, another company is a variable interest rate. The variable is linked to LIBOR fluctuation and there is a notional principal here 10 lakh Rupees, 10 lakh Rupee notional principal is there. So you have to there is a stream interest rate flow will be there the company A is not, company B may not be in a comfortable in LIBOR variable interest rate.

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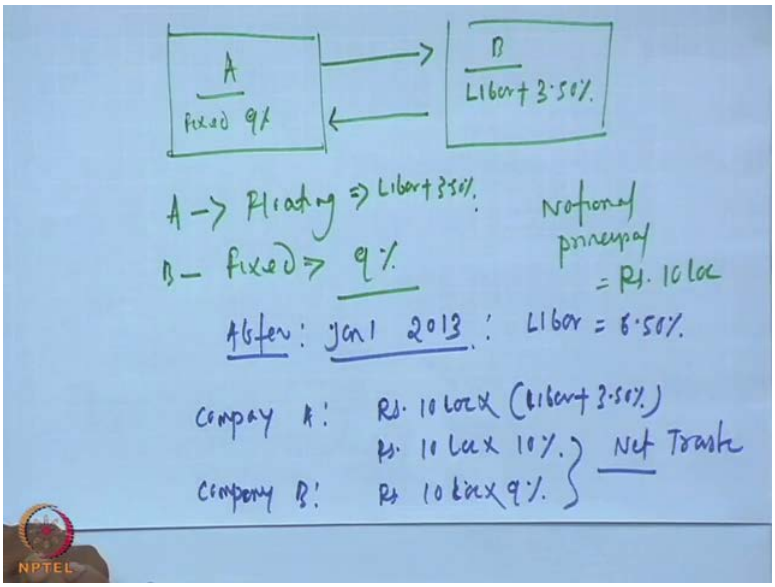

So he wanted to convert the floating to fixed interest rate. The diagram is here as we discussed earlier problem. Company A, company A is fixed, fixed of what 9 percent. Company B is floating LIBOR plus 3.5. So, company A notional principal here, notional principal is Rupees 10 lakh. Now what is the transaction process? Company B will borrow from the market LIBOR plus 3.5.

The interest will transfer to company A, company A will borrow at 9 percent so interest amount transfer to company B. Now company B is 9 percent paying company A, company A is paying 3.5 percent, LIBOR plus 3.5. Now company A is become floating, company A is floating now convert them into floating, floating will be LIBOR plus 3.5 company B is now fixed a fixed amount is 9 percent.

The stream of interest rate will flow now. What is the stream of interest rate is here? The company, now after 1 year, suppose after 1 year the here transaction take place every year. So after 1 year suppose, after 1 year, after 1 year is January 1st 2013, January 2nd 2013 now what will happen to the transaction take place interest rate? So company A is company, A will pay floating plus LIBOR suppose after 1 year LIBOR, LIBOR become LIBOR become 6.5.

Now LIBOR plus 3.5 become 10 percent now. Now company A will pay floating, so company A will pay floating means company A the transaction for company A will be 10 lakhs into LIBOR plus 3.5, that is LIBOR is 6.5, 3.5 now 10 percent. That is company

A will pay 10 lakhs into 10 percent. What about company B? Company B is now fixed because we transfer the interest fixed interest floating interest rate burden to company A, so company B is now fixed.

So what is the fixed amount? 10 lakhs into 9 percent. Now 10 lakh into 9 percent now here if you see the interest rate differential is something around 10 percent of 10 lakh something 10,000 10 percent 10 lakh something is 1 lakh rupees. Here also 9 percent is 9 lakh, 90,000. 10,000 extra Rupees will be transfer net transfer will take place. Net transaction will be net transfer take place. Who will be getting the benefit? Now getting the benefit by the company B. Company B transfer the 10 percent interest to company A now for company B is paying how much? 9 percent now.

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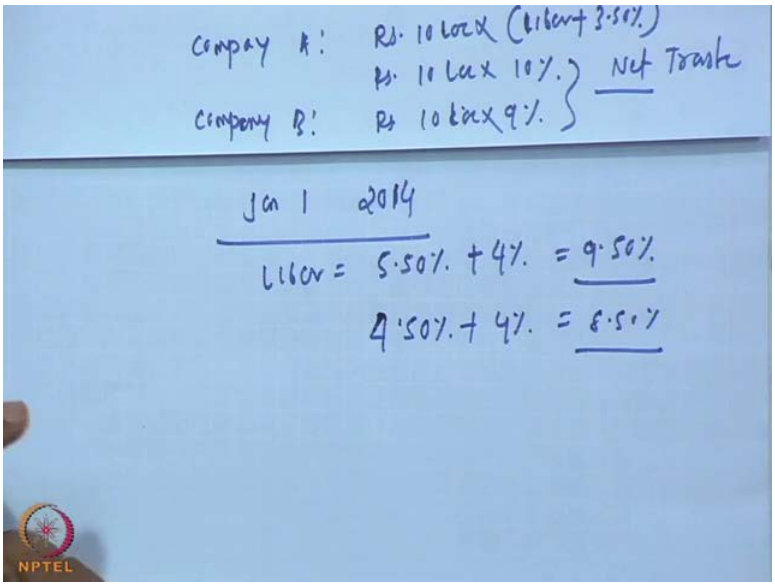

So there will be transfer of transfer of extra one percent of 10 lakhs extra 1 percent of 10 lakh to by company A to company B. After suppose after 1 year next 2014 the 2014 comes, 2014, in 2014, in 2014, January 1stt 2014 what will happen? Suppose January 1st 2014.

Now, LIBOR become LIBOR become 5.5 percent, LIBOR become 5.5 percent. So interest rate will be 5.5 percent plus 4 percent. That is 9.5 percent, again company B is a company B is A is getting the benefit. So when LIBOR become 4 percent around 4, less than 5 percent then only, there then suppose 4.5 percent, then plus 4 percent that is 8.5 percent then only profitability will be there for company A. So, here the fixed and

floating interest rate beneficial is there for both party but depends upon the fluctuation of LIBOR who is the getting the most benefit.

Thank you.