International Finance
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Lecture - 12
International Parity Conditions and
Movement of Exchange Rate

Good morning, today we will discuss session 12, that is on International Parity Condition and Movement of Exchange Rate, here we will be discussing the different kinds of parity; parity means as you know equality; equality in the sense, that there are some differences are available between different countries, particularly on inflation interest rate and that lead to movement of exchange rate from one country to another country, and this exchange rate movement or foreign currency movement reflect in either exchange rate depreciation or exchange rate appreciation, and this parity condition available to us as a factor for determining the exchange rate also as a determinant for exchange rate movement, and in this context we will be discussing about different kind of theories of international parity; the theories are here the Fischer effect; the international Fischer effect; the covered interest parity, uncovered interest parity and also how they link each other in determining the various exchange rate movements.

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Let us start with the; what are the problems of exchange rate; the movement of exchange rate as you know depends upon the inflation and interest rate, and these are the two macroeconomic factor, that is inflation and interest rate, significantly influence the forward points or forward depreciation or forward appreciation of exchange rate, as you know when you discuss about the calculation of forward rate, we have mentioned about forward premium and forward discount; a currency will be forward premium currency or the future value of the currency increase or enhance, if the currency is appreciating in the future; a currency will be depreciating if the interest rate in that particular country is higher than the interest rate against other country.

So, forward points as reflect the interest rate differential between two countries, whichever we are considering in the exchange rate determination. So, on determinant of forward premium or determinant of forward discount and it influence on the exchange rate, three important hypotheses are there.

First one is called that first one is called; what is we generally call it a covered interest parity; second one is called uncovered interest parity and third one we call it a real interest parity, along with the parity condition the different macroeconomic factor particularly the inflation also influence the future exchange rate, and this parity hypothesis along with the expectation of future inflation or future change in exchange future change in interest rate try to give some kind of movement to the exchange rate in your future, and you will be discussing about the relationship between interest rate, exchange rate and inflation, and others other expectation of traders; how it that together they decide the movement of exchange rate in economy.

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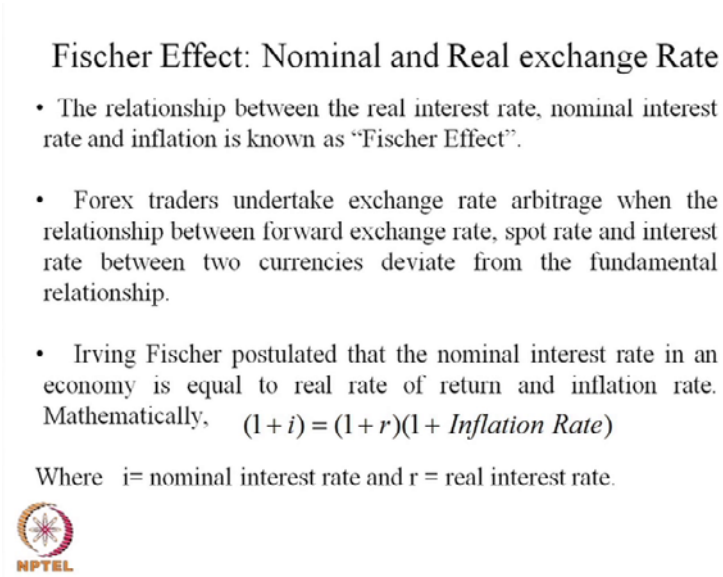

First, we little discuss about Fischer effect; Fischer is a economist who actually postulate the idea of nominal exchange rate and real exchange rate; nominal exchange rate and real exchange rate basically the difference of inflation only.

Here, when you go to a bank ask for a interest rate, banks generally give you one year deposit interest rate is 8.75; two years something around 9 percent, they are telling about the nominal interest rate means this interest rate available in actual market are not adjusted for inflation of a country, if you want to know the real interest rate, but in real gain in deposits means, if you part your money or deposit your money in a bank; how much actually you are getting after one year, it not the nominal exchange rate it is a real exchange rate because, whatever interest rate you get out of the deposit that will be that is supposed to be adjusted for inflation and banks never declare or never give the real interest rate rather than give the nominal interest rate.

So, for extruder, the fisher effect try to address the concept of nominal interest rate and real interest rate, and in this context they mention that, if there is any difference in nominal or real interest rate, there will be inflow or outflow of foreign currency, and that actually effect the near future movement of exchange rate. Forex traders under take exchange rate arbitrage, when the relationship between forward exchange rate, spot exchange, spot rate, and interest trader between two currencies deviate from the fundamental relationship. So, what is the fundamental relationship; the fundamental

relationship is here the interest rate differential or the inflation differential generally give some kind of movement to exchange rate.

Whenever, there is their movements are not particularly addressed, or the movements somewhere not reflect the market forces in this context; the forward trader; the forex trader take forward arbitrage. So, arbitrage in the sense, that they take position in the two different markets and try to get the arbitrage opportunity available into currency. Irving fisher postulate that nominal interest rate in an economy is equal to the real return and inflation rate; what is the real return; real return is the nominal interest rate if you minus, if you negate the inflation you will get the real interest rate and the real interest rate actually influence the foreign currency movement.

So, how you can describe the; suppose you know the nominal interest rate and inflation, how you can calculate or estimate the real interest rate, here the formula is here 1 plus i here we have to take that, formula is here nominal we are addressing the problem of nominal and real interest rate, we are addressing the problem of nominal and real interest rate.

One Irving fisher postulate that 1 plus I; 1 plus i is equal to 1 plus r into 1 plus inflation rate; what does it mean yes i is here nominal interest rate; i is here nominal interest rate and r is here real interest rate. So, here we are addressing the; how the nominal interest rate, if you adjust for inflation that will give you the real interest rate. So, 1 plus i that is i is here nominal interest rate, r is here real interest rate and if you know the inflation rate you can address; you can estimate the real interest rate here; real interest rate nothing but 1 plus i divided by 1 plus inflation rate; this will give you 1 plus r; that is r is your real interest rate so, 1 plus i divided by 1 plus inflation rate minus 1 will give you the real interest rate.

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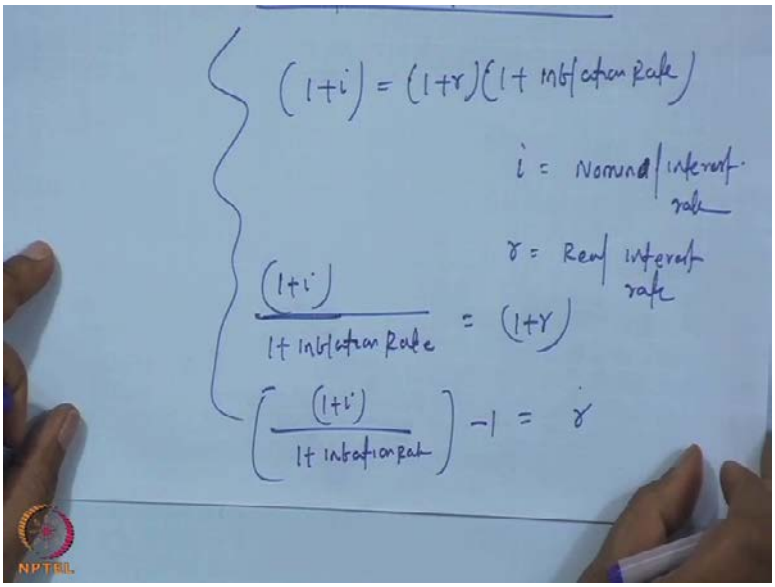

So, 1 plus i. So, minus r will give you the real interest rate. So, once you know the once you know the inflation and interest rate, nominal interest rate, you can estimate the real interest rate.

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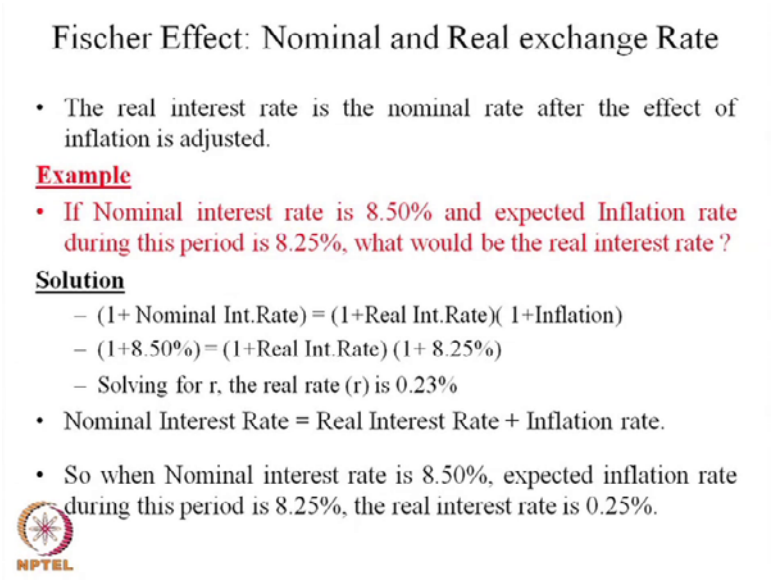

So, now, question is here; suppose let us do a problem, small problem if the nominal interest rate is 8.50 and expected inflation rate during this period is 8.25, what would be the real interest rate, here our calculation process is; we know the nominal interest rate; we know the inflation rate, these are what you can mention here annualized rate.

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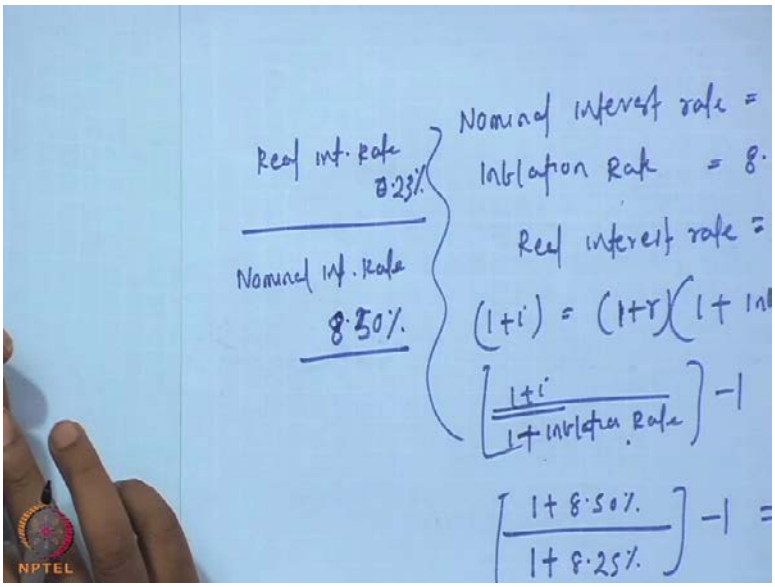

So, we are here, our nominal interest rate is rate is 8.50 percentage and inflation rate is 8.25 percentage, both are annualized rate means annual inflation rate, annual interest rate. Now, we have to estimate; what will be the our real interest rate, we want to estimate this, now question is here, when you mention real interest rate it is adjusted for the inflation. So, our nominal interest rate when adjusted for inflation rate, give us the real interest rate, our formula as I mentioned earlier 1 plus i; i is a nominal interest rate, 1 plus r; r is our real interest rate, 1 plus inflation rate. So, 1 plus i by 1; 1 plus inflation rate minus 1 will give you the real interest rate; what is our now, use this formula when you will calculate the inflation real interest rate. So, 1 plus i; i is a nominal interest rate. So, 1 plus 8.50 percentage divided by inflation rate; 1 plus inflation rate, inflation is 8.25 percentage 8.25 percentage whole bracket minus 1 is equal to r , if you solve this, it will give you something around real interest rate will give you something around 0.23 percentage.

So, 0.23 percentage the market the real interest rate after adjustment of inflation is 0.23 percentage; however, nominal interest rate is here, nominal interest rate is 8.50 percentage, you see the difference actually real gain, if you deposit say money in a bank, you will get 8.50 after one year as interest payment, but actually after the adjustment inflation, it is you are getting only 0.23 percentage that is called real interest rate now.

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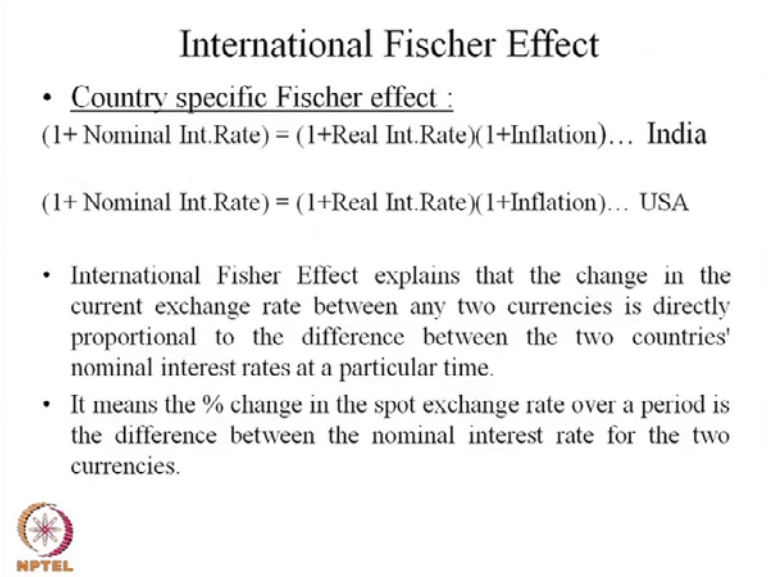

So, now, here what we have discussed about the country specific rates, we are adjusting the inflation and in nominal interest rate in a particular country to get the; what is call the real interest rate, this is call fisher effect. Fisher effect address the problem of primarily the nominal and real interest rate differential and that is this difference in actual world we call it real interest rate. So, if you want to know the country specific. So, we can calculate the country specific rate also 1 plus nominal interest rate suppose, here I mention here country specific 1 plus nominal interest rate equal to 1 plus real interest rate 1 plus inflation in India context or US context you can do it.

But, what actually international fisher effects mentioning here, international fisher effect mentioning here, that the current exchange rate between any two currencies is directly proportional to difference between the two countries nominal interest rate at a particular time period.

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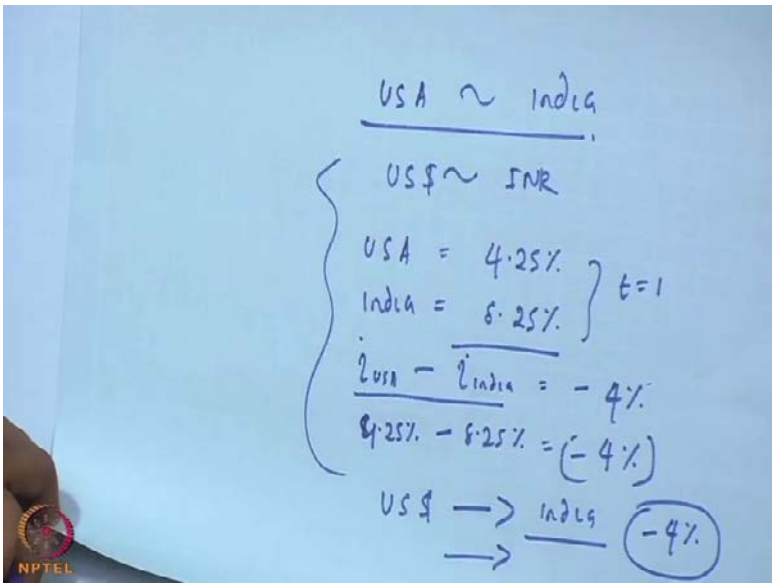

It means that, if a country, the two country you are taking into account US and India US and we are comparing India, the movement of exchange rate between US dollar and Indian rupee INR they take into the movement of interest exchange rate in Indian rupee in US dollar reflect the; what is called the nominal interest rate between two country. So, what does it mean that the interest rate differential suppose, USA having a 4.25 percent interest rate and India having a 8.25 percentage interest rate at particular time period suppose, we are mentioning time period t is equal to 1, and then there is significant difference between the two country differential interest rate, the differential interest rate here I am putting for US I am putting i USA minus i India, that is interest rate is something around minus 4 percent, US is 4.25 percentage, India is 8.25 percentage.

So, differential available to us minus 4 percentage, that mean it is better to borrow from US and invest in India to get the interest rate differential of 4 percent, and this 4 percent differential interest rate lead to movement of currency, that is US dollar will flow to India to take advantage; what is call the arbitrage profit, arbitrage available here arbitrage profit is arbitrage in the interest rate, the arbitrage interest rate available minus 4 percent or between differential between in the US and India or Indian interest rate is more, that is more movement of foreign currency or US dollar to India to take advantage of this 4 percent differential.

And international fisher effect mentioning that, this 4 percent differential interest rate will create some kind of movement of currency between movements of currency US dollar to India, and this movement will continue. So, long as the differential is not wiped out is not wiped out. So, long as differential available the differential between interest rate in between US and India is available, this movement will continue from form dollar to rupee or dollar will flow from US to India to take advantage of this profit, when this differential will wipe out once the difference once the rupee depreciated significantly to reflect the 4 percent differential in interest rate, or the forward premium reflect the differential interest rate that is 4 percent available. So, one is that either the expected depreciation of rupee may lead to wipe out the wipeout the interest rate differential.

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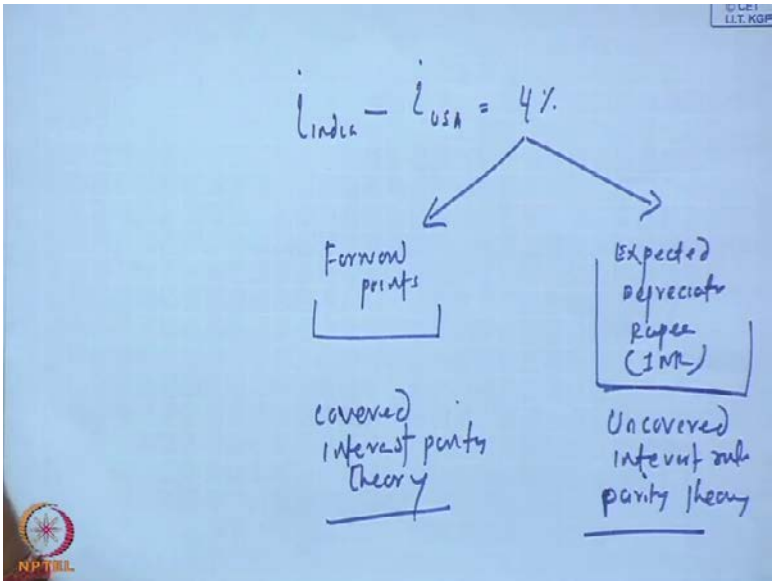

That if two ways possibilities are there first way, that interest rate in India minus interest rate in USA, which is available at 4 percent may be reflect, maybe adjusted in two way, that is first way the forward premium, forward point; what you call forward point or expected depreciation of rupee that is INR. So, two way it can be wiped out, first way either the forward premium, that is in place because forward premium, here rupee is depreciating. So, forward premium will appreciate that is forward points will be appreciate, forward premium will increase that is when you want to convert the US dollar into Indian rupee, again Indian rupee to us dollar the forward premium increase in such a way that, it will reflect the availability of 4 percent differential, or rupee may

depreciate to such extent that the forward that 4 percent interest rate differential are not available.

On this two adjustment process; this two are adjustment process, either this or that this two adjustment process has lead to two different kind of theory; one is called the forward point adjustment process is called covered interest parity theory; covered interest rate parity theory is this is called uncovered interest rate parity theory; two different theory developed.

This theory; covered interest rate parity theory mentioning that, the interest rate differential should reflect in forward points; uncovered interest rate parity theory mentioning that rupee will depreciate by a 4 percent. So, that there will be no difference in interest rate differential, the adjustment process lead to two different kind of theory, and we will be discussing about two different theory in a systematic way.

So, now, come to the international fisher effect some problem. So, that we will be in a position to understand this way, if you see the problem is here, the nominal interest rate in India is 8.5 percent per annum, then it is 4.5 percent in USA.

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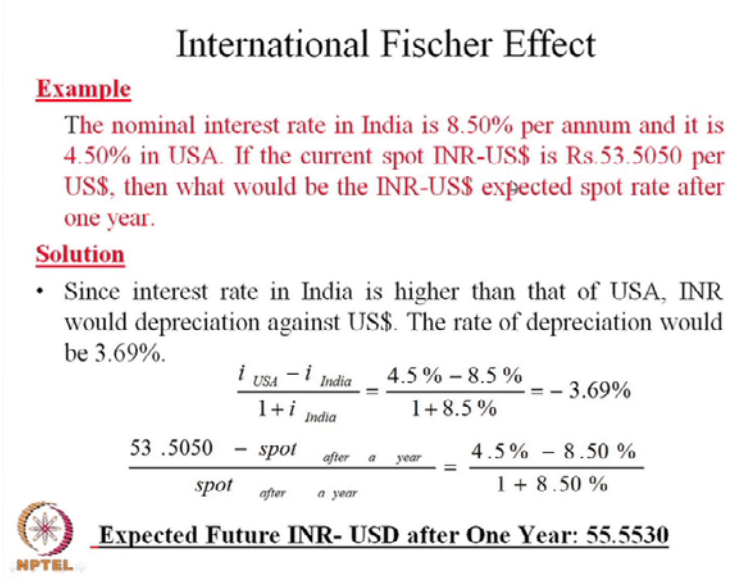

If the current spot INR and US dollar is 53.5050 per US dollar, then what would be the INR-US dollar expected spot rate after one year, the problem here given to us, it has given it has mentioning to us, that we have to estimate the expected spot rate after one

year, and what are the concept; what are the variables given to us, the current interest rate in India is 8.5; current US interest rate in USA is 4.5 and current spot between INR and Indian INR that is Indian rupee and US dollar is 535050, these four thing is given to us, we have to estimate after one year; what is the expected INR spend US dollar in rate. Now, question is here, first you have to estimate, what are the interest rate differential available to us, the interest rate differential as I mentioned here.

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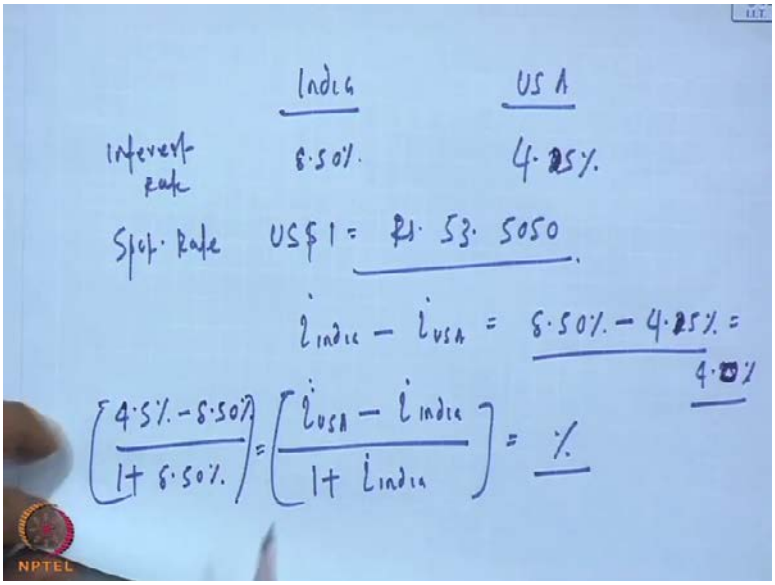

So, in India and US, the interest rate is in India interest rate is 8.50; US interest rate is 4.25 percentage and now spot rate between US dollar Indian rupee given to us; 1 dollar is equal to rupee 53.5050, now this interest rate differential will lead to what, how much differential available in India and US; India interest rate minus US interest rate is available to it 8.50 minus 4.25 the differential is available to us something around 4.25 percentage.

Now, this 4.25 percentage of interest rate differential lead to what, flow of dollar from US to India and this will lead to depreciation of rupee; how much depreciation, you have to estimate the depreciation percentage, now how to estimate the depreciation percentage, now US interest rate minus India interest rate divided by 1 plus India interest rate, that is the how much depreciation percentage will given to us.

So, now you can estimate the differential how much available, if you calculate this US interest rate is 4.25. So, US interest rate is available to us 4.5. So, it is 4.5; 4.5 means 4

percent available to us, it is a 4 percent available to us now US interest rate is 4.5 percentage minus Indian interest rate is 8.5 percentage divided by 1 plus Indian interest rate 8.5 percentage, this will give us the percentage change in interest rate.

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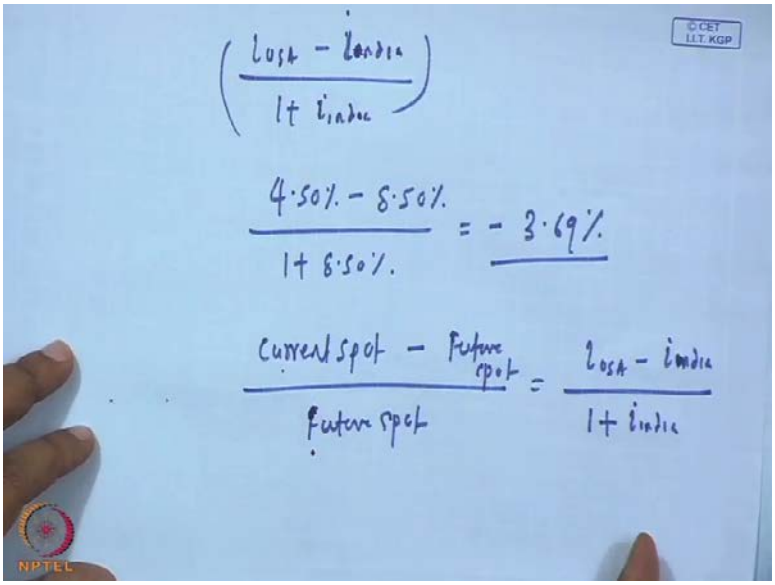

Now, if you want to estimate this further. So, what is the formula for us, now here US interest rate minus India interest rate divided by 1 plus India interest rate; this is our percentage change. So, percentage change will be now, US is 4.5 percentage minus India interest is 8.5 percentage divided by 1 plus 8.5 percentage, that is coming something around 3.69 percentage, that is rupee should depreciated to depreciate in one year by 3.69 percentage; why rupee is depreciating because there will be more flow of dollar to India. So, rupee will be converted India rupee will be rupee will be converted dollar will be converted into rupee, there will be more circulation of rupee in Indian economy and this lead to depreciation of rupee in Indian economy.

So, now once you know the depreciation percentage now, also you can calculate first will be the spot after one year; what should be the spot rate, the formula is here, if you see the formula here. So, it is available to us that, current spot minus future spot divided by a future spot; current spot minus future spot divided by future spot; this should reflect, what is called the interest rate in US minus interest rate in India divided by 1 plus interest rate in India, these two need to be equalized. So, our current spot minus future spot divided by future spot, supposed to be the interest rate differential change in interest rate

differential, that interest rate differential percentage should be there, if you equalize this then you will get the future spot only.

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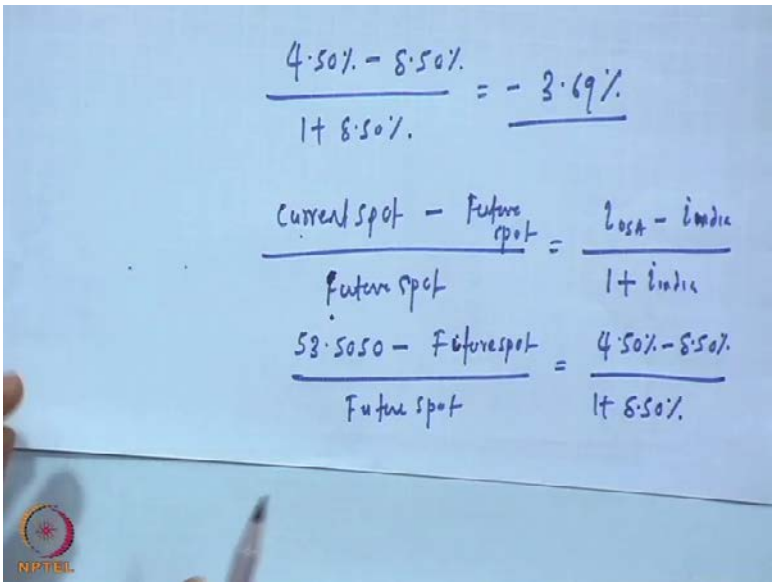

Because if you see here current spot is 53.5050 minus future spot, I am mentioning future spot; future spot divided by future spot is now equal to what 4.5 percentage of US interest rate minus 8.5 percentage of Indian interest rate; 1 plus 8.5 percentage of Indian interest rate and this if you together, if you calculate then what will be the future spot.

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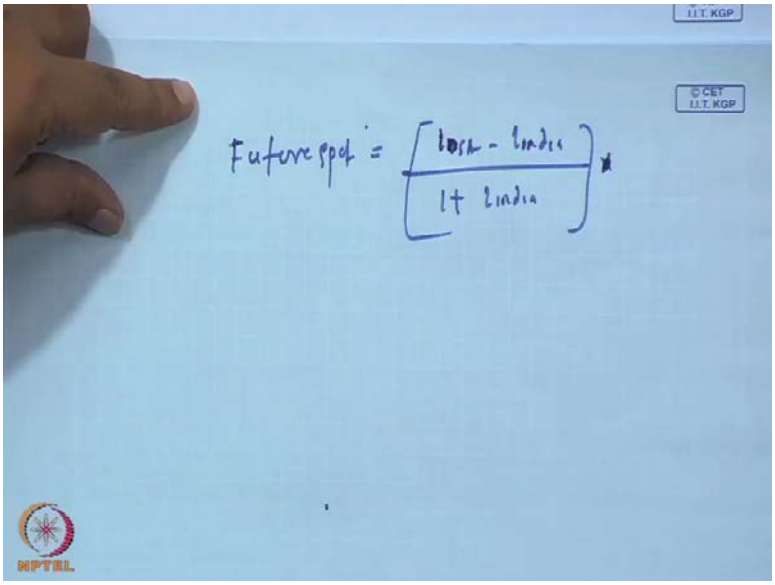

Future spot nothing but future spot will be nothing but our calculation process, a future spot is nothing but, that is interest rate differential between two country, here our interest rate differential between two country is how much; the our US interest rate minus India interest rate divided by 1 plus India interest rate; this is our change in interest rate, future spot will be here multiply this with the what, we have to multiply this with our change in interest rate; change in interest rate is our here, what we have done earlier last examples here.

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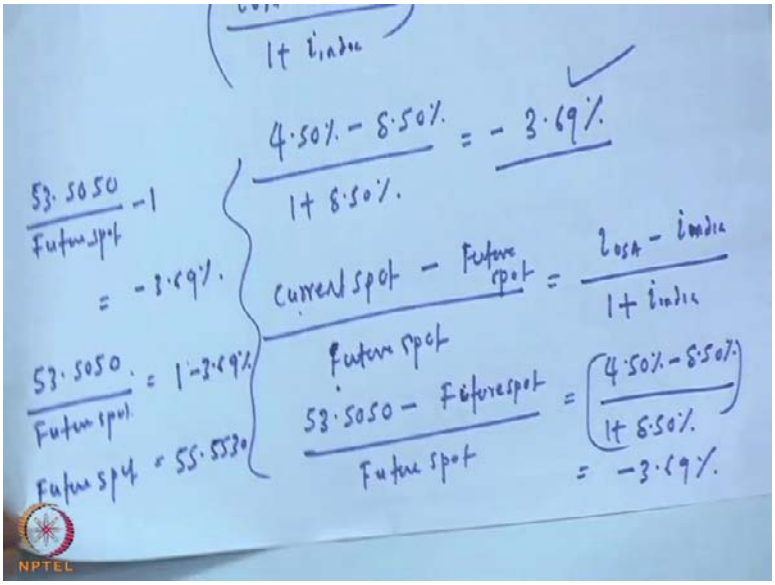

The change in interest rate is a change in interest rate is coming how much, if you already you calculate 3.69; this is minus 3.69 already you have done it. So, our future spot will be 53, here coming out 535050 divided by a future spot minus. So, here it will be 535050 divided by I am mentioning here divided by future spot minus 1 equal to minus 3.69, if you this future spot 1 divided by this future spot will cancel it will be 1, a minus 1 a 3.69 percentage.

So, other word 535050 by future spot will be 1 minus 3.69 percentage, and 1 minus 36.39 percentage if you solve this, it will give you future spot will be something around 55.5530, that will be our calculation process of future spot, but how we will do it directly, when a when you want to do it directly, you have to see the derive the formula.

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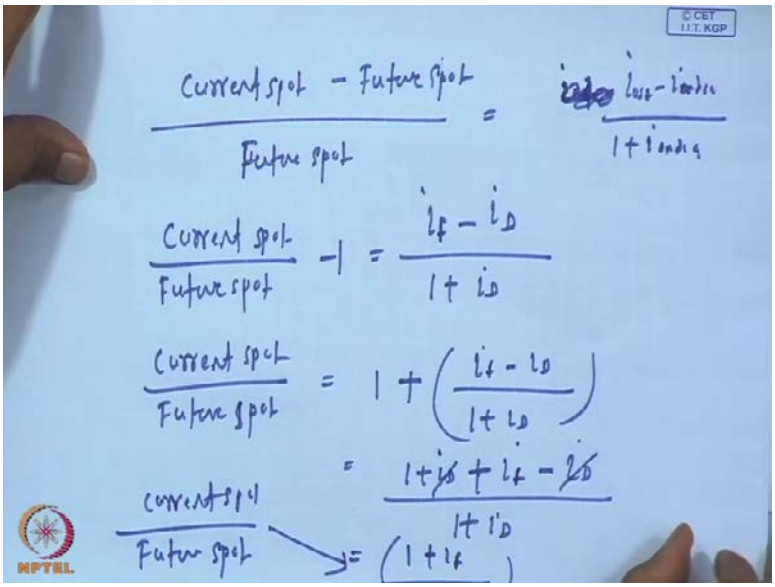

So, derived the formula is here, we have already discussed the formula that current spot minus future spot divided by future spot, supposed to be interest rate differential that is your interest rate differential is here, i USA minus i India divided by 1 plus i India in place of India I am writing a domestic country.

So, current spot divided by future spot minus 1 will be equal to interest rate in foreign country minus interest rate in domestic country divided by 1 plus interest rate in domestic country. So, now, here current spot divided by future spot equal to 1 plus interest rate differential foreign country, interest rate future domestic country 1 plus interest rate in domestic country.

So, now, this will come other side and you will get the direct formula, direct formula current, if you multiply this you will get the direct formula. So, it will be 1 plus directly coming out 1 plus i interest rate domestic country plus interest rate foreign country minus interest rate domestic country 1 plus interest rate domestic; interest rate domestic; domestic cancel it will be cancelled. So, 1 plus interest rate in foreign country divided by 1 plus interest rate in domestic country, this will be our current spot divided by future spot, this will be our current spot divided by future spot further, if you add it further it will go out from there it will be coming.

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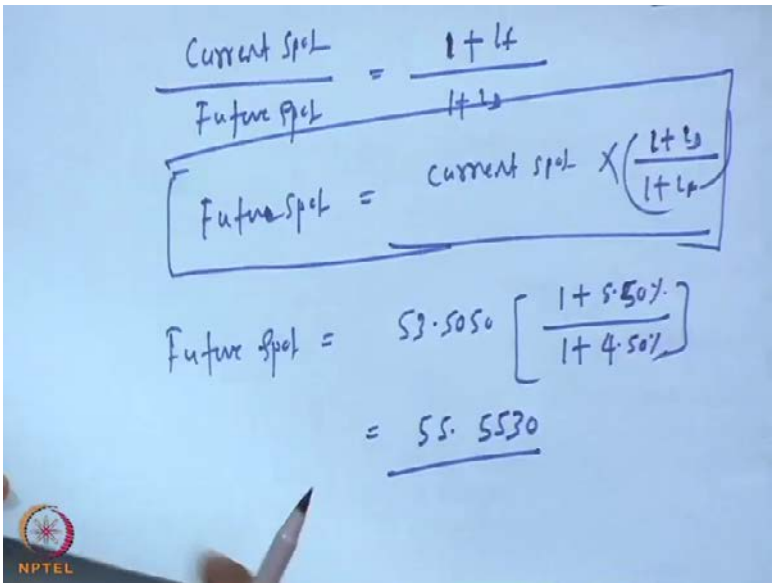

So, current spot divided by future spot equal to 1 plus interest rate in foreign divided by interest rate in domestic. So, now, if you see in other way that future spot will be current spot into 1 plus interest rate domestic 1 plus interest rate foreign; that will be our formula now, future spot if you use this earlier example, our future spot after one year will be current spot is 53.5050 and interest rate 1 plus; domestic interest rate is 8.50; foreign interest rate is a our 4.50, if you solve this, it will give you the calculation of 55.5530, that is the formula for calculation, future spot is current spot into 1 plus domestic interest rate divided by 1 plus foreign interest rate; that formula will give you the future's calculation of if you know the interest rate differential.

What does it mean then; it means that interest rate differential generally give some kind of flip or some kind of movement to the inflow, outflow of foreign currency, if a country is more interest rate is more than that country's domestic currency will depreciate against the foreign currency, there will be movement of foreign currency to that country, there will be more circulation of domestic country and domestic money supply and money value will come down in that country, that is called the interest rate differential theory, but interest rate parity as I mentioned here, interest rate parity has different dimension I ask we know that interest rate differential generally adjusted through two different theory; that theory is here first theory is covered interest, another theory uncovered interest.

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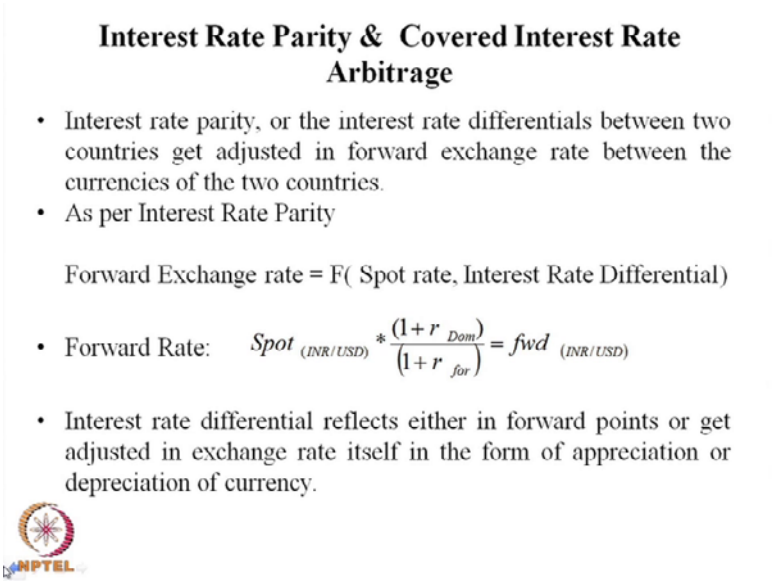

And this interest rate differential gives some kind of movement to the interest rate fluctuation and. So, forward exchange rate that is after one year, after some time; what will be the rate the future spot; future spot or the forward exchange rate is a function of what is called spot rate and interest rate differential.

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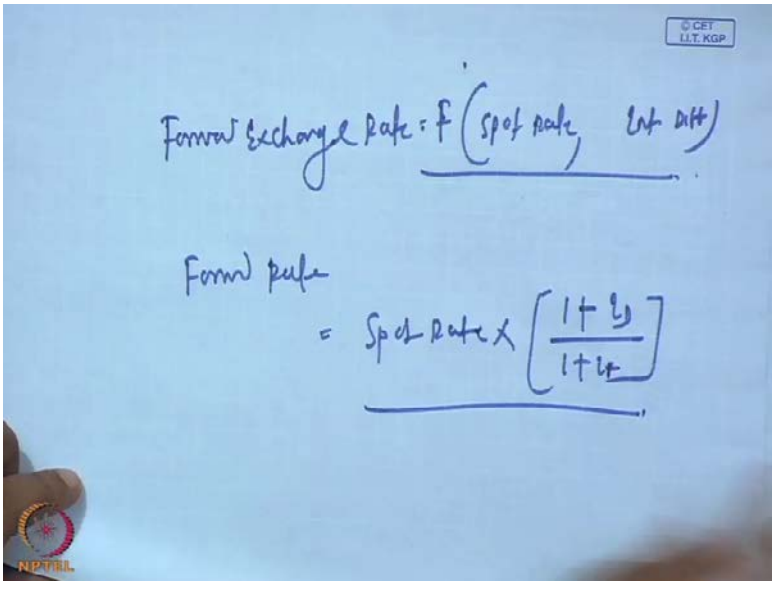

So, since the forward exchange rate depends upon interest rate differential in the forward point, forward exchange rate; exchange rate is a function of current spot rate and interest rate differential, this is two things are generally influence the future spot rate. So,

whenever interest rate differentials are available, there will be movement of currency and lead to depreciation or appreciation of spot rate and that depends upon whether the country is higher interest rate or lower interest rate, if the country is higher interest rate spot, future spot will further depreciate, if the country is lower interest rate future spot will appreciate and that lead to what is called the calculation of forward rate, what we derived the formula; forward rate is nothing but spot rate into 1 plus domestic interest rate divided by 1 plus foreign interest rate, here we have derived the formula here. Now, how the adjustment takes place and we will be discussing about the theory now calculation side.

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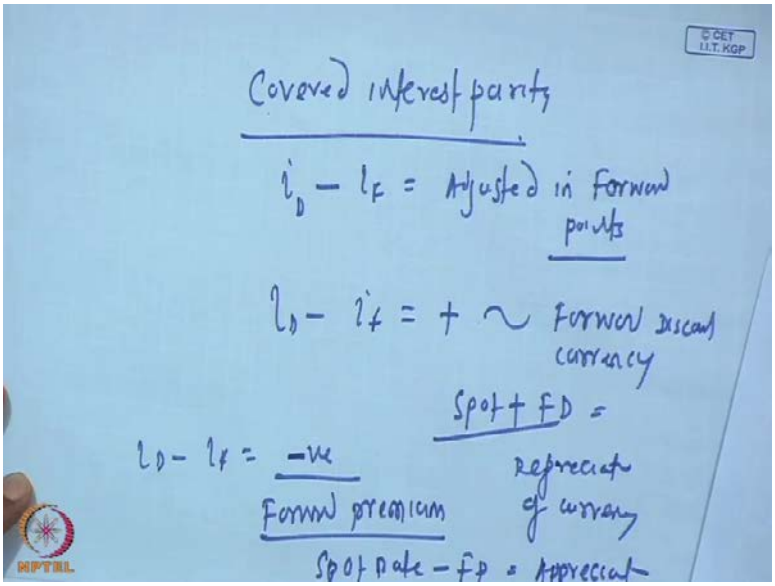

So, as I mentioned that in case of covered interest parity, the interest rate differential domestic minus the interest rate in foreign country is adjusted in the forward premium, forward point. So, when forward point means after forward point that is as we discussed earlier forward premium or forward discount, that will be adjusted in forward premium so, but this forward premium is adjusted means, when you add the forward premium in spot rate the rupee will depreciate appreciate depends upon the interest rate differential.

So, if interest rate differential domestic minus foreign is positive then forward point, it is a forward discount currency and you have to add here the spot plus forward discount lead to depreciation of currency, and if it is forward domestic minus forward premium is negative, then it is a forward premium currency, and from the spot rate minus the

forward premium, we will appreciation lead to appreciation of currency that forward premium when forward spot lead to appreciation of currency.

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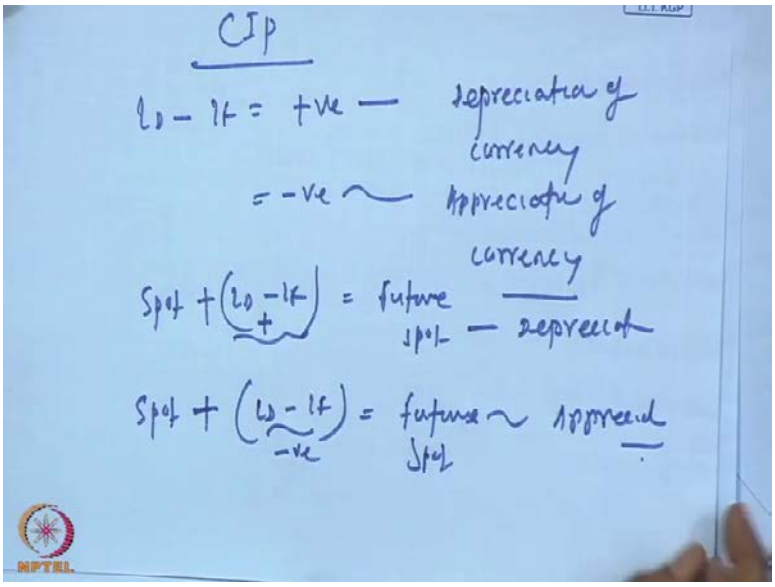

In other word, when you discuss about the covered interest parity that is CIP hypothesis; covered interest parity hypothesis, the interest rate differential may be positive; positive lead to depreciation of currency and negative lead to appreciation of currency, and in case of positive; positive mean the spot plus i D minus i F, that is this forward discount will be future spot, and spot plus; plus minus, if it is negative i D minus i F, if it is negative, if it is positive then future spot will be depreciate, if it is negative; future spot will appreciate, this is a calculation process of for covered interest parity.

What is covering here, the interest rate differential is covered in forward discount or forward premium, that is the theory of forward spot, whenever there is a it is not covering, the forward point does not reflect the interest rate differential, there will be arbitrage opportunity and arbitrage opportunity lead to flow of currency from one country to another country, or the from the premium country to the discount currency and in this process the adjustment takes place. So, now, this is the part of the covered interest parity.

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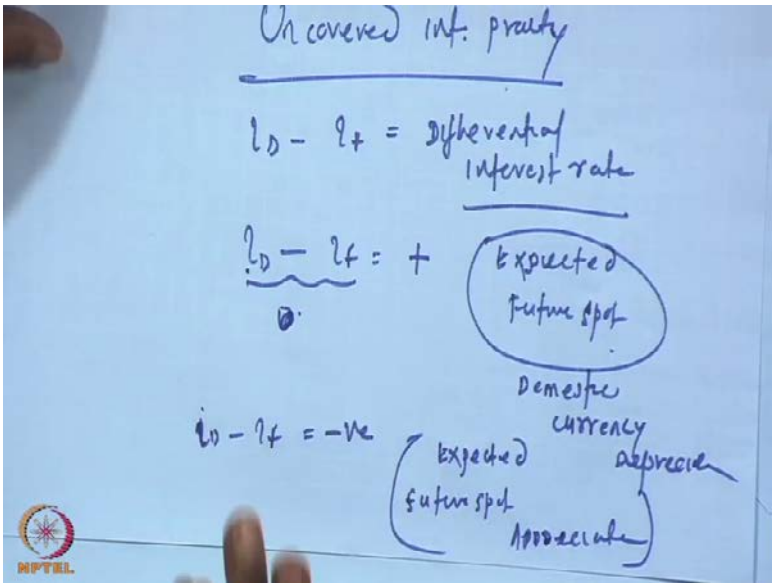

In case of uncovered interest parity, as I mentioned earlier; uncovered interest rate parity as I mentioned to you earlier, here the appreciation or depreciation of foreign currency reflect in expected appreciation, expected depreciation, here uncovered the differential interest rate, that is domestic minus foreign country, the differential interest rate not covering is uncovered in forward premium; however, since there is a differential available, if this differential is positive, there will movement of foreign currency, that is US dollar, suppose in India domestic is India from here domestic is India and foreign is US, there will be movement of foreign US dollar to India and this lead to depreciation of rupee, and it is not working through the forward premium rather than it is a people expect that the trader expect that interest rate differential between domain India and USA is positive. So, there will be depreciation of rupee may take place further and this expectation lead to flow of currency.

So, here that interest rate differential creates expected change in spot rate, future spot rate. So, whenever there is a positive differential domestic minus foreign is positive, the expected future spot, it will reflect in expected future spot and rupee or domestic currency will depreciate, if differential is negative, domestic currency minus domestic interest rate minus foreign interest is negative expected spot, expected future spot appreciate and this appreciation, depreciation is expected the trader will take a position in such a way, that interest rate differential is positive rupee will depreciate, if it is rupee interest rate in domestic currency is more is expected, if interest rate between domestic

and foreign is negative, trader will take a place take a position in the foreign exchange market to enjoy the appreciation of rupee, and this process it is uncovered interest rate parity primarily mentioning that mentioning towards that the differential interest rate is not covered in forward premium rather than it create a expectation in the market, and this expectation lead to adjustment in future spot rate, and whenever there is a positive differential, that is domestic minus foreign is positive differential, this lead to depreciation of domestic currency, and if there is a negative differential, that is domestic minus foreign is negative interest rate differential, this lead to appreciation of expected future spot, and during this process if the currency adjusted in the market currency value adjusted in the market.

Now, whether is there any difference in covered and uncovered interest parity, if you see in real world there is no difference, there is a way of adjustment is there is difference, the way of adjustment is here, because uncovered and covered interest parity both the covered or uncovered, both give rise to what is called inflow, outflow of foreign currency. So, when there is a differential interest rate, there is it lead to movement of currency, and this movement of currency lead to appreciation or (( )) depreciation of foreign currency, and the process of working is different in uncovered and covered interest parity.

In case of covered interest parity; that the interest rate differential is adjusted in forward premium or discount, in case of uncovered interest parity the interest rate differential adjusted in expected change in spot rate, expected change in future spot rate. So, there is no difference, if you see in the real world, only the process of adjustment is different.

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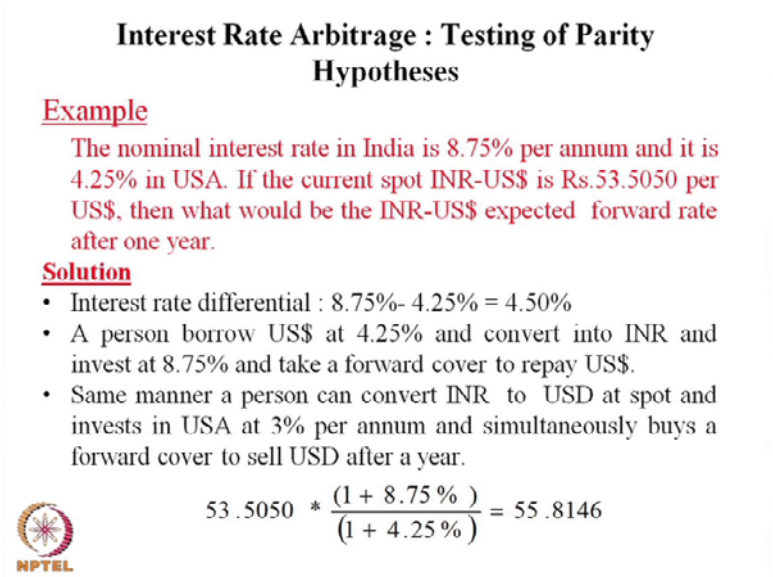

Now, question is here, if you know, once you know the interest rate theory that is called the covered interest rate parity and the uncovered interest parity, how you can use in real world. Now, suppose you want to understand the process of adjustment, want to understand how the trader take position in the market, how the rupee or rupee dollar adjustment take place through the covered interest parity, through the uncovered interest parity, let us do a problem.

This problem is here, the nominal interest rate in India is 8.75 per annum, and it is 4.25 in USA, if the current spot INR US dollar is 535050 for dollar, then what would be the INR expected forward rate after one year, you have to work through the interest rate difference covered and uncovered in test parity theory you are going to use it.

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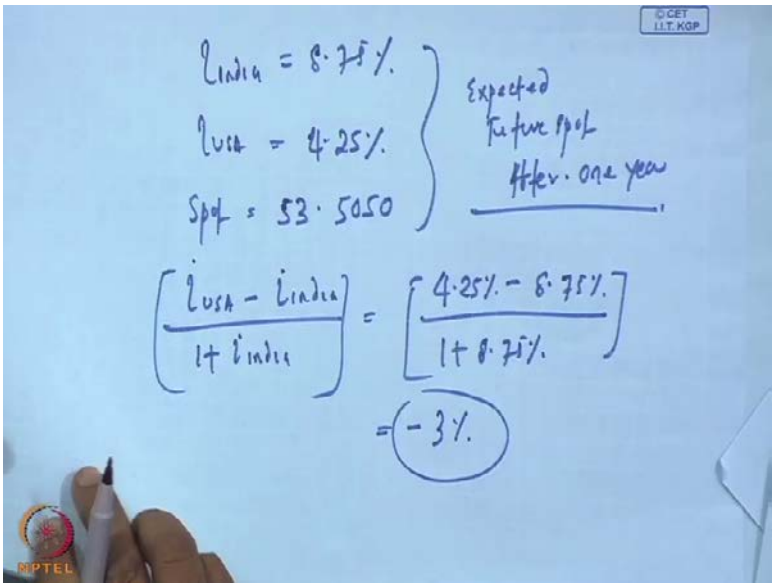

Now, first thing India interest rate is 8.75; US interest rate is 4.25; current spot is 535050 we want to estimate what? Expected future spot after one year, we want to estimate this now, let us see the interest rate differential is how much interest rate differential if you see i, that is i USA minus i India divided by 1 plus i India is how much? i USA is 4.25, that is interest rate in USA is 4.25; interest rate in India is 8.75 divided by 1 plus 8.75; this gives what minus, if you calculate; this will give us a whether rupee will depreciate or rupee will appreciate, since India interest rate is 8.75 higher than the USA interest rate a 4.25. So, rupee will depreciate how much; what is the percentage of depreciation in the percentage depreciation we are calculating the interest rate differential percentage.

So, interest rate differential percent is coming, if you calculate this will be something around; this is 8.75, when this is something around 4.5 percentage; 5.5 by 8.75, if you go and calculate, it will be summing around minus 3 percent something, 3 percentage, rupee will depreciate by 3 percent, if you solve this, it will give the rupee will depreciate by 3 percent now, once you know the rupee depreciation, then you have to calculate whether the; what is the covered interest? How much the forward premium will cover; the forward premium will cover the interest rate differential.

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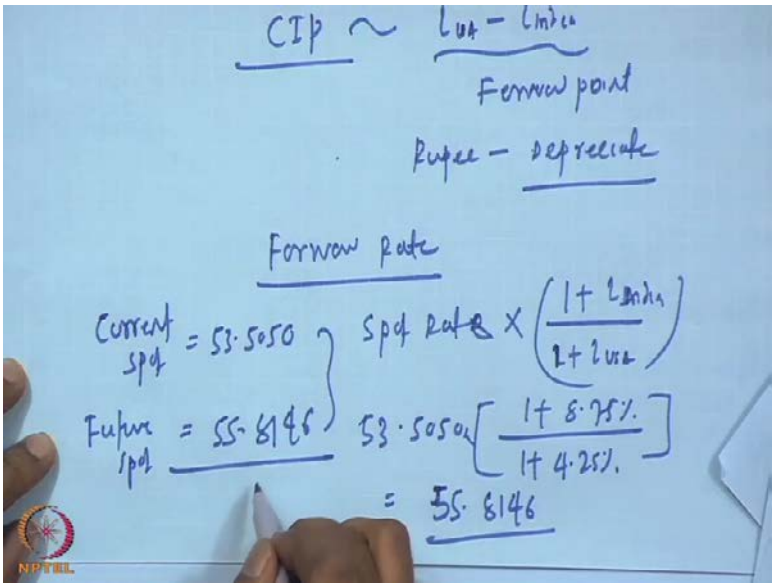

Because, we are calculating the forward rate through CIP hypothesis; covered interest parity hypothesis, in case of covered interest parity hypothesis, the interest rate differential, that is USA minus interest rate differential India is adjusted through forward point is adjusted through forward point, since the differential is negative, rupee will depreciate, that is domestic interest rate is more. So, domestic currency that rupee will depreciate, and the depreciation will reflect in the forward point. So, there will be rupee will be a forward discount currency.

So, what is the. So, future spot, forward rate; forward rate will be as I mentioned earlier that current spot, spot rate into 1 plus domestic interest rate; 1 plus USA interest rate, that is a domestic is India; this is. So, spot is 535050 into 1 plus India interest rate is 8.75; 1 plus US interest rate is 4.25, if you calculate this will coming how much 55.8146, spot rate would be 55.8146, what is future spot rate? Current spot rate is how much; current spot is 53.5050 and future spot is 55.8146. So, the forward premium is here the difference is with forward discount rate is different, that is adjusted through CIP hypothesis.

In case of EYP hypothesis, and uncovered interest rate parity, in case of uncovered interest rate parity, the difference, total difference amount will be adjusted in difference amount will be adjustment in the; what is called the rupee will depreciate in such a way

to come to a 55.8146, there will be no interest rate differential available. So, and this lead to adjustment in the interest rate differential, the arbitrage profit will remove from there.

Now, realizing this, the covered and uncovered interest parity and adjustment process, the actual world, whenever there is a difference in interest rate differential between two country; two country exchange rate will move in such a way, that differential should wipe out immediately, because trader know the differential and they take into account in take in the arbitrage profit and they convert one currency to another currency to take advantage of arbitrage available, the arbitrage available may be available for a few second or few hour or some few minutes; however, a actual practice the arbitrage are very less and whenever there is a arbitrage, there will be movement of currency.

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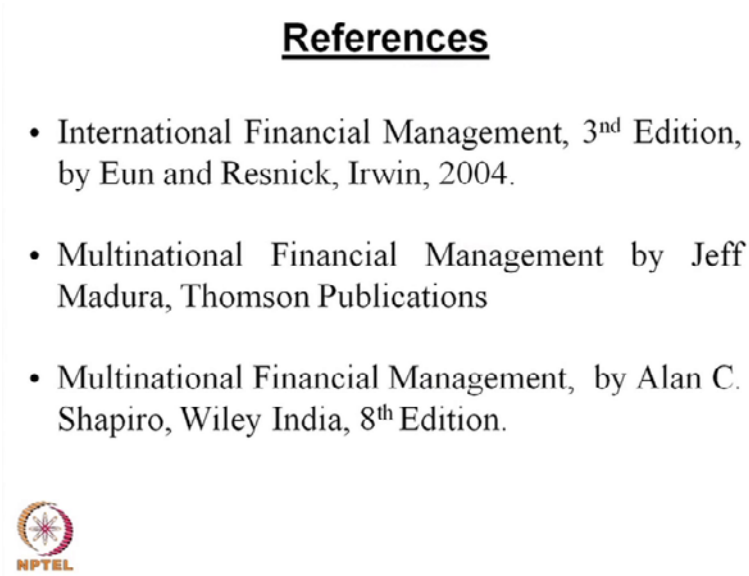

Now, further references, further study; you can Resnick that Eun and Resnick book on international financial management; you can go through that; you can go through Madura book on multinational financial management, and also you can go through the Alan C Shapiro Wiley and Alan C Shapiro multinational financial management in that, 3 books international research effect CIP EYP hypothesis has been has been discussed further, we can go through that book.

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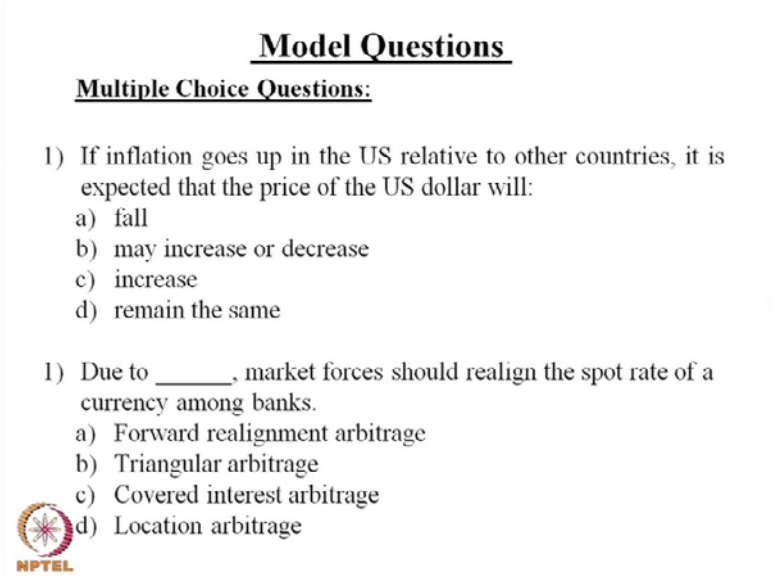

Some model questions here, let us use some multiple choice questions, if inflation goes up in US a relative to other countries, it is expected that the price of US dollar will, there is a inflation goes up in US; US in US the inflation will be more, what will be the dollar, through a fisher effect inflation with real interest come down, and US dollar will depreciate. So, that will be US price of US dollar will may that is fall due to.

Second question due to market forces should, due to dash market forces should realign the spot rate of a currency among banks, due to what the market forces lead to realignment of spot rate. So, here if you see the market forces create, market forces come through what arbitrage opportunity. So, arbitrage opportunity lead to realignment of currency among bank. So, it is nothing but locational arbitrage, because different bank give different rate and the rate will be realigned in the actual probe market because of locational arbitrage.

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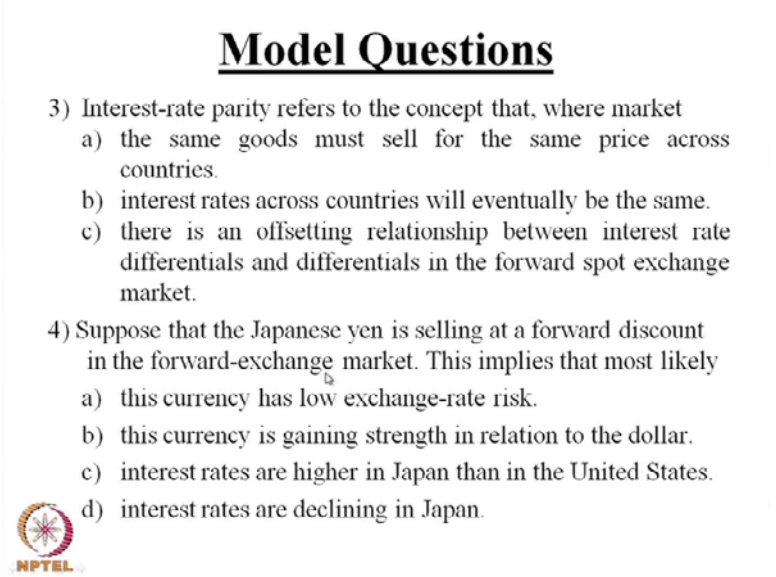

And here, you can go through some further question also, interest rate parity refer to concept that, where market; what is the interest rate parity refers to the concept the same good must sell for the same price across country; second is interest rate across country will eventually be the same, and c there is an offsetting relationship between interest rate differential and differentials in the forward spot market rate. So, here what we are discussing, interest rate parity refers what? refer to the interest rate across country will eventually be the same no; it is the there is a offsetting relationship; interest rate parity is mentioning as there is a interest rate differential, and if there is a interest rate differential there will be movement of currency from one country to another country and it will reflect in spot future spot exchange rate. So, they here number 3 question the solution is c.

Number 4; suppose there is, suppose the Japanese yen is selling at a forward discount in the forward exchange market. This implies that most likely this currency may have low exchange rate; this currency is gaining strength in relation to the dollar; interest rate are higher in Japan then in united states; interest rates are declining in Japan, here Japanese yen is selling as forward discount means, there is movement of other currency to Japanese, Japan. So, Japan interest rate is higher. So, here interest rate are declining in Japan not correct, here will be interest rate higher in Japan than in united states, that will against the dollar, the interest rate against USA; Japanese interest rate is more, because

of that reason Japanese, there is a movement of currency dollar to Japan and Japanese yen will be a forward discount currency.

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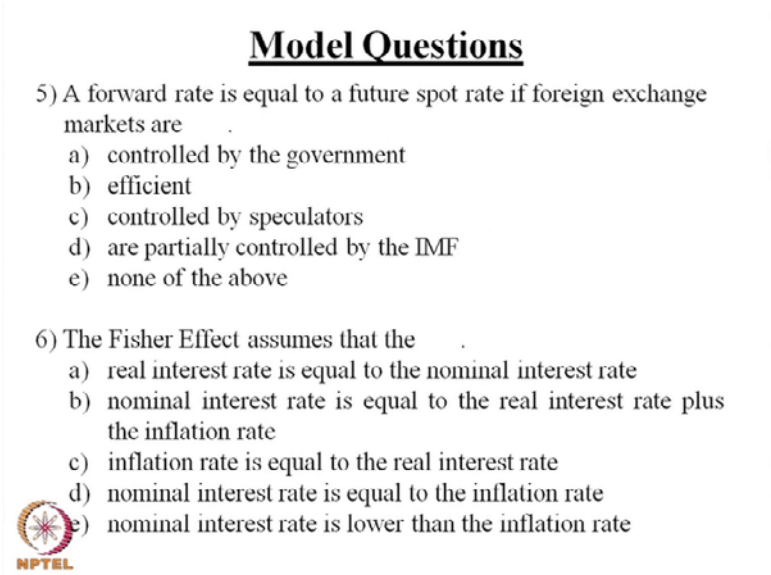

Number 5; a forward rate is equal to a future spot rate, if exchange rate foreign exchange market are controlled by the government, or efficient controlled by the speculator are partially controlled by the IMF or none of them, forward rate will be equal to the future spot means, there is a arbitrage opportunity available; this arbitrage opportunity free, there is no control in the movement of foreign currency. So, it is a efficient market a efficient market the forward rate are equal to the spot rate.

Six number 6 question; the Fischer effect assume that real interest rate is equal to the nominal interest rate; nominal interest rate is equal to the real interest rate plus inflation rate, or inflation rate is equal to the real interest rate, or nominal interest rate is equal to inflation rate, or nominal interest rate is lower than the inflation rate; what is Fischer effect actually; Fischer effect is mentioning that, nominal interest rate is equal to the real interest rate plus inflation rate. So, because nominal is reflect, both in real and inflation. So, nominal interest rate is nothing but actually, reflect real interest rate is equal to the nominal interest rate no correct, it is not cannot be nominal interest rate is equal to the real interest rate plus inflation.

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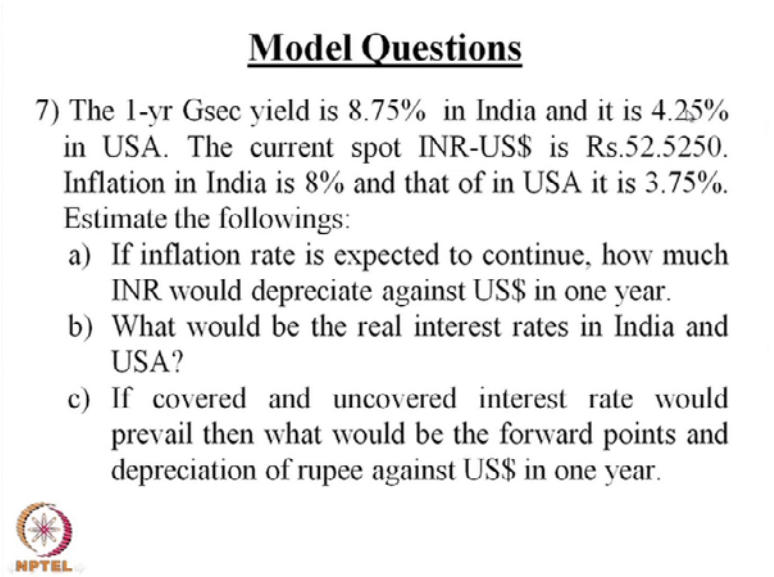

Number 6 question; 7 question is a problem, here, the Gsec rate 1 year Gsec rate is 8.75 in India, and it is 4.25 in US; Gsec is government Gsec rate. The current spot is given to you 52.5250; inflation rate in India is 8 percent; inflation rate in US is 3.75 percent, you have to estimate all these things, if the inflation rate is expected to continue, how much INR would depreciate against US dollar.

So, here when interest rate in India is higher than US rupee will depreciate, and depreciation percentage nothing but interest rate difference inflation differential; what would be the real interest rate in India and US, you have to calculate the using the Fischer effect, the interest rate, real interest rate and inflation given to you an interest rate given to you each country can calculate the real interest rate, that is 1 plus I is equal to 1 plus r into one plus inflation, from there you estimate the real interest rate for US and India, and you need here, real nominal interest rate and inflation both are given to you.

Number C, if covered and uncovered interest rate would prevail, then what would be the forward point, and depreciation of rupee against in against dollar in 1 year, you have to calculate the future spot here, since future spot is nothing but current spot into 1 plus domestic interest rate divided by 1 plus foreign interest rate. So, both are given to you, in case of spot is given to you 525250; that is current spot; Indian interest rate is 8.75 and US interest rate is 4.25 using these two, you can calculate the future spot, then future spot from there after one year, what will be the forward rate you can estimate there.