International Business
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Lecture - 35
Foreign Exchange Exposure, Types of Exposure

Welcome friends, to our course of International Business. As we have been discussing in the last few lectures on foreign exchange and foreign exchange market, right. So, we also discussed in the last lecture about the theories of foreign exchange, in which we talked about the purchasing power parity theory, interest rate parity theory and fisher effect, right.

As you have understood by now that the importance of foreign exchange, right. How important foreign exchange is, while making any transactions; international business or international transactions, right and change in foreign exchange the when the currency value changes across against one another, a trader or a business person can make substantial gain or substantial losses, right.

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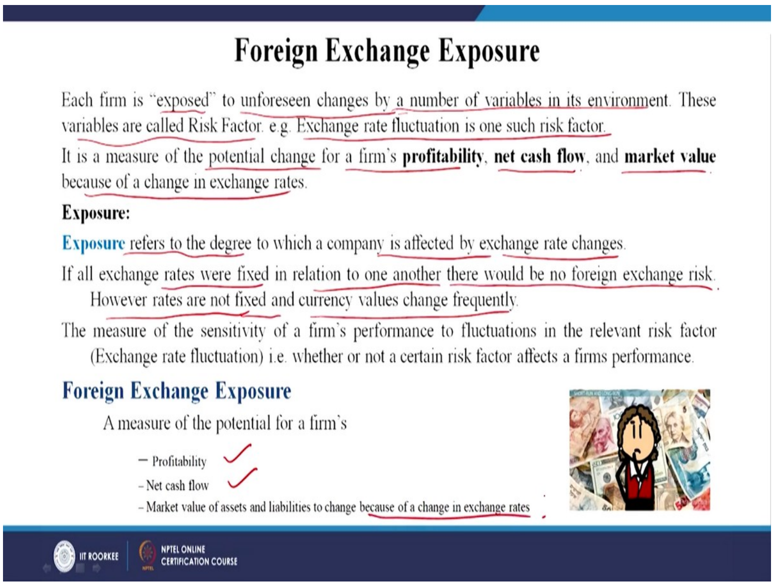

So, today we will start with the Foreign Exchange Exposure. So; now, exposure as you from the word you can understand that when we are exposed to certain features; for example, we are exposed to political situations; we are exposed to cultural problems; we are exposed to you know behavioral traits. So, similarly financial parameters. So, how what is foreign exchange exposure and how important it is? So, today we will be basically discussing on this.

So, as it is said, if you can see here, each firm is exposed, right to unforeseen changes. So, unforeseen changes could be like for example, there is a tension between a U.S and China or there is a tension between Iran and US, when US bombarded Iran and one of it is leaders lost his life.

So, there are unforeseen changes and the and every time there is a new political, the Fedex, the federal reserve changes his policies, his interest rate. So, there is the change on the, it has a significant impact on the currencies of all the different countries. So, unforeseen changes are there, a number of variables are affecting it, right. These variables are called risk factor.

So, example exchange rate fluctuation is one such risk factor we are talking about, right and this exchange rate fluctuation will have a tremendous effect on every business, ok. Because, after all the businesses are done on the basis of the currencies, ok.

It is a measure of the potential change for a firm's profitability, net cash flow, and market value because of a change in the exchange rates. So, any company's profitability or cash flow will change on base and the market value will change, because there is a change constant change in the exchange rates.

So, for example, if we are talking about India and India as value rupee changes against the Yen or the Dollar or the Euro; accordingly, the profitability of a company who is exposed to different markets; for example, Tata is exposed to different countries where it is selling its products or it is importing certain items from other countries. So, all this transaction needs those different kinds of currencies. So, as they are exposed to it, so it will also affect its profitability in other factors.

So, what exposure basically means? It says, it refers to the degree to which a company is affected by exchange rate changes, simple, right. What is it saying? Exposure rate. Exposure refers to the degree to which a company or firm is affected by exchange rate changes, right. Had all exchange rates were fixed in relation to one another, which is a hypothetical situation only, is not possible. There would be no foreign exchange risk, right.

However, rates are not fixed, ok; because they are affected by the demand and supply. So, and it is not constant, it is cannot be fixed. So, since they are not fixed, the currency value change frequently. So, since, we understand that the exchange rates cannot be fixed, it is highly dynamic and they depend on the sub they majorly depend on the supply and demand in the market, right.

So, it is an open market mechanism, because this the measure of the sensitivity of a firm’s performance to fluctuations in the relevant risk factor, that is whether or not a certain risk factor effects a firm’s performance. So, what we are trying to study is; how much does the foreign exchange exposure of a of a company and the volatility in the currency currencies, how much are they going to affect the firm’s performance, ok.

So, a measure of the potential for a firm’s foreign exchange exposure can be defined, as a measure of the potential for a firm’s profitability, net cash flow, and market value as I had said, and liabilities to change because of the change in the exchange rate. So, this is what is basically the thing that we are going to discuss. So, as a company, as most of the global companies, today they are into many inter you know, many countries, so they are trading with several currencies.

So, once they are trading with so many currencies, they have to keep track of the movement of these currencies, because a slight change in the movement of these currencies can affect or have an impact on their profitability and other factors,.

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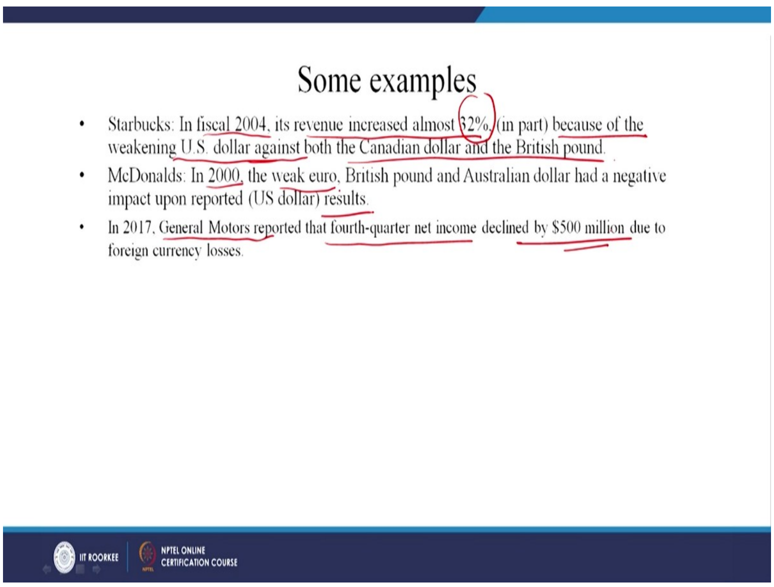

Some examples for you. Starbucks in 2004, its revenue increased almost 32 percent, because of the weakening US dollar. It was not due to any other reason, rather because of the US dollar weakened, right; against the Canadian dollar and the British pound. So, that resulted in 32 percent growth in revenue for Starbucks.

Similarly, in 2000, because of the weak euro, the British pound and Australian dollar had a negative impact upon the McDonalds results; so, financial results, which showed a negative effect.

Similarly, in 2017, general motors reported that fourth-quarter net income declined by 500 million due to only foreign currency losses. So, you can understand, that any company or firm which is transacting in several countries they are highly affected by the currency fluctuations. So, the companies have to take guard and to safe guard themselves from this factors.

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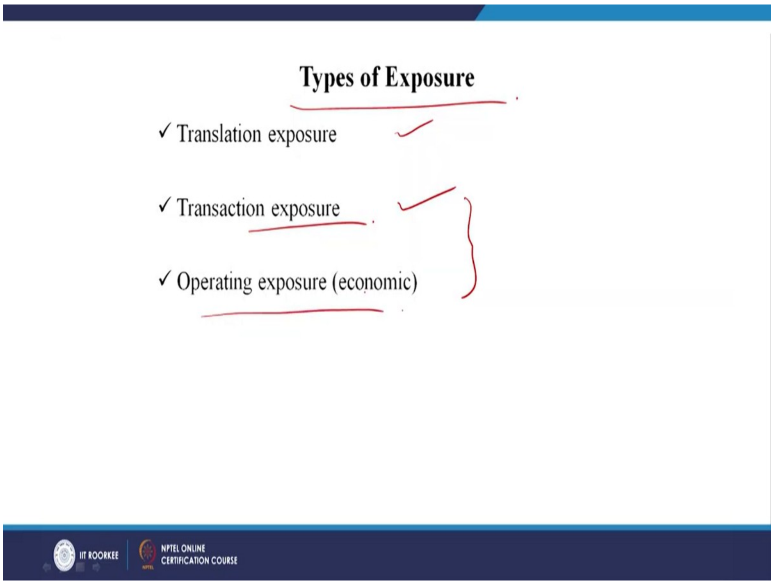

So, what are the types of exposure? Basically, the exposure can be explained in three ways. One called the translation exposure; second called the transaction exposure; third called the economic or operating exposure, right.

So, in some of the you know, this views sometimes change also, people explain try to explain these two as economic, but to my understanding, since this is a transaction exposure and this is operating exposure or economic exposure can be, are the same things basically.

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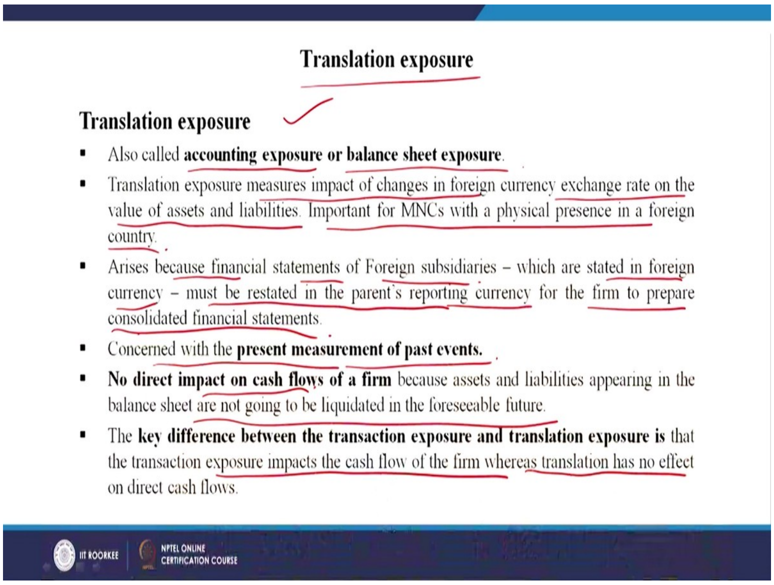

So, let us start with Translation exposure. So, what is it saying? The translation exposure is also called as accounting exposure. Why it is called an accounting exposure I will just explain you. Or balance sheet exposure.

So, it measures the impact of changes in foreign currency exchange rate on the value of the assets and liabilities. So, why, what is important here? Now, it is important for MNC's with a physical presence in a foreign country. Suppose, MNC is there, who is in many countries, so the value of it is assets and liabilities are constantly changing on that books of accounts; on their books of accounts, right.

So, actually they are not finally, they are they have not been liquidated, nothing has been sold off, but on the books of accounts the values would constantly change. So, this is called translational translation exposure. It arises because financial statements of foreign subsidiaries; which are stated in foreign currency, right; must be restated in the parents reporting currency for the firm to prepare consolidated financial statement.

Suppose, for example, a UK a firm or an Indian firm for that, is in let us say, in U.K and Canada also; now, when we are doing the financial balance sheet for the year end, right; consolidated financial statements we are making, at that time we have to make a consolidated balance sheet. And that time when we are doing that, so the currency values, according to the change in the value of the currency, the Canadian dollar or the US dollar or the you know, British pound wherever we are there.

Accordingly, the value of that asset or the liabilities also changing. So, that is only being reported in our balance sheet.

It is concerned with the present measurement of the past events. It has no direct impact on the cash flows; obviously, it will no direct impact, because it is only for the books. Because assets and liabilities appearing in the balance sheet are not going to be liquidated in the foreseeable future. Since they are not going to be sold off or they are not going to be liquidated, so why should there be any loss? But it is the only a change in the accounts, right; as because of the change in the value of the currencies.

The key difference between the transaction exposure, which I will come to, I have not explained. I will explain in the next. First let me explain this then I will come back, ok.

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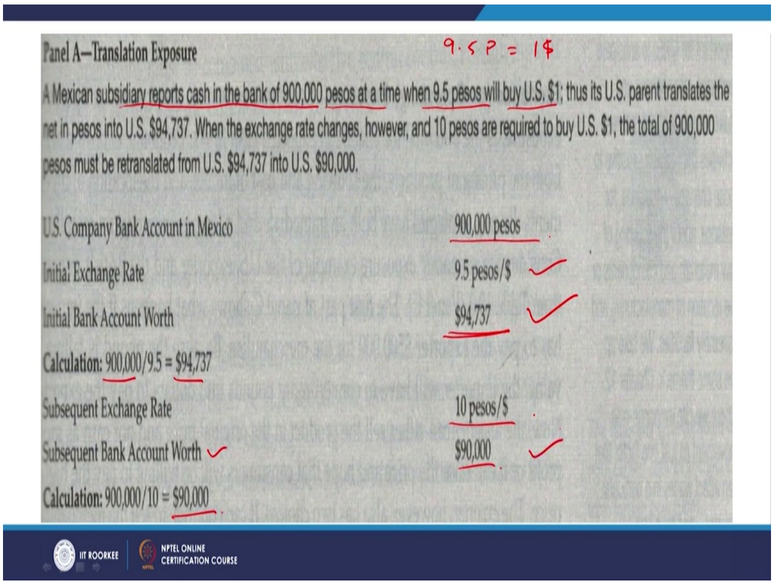

Just to understand. Let us see the example, of a translation exposure, then I will come back to that difference. This is an translation exposure. I have taken it from one of the books of international business.

A Mexican subsidiary reports cash in the bank of 9,00,000 pesos at a time when 9.5 pesos will buy 1 U.S dollar. So, how much? 9.5 peso is equal to 1 U.S dollar, right; thus, it is U.S parent translates the net in pesos into U.S. So, how much when it translates, how much it becomes?

Now, 9,00,000 you see, U.S company bank account in Mexico. How much it has got? The 9,00,000 pesos, right. Initial exchange rate is 9.5 pesos per dollar, right. So, initial bank account worth is how much? The 9,00,000 divided by 9.5 which comes to 94,737. This is the value, right.

Subsequently, the exchange rate changes as you can see here. When the exchange rate changes; however, and 10 pesos are required to buy 1 U.S dollar. So, because subsequent exchange rate what happens? The bank worth is now on basis of this 10 pesos, so 90 9,00,000 divided by 10, so that makes 90,000. So, this is the change, right.

So, it has now the bank worth, which was earlier 94,737 has now become 90,000, right. So, in a translation exposure, although we have not liquidated, we have not sold, but when you show it on the books of accounts you have to show the changes, right.

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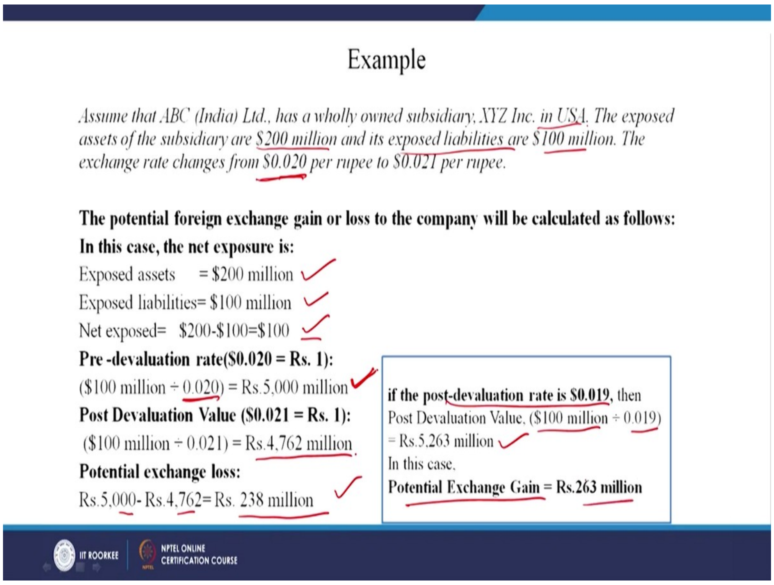

Now, let me explain first the transaction; this is the another example for translation I have said. Assume that a company has a wholly owned subsidiary in USA; an Indian company. The exposed assets of the subsidiary are 200 million and its exposed liabilities are 100 million, right. How much are the assets? 200. Liabilities are 100. The exchange rate changes from 0.020 per rupee, which is you can count to 0.021, so this is 50 rupees and this will almost change to little less than that.

So, potential foreign exchange gain or loss to the company will be calculated as follows:- In this case, the net exposure is; exposed assets 200 million, liabilities 100 million. So, what is the net exposed? Difference is 100 million, right.

So, pre devaluation rate which is 0.020, right. So, that is equal to 100 million divided by 0.020, that is equal to 5,000 million rupees. Now, if you divide 100 million, this difference net difference divided by the 0.020, this is the value we are talking about. So, it comes to 5,000 million Indian rupees.

But post devaluation what is happening? It is 0.021 is equal to rupees 1. So, dollar 0.021 is equal to rupees 1, this is what we have considered, right. So; that means, how many rupees? It must, if you count it you will you can find out, how many rupees would be 1 dollar.

So, 100 million divided by 0.021 is equal to 4,762. So, the potential loss now, for this is how much? 5,000 minus 4,762 is 238 million. So, in terms of the account books, when you are showing in the account books, although you have not liquidated, but you there is a loss of 238 million which is to be shown, right.

If the rate, post-devaluation rate would be have become 19, let us say, then what would have happened? The company would have gained, you see. Now, by dividing 100 million with this value, it is becoming 5,263 million, right Indian rupees. So, there is a potential gain.

So, neither this gain is actual nor this loss is actual. It is only to be reflected in the books of accounts, right. So, this is for that books of accounts purpose, so this is called the translation exposure. Now, we will move into the next; which is transaction exposure and then I will come back to that difference which I have shown it.

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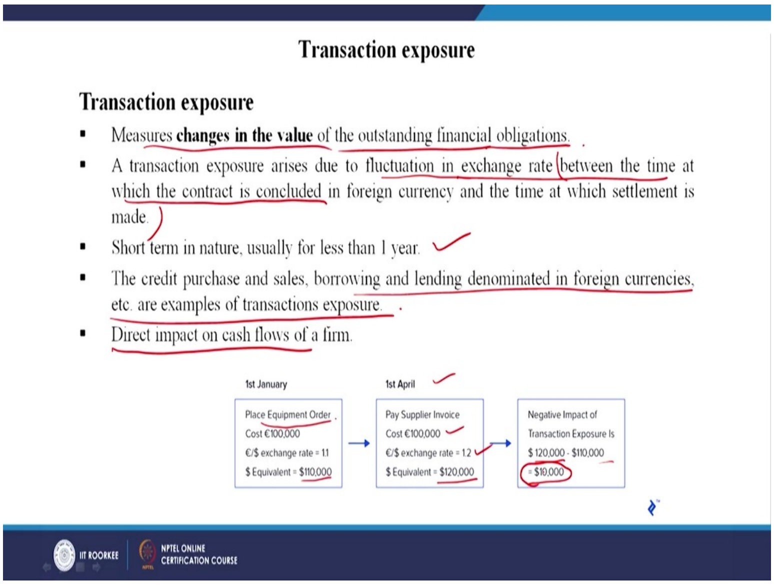

So, transaction exposure says, it measures the changes in the value of the outstanding financial obligation. Now, what is it? Let us see, a transaction exposure arises due to fluctuation in exchange rate between the time. Now, this is very important.

The fluctuation in exchange rate between the time at which the contract is concluded in foreign currency and the time at which the settlement is actually made. So, when you suppose get into a business and you have made a contract; that contract could be, let us say, it for one month; for two months; for three months; for any some time period, right. Usually, it is one to three months.

So, when the contact is made and the contract is concluded; in that time period maybe the currency has changed, right. So, what effect will that have on our profit and loss, that what is actually explained in the transaction exposure. So, this is short term in nature, less than a year. Here, you see it is an actual gain or loss, right. In the translation it was not an actual loss or gain, it is only in the books of accounts.

The credit purchase and sales, borrowing and lending denominated in foreign currencies etcetera, are examples of transaction exposure. It has a direct impact on cash flow. That did not have any direct impact, right.

So, let us see this example. So, this is a contract being made on 1st of January, right. So, an equipment order has been placed which is cost let us say, 1,00,000 euro, right. Now, the value exchange rate of 1 euro versus the dollar is 1.1, ok. So, it is 1.1.

So, that is dollar equivalent is equal to how much? Now 1,10,000 dollars, right. Now, 1st April when actually the invoice comes and the payment has to be made, the cost which is 1,00,000 euros; now, the exchange rate has changed from 1.1 to 1.2, right.

So, now the company has to pay how much? Now 1,20,000, right. So, 1,00,000 into 1.1 here 1,00,000 into 1.2. So, 1,20,000. So, now, because of this time difference and in the change of the currency during this time difference, there has been a negative impact, of how much? 1,20,000 minus 1,10,000 that is 10,000 of loss to this company, right.

So, transaction exposure is something which happens perennially, when [FL] firm is buying or selling a good, right. When he is a he has to pay or he has even receive, both the conditions. It is getting affected, because the currency has fluctuated in between.

Now, let us see the difference, which I was saying. So, the key difference is that the transaction exposure impacts the cash flow of the firm whereas; translation has no effect on the direct cash flows. It is only to be shown, but it does not have any actual effect, but transaction you have made you have to pay or you have to receive whatever it is. So, you are actually making a loss or a gain out there. So, let us see this example of transaction exposure.

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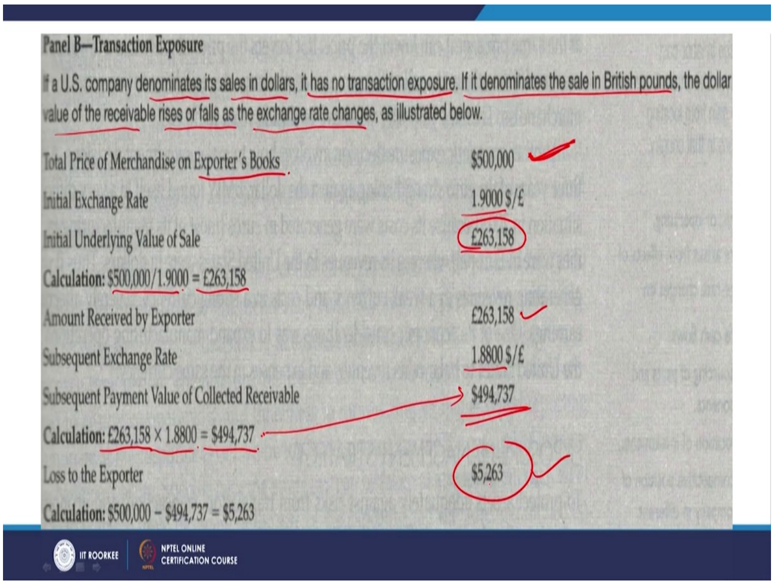

If a US company denominates it is sales in dollars, right; it has no transaction exposure. If it denominates the sale in British pounds that the sale the dollar value of the receivable rises or falls as the exchange rate changes. Let us see this.

So, total price of merchandise on the exporter books. So, the exporter is exporting it is items, and the price of the merchandise is how much? 5,00,000 dollars, right. So, the USA party is exporting and who is the importer? The U.K, the British one is importing, right.

Initial exchange rate is 1.9 dollar to a pound. So, 1 pound is equal to 1.9 dollars. So, this value of sale is how much in terms of pound if I say? Now, 5,00,000 upon 1.9, so that comes 2,63,158 pounds,. So; that means, the Britisher has to pay this much, right.

Now, amount received by the exporter is 2,63,158, correct. But subsequently the exchange rate again changes. Now, what has been the change? Now, it is now, become 1.88. So, 1 pound is now equal to 1.88. So; that means what?

The value has now shifted. So, subsequent payment value of collected receivable is now how much? 2,63,158 which was on basis of 1.9 into 1.88, right. So, that gives. So, the original 5,00,000 now has become how much? 4,94,737.

So, this is the you know, thing. Now, what is the exporters gain or loss? Now, the exporter would have received actually, when it was 1.9 he would have received 5,00,000, but now, because of the change, now how much is he getting? Thus, he is getting a negative. So, calculation if you see; so, the loss to the exporter is 5,263. Because now he is receiving, because of the change of to 1.88, the loss to the exporter is 5,263 dollars.

So, this is because, during the transaction the value has changed. So, the dollar has strengthened against the pound. Now, I am getting to the third case. Before that let us talk about how to reduce the translation and transaction exposure, ok.

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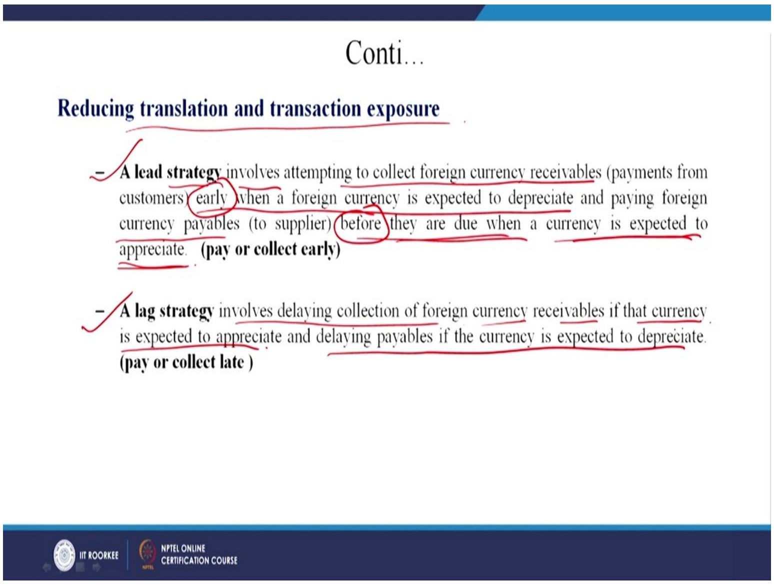

So basically, we talk it as a lead or a lag strategy. What is it lead or lag strategy? It says; a lead strategy involves attempting to collecting foreign currency receivables, right. So, payments which you are receiving early when a foreign currency is expected to depreciate. So, by chance if you are able to, if you are keeping track of the changes in the currency, and you feel it is going to depreciate, you can use a lead strategy. And paying foreign currency payables before they are due when a currency is expected to appreciate, right.

So, let us let me read again, a lead strategy involves attempting to collect foreign currency receivables early. So, this is the important word when a foreign currency is expected to depreciate and paying foreign currency payables before.

So, when you are paying it to be done before, they are due when a currency is expected to appreciate. So, this is called a lead strategy. So, doing taking an action beforehand, right.

What is a lag strategy? Involves delaying collection of currency; foreign currency receivables if that currency is expected to appreciate. Just the reverse of the lead. And delaying payables if the currency is expected to depreciate, but; however, let me say, this is not easy. Had this been so easy to estimate and calculate things would have been much simpler, but it is not that easy, right.

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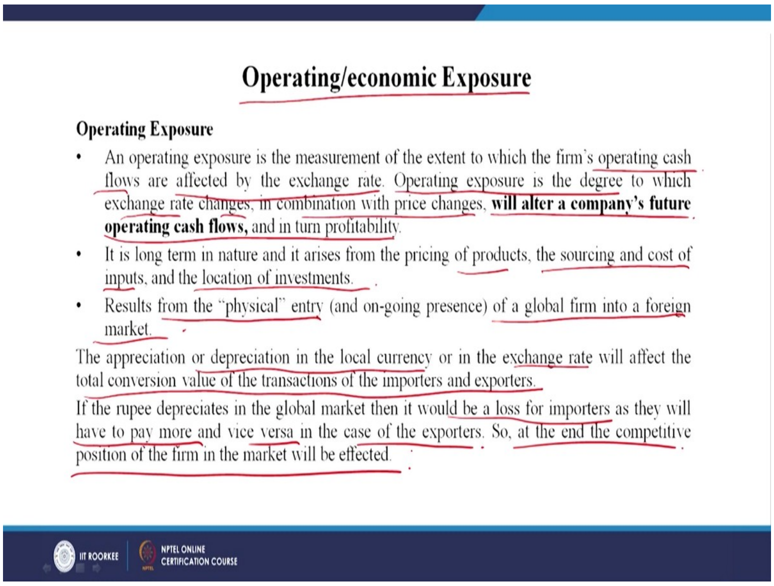

The third kind of exposure is called economic exposure or operating exposure. See, this is a long term exposure. The transaction exposure is a short term exposure. Now, what is this operating exposure or economic exposure? It says, it is the measurement of the extent to which if firm's operating cash flow, right are affected by the exchange rate. Operating exposure is the degree to which exchange rate changes in combination with price changes, right.

So, when the firm changes the products price, right. So, there it makes an additional change. It will alter a company's future operating cash flows and in turn the profitability, right.

It is long term in nature and it arises from the pricing of products, because of the change in pricing the sourcing and cost of inputs, the supply chain basically, largely involved with the supply chain and the location of the investment.

So, where you are located maybe, I will take you across through a case a little while after some time; where one company BMW, how it changed it is tried to save itself from this currency fluctuation, right; exposure.

So, we will see that. It results from the physical entry of a global firm into a foreign market. Generally, when a you know, a firm enters into a new market this happens to them, right. The appreciation or depreciation in the local currency or in the exchange rate will affect the total conversion value of the transactions of the importer and exporters, right.

Now suppose, the rupee depreciates in the global market, right. So, in the global market the rupee is depreciating, then it would be a loss for the importers as they will have to pay more and vice versa in the case of the exporters.

So, the end the competitive position of the firm in the market gets effected, right. So, basically whenever there is a change; obviously, there is an impact on the final profitability of the company.

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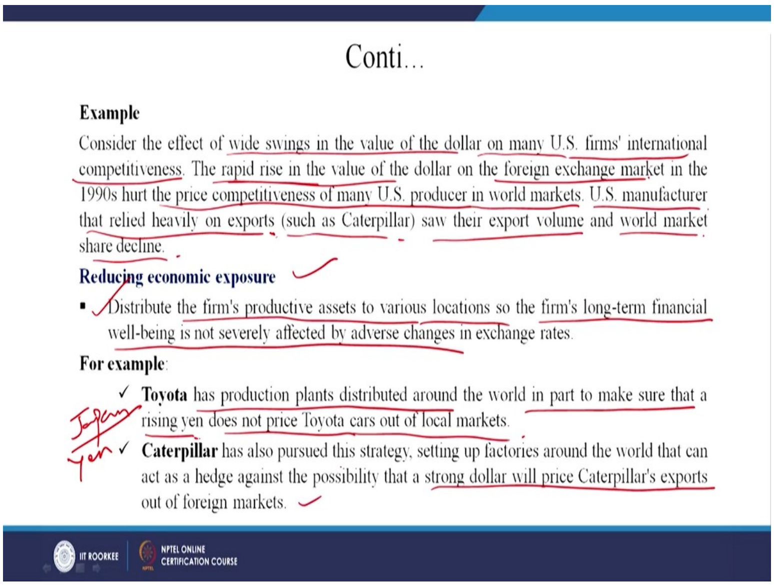

So, let us take this example. Consider the effect of wide swings in the value of the dollar; that means, a dollar is you know changing. Its effect on many U.S international firms, right.

So, the competitiveness of these firm's change. As the dollar you know, rose rapidly, right; in the foreign exchange market, so if the dollar strengthened.

It hurt the price competitiveness of many U.S producers in the world market. Because as dollar became more stronger, so the you know, they other contemporaries from the other markets, right; they could now buy less of the us products, right.

U.S manufacturer that relied heavily on exports. So, the exports become, it was a challenge for the exports. Such as caterpillar, you saw their export volume and world market share decline.

So, so this change in the dollar values or for any currency for that, it has a significant impact on the exports and the imports. So, if you are getting stronger, it effects your export it goes down and if it becomes weaker it effects your import, right. So, you tend to, you can easily import. Reducing economic exposure. So, the best way is to distribute the firm's productive assets to various locations so the firm's long term financial well being is not severely affected.

So, what firm's do? So I will this example you can see; Toyota has production plants distributed across the world in part to make sure that a rising yen; the Toyota is from Japan, right. So, as the yen of Japan will rise suppose, so it does not price Toyota cars out of local markets.

So, what it is saying? Toyota has several plants distributor in the world to make sure that a rising yen does not price Toyota cars out of the local market. That becomes does not become very costly. Caterpillar also pursued this strategy. It set up factories around the world that can act as a hedge. So, against the possibility that a strong dollar will price Caterpillar's exports out of the foreign markets.

So, what companies are global companies, they are doing in. In fact, you must have seen ford coming to India; Hyundai coming to India; Samsung now coming to India, right. Why are they establishing their operations? It is not that like, you know, it is only the persuasion of from the Indian government; they also want to hedge themselves, because if they has several markets.

And suppose one in one market the you know, and they are trading with several currencies then they can hedge themselves they can easily you know, save themselves from the rising and falling of the currencies against one another, right.

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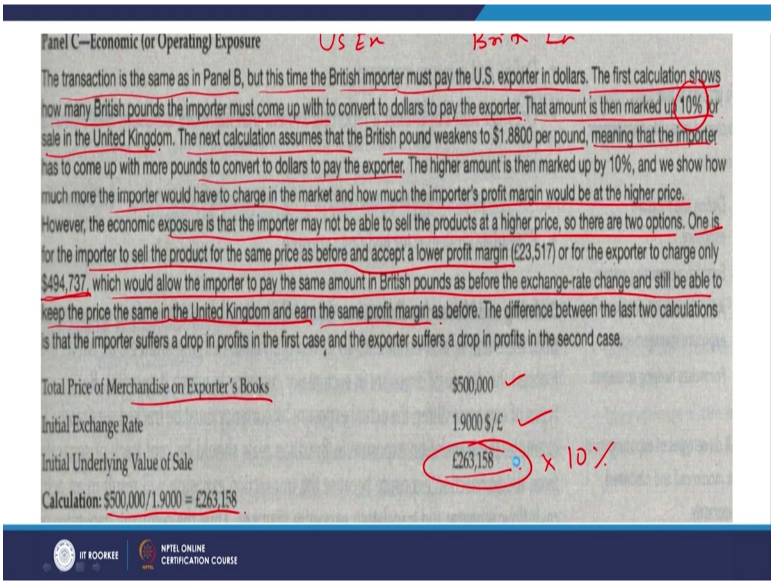

So, this is the third case in the economic exposure. So, you see, the transaction is the same as in panel B. So, the transaction exposure, but this time the British importer; so, there was U.S exporter, right; and the British importer, ok.

The British importer must pay the U.S exporter in dollars. The first calculation shows how many British pounds the importer must come up with to convert to dollars to pay the exporter. Because he has to pay the exporter. So, how will he pay the exporter? So, he will pay the exporter in dollars, right. So, how many pounds does he require to come up to convert into dollars that will be given to the us counterpart; that amount is then marked up by 10 percent.

So, whatever value he is giving, paying, so that is the cost price. So, on that cost price, let us say 10 percent markup is being done for sale in the United Kingdom. So, to sell at a 10 percent markup. So, they are in adding 10 percent more profits, let us say.

The next calculation assumes that the British pound weakens to 1.88 per pound, right. So, suddenly the calculation says that it has the pound has changed, the value has changed. Meaning that the importer, it was earlier 1.9 something, so now, it has come to 1.88. Has to come up with more pounds to convert to dollars to pay the exporter, because it is become lessend now.

So, let us see the higher amount is then marked up by 10 percent, and we show how much more the importer would have to charge in the market and how much the importers profit margin would be at the higher price. So, we will saw, we will see this problem. So, the economic exposure is that the importer may not be able to sell the products at a higher price, and there are two options. What are the two options?

The first option, one the importer sells the product for the same price as before and accepts a lower profit margin, possible. So, what is he doing? Again, let us see one the importer sells the product at the same price as before and accepts a lower profit margin. So, the profit margin comes down.

Or for the exporter to charge only this much. case B, or the exporter would charge only this much value, right; which he will be coming out of the calculation, which would allow the importer to pay the same amount in British pounds as before the exchange rate change and still be able to keep the price in the same in the United Kingdom, right, and keep the profit margin as before.

So, let us see what is happening. So, initially the total price of merchandise on the exporter books, was how much? 5,00,000. What is the initial exchange rate? 1.9 dollars to a pound, ok.

So, what is the sale value in terms of pounds? 2,63,158. So, this is what the British firm will have to pay. So, how did it come? This way, right. Now; so, this much he has paid, now he will charge a ten percent markup. So, additional 10 percent. So, if you do it so you can simply calculated by 1.1.

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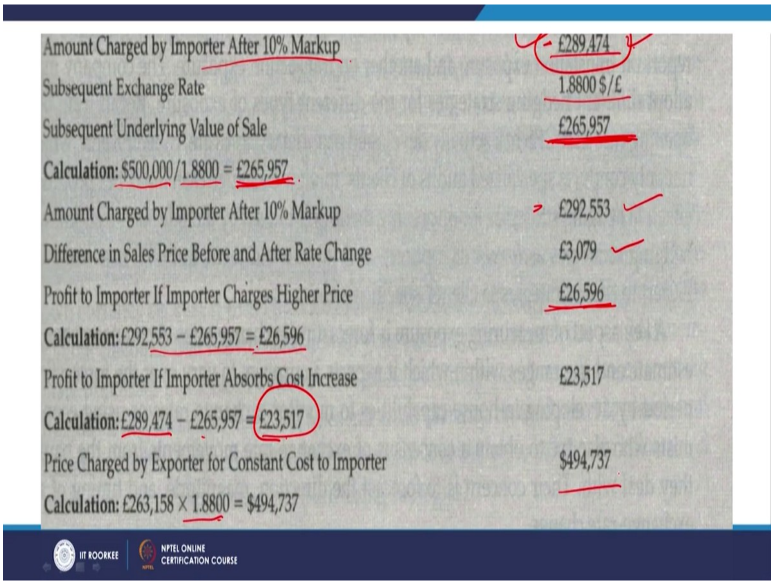

So, amount charged by importer after 10 percent markup, is how much? So, 2,63,158 into 1.1, 10 percent, right. So, that is equal to this much 2,89,474. So, this is the new value coming.

The exchange rate, but now has again changed. So, what has been the change? Now, it has become 1.88 instead of 1.9 across for against a pound. So, now if I take this 5,00,000; original value and divide by the 1.88 the new exchange rate, so what is the value coming? 2,65,957, right. So, this is the value. So, subsequent underlying sale value of sale is equal to this much, right. So, if you take the new exchange rate.

Now, amount charged by importer after 10 percent markup, so you multiply this with 10 percent, right, so into 1.1. So, you will get a value of 2,92,553 pounds, ok. Now, difference in sale price before and after the rate change; so, before the rate change, how much it was? 2,89,474; after the rate change and the 10 percent, how much it is? 2,92,553.

So, the difference between this and this; so, this value and this value is the subsequent difference in sale price before and after rate change, right. 3,079. So; that means, what? There is a difference to this two prices because of only the currency fluctuation, right.

Now, profit to importer, if importer charges a higher price. What if the importer charges a higher price, right? So, 2,92,553 minus 2,65,957 now, this is equal to 26,596. So, he says the profit to the importer, if importer charges higher price is equal to this much, right. How did it come? Through this way.

Profit to the importer if importer absorbs the cost increase, he does not increase anything he absorbs the you know, increase in price. So, that is equal to 23,517. How much? How did it come? Now, on basis of this price, so 2,89,474 the original, right, before the exchange rate has changed to 1.88. So, this value minus the this 10, you know the value after it has changed, right. So, this value, right. So, this comes how much? 23,517 pounds. So, the price charged by the exporter for constant cost to the importer, is how much? 2,63,158 which you got here; this one, right, into 1.88494737.

So, if you can see. So, whenever a firm gets into a long term transaction, right and in between he is trying to price his product accordingly or place his product accordingly in the market and there is in between a change in price so his pricing value also would change. And this is what is reflected in this problem, right.

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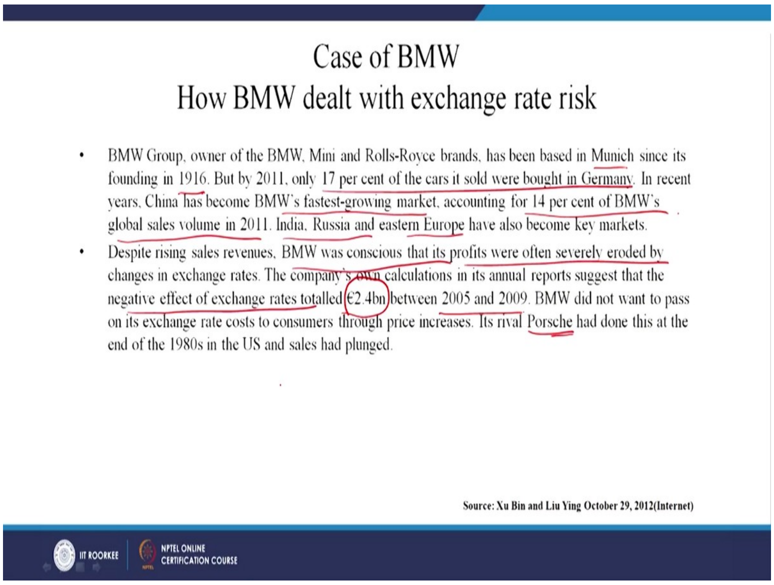

So, this is the case of BMW which I was saying, BMW; owner of the BMW, Mini Royce brands has been based in Munich since it is founding in 1916. But by 2011 only 17 percent of the cars were brought in Germany, right. Because Munich is in Germany so it is a Germany based.

In recent years, China has become the BMWs fastest-growing market, accounting for 14 percent of BMWs global sales volume in 2011. Three major markets are India, Russia and eastern Europe.

So, despite the sales volume, rising sales volume BMW was conscious that its profits were often severely eroded by negative effect of exchange rates, which total to 2.4 billion. So, instead of in-spite of growing market, everything been good, still the company was losing about 2.4 billion Euros between 2005 and 2009.

BMW did not want to pass on it is exchange rate to the customers, right. They could have done it, because another company; its rival Porsche had done it, but that helped only in reducing it is entire sales. So, BMW did not want to pass on the you know, extra cost to the customers, right.

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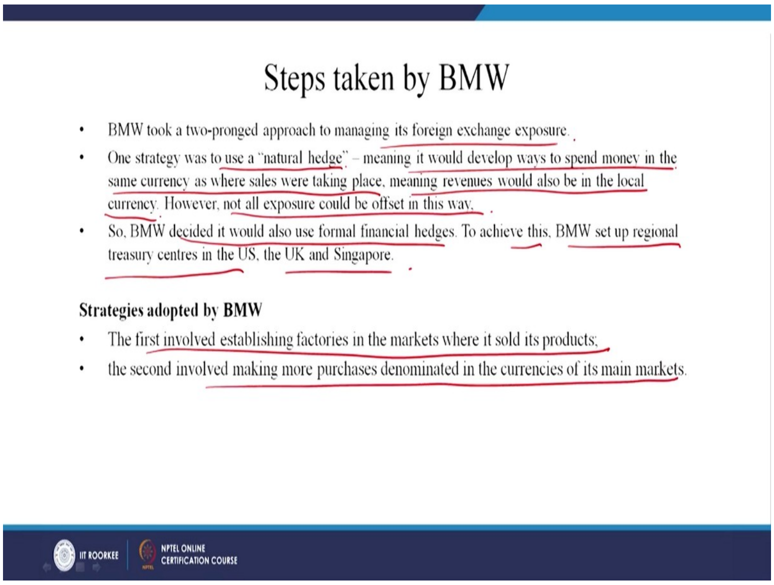

So, what did BMW do? BMW took a two step approach, right. One was to use a natural hedge, right. Meaning it would develop ways to spend money in the same currency as where sales were taking place. Meaning, revenues would also be in the local currency. However, not all exposure could be offset this way.

So, what is it is saying? So, instead of getting into you know, getting affected by the change in transactions, what they could do it, they could do the business in the local currency. For that what did they do? BMW decided to use formal financial hedges. To achieve this the setup regionals treasury centres in the us UK and Singapore.

So, two things that BMW did; first, it involved establishing factories in the markets where it sold it is products, so that they could do the transaction in the local currency. The second involved making more purchases in the currencies of it is main markets. BMW in the currencies of it is main markets, right.

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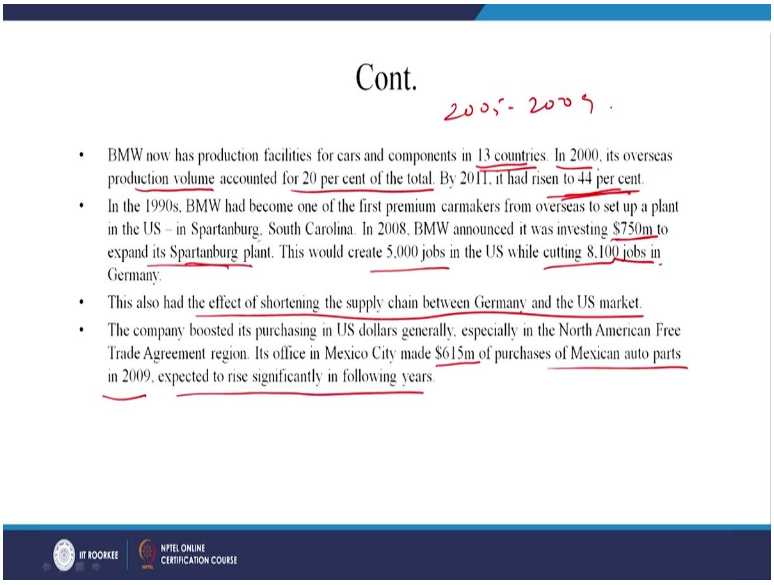

So, what happened? BMW now has production facilities for cars and components in 13 countries. So, this is the advantage they took. In 2000, its overseas production volume accounted for 20 percent of the total. So, the production volume in 2000 was 20 percent of the total from the overseas market. By 2011 it grew to 44 percent. So, 2005 to 2009 they have made loss, right. So, from 2009 onwards, you see there has been significant change from 20 to 44 percent.

In 90's BMW had become one of the first premium carmakers from overseas to set up a plant in the US, because it was from Germany, in South Carolina. In 2008, it announced it was investing 750 million to expand it is one of it is plant, right. So, to create this much of jobs, right; and while cutting 8,100 jobs in the Germany.

This had this had the effect of shortening the supply chain between Germany and the US market. So, what by the changing the you know, the production facility they shortened the supply chain. Unnecessary there was no transportation, right.

The company boosted it is purchasing in US dollars generally, especially in the North American Free Trade Agreement Region, right. It is office in Mexico made 615 million dollars of purchases of Mexican auto parts; local purchase in 2009, expected to rise significantly in the following years.

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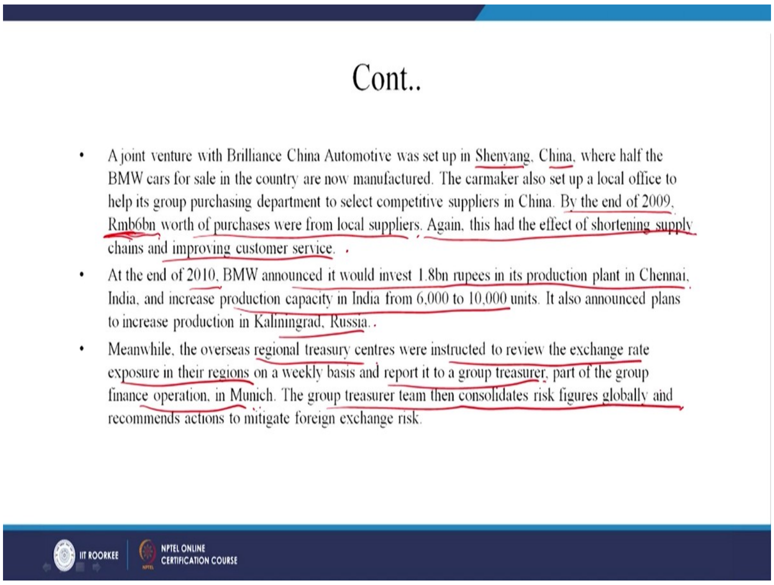

A joint venture with Brilliance China Automotive was set up in Shenyang, China, where half the BMW cars for sale in the country are now manufactured. So, China has become another major hubs for BMW. The carmaker also set up a local office to help it is group purchasing department to select competitive suppliers in China. So, they did everything local they, they localized in China. They tried to be they were a global company there, but they try to be as local as possible in China. By the end of 2009 there was 6 billion worth of purchases were from local suppliers, right.

So, this is the Chinese you know, new currency, right. Again this had the effect of shortening supply chains and improving customer service. Because they were close to the customer, they were also making their supply chain, their purchases and all in the local currency. So, they were aware of the local conditions very clearly.

At the end of 2010, BMW announced it would invest another 1.8 billion rupees in it is production plant in Chennai in India, and increase the production capacity from 6,000 to 10,000 units, right. They are also planning for expansion in Russia.

Meanwhile, the overseas regional treasury centres, the regional treasury centres, which was the second strategy; were instructed to review the exchange rate exposure in their regions on a weekly basis. They wanted it to be checked on a weekly basis, and report it to the group treasurer, part of the group finance operation in Germany. So, the group treasurer team then consolidates the risk figures globally and recommends actions to mitigate the foreign exchange risk.

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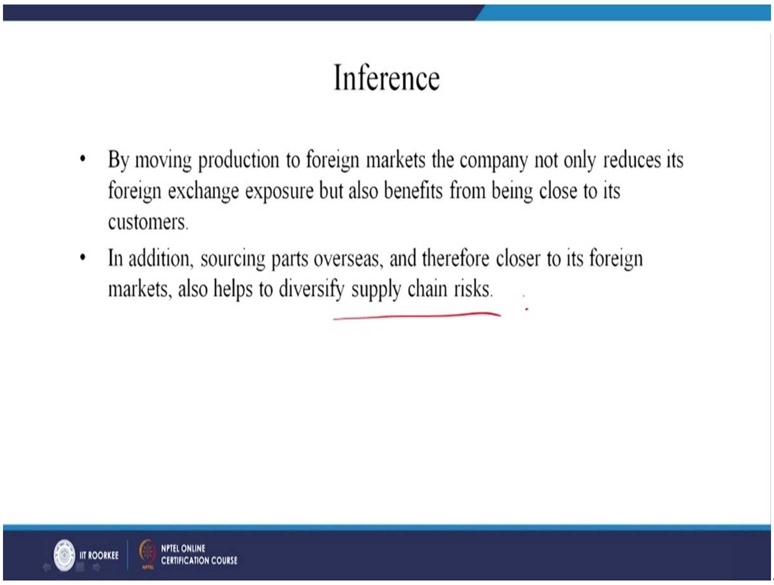

So, this is what was the basic inference from this study. By moving production to the foreign markets the company not only reduces it is foreign exchange exposure, but also benefits from being closed to it is customers. In addition, sourcing parts overseas, and therefore closer to it is foreign markets also helps to diversify the supply chain risk.

So, this is what BMW did in order to mitigate it is risk and reduce it is losses. And it was it is a classic case of you know in foreign exchange exposure, and how this company dealt with this condition where everything was in spite of being good there were still making losses. Now, this was there was a radical change and the company saw a great positive movement, right. So, this is all we have for the day.

Thank you very much.