International Finance
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Lecture - 17
Foreign Exchange Futures Market for
Transaction Exposure Management

Hello, let us discuss about this in session 7, session 17 on futures market. In the last class, last session we have discussed about management of transaction exposure using the forward contract; and in this session, we will be discussing about management of forward, forward exchange exposure through futures market. In the last session, we discussed the drawbacks or disadvantages of forward contract; forward contracts are liquid, very high credit risk are there unstandardized, unorganised market. So, this and also exit from the forward contract is very difficult.

So, the this difficulty have been addressed in futures market, where futures foreign currency futures are traded in foreign exchange, and the exchange provide liquidity exchange take care the credit risk side of forward futures contract and it is more advantage to have forward future contract for management of transaction exposure. Let us discuss about futures contract, in this session the future contract are outlined future contracts, the process of future contracts are discussed and also, we will use the future contract try and for the transaction exposure management side. We will be discussing on two problems, we will also identify various features of future contract market and in this process, we will be discussing Indian futures market, which recently been developed.

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Let us discuss about the futures market. Foreign exchange futures a currency futures contract is an agreement to buy or sell, future exchange a standard quantity of foreign currency at a futures date at the price agreed between two parties to the contract, there is a contract between buyer and seller for futures exchange of currency. And in the contract process, the number of contract that is amount is fixed, the price is standardized and the quantity also depends upon the how many contracts, the particular person is purchasing or selling.

However, the contracts are here different than the forward contract because these contracts are traded in, traded in exchange. There is a clearing house for this and all contracts are traded in clearing house that is a foreign currency and that is exchange traded for contract and the buyers and seller, they do not know each other and the all trading or settlement, the clearing house or the exchange provide the counterparty will be the counterparty and absorb all kinds of losses or risk.

This system eliminates, what is called the "credit risk" on the counterparty to a large extent because in the forward contract authorized dealer, provide you the contract and it may happen the authorised dealer may not adhere to the contract and in the event of authorised dealer not adhering to the contract. The customer has no choice other than going to a court and this settlement take lot of time consuming process, but here the buyers, sellers they do not know each other, the exchange act as the intermediary

between the buyer and seller. Exchange provide the counterparty guarantee, in the event of the buyers or seller not adhered to the contract, the exchange will bear the losses and this there is no credit risk in case of future contract.

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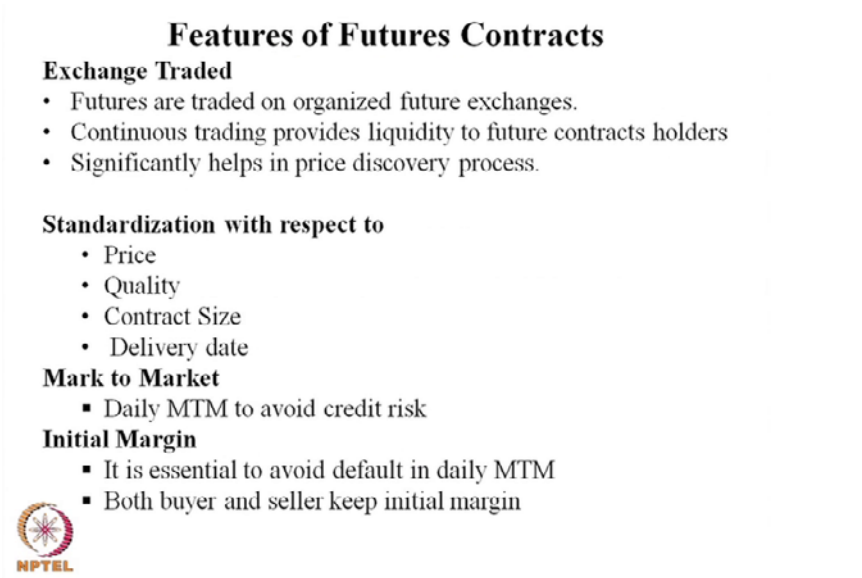

And what are the features of the future contract, these are exchange traded contract. There is a exchange, there is a clearing house or exchange. The buyers and seller come to the exchange and purchaser buy forward contract, and they do not know each other. However, they act through the intermediary, the intermediary are the exchange itself. Futures are traded on organized futures exchange, there is exchange future exchange and is a organised, organised in nature continuous trading provide liquidity to future contract holder, there will be continuous trading of the future contract, this continuous trading provide liquidity to future contract, it significantly help in discovering the price. What will be the price of next month exchange will come from here, from the exchange traded future contract, you can come to know.

So, help in discovering the price and it is a standardised product. Standardize in the sense of price quality, our contract size delivery date. Delivery date cannot be different here, delivery date generally, in case of future contract for exchange is the two days before the end of the month. The contract size are fixed, contract size in case of India, the future contract size is one contract is thousand dollar US dollar. Quality, the quality is also fixed here, the currency are traded all currency are quality. Price also fixed price also,

discovered by the market forces, in the buying and selling of the foreign future contract and they are and they are demand and supply in the market.

Mark to market future contract are mark to market that is daily MTM, the mark to market to avoid credit risk. The MTM work through what is called, what is called a margin money. The buyers and sellers generally, have margin account with the foreign exchange they provide the margin money, when they purchase or sell forward contract, the margin money act as a MTM side. So, mark to market in the event of buyers is getting a benefit then seller will provide the MTM into the event of seller is getting the benefit, the buyers will provide the MTM.

The MTM work through initial margin, both buyer and seller having account in the exchange through the account, they having money, the liquid money take care of the margin money for the mark to market side. The mark to market provides or what I can tell eliminate, the credit risk in the at the end of the maturity period, the price will be mark to market at the and the money will be available, with the trade exchange to sell or buy the contract.

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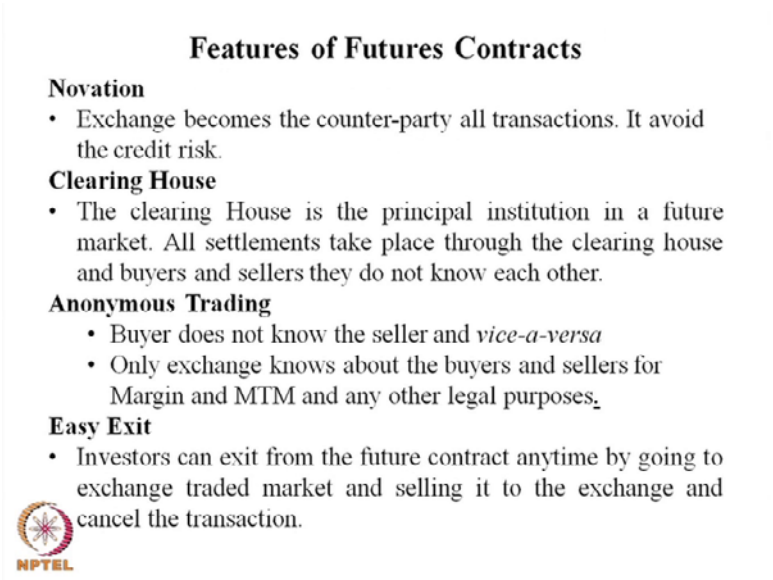

Novation, novation another, another benefits of the future contract, novation is means the buyers and sellers do not know each other. The counterparty all transaction, the exchange provide become the counterparty for all transaction, it avoid the credit risk. The buyer seller do not know they come to the exchange, exchange from the exchange they buy and

sell. So, exchange become a counterparty in all transaction is a novation trading and it eliminate the credit risk clearing house exchange, it act as a clearing house for all settlement. The purchase of contracts sale of contracts, the settlement takes place in exchange itself, exchange provides the clearing house agreement.

Anonymous trading, what is anonymous means, the buyer do not know the seller and also vice versa. Only exchange knows about the buyers and seller for margin and MTM requirement. The exchange knows who are the buyer, who are the seller because buyer and seller keep the account with the exchange, the initial margin they keep for the MTM propose, the mark to market purpose, the buyers and seller are known to the exchange, but who are the buyer, who are the seller they do not know each other.

So, exchange only know who are the buyer and seller for buyer and seller themselves they do not know. Easy exit whenever you want to cancel your contract, you can cancel your contract go to the exchange, you have a purchase contract sell it, you have a, you have a sale contract purchase it and clear your settlement. Whenever you want, you can exit from the for future contract because continuous buying and selling is going on, you have to pay only the cancellation charges. There is no requirement the easy liquidity is available in the market, in the future contract the easy exit tool available.

So, it is beneficial for the customer for the customer for immediate exit from the future contract, but it is not possible in case of forward contract, you have to go to the authorised dealer and cancel it, you have to pay heavy fine for, but in case of future contract there is not such requirement of heavy fine even anytime, you can exit from the future contract whether, it is a purchase contract or a sell contract.

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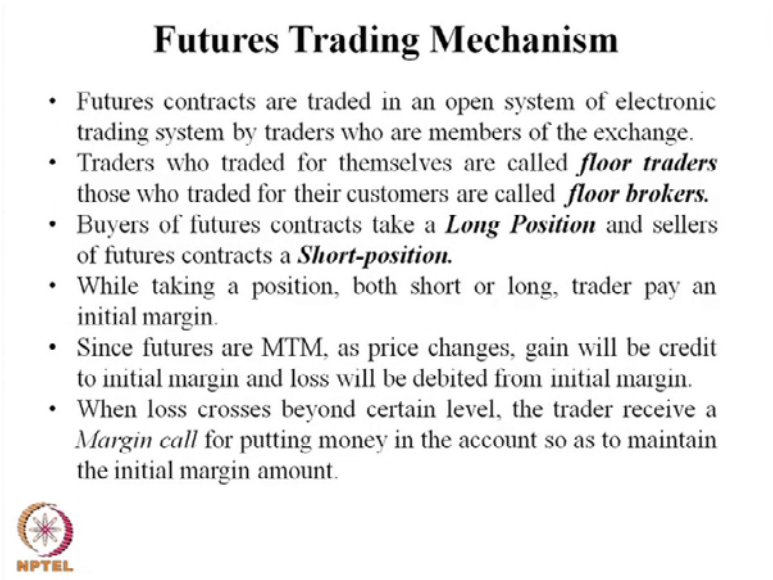

Then future trading mechanism there is a mechanisms of trading because future exchange rate there is a clear guidelines are there how you can trade, the how you can purchase a contract, how you can sell a contract, who will be the trader, who will be what is the short position, what is the long position, who are the floor trader, who are the margin trader, all are available in the future contract agreement side or future contract trading mechanism side. Future contracts are traded in open system of electronic trading system, there is a open position electronic trading systems are available and traders are member of the exchange.

The all traders are member of the exchange they buy and sell a sale forward contract for a future contract for their customers and electronic trading system is a basic requirement for the future contract. Traders are traders who trade for traded who trade for themselves are floor traders that is a floor trader they trade from themselves for their own benefit for arbitrage opportunity they trade among them self is a floor trader. Trader who trade for the customers are the called floor broker, you and me go to the go to the future exchange for purchase or sell of forward future contract then you have to go to the broker through the broker you have to purchase or sell future contract.

So, brokers trade for us. So, they trade for the customer they are the floor broker and the trader who trade for them self they are called floor trader. When buyers of future contract take a long position you buy a future contract you take a long position you sell a future

contract, you take a short position and long and short position are the defined what is called the interest, that is called open interest. The total long position total short position will give us the how many tradings, are taking place how many traders how what is the amount of trading taking place in the exchange.

The long position, if you purchase a sale contract you are buy a trade buy a future contract if you sell a future contract you are shorting your position with a short position. While taking a position both short or long trader pay in money sale margin, the brokers or the floor traders they have account with the exchange, they provide the initial margin with the exchange and through the exchange initial margin they take both short position and long position.

Since futures are MTM that is mark to market as price changes gain will be carried to initial margin and loss will be debited from the initial margin. The traders are there brokers are there they trade in the future exchange. So, future exchange all trade all trade transaction are mark to market any gains any gain will be credited to the traders account, any loss will be debited from the traders account from the initial margin account of the trader. When loss crosses beyond certain level the trader receives the margin call.

When the traders are trading the losses are MTM losses are there, if it cost beyond the initial margin the traders get a margin called and after getting the margin call, the traders have to put money in the initial, in the initial margin account in which is there with the exchange. So, initial margin account generally keep significant amount of margin money for large traders or brokers. The loss generally, generally the exchange does not allow losses beyond certain limit and the margin call will be there to for the trader for the broker to put margin money for future trade.

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So, and to understand the future market you have to understand different kind of, different kind of different kind of terminology available in future exchanges. So, there a settlement price, settlement price is the average last few minute trading price because all short and long position, all future contract are traded continuously. What will be the settlement price it depends upon the large the average price of the last few trades that is settlement price, on settlement price MTM works because MTM (( )) mark to market works on settlement price the settlement price on settlement price the MTM or the mark to market price decide. Price change, price change in settlement price, what is the price change nothing, but change in the settlement price, fall in settlement price, MTM loss for long position and there a fall in settlement price the long position will long position those who have, those who have buyer, those who are buyers of buyers they purchase, they face MTM loss. Those who are seller they gain MTM.

So, fall in settlement price MTM loss for the long position, rise in settlement price MTM loss for the short position. Open interest, aggregate of all short and long position, all contract there is short contract long contracts are there, buy and buyers and sellers are there on contract side if you add them, then you will get open interest. Open interest is nothing, but aggregate of all shorts and long position. Notional principle there is no transaction of principle in case of future contract. So, it is notional principle is nothing, but settlement price into multiplier, the multiplier is decided by the exchange itself.

So, settlement price and multiplier decides the notional principle. Total volume traded quantity, what is total volume or traded, how many quantities are there traded quantities are there in the market, future exchange market that is called total volume. Size of future market, open interest into settlement in settlement price in some multiplier that will give you the, that will be the size of the future market, size of future how many traders are there, what is the settlement price, what is the multiplication multipliers are there, if you if you if you multiply all these three then you will get size of the future market.

Liquidity or the trade traded value, what is the liquidity of that exchange position nothing but total volume settlement price and multiplier. So, total volume how much volumes are there total volume traded quantity, settlement price and multiplier if you add to a multiply three together, you will get liquidity of the stock future that exchange future.

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Standard sizes of Currency Futures

S. No.	Currency	Contract Size
1.	Australian dollar	Aus$100000
2.	Canadian dollar	Can$100000
3.	Euro	125000
4.	Japanese yen	¥12500000
5.	Pound sterling	£62500
6.	Swiss franc	SFr1.25000
7.	Indian Rupee	US$1000

So, then each standard, with a standard size of currency future each currency market the future currency market there is standard size. The standard size are fixed on the basis of different trading volume, in case of Australian dollar the standard size is something around 10 lakhs Australian dollar. In Canadian dollar in mercantile, Chicago mercantile market it is called one thousand Canadian dollar.

Euro 1,25,000 Euro, Japanese yen it is a it is nothing but 1,25,000. Pound sterling 6250 Pound sterling, Swiss franc 11.25 Swiss franc, in Indian rupee the size of the future

contract is one thousand US dollar. These are size of the future contract decided by the exchange.

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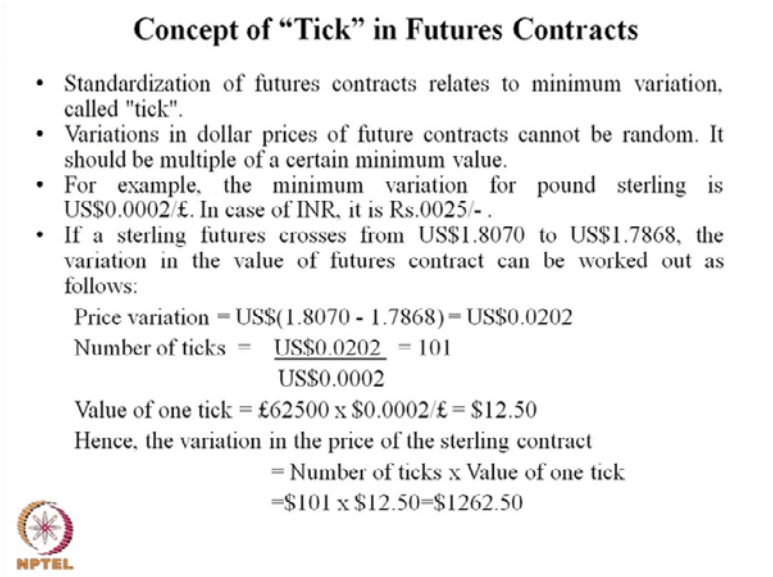

Then how can you define ticks, how much fluctuation in between there, that depends upon the tick of future contract. On the basis of tick size the settlement price or MTM variation everything calculated. So, what is that tick, tick is nothing but standardisation of future contract lead to minimum variation, the minimum variation of contract is called tick. So, standardisation of future contract lead to minimum variation, the minimum variation is known as tick. Variation in dollar price prices for of future contract cannot be random, you cannot there is no such kind of random variation will be available in a future contract market. So, there should be some size or minimum variation requirements are there and exchange fix the minimum variation and the variation minimum on the basis of minimum variation all other kind of calculation take place in the exchange.

For example the minimum variation for Pound sterling is US dollar 0.002 per Pound sterling, in case of INR the minimum variation is nothing but Indian rupee is 0.0025, that is 0.25 paisa. If a sterling future crosses from 1.8070 to 1.7868 the variation in the value of future contract can be worked out as follows, suppose you want to use there are tick size variation, how the variation effect the future contract value then you can calculate through in the say example. Suppose, suppose the Pound sterling, Pound sterling variation takes place.

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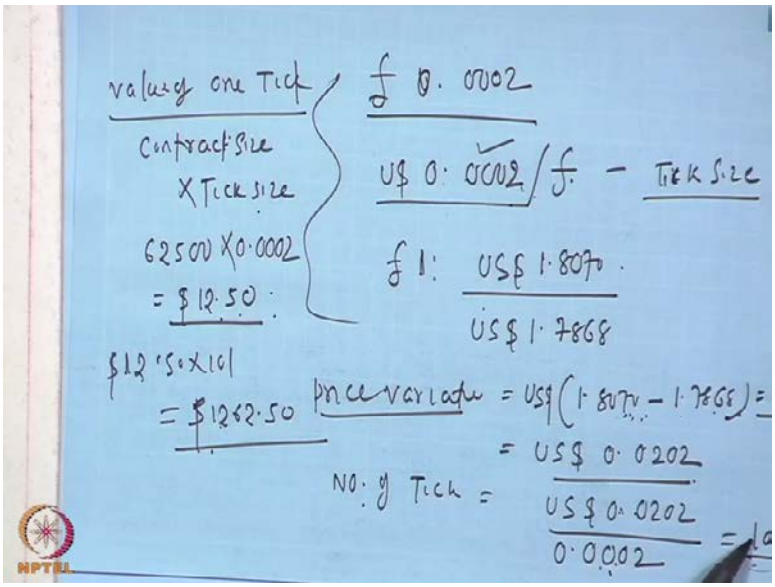

Suppose, in case as we know, in case of Pound sterling that tick size in case of Pound sterling the tick size is tick size is nothing US 0.0.0002, the in case of Pound sterling the tick size is 0.002 or pound per, or other word 0.002 US dollar per Pound sterling tick size, that is called tick size or minimum variation minimum variation, minimum tick size or minimum variation of future contract.

Now, suppose the Pound sterling, Pound sterling rate that is pound sterling rate fluctuate from one pound sterling, suppose US dollar 1.80070 and 1.8070 and it migrated to, suppose migrated to US dollar 1.7868. It was, it was one is Pound sterling was 1.8070 US dollar and is after some time is migrated to US dollar 1.7868.

Then, whatever the future contract value variation, variation in future contract in case of Pound sterling. You want to calculate, we know what is the minimum variation of variation of pound sterling against the US dollar in future contract, that is 0.0022 US dollar Pound sterling and there is a Pound sterling migrated from 1.68 1.8070 to 1.7868 US dollar.

Now, the price variation is here how much? You have to calculate price variation price variation is nothing but US dollar 1.8070 minus 1.7868. The price variation is how much? Price variation is 0.0202 US dollar, the price variation is US dollar 0.0202. The price migrated from 1.8070 to 7868, the price change or the price variation is US dollar 0.0202.

Now, we know that one tick size of Pound sterling against dollar is this much. So, how many ticks are there? Number of tick will be, number of tick number of tick is nothing but US dollar 0.0202 divided by 0.0002 that is one tick size, this will be nothing but 101 tick size, you calculate these, this will be nothing but 101 tick. So, 1 the 1 tick is US dollar against Pound sterling the one tick in future market is 0.002.

So, the variation take place in Pound sterling from 1.8070 to 1.1.7868 the variation is nothing, but 0.00202 and one tick size is 0.002. So, number of tick will be 101 tick if you divide this, the variation divided by, price variation divided by tick size will give you number of tick the number of tick is 101 tick.

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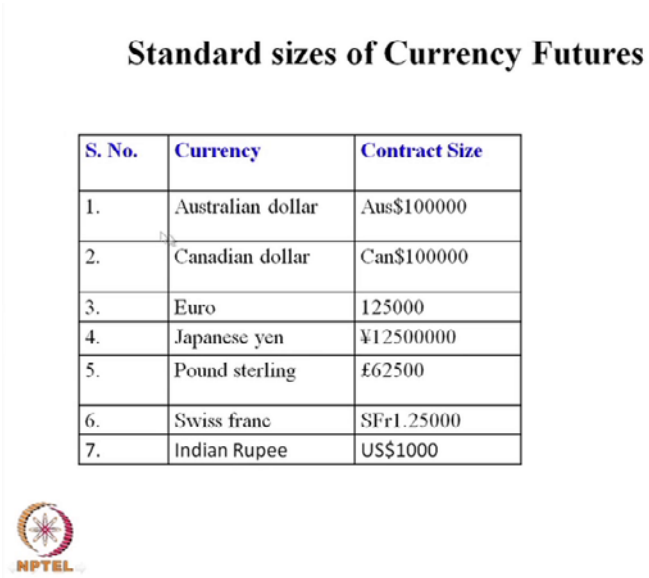

So, but you know that one tick, what is the size of the future contract in case of Pound sterling Pound sterling, if you see size of the future contract is 62500 62500. So, if you multiply the number of tick into contract size will give you the price variation. The number of tick into contract size will give you the price, value of the one tick, value of one tick the value of number of ticks suppose if you want to calculate the value of value of one tick the value of one tick is nothing but nothing but the value of the one tick is nothing but one tick is contract size into contract size into the tick size, tick size contract size into tick size.

So, in case of Pound sterling the contract size is 62500. If you see the contract size of Pound sterling is, Pound sterling is 62500 and tick size is US dollar 0.0002 tick size in

US dollar is 0.002. So, what is the value of one tick, one tick value dollar 12. if you multiply this 12.50. So, what is the value of one tick, value of one tick is nothing but contract size into the tick size; that will give you the value of one tick. The value of one tick in case of Pound sterling is 12.50 dollar.

But how many tick size, with the variation of US dollar pound sterling from 1.8070 to 11.7868. We have got how many tick? We have got 101 tick. How we have calculated, the price variation by tick size will give you number of tick. 101 tick, but one tick is 12.50. So, what is the value of 101 tick, 101 tick to multiply into, multiply 12.50 into 101 that will give you the value is US dollar 1262.50.

So, what we have calculated here, if the US dollar if the Pound sterling migrate from 1.8070 to 1.7868. Then the future contract of Pound sterling, the price variation, the future contract of the Pound sterling, the price variation of sterling contract the Pound sterling contract will be 1262.50 dollar 1262.50 dollar that is, the calculation of using that tick. How and how the tick lead to the price contract and how the contract value decided that we have done it here.

What we have done it here you know the tick size from that tick size you calculated the price variation, from the price variation you calculated the number of tick price variation by size of that tick will be number of tick will give and from the value of one tick is nothing but contract size in the tick size that will be value of the one tick. The value of one tick in case of Pound sterling is 12.50 dollar and we have 101 tick variation. So, each variation 101 tick into the value of one tick will give you will give you the sterling contract variation, sterling contract price variation, sterling contract price variation is 1262.50. If the sterling, Pound sterling migrated from 1.8070 to 1.7868, that is a using that tick. How we can decide, how we can decide the sterling contract variation or contract variation.

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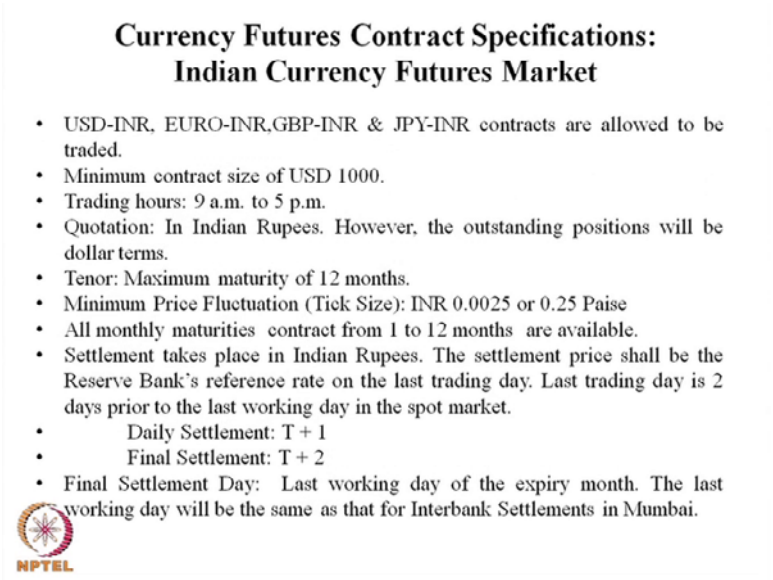

Now in case of Indian currency market there are number of recently started just 45 years before Indian currency market started, future market and here future market in Indian future market Indian currency has some features are there, features are here which are the currency are traded in future market.

In case of Indian future market you have you, US dollar you have Euro, you have Great Britain pound sterling and you have Japanese yen. So, there are four currencies are available US dollar, Euro, Great Britain pound sterling and Japanese yen in Indian futures market. The minimum contract size, here contract size minimum is 1,000 dollar the contract size is 1,000 dollar what is that trading time, trading hours is morning 9 AM to afternoon that is 5 PM.

The quotations, all quotations are available Indian rupee. So, all quotations are available in Indian rupee. So, however outstanding position will be will be in the form of US dollar, outstanding position will be in the form of US dollar, but quotations are available in Indian rupee. Tenors, what are the tenors available maximum maturity of 12 months and each month we will get a every month there will be a forward future contract and there is 1 month 2 month 3 month up to 12 month future contracts are available in Indian currency market. Then minimum price fluctuation that is tick size is 0.25 paisa or INR that Indian rupee 0.0025 Indian rupee.

Then monthly maturity contract, available in the Indian future market the one month to twelve month contracts are available. Since settlement take place in Indian rupee, all settlement take place in Indian rupee. Settlement price is a reserve bank reference rate on the date of last trading day. The last trading date, what is the reserve bank settlement reference rate that will be that will be considered as a settlement rate settlement price and settlement takes place two days prior to the last working days of the spot market, two days prior to the last working days of the spot market.

So, daily settlement takes place the T plus 1 and final settlement takes place at t plus 2. Final settlement day last working day of the expiry month, final settlement is the last working day of the expiring month last working day will be same as the for interbank settlement in Bombay market, what will be the last working day of interbank market in Bombay that will be the last working day for the settlement final settlement day will be there. These are features of Indian stock Indian currency futures market. We have, USD, US dollar, Pound sterling, Euro and Japanese yen future contracts are available and these contracts are available for 1 month to 12 month and contract settlement takes place T plus 2 days and reserve bank reference rate will be the reference settlement price of the future contract and contract tick size is 25 (( )) 0.25 paisa

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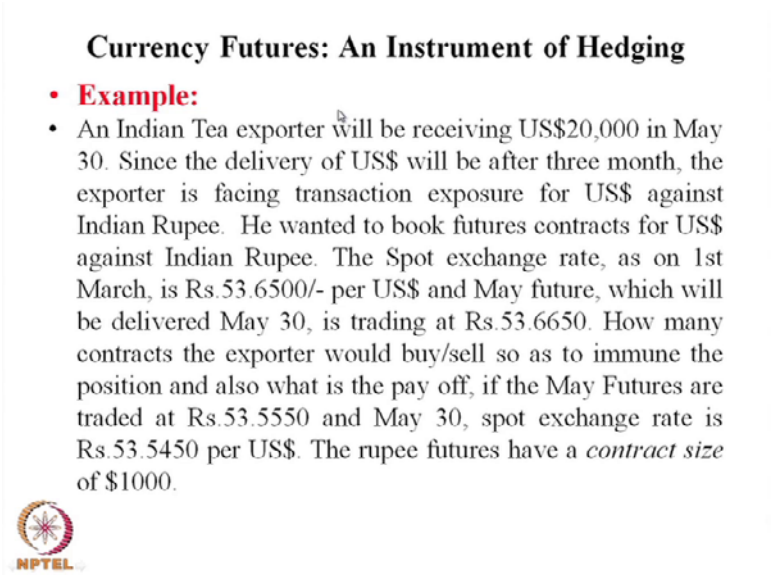

And how we can use the currency future market for as a hedging instrument. As a forward transaction forward transaction or the transaction management of transaction

exposure. How you can use the currency future market, to understand this let us do a problem. Here problem is here an Indian tea exporter will be receiving 20,000 dollar in the month of May 30th, 30th of the month, 30th May, since the delivery of US dollar will be after three month. That is this we are on March now and the May 30th the exporter receiving 20,000 dollar. It is three month from the march April may the three month, in between three month anything can happen.

So, the exporter wanted to immune his position by purchasing a future contract, he wanted to book a future contract for US dollar against Indian rupee. The spot exchange rate as on first March is 536500 and for and May future, that is May future in the month of March, May futures are there month of March. May future price is 536500. How many contract the exporter would buy or sell. So, as to immune the position and also what is the pay off, if the May futures are traded at 5355 triple 50 on and May and May 30th spot exchange rate is 535450 per dollar.

The rupee future contract a contract size of 1000 dollar. So, the exporter receiving dollar 20.000 in month of May, now we are in month of March, in the month of March spot rate given to us, the month of March what will be the May future rate, that also given to us and also we know that, Suppose there is a indicative rates are available in the market you have to calculate the pay off now. Since exporter he is exporter he is receiving dollar, you have to sell contract. So, what he will do you have to go for sell contract. So, the exporter will sell future contract in currency market. So, now, how we can proceed this problem, this problem is you have to understand step by step what is available to us then you can calculate and estimate the pay off, here if you see the spot exchange rate at March is exporter receiving 20,000 dollar.

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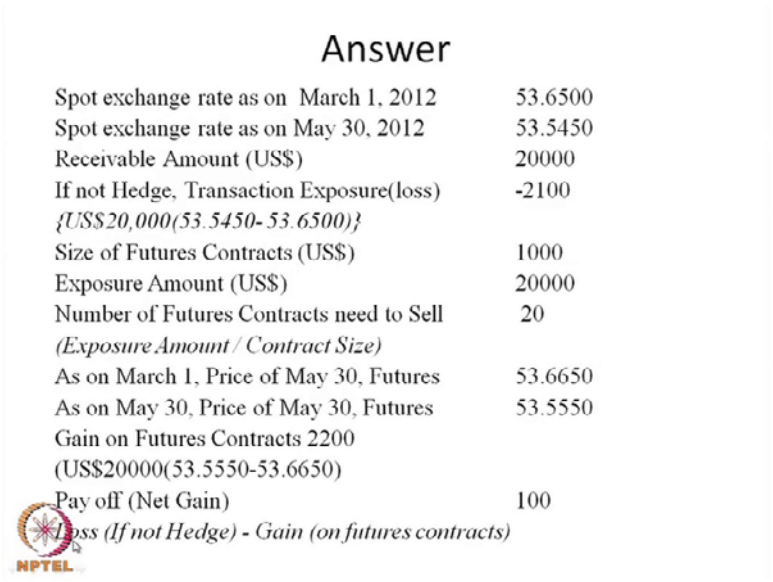

So, exporter we have exporter, receiving May 30th 20,000 dollar, 20,000 dollar, he is receiving in on May 30th. Now, spot rate we are in March now, spot, spot rate USD, 1 USD spot rate is equal to how much? We have spot rate in the month of March that is we are in March.

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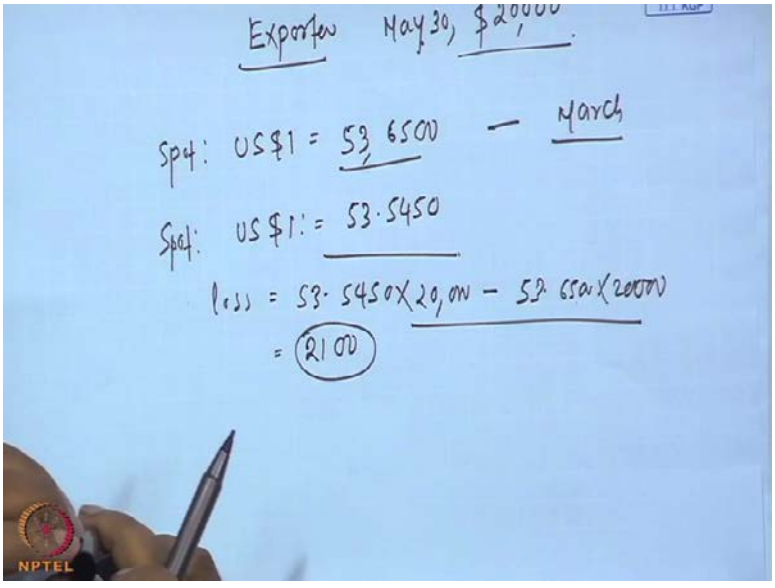

Now 53, 6500 we are in March now, then the exporter receiving dollar in May 30th. So, spot rate in US dollar in the month of March is 53 65. Similarly, May spot exchange rate on May 30th is given to us. So, spot exchange rate, suppose a spot exchange rate in

May 30th spot rate USD 1 dollar is May 30th is 535450. So, suppose we come to know, some way where you come to know the spot exchange rate May 30th will be 535050. What is the loss if he do not purchase any forward exchange, forward future contract what will be the loss for the exporter the exporter loss will be nothing but the loss will be 53.5450 into 20,000 minus, if he current rate is 536500 53.6500 into 20,000.

If he do not wait, if the exporter does not wait and sell at receiving today and selling at during the month of March he will be getting 5365, but he is receiving after three month it is a month of May. So, month of May the exchange rate is 535450. So, he is getting less this loss will be something around how much, something around if you calculate this 2100 rupees loss.

Now, realising that we come to know that that there will be loss for me, if I wait if the I wait for without purchasing a forward future contract, I will be I will be waiting for the receiving dollar and I will be selling at during the month of May I will be getting a less amount. So, he purchase a forward contract, future contract now future contract price will be how much. The future contract he purchased how many contracts you have to purchase you have to calculate first now.

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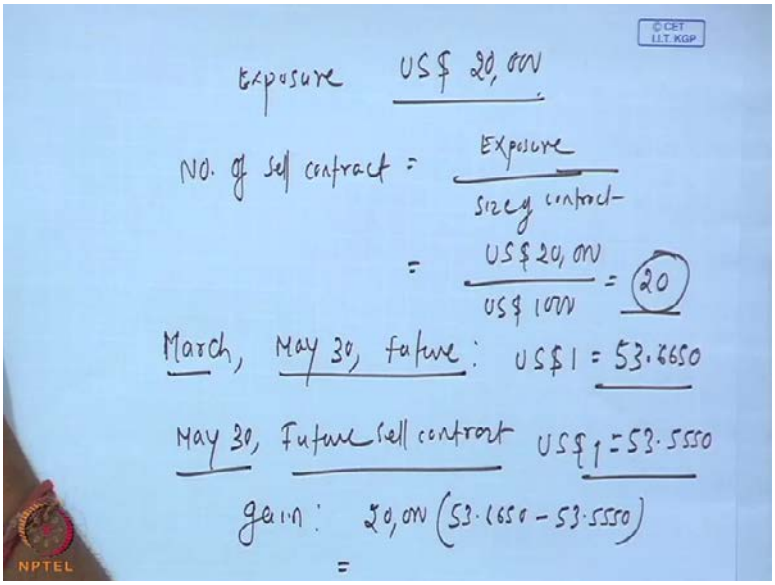

Then he has a exposure is how much, exposure is US dollar 20,000.The question is now he is receiving US dollar, you have to sell the US dollar in future. So, you have to purchase what is called a sale contract, you have to purchase a sale contract. The sale

number of sale contract number of number of sale contract number of sale contract nothing but each contract side in Indian future market 1000. So, size divided by that is exposure, divided by a size of contract, give you number of contract.

So, exposure is USD 20,000 and size of the contract in India case in Indian case is 1000. So, you have to purchase, you have to purchase a sale contract of 20, you have to purchase a sale contract of 20 numbers correct. The purchase sale contract of 20 number, but when he is purchasing, March in the month of March only. The future contract in the month of March, month of March, May future, May 30th future is USD, if you see the May 30th future in the month of March, month of March on spot exchange rate first is 53, month of May future which will be deliver on 30th May, is trading at 53 65 66 50. So, one month of March, May future price is 53.6650 53.6650, now he purchase how many contract, 20 contract he purchase 20 contract, by paying per 1 dollar 5365 6650.

Now, in the month of May 30th price of the future contract is how much, now he has purchased 20 contract 5356 666650, now in the month of May in the month of May, actually May month arrive, May month arise and in month of May the future contract, future sale contract in the 30th of May, future sale contract is trading at USD, if you see the example the month of May, month of May month of May, how many futures, May futures are traded on 30th of May 535550. 1 dollar will be 535550, month of May, sale contract May sale contract is available at on 30th May, when May arrived, on 30th of May. On the date of settlement the future contract sale contract will be 53550, but he purchased sale contract of US dollar 536650, but actually price is available in the market 5550. So, he will be selling because he already purchase a contract he immune his position, thus he will not look at this he will look at this and he will sell it at 536650.

In this process how much gain he is getting because the gain is here nothing, but he is getting a future gains in the contract size he is getting a future gain, the gain is here gain is how much 20,000 dollar into 53.6650 minus 53.5550 because even though even dollar is available, 1 dollar is 535550 in future market, but since he has purchased the future in doing the month of March at this rate 536650 his position is immune and there exchange will provide him 536650 not at 535550. So, there gain will be how much, gain will be nothing but the net the gain will be 2000 2000 US dollar, 2000 Indian rupee.

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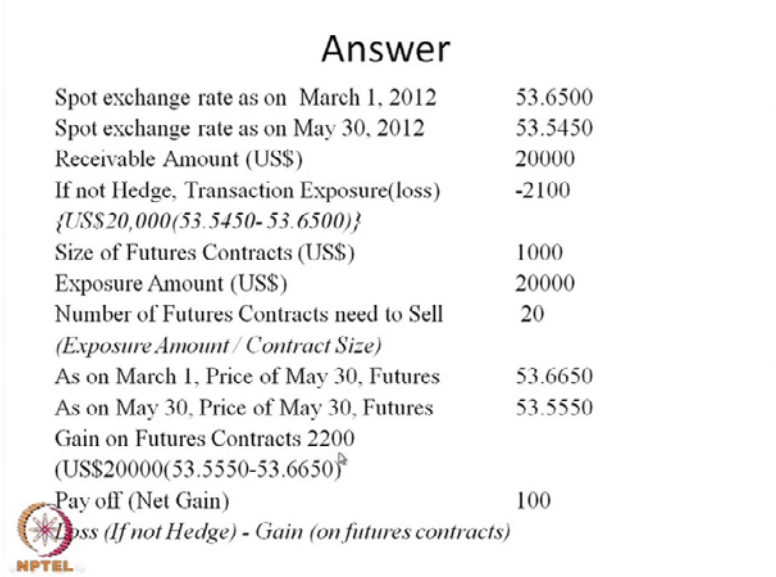

But by purchasing future contract he is getting a gain of 2,200 US dollar, but by not adhering to, not adhering to the what is called he suppose he does not purchase any future contract, he is open his position his will be he will be facing a loss of 2,100.

So, the actual gain for him is 100 dollar, for him is 100. That here the actual pay off for him is 100 rupees, not hedging anything he will be losing 2000 by adhering to the future contract he will be getting 2000. So, there is a gain for going for a future contract. So, this problem what you discuss in calculation process I have analysed here you can see it, spot exchange rate on March 30 march first 5365, Spot exchange rate on May 30th because he is receiving dollar in May 30th, 535400 receivable amount is 20,000 dollar. So, if he does not hedge his position then he will be getting how much, he will be selling his dollar at 535450 why, his dollar will arrive in month of May only. So, he will be selling at dollar 53505 535450. So, but dollar is dollar is depreciating, rupee is appreciating he is getting less.

So, there will be loss in transaction process 2100 rupees now realising this loss he has gone for a future contract purchase because he realised that rupee may appreciate. So, he will be getting less amount of rupee. So, he will go for a future contract. So, how to how many contract the size of the future contract in Indian stock in Indian future market is 1,000 dollar, but his exposure is 20,000 dollar. So, number of future contract need to sell because he is receiving dollar, he has to sell dollar in the market.

So, exposure amount into contract size will give you number of contract, exposure amount is 20,000 contract size is 10 1000, 20 contract he need to sell in the market, purchase contract sale contract, he has to purchase sale contract, but when you will be purchasing before dollar arrive in the during the month of March, only in the month of March, May future price is 536650. So, 536650 he will purchase 20 contract and when actually May arise, on 30th May the future contract price is trading at 535550, but already he sign a contract with the exchange. So, he will be selling his dollar not at 535550 he will be selling his dollar 536650.

So, he is gaining, what is called gain in future contract some amount and how much amount 20,000 into 536650 minus 535550, that is 2200 2200 Indian rupee. He will be getting, if he sign a contract, if he sign a contract, he is not, he will not lose 2100 he is getting a extra of 2200. So, the actual gain will be 100 only, will, will be 100 for him.

So, this is a process of calculation of pay off for the future contract and here you have learnt two things. How many contract in case of export exporter receiving foreign currency, you have to purchase sale contract, importer need to pay foreign currency, you have to purchase contract, two thing second thing size number of contract is nothing but number of contract is exposure amount into divided by the size of the contract. So, exposure amount is 20,000 here size of the contract in Indian currency market, future currency market, is 1,000 dollar is 20 contract. So, the number of contract is nothing, but exposure amount divided by size of the contract, that will give number of contract, number of contract, their contract due to purchase or sale at the prevailing price, market price of the contract, that is that is the amount he is suppose to pay at the signing of the contract and this contract will be continuously traded when the maturity day of the contract arrive. If the maturity date maturity day the price is more or less, the gain or loss depend upon what kind of contract you have purchase. The sale contract or purchase contract and on that basis you calculate the pay off of the matrix.

The pay off or transaction profit or loss on the basis of settlement price you have to calculate that. Future contract are very helpful because there is no liquidity problem, there is no exist problem, there is no credit risk in future contract. However, there are number of disadvantages are there in future contract. Future contract size are standardised. So, you cannot customize the product future contract size is standardised

and not only in price, not only in the volume, not only in the size of the contract, but also what is called delivery date.

If the exposure in between the before the delivery date, then the future contract will not help us, you have to go for a forward contract further. So, future contract some extent help in large scale large amount of exposures are there, but small amount of exposures are there, it is better for the customer to go for a forward contract and both forward contract and future contract together only can immune our immune the position of the hedgers, immune the position of the hedgers or exposure, those who are exporter importer. The both foreign currency future market and forward contract market together only possibilities are there for hedging the position for references site, you can use the RBI annual report and also economic survey of government of India.

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Your future market Indian future market development is mentioned there, RBI annual report also provide the future market condition India. You can go to the NSE site, NSE national stock exchange and Bombay stock exchange site and see the Indian future market the trends in progress of Indian future market. There also you will come to know the calculation process of future market in India. NSE site for future currency future market is highly traded future market, you can see the trading volume, trading size, settlement pattern, settlement rate and other features of Indian currency future market.

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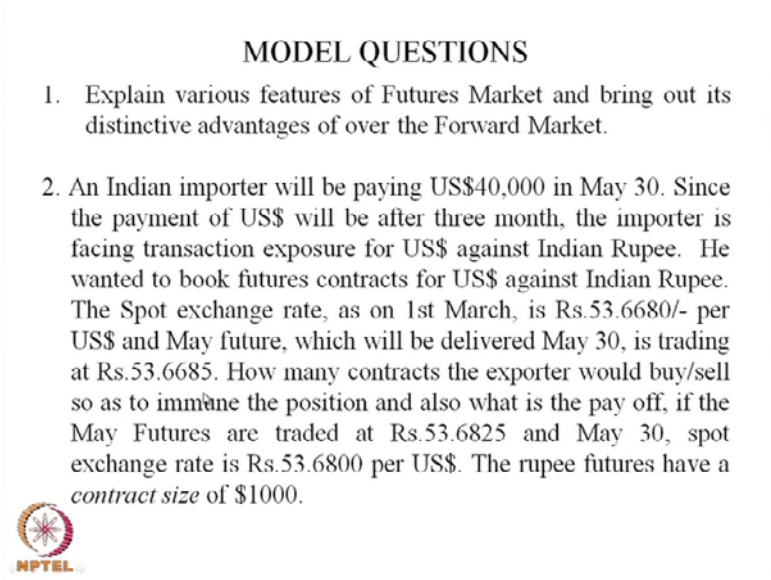

The here, the model question for you; the explain the various features of futures market and bring out its distinctive advantages over the forward market, the various features of in futures market you we have discussed already and also what are the advantages are there over forward market, you can discuss that, the advantages here credit risk is not there. In case of future market the equities are available settlement patterns are there price are standardised, volume market is standardised and also the continuously trading allow us to exit from the future market anytime, which is not available in case of forward market.

The Indian importer you can go through the example, here one problems I have given to you, same problem which we discussed in export side I also I brought it here in the importer side. An Indian importer will be paying 40,000 US dollar in May 30th since payment is in US dollar, will be after three month the importer is facing transaction exposure in US dollar, against the Indian rupee he wanted to book futures contract for US dollar against Indian rupee. The spot exchange rate as on first march is 536680 and in May future, May future running during May, future running during March during March 536680

How many future contract the exporter would buy and sell. So, as to immune his position and also what is the pay off if the May futures are traded at 536825 and May 30th the spot exchange rate 5368 per US dollar. The rupee futures have a contract size of 1,000

dollar, you have already discussed the problem for the perspective of exporter you can discuss this problem and do the problem for the perspective of importer, the solution is here.

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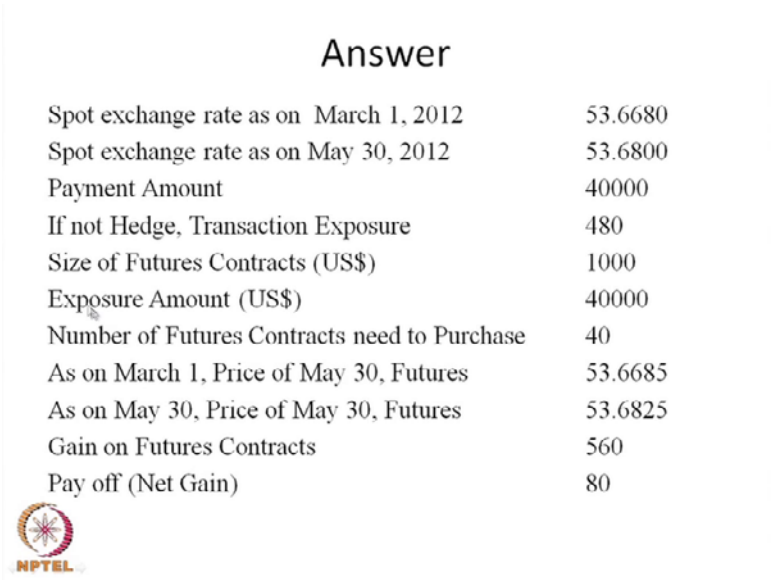

The spot exchange rate on March 30th is 5360, spot May 30th spot is 5368. So, payment amount is 40,000 US dollar. So, if he not hedge then there will be loss of, loss of 480 480 rupees. If this, he want say loss to avoid this loss the importer purchase contract. So, purchase contract size is 1,000 exposure is 40,000. So, 40 contract he purchase from the market and in the month of March you pay for contract 536685 per dollar.

So, and but May 30th actually arrived the futures that May futures running at 53.6825. So, but he will gain on future contract is 560 and here payoff will be 8560 and 480 that there will be pay off of pay off of 560. So, May future is running 536825 per dollar, but already the importer sign a contract 536685 he will purchase the dollar at 536685 in place of 536825, there will be a gain for him the gain is 560 per, 560 per contract 560 rupees per contract. So, there will be per contract there will be profit of 80 rupees and he has purchased 40 contract, so that you can calculate the amount the rupee gain here.

Thank you.