Commodity Derivatives and Risk Management
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Week-01
Lecture 05
Introduction to Futures Contract

Welcome to the fifth session on Commodity Derivatives and Risk Management. Please recall that in the previous session we were discussing different aspects of forward contracts. And how forward contracts though help commodity producers, consumers and value chain partners to mitigate price risk, but can have a significant amount of counterparty risk. Now let us continue with understanding little more on forward contract. In addition to that, we will also introduce futures contracts, different aspect of futures contract in today's session. Please recall that forward contracts have counter party risk and the party which is incurring loss in the zero sum game that party intends or tries the to renegotiate the terms of contract.

In addition to the counter party risk forward contract also have a quality risk. So, what do we mean by quality risk? In the case of a commodity the buyer who is taking a long forward position, who is intending to buy the underlying asset at a later point in time and has to quote a price today, that party needs to spend a considerable amount of time effort and energy to go and inspect the quality of the underlying good which is being currently offered by the seller. So, unless the buyer is able to do this job properly, it may end up paying a very high price for not so good quality product. Hence, this quality risk is a significant risk with respect to the forward contract.

Now being OTC or bilateral contracts, the forward contract parameters are mutually decided or agreed upon and many a times the buyer and seller of this commodity creates auction process to identify the counter party. Please recall the examples which I had given in the previous session that is, let us say a cardamom producer and cardamom wholesaler know each other and they negotiate the contract with each other. This need not necessarily be the case, a commodity producer or a commodity consumer can create an auction process to identify who is going to be the counter party to the forward contract. In this link as you can see the forward e-auction of the coal which is undertaken by coal India from time to time to identify who is going to be the counter party, who will buy coal from coal India and its different subsidiaries and the price is negotiated as well as the quantity is also negotiated often. And as I mentioned that forward contracts have quality risk, and this gets very clearly manifested by the sentence which is mentioned in the quote-unquote.

This particular sentence I have taken from the above document which is mentioned here. So, what this document says that before participating in e auction the bidder that is the buyer of the coal must satisfy themselves with the quality of coal being offered from the source. No complaint thereafter or after the e auction will be entertained by the coal companies. So, in the case of a forward contract, the buyer of the underlying asset has to spend considerable amount of time, effort and energy to identify the quality of the underlying commodity which he or she is going to buy. Unless that is done properly, that poses a significant risk to the buyer of the forward contract.

Also, almost all forward contracts which are formal forward contracts where both parties sign an agreement, all these contracts have a force majeure clause and that clause is nothing, but a clause where the provision indicates that the provision relieves parties from performing their contractual obligation when certain circumstances beyond their control arises. So, the force majeure is a French word and its English meaning is superior force or by act of God. So, many a times if certain very certain unique very difficult type of event happens and both parties are not able to abide by their side of the contract that is ah you know both parties agree to ah agree to that aspect, but many a times we have noticed that counterparties invoke force majeure clause to extricate themselves from the contract terms. So, they do not want to abide by the terms of contract not that they cannot they are not able to abide by because of some very negative event which has happened which is beyond their control. There may be some negative events, but that may not be beyond their control, but still counterparties invoke the force majeure clause to extricate themselves from contract terms.

So, this brings to the end of the discussion on forward contracts. So, forward contracts are agreement between two counterparties where ah both parties agree on different terms of contract and it is a mechanism to mitigate the price risk though it allows counterparties to mitigate the prices, but it can have a significant amount of counterparty risk. Now I thought of sharing some interesting aspects of the history of forward contracts. So, forward contracts are not of recent origin. Forward contracts exist since time immemorial.

The first recorded forward contract goes back to 620 BC. As the story goes, tells a Greek philosopher and astronomer and mathematician who was born in a place called Miletus in Greek. He was one of the most learned person at that time, but he was very poor and people were making fun of him as he was not able to use his superior knowledge and wisdom for earning money. To prove everybody wrong, what Mr. Thales did is that based on his knowledge of astronomy he predicted a bumper crop of olive.

And he knew that the moment there is a significant amount of olives produced, the demand for olive presses increases because olive presses are used to cross olive to extract olive oil. So, before the olive harvest season, he borrowed money and entered into a forward contract to rent all olive presses in Miletus and the other nearby areas. By doing so, he became the monopoly owner of all olive presses for that year. And true to his prediction there was a bumper olive crop that year and Thales charged huge sum of money to olive farmers. so, that these farmers will be able to use the olive presses to extract olive oil.

And it goes on to prove that it is easy for philosophers to be rich if they choose, but that is not what they care about. So, with this we will come to an end of our discussion related to forward contract and let us move on to the exchange traded derivative contract which is the futures contract. And as I have said that forward contracts have a significant amount of counterparty risk, but futures contracts do not have the counterparty risk. Now what are futures contracts? why they do not have counterparty risk? and how this futures contracts are traded in exchanges? All these aspects we are going to discuss in coming 2 to 3 session. Now let us start with the futures contract.

Now before we go to the nitty-gritty of the futures contract let us understand little more on the structure of a commodity exchange. So, commodity exchange is a platform or a venue which provides futures and option contracts on different commodities. And we have in session 2 we have in great detail we have discussed about different commodity exchanges all over the world. And please note that commodity exchanges are organized marketplaces and every commodity exchange is regulated by a regulator. In our Indian case, SEBI is the regulator for commodity exchange.

In other countries they have other regulators such as CFTC of USA, FCA for UK and JFSA for Japan and similarly other countries have their regulators. Now commodity exchanges have very important units which are clearing houses and clearing banks. We will understand the role of these clearing houses and clearing banks as we go forward. And please note that whenever somebody wants to enter into a futures contract or option contract in a commodity exchange, they have to take a membership of a trading member. Trading members have to be a member of the clearing member and the whole process of buying and selling of commodity derivative contracts starts from buyers and sellers and the whole ecosystem ensures that these buyers or sellers are able to enter into these derivative contracts without any counterparty risk.

And as you can see that warehouses and the warehouse regulator are also an important part of this whole ecosystem. Please note that in the case of a commodity derivative, if somebody wants to deliver the underlying as part of these futures and options contract derivative contracts, they can do so and when somebody would like to deliver, they will be delivering this underlying contract at the exchanged approved warehouses. Basically if somebody wants to buy or take delivery of the underlying commodity they can do so from the exchange approved warehouses. And warehouse functioning, warehouse receipt generation all these are governed by warehouse regulator. In Indian case we have

WDRA that is Warehouse Development and Regulatory Authority is the regulator for warehouse-related activities.

So, this in a nutshell though whole structure related to commodity exchanges. Now let us understand little more on the role of trading member, clearing member, clearing house etcetera. So, trading members are just like the brokers in a stock market, the way if we want to buy and sell shares we have to go through a broker. Similarly buyers and sellers of any commodity contract must channelize their trades through a trading member. And in addition to the trading member, exchanges also have clearing members and clearing houses.

The prime responsibility of this clearing member or clearing house is to provide post trading functions. And this clearing and settlement of all trades executed in an exchange platform is managed by the clearing member. And the very important aspect of commodity derivatives through organized exchanges is that the clearing member assumes the counterparty risk for every trade. So, we will be discussing little more on this aspect because that is what the proposition we started that futures contracts do not have any counterparty risk. So, the moment somebody is entering into a futures contract through a organized exchange the counter party risk is taken care of and that counter party risk is assumed by the clearing house associated with the exchange.

Now, let us understand what are the different activities associated with the commodity derivative trading. Suppose somebody wants to enter into a long futures position then he or she has to take a trading membership and once he or she takes the trading membership they can go to the you know any online platform and they would like to give a buy or sale contract. And the order receipt trading activity relates to the order receipt, order matching, order execution and reporting of the executed trades. So, this is the trading activity this is the platform which is offered by the exchange. Once the trading is done the subsequent activities are known as your clearing activities and settlement activities.

Now, Novation is a very very important concept for mitigating the counter party risk. So, what exactly is a Novation? Novation is the act of replacing an existing contract with a new contract. And the clearing house of a exchange guarantees the settlement of each and every counter party even in the event of one counter party defaults. So, now let us understand how what is the Novation in greater detail. Please note that in case of a forward contract, in case of a forward contract let us say there is a party which is taking long forward which wants to buy the underlying identifies a counter party which takes a short forward.

So, what is the agreement that both party short forward will deliver the underlying whatever the underlying asset or commodity and the long forward will pay money. And as we discussed in the previous lecture that one party may go back on his or her commitment because the price has moved against his expectation. So, this kind of a agreement has counter party risk. But when the same contract gets traded in an exchange we do not call it anymore forward contract we call these are as futures contract. So, futures contract here what happens the same you have the two party one party will take long futures position, the other party will take short futures position.

The party which is wanting to buy the underlying asset will be taking long futures or party which is wanting to deliver the underlying asset would be taking a short futures position both will be entering into a contract in the exchange in the trading platform. So, once the trade gets executed then they do not interact with each other directly unlike your forward contract. So, what happens the clearing house associated with. So, the clearing house associated with the exchange becomes a counter party to every trade. So, the long futures will be receive the underlying asset, pay money to money to the clearing house.

Similarly, this party will be giving the asset and get money from. So, this, if you see every trade gets broken into two trades long futures and short futures position holder enter into the contract, but once the trade is executed clearing house takes an intermediary position. So, for every trade it guarantees that it becomes a counter party to to long to the long futures position as well as it becomes a counter party to the short futures position. So, if the short futures position does not deliver the underlying asset the clearing house ensures that the long futures position gets the asset. Even if this person that is let us say party B this party B and party A let us say party A does not party B is supposed to deliver the underlying asset to the clearing house.

Suppose for whatever may be the reason it is not able to do so, but the clearing house will ensure that the underlying asset is delivered to the party A in the right time. Similarly, party A is supposed to pay money and suppose the party A does not pay the money, but clearing house will ensure that whatever it is supposed to pay money to party B it will be paying paying that amount. So, the counter party so, there is no counterpart as so, counterpart risk is completely taken care of in case of a futures contract which is through your organized exchanges. And this process of a clearing house becoming an intermediary to every contract is the process of novation. Now, how do clearinghouses ensure that they will be able to abide by all contract terms and conditions.

Clearing houses maintain something called a settlement guarantee fund. This particular snapshot indicate the settlement guarantee fund of multi commodity exchange clearing corporation limited. Please note that MCX is the commodity exchange. MCX CCL is the clearing house associated with the multi commodity exchange. Similarly, every commodity exchange all over the world has a separate unit or separate company which act as a clearing house associated with that particular exchange.

And these clearing houses maintain a settlement guarantee fund that if nowhere they will be able to manage to pay to the counterparty, they will be using this settlement guarantee fund to fulfil the obligation to any counterparty. Now, let us come to understanding more on futures contract. As we discussed forward contracts are agreed and they are bilateral contracts they are very non standardized contracts. So, if a particular company wants a very some unique product and somebody else is willing to provide or offer that product and both party can enter into forward contract. It can be any underlying for example, maybe a mango pulp could be you know a underlying brass alloy made of copper and tin some combination of copper and tin some company wants another company is willing to deliver.

Maybe bamboo poles so, this could be the underlying associated with a forward contract. It can be any quantity as we discussed in case of a cadmium it was about 375 kg. Any delivery and any maturity date as we discussed it was 25 day in case of a ah cadmium ah forward contract. Delivery location it could be any delivery location like the farm gate of the cadmium producer. So, forward contracts are non-standardized, that is a good part of the forward contract that if I need something very unique I will be able to if somebody is willing to provide me with that kind of underlying and that kind of quantity and the delivery date and delivery location, I will be able to enter into a forward contract.

So, as we discussed futures contracts are standardized in terms of quality, quantity, maturity date and delivery location. Now, let us have a look at the standard futures contract specification from any exchange and I have just chosen the turmeric futures specification from NCDEX. As you can see this document is running into 6 pages. So, I will be taking you through the different aspects of this contract specification as it is very very important or paramount to understand ah this standardization and different aspect of ah contract futures contract trading. Now, in addition to the futures contract specification, exchanges also have a detailed product note which is again running into about 24 pages.

So, you can understand the kind of effort, or the kind of detailed commodity exchanges spent on designing the contract specification. Now, let us go to the futures contract specification for turmeric. So, this is the screen sorter image I have snipped from the NCDEX future contract specification and as you can see what is the type of the contract it is a futures contract, what is the underlying commodity termoidic. So, the counter party so, there is no counterpart as so, counterpart risk is completely taken care of in case of a futures contract which is through your organized exchanges. And this process of a clearing house becoming an intermediary to every contract is the process of novation.

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