Study Notes for
NISM Series XVI : COMMODITY DERIVATIVES CERTIFICATION EXAM

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Prepared By

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NISM SERIES XVI: COMMODITY DERIVATIVES

Exam Details

Total Questions	**100 X 1 Marks**
Type	**Multiple Choice**
Pass Score	**60%**
Duration	**2 Hours**
Negative marks	**-0.25**

Chapterwise Weightages

Unit No.	Unit Name	Weightage
Unit 1	Introduction to Commodity Markets	12%
Unit 2	Commodity Futures	13%
Unit 3	Commodity Options	25%
Unit 4	Uses of Commodity Derivatives	20%
Unit 5	Trading Mechanism	12%
Unit 6	Clearing, Settlement and Risk Management	10%
Unit 7	Accounting and Taxation	3%
Unit 8	Legal and Regulatory Environment	5%

Unit 1 - Introduction to Commodity Markets

Commodities can be traded in both the spot market as well as the derivatives (forward and futures) market. There are two main types of commodities that trade in the spot and derivatives markets:

- Soft commodities: These are the perishable agricultural products such as corn, wheat, coffee, cocoa, sugar, soybean, etc.
- Hard commodities: These are natural resources that are mined or processed such as the crude oil, gold, silver, etc.

Spot market is a place where commodity is traded and the transfer of ownership takes place immediately. This concept is also termed as "ready delivery contract" under which payment and delivery of good happens immediately. There are two variants of spot market—physical spot market and electronic spot market.
In a physical spot market, the commodities are physically bought and sold by the buyers and sellers respectively for immediate delivery.

the traditional 'Mandi' system leaves the farmer with no bargaining power as the price setting power completely rests in the hands of the traders and middlemen (though the recent reforms are changing this situation). This results in a very inefficient price discovery mechanism.

Electronic Spot Exchange / Spot Commodity Exchange

A spot commodity exchange is an organized marketplace where buyers and sellers come together to trade commodity-related contracts following the rules set by the respective commodities exchange. An electronic spot commodity exchange provides a market place where the farmers or their Farmer Producer Organisation (FPO) can sell their produce and the processors, exporters, traders and other users can buy such produce through an electronic trading system

Derivatives Market

Derivatives are either traded on an exchange platform, or bilaterally between counterparties, with the latter known as the over the counter (OTC) market. OTC derivatives are created by an agreement between two specific counterparties. Most of these contracts are held to maturity by the original counterparties. Exchange-traded derivatives, on the other hand, are fully standardized and their contract terms are specified by the derivatives exchanges. Over a period of time, based on the need of the market participants, various derivatives products have evolved in OTC and exchanged traded commodity derivatives markets such as commodity forwards, commodity futures, commodity options, commodity swaps, commodity loans & bonds

Risk Reduction: Commodity derivatives markets allow market participants such as farmers, traders, processors, etc. to hedge their risk against price volatility through commodity futures and options. Derivatives provide a mechanism through which investors, both individual and institutional (including corporations), can efficiently hedge themselves against the price risks through the mechanism of risk reduction and risk transfer. Hedging can bring greater certainty over the planting cycle, confidence to invest, adjust cropping patterns, diversify risk profile, and opt for higher revenue crops.

Risk Transfer: Derivatives help in transfer of risks from hedgers to speculators. On one side, hedgers try to hedge their spot positions via derivatives, on the other side, there are speculators who take up trading bets and try to gain on trading risks. Thus volatility risks are transferred from hedgers to speculators.

Price Discovery: Price discovery in spot markets refers to the process of determining commodity price through forces of market demand and supply. The price discovery in futures markets refers to the process of determining the futures price through expected demand and supply after discounting expected news, data releases and information on the product

Transactional Efficiency: Derivatives lower the costs of transacting in commodity markets. As a result, investments become more productive and lead to a higher rate of economic growth

Forwards

A forward contract is a legally enforceable agreement for delivery of goods or the underlying asset on a specific date in future at a price agreed on the date of contract

In a forward contract:

- Terms of the contract is tailored to suit the needs of the buyer and the seller.
- Generally, no money changes hands when the contract is first negotiated and it is settled at maturity.
- Both parties are obliged to fulfill their contractual terms.
- Most of the contracts are held till the expiry date and the contracts can be cancelled only on mutual consent of both the parties as it is a bi-partite agreement

Futures

A futures contract is a legally binding agreement between the buyer and the seller, entered on an exchange, to buy or sell a specified amount of an asset, at a certain time in the future, for a price that is agreed today. The buyer enters into an obligation to buy, and the seller is obliged to sell, on a specific date. Futures are standardized in terms of size, quantity, grade and time, so that each contract traded on the exchange has the same specification.

Commodity Futures contracts are highly uniform and are well-defined. These contracts explicitly state the commodities (quantity and quality of the goods) that have to be delivered at a certain time and place (acceptable delivery date) in a certain manner (method for closing the contract) and define their permissible price fluctuations (minimum and maximum daily price changes

Options

Option is one more derivative product which provides additional flexibility in managing price risk. Options contracts can be either standardized or customized. There are two types of option contracts —call options and put options.

Call option contracts give the purchaser the right to buy a specified quantity of a commodity or financial asset at a particular price (the exercise price) on or before a certain future date (the expiration date).

Put option contracts give the buyer the right to sell a specified quantity of an asset at a particular price on or before a certain future date

Swaps

Swaps are agreements between two counterparties to exchange a series of cash payments for a stated period of time. The periodic payments can be charged on fixed or floating price, depending on the terms of the contract. One of the commonly used commodity swaps is "fixed-for-floating swaps".

Swap is a pure financial transaction that is used to lock in the long-term price and there is no physical delivery of the commodity and there is net cash settlement on maturity. Currently, commodity swaps are not allowed in India.

Commodities that are traded on Indian exchanges can be grouped into four major categories: Bullion, Metals, Energy and Agriculture. An indicative list of commodities traded in the Indian derivatives exchanges are:

Bullion: Gold, Silver, Diamond

Metals: Aluminum, Brass, Copper, Lead, Nickel, Steel, Zinc

Energy: Crude Oil, Natural Gas

Agriculture: Barley, Chana, Maize, Wheat, Guar Seed, Guar Gum, Isabgul Seed, Pepper, Cardamom, Coriander, Jeera, Turmeric, Sugar, Copra, Rubber, Jute, Cotton, Cotton Seed Oilcake, Castor Seed Oil, Mentha Oil, Soy Bean, Soy Bean Oil, Refined Soy Oil, Degummed Soy Oil, Rape/Mustard Seed, Crude Palm Oil, RBD Palmolein

Hedgers

Hedgers are generally commercial producers, processors, exporters and importers of traded commodities who participate in the commodity derivatives markets to manage their spot market price risk. As commodity prices are volatile, participation in the futures and options markets allow hedgers to protect themselves against the risk of losses from fluctuating prices.

Hedgers include **Farmers, Merchandisers, Food processors, Exporters, Importers**

Speculators

Speculators are traders who speculate on the direction of future prices with the goal of making a profit. Since speculators participate in the commodity derivatives markets for trading only and not as end users of the underlying commodity, they typically do not take physical delivery of commodities and instead liquidate their positions prior to or upon expiry of their futures and options contracts. Day Traders, Position Traders and Market Makers are the subset of speculators.

Day traders take positions in derivatives contracts and liquidate them prior to the close of the same trading day.

Position Traders maintain overnight positions, which may run into weeks or even months, in anticipation of favourable movement in the commodity futures prices.

Market Maker is a class of member who is obligated to provide liquidity in the Exchange in the relevant commodity by giving two way quotes at all times on such terms and conditions as may be prescribed by the Exchange from time to time.

Arbitrageurs

Arbitrageurs simultaneously buy and sell in two markets where their selling price in one market is higher than their buying price in another market by more than the transaction costs, resulting in riskless profit to the arbitrager

Warehouse Operator facilitates storage and issues warehouse receipts against the stored commodity stock which can then be traded in the commodity markets. Warehouse receipt is a receipt of goods or material kept for safekeeping in an exchange recognized warehouse. It is a document of title to commodities issued by a warehouse to the depositor against the commodities deposited by him in their warehouse. This document can be transferred by endorsement or delivery. The original depositor or the holder in due course can claim the commodities from the warehouse by producing the warehouse receipt

E-registry: An E-registry maintains electronic records of ownership of goods against negotiable warehouse receipts (NWRs) and warehouse receipts (WRs) and effects transfer of ownership of such goods by electronic process. Its functions are
Maintaining the identity of the original depositor.

- On-line viewing of warehouse charges/ stocks.
- Consolidation and splitting of the goods in deliverable lots as per contract specification
- Maintaining stacking and weight tracking information
- Ability to capture quality related information and receipt expiry dates
- Facilitate consolidation of data relating to availability of commodity in the market at any point of time.

Commodity Market Indices - Rogers International Commodities Index (RICI), Dow Jones AIG Commodities Index (DJAIG), Goldman Sachs Commodities Index (GSCI), and Reuters Jeffries Commodities Research Bureau (RJCRB). In India, MCX's iCOMDEX Composite Index and NCDEX's Dhaanya Index are real-time futures indices
which tracks futures prices of various subgroups of commodities.

The 'demand-supply' equation: The demand for and supply of a commodity are the two basic factors that influence its price. The higher the demand for a commodity, the dearer is its price and higher the supply of a commodity vis-à-vis demand, the cheaper would be its price, other factors remaining the same.
Fundamental equation of commodity demand and supply:
The equation for demand and supply is equal and any change in the base equation will impact the prices. The base equation is as follows:
Opening stock + Domestic production + imports = Domestic consumption + exports

Factors Impacting the Commodity Prices – Demand-Supply Equation, Seasonality, Geo-political developments, Macroeconomic conditions, Currency movement, Interest rates

Chapter 2: Commodity Futures

Futures	**Forwards**
Traded on Exchange	OTC Contracts
Standardised contracts	Customised contracts
No Credit Risk / Settlement Risk	Credit Risk / counterparty Risk exists
Margin Money required	No Margin required
Daily settlement is done	No Daily Settlement. Only Final Settlement
Fraction of Total Contracts result in delivery	Usually all contracts leads to delivery
Highly Liquid	Illiquid

The cost-of-carry model can be expressed as:
F = S + C *where:* F: Futures Price S: Spot Price C: Cost of carry

Convergence
As the cost of carry determines the differential between spot and futures price and is associated with costs involved in holding the commodity till the date of delivery, it follows that the cost of carry diminishes with each passing day and the differential must narrow and on the date of delivery, the cost of carry becomes zero and the spot and futures price converge. This is known as convergence.

Fair Value of the Futures Contract = Spot Price + Cost of Carry

In case of annual compounding, fair value of a futures contract can be calculated as:
F = S * (1+r)^n

If the value of "r" is compounded "m" times in a year, the formula to calculate the fair value will be: **F = S * (1+ r / m) ^ (m * n)**

The fair value of a futures price with continuous/daily compounding can be expressed as:
F = S*e^ (r*n)

Convenience Yield
Convenience yield indicates the benefit of owning a commodity rather than buying a futures contract on that commodity. Convenience yield can be generated because of the benefit from ownership of a physical asset
F = S + C – Y *where:* F: Futures Price S: Spot Price C: Cost of carry
Y: Convenience Yield

Spot Price Polling - The commodity derivatives exchanges need spot price information on a daily basis to be used as the basis for the commodity futures contracts traded on their platforms. These prices are disseminated by the exchanges and are also used for

determining the Final Settlement Price(FSP). The FSP is very important in case of cash settlement of any commodity futures or in case of delivery default by a short seller. Spot price dissemination on a regular basis helps the players to understand the extent of contango or backwardation built in the futures prices

Chapter 3: Commodity Options

Buyer of an option: The buyer of an option is one who has a right but not the obligation in the contract. For owning this right, he pays a price to the seller of this right called 'option premium' to the option seller.

Writer of an option: The writer of an option is one who receives the option premium and is thereby obliged to sell/buy the asset if the buyer of option exercises his right.

American option: The owner of such option can exercise his right at any time on or before the expiry date/day of the contract.

European option: The owner of such option can exercise his right only on the expiry date/day of the contract. As per current regulatory norms, only European style commodity options are available in Indian derivatives exchanges. Also, these commodity options, on exercise, devolve into the underlying futures contracts. All such devolved futures positions are considered to be acquired at the strike price of exercised options, on the expiry date of options, during the end of the day processing.

Option price/Premium: It is the price which the option buyer pays to the option seller.

Lot size: Lot size is the number of units of underlying asset in an options contract.

Expiration Day: The day on which a derivative contract ceases to exist. It is the last trading date/day of the contract.

Spot price: It is the price at which the underlying asset trades in the spot market.

Strike price or Exercise price: Strike price is the price for which the underlying security may be purchased (in case of call) or sold (in case of put) by the option holder, by exercising the option.

In the money (ITM) option: This option would give holder a positive cash flow, if it were exercised immediately. A call option is said to be ITM, when spot price is higher than strike price. And, a put option is said to be ITM when spot price is lower than strike price.

At the money (ATM) option: At the money option would lead to zero cash flow if it were exercised immediately. Therefore, for both call and put ATM options, strike price is equal to spot price.

Out of the money (OTM) option: Out of the money option is one with strike price worse than the spot price for the holder of option. In other words, this option would give the holder a negative cash flow if it were exercised immediately. A call option is said to be OTM, when spot price is lower than strike price. And a put option is said to be OTM when spot price is higher than strike price.

Intrinsic value: Option premium, defined above, consists of two components: intrinsic value and time value.

Time value: It is the difference between premium and intrinsic value, if any, of an option. ATM and OTM options will have only time value because the intrinsic value of such options is zero.

Open Interest: Open interest is the total number of option contracts outstanding for an underlying asset.

5 fundamental parameters on which the option price depends:
1) Price of the underlying asset
2) Strike price of the option
3) Volatility of the underlying asset's price
4) Time to expiration
5) Interest rates

Volatility
It is the magnitude of movement in the underlying asset's price, either up or down. It affects both call and put options in the same way. Higher the volatility of the underlying stock, higher the premium because there is a greater possibility that the option will move in-the-money during the life of the contract.
Higher volatility = Higher premium,
Lower volatility = Lower premium (for both call and put options).

Interest Rates
High interest rates will result in an increase in the value of a call option and a decrease in the value of a put option.
The table below summarizes impact of these factors on the option premium:

Factor	**Call premium**	**Put premium**
Price of underlying rises	Rises	Falls
Strike price rises	Falls	Rises
Time to expiry increases (i.e., comparing premiums of 1st month and 2nd month contracts with same strike price)	Rises	Rises
Volatility rises	Rises	Rises
Interest rate rises	Rises	Falls

Options Pricing Models

The Binomial Pricing Model - The binomial option pricing model was developed by William Sharpe in 1978. It has proved over time to be the most flexible, intuitive and popular approach to option pricing

The Black-Scholes Model

The Black-Scholes model was published in 1973 by Fisher Black and Myron Scholes. It is one of the most popular, relative simple and fast modes of calculation. Unlike the binomial model, it does not rely on calculation by iteration.

Option Greeks

Delta (δ or Δ)

The most important of the 'Greeks' is the option's "Delta". This measures the sensitivity of the option value to a given small change in the price of the underlying asset. It may also be seen as the speed with which an option moves with respect to price of the underlying asset. Delta = Change in option premium/ Unit change in price of the underlying asset.

Delta for call option buyer is positive

Delta for put option buyer is negative

Gamma (γ)

It measures change in delta with respect to change in price of the underlying asset. This is called a second derivative option with regard to price of the underlying asset. It is calculated as the ratio of change in delta for a unit change in market price of the underlying asset.

Gamma = Change in an option delta/ Unit change in price of underlying asset

Theta (θ)

It is a measure of an option's sensitivity to time decay. Theta is the change in option price given a one-day decrease in time to expiration. It is a measure of time decay. Theta is generally used to gain an idea of how time decay is affecting your option positions.

Theta = Change in an option premium/ Change in time to expiry

Vega (v)

This is a measure of the sensitivity of an option price to changes in market volatility. It is the change of an option premium for a given change (typically 1%) in the underlying volatility.

Vega = Change in an option premium/ Change in volatility

Rho (ρ)

Rho is the change in option price given a one percentage point change in the risk-free interest rate. Rho measures the change in an option's price per unit increase in the cost of funding the underlying.

Rho = Change in an option premium/ Change in cost of funding the underlying

Moneyness of an Option

As mentioned earlier, the premium of an options contract is made up of two components: intrinsic value and time value which can be expressed as follows:
Premium (PM) = Intrinsic value (IV) + Time Value (TV)

There are three different ways of closing an option position: offset, exercise and expiration As per SEBI regulations, exercise of an option which are in the money or at the money is done on the following basis:
(a) In the money options: Automatically exercised unless the buyer of option gives an instruction of not exercising it during the time window when such intimation can be given.
(b) At the money options: Options are not exercised unless buyer of option gives an instruction to exercise it during the time window when exercise option can be intimated. At the money options for this rule, are those option contracts whose strike price is nearest to the underlying price on expiry and two contracts of strike price above that and two contracts of strike price below that. Thus, options with 5 strike prices are considered as At-the-money options.
(c) Out of money options: Automatically lapses

The Put-Call Parity Theorem

The put-call parity theorem explains the relationship between call/put prices and the underlying commodity price. Let us understand this with an example:
A commodity's current market price is Rs 300 and the put premium for the 250 strike is Rs 4. The option expires in three months' time and the risk-free interest rate is currently 6%. The premium for the 250 strike call can be derived from the following formula:
C - P = $S - (K /(1+rt))$
where C is Call Premium, P is Put Premium, S is Underlying Price and K is Strike Price

Options on Commodity Futures

Commodity options in India devolve into Commodity Futures. That means, buyers of commodity options would get a right to have a position in underlying commodity futures rather than getting a right to outrightly buy/sell the actual commodity on expiry. Therefore, the underlying for a commodity options contract is a commodity futures contract of a specified month traded on the corresponding exchange.

Settlement Method:

On exercise, option position shall devolve into underlying futures position as follows:

- long call position shall devolve into long position in the underlying futures contract
- long put position shall devolve into short position in the underlying futures contract
- short call position shall devolve into short position in the underlying futures contract
- short put position shall devolve into long position in the underlying futures contract

Chapter 4: Uses of Commodity Derivatives

Two basic hedging strategies are listed below:

- Hedges can be undertaken to offset price risk that has arisen in a physical contract. This is known as "offsetting hedge".
- Hedges can serve to lock in an attractive price level from a transaction by fixing the sales price at a level above the known costs (in the case of a seller) or fixing a purchase price at a lower level (in the case of a buyer).

Hedge Ratio

Hedge ratio indicates the number of lots/contracts that the hedger is required to buy or sell in the futures market to cover his risk exposure in the physical / spot market. It helps to neutralize the volatility difference between Spot and Futures. Hedge ratio is calculated as under:

Hedge Ratio = coefficient of correlation between spot and futures price * (standard deviation of change in spot price / standard deviation of change in futures price

Benefits of hedging

1) Price risk is minimized
2) Facilitates production/business planning and cash flow management

Limitations of hedging

1) Price risk cannot be totally eliminated.
2) Basis risk continues to remain
3) Transaction cost is to be incurred
4) Margin is to be maintained leading to cash flow pressures
5) If hedging is selectively carried out on a few positions based on one's view and not on other positions, it may happen that the hedging transaction leg itself results in loss or cumulatively over a period, total gain on hedged leg may be negative. This is because selective hedging with the choice to hedge or not to hedge is as good as speculation or trading

Speculation

Speculation is a practice of engaging in trading to make quick profits from fluctuations in prices. It includes buying, selling (short selling) of securities, commodities or any financial asset. They never utilize the asset for physical usage as their objective is to get quick profits from change in prices.

There are two types of speculators:

1) Long speculator
2) Short speculator

Long speculators are those who buy first and expect the price to increase from current level.

Short speculators are those who sell first and expect the price to decrease from current level.

Option Buyer/Seller	**Call Option**	**Put Option**
Option Buyer	Pays premium - right to have buy / long position in the commodity futures	Pays premium - right to have sell / short position in the commodity futures
Option Seller	Receives premium - Obligation to have Sell / Short position in the commodity futures	Receives premium - Obligation to have buy / long position in the commodity futures

Option strategies for commodity buyers	**Option strategies for commodity sellers**
Buy calls for protection against rising prices	Buy puts for protection against falling prices
Sell puts to lower your purchase price in a stable market	Sell calls to increase your selling price in a stable market

Arbitrage

Arbitrage involves making purchases and sales simultaneously in two different markets to profit from the price differences prevailing in those markets. There are broadly two types of arbitrage i.e. spot versus futures arbitrage and futures versus futures arbitrage

Spot versus Futures Arbitrage

Spot versus futures arbitrage can be undertaken when the fair price of the futures contract is less than or more than the traded price of the futures contract

Cash and Carry arbitrage

Cash-and-carry arbitrage refers to buying of a physical commodity with borrowed funds and simultaneously selling the futures contract. The physical commodity is delivered upon the expiry of the contract. This opportunity arises when the futures price of the commodity is more than the sum of spot price and the cost of carrying it till the expiry date

Reverse Cash and Carry Arbitrage

Reverse cash and carry arbitrage opportunity is for those who have asset holdings with them. The arbitrage opportunity can be explored when futures price of the commodity is less than the spot price + cost of carry

Spread Trading

Spread refers to the difference in prices of two futures contracts.

When actual spread between two futures contracts of the same commodity widens, trader buys the near-month contract because it is underpriced and sells the far-month contract because it is overpriced. When actual spread between two futures contracts of the same

commodity narrows, trader sells the near-month contract because it is overpriced and buys far-month contract because it is underpriced.

Buying a Spread
Buying a spread is an intra-commodity spread strategy. It means buying a near-month contract and simultaneously selling a far-month contract.

Selling a Spread
Selling a spread is also an intra-commodity spread strategy. It means selling a near-month contract and simultaneously buying a far-month contract. This strategy is adopted when the near-month contract is overpriced or the far-month contract is underpriced.

Inter commodity spread
An inter commodity spread is made up of a long position in one commodity and a short position in a different but economically related commodity

Intra commodity spread (Calendar spread)
An intra commodity spread is made up of a long position in futures contract and a short position in another month contract of the same underlying or another contract of the same commodity with different lot size

Bull spread: A bull spread using futures is created when the actual spread is more than the fundamental spread (average difference) between two calendar month contracts. The expectation while creating such spread is that difference will narrow in future.
Bear spread: A bear spread using futures is created when actual spread is less than fundamental spread (average difference) between two calendar month contracts. The expectation while creating such spread is that difference will widen in the future.

Lower Margin for spread trading
A spread position usually carries a lower margin than an outright position, as net amount of value to be settled tends to be less volatile than outright price

Basis is a measure of the difference between the spot and the futures prices.
Basis= Spot Price – Futures Price

Basis Risk
Basis risk is defined as the risk that a futures price will move differently from that of its underlying asset. There is a relationship between the futures price and its underlying commodity spot price and the futures price broadly follow the spot price and the difference between the two tends to become less as the futures approaches its expiry date. However, other factors can occasionally influence the futures price. The best method of eliminating the basis risk is to hold the futures contract till expiry, since the futures and spot prices converge on expiry.

Negative Basis / Contango Market - When the futures price is greater than the spot price, the basis is a negative number. This is also known as the Contango market

In Agricultural commodity derivatives, Contango like situation may also arise due to expected quality related issues in goods lying in warehouses or are expected to come into warehouses, which the traders expect that may not be deliverable and may be rejected. This may create a run on the short sellers or genuine sellers who want to deliver and scarcity is created for exchange quality goods, in the markets. Similarly, weak monsoon forecasts may also create expected demand-supply gap in commodity and increase contango effect.

Positive Basis / Backwardation Market

When the futures price is less than the spot price, the basis is a positive number. This is also known as the backwardation market

In Agri markets, the bakwardation is a common phenomenon due to various reasons. The reasons may be related to:

a. Longer staggered delivery periods

b. Seasonal arrivals of crops. For examples, arrival months futures in rabi and kharif crops generally see significant backwardation which may keep changing depending upon crop forecast and monsoon forecasts.

In both the types of markets (i.e., both in contango and backwardation), the basis must narrow to 0 as the contract moves towards expiry date because of convergence. Thus, strengthening of basis happens when basis becomes more positive or less negative and weakening of basis happens when basis becomes less positive or more negative.

Long hedge is associated with Long in Futures and selling in sport. Thus Long hedgers benefit by weakening of Basis i.e., Future price going up and Spot price coming down. Generally, Long hedge happens for raw materials by processors.

Short hedge is associated with Short in Futures against spot buying position or against yet to be manufactured stocks. Thus, while Short hedge happens with finished goods by processors / manufacturers. Short hedgers benefit with strengthening of basis i.e. spot price going up and Futures price falling.

Positive Basis / Backwardation Market

When the futures price is less than the spot price, the basis is a positive number. This is also known as the backwardation market

Market Type	**Basis**	**Preferred position**
Contango market	Strengthening of basis	Benefits short hedger
Contango market	Weakening of basis	Benefits long hedger
Backwardation market	Strengthening of basis	Benefits short hedger
Backwardation market	Weakening of basis	Benefits long hedger

Covered Short call

A covered short call position is created by combining a long underlying position with a short call option. A covered call option attempts to enhance the return in a stagnant market and at the same time partially hedge a long underlying position

Covered Short Put

A covered short put position is a hedging strategy and is created when the investor is selling a put option and at the same time holding sufficient funds to buy the commodity, if necessary. A covered short put position attempts to enhance the return on funds while at the same time partially hedge a short underlying position

Vertical Spreads

Vertical Spreads attempts to profit from the directional movement in the underlying commodity. Unlike an outright purchase of call/put option, the vertical spreads are used when the market view of the investor is moderately bearish/bullish. Vertical spreads are implemented by buying or selling calls or puts with different strike prices but same expiry months. Vertical Spreads are classified into bull spreads and bear spreads. In a bull spread, the investor buys a lower strike and sells the higher strike. Conversely, the investor sells the lower strike and buys a higher strike in a bear spread.

Horizontal Spreads:

Horizontal spreads, also known as calendar spreads, attempt to profit from expected moves in volatility. Horizontal spreads are implemented by buying and selling options with the same strike price but different expiry months. There are two basic types of horizontal spreads. The first type is based on the view that volatility will fall in short time horizon and the investor would sell a shorter maturity option and buy a longer maturity option on the same asset with the same strike price. This creates short positions in Vega and Theta and hence, investor gains with reducing Vega and Theta going further negative.

Diagonal Spreads:

Diagonal spreads attempt to profit from market view and changes in volatility. Diagonal spreads are implemented by buying and selling options with different strike prices and different expiry months.

Long Straddle: A long straddle is an option strategy where the trader buys a call and a put with the same strike price and same expiry date by paying premium.

Long Strangle: A long strangle involves the purchase of a call and a put with the same expiry date but with different strike prices.

Chapter 5: Trading Mechanism

Authorised Persons (APs): SEBI had earlier allowed spread of sub-brokership as well as Authorised Person's network to expand the brokers' network. However, SEBI Board in

its meeting held on June 21, 2018 decided that sub-brokers as an intermediary shall cease to exist with effect from April 01, 2019. All existing sub-brokers would migrate to become Authorised Persons (APs) or Trading Members if the sub-brokers meet the eligibility criteria prescribed under Stock Exchange bye-laws and SEBI Regulations and by complying with these Regulations

Algorithmic Trading

Algorithmic trading is introduced and defined as trading in financial instruments where a computer algorithm automatically determines individual parameters of orders such as initiation of order, timing, price or quantity, managing the order post submission with / without limited human intervention

High Frequency Trading (HFT) is part of algorithmic trading that comprises latency-sensitive trading strategies and deploys technology including high speed networks to connect and trade on the trading platform. In Algo trades, Immediate or Cancel and Market orders are not allowed.

Settlement Price

In commodities futures, there are two types of settlement price: one is the daily settlement price (DSP) that is known as closing price and the other is the final settlement price (FSP) that is known as Due Date Rate (DDR

Delivery Process

Each futures contract for specified delivery month is deemed to have entered the delivery period from such date of its expiry month, as specified by the Exchange in the relevant contract specification. Each commodity has its own delivery logic that is pre-specified in the contract specification. Delivery logic means the choice that buyers and sellers get on open positions during tender/delivery period. Basically, three delivery options are available in the commodity market:

- Compulsory delivery
- Both option
- Seller's option

In the compulsory delivery option, both buyer and seller having an open position during the tender/delivery period of the contract are obligated to take/give delivery of the commodity

Selection Criteria of Commodities for Trading on Derivatives Exchanges

(i) The commodity should have a suitable demand and supply conditions i.e., volume and marketable surplus should be large.
(ii) Prices should be volatile to necessitate hedging through derivatives. As a result, there would be a demand for hedging facilities.
(iii) The commodity should be free from substantial control from Government regulations (or other bodies) imposing restrictions on supply, distribution and prices of the commodity.

(iv) The commodity should be homogenous or, alternately it must be possible to specify a standard, as it is necessary for the futures exchange to deal in standardized contracts.
(v) The commodity should be storable. In the absence of this condition, arbitrage would not be possible and there would be no relationship between spot and futures markets.

Contract Specifications for Various Commodity Derivatives Contracts

- Contract Start date
- Contract Expiry Date
- Trading Unit and lot size (Example Gold 1 Kilo, Silver 30 Kilos etc.)
- Price Quote
- Maximum Order Size
- Tick size (Minimum price movement)
- Daily price limit
- Initial Margin
- Additional or Special Margin, if any
- Maximum permissible open positions (Client-wise and member-wise will be given).
- Delivery Centres
- Delivery Logic
- Due Date Rate
- Quality Specifications
- Last day of trading
- Tender period
- Tender period margin
- Delivery period
- Delivery Margin
- Funds pay-in
- Funds pay-out
- Delivery pay- in
- Delivery pay –out
- Delivery default Penalty Provisions

Profit/Loss per Contract for a Change of One Tick
The tick size (minimum change) in commodity derivative price differs from product to product. The impact of change in price by one tick plays a vibrant role in entry and exit for market participants, hence it is important to understand the profit and loss arising out of one tick change on client's portfolio which is called as tick value.

Tick value shows the worth of one tick on contract value. The calculation of tick value is dependent on three parameters: Lot size, quotation factor and tick size. The formula for calculating tick value is as follows:

Tick Value = (Lot size / Quotation factor) * Tick size

Tick size is significant for Algo traders as well as Hedgers / Speculators. In most cases, higher tick size benefits algo traders while lower tick size benefits hedgers.

Trailing stop loss order: A trailing stop loss order is a stop loss order placed by a trader to minimize losses and protect potential profits. Once placed, the price in the trailing stop loss order will adjust based on the settings that the trader set on at the initiation of the trade. The types of orders include:
(a) Trailing Stop Loss in rupees
(b) Trailing Stop Loss as a percentage

Chapter 6: Clearing Settlement and Risk Management of Commodity Derivatives

Custodial Services/Repositories

Warehousing Development and Regulatory Authority (WDRA) has recognized NERL and CDSL as approved Repositories for electronically maintaining records of warehoused goods which can also be used for clearing and settlement of trades on exchanges

Warehouses

The National commodity exchanges do not own or hire any warehouse for the purpose of settlement of the contracts that require to be settled by the physical delivery of commodities. Exchanges set the criteria for the warehouses and empanel warehouse service providers (WSPs) who arrange warehousing facilities on the basis of the criteria laid down by the exchanges. As per SEBI Regulations, only WDRA registered warehouses can be used by exchange-empanelled WSPs for storing goods which are meant for settlement of trades on exchanges. WDRA registers warehouses and recognizes each warehouse separately rather than WSP

Electronic -Registry for Warehouse Receipts

A Warehouse Receipt is a document of title to goods issued by a warehouse service provider to a person depositing commodities in the warehouse, evidencing storage of goods. A warehouse receipt is capable of endorsement and delivery. A person to whom warehouse receipt is transferred by endorsement acquires a title to the goods in respect of which such warehouse receipt has been issued. The endorsee gets a right to have the possession of goods covered by such warehouse receipt as per the terms and conditions contained in such receipt. The endorsee also gets a right to have such goods delivered to him or his authorized agent by the warehouseman/service provider.
Warehouse receipts which are not negotiable, need to be electronically registered, to facilitate settlement through the Clearing Corporation. As per the Warehousing (Development and Regulation) Act, 2007 (WDRA), negotiable warehouse receipts (NWRs) can be in both paper and electronic form. The electronic warehouse registry system of the WDRA will enable multiple transfers without physical movement of goods. SEBI has stipulated that all exchange accredited warehouses must be registered with WDRA.

Penalty for Delivery Default by the Seller

SEBI has laid down the following guidelines on sellers default in case of compulsory delivery**.**

(i) The total amount of the penalty on the seller, in case of delivery default will be equal to 3.0 percent of the difference between the Final Settlement Price (FSP) and the average of the three highest of the last spot prices of the 5 (five) succeeding days after the expiry of the contract (E+1 to E+5 days), if the average price so determined is higher than FSP; else this component will be zero.

(ii) The 3.0 percent penalty collected is utilised as follows: a) 1.75 percent component of the penalty shall be deposited in the Investor Protection Fund of the Exchange; b) 1.0 percent component of the penalty shall go to the Buyer who was entitled to receive the delivery; and c) Balance 0.25 percent component of penalty shall be retained by the Exchange towards administration expenses.

(iii) The buyer will not be allowed to default. However, in case of buyer's default, the Exchange has margins and other penal provisions to deal with that.

Staggered Delivery

Under the staggered delivery mechanism, the seller has an option of marking an intention of delivery on any day during the last 10 days of the expiry of the contract. The corresponding buyer will be randomly allocated by the trading system of the exchange and he/she will have to take the delivery on T+2 day from the delivery centre where the seller has delivered the commodity.

This is to ensure confirmation of delivery in the near month contract and to keep the price volatility under check. Wherever staggered delivery is permitted by the exchange in any contract specifications, the settlement price for any delivery allocation during staggered period (i.e., upto one day prior to expiry) would be the last available spot price displayed by the Exchange for the respective contract.

Additional / Special Margin and Concentration margin

Increase in volatility increases margins on futures contract as margins are used as a tool for curbing excessive speculation from the markets. The additional / special margins are imposed to prevent overheating in the market and to ensure market integrity.

Additional margin is levied on both sides – buy and sell. Special margin is levied only on one side open interest – either buy or sell. Thus, purpose of additional margin is mainly to reduce the overheating in open interest while purpose of special margin is to correct the market's open interest and direction on one side which seems to be affecting market integrity.

Concentration margin is an excellent tool to levy margin only on those clients which have concentrated contracted open interest on buy or sell side vis-à-vis total open interest in that commodity / contract. Thus, it helps in pick and choose the concentrated position and clients to levy the margin. Additional and Special margins are on all the clients within a commodity but concentration margins are on selective clients

Tender Period Margin / Delivery Period Margin

The extra margins during the tender and delivery period are collected from those who have an open position in the market as the exchange faces the risk of delivery defaults. The extra margin applied to all open positions once they enter the tender period or delivery period (usually the last 5-10 days before the expiry date of the contract) is known as tender period/delivery period margin. Generally, it is 1.5% incremental every day. All open positions during the tender period or delivery period are subject to this margin.

This margin figure can be changed / revised and its start date can also be changed depending upon the situation of stocks in warehouse, open interest, chances of major rejection of stocks while entering warehouse, highly speculative level of open interest, etc.

In case there is a delivery intention and the proof of holding the commodity is provided by the seller in the form of a warehouse receipt, then the seller of the commodity will be exempted from this margin. In case of non-delivery, this margin is released only after the final cash settlement is done. In that case, provisions of delivery default margin and additional penalty from exchange is made operational.

Chapter 7: Accounting and Taxation

Hedge Accounting

Hedging refers to an action initiated to minimize/eliminate uncertainty of value of assets, value of liabilities, cash flows, firm commitments. Hedging involves two components: the hedged item (which is carrying the risk) and the hedging instrument (which reduces the risk of the hedged item). Hedging can be used effectively by commodity producers. Forward Contracts, Commodity Futures and Commodity Options are examples of hedging instruments From the accounting point of view there are three types of hedges viz., Fair Value Hedge, Cash Flow Hedge and Net Investment Hedge

Fair value

Fair value is the price received for selling an asset or the price paid for transferring a liability in an arms-length transaction between knowledgeable and willing counterparties

Fair value hedge

A fair value hedge is a hedge of the exposure to changes in the fair value of an asset or liability or a previously-unrecognised firm commitment to buy or to sell an asset at a fixed price, or an identified portion of such an asset, liability or firm commitment, that is attributable to a particular risk and could affect reported net profit. In a fair value hedge, the gain or loss from revaluing the hedging instrument at fair value (derivative) is recognized immediately in the income statement.

Cash flow hedge

The risk being hedged in a cash flow hedge is the exposure to variability in cash flows that is attributable to a particular risk associated with a recognised asset or liability, an unrecognised firm commitment (currency risk only), or a highly probable forecast

transaction that could affect the income statement. Volatility in future cash flows will result from changes in interest rates, exchange rates, equity prices or commodity prices. The hedge of a firm commitment is accounted for as a fair value hedge, provided that all the criteria for hedge accounting are met

Hedge effectiveness / ineffectiveness

To qualify for hedge accounting, the accounting standards require the hedge to be highly effective. There are separate tests to be applied prospectively and retrospectively and these tests are mandatory:

- Prospective effectiveness testing has to be performed at inception of the hedge and at each subsequent reporting date during the life of the hedge. This testing consists of demonstrating that the undertaking expects changes in the fair value or cash flows of the hedged item to be almost fully offset (i.e., nearly 100%) by the changes in the fair value or cash flows of the hedging instrument.
- Retrospective effectiveness testing is performed at each reporting date throughout the life of the hedge following a methodology set out in the hedge documentation. The objective is to demonstrate that the hedging relationship has been highly effective by showing that actual results of the hedge are within the range of 80-125%.

Types of hedge accounting

The Guidance Note of ICAI recognises the following types of hedging:

- the *fair value hedge* accounting model is applied when hedging the risk of a fair value change of assets and liabilities already recognised in the balance sheet, or a firm commitment that is not yet recognised.
- the *cash flow hedge* accounting model is applied when hedging the risk of changes in highly probable future cash flows or a firm commitment in a foreign currency

Commodities Transaction Tax (CTT)

Commodities Transaction Tax (CTT) is applicable on sale transactions of commodity futures, except for exempted agricultural commodities. CTT is determined at the end of each trading day.

For each client code, all the sell transactions for a trading day shall be aggregated at contract level. The contract note issued to the client by the trading member on a daily basis specifies the total commodities transaction tax for the transactions mentioned therein.

No.	Taxable Commodities	Transaction Rate	Payable by
1	Sale of a commodity derivative	0.01 per cent	Seller
2	Sale of an option on commodity derivative	0.05 per cent	Seller
3	Sale of an option on commodity derivative, where option is exercised	0.0001 per cent	Purchaser

Goods and Services Tax (GST)

Goods and Services Tax (GST) is a destination based tax on consumption of goods and services which is levied at all stages right from manufacture up to final consumption with credit of taxes paid at previous stages available as setoff. In other words, only value addition will be taxed.

The GST levied by the Centre on intra-State supply of goods and/or services is called the Central GST (CGST) and that levied by the States is called the State GST (SGST). Similarly, Integrated GST (IGST) is levied and administered by the Centre on every inter-state supply of goods and services

GST subsumed a large number of central taxes and state taxes. The tax is payable by the taxable person on the supply of goods and services and the liability arises only when he crosses the threshold limit of Rs 20,00,000

Chapter 8: Legal & Regulatory Environment of Commodity Derivatives in India

The three-tiered regulatory framework for commodity markets comprises Government of India, Securities and Exchange Board of India (SEBI) and Exchanges.

SEBI has also created a separate Commodity Derivatives Market Regulation Department (CDMRD) for the regulation of commodity derivatives exchanges. CDMRD is responsible for supervising the functioning and operations of Commodity Derivative exchanges.

All recognized associations/commodity derivatives exchanges under the Forward Contracts (Regulation) Act 1952 continue to be recognized stock exchanges under the Securities Contracts (Regulation) Act, 1956 with effect from September 2015.

SEBI Complaints Redress System (SCORES) is a web based centralized grievance redress system of SEBI. Complaints can be made online and acknowledgement is generated instantaneously acknowledging the receipt of complaint and allotting a unique complaint registration number to the complainant for future reference and tracking.

The complaint is forwarded online to the entity concerned for its redressal and the entity concerned uploads an Action Taken Report (ATR) on the complaint. The entity must resolve the complaint within 30 days after receiving intimation from SEBI under SCORE.

IGRP and Arbitration

If the grievance is not resolved by the exchange due to disputes, it goes to Investor Grievance Resolution Panel (IGRP). The Exchange appoints a member of its list of IGRP who will act as a mediator to resolve the issue. Post decision by IGRP, the aggrieved party can go for Arbitration.

IMPORTANT NOTE :

1. Attend ALL Questions
2. For the questions you don't know the right answer – Try to eliminate the wrong answers and take a guess on the remaining answers.
3. DO NOT MEMORISE the question & answers. It's not the right to way to prepare for any NISM exam. Good understanding of Concepts is essential.

All the Best ☺

MODELEXAM

94, First Floor, TPK Road, Andalpuram, Madurai – 625 003.
Email: akshayatraining@gmail.com
Whatsapp Only : 98949 49987
Youtube Channel (NISM Training Videos) : NISM Training Videos