

Commodity Derivative Market



ISFM

Way to **Financial Abundance**

**INTERNATIONAL SCHOOL
of
FINANCIAL MARKET**

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Why Commodity Exchange in India



- 47% of GDP is Commodity related
- 23% of GDP is from Agriculture
- Over 65% of 1 trillion population depend on agriculture directly
- Over 7500 physical market yards
- History of more than 150 years of derivatives trading

Basis



- General meaning of 'derivatives'

- By Product
- Imitative
- Unoriginal

What are 'Financial' derivatives?

- Instruments (tools) whose value (price) depends on the prices of underlying
- Underlying can be
 - Commodities like gold, wheat, crude oil,
 - Currencies eg. US dollar, Euro
 - Stocks eg. Infosys, Reliance, stock indices like BSE Sensex
 - Weather products on rainfall, temperature, etc.
 - Govt. securities

As defined in the RBI guidelines

*A derivative is a **financial instrument**:*

- (a) whose value changes in response to the change in a specified interest rate, security price, commodity price, foreign exchange rate, index of prices or rates, a credit rating or credit index, or similar variable (sometimes called the 'underlying')
- (b) that requires no initial net investment or little initial net investment relative to other types of contracts that have a similar response to changes in market conditions; and
- (c) that is settled at a future date.



Commodity Futures contract & Exchange



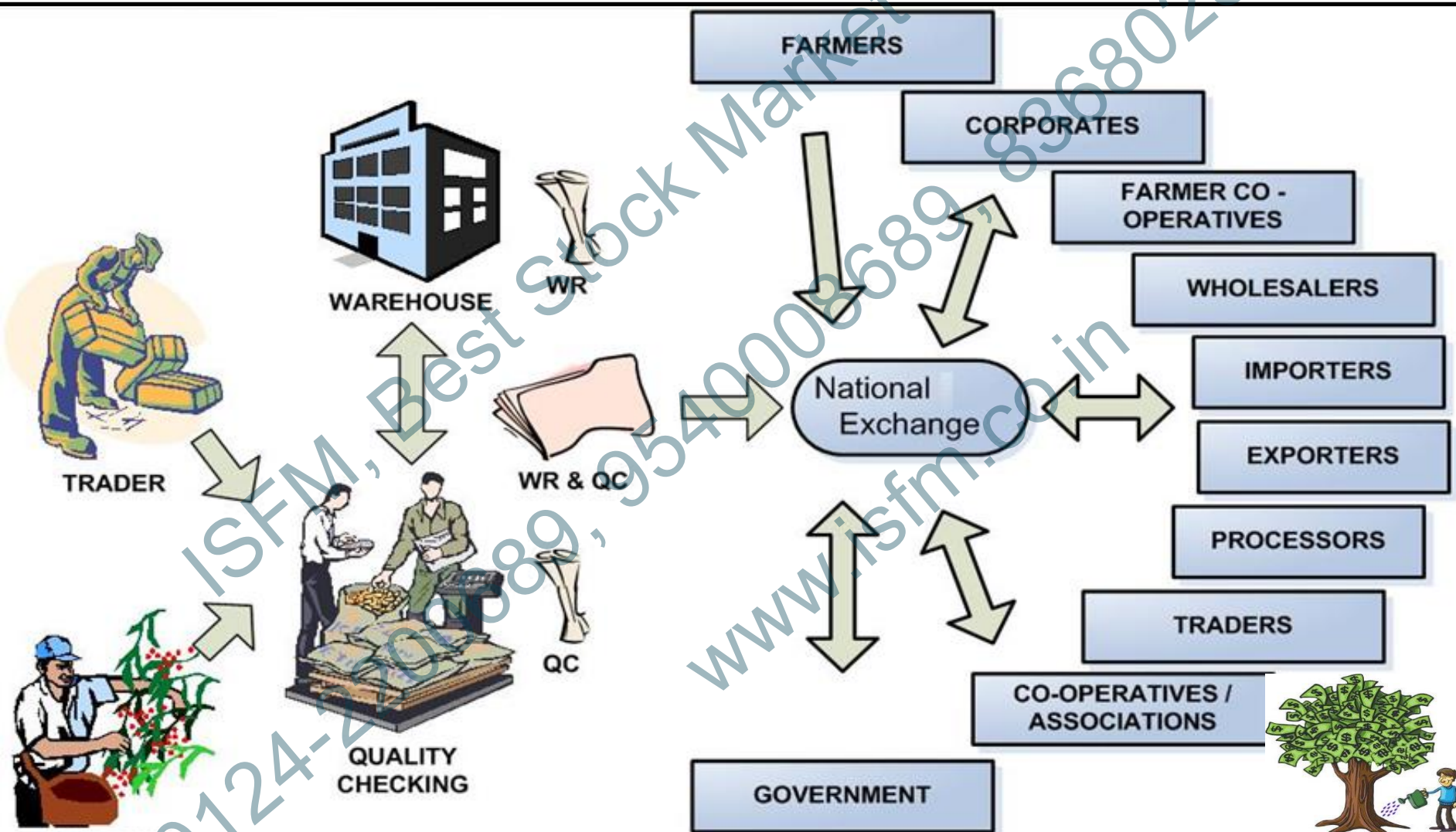
A commodity futures /forward contract is a binding agreement between a seller and a buyer to give (by the seller) and to take (by the buyer) delivery of the underlying commodity at a specified future date with agreed upon payment terms.

A commodity futures exchange is a central marketplace with **established rules and regulations** where buyers and sellers meet to trade futures and options on futures contracts of commodities.

In contrast to the forward / cash market, futures exchanges provide:

- Rules of conduct
- An organized marketplace
- Standardized trading
- A focal point for collection and dissemination of information
- A mechanism for settling disputes among traders without resorting to costly and often slow legal systems
- Guaranteed settlement of contractual and financial obligations

Commodity Futures: Linking Multiple Stakeholders



Some important industry participant types

- **Hedger:** A corporation/individual that participates in the futures market to 'lock in' the price of its produce or input. For example, a farmer ***sells*** wheat futures to protect herself from a possible fall in prices after the crop is ready. Another example is a dal mill owner ***buying*** a futures contract to protect herself from rise in prices.
- What is Hedging?
 - Hedging means taking a position in the futures market that is opposite to an exposure in the physical market with the objective of reducing or limiting risks associated with price changes.



Some important participant types

- **Speculator:** A person who trades derivatives with an expectation of a profit. Speculators take large risks, especially with respect to anticipating future price movements, in the hope of making gains. In return speculators provide the market with important liquidity and absorb the hedgers hedging demand.
- **Arbitrageur:** One who engages in arbitrage (purchasing in one market for immediate resale in another in the hope of profiting from the price differential). Their activity also adds liquidity in the market.
- **Jobbers:** They buy and sell derivatives in hope of making gains on few tick movement. They thrive on very thin margins and hardly keep their positions open for more than a few seconds. They are one of the biggest liquidity providers in the market.



Commodity Hedging



- Hedging is a popular price risk management mechanism which is used as a preferred instrument by a large number of stakeholders, who have an exposure to the physical commodity.
- Hedging is the strategy of offsetting price risk that is inherent in the spot market by taking an equal but opposite position in the futures market. The idea is to offset the loss in one market with profit in other market.
- It also helps the stakeholder in managing his inventories better and put in place efficient modern inventory control systems to make his business more sustainable, profitable and competitive.

Snapshot of Indian Commodity Market

Two Major Commodities Exchange in India

- **MCX (Multi Commodity Exchange)**
- **NCDEX (National Commodities & Derivatives Exchange)**



NCDEX



MCX (Multi Commodity Exchange)

- Multi Commodity Exchange of India Ltd (MCX) is a state-of-the-art electronic commodity futures exchange. The demutualised Exchange has permanent recognition from the Government of India to facilitate online trading, and clearing and settlement operations for commodity futures across the country.
- MCX offers more than 40 commodities across various segments such as bullion, ferrous and non-ferrous metals, energy, and a number of agri-commodities on its platform. The Exchange introduces standardized commodity futures contracts on its platform.
- MCX has been certified to three ISO standards including ISO 9001:2008 Quality Management System standard, ISO 14001:2004 Environmental Management System standard and ISO/IEC 27001:2005 Information Security Management System standard.



1st[^] in
Silver

2nd[^] in
Gold, Copper
& Natural Gas

3rd[^] in
Crude Oil

5th[^]
largest amongst global
commodity exchanges by
the number of futures
contracts traded



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National Commodity and Derivatives Exchange



- National Commodity & Derivatives Exchange Limited (NCDEX) is a professionally managed on-line multi commodity exchange. The shareholders of NCDEX comprises of large national level institutions, large public sector bank and companies.
- NCDEX is a public limited company incorporated on April 23, 2003 under the Companies Act, 1956. It obtained its Certificate for Commencement of Business on May 9, 2003. It commenced its operations on December 15, 2003.
- NCDEX is regulated by Forward Markets Commission. NCDEX is subjected to various laws of the land like the Forward Contracts (Regulation) Act, Companies Act, Stamp Act, Contract Act and various other legislations.

- NCDEX headquarters are located in Mumbai and offers facilities to its members from the centers located throughout India.
- The Exchange, as on February 9, 2012 offered contracts in 34 commodities - comprising 23 agricultural commodities, 6 precious metals, 2 energy, 1 polymer and 2 other metals. The top 5 commodities, in terms of volume traded at the Exchange, were Soya oil, Gaur Seed, Chana, RM seed and Guar gum.
- NCDEX the country's second largest commodity derivatives exchange, has been listing contracts since 2003.
- The NCDEX ranked number 32nd in 2010 in the Futures Industry Association's global list of top 53 derivatives exchanges measured by volume, rising 34.16% on 2009 volume
- The exchange posted volume of 40.1 million contracts in 2010, up from 29.9 million in 2009, according to FIA data published in April 2011.

As of 2011, India's TOP commodity exchanges are:

- National Multi-Commodity Exchange (NMCE).
- Multi Commodity Exchange (MCX).
- Indian Commodity Exchange ICEX.
- ACE Derivatives and Commodity Exchange ACE

MCX
India's No.1 Commodity Exchange



Key Participants of Futures Markets

• Hedgers (Commercials)

- Deal in physical commodity and wants protection against adverse price movements

- Farmers
- Processors
- Producers
- Exporters
- Importers
- Traders

• Non-Commercials

- Speculators
 - No exposure to price movements in commodity
 - Wants to profit from price swings
 - Day traders, Scalpers
- Arbitragers (Spreaders)
 - Exploits price imbalances between two markets (eg. Spot & futures)



Evolution of Commodity Markets

- Need for ensuring continuous supply of seasonal crops
- Organized trading in commodities evolved in the middle of the 19th century, in Chicago, United States
- Railroad and Telegraph
- Evolution of “futures” trading



History of commodity market in India

- Commodity Derivatives trading dates back to the nineteenth century, with the Cotton Trade Association initiating futures trading way back in 1875.
- Bombay Cotton Exchange Ltd established in 1893.
- Futures trading in oilseeds (groundnut, castor seed and cotton) started in 1900 with the Gujarati Vyapari Mandal.
- Chamber of Commerce at Hapur setup in 1913 was most notable futures exchange for wheat.
- Calcutta Hessian Exchange Ltd was established in 1919 for futures trading in Jute & Jute goods. And further in 1927 with East Indian Jute Association Ltd, organized futures trading started in Jute.
- Futures trading in bullion began in 1920 in Bombay
- Commodity derivatives trading thrived to the extent that prior to World War II, as many as 300 futures markets existed across the country, trading in possibly more than 30 different commodities.
- Interestingly, even options were traded during those times.



Post – Independence



- Post independence India, in 1950 placed the subject of "Stock Exchanges and Futures Market" in the Union list
 - Devolving the responsibility for regulation of forward contracts on Government
- Late 50s & initial 60s turned out to be hey-days for futures trading;
- Volumes picked up, and more importantly for the agro-commodities.

However....

- As food price inflation started pouring its venoms, immediate response of the government committed to a socialistic pattern of development was to close down markets.
- Commodity bourses became the first victim, on the assumption that such trading is prone to create inflation in the economy.
- Initiative for agricultural liberalization – dawn of a new era for commodities

The Four Committees



Shroff Committee, 1950

Scrutinized the comments of stakeholders and revised the draft Futures Market Regulation Bill

Dantwala committee, 1966

Reviewed the functioning of the FMC amidst changing economic conditions in the country

Khusro Committee, 1980

Studied the feasibility of introducing futures trading in selected commodities and recommended reintroduction of futures trading in major commodities

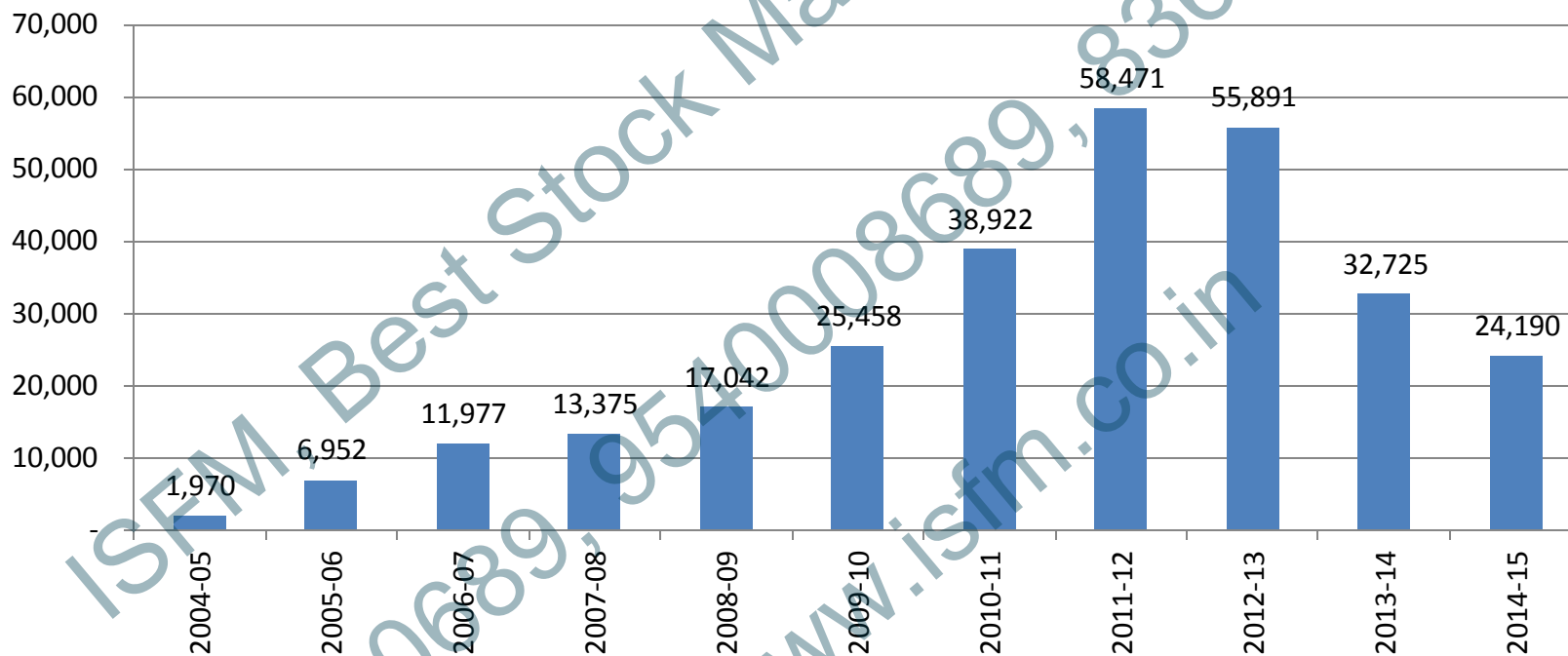
Kabra Committee, 1994

Examined role of futures trading amidst changing economic scenario. Recommended futures trading in 17 commodity groups & strengthening of the FMC, and amendments to FCRA, 1952 to allow options trading in goods

SIZE OF INDIAN COMMODITY MARKET



Indian Commodity Futures Market, Average Daily Turnover (Rs Crores)



Source: Derived from FMC data, No. of trading days at MCX considered for computed ADT

Commodity Launch Process



Research

- Study various commodities, their economic significance, seasonality, geographical diversity, variants and alternatives
- Identification of commodities to be launched for trading
- Conducting market feasibility study through feedback analysis

Design

- Spot market specifications – the most important principle.
- Unit of price quotation and unit of trading - prevailing spot market practices
- 'Basis' – the standard quality/grade – variety having maximum production/availability
- Delivery centers – Maximum production or distribution centers
- Contract to be fair to both buyers and sellers
- Availability of adequate supply of the deliverable commodity

Launch

- SEBI approval regarding Contract Specifications,
- Circular to market intimating the commencement of trading

Major Commodities



BULLION :

Gold, Gold M, Gold Guinea, Gold Petal, Silver, Silver M, Silver Micro



ENERGY:

Light Sweet Crude Oil, Brent Crude Oil, Natural Gas



METALS:

Copper, Nickel, Aluminium, Lead, Zinc
– Main & Mini



PLANTATION:

Rubber, Coffee



OIL & OIL SEEDS :

Mustard Seed, Castor Seed, Crude Palm Oil, Soy Seed, Refined Soy Oil, Kapasia Khalli,

Major Commodities



FOODGRAINS :
Wheat, Maize, Bajra



PULSES :
Chana



SPICES:
Black Pepper, Jeera, Red
Chilli, Turmeric,
Cardamom



FIBRE :
Kapas, Cotton



SWEETNERS:
Gur, Sugar Medium Grain,



OTHERS:
Mentha Oil, Guar Seed,
Guar Gum, Potato

Contract Specification



Trading related information

- No. of contracts in a year
- Opening of contracts
- Maximum duration
- Trading unit
- Tick size
- Quotation / Base value
- Price quote
- Daily price range (DPR)
- Initial margin
- Maximum order size
- Trading period / Session
- Maximum Allowable Open Position

Delivery related information

- Delivery unit
- Delivery center(s)
- Delivery Margin

Quality Specification

- Grades
- Standard
- Tolerance limit for variation
- Packaging

Standardized Terms of Futures Contracts



Parameters	Gold 1 Kilogram Contract	Cotton 29mm Contract
Contracts	Feb, Apr, Jun, Aug, Oct, Dec	All months except Aug & Sep
Last Trading Day	5 th of contract month	Last day of contract month
Trading & Delivery Unit	1 Kilogram	25 Bales & 100 Bales
Trading Period & Session	Monday to Friday	
Price Quotation (in Rs.)	10 grams Ex-Ahmedabad (inclusive of all taxes related to imports, but excluding sales tax & VAT, local taxes & octroi)	1 Bale (170 kilograms) Ex-Rajkot (within 100 kilometers) & excluding all taxes & levies
Tick Size	Re. 1 per 10 grams	Rs. 10 per 1 bale
Maximum Order Size	10 kilograms	1200 bales
Initial Margin	Minimum 5% or based on SPAN whichever is higher	
Quality Specifications	995 purity	29 mm
Deliverable quality & quantity	995 to 999 purity imported bars	27 mm to 32 mm; 100 bales +/- 7%
Delivery logic	Compulsory	Compulsory

Settlement



Daily Settlement

- Daily Settlement implies the settlement of MTM profit/ loss on a daily basis (T+1).
- Exchange computes the MTM profit/ loss for the day for all the members.
- Exchange sends debit/credit instructions to the member's settlement account with the clearing banks for MTM pay-in/ pay-out obligation on T+1 basis.

Final Settlement

- Final Settlement implies the settlement at the expiry of a contract.
- Based on the delivery logic provided in the contract specification for a commodity, the delivery intentions are accepted by the Exchange during the tender period.
- All the valid intentions for delivery are marked for delivery.
- Balance open positions at the expiry of the contract are cash settled.

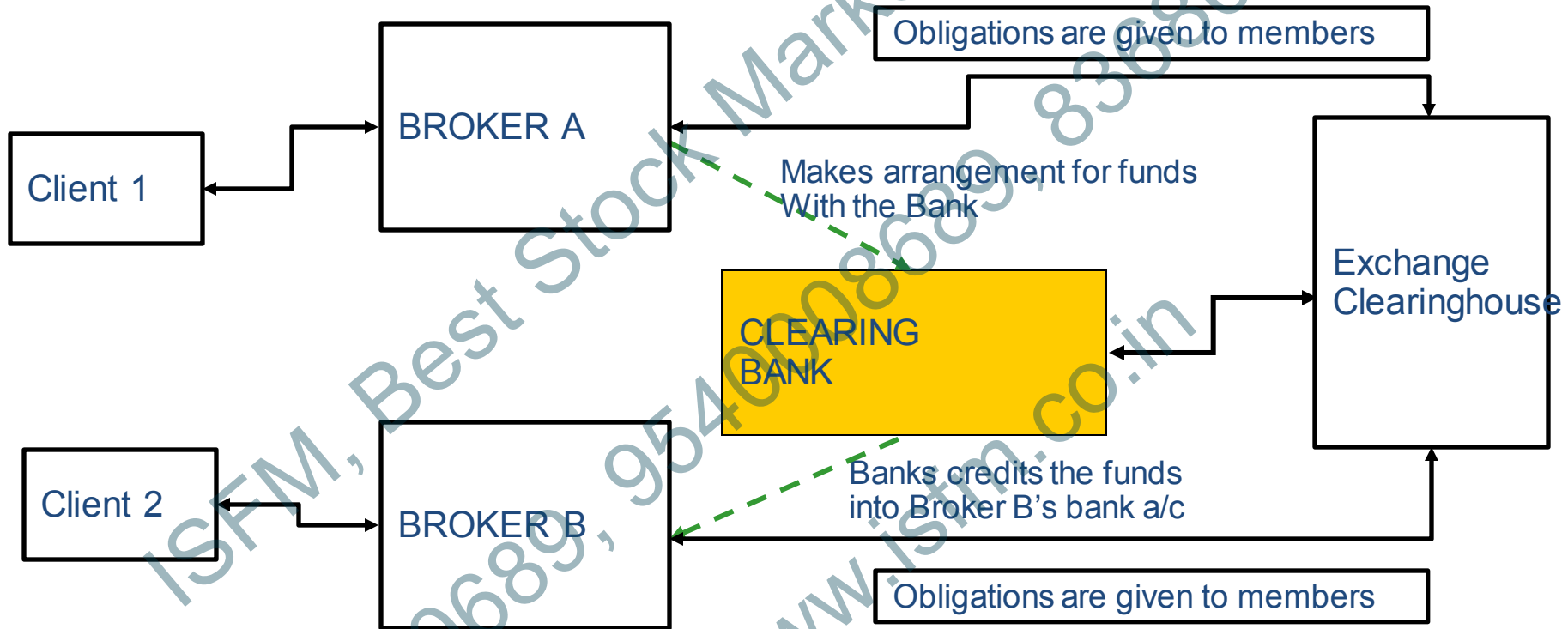
Auction Settlement

- Sell out auction conducted in case of buyer defaults in delivery obligations.
- Highest bidder in the auction allocated the delivery.
- Defaulting buyer to make good the difference between the highest bid and DDR, if any.

Settlements – Daily MTM Settlement



Funds transaction flow



Way Forward- Untapped Potential



Particulars	Indian Commodity Exchanges	US & European Commodity Exchanges
Operating Hours	Generally restricted hours (less than 14 hours)	Unrestricted (greater than 20 hours)
Contract Denomination	Availability of only rupee denominated contracts	Availability of common currency denominated contracts (such as US Dollar)
Innovative and intangible Contracts	Options and indexes not available	Advanced
Participation	Restricted (domestic participation only, Banks and FIs not allowed)	Unrestricted (Global)
Cross trading between exchanges	Not available	Available
Transaction Tax	Commodity Transaction Tax (CTT) applied on non-agri commodities	No Transaction Tax

Commodity Exchanges



- Minneapolis Grain Exchange
- Multi Commodity Exchange
- National Commodity and Derivatives Exchange
- National Multi-Commodity Exchange of India Ltd
- National Food Exchange
- New York Mercantile Exchange
- New York Board of Trade
- Rosario Board of Trade
- Steelbay
- Kansas City Board of Trade
- London Metal Exchange
- Winnipeg Commodity Exchange
- National Spot Exchange

- Abuja Securities and Commodities Exchange
- Bhatinda Om & Oil Exchange Bathinda
- Brazilian Mercantile and Futures Exchange
- Chicago Board of Trade
- Chicago Mercantile Exchange
- Commodity Exchange Bratislava, JSC
- Dalian Commodity Exchange
- Dubai Mercantile Exchange
- Euro next life
- Intercontinental Exchange

How to Trade in Commodity



- Commodity trading held in 2 Major Stock Exchanges :
- 1. MCX
- 2. NCDEX
- Before trading commodity we have to understand trading terminology in the market

Commodity Trading Terminology



1.	Type of Contract	Futures Contract Specifications
2	Name of Commodity	Gold
3	Ticker symbol	GLD 5 April 2017
4	Exchange	MCX
5	Unit of trading	1 KG
6	Delivery unit	1 KG
7	Quotation/base value	Rs per 10 Grams of Gold with 995 fineness
8	Delivery center	Ahmedabad
9	Compulsory Delivery	Yes

Commodity Trading Terminology



10.	Trading Timing	Mondays through Fridays: 10:00 AM to 11:30 PM
11.	Pay-in and Pay-out:	on a T+1 basis
12.	Due date / Expiry Date	Expiry date of the contract:
13.	Price limit	+ / - 3,6,9 % both side applicable
14.	Position limits	Member wise : 6 MT or 15% of market wide open position
15.	MTM settlement	Daily basis

Commodity	Expiry	LTP	Price Quotation	Lot Size (Qty)	Margin %	Lot Value (Rs)	Approx Margin (Rs)
GOLD	05-Apr-17	28366	10GRMS	100	5.00%	28,36,600	1,41,830
GOLDGUINEA	31-Mar-17	23114	8GRMS	1	5.00%	23,114	1,156
GOLDM	05-Apr-17	28417	10GRMS	10	5.00%	2,84,170	14,209
GOLDPETAL	31-Mar-17	2872	1GRMS	1	5.00%	2,872	144
GOLDPTLDEL	31-Mar-17	2871	1GRMS	1	5.00%	2,871	144

Commodity Trading Terminology



Commodity	Expiry	LTP	Price Quotation	Lot Size (Qty)	Margin %	Lot Value(Rs)	Approx Margin (Rs)
CRUDEOIL	20-Mar-17	3229	1BBL	100	10.05%	3,22,900	32,451
CRUDEOIL M	21-Aug-17	3529	1BBL	10	9.45%	35,290	3,335
SILVER	05-May-17	40528	1KGS	30	6.31%	12,15,840	76,720
SILVERM	30-Nov-17	42511	1KGS	5	5.72%	2,12,555	12,158
SILVER1000	28-Feb-18	43221	1KGS	1	6.29%	43,221	2,719
ZINC	31-Mar-17	180	1KGS	5000	9.19%	9,00,000	82,710
ZINCMINI	31-Jul-17	182.3	1KGS	1000	8.74%	1,82,300	15,933
NATURALGAS	28-Mar-17	199.9	1mmBtu	1250	14.22%	2,49,875	35,532
NICKEL	31-Mar-17	660.5	1KGS	250	11.66%	1,65,125	19,254
NICKELM	31-Mar-17	660.7	1KGS	100	11.72%	66,070	7,743

* 1 BARREL = 42 US GALLONS = 158.98 LITRES

The Cost Of Carry Model



- We use arbitrage arguments to arrive at the fair value of futures. For pricing purposes, we
- treat the forward and the futures market as one and the same. A futures contract is nothing
- but a forward contract that is exchange traded and that is settled at the end of each day. The
- buyer who needs an asset in the future has the choice between buying the underlying asset
- today in the spot market and holding it, or buying it in the forward market. If he buys it in the
- spot market today, it involves opportunity costs. He incurs the cash outlay for buying the asset
- and he also incurs costs for storing it. If instead he buys the asset in the forward market, he
- does not incur an initial outlay. However, the costs of holding the asset are now incurred by the
- seller of the forward contract who charges the buyer a price that is higher than the price of the
- asset in the spot market. This forms the basis for the cost-of-carry model where the price of
- the futures contract is defined as:
- $F = S + C$ (6.1)
- where:
- F Futures price
- S Spot price
- C Holding costs or carry costs
- The fair value of a futures contract can also be expressed as:
- $F = S(1 + r)T$ (6.2)
- where:
- r Percent cost of financing
- T Time till expiration

Continue.....



$F = S e^{rT}$

- where:
- r Cost of financing (using continuously compounded interest rate)
- T Time till expiration
- $e = 2.71828$
- the futures price of 10 gms of gold one month down the line? Let us assume that we're on 1st March 2017. How would we compute the price of a gold futures contract expiring on 30th January? From the discussion above, we know that the futures price is nothing but the spot price plus the cost-of-carry. Let us first try to work out the components of the cost-of-carry model.
- 1. What is the spot price of gold? The spot price of gold, $S = \text{Rs.}28000$ per 10 gms.
- 2. What is the cost of financing for a month? $E = 0.15 \times 30 / 365$.
- 3. What are the holding costs? Let us assume that the storage cost = 0.
- In this case, the fair value of the futures works out to be = $\text{Rs.}28210$
- $F = S e^{rT} = 28000 e^{0.15 \times 30 / 365} = \text{Rs.}28210$
- If the contract was for a three-month period i.e. expiring on 30th March, the cost of financing would increase the futures price. Therefore, the fair value of futures would be
- $F = 28000 e^{0.15 \times 90 / 365} = \text{Rs.}29035.54$.

Others Important Aspects of Trading



- 1. Open Interest
- 2. Volume
- 3. Inventory
- 4. Technical Analysis
- 5. Rollover / Rollover cost
- 6. Demand & Supply
- 7.

Commodity Trading Charges



Remarks	Rupees per crore
BROKERAGE	.02% of Trunover
STT/CTT	0.01% on sell side (Non-Agri)
TRANSACTION CHARGES	Non-Agri: 0.0036% Agri: 0.00275%
SERVICE TAX	15% on (brokerage + transaction charges)
SEBI CHARGES	₹20 / crore
STAMP CHARGES	Depend on the State (20-30 per cr.)
AMC Charge	Not applicable

Crude Oil Example



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Commodity	Expiry	LTP	Price Quotation	Lot Size (Qty)	Margin %	Lot Value (Rs)	Margin (Rs)
CRUDEOIL	20-Mar-17	3229	1BBL	100	10.05%	3,22,900	32,451
BROKERAGE	25						
STT/CTT	12.45 (Only Sell side)						
TRANSACTION CHARGES	04.51						
SERVICE TAX	2.5						
SEBI CHARGES	0.2509						
STAMP CHARGES	0.37						
Total	45/- only (one side)						

Gold Future



Commodity	Expiry	LTP	Price Quotation	Lot Size (Qty)	Margin %	Lot Value(Rs)	Approx Margin (Rs)
GOLD	05-Apr-17	28366	10GRMS	100	5.00%	28,36,600	1,41,830
BROKERAGE	573						
STT/CTT	286						
TRANSACTION CHARGES	104						
SERVICE TAX	57.3						
SEBI CHARGES	6						
STAMP CHARGES	9						
Total	1002/- only						

Margin Requirement for Trading

Commodity	Expiry	LTP	Price Quotation	Lot Size (Qty)	Margin %	Lot Value(Rs)	Margin (Rs)
ALUMINI	31-Mar-17	124.6	1KGS	1000	5.72%	1,24,600	7,127
ALUMINIUM	31-Mar-17	124.6	1KGS	5000	5.77%	6,23,000	35,947
BRCRUDEOIL	30-Mar-17	3436	1BBL	100	10.34%	3,43,600	35,528
CARDAMOM	15-Mar-17	1389.1	1KGS	100	30.88%	1,38,910	42,895
CASTORSEED	20-Mar-17	4226	100KGS	100	7.86%	4,22,600	33,216
COTTON	31-Mar-17	21260	1BALES	25	5.32%	5,31,500	28,276
CPO	31-Mar-17	526.6	10KGS	1000	6.50%	5,26,600	34,229
CRUDEOIL	20-Mar-17	3229	1BBL	100	10.05%	3,22,900	32,451
CRUDEOILM	20-Mar-17	3229	1BBL	10	10.11%	32,290	3,265
GOLDGUINEA	31-Mar-17	23114	8GRMS	1	5.00%	23,114	1,156
GOLDPETAL	31-Mar-17	2872	1GRMS	1	5.00%	2,872	144
GOLDPTLDEL	31-Mar-17	2871	1GRMS	1	5.00%	2,871	144
KAPAS	31-Mar-17	1055.1	20KGS	200	9.10%	2,11,020	19,203

Margin Requirement for Trading

Commodity	Expiry	LTP	Price Quotation	Lot Size (Qty)	Margin %	Lot Value(Rs)	Margin (Rs)
LEAD	31-Mar-17	150.25	1KGS	5000	9.00%	7,51,250	67,613
LEADMINI	31-Mar-17	150.3	1KGS	1000	9.00%	1,50,300	13,527
MENTHAOIL	31-Mar-17	1021.6	1KGS	360	5.58%	3,67,776	20,522
NATURALGAS	28-Mar-17	199.9	1mmBtu	1250	14.22%	2,49,875	35,532
NICKEL	31-Mar-17	660.5	1KGS	250	11.66%	1,65,125	19,254
NICKELM	31-Mar-17	660.7	1KGS	100	11.72%	66,070	7,743
SILVER1000	31-Mar-17	40650	1KGS	1	6.57%	40,650	2,671
ZINC	31-Mar-17	180	1KGS	5000	9.19%	9,00,000	82,710
ZINCMINI	31-Mar-17	179.95	1KGS	1000	9.18%	1,79,950	16,519

Thanks



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