

Derivatives: The future of Investment

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- ✓ Introduction to Derivatives Markets
- ✓ Categories of Derivatives
- ✓ Summary of SEBI Report on Individual Traders in equity F&O
- ✓ Role of ICAI Members and NISM in Derivatives Markets
- ✓ Global Rank of Indian Derivatives Markets

Disclaimer

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- ✓ *This presentation constitutes an academic effort for a general understanding of Indian Derivatives Markets*
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- ✓ *Since data and pictures have been put together from various sources, the audience is advised to refer to the original and authoritative sources of such content/ data which may or may not have been mentioned in the presentation*

Mandatory Disclaimer As per SEBI

- 9 out of 10 individual traders in equity Futures and Options Segment, incurred net losses.
- On an average, loss makers registered net trading loss close to ₹50,000.
- Over and above the net trading losses incurred, loss makers expended an additional 28% of net trading losses as transaction costs. Those making net trading profits, incurred between 15% to 50% of such profits as transaction cost.

Source: SEBI's Study - Analysis of Profit and Loss of Individual Traders dealing in Equity F&O Segment, dated Jan 25, 2023.

Introduction to Derivatives Markets

Need of Derivatives

Derivatives are defined as financial instruments that derive their value from the value of an underlying asset.

Example – Hedging using Futures

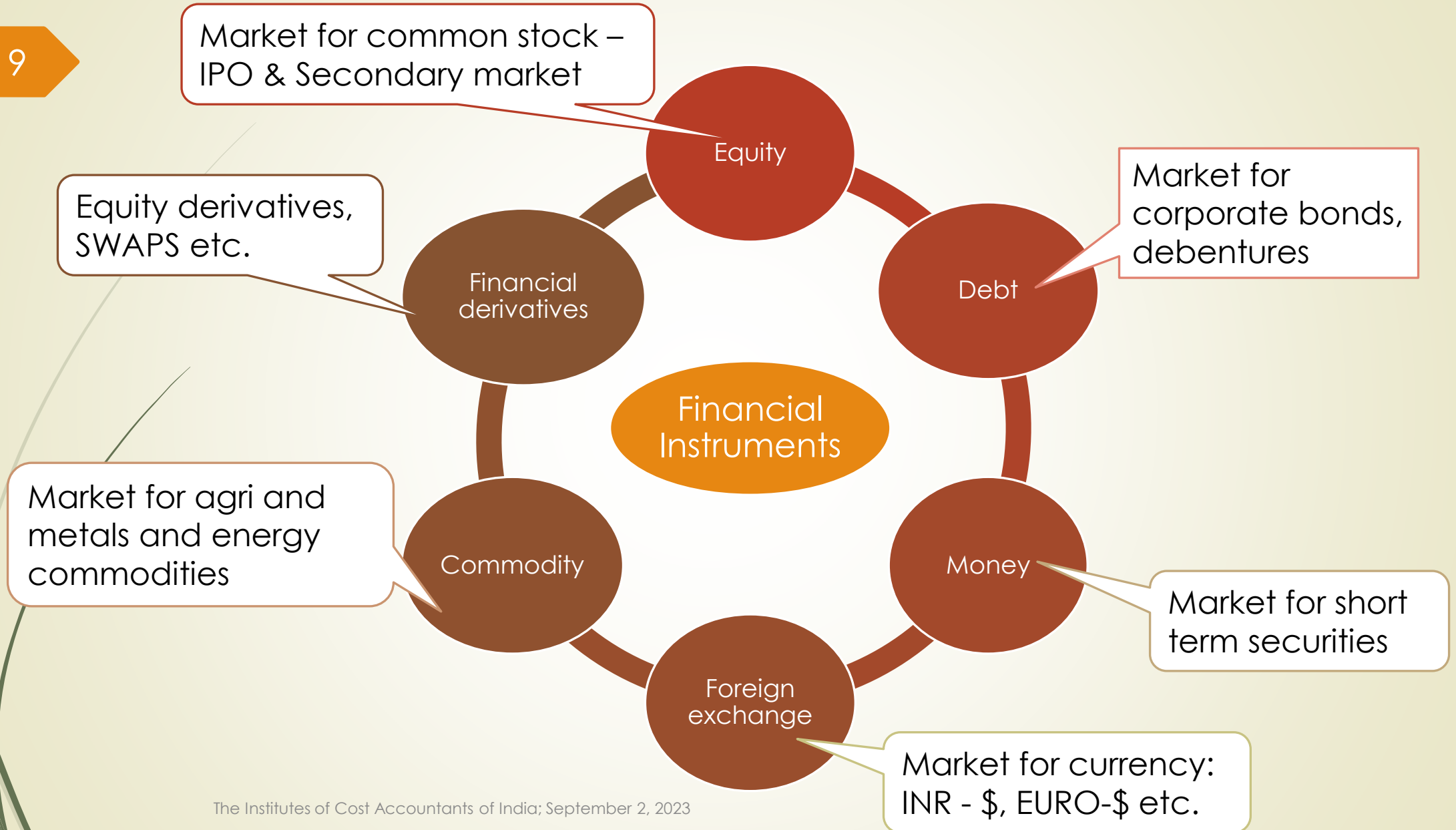
- Mr. X buys 5000 shares of ABC Ltd at a price of INR 100 per share. Though he is optimistic about the long-term prospects of ABC Ltd, he is concerned about some of the near-term events in ABC Ltd and their potential adverse impact on the share price of ABC Ltd.
- These near-term events are expected to be played out in the next three months. Therefore, he decided to manage this risk by going short on futures contracts of three-months duration on the same underlying.
- During this three month period, if the stock price goes down, then this adverse movement in stock price will give losses on his spot position but his futures position will compensate for this loss.
- However, if the stock price goes up during this period, then the profits in his spot position are offset by the losses in his futures position.
- Therefore, it is to be noted that hedging will not always lead to favourable outcome but what it provides is the certainty of outcome.

Example - Hedging using call option

- Mr. X wants to buy equity shares of ABC Ltd (Current Market Price: INR 2000) after three months, but if the stock price increase during this period, then he has to buy shares at a higher price. To manage this risk, he decided to buy a call option of three-months validity on ABC Ltd at a strike price of INR 2000 by paying a premium of INR 100.
- Case 1: If spot price closes above INR 2000 on expiration (at INR 2300), then he will exercise his Call option. As he has a right to buy the equity shares of ABC Ltd at a price of INR 2000, Mr. X will take delivery of shares from the Call option writer by paying INR 2000 per share. Therefore, his cost of acquisition of ABC Ltd shares will be INR 2100.
- Case 2: If spot price closes below INR 2000 on expiration (at INR 1700), then he will not exercise his Call option. As ABC's shares are available in the spot market at a cheaper price, he will directly buy those from spot market and book a loss on his options position (i.e., the amount of premium paid by him). Therefore, his cost of acquisition of ABC Ltd shares in this scenario will be INR 1800.
- Case 3: If spot price closes at INR 2000 on expiration, then he may not exercise his Call option (actually, he is indifferent to exercise or not to exercise this option). He can let his option expire and can directly buy the shares from the spot market at INR 2000. Here, his cost of acquisition of ABC Ltd shares will be INR 2100.
- In all these scenarios, the call option hedging allowed him to buy the shares of ABC Ltd at or below INR 2100 (i.e., at or below the Strike Price + Premium).

Classification of Financial Instruments

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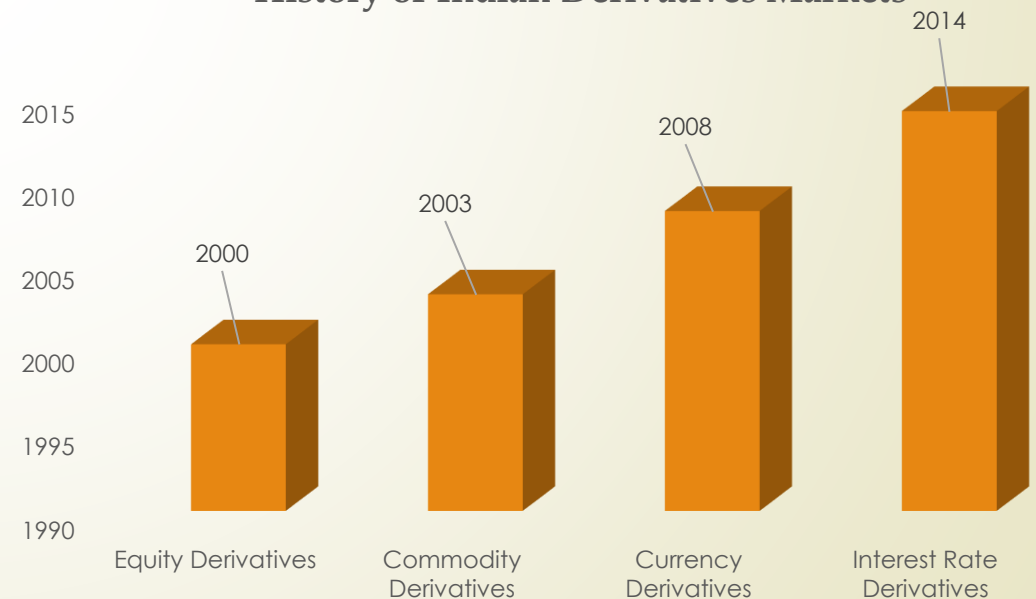
Indian Derivative Markets

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- The Bombay cotton trade association started Futures Trading in 1875
- In 1952, the Government banned cash settlement and option trading
- In 1995, a prohibition of trading option was lifted
- In 1999, The Securities Contract (Regulation) Act, 1956 was amended and derivatives could be declared "Securities"



History of Indian Derivatives Markets



Derivatives

Exchange Traded
(Futures and Options)

OTC
(Forwards and Swaps)

Forwards

- ✓ Forward contract is a binding contract which fixes now the buying/selling rate of the underlying asset to be bought/sold at some time in future.
- ✓ Long Forward
 - ✓ Binding to buy the asset in future at the predetermined rate.
- ✓ Short Forward
 - ✓ Binding to sell the asset in future at the predetermined rate.

Futures vs forwards

Futures	Forwards
Standardized product	Customized product
Exchange traded	Over-the-counter (OTC)
Margining must	No margin requirements, generally
No counter party risk	Counter party risk
Highly liquid	May be illiquid
Pricing transparent	No transparency

Nifty future specifications

- ▶ Nifty 50 futures contracts have a maximum of 3-month trading cycle - the near month (one), the next month (two) and the far month (three)

Nifty Future contract

https://www1.nseindia.com/live_market/dynaContent/live_watch/fomwatchsymbol.jsp?key=NIFTY&Fut_Opt=Futures

Options Markets

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Options

- An option is a contract that gives the *buyer the right, but not the obligation*, to *buy or sell* an underlying asset at a specific price *on or before a certain date*
- Unlike a forward/future, this contract gives the right but not the obligation. So its not a binding contract.
- The holder will exercise the option only if it is profitable.

OPTION TERMINOLOGY

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- **Index options:** These options have the index as the underlying. In India, we have a European style settlement. Eg. Nifty options, Mini Nifty options etc.
- **Stock options:** Stock options are options on individual stocks.
- **Buyer of an option:** The buyer of an option is the one who by paying the option premium buys the right but not the obligation to exercise his option on the seller/writer.
- **Writer / seller of an option:** The writer / seller of a call/put option is the one who receives the option premium and is thereby obliged to sell/buy the asset if the buyer exercises on him.
- **Call option:** A call option gives the holder the right but not the obligation to buy an asset by a certain date for a certain price.
- **Put option:** A put option gives the holder the right but not the obligation to sell an asset by a certain date for a certain price.

American options: American options are options that can be exercised at any time upto the expiration date.

- **European options:** European options are options that can be exercised only on the expiration date itself.
- **Option price/premium:** Option price is the price which the option buyer pays to the option seller. It is also referred to as the option premium.
- **Expiration date:** The date specified in the options contract is known as the expiration date, the exercise date, the strike date or the maturity.
- **Strike price:** The price specified in the options contract is known as the strike price or the exercise price.

Moneyness of options

Moneyness of Options		
	Call	Put
ITM	$S > K$	$S < K$
ATM	$S = K$	$S = K$
OTM	$S < K$	$S > K$

Market Participants

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Hedger

Hedgers face risk associated with the price of an asset. They use futures or options markets to reduce or eliminate this risk

Speculators

Speculators wish to bet on future movements in the price of an asset. Derivatives can give them an extra leverage to enhance their returns

Arbitrageurs

Arbitraders work at making profits by taking advantage of discrepancy between prices of the same product across different markets

Categories of Derivatives

Categories of Derivatives

- ▶ Equity Derivatives
- ▶ Commodity derivatives
- ▶ Currency Derivatives
- ▶ Interest rate Derivatives

Equity Derivatives

Instruments

- **Stock Futures**
- **Stock Options**
- **Index Futures**
- **Index Options**

Terminologies

Expiry date

Lot Size

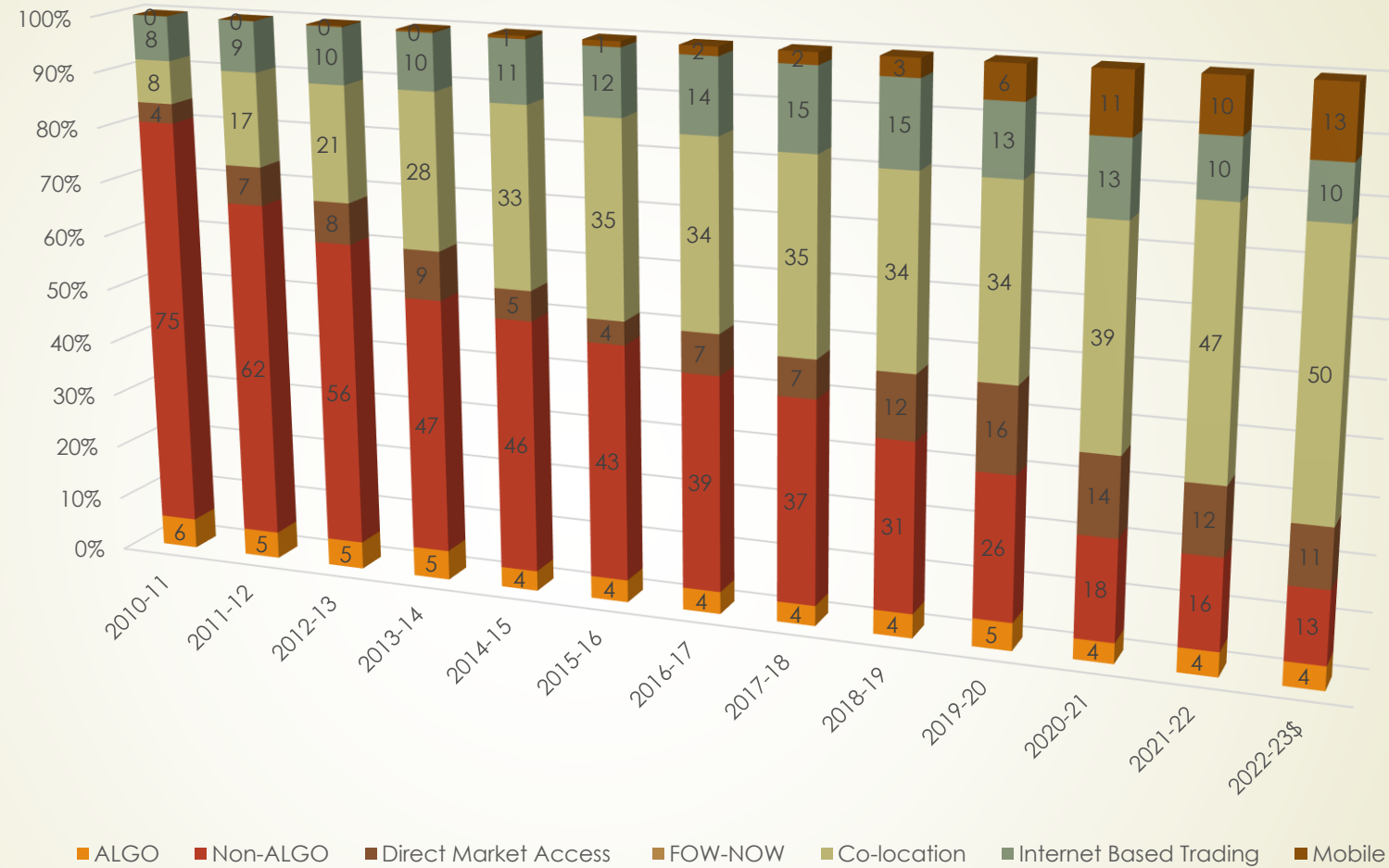
Open interest

Margin

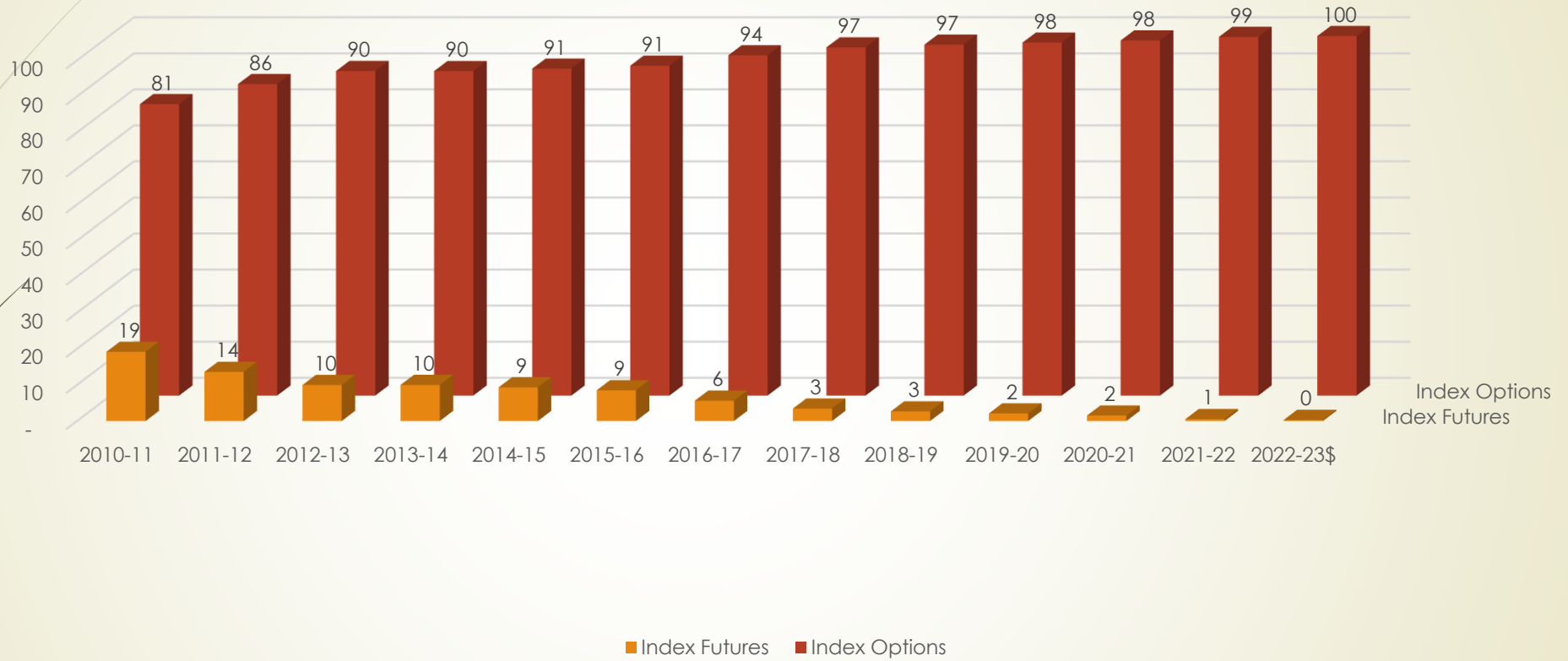
Long and Short

Settlement type- Cash v/s Physical

Mode of Trading in Equity Derivatives - NSE



Turnover in Index Derivatives Option v/s Future



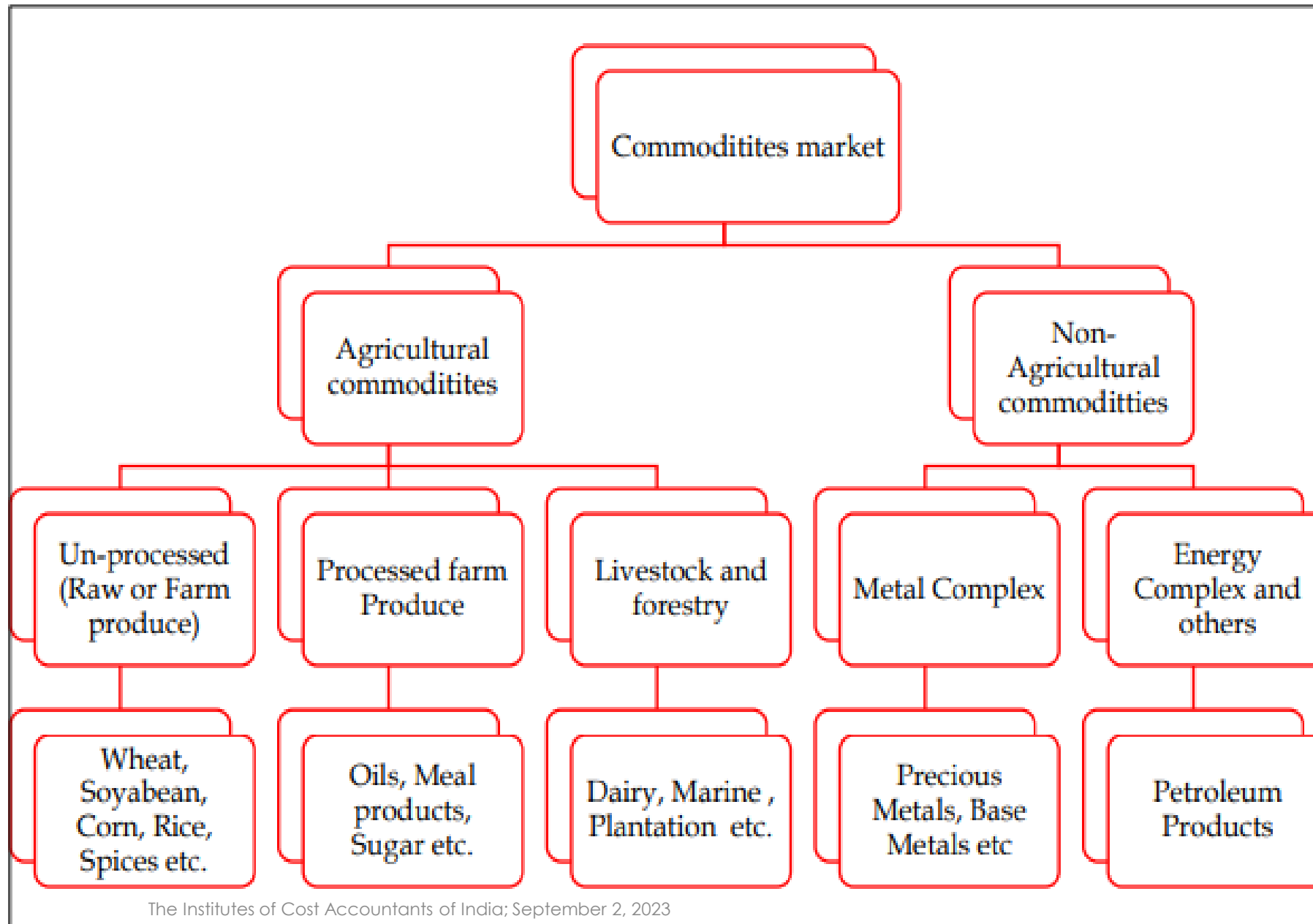
Equity Derivative Exchanges

- NSE
- BSE
- XMSE

Commodity Derivatives Markets

Commodity Derivative Markets - Snapshot

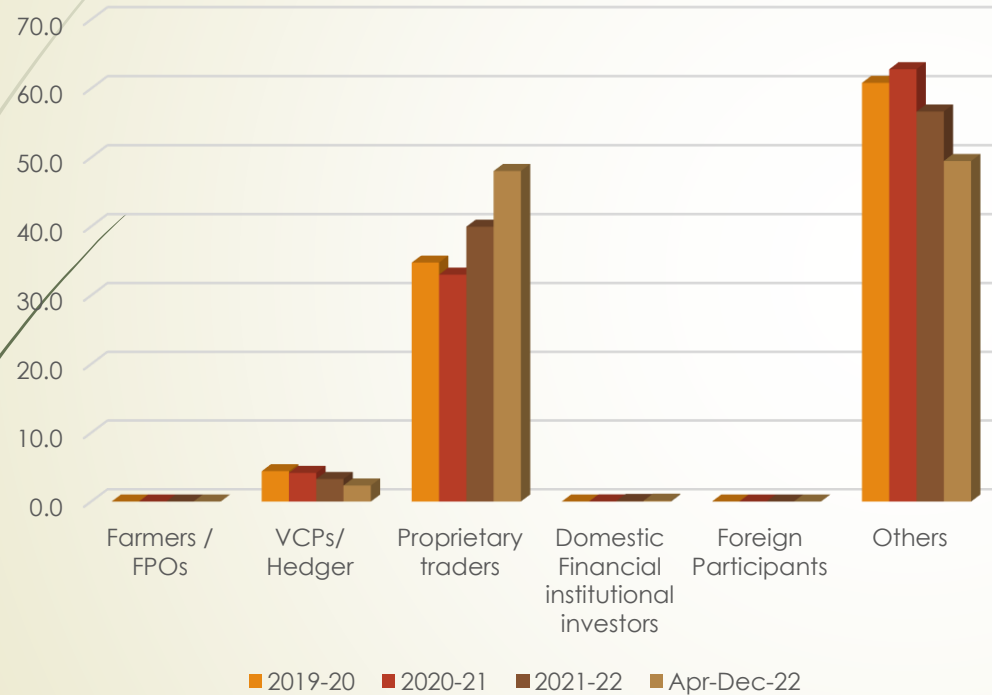
- ▶ India has a very long tradition of more than 140 years in futures trading.
- ▶ Futures' trading in cotton, oilseeds and wheat was being organized under the auspices of The Bombay Cotton Trade Association Ltd. (1875), Gujarat Vyapari Mandal (1900) and Chamber of Commerce, Hapur in 1920 respectively.
- ▶ Futures trading in raw jute was being organized under the auspices of The Calcutta Hessian Exchange Ltd. 1919 and East India Jute Association Ltd. 1927.
- ▶ 2003 onwards- new era for commodity derivatives market



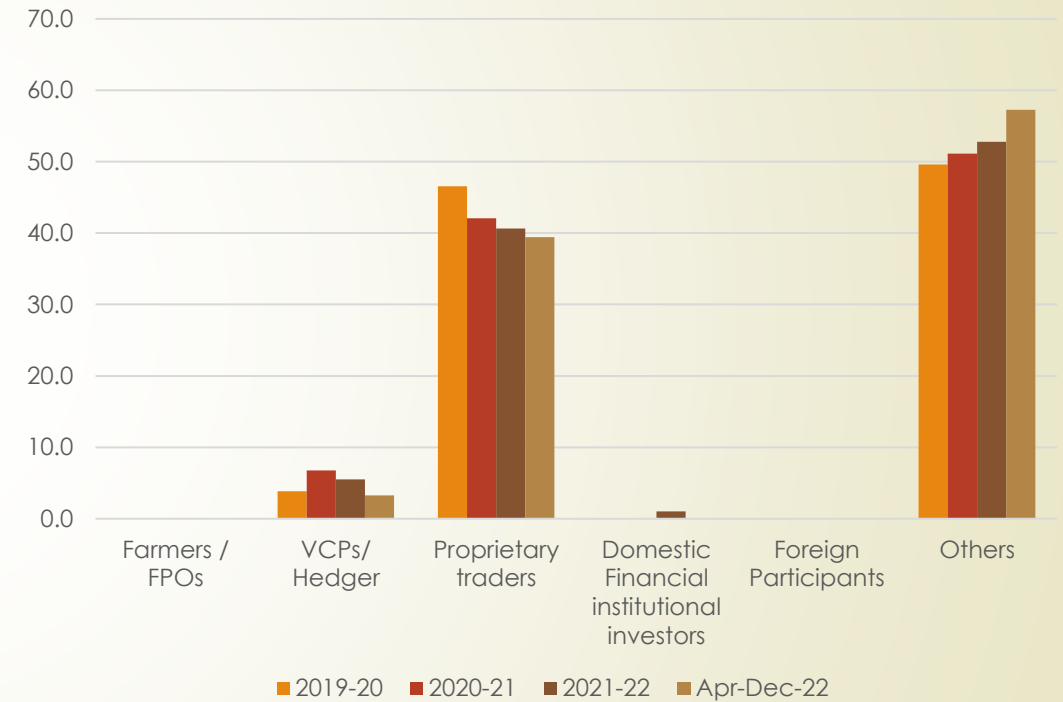
Sl. No	Commodity Exchanges in India (National Exchanges)
1	Multi Commodity Exchange of India Ltd. (MCX), Mumbai
2	National Commodity & Derivatives Exchange Ltd. (NCDEX), Mumbai
3	National Multi Commodity Exchange of India Limited (NMCE), Ahmedabad (merged with ICEX from 2017)
4	Indian Commodity Exchange Limited. (ICEX), Mumbai
5	Ace Derivatives and Commodity Exchange Limited. (ACE), Mumbai
6	Universal Commodity Exchange Ltd. (UCX), Navi Mumbai
	23. NSE 24. BSE
	Regional Exchanges
7	Bikaner Commodity Exchange Ltd., Bikaner
8	Bombay Commodity Exchange Ltd., Vashi
9	Chamber Of Commerce, Hapur
10	Central India Commercial Exchange Ltd., Gwalior
11	Cotton Association of India, Mumbai
12	East India Jute & Hessian Exchange Ltd., Kolkata
13	First Commodities Exchange of India Ltd., Kochi
14	Haryana Commodities Ltd., Sirsa
15	India Pepper & Spice Trade Association., Kochi
16	Meerut Agro Commodities Exchange Co. Ltd., Meerut
17	National Board of Trade, Indore
18	Rajkot Commodity Exchange Ltd., Rajkot
19	Rajdhani Oils and Oilseeds Exchange Ltd., Delhi
20	Surendranagar Cotton oil & Oilseeds Association Ltd., Surendranagar
21	Spices and Oilseeds Exchange Ltd. Sangli
22	Vijay Beopar Chamber Ltd., Muzaffarnagar

Source: Compiled from www.fmc.gov.in.

MCX-Participant-wise share in Commodity Derivatives Turnover (in %)



NCDEX-Participant-wise share in Commodity Derivatives Turnover (in per cent)



Trade Timing at Commodity Exchanges:

Trading hours at MCX and NCDEX are as follows:

10:00AM – 11:30PM/11:55PM (Internationally Referencable non-Agri)

10:00AM – 09:00PM/09:30PM (Internationally Referencable Agri)

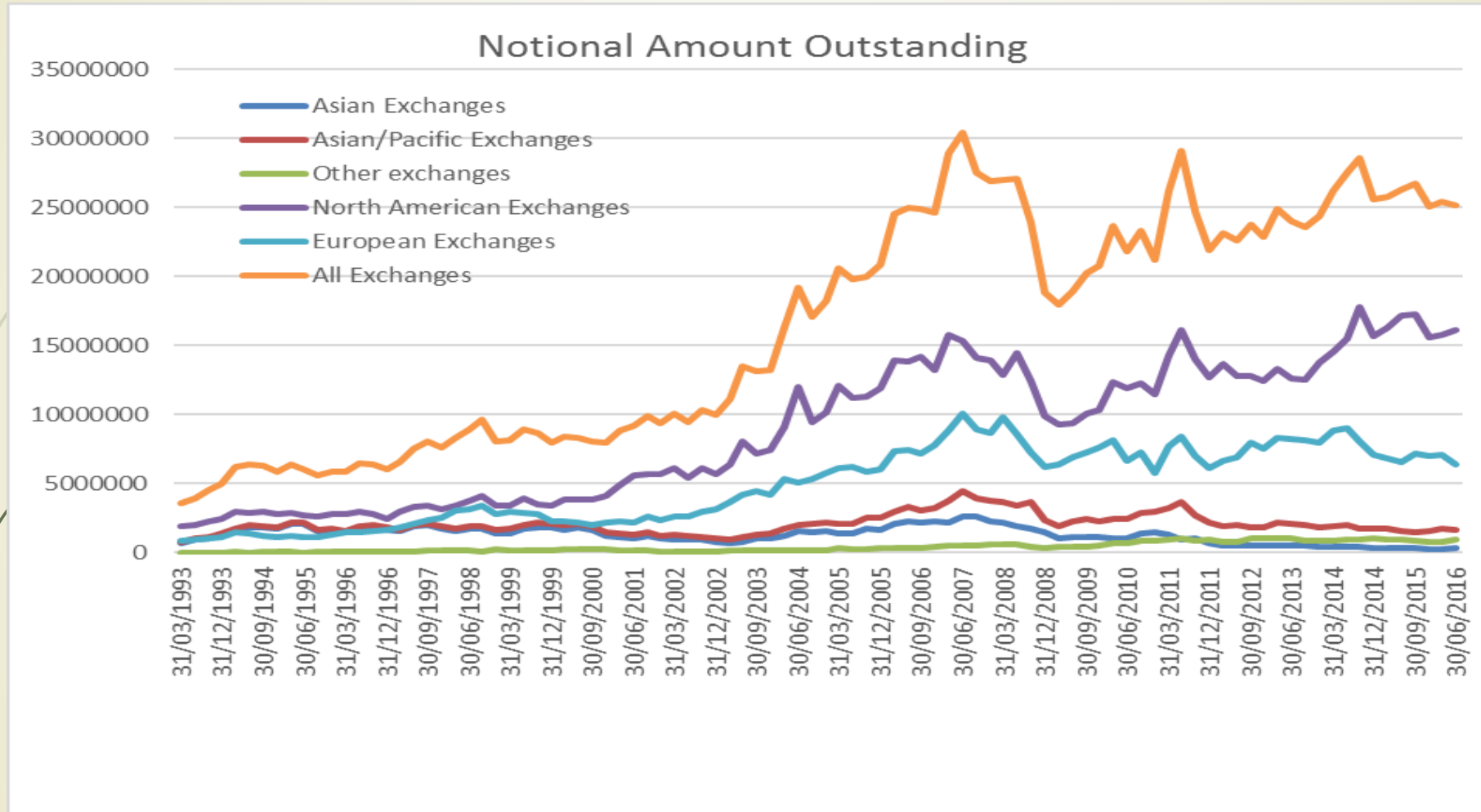
10:00AM – 05:00PM (All other commodities)

MCX and NCDEX revise the above trading hours based on the daylight saving timings effective internationally

Interest Rate Derivatives

Interest rate derivatives

- ▶ An Interest Rate Futures contract is "an agreement to buy or sell the value of an underlying debt instrument at a specified future date at a price that is fixed today." Exchange Traded Interest Rate Futures are standardized contracts based on a GOI security.
- ▶ They are all cash settled.
- ▶ Currently, Interest Rate Futures segment of NSE offers two instruments i.e. Futures on 6 year, 10 year and 13 year Government of India Security ([NBF II](#)) and 91-day Government of India Treasury Bill (91DTB).
- ▶ 2003, 2009, 2011, 2014



IRF in India

- Investors use interest rate derivative to hedge against interest rate risk. Among all derivative instruments, Interest Rate Futures (IRF) are the most popular derivative products available in the market across globe.
- Chicago Mercantile Exchange (CME) is the first exchange introduced IRF in the year 1981.
- In India, IRF has failed in the year 2003 and 2009. But in the third time as it is introduced in the year 2014 MSEI formerly MCX-SX introduced on 20th January 2014, NSE on 21st January 2014 and BSE on 28th January 2014), the volume in the NSE is high among all the three exchanges (Panda and Thiripalraju, 2015).

Interest Rate Futures in India

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- **Interest rate future first introduced in 2003**
 - Contract was valued of a zero coupon yield curve (ZCYC)
 - Banks participation was limited to only hedging their interest rate risk and not take trading positions
- **Second time introduced in 2009 – with physical settlement**
 - Physical settlement – Possibility of receiving illiquid securities
 - Complexity (Cheapest to Deliver)
- **Third time introduce in 2011 – 91-day T-Bills future**
 - Not much exposure to underlying, mostly traded at issuance time
 - Limited volatility

➤ **Fourth Time since January 2014**

- On 10-Year Government of India (GoI) security
- Cash settled
- Two different designs are permitted
- Option A : Futures based on single GoI security
- Options B : Futures based on basket of GoI securities
- Stock Exchanges can choose either or both

At present 6 Years, 10 Years and 13 years GSEC IRFs are trading in exchanges

<https://www.nseindia.com/market-data/bond-market-futures>

Currency Derivatives in INDIA

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➤ NSE

- The exchange launched its currency futures trading platform on 29th August, 2008.
- Currency futures on USD-INR were introduced for trading and subsequently the Indian rupee was allowed to trade against other currencies such as euro, pound sterling and the Japanese yen.
- Currency Options was introduced on October 29, 2010.
- Further, Options trading on EURINR, GBPINR and JPYINR was also introduced on February 27, 2018.
- Cross Currency Futures and Options contracts on EUR-USD, GBP-USD and USD-JPY are also introduced on February 27, 2018.

BSE-Currency Derivatives

- The Currency Derivatives Trading on the Exchange was launched on Thursday, November 28, 2013 and the trading has been commenced from Friday November 29, 2013.
- Currency Futures trading shall commence on the contracts on US Dollar-Indian Rupee (US\$-INR), Euro- Indian Rupee (EUR-INR), British Pound-Indian Rupee (GBP-INR) and Japanese Yen- Indian Rupee (JPY-INR).
- Currency Options trading shall commence on the contracts on US Dollar- Indian Rupee (US\$- INR).

CONTRACT SPECIFICATION

- INR PAIRS

- FUTURES

- USD/INR

- EUR/INR

- GBP/INR

- JPY/INR

- OPTIONS

- USD/INR

- EUR/INR

- GBP/INR

- JPY/INR

- Cross currency Pairs

- FUTURES

- EUR/USD

- GBP/USD

- USD/JPY

- OPTIONS

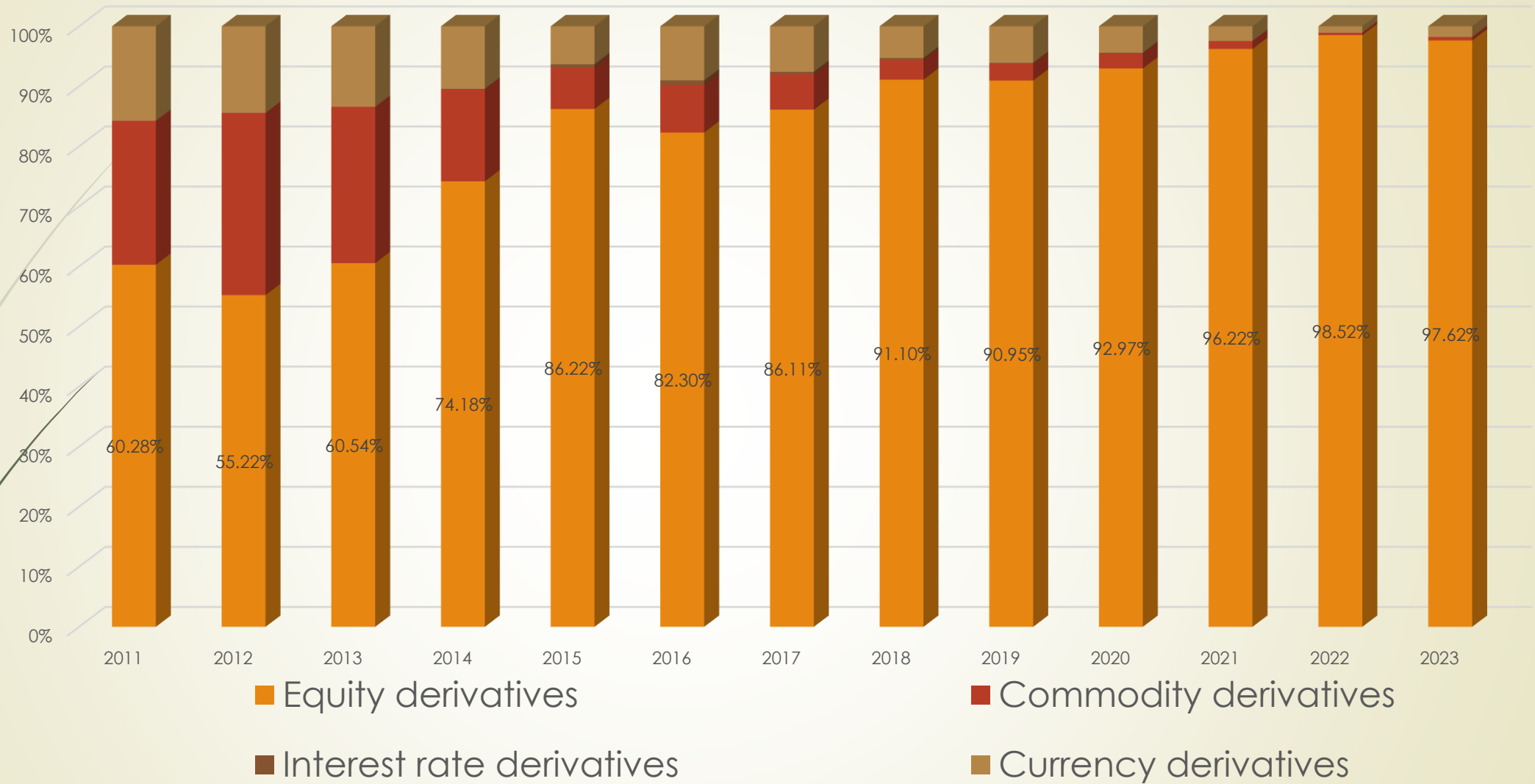
- EUR/USD

- GBP/USD

- USD/JPY

<https://www.nseindia.com/market-data/currency-derivatives>

Percentage Share to total Derivatives Transactions in India



Summary of SEBI Report on Analysis of Profit and Loss of Individual Traders dealing in Equity F&O Segment

- ▶ Individual Traders in equity F&O segment was 45.2 lakhs during FY22, up from 7.1 lakhs during FY19- significant increase by over 500% in FY22 as compared to FY19
- ▶ The trading by individual traders in equity F&O segment were dominated by males (>80%) during both the years
- ▶ 89% of the individual traders (i.e. 9 out of 10 individual traders) in equity F&O segment incurred losses, with an average loss of Rs. 1.1 lakh during FY22, whereas, 90% of the active traders incurred average losses of Rs. 1.25 lakh during the same period.
- ▶ During FY22, 11% of individual traders in equity F&O segment made profit with an average profit of Rs. 1.5 lakhs
- ▶ 98% individual traders traded in options while 11% traded in futures during FY22
- ▶ over and above the net trading losses incurred, loss makers expended an additional 28% of net trading losses as transaction costs

Role of ICAI Members and NISM in Derivatives Markets

Role of ICAI

- ▶ Derivative Accounting
- ▶ Hedging, Speculative and Arbitrage transactions

Role of NISM

<https://certifications.nism.ac.in/nismaol/> (download for free)

1. Equity Derivatives
2. Currency Derivatives
3. Commodity Derivatives
4. Interest Rate Derivatives

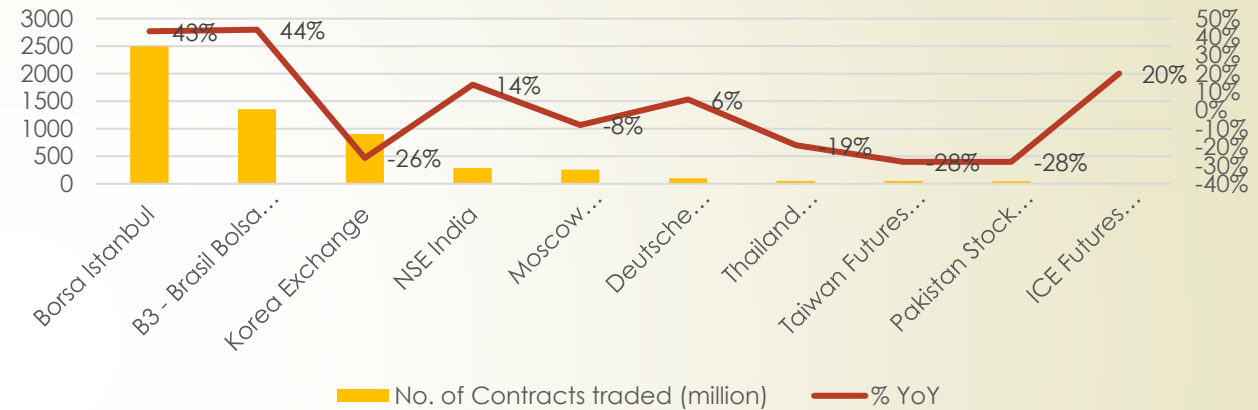
Global Rank of Indian Derivatives Markets

Global Rank of Indian Derivatives Markets

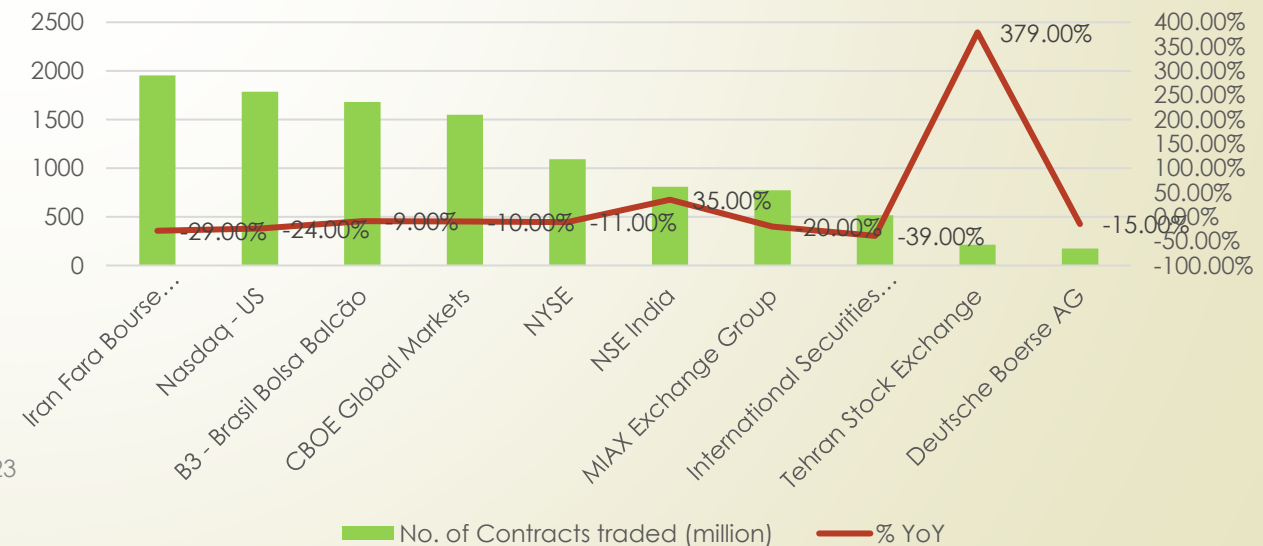
Top 10 Derivatives Exchnages 2022 [No. of Contracts traded (million)]



Top 10 Exchanges in single stock futures 2022



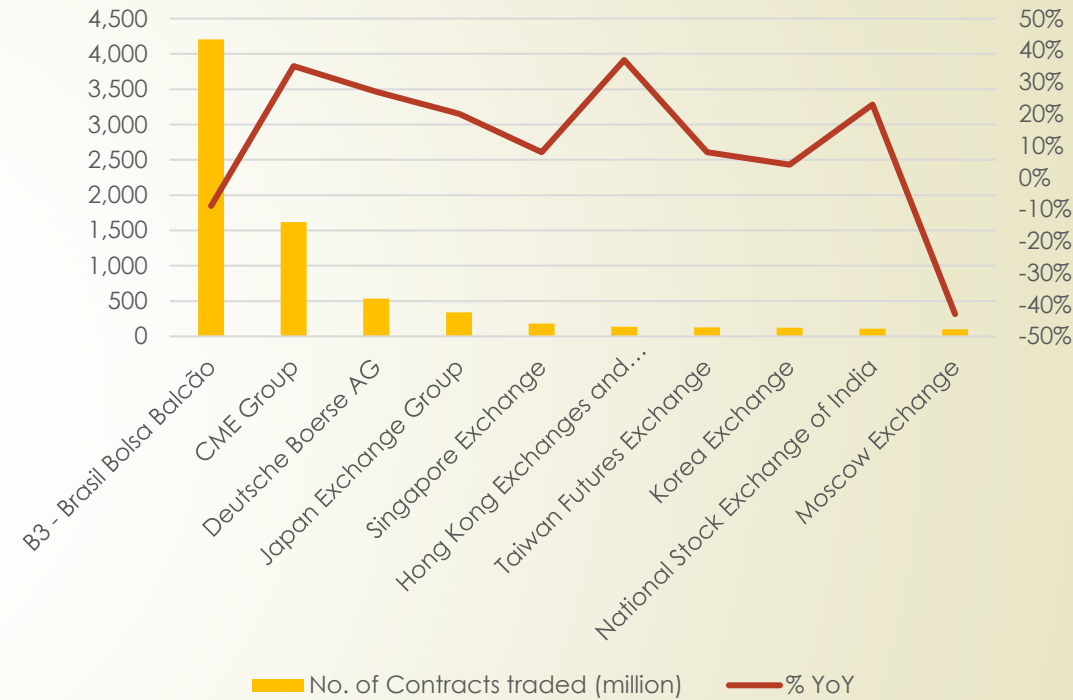
Top 10 exchanges in single stock options 2022



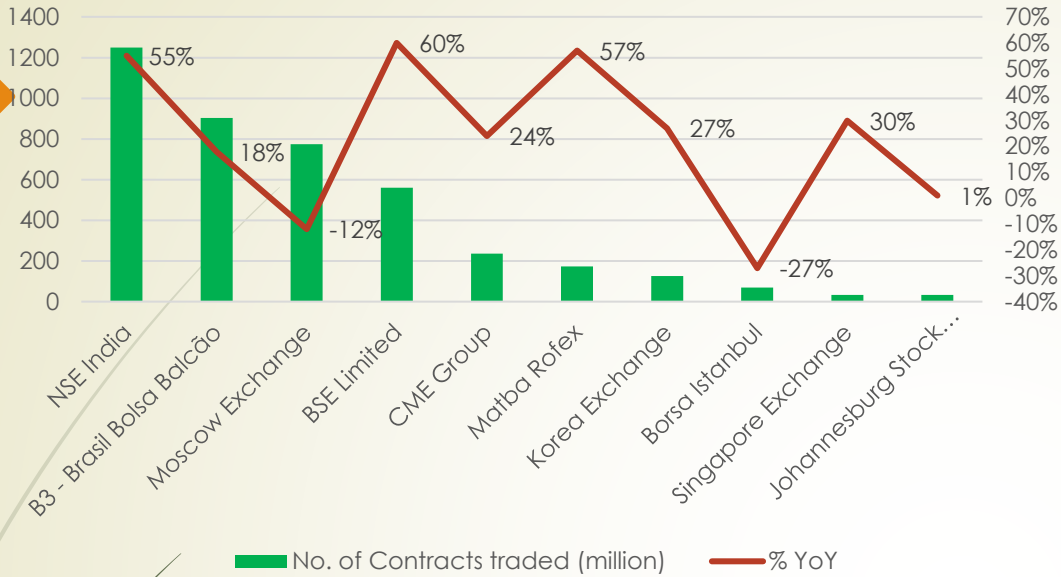
Top 10 exchanges in stock index optionsr 2022



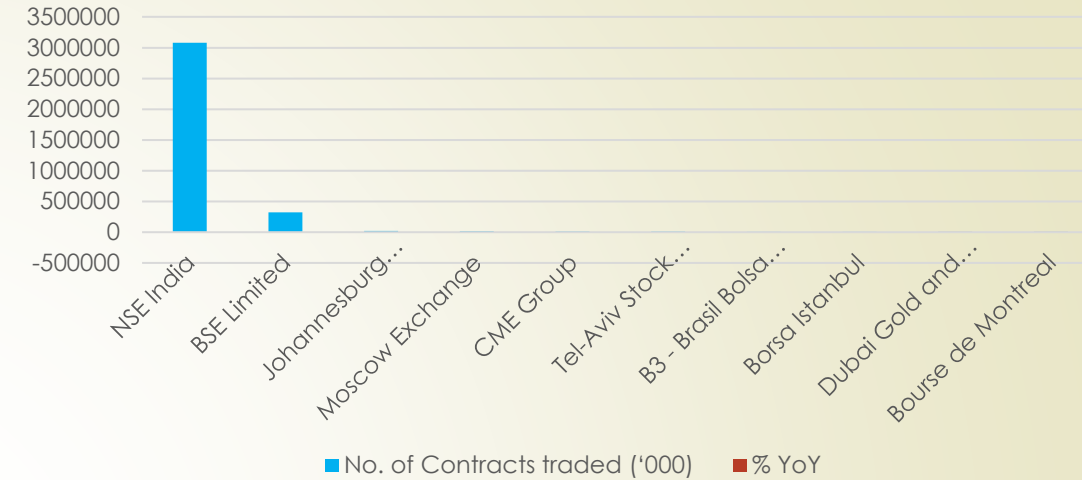
Top 10 exchanges in stock index futures 2022



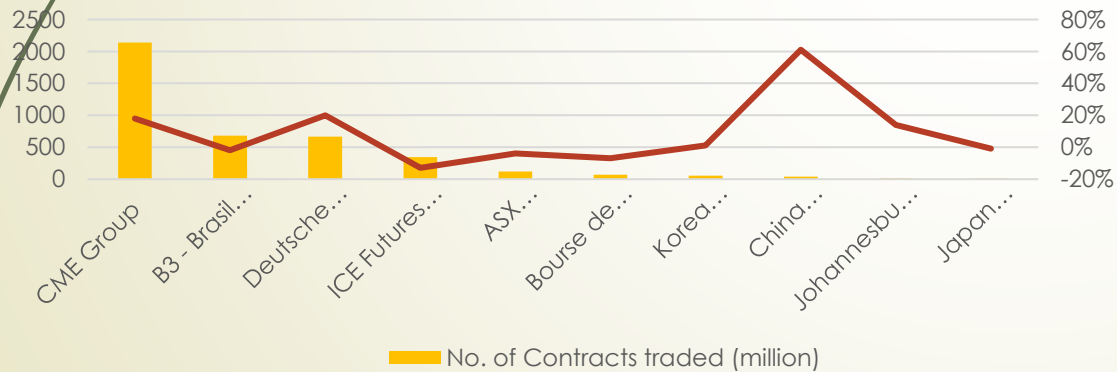
Top 10 exchanges in Currency Futures 2022



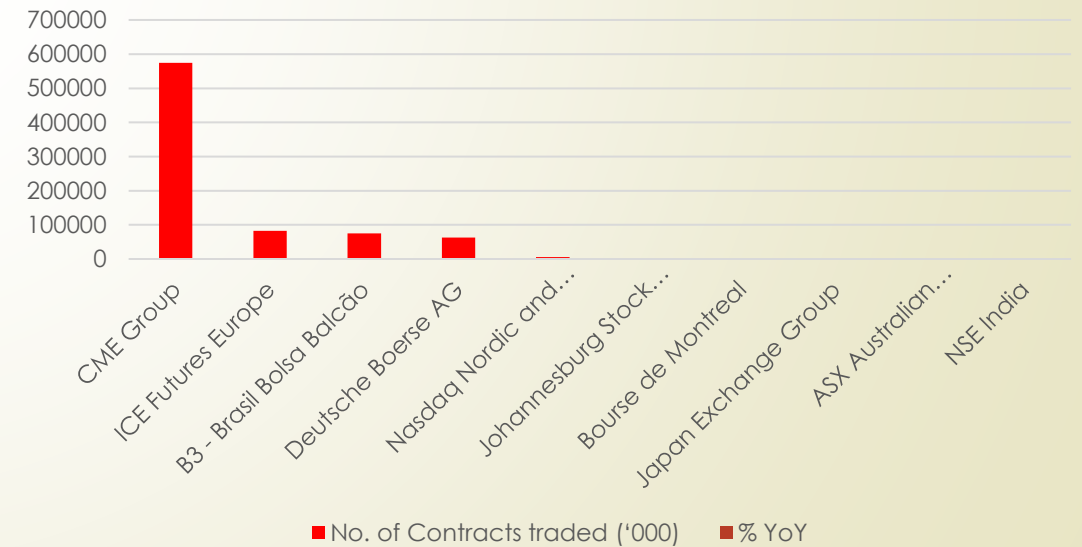
Top 10 exchanges in Currency Options 2022



Top 10 exchanges in Interest Rate Futures 2022



Top 10 exchanges in Interest Rate Options 2022



Key Take ways

- ▶ Learn the concept of derivatives thoroughly
- ▶ Start paper trading to examine the effectiveness of your strategy
- ▶ Don't use derivatives to speculate and become the richest person
- ▶ Don't borrow and trade in derivatives
- ▶ Don't get motivated by fin-fluencers'
- ▶ Start to write NISM derivative certifications to enhance your skill
- ▶ After all use derivatives for hedging

Reading materials

- ▶ NISM Derivatives Certification books.
- ▶ Natenberg, S. (2012). Option Volatility Trading Strategies. John Wiley & Sons.
- ▶ Hull, J. C., by Basu, S. (2022). Options futures and other derivatives. Pearson Education India.

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