

# Derivatives.....

# Table of contents

	Slide No.		Slide No.
□ <b>Meaning Of Derivative</b>	3	□ <b>Nifty Spread</b>	29
□ <b>Specifications Of Futures</b>	4	□ <b>Arbitrage Opportunities</b>	30
□ <b>Functions Of Derivatives</b>	5	□ <b>Pair Trade</b>	31
□ <b>Participants</b>	6	□ <b>OI Vs Nifty</b>	32
□ <b>Size Of Market</b>	7	□ <b>Broad Horizon</b>	33 - 34
□ <b>Available Future Contracts</b>	9	□ <b>To Trade In F&amp;O</b>	35
□ <b>Jargons</b>	10	□ <b>After Trade Execution</b>	36
□ <b>Parameters</b>	11	□ <b>Acceptance Of Trade</b>	37
□ <b>Open Interest</b>	14 - 16	□ <b>Outstanding Trade</b>	38
□ <b>Options</b>	18	□ <b>Rules To Trade In Derivative Segment</b>	39
□ <b>Classification</b>	19	▶ <b>Market wide limit</b>	40
□ <b>Jargons</b>	20	▶ <b>F&amp;O Ban stock</b>	41
□ <b>Option Premium</b>	21 – 22	▶ <b>Position Limit</b>	42 – 44
□ <b>Put Call Ratio</b>	23 – 24	▶ <b>Common problems</b>	45
□ <b>Volatility</b>	25- 28		

# Meaning of Derivatives

- Derivatives is a product whose value is derived from the value of the underlying asset.
- Underlying asset can be equity, forex, commodity or any other asset. Eg. Sensex, Nifty
- Derivative products : Forwards, Futures, Options, Warrants, Leaps & Swaps.

# Specifications of Futures

- Maturity : Last Thursday of every Month.
- Different Series : Sept, Oct & Nov.
- Value of the contract : Minimum INR 0.20 mln at the time of Introduction.
- No of shares /Market Lot / Lot Size.
- Margin : Initial, Exposure, Ad hoc & Special.
- Brokerage : Lower than cash delivery
- Settlement ( cash / Delivery): Cash Settlement only

# Functions of Derivatives

- Price discovery
- Risk transfer
- Higher volumes
- Controlled speculation

# Participants in Derivatives

- Hedgers
  - Hedgers face risk associated with the price of an asset they own. They use derivatives to reduce or eliminate risk.
- Speculators
  - Speculators bet on future movements in the price of an asset. Derivatives give them an extra leverage, by which they can increase both the potential gains and losses.
- Arbitrageurs
  - Arbitrageurs take advantage of discrepancy between prices in two different markets.

# Size of derivatives market and its potential

- Average daily volumes = INR 600 bln
- This is 500% (5x) of the NSE cash segment volumes
- Potential to become at least 8x NSE cash segment volumes

# Futures Available in India

- Index Futures:
  - S&P CNX NIFTY
  - CNX IT
  - Bank NIFTY
  - NIFTY JUNIOR
  - NIFTY MINI
- Stock Futures:
  - Currently 183 stocks are trading in derivative market.
- Any time three contracts are available for futures
  - Current month
  - Near month
  - Far month



# Jargons used in futures

- Basis
  - The difference between the prevailing spot price of an asset and the futures price
- Spot price - Future price
- A function of Cost of carry

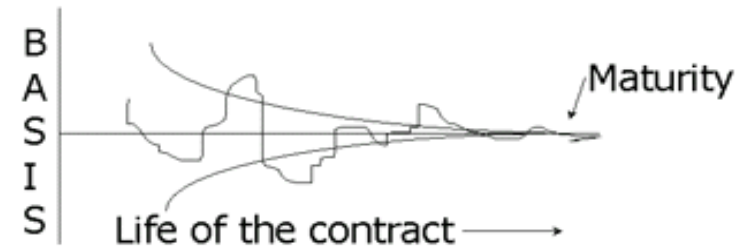
- Contango Market

Spot price < Futures price

- Backwardation market or Inverted

Spot price > Future price

- Basis may change several time in a day



- Convergence theory

- Basis will approach zero towards the expiry of the contract, i.e. the spot and futures prices converge as the date of expiry of the contract approaches.

# Parameters Used in Judging F&O Market

- Open Interest
- Put – Call Ratio
- Volatility

# Parameters Used in Judging F&O Market

- Open Interest
- Put – Call Ratio
- Volatility

# DERIVATIVES' STRATEGIES

# Open Interest ????????

- Open Interest means the total number of contracts of an underlying asset that have not been offset and closed by an opposite transaction or delivery of the underlying commodity or by cash settlement.
- Sum of all positions taken by different traders are reflected in the Open Interest. Opposite positions taken by a trader in a contract reduces the open interest.

<b>Trade Day</b>	<b>Trading Activity</b>	<b>Open Interest</b>
Monday	Client A buys 2 futures contract of TCS and Client B sells 2 futures contract of TCS.	2
Tuesday	Client B buys 2 futures contracts of TCS and Client C sells 2 futures contracts of TCS.	2
Wednesday	Client D sells 5 futures contract of TCS and Client E buys 5 futures contract of TCS.	7
Thursday	Client C buys 2 futures contracts of TCS and Client A sells 2 futures contracts of TCS.	5

# Open Interest ...

- Predicting the F&O markets based on Open Interest movements:
  - Increasing OI with increase in price trend is considered positive – With increase in OI and the market price, the trend shows bullishness on the back of addition of more long positions for every short position in the futures market. Investors are turning positive and going long for the stock, which is evident by the upward price movement.
  - Increasing OI with decrease in price is considered negative - With increase in OI and fall in the market price the trend shows bearishness on the back of addition of more short positions for every long position in the futures market. Investors are turning negative and price is falling with selling pressure coming due to increasing negativity in the specific stock.
  - Decreasing OI with increase in price trend is considered positive - With decrease in OI and rise in the market price the trend shows bullishness on the back of covering up of short positions in the futures market. With the short covering happening due to investors getting caught on wrong foot, escalates the price well over the normal levels.
  - Decreasing OI with decrease in price trend is considered negative - With decrease in OI and fall in the market price the trend shows bearishness on the back of closing up of long position in the futures market. With Investors booking profits and adding up short positions to get the benefit of the fall in the markets adds to the selling pressure, shows the bearish trend in prevalent in the market.

# Open Interest ...

- While looking at open interest, it is important that an investor looks at the total open interest, for all months and not the open interest for the individual months.
- The total open interest gives a better idea about the liquidity of the futures contract, which is crucial for getting in and out of the stock at the best possible price.
- Low open interest reflects low liquidity and hence total open interest gives an indication of the direction the futures contract may be trending.

# Options Available in India

- The Exchange has introduced long term option contracts on NIFTY. The options cycle shall be as under considering Sept 09 as expiry.
- The three serial month contracts would continue to exist (Sept 09 / Oct 09 / Nov 09).
- The following next three quarter expiries December 09 / March 10 / June 10.
- After these, 5 following semi-annual months of the cycle December 10 / June 11 / December 11 / June 12 / December 12 would be available, so that at any point in time there would be options contracts with at least 3 year tenure available.
- Express longer term view on India by using Long dated options.
- Buy Nifty CALLs to express bullish macro view on India from these levels.
- Buy PUTs to hedge your portfolio
- Whereas in Stocks options only three serial month contracts are available (Sept 09 / Oct 09 / Nov 09).



# Classification of Option

- According to exercise of option
  - European option : Can be Expired only on the expiration date.
  - Index : CNX NIFTY, CNXIT
  - American option : Can be Exercised at any time up to expiration date.
  - Stocks : Reliance, ONGC, SBI
- According to type of option
  - 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
  - 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 of an option : Is the one who receives the option premium and is thereby obliged<sub>17</sub> to sell buy the asset if the buyer exercise on him.

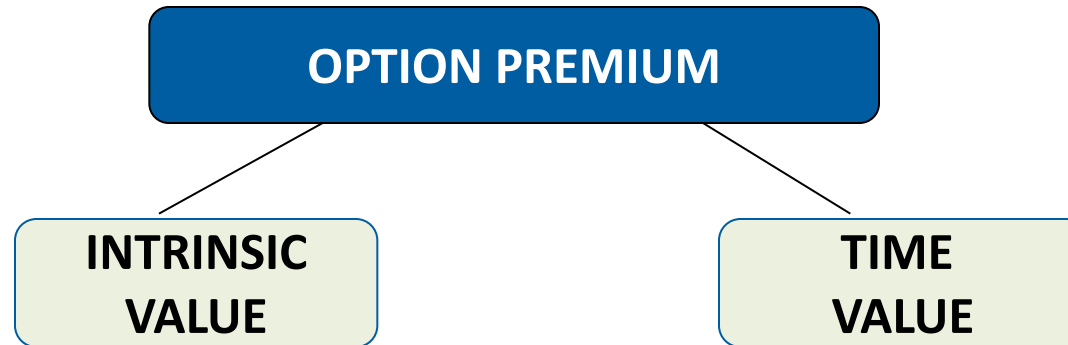
# Jargons used in Options

- In-The- Money
- At-The-Money
- Out-Of-The-Money

EX. Stock -	Infosys
Stock Price ( S )-	2300
Strike Price ( K ) -	2200
	2300
	2400

	ITM	ATM	OTM
CALL	$S > K$ 2300 > 2200	$S = K$ 2300 = 2300	$S < K$ 2300 < 2400
PUT	$S < K$ 2300 < 2400	$S = K$ 2300 = 2300	$S > K$ 2300 > 2200

# Option premium



- Intrinsic Value:
  - How much is option ITM . If the option is Out of the money or at the money its intrinsic value is zero.
- For a call option intrinsic value is
  - $\text{Max}(0, (S - K))$
- For a put option intrinsic value is
  - $\text{Max}(0, (K - S))$

- Time value of option is difference between Premium and Intrinsic value.
- ATM and OTM option only have time value and no Intrinsic value
- The time value decreases as time remaining to maturity reduces and becomes zero on maturity.

## Time Value

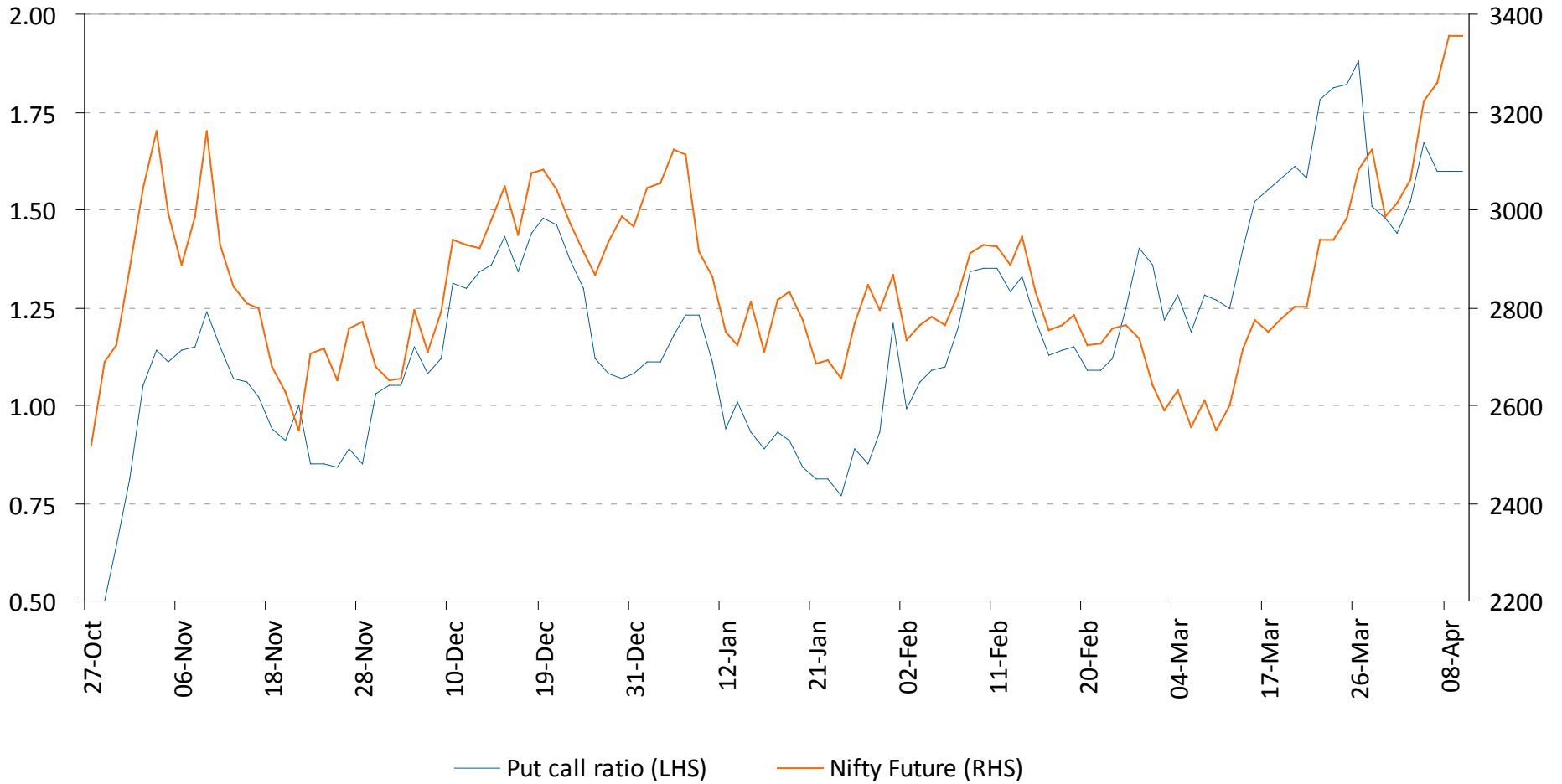


# Put Call Ratio:

- One of the indicators of future market direction is the Put/Call ratio.
- The Put/Call Ratio is the number of put options contracts traded in a given day divided by the number of call options contracts traded that same day.
- If put call ratio is high, it means more put options are trading in the market and more people want to sell in the future which is an indicator of bearishness.
- Whereas if the put call ratio is low then it indicates bullishness as more people want to buy in the future.
- However, this may again be used as a contrarian indicator for predicating market moves (though there seems to be weak correlation here)

For e.g.. Higher put call ratio may be as an indication of over sold position in the market and hence expectations of bounce back.

# Nifty PCR



# Volatility

- It is a statistical measure of a market or a security's price movements over a period of time. Mathematically volatility is often expressed as standard deviation.  
There are two types of volatility.
  - Implied Volatility
  - Historical Volatility

# Implied Volatility

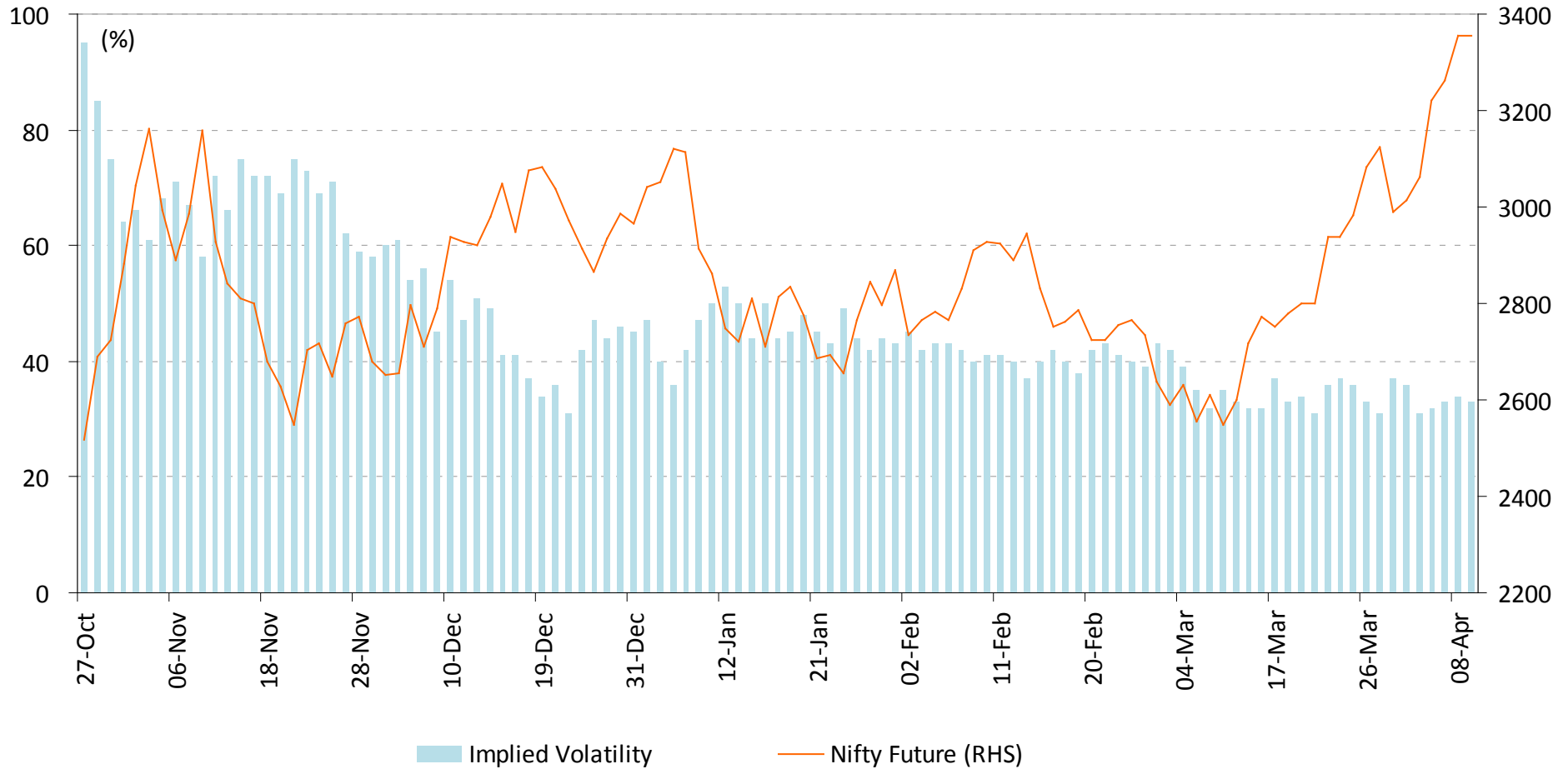
- Implied volatility of a stock or an index is computed using an option pricing model such as the Black-Scholes or Binomial Theory.
- Rising implied volatility causes option prices to rise while falling implied volatility results in lower option premiums.
- The value of an option consists of several components like - strike price, spot price, expiration date, implied volatility of the stock and prevailing interest rates.



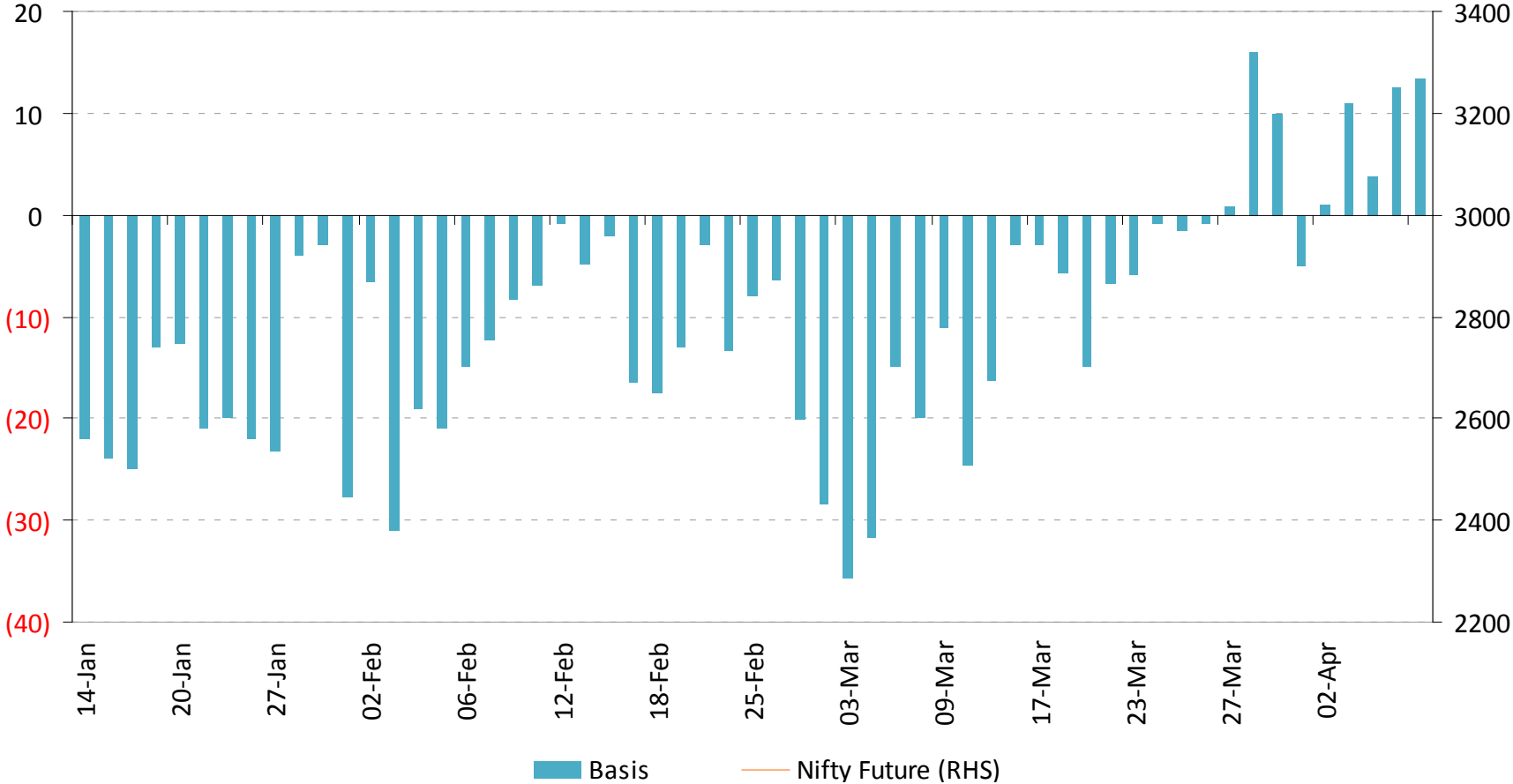
# Historical Volatility

- Historical volatility is a measure of actual price changes during a specific time period in the past.
- It is the annualized standard deviation of daily returns during a specific period.
- Historical volatility is also referred to as actual volatility or realized volatility.
- For short-term volatility, generally 5 days, 10 days, 20 days or 30 days time frame is considered. Whereas for long term volatility, normally 60 day, 180 day or 360 day time period is considered

# Sentiment Indicator



# Nifty Spread



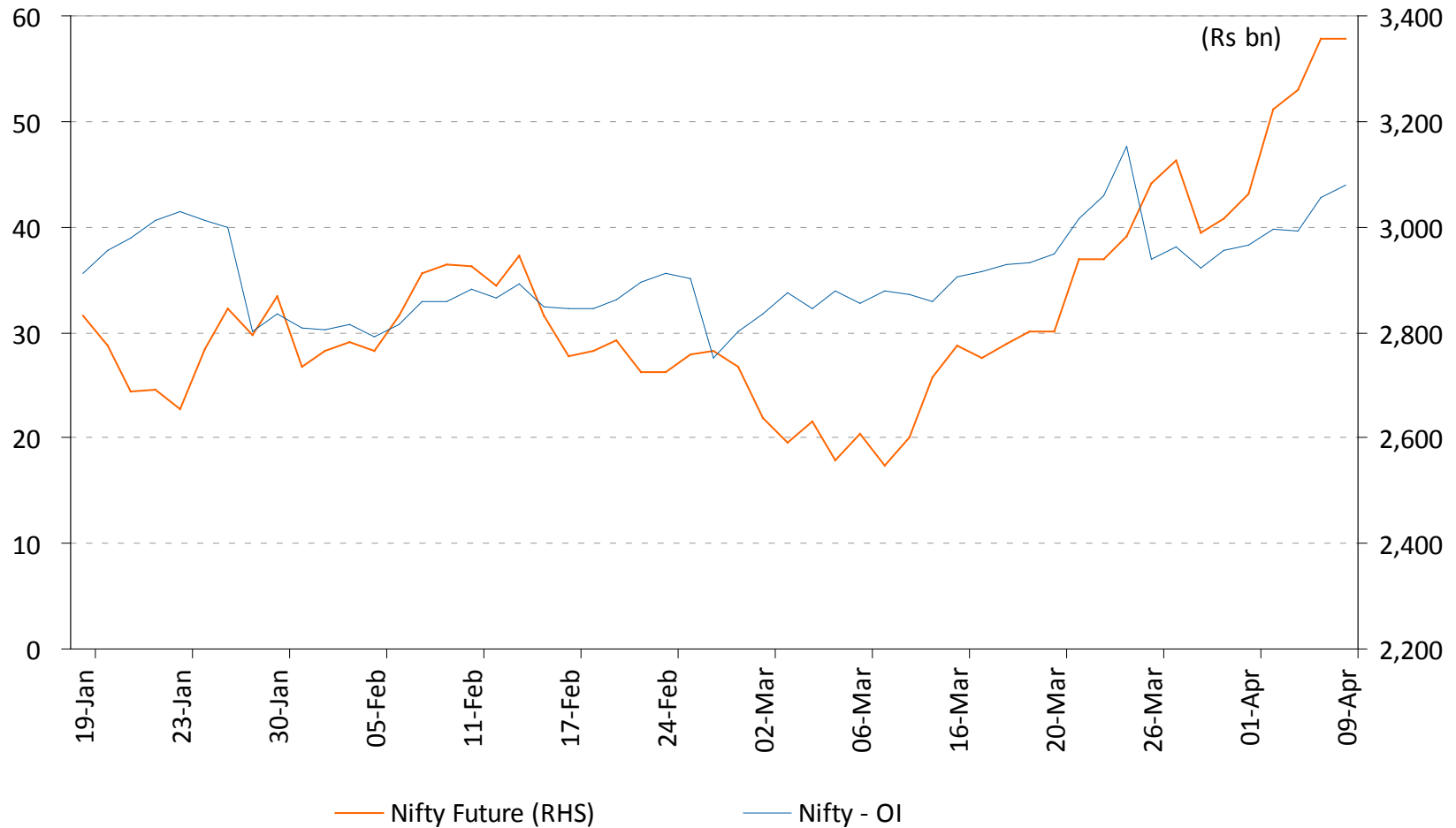
# Arbitrage Opportunities

- Buy Shares & Sell Futures : There is discrimination between the cash and F&O market Price, where the price of futures is more than our fair value future prices.
- Buy Shares and Sell Synthetic Futures (Buy a Put & Sell a Call of same strike price): Prices of the synthetic short futures is such that it is higher than the actual future price and also higher than our fair value of future price.
- Sell Shares & Buy Futures: There is discrimination between the cash and F&O prices, as future price is quoting at a discount to the cash market price. For example Nalco, Ongc, Gail, Bharti, Hero Honda, Glaxo and many more.
- Sell Shares and Buy Synthetic Futures (Buy a Call & Sell a Put of same strike price): Prices of the synthetic long futures is such that it is lower than the actual future price and also lower than our fair value of future price and is quoting at a discount to the cash market price.
- Buy back: In buy back process we can estimate the no shares to be taken by proprietors and sell the remaining shares in synthetic.
- Basket trading: Hit a basket of stocks in cash and sell Nifty Fut. Of equivalent amount to play on spread and unwind it when spread narrows down.
- Options Strategies: Straddle, Strangle, Bull Spread, Bear spread and many other.

# Pair trades – Innovative trading strategies

- One advantage of derivatives over cash market, is the opportunity to play “pair trades” thereby partially/fully hedging specific risks (stock risk, industry risk, market risk, etc)
- Eg. Long Reliance Industries and short HPCL – this would eliminate market risk, and offers opportunity to play RIL’s superior fundamental performance vis-à-vis HPCL
- Eg. Long Reliance Industries and short Nifty – a pure play on Reliance’s out-performance to the nifty, with a completely hedged market risk.

# Open Interest v/s Nifty



# Broadening horizon of Derivatives

- Futures provide higher liquidity as compared to spot market in the short term.
- Many a times futures quote at a discount (sometimes due to aggressive buying in the cash market) then the investor can buy the stock cheaper in the derivatives market.
- Arbitrage opportunity can be availed if there is discrepancy between prices in two different markets.
- Change in method of taxing derivatives
- Eligible transaction in respect of trading in derivatives carried out in a recognized stock exchange shall not be treated as a 'speculative transaction'. Gain & losses from derivative can be offset by Losses & gain from other business
- FIIs can trade in stocks which have hit FII limits (eg. SBI).

# Contd...

- FIIs can trade on different indexes such as Nifty, CNXIT, Bank Nifty.
- There are many hedging strategies that an investor can use, picking stocks they believe are sufficiently balanced to keep the portfolio buffered from a severe market swing that provide some degree of market neutrality, but at the same time balancing investments among carefully researched long and short positions



# To Trade In F&O Segment

- Ensure that the required margin is in place with your clearing member.
- Place the order with the broker- (if you have more than one sub a/c) you need to mention the account before placing the transaction.
- The broker then executes the transaction in the system (while executing the trade the broker feeds in two codes for the client - the brokers internal code and one clearing code allocated by the exchange.)
- As soon as any trade is entered into, the system will provide information to the broker as well as to the clearing member .

# After Trade Execution

- After completing the trade (or on part execution, if the trade is of large value) the broker sends an excel sheet of the trades executed on the clients behalf to the client.
- The client then forwards this file to the clearing member.
- After receiving the file from the client the clearing member accepts the trade on the NSE neat system. The clearing member before pressing the acceptance key is likely to check if the trades on the system and the file match. If they don't match he is likely to bring it to the clients notice before pressing the acceptance key.
- But in a lot of times the clearing member does not have the time to check as the load is tremendous.
- The clearing member has to press the acceptance key by 4.15 pm IST if the trading time ends @ 3.30pm.
- If by that time the clearing member does not press the acceptance key, then the trade cannot be booked to clients account and then the trade becomes a proprietary trade of the broker.

# Acceptance Of Trade

- Once the trade is accepted by the clearing member, under no circumstance can it be changed.
- In short whatever acceptance is done by the clearing member by 4.15 IST, those trades can only be booked by the broker to the clients account.
- After the trades are accepted by the clearing member the broker issues the contract notes to the client and it's required custodians.
- Once the trade is accepted by the clearing member there is no financial responsibility of the broker.
- The broker then issues a collective statement of the brokerage to be collected from the client on a periodic basis (say 15 days or 1 month).
- All trade are settled on a cash basis only (no settlement in delivery) in F&O segment.

# Outstanding Trades

- All outstanding trades of a particular series (expiry) gets squared up on the last Thursday of the month. The price at which it is squared up is the cash closing price of that day on the NSE.
- The closing price of the cash on NSE is the weighted average price of the last 30 minutes of trading on the NSE.

# Rules To Trade In Derivative Segment

# Market Wide Limit

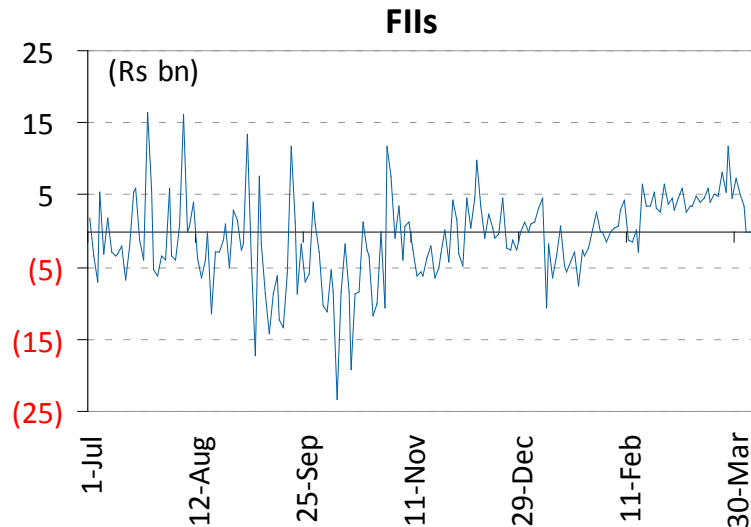
- Market wide open interest limit per stock is 20% of the free float of the company- or- 30x of the daily average volume of the underlying on the NSE in the previous month - whichever is higher.
- This is the maximum number of open interest put together in all the futures and options contracts on a single stock.
- For eg: if the open interest in a stock crosses 95% of the market wide limit, then from the next trading day it is said to be in F&O ban period.
- National stock exchanges every month issue circular stating security wise market wide position limits, trading member wise position limits & FII and mutual fund position limits

# F&O Ban Stock

- Once the stock comes in ban period clients/ members shall trade in the derivative contracts of said securities only to decrease their positions through offsetting positions
- This essentially means two things:
  - The day in which it is crossing 95%, on that day it can go to any limit, maybe over 100% also.
  - From the next day you cannot create an overnight new position, that means you can buy and sell intra day but cannot create an overnight new open interest.
- The security will come out of the ban period only after the open interest in the stock falls below 80% of the market wide limit.

# Position Limits For FII & MF Schemes In Index

- FII and MF position limit in all index options contracts on a particular underlying index shall be INR 5 Bln or 15 % of the total open interest of the market in index options, whichever is higher. This limit would be applicable on open positions in all options contracts on a particular underlying index.





# Addition To Above Limit

- a. Short positions in index derivatives (short futures, short calls and long puts) not exceeding (in notional value) the FII's / MF's holding of stocks.
- b. Long positions in index derivatives (long futures, long calls and short puts) not exceeding (in notional value) the FII's / MF's holding of cash, government securities, T-Bills and similar instruments.

In this regard, if the open positions of an FII / MF exceeds the limits as stated in item no a or b, such surplus would be deemed to comprise of short and long positions in the same proportion of the total open positions individually. Such short and long positions in excess of the said limits shall be compared with the FII's / MF's holding in stocks, cash etc as stated above.

# Position Limits For FII & MF Schemes In Stocks

- a. For stocks having applicable market-wise position limit (MWPL) of INR 5 Bln or more, the combined futures and options position limit shall be 20% of applicable MWPL or INR 3 Bln, whichever is lower and within which stock futures position cannot exceed 10% of applicable MWPL or INR 1.5 Bln, whichever is lower.
- b. For stocks having applicable market-wise position limit (MWPL) less than INR 5 Bln, the combined futures and options position limit would be 20% of applicable MWPL and futures position cannot exceed 20% of applicable MWPL or INR 0.50 Bln which ever is lower.

# Common Problems

- There is a lot of slippage while reporting blocks in this as the market is very fluid and reporting blocks, especially in nifty has very high risk of slippage.
- On any given day whatever is accepted or not accepted by the clearing member is binding on all participants of the market (broker, client and clearing member). Technically nothing can be done to rectify any errors found after the trade is accepted. A lot of times there are mismatches and the broker or client may have to write some trade on his book which was actually not his or vice versa.