FUTURES & OPTIONS

Before going deeper, let us first understand the term DERIVATIVE

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- Derivative simply means something which gets/derives its value from another source
- In Finance derivative is a contract that derives its value from an underlying asset.
- Underlying asset can be anything like stocks, commodities, currency etc.
- Derivatives are a convenient way to speculate/hedge future price moves.

What are futures?

What are Futures?

- Futures are derivative financial contracts that obligate the parties to transact an asset at a predetermined future date and price.
- Commodity futures such as crude oil, natural gas etc
- Stock index futures such as the Nifty and Banknifty Index
- Currency futures including those for the USDINR, EURUSD etc
- Precious metal futures for gold and silver

Why do we need Futures?

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- **Leverage -** Leverage in finance basically means owning something with the use of debt to boost returns.
- **Short Selling –** Futures as a tool helps in Short-Selling. Because we cannot sell shares we don’t own, futures helps us solve that problem.
- **Speculation -** Speculators are people who seek only profit to participate in the futures markets.

Important terms in Futures trading...

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- **Lot Size -** Is the number of shares in 1 futures contract. In case of SBI Futures Contract it is 750, for different stocks it is different.

- **Contract Value -** Is the value of 1 futures contract, it is calculated as follows: Lot Size*Current Market Price of the contract. Contract Value of 1 lot of SBI Futures = [750* 808.30] = Rs. 6,06,225.00

Important terms in Futures trading...

- **Margin -** The amount of money that need to be paid in order to transact in futures. Margin helps the broker adjust the Mark to market profit and loss. Margin is a certain % of the contract value, this is where the concept of leverage comes in. In case of SBI it is around 18% of the Contract Value i.e Rs.6,06,225.00 x 18% = 1,10,862.00.

- **Expiry -** As Futures contracts are time bound they trade only for a certain period. For example: Nifty October Futures will expire on the last Thursday of October, the date happens to be 31/10/2024.

Some features of a Futures Contract:

Some features of a Futures Contract:

- Copies the Underlying
- Tradeable
- Standardized Contract
- Time Bound
- Cash Settled (in most cases)

Charts of Stock vs Futures

Let’s look at a live example.....

OPEN INTEREST

(OI) IN FUTURES

OPEN INTEREST (OI) IN FUTURES

- **Open Interest (OI)** is a number that tells you how many futures contracts are currently outstanding (open) in the market.
- In other words, **Contracts** that have been traded but not yet closed.
- **Open Interest** provides a more accurate picture of the Futures trading activity, and whether money flows into the futures market are increasing or decreasing.

How to analyze Open Interest?

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Sl.no	Price	OI	Perception	Future Price Expectation
1	Increase	Increase	Long Buildup	Likely to move higher
2	Decrease	Increase	Short Buildup	Likely to move lower
3	Decrease	Decrease	Long unwinding	Likely to move lower
4	Increase	Decrease	Short Covering	Likely to move higher

Snapshot of Futures

from the NSE website

PAYOFF GRAPH FOR FUTURES

What are OPTIONS?

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Options are financial derivatives that give buyers the “right”, but not the “obligation”, to buy or sell an underlying asset at an agreed-upon price and date.

There are Two Types of Options:

- Call Option or CE
- Put Option or PE

We can buy and sell both.

Call Option[CE]

Call Option[CE]

Gives the option buyer the right(but not the obligation) to Buy the shares of a stock at an agreed upon price, on or before a particular date.

Lets take a real world example between a buyer and seller of a particular plot of land.

Put Option[PE]

Put Option[PE]

Gives the option buyer the right(but not the obligation) to SELL the shares of a stock at an agreed upon price, on or before a particular date.

Lets take a real world example between a Car Owner and a Car Insurance Company.

OPTIONS JARGON...

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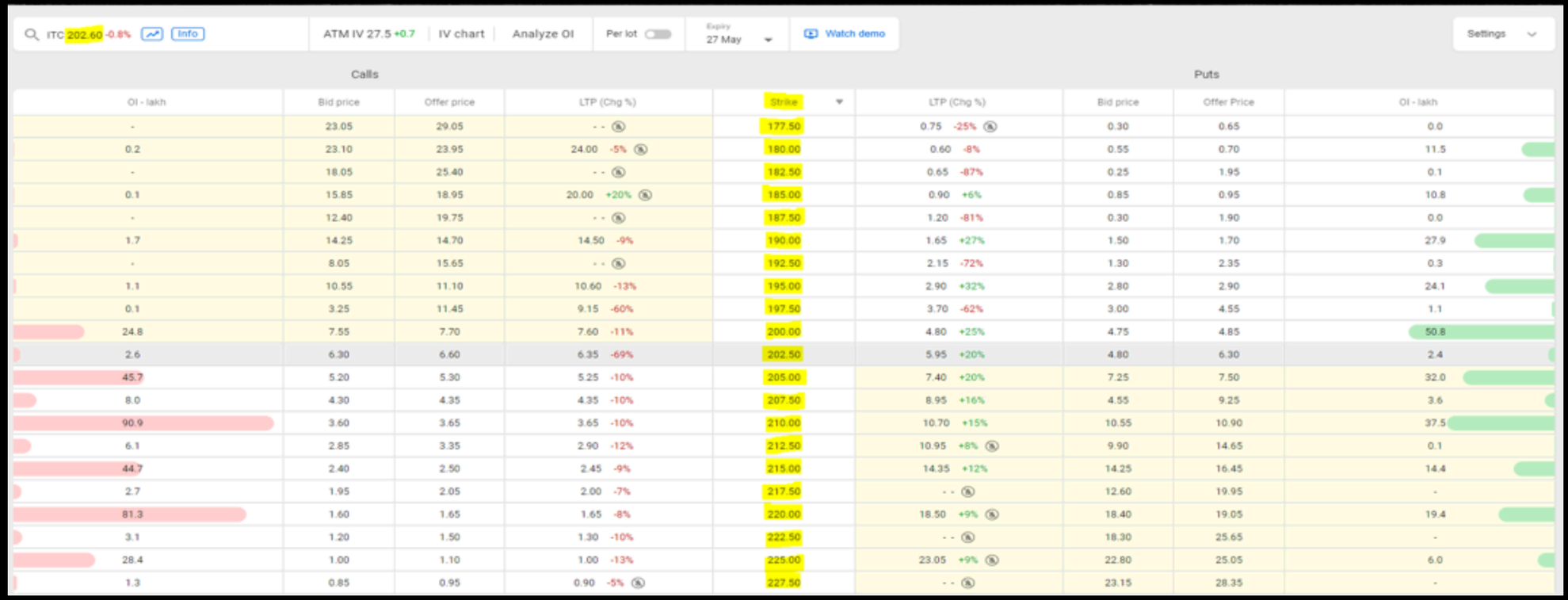
Strike Price - A strike price is the set price at which a derivative contract can be bought or sold. Take a look at the image below:



ITC 202.60 -0.8% | Info | ATM IV 27.5 +0.7 | IV chart | Analyze OI | Per lot | Expiry 27 May | Watch demo | Settings

Calls					Puts			
OI - lakh	Bid price	Offer price	LTP (Chg %)	Strike	LTP (Chg %)	Bid price	Offer Price	OI - lakh
-	23.05	29.05	- -	177.50	0.75 -25%	0.30	0.65	0.0
0.2	23.10	23.95	24.00 -5%	180.00	0.60 -8%	0.55	0.70	11.5
-	18.05	25.40	- -	182.50	0.65 -87%	0.25	1.95	0.1
0.1	15.85	18.95	20.00 +20%	185.00	0.90 +6%	0.85	0.95	10.8
-	12.40	19.75	- -	187.50	1.20 -81%	0.30	1.90	0.0
1.7	14.25	14.70	14.50 -9%	190.00	1.65 +27%	1.50	1.70	27.9
-	8.05	15.65	- -	192.50	2.15 -72%	1.30	2.35	0.3
1.1	10.55	11.10	10.60 -13%	195.00	2.90 +32%	2.80	2.90	24.1
0.1	3.25	11.45	9.15 -60%	197.50	3.70 -62%	3.00	4.55	1.1
24.8	7.55	7.70	7.60 -11%	200.00	4.80 +25%	4.75	4.85	50.8
2.6	6.30	6.60	6.35 -69%	202.50	5.95 +20%	4.80	6.30	2.4
45.7	5.20	5.30	5.25 -10%	205.00	7.40 +20%	7.25	7.50	32.0
8.0	4.30	4.35	4.35 -10%	207.50	8.95 +16%	4.55	9.25	3.6
90.9	3.60	3.65	3.65 -10%	210.00	10.70 +15%	10.55	10.90	37.5
6.1	2.85	3.35	2.90 -12%	212.50	10.95 +8%	9.90	14.65	0.1
44.7	2.40	2.50	2.45 -9%	215.00	14.35 +12%	14.25	16.45	14.4
2.7	1.95	2.05	2.00 -7%	217.50	- -	12.60	19.95	-
81.3	1.60	1.65	1.65 -8%	220.00	18.50 +9%	18.40	19.05	19.4
3.1	1.20	1.50	1.30 -10%	222.50	- -	18.30	25.65	-
28.4	1.00	1.10	1.00 -13%	225.00	23.05 +9%	22.80	25.05	6.0
1.3	0.85	0.95	0.90 -5%	227.50	- -	23.15	28.35	-

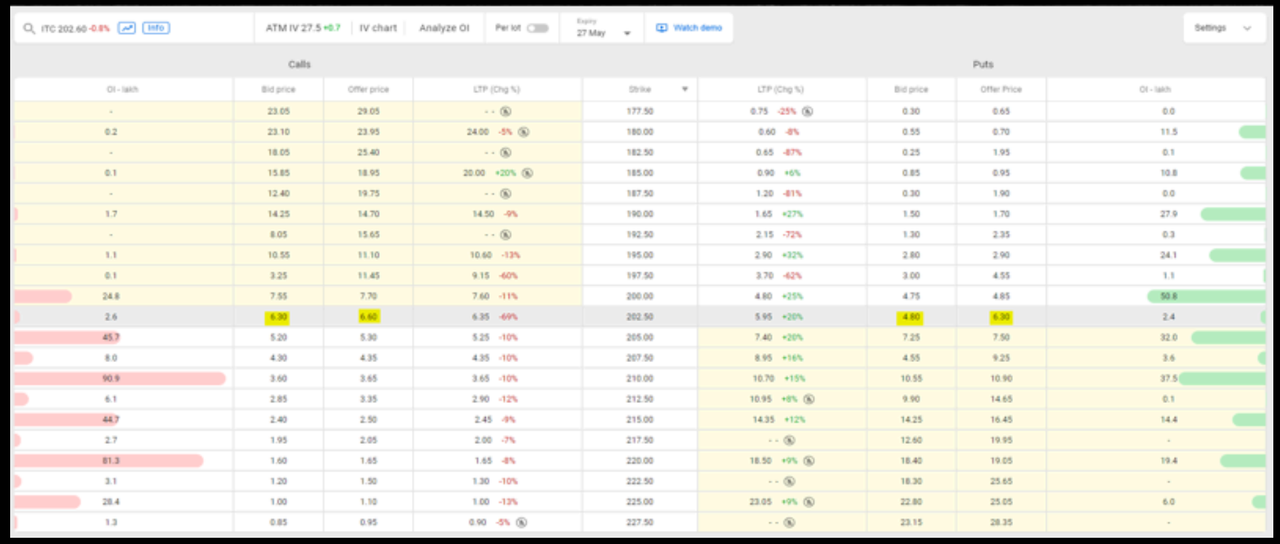
OPTIONS JARGON CONTINUED...

- **Underlying Price -** As we know, a derivative contract derives its value from an underlying asset. The underlying price is the price at which the underlying asset trades in the spot market.

- **OPTION EXPIRY-** Similar to a futures contract, options contract also has expiry. In fact both equity futures and option contracts expire on the last Thursday of every month.

OPTIONS JARGON CONTINUED...

- **OPTION PREMIUM -** Premium is the money required to be paid by the option buyer to the option seller/writer. Against the payment of premium, the option buyer buys the right to exercise his desire to buy (or sell in case of put options) the asset at the strike price upon expiry. Option premiums play an extremely crucial role when it comes to trading options.



Intrinsic Value

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Intrinsic value refers to the value of an option that the buyer makes from the option who has the right for exercising that option on a particular day.

Formula for calculating intrinsic value of an option:

Call option Intrinsic Value : **Spot Value –Strike Price**

Put option Intrinsic Value : **Strike Price – Spot Price.**

Intrinsic Value is always positive and never negative.

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Call option Intrinsic Value : Spot Value –**Strike Price**
Put option Intrinsic Value : Strike Price – **Spot Price.**
Intrinsic Value is always positive and never negative.

EXAMPLE: Suppose SBI spot price is at 805. Lets take a strike of 800 CE. Intrinsic Value of the 800 ce is 805-800 = 5. So 5 is the Intrinsic value of the SBI 800 CE.

Moneyness of an Option

Moneyness of an Option

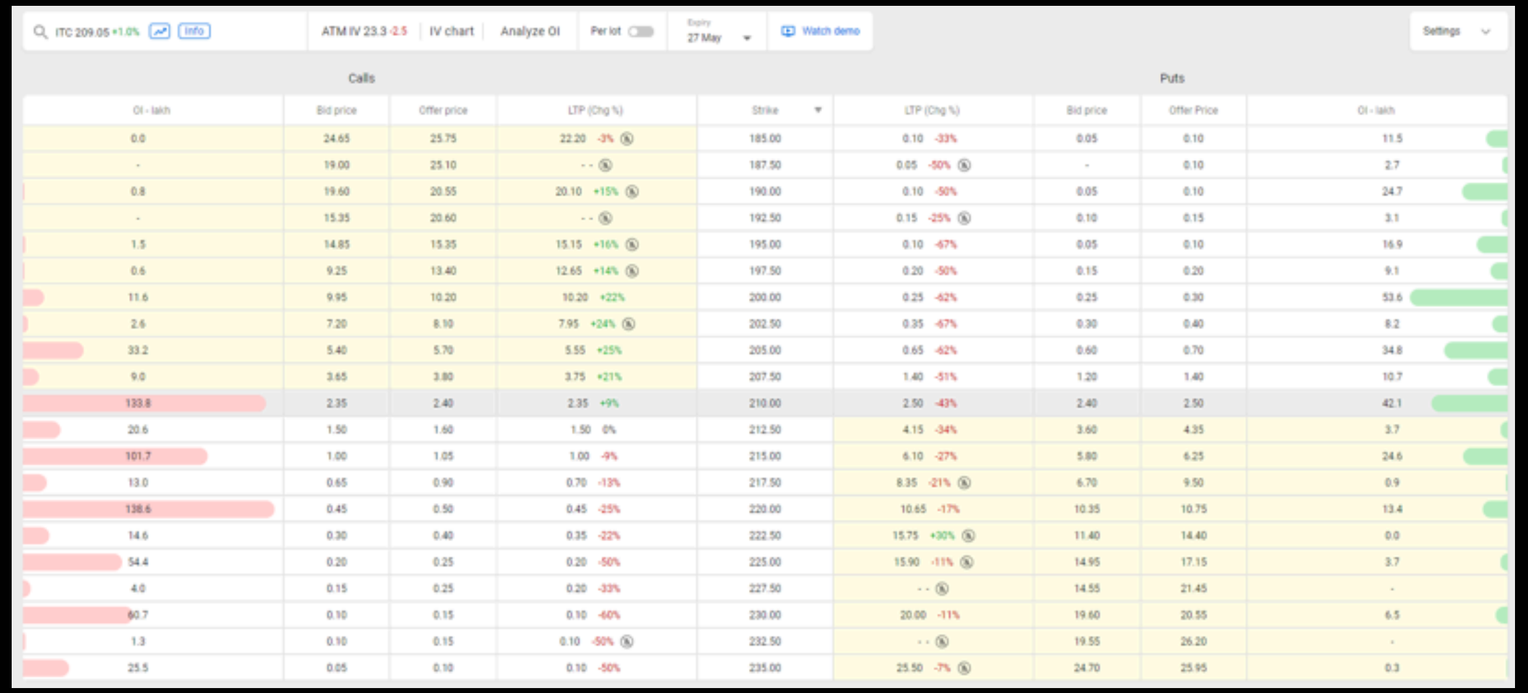
Moneyness of an Option - The moneyness of an option contract is a way of classifying options into three types-

- **In the money (ITM) -** If the option contract is ITM, then it has intrinsic Value. A call option is ITM if the stock price is higher than the strike price. On the other hand, a put option is ITM, if the stock price is lesser than the strike price.
- **At the money (ATM) -** If the options contract strike price is the same as the stock price then it is said to be ATM
- **Out of the money (OTM) -** If an option contract is OTM, then it does not have intrinsic value. A call option is OTM if the stock price is lower than the strike price. On the other hand, a put option is OTM, if the stock price is more than the strike price.

OPTION CHAIN

OPTION CHAIN

An options chain is a listing of all available options contracts for a given security. It shows all listed puts, calls, their expiration, strike prices, and volume and pricing information for a single underlying asset within a given maturity period.



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Calls					Puts			
OI - lakh	Bid price	Offer price	LTP (Chg %)	Strike	LTP (Chg %)	Bid price	Offer Price	OI - lakh
0.0	24.65	25.75	22.20 -3%	185.00	0.10 -33%	0.05	0.10	11.5
-	19.00	25.10	- -	187.50	0.05 -50%	-	0.10	2.7
0.8	19.60	20.55	20.10 +15%	190.00	0.10 -50%	0.05	0.10	24.7
-	15.35	20.60	- -	192.50	0.15 -25%	0.10	0.15	3.1
1.5	14.85	15.35	15.15 +16%	195.00	0.10 -67%	0.05	0.10	16.9
0.6	9.25	13.40	12.65 +14%	197.50	0.20 -50%	0.15	0.20	9.1
11.6	9.95	10.20	10.20 +22%	200.00	0.25 -62%	0.25	0.30	53.6
2.6	7.20	8.10	7.95 +24%	202.50	0.35 -67%	0.30	0.40	8.2
33.2	5.40	5.70	5.55 +25%	205.00	0.65 -62%	0.60	0.70	34.8
9.0	3.65	3.80	3.75 +21%	207.50	1.40 -51%	1.20	1.40	10.7
133.8	2.35	2.40	2.35 +9%	210.00	2.50 -43%	2.40	2.50	42.1
20.6	1.50	1.60	1.50 0%	212.50	4.15 -34%	3.60	4.35	3.7
101.7	1.00	1.05	1.00 -9%	215.00	6.10 -27%	5.80	6.25	24.6
13.0	0.65	0.90	0.70 -13%	217.50	8.35 -21%	6.70	9.50	0.9
138.6	0.45	0.50	0.45 -25%	220.00	10.65 -17%	10.35	10.75	13.4
14.6	0.30	0.40	0.35 -22%	222.50	15.75 +30%	11.40	14.40	0.0
54.4	0.20	0.25	0.20 -50%	225.00	15.90 -11%	14.95	17.15	3.7
4.0	0.15	0.25	0.20 -33%	227.50	- -	14.55	21.45	-
60.7	0.10	0.15	0.10 -60%	230.00	20.00 -11%	19.60	20.55	6.5
1.3	0.10	0.15	0.10 -50%	232.50	- -	19.55	26.20	-
25.5	0.05	0.10	0.10 -50%	235.00	25.50 -7%	24.70	25.95	0.3

OPTION PAYOFF

GRAPHS

Below is a cheat sheet for Options:

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We can BUY/SELL both Calls and Puts, depending upon that our P&L will change.

	BUY	SELL
CALL	BULLISH VIEW	BEARISH TO SIDEWAYS VIEW
PUT	BEARISH VIEW	BULLISH TO SIDEWAYS VIEW

OPTION GREEKS

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Delta - Change in option price due to 1 point change in underlying

Gamma – Rate of change in Delta due to 1 point move in underlying.

Vega – Change in option price due to changes in volatility in the underlying asset.

Theta – Rate of decline in the value of an option due to the passage of time.

Rho- Change in option price due to change in interest rate.(Not Important)