

## Twitter Thread by Nikita Poojary



**Nikita Poojary**

@niki\_poojary



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Topics covered:

- Moneyness of an Option
- Intrinsic value & Time value of an option
- Why Intrinsic value & time value matters
- Implied Volatility

Time for a ■

Curated in collaboration with  
**@AdityaTodmal**

# Derivatives

## Part III

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- Moneyness of Option contract:
- ITM option
- ATM option
- OTM option

## Moneyness of an Option contract

- ITM option:  $\text{Spot} > \text{Strike}$
- ATM option:  $\text{Spot} = \text{Strike}$
- OTM option:  $\text{Spot} < \text{Strike}$

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1

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- Intrinsic Value of an option:
- Positive payoff for the buyer

# Intrinsic Value of an option

- Represents the current value of the option, or in other words how much in the money it is
- When an option is in the money, this means that it has a positive payoff for the buyer
- A CE option of 1500 on a stock trading at 1550 would be Rs. 50 In the money
- If the buyer exercised the above option he would be able to buy the stock at 1500 and subsequently sell it at 1550 (ignoring all the transaction costs & nature of option) thereby capturing a neat profit of Rs. 50

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- Intrinsic value of ITM CE options = Spot- Strike

# Intrinsic Value of an option contd.

- So the intrinsic value represents what the buyer would receive if he decided to exercise the option right now
- So the intrinsic value represents what the buyer would receive if he decided to exercise the option right now
- For ITM options, intrinsic value is calculated as the difference between the Spot and the Strike price of the option

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- Intrinsic value of an:
  - i) ITM for a CE option: Positive
  - ii) ATM for a CE option: Zero
- Intrinsic value is never Negative

# Intrinsic Value of an option contd.

- For OTM or ATM options, the intrinsic value is always zero
- This is because a buyer would never exercise an option that would result in a loss
- Instead, he would let the option expire worthless
- Since he receives no payoff, the intrinsic value of the option is nothing to him, in other words 0
- To conclude the Intrinsic value of an option is always positive or 0
- Positive for ITM options and 0 for OTM or ATM options

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4

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- Option Chain data representing ATM, OTM & ITM

## Option chain data

Option Chain (Equity Derivatives)

Underlying : **BANKNIFTY 37,689.40** As on 28-Jan-2022 15:30:00 IST

|   | OI     | CHNG<br>IN OI | VOLUME   | IV    | LTP      | CHNG   | BID<br>QTY | BID<br>PRICE | ASK<br>PRICE | ASK<br>QTY | STRIKE<br>PRICE | BID<br>QTY | BID<br>PRICE | ASK<br>PRICE | ASK<br>QTY | CHNG    | LTP    | IV    | VOLUME   | CHNG<br>IN OI | OI     |   |
|---|--------|---------------|----------|-------|----------|--------|------------|--------------|--------------|------------|-----------------|------------|--------------|--------------|------------|---------|--------|-------|----------|---------------|--------|---|
| 🟢 | 301    | -42           | 90       | 64.68 | 1,698.85 | 186.45 | 125        | 1,670.85     | 1,684.80     | 100        | 36,900.00       | 50         | 200.45       | 201.15       | 100        | -126.50 | 201.00 | 27.39 | 35,747   | 2,820         | 4,218  | 🟢 |
| 🟢 | 10,586 | -1,156        | 6,488    | 61.25 | 1,588.90 | 181.55 | 50         | 1,590.30     | 1,596.40     | 100        | 37,000.00       | 75         | 219.30       | 219.80       | 500        | -124.50 | 220.40 | 26.81 | 3,14,363 | 17,775        | 41,416 | 🟢 |
| 🟢 | 700    | -234          | 834      | 60.70 | 1,511.65 | 176.90 | 50         | 1,513.20     | 1,520.25     | 25         | 37,100.00       | 25         | 240.85       | 241.60       | 325        | -128.90 | 242.15 | 26.37 | 58,264   | 2,588         | 4,485  | 🟢 |
| 🟢 | 1,186  | -440          | 1,754    | 59.54 | 1,430.90 | 220.65 | 150        | 1,436.70     | 1,443.45     | 25         | 37,200.00       | 400        | 263.60       | 264.45       | 300        | -141.85 | 264.00 | 25.76 | 83,105   | 4,653         | 7,099  | 🟢 |
| 🟢 | 1,150  | -280          | 1,907    | 58.37 | 1,360.00 | 177.00 | 50         | 1,362.25     | 1,367.10     | 125        | 37,300.00       | 75         | 288.00       | 288.75       | 325        | -153.70 | 288.90 | 25.20 | 95,913   | 3,414         | 6,099  | 🟢 |
| 🟢 | 1,477  | -438          | 4,297    | 57.70 | 1,286.70 | 144.80 | 25         | 1,285.55     | 1,293.55     | 50         | 37,400.00       | 75         | 314.05       | 314.95       | 25         | -146.05 | 314.95 | 24.59 | 93,015   | 5,063         | 6,952  | 🟢 |
| 🟢 | 21,015 | 3,479         | 31,530   | 56.06 | 1,212.15 | 138.70 | 25         | 1,214.45     | 1,218.00     | 25         | 37,500.00       | 50         | 341.45       | 342.35       | 225        | -162.05 | 342.30 | 23.93 | 3,17,221 | 9,214         | 30,316 | 🟢 |
| 🟢 | 1,546  | -338          | 4,725    | 55.77 | 1,145.00 | 149.85 | 75         | 1,143.80     | 1,151.05     | 50         | 37,600.00       | 25         | 371.40       | 372.25       | 150        | -179.40 | 371.30 | 23.16 | 1,21,895 | 5,476         | 7,348  | 🟢 |
| 🟢 | 2,229  | -450          | 8,631    | 54.30 | 1,071.80 | 129.10 | 25         | 1,077.70     | 1,082.65     | 150        | 37,700.00       | 50         | 403.35       | 404.40       | 300        | -204.90 | 404.00 | 22.44 | 91,541   | 3,853         | 6,395  | 🟢 |
| 🟢 | 2,915  | 97            | 17,101   | 53.51 | 1,007.80 | 126.20 | 50         | 1,012.75     | 1,016.05     | 25         | 37,800.00       | 50         | 438.50       | 439.60       | 25         | -194.70 | 439.40 | 21.63 | 1,51,685 | 5,820         | 8,844  | 🟢 |
| 🟢 | 2,733  | 652           | 20,626   | 52.59 | 947.25   | 113.60 | 25         | 951.05       | 953.75       | 125        | 37,900.00       | 25         | 475.70       | 476.80       | 50         | -204.70 | 475.30 | 20.81 | 1,27,149 | 8,142         | 10,318 | 🟢 |
| 🟢 | 47,190 | 15,792        | 2,74,153 | 51.87 | 889.85   | 108.30 | 50         | 890.15       | 892.00       | 50         | 38,000.00       | 50         | 516.55       | 517.40       | 25         | -184.10 | 516.35 | 19.92 | 4,59,358 | 36,117        | 50,886 | 🟢 |
| 🟢 | 8,767  | 2,875         | 1,13,179 | 51.16 | 835.00   | 96.90  | 75         | 833.10       | 835.00       | 300        | 38,100.00       | 25         | 556.75       | 557.55       | 25         | -169.70 | 557.45 | 18.67 | 1,64,435 | 10,121        | 12,229 | 🟢 |
| 🟢 | 20,865 | 14,943        | 2,99,722 | 50.46 | 781.00   | 95.65  | 25         | 779.70       | 781.00       | 25         | 38,200.00       | 25         | 601.15       | 602.00       | 25         | -180.45 | 601.20 | 17.37 | 2,76,669 | 16,699        | 19,135 | 🟢 |
| 🟢 | 31,346 | 25,015        | 3,16,340 | 50.06 | 728.55   | 89.75  | 50         | 728.05       | 728.55       | 1,200      | 38,300.00       | 50         | 649.90       | 650.50       | 25         | -182.15 | 650.20 | 15.83 | 2,15,518 | 16,547        | 16,946 | 🟢 |
| 🟢 | 16,671 | 14,506        | 2,09,318 | 49.35 | 679.00   | 87.55  | 50         | 677.50       | 678.95       | 50         | 38,400.00       | 75         | 699.50       | 700.70       | 100        | -213.50 | 701.15 | 13.57 | 1,09,282 | 7,459         | 7,764  | 🟢 |
| 🟢 | 43,065 | 28,993        | 4,68,512 | 48.86 | 630.00   | 87.85  | 25         | 629.20       | 629.75       | 25         | 38,500.00       | 475        | 750.00       | 751.00       | 25         | -210.45 | 750.00 | 8.89  | 1,34,352 | 9,782         | 12,129 | 🟢 |
| 🟢 | 13,187 | 11,015        | 1,49,640 | 48.37 | 585.20   | 82.35  | 50         | 585.00       | 585.95       | 25         | 38,600.00       | 25         | 805.50       | 807.70       | 50         | -218.05 | 807.70 | -     | 12,406   | 1,033         | 1,320  | 🟢 |

All grey shaded strikes are ITM options

Green highlighted one at ATM options

White colored strikes are OTM options

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5

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- Example of Intrinsic value of a CE option



# Intrinsic Value of a CE option

- Spot value: 37700
- Option strike: 37200 CE
- Option premium: 1430
- Intrinsic value of an option is the amount of money you would make if you were to exercise the option contract
- Intrinsic Value of the CE option  $37700 - 37200 = \text{Rs. } 500$
- Call option Intrinsic value = Spot Price – Strike Price

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- Example of Intrinsic value of a PE option

# Intrinsic Value of a PE option

- Spot value: 37700
- Option strike: 38400 PE
- Option premium: 701
- Intrinsic value of an option is the amount of money you would make if you were to exercise the option contract
- Intrinsic Value of the PE option  $38400 - 37700 = \text{Rs. } 700$
- Call option Intrinsic value = Strike Price – Spot Price

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7

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- Lets not mess up our heads trying to understand greeks
- Lets understand things that are useful for trading



**In the last session we learned about Greeks, however lets understand in simple terms which are useful for trading**

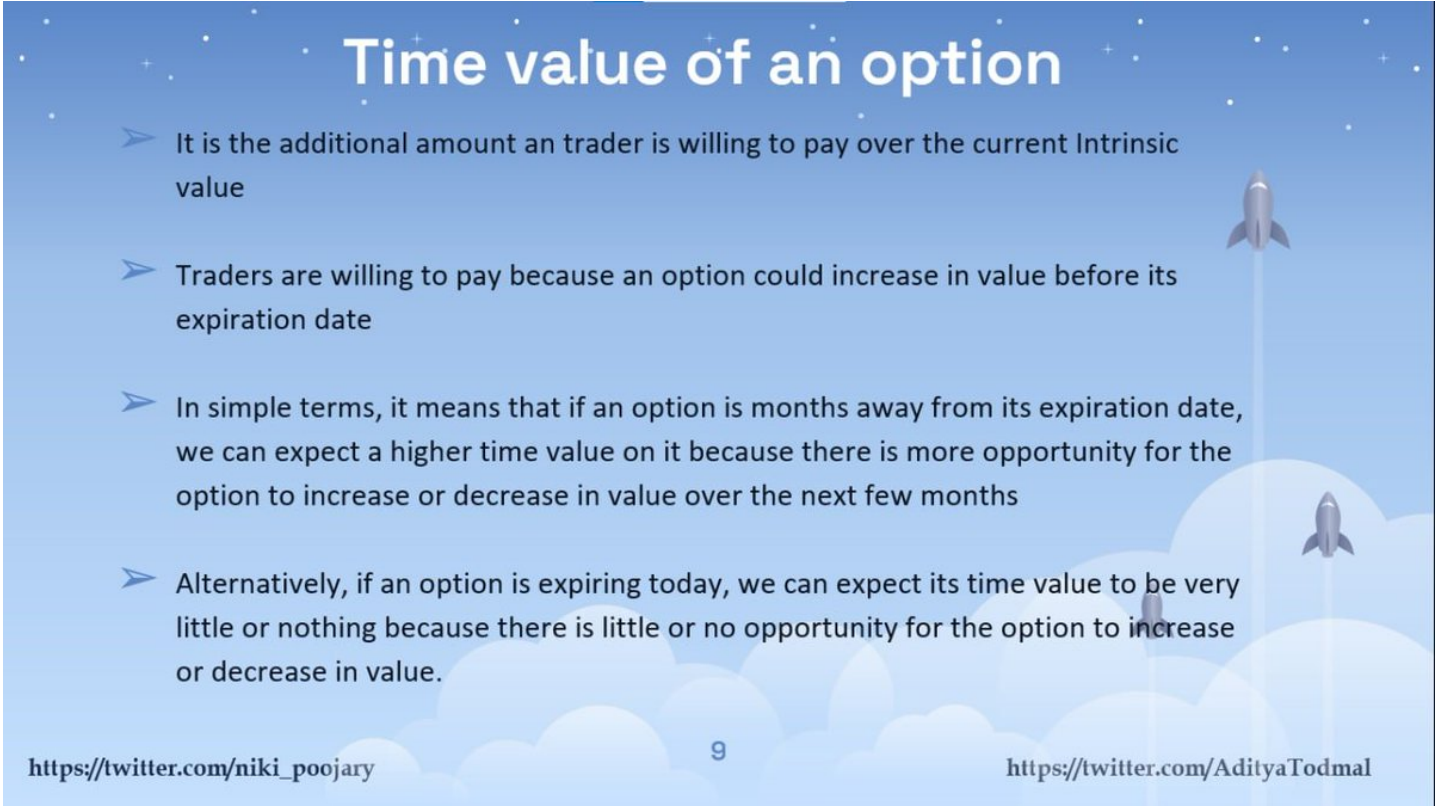
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8

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- Time value is the additional amount over & above Intrinsic value
- Options having higher time to expiration has higher Time value

## Time value of an option

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- It is the additional amount an trader is willing to pay over the current Intrinsic value
  - Traders are willing to pay because an option could increase in value before its expiration date
  - In simple terms, it means that if an option is months away from its expiration date, we can expect a higher time value on it because there is more opportunity for the option to increase or decrease in value over the next few months
  - Alternatively, if an option is expiring today, we can expect its time value to be very little or nothing because there is little or no opportunity for the option to increase or decrease in value.

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9

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- How Intrinsic value & Time value helps traders to understand the RR of options

# Why Intrinsic Value & Time Value Matters?

- The intrinsic value of the option represents what it would be worth if the buyer exercised the option at the current point in time
- The time value represents the possibility that the option will increase in value before its expiration date
- These two concepts can help traders understand the risk and reward of an option.

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10

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- Why OTMs & ATMs have lesser value than ITMs

# Why Intrinsic Value & Time Value Matters? Contd.

- When an investor purchases an OTM or ATM option, whose premium is equal to its time value, there is a greater risk that the option will be worthless at its expiration date
- However, the time to expiration presents an opportunity or a chance that it will become ITM
- Due to the greater risk of the option having no value, OTM and ATM options have lower premiums than ITM options

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11

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- Logic behind hero ya zero trade



## Why Intrinsic Value & Time Value Matters? Contd.

- In a nutshell, one is paying less money for OTM or ATM options compared to the one who purchases the ITM option, and taking on a greater risk
- However, this greater risk also comes with greater reward as OTM and ATM have larger percent gains in profit than ITM options if they turn into ITM
- Hero ya Zero trade, option buying on expiry days is the perfect example for this

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12

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- $\text{ITM option premium} = \text{Intrinsic value} + \text{Time value}$

## Why Intrinsic Value & Time Value Matters? Contd.

- When a trader purchases an ITM option, there is less risk that the option will be worthless at its expiration date as it is already valuable
- The same is reflected in the ITM option's premium, which includes the intrinsic value in addition to the time value
- Because the risk is less, the option typically has a higher premium
- You are paying more to decrease the risk that the option is worthless, but you are also accepting a potentially lower percent gain in profits.

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13

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- Implied volatility:
- Volatility of a stock over the life of an option
- IV impacts to both CE & PE in a similar fashion



# Implied Volatility (IV)

- Implied volatility represents the expected volatility of a stock over the life of the option
- Just like stocks are overvalued or undervalued or fairly valued so are options
- The higher the IV of a stock the more expensive will be its options i.e. both CE & PE & vice versa
- The lower the IV of a stock the cheaper will be its options i.e. both CE & PE

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- When does IV rise?
- Stock is more volatile
- Stock is near to its earnings release
- Major events viz. elections, budget etc.

# What makes IV rise?

- The more a stock moves the more likely its OTM or ATM will turn into ITM
- Hence the more a stock moves the more attractive its OTM options are
- Stock options of IBULHSGFIN, INDUSINDBK have more IV than stock options of INFY, ASIANPAINT etc as the erstwhile stock moves more
- Apart from stock specific moves, IV are also impacted during events viz. earnings

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15

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- This was a part III ■ on derivatives

- You can check out the 2nd part here ■

<https://t.co/7ig3QsfWkc>

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\u2022 How to trade in options & exit strategy- buyers

\u2022 Imp of theta decay

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Time for a Thread\U0001f9f5

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— Nikita Poojary (@niki\_poojary) [January 15, 2022](#)

If you have missed to check the Part I on Derivatives

- You can check out the 1st part here - Basics of Derivatives■

<https://t.co/j3tYdNITDZ>

- If you ♥■ this, why not share?
- ■ the first tweet and help others find this ■
- Happy learning ■ to everyone!

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\u2022 What is a derivative

\u2022 Various derivative products

\u2022 Participants in derivatives market

\u2022 Uses of derivative instruments

\u2022 Beta & hedge ratio

\u2022 Option Greeks

Time for a Thread \U0001f9f5

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— Nikita Poojary (@niki\_poojary) [January 8, 2022](#)

- I curate threads on trading & finance ■■
- If you found this interesting, check out various threads on our profile ■■

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Have & happy & a safe■weekend!