

Options Basics: Index and Equity

Definition of Options

Options are financial derivatives that provide the holder with the right, but not the obligation, to buy or sell an underlying asset at a predetermined price (known as the strike price) within a specified time. The underlying asset could be an index, stock, commodity, or other financial instruments.

Key Terms

- **Call Option:** Gives the holder the right to buy the underlying asset at the strike price.
- **Put Option:** Gives the holder the right to sell the underlying asset at the strike price.
- **Strike Price:** The fixed price at which the holder can buy (call) or sell (put) the asset.
- **Premium:** The price paid by the buyer to the seller (writer) for the option.
- **Expiration Date:** The date by which the option must be exercised.
- **In-the-Money (ITM):** When exercising the option would lead to a profit.
 - Call Option: The spot price (current price of the underlying) is above the strike price.
 - Put Option: The spot price is below the strike price.
- **Out-of-the-Money (OTM):** When exercising the option would result in a loss.
 - Call Option: The spot price is below the strike price.
 - Put Option: The spot price is above the strike price.
- **At-the-Money (ATM):** When the strike price is equal to the current market price of the underlying asset.
 - The spot price is equal to or very close to the strike price.

Some Types of Options

1. Index Options

Index options are based on a stock market index such as the S&P 500, Nifty 50, or Nasdaq-100.

Features

- **Underlying Asset:** A stock index, which represents the performance of a group of stocks.
- **Settlement:** Index options are typically settled in cash since indices cannot be physically delivered.
- **Use Cases:**
 - Hedging portfolio risk against market movements.
 - Speculating on the overall market direction.

Example

An investor believes the S&P 500 index will rise from its current level of 4,000. They buy a call option with a strike price of 4,100 expiring in one month. If the index closes at 4,200 on expiration, the option is “In-the-Money,” and the investor earns a profit.

2. Equity Options

Equity options are based on individual stocks such as Apple, Tesla, or Reliance Industries.

Features

- **Underlying Asset:** Shares of a specific company.
- **Settlement:** Typically involves the delivery of the actual shares.
- **Use Cases:**
 - Hedging against stock price movements.
 - Leveraging positions to maximize returns with limited capital.
 - Speculating on specific stock movements.

Example

An investor owns 100 shares of Tesla and wants to protect against a potential price decline. They buy a put option with a strike price of \$200 expiring in one month. If Tesla’s stock price falls to \$180, the investor can sell their shares at \$200, minimizing their losses.

Practical Scenario

- The prices you see for index or any options on platforms are the premiums.
- These premiums fluctuate based on the underlying asset price and other market factors.
- Though they appear as regular prices, they are technically option premiums.
- Platforms make trading simpler by not explicitly labelling prices as "premiums" but treating them like any other asset-instrument price.

How Premiums Are Valued at Different Times

The value (premium) of an option changes throughout the day based on several factors. These are some key drivers:

1. Underlying Asset Price

- The most significant factor is the **movement of the underlying asset** (e.g., Nifty Index or a stock).
- If the underlying price increases (for a call option), the premium generally increases, and vice versa.

Example:

- Underlying (Nifty) starts at 18,500.
- Strike Price: 18,600 CE.
- If Nifty moves to 18,550, the premium may increase due to the likelihood of the strike price being reached.
- If Nifty moves down to 18,450, the premium may decrease because the strike price seems less likely.

2. Time to Expiry

- As the expiration date approaches, the **time value** of the option decreases due to **time decay**.
- This is called **theta decay**. The closer you are to expiry, the faster the premium loses value (all else being equal).

3. Implied Volatility (IV)

- Volatility represents the expected movement in the underlying asset. Higher IV increases premiums, while lower IV decreases them.

Example:

- If there's news or uncertainty, IV might spike, causing the premium to rise even if the underlying price stays constant.

4. Demand and Supply

- The premium can also fluctuate due to market activity—higher demand for the option increases the premium.

5. Demand and Supply

• **In the Money (ITM):**

- For ITM options, **intrinsic value** increases as the spot price moves further ITM.
- Hence, the premium also increases.

• **Out of the Money (OTM):**

- For OTM options, intrinsic value remains zero, and the premium consists entirely of time value.
- As expiration nears, time value decays, leading to a lower premium.

• **At the Money (ATM):**

- The premium consists mainly of time value. Closer to expiration, the premium reduces unless the underlying price moves significantly.

Market Dynamics:

- Premiums are also affected by **volatility**:
 - High volatility increases premiums because there's a greater chance of the option moving ITM.
 - Low volatility decreases premiums.
- **Bid-Ask Spread**: The premium also reflects what buyers and sellers are willing to transact at in the market.

Applications of Options

1. Hedging

Options are commonly used by investors to reduce the risk of adverse price movements in an asset.

- **Index Options**: Hedge against a downturn in the overall market.
- **Equity Options**: Protect individual stock holdings from price declines.

Example

An investor holding a portfolio closely tied to the Nifty 50 index buys put options on the index to protect against a market crash.

2. Speculation

Options allow traders to take positions on the future direction of an asset's price with limited capital.

- **Call Options**: Used when expecting a price increase.
- **Put Options**: Used when expecting a price decrease.

Example

A trader believes Apple's stock will rise from \$150 to \$170 within a month. Instead of buying 100 shares for \$15,000, they purchase call options for a premium of \$500, limiting their investment risk.

selling or writing the options are mentioned below

3. Income Generation

Options can be used to generate income through strategies such as covered calls or cash-secured puts.

- **Covered Call:** Selling call options while holding the underlying stock to earn premium income.
- **Cash-Secured Put:** Selling put options while setting aside cash to purchase the stock if exercised.

Example

An investor owns 1,000 shares of Microsoft and sells call options on them at a strike price of \$400. If the stock stays below \$400, the investor keeps the premium as profit.

4. Extreme high-risk strategies - Naked Options:

- **Naked Call:** Selling call options without owning the underlying asset. This carries unlimited risk if the stock price rises significantly, as the seller must purchase the instrument at the market price to deliver it.
- **Naked Put:** Selling put options without reserving enough cash to buy the stock if exercised. This carries significant risk if the stock price drops sharply.

Key Metrics to Evaluate Options

- **Delta:** Measures the sensitivity of an option's price to a \$1 change in the underlying asset.
- **Gamma:** Measures the rate of change of delta.
- **Theta:** Represents the time decay of an option.
- **Vega:** Indicates the sensitivity of an option's price to changes in volatility.
- **Rho:** Measures the sensitivity of an option's price to changes in interest rates. specifically, the risk-free interest rate. The risk-free rate is typically the return on a short-term government bond, such as U.S. Treasury bills.

Strategies Using Options

1. Bullish Strategies

- **Long Call:** Buying call options to profit from price increases.
- **Bull Call Spread:** Buying a call option at a lower strike price and selling one at a higher strike price.

2. Bearish Strategies

- **Long Put:** Buying put options to profit from price decreases.
- **Bear Put Spread:** Buying a put option at a higher strike price and selling one at a lower strike price.

3. Neutral Strategies

- **Straddle:** Buying both call and put options with the same strike price and expiration date to profit from significant price movement in either direction.
- **Iron Condor:** Selling out-of-the-money call and put options while buying further out-of-the-money call and put options to profit from minimal price movement.

Practical Scenarios for call option

Scenario 1: Buying a Call Option

Step 1: You Buy a Call Option

- Let's say you buy a **NIFTY 19,500 CE (Call Option)** at ₹100 (premium).
- Lot size: 50 (this means each contract represents 50 units of NIFTY).
- Total cost = ₹100 × 50 = ₹5,000 (paid upfront as the premium).

What Happens:

1. You **pay the premium** to the seller (this is your maximum loss if the position doesn't work out).
2. You hold the **right (not the obligation)** to buy NIFTY at 19,500 on or before expiry.

Step 2: Exiting the Position (Before Expiry)

If you choose to **exit before expiry**:

- The premium of the call option will likely have changed due to market factors like:
 - **Underlying price movement.**
 - **Time decay.**
 - **Implied volatility.**

Example:

1. If NIFTY moves up to 19,700 and the premium rises to ₹150, you can **sell the contract**:
 - Profit = (New premium - Old premium) × Lot size = (₹150 - ₹100) × 50 = ₹2,500.
2. If NIFTY stays stagnant or falls, the premium might drop to ₹80, and you sell at a **loss**:
 - Loss = (₹100 - ₹80) × 50 = ₹1,000.

Key Point: Before expiry, your profit or loss depends solely on the change in the premium value.

Step 3: Holding Until Expiry

If you **hold the position until expiry**, two outcomes are possible:

1. **In the Money (ITM):**
 - If NIFTY closes above 19,500 (say 19,700):
 - The call option is ITM.
 - Your profit = (Spot Price - Strike Price - Premium Paid) × Lot size = $(19,700 - 19,500 - 100) \times 50 = ₹5,000$.
2. **Out of the Money (OTM):**
 - If NIFTY closes at or below 19,500:
 - The call option expires worthless.
 - Your loss = ₹5,000 (the premium paid).

Scenario 2: Selling a Call Option (Naked Call Selling)

Step 1: You Sell a Call Option

- Let's say you **sell NIFTY 19,500 CE** at ₹100 (premium).
- Lot size: 50.
- You **receive ₹5,000** as premium income.

What Happens:

1. You are now the **writer of the contract**, obligated to sell NIFTY at 19,500 if the buyer exercises their right.
2. You need to maintain a **margin** in your account to cover potential losses (as naked selling involves unlimited risk).

Step 2: Exiting the Position (Before Expiry)

If you choose to **exit before expiry**, you need to **buy back the same call option**:

- If the premium has risen (e.g., ₹150), you will incur a loss:
 - Loss = (New premium - Old premium) × Lot size = $(₹150 - ₹100) \times 50 = ₹2,500$.
- If the premium has fallen (e.g., ₹50), you earn a profit:
 - Profit = (Old premium - New premium) × Lot size = $(₹100 - ₹50) \times 50 = ₹2,500$.

Step 3: Holding Until Expiry

If you **hold the position until expiry**, two outcomes are possible:

1. **Out of the Money (OTM):**

- If NIFTY closes at or below 19,500:
 - The option expires worthless.
 - You **keep the entire premium** as profit = ₹5,000.

2. **In the Money (ITM):**

- If NIFTY closes above 19,500 (say 19,700):
 - You are obligated to sell NIFTY at 19,500.
 - Your **loss** = (Spot Price - Strike Price - Premium Received) × Lot size
= (19,700 - 19,500 - 100) × 50 = ₹5,000.

Conclusion

Options provide flexibility and a range of applications for investors, from hedging risk to speculative trading and income generation. While index options are ideal for managing overall market exposure, equity options are more suited for targeting specific stock movements. A clear understanding of options' definitions, types, and strategies is essential to use them effectively in various market conditions.