OPTIONS IN STOCK MARKET

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What is an option?

An option is a contract giving the buyer the right, but not the obligation, to buy or sell an underlying asset (a stock or index) at a specific price on or before a certain date.

An option is a contract, which gives the buyer (holder) the right, but not the obligation, to buy or sell specified quantity of the underlying assets, at a specific (strike) price on or before a specified time (expiration date).
The underlying may be commodities like wheat/ rice/ cotton/ gold/ oil or financial instruments like equity stocks/ stock index/ bonds etc.

An option is a derivative. That is, its value is derived from something else. In the case of a stock option, its value is based on the underlying stock (equity). In the case of an index option, its value is based on the underlying index (equity).

An option is a security, just like a stock or bond, and constitutes a binding contract with strictly defined terms and properties.

In their simplest form, stock options are a contract between two parties that expires at an agreed-upon time in the future. The contract purchaser is buying the right, but not the obligation, to buy (a "call" option) or sell (a "put" option) an asset (the "underlying") at a specific price, on or before the agreed-upon date. The contract seller is accepting the obligation to take the other side of the transaction.

Options vs. Stocks

Similarities:
· Listed Options are securities, just like stocks.
· Options trade like stocks, with buyers making bids and sellers making offers.
· Options are actively traded in a listed market, just like stocks. They can be bought and sold just like any other security.

Differences:
· Options are derivatives, unlike stocks (i.e, options derive their value from something else, the underlying security).
· Options have expiration dates, while stocks do not.
· There is not a fixed number of options, as there are with stock shares available.

· Stockowners have a share of the company, with voting and dividend rights. Options convey no such rights.

History

The earliest known options trade dates from 7th century BCE. Thales of Miletus speculated that the year's olive harvest would be especially bountiful, and put a deposit on every olive press in his region of Greece. The harvest was bountiful, demand for olive presses skyrocketed, and Thales sold his rights, or options, to the presses at substantial profit. The modern history of stock options trading begins with the 1973 establishment of the Chicago Board Options Exchange (CBOE) and the development of the Black-Scholes option pricing model.
Stock options are defined by several key characteristics. The expiration date specifies when the option contract becomes null and void. The underlying is the asset upon which the stock option is based. The strike price, or exercise price, is the price at which the underlying asset will be bought or sold should the option holder decide to exercise their right to buy or sell. European-style stock options are only exercisable on the expiration date; American-style stock options are exercisable at any time before the expiration date.
An ATM, or at-the-money option, is one where the strike price is roughly the same as the current underlying price. An OTM, or out-of-the-money option, is one where the underlying price is far enough away from the strike price that there is no incentive for the holder to exercise the contract. Conversely, an ITM, or in-the-money option, is one where the holder can exercise the option profitably.
The simplest stock options trading strategy is to buy an OTM call (or put) option if the expectation is for a dramatic increase (or decrease) in the price of the underlying. Spreads involve buying one option and selling another; they are often used to lower the initial cost of the position at the expense of lower maximum potential profit. Examples of spreads are verticals, backspreads, bull and bear spreads, ratio spreads, butterflies, and condors.
Stock options allow speculators to make bets on market movement without having to pick an up or down direction. For example, buying both an ATM put and an ATM call would give the holder exposure to a dramatic move in either direction. Because of this, stock options traders are often said to be trading volatility rather than price.

Types of options

There are two types of options - call and put. A call gives the buyer the right, but not the obligation, to buy the underlying instrument. A put gives the buyer the right, but not the obligation, to sell the underlying instrument.
Selling a call means that you have sold the right, but not the obligation, for someone to buy something from you. Selling a put means that you have sold the right, but not the obligation, for someone to sell something to you.

Call Options and Put Options

Some people remain puzzled by options. The truth is that most people have been using options for some time, because option-ality is built into everything from mortgages to auto insurance. In the listed options world, however, their existence is much more clear.

To begin, there are only two kinds of options: Call Options and Put Options.

Call Options

A Call option is an option to buy a stock at a specific price on or before a certain date. In this

way, Call options are like security deposits.
Option buyer or option holder Buys the right to buy the underlying asset at the specified price
Has the obligation to sell the underlying asset (to the option holder) at the specified price.
If, for example, you wanted to rent a certain property, and left a security deposit for it, the money would be used to insure that you could, in fact, rent that property at the price agreed upon when you returned.
If you never returned, you would give up your security deposit, but you would have no other liability. Call options usually increase in value as the value of the underlying instrument increases.

A call option gives the holder (buyer/ one who is long call), the right to buy specified quantity of the underlying asset at the strike price on or before expiration date in case of American option. The seller (one who is short call) however, has the obligation to sell the underlying asset if the buyer of the call option decides to exercise his option to buy.

Example: An investor buys One European call option on Stock "A" at the strike price of Rs. 3500 at a premium of Rs. 100. If the market price of Stock "A" on the day of expiry is more than Rs. 3500, the option will be exercised. The investor will earn profits once the share price crosses Rs. 3600 (Strike Price + Premium i.e. 3500+100). Suppose stock price is Rs. 3800, the option will be exercised and the investor will buy 1 share of Stock "A" from the seller of the option at Rs 3500 and sell it in the market at Rs 3800 making a profit of Rs. 200 {(Spot price - Strike price) - Premium}.

In another scenario, if at the time of expiry stock price falls below Rs. 3500 say suppose it touches Rs. 3000, the buyer of the call option will choose not to exercise his option. In this case the investor loses the premium (Rs 100), paid which shall be the profit earned by the seller of the call option.

When you buy a Call option, the price you pay for it, called the option premium, secures your right to buy that certain stock at a specified price, called the strike price.

If you decide not to use the option to buy the stock, and you are not obligated to, your only cost is the option premium.

Put Options

Put options are options to sell a stock at a specific price on or before a certain date. In this way, Put options are like insurance policies.

If you buy a new car, and then buy auto insurance on the car, you pay a premium and are, hence, protected if the asset is damaged in an accident. If this happens, you can use your policy to regain the insured value of the car. In this way, the put option gains in value as the value of the underlying instrument decreases.

If all goes well and the insurance is not needed, the insurance company keeps your premium in return for taking on the risk.

With a Put option, you can "insure" a stock by fixing a selling price.

If something happens which causes the stock price to fall, and thus, "damages" your asset, you can exercise your option and sell it at its "insured" price level.

If the price of your stock goes up, and there is no "damage," then you do not need to use the insurance, and, once again, your only cost is the premium.

This is the primary function of listed options, to allow investors ways to manage risk.

A Put option gives the holder (buyer/ one who is long Put), the right to sell specified quantity of the underlying asset at the strike price on or before a expiry date.

The seller of the put option (one who is short Put) however, has the obligation to buy the underlying asset at the strike price if the buyer decides to exercise his option to sell.

Example: An investor buys one European Put option on Reliance at the strike price of Rs. 300/-, at a premium of Rs. 25/-. If the market price of Reliance, on the day of expiry is less than Rs. 300, the option can be exercised as it is 'in the money'.

The investor's Break even point is Rs. 275/ (Strike Price - premium paid) i.e., investor will earn profits if the market falls below 275.

Suppose stock price is Rs. 260, the buyer of the Put option immediately buys Reliance share in the market @ Rs. 260/- & exercises his option selling the Reliance share at Rs 300 to the option writer thus making a net profit of Rs. 15 {(Strike price - Spot Price) - Premium paid}.

In another scenario, if at the time of expiry, market price of Reliance is Rs 320/ - , the buyer of the Put option will choose not to exercise his option to sell as he can sell in the market at a higher rate. In this case the investor loses the premium paid (i.e Rs 25/-), which shall be the profit earned by the seller of the Put option.

Option's Price and its influencing factors

An option's price can be influenced by a number of factors, each of which can either help you or hurt you depending on the type of option position you have established. To become a successful option trader, it is essential to understand what factors influence the price of an option, which requires learning about the so-called "Greeks" - a set of risk measures that indicate how exposed an option is to these influences: time-value decay, implied volatility and changes in the underlying price of the commodity. In this article, I discuss four risk measures - delta, theta, vega and gamma - and explain their importance. But first, I will review some related option characteristics that will help you better understand the Greeks.

Influences On An Option's Price

Figure 1 below lists the major influences on both a call and put option's price. The plus or minus sign indicates an option's price direction resulting from a change in one of the price variables in figure 1. For example, taking call options and looking at the impact of a change in implied volatility shows that when there is a rise in implied volatility, there is an increase in the price of an option, all other things remaining the same.

Options	Increase in Volatility	Decrease in Volatility	Increase in Time to Expiration	Decrease in Time to Expiration	Increase in the Underlying	Decrease in the Underlying
Calls	+	-	+	-	+	-
Puts	+	-	+	-	-	+

Figure 1 - Major influences on an option's price

Bear in mind that results will differ depending on whether you long or short an option. Naturally, if you long a call option, a rise in implied volatility will be favorable since rising implied

volatility typically gets priced into the option premium. But if you establish a short call option position, a rise in implied volatility will have an inverse (or negative sign) effect. The writer of a naked option, be it a put or a call, would therefore not benefit from a rise in volatility since writers desire the price of the option to decline.

Figures 2 and 3 below present the same variables, but in terms of long and short call options (figure 2) and long and short put options (figure 3). Note that a decrease in implied volatility, a reduced time to expiration and a fall in the price of the underlying will benefit the short call holder. At the same time, an increase in volatility, a greater time remaining on the option and a rise in the underlying will benefit the long call holder.

Call Options	Increase in Volatility	Decrease in Volatility	Increase in Time to Expiration	Decrease in Time to Expiration	Increase in the Underlying	Decrease in the Underlying
Long	+	-	+	-	+	-
Short	-	+	-	+	-	+

Figure 2 - Major influences on a short and long call option's price

Figure 3 shows that a short put holder benefits from a decrease in implied volatility, a reduced time remaining until expiration and a rise in the price of the underlying. Meanwhile, an increase in implied volatility, a greater time remaining until expiration and a decrease in the price of the underlying will benefit the long put holder.

Because interest rates play a negligible role in a position during the life of most option trades, we will be excluding this price variable from the discussion. It is worth noting, however, that higher interest rates make call options more expensive and put options less expensive, all other things remaining the same.

This summary of the influences on option price provides a nice backdrop for an examination of the risk measures used to gauge the degree to which an option's price is influenced by these price variables. Let's now take a look at how the Greeks permit us to project changes in an option's price.

Put Options	Increase in Volatility	Decrease in Volatility	Increase in Time to Expiration	Decrease in Time to Expiration	Increase in the Underlying	Decrease in the Underlying
Long	+	-	+	-	-	+
Short	-	+	-	+	+	-

Figure 3 - Major influences on a short and long put option's price

Types Of Expiration

There are two different types of options with respect to expiration. There is a European style option and an American style option. The European style option cannot be exercised until the expiration date. Once an investor has purchased the option, it must be held until expiration. An American style option can be exercised at any time after it is purchased. Today, most stock options which are traded are American style options. And many index options are

American style. However, there are many index options which are European style options. An investor should be aware of this when considering the purchase of an index option.

Options Premiums

An option Premium is the price of the option. It is the price you pay to purchase the option. For example, an XYZ May 30 Call (thus it is an option to buy Company XYZ stock) may have an option premium of Rs.2.

This means that this option costs Rs. 200.00. Why? Because most listed options are for 100 shares of stock, and all equity option prices are quoted on a per share basis, so they need to be multiplied times 100. More in-depth pricing concepts will be covered in detail in other section.

Expiration Date

The Expiration Date is the day on which the option is no longer valid and ceases to exist. The expiration date for all listed stock options in the U.S. is the third Friday of the month (except when it falls on a holiday, in which case it is on Thursday).

For example, the XYZ May 30 Call option will expire on the third Friday of May.

The strike price also helps to identify whether an option is in-the-money, at-the-money, or out-of-the-money when compared to the price of the underlying security. You will learn about these terms later.

Exercising Options

People who buy options have a Right, and that is the right to Exercise.

For a Call exercise, Call holders may buy stock at the strike price (from the Call seller).

For a Put exercise, Put holders may sell stock at the strike price (to the Put seller).

Neither Call holders nor Put holders are obligated to buy or sell; they simply have the rights to do so, and may choose to Exercise or not to Exercise based upon their own logic.

Assignment of Options

When an option holder chooses to exercise an option, a process begins to find a writer who is short the same kind of option (i.e., class, strike price and option type). Once found, that writer may be Assigned.

This means that when buyers exercise, sellers may be chosen to make good on their obligations.

For a Call assignment, Call writers are required to sell stock at the strike price to the Call holder.

For a Put assignment, Put writers are required to buy stock at the strike price from the Put holder.

Strike price

The Strike (or Exercise) Price is the price at which the underlying security (in this case, XYZ) can be bought or sold as specified in the option contract.
For example, with the XYZ May 30 Call, the strike price of 30 means the stock can be bought for Rs. 30 per share. Were this the XYZ May 30 Put, it would allow the holder the right to sell the stock at Rs. 30 per share.

The predetermined price upon which the buyer and the seller of an option have agreed is the strike price, also called the exercise price or the striking price. Each option on a underlying instrument shall have multiple strike prices.

In the money:

Call option - underlying instrument price is higher than the strike price.
Put option - underlying instrument price is lower than the strike price.
Out of the money:
Call option - underlying instrument price is lower than the strike price.
Put option - underlying instrument price is higher than the strike price.

At the money:

The underlying price is equivalent to the strike price.

Expiration day

Options have finite lives. The expiration day of the option is the last day that the option owner can exercise the option. American options can be exercised any time before the expiration date at the owner's discretion.
Thus, the expiration and exercise days can be different. European options can only be exercised on the expiration day.

Underlying Instrument

A class of options is all the puts and calls on a particular underlying instrument. The something that an option gives a person the right to buy or sell is the underlying instrument. In case of index options, the underlying shall be an index like the Sensitive index (Sensex) or S&P CNX NIFTY or individual stocks.

Liquidating an option

An option can be liquidated in three ways A closing buy or sell, abandonment and exercising. Buying and selling of options are the most common methods of liquidation. An option gives the right to buy or sell a underlying instrument at a set price.

Call option owners can exercise their right to buy the underlying instrument. The put option holders can exercise their right to sell the underlying instrument. Only options holders can exercise the option.

In general, exercising an option is considered the equivalent of buying or selling the underlying instrument for a consideration. Options that are in-the-money are almost certain to be exercised at expiration.

The only exceptions are those options that are less in-the-money than the transactions costs to exercise them at expiration.

Most option exercise occur within a few days of expiration because the time premium has dropped to a negligible or non-existent level.

An option can be abandoned if the premium left is less than the transaction costs of liquidating the same.

The Option Greeks

Option Pricing

Options prices are set by the negotiations between buyers and sellers. Prices of options are influenced mainly by the expectations of future prices of the buyers and sellers and

the relationship of the option's price with the price of the instrument.

An option price or premium has two components : intrinsic value and time or extrinsic value.

The intrinsic value of an option is a function of its price and the strike price. The intrinsic value equals the in-the-money amount of the option.
The time value of an option is the amount that the premium exceeds the intrinsic value. Time value = Option premium - intrinsic value.

The price of an Option depends on certain factors like price and volatility of the underlying, time to expiry etc. The option Greeks are the tools that measure the sensitivity of the option price to the above-mentioned factors. They are often used by professional traders for trading & managing the risk of large positions in options & stocks. These Option Greeks are:

Delta : is the option Greek that measures the estimated change in option premium/price for a change in the price of the underlying.

Gamma : measures the estimated change in the Delta of an option for a change in the price of the underlying

Vega : measures the estimated change in the option price for a change in the volatility of the underlying.

Theta : measures the estimated change in the option price for a change in the time to option expiry.

Rho : measures the estimated change in the option price for a change in the risk free interest rates.

Volatility : A measure of stock price fluctuation. Mathematically, volatility is the annualized standard deviation of a stock's daily price changes.

Premium is the price of an option and is equal to its intrinsic value plus time value.

Theoretical value : The estimated value of an option derived from a mathematical model.

Figure 4 below contains four major risk measures - our so-called Greeks - all of which a trader should take into account before taking any option position. I will explain each of these measures, and then I will touch on some aspects of their relationship to each other. Since the Greeks are actually represented by letters of the Greek language alphabet, let's take them in alphabetical order.

Delta

Delta is a measure of the change in an option's price (premium of an option) resulting from a change in the underlying security (i.e. stock) or commodity (i.e. futures contract). The value of delta ranges from −100.0 to 0 for puts and 0 to 100 for calls (here delta has been multiplied by 100 to shift the decimal). Puts have a negative delta because they have what is called a "negative relationship" to the underlying: put premiums fall when the underlying rises, and vice versa.

Call options, on the other hand, have a positive relationship to the price of the underlying: if the underlying rises, so does the premium on the call, provided there are no changes in other variables like implied volatility and time remaining until expiration. And if the price of the underlying falls, the premium on a call option, provided all other things remain constant,

will decline. An at-the-money option has a delta value of approximately 50 (0.5 without the decimal shift), which means the premium will rise or fall by half a point with a one-point move up or down in the underlying. For example, if an at-the-money wheat call option has a delta of 0.5, and if wheat makes a 10-cent move higher (which is a large move), the premium on the option will increase by approximately 5 cents (0.5 x 10 = 5), or $250 (each cent in premium is worth $50).

Vega	Theta	Delta	Gamma
Measures Impact of a Change in Volatility	Measures Impact of a Change in Time Remaining	Measures Impact of a Change in the Price of Underlying	Measures the Rate of Change of Delta

Figure 4 - The major "Greeks".

As the option gets further in the money, delta approaches 100 on a call and −100 on a put, which means that at these extremes there is a one-for-one relationship between changes in the option price and changes in the price of the underlying. In effect, at delta values of −100 and 100, the option behaves like the underlying in terms of price changes. This occurs with little or no time value, as most of the value of the option is intrinsic. I come back to the concept of time value below when we discuss theta.

Three things to keep in mind with delta: (1) delta tends to increase as you get closer to expiration for near or at-the-money options; (2) delta is not a constant, a fact related to gamma, our next risk measurement, which is a measure of the rate of change of delta given a move by the underlying; and (3) delta is subject to change given changes in implied volatility.

Gamma

Gamma, also known as the 'first derivative of delta', measures the rate of change of delta. The table below shows how much delta changes following a one-point change in the price of the underlying. This is a simple concept to grasp. When call options are deep out of the money, they generally have a small delta. This is because changes in the underlying bring about only tiny changes in the price of the option. But as the call option gets closer to the money, resulting from a continued rise in the price of the underlying, the delta gets larger (see figure 5).

Actual Risk Measures for Short December S&P 500 930 Call Option

Figure 5 - Created using OptionVue 5 Options Analysis Software

In figure 5, delta is rising as we read the figures from left to right, and it is shown with values for gamma at different levels of the underlying. The column showing P/L (profit/loss) of -200 represents the at-the-money strike of 930, and each column represents a one-point change in the underlying. As you can see, at-the-money gamma is -0.79, which means that for every one-point move of the underlying, delta will increase by exactly 0.79 (for both delta and gamma the decimal has been shifted two digits by multiplying by 100). If you move right to the next column (which represents a one-point move higher to 931 from 930), you can see that delta is -53.13 (an increase of .79 from -51.34). As you can see, delta rises as this short call option gets into the money, and the negative sign means that the position is losing because it is a

short position (in other words, the position delta is negative). Therefore, with a negative delta of -51.34, the position will lose 0.51 (rounded) points in premium with the next one-point rise in the underlying.

There are some additional points to keep in mind about gamma: (1) gamma is smallest for deep out-of-the-money and deep in-the money options; (2) gamma is highest when the option gets near the money; and (3) gamma is positive for long options and negative for short options (as seen above in figure 5 with our example of a short call).

Theta

Theta is not used much by traders, but it is an important conceptual dimension. Theta measures the rate of decline of time-premium resulting from the passage of time. In other words, an option premium that is not intrinsic value will decline at an increasing rate as expiration nears. Figure 6 shows theta values at different time intervals for an S&P 500 Dec at-the-money call option. The strike price is 930. As you can see, theta increases as expiration gets closer (T+25 is expiration). At T+19, which is six days before expiration, theta has reached 93.3, which in this case tells us that the option is now losing $93.30 per day, up from $45.40 per day at T+0, when we hypothetically opened the position.

T+0	T+6	T+13	T +19	
Theta	45.4	51.85	65.2	93.3

Figure 6 - Theta values for short S&P Dec 930 call option

Some additional points about theta to consider when trading: (1) theta can be very high for out-of-the- money options if they contain a lot of implied volatility; (2) theta is typically highest for at-the-money options; and (3) theta will increase sharply in the last few weeks of trading and can severely undermine a long option holder's position, especially if implied volatility, which I discuss next, is on the decline at the same time.

Vega

Vega, our fourth and final risk measure, quantifies risk exposure to implied volatility changes. Vega tells us approximately how much an option price will increase or decrease given an increase or decrease in the level of implied volatility. Option sellers benefit from a fall in implied volatility, and it's just the reverse for option buyers. Referring to figure 5 above, you can see that the short call has a negative vega, which tells us that the position will gain if implied volatility falls (hence the inverse relationship indicated by the negative sign). The value of vega itself indicates by how much the position will gain in this case. Using at-the-money vega, which is −96.94, we know that for each percentage-point drop in implied volatility, a short call position will gain by $96.94.

Conversely, if there should be a one-percent rise in implied volatility, the position would lose $96.94. Additional points to keep in mind regarding vega include the following: (1) vega can increase or decrease even without price changes of the underlying because implied volatility is the level of expected volatility; (2) vega can increase from quick moves of the underlying, especially if there is a big drop in the stock market, or if there is a sudden upwards

burst in a commodity like coffee after a reported frost in Brazil; and (3) vega falls as the option gets closer to expiration.

Conclusion

While this overview is only an intermediate level discussion of delta, gamma, theta and vega (an advanced level analysis would involve mathematical nuances which are not practical in terms of trading), it should nonetheless help clarify not only how the price of an option is influenced by changes in the underlying, the time to expiration and the implied volatility, but also how we measure the impact of these variables on an option's price.

Finally, always remember that there is a risk of loss when trading futures and options. Trade only with risk capital.

Options on Sensex And Individual Stocks

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1 Important Terminology in Options ?

Option Premium : Premium is the price paid by the buyer to the seller to acquire the right to buy or sell.

Strike Price or Exercise Price : The strike or exercise price of an option is the specified/ predetermined price of the underlying asset at which the same can be bought or sold if the option buyer exercises his right to buy/ sell on or before the expiration day.

Expiration date : The date on which the option expires is known as Expiration Date. On Expiration date, either the option is exercised or it expires worthless.

Exercise Date : The date on which the option is actually exercised is called as Exercise Date.

In case of European Options the exercise date is same as the expiration date while in case of American Options, the options contract may be exercised any day between the purchase of the contract and its expiration date (see European/ American Option). In India, options on "Sensex" are European style, whereas options on individual are stocks American style.

Open Interest : The total number of options contracts outstanding in the market at any given point of time.

Option Holder : is the one who buys an option, which can be a call, or a put option. He enjoys the right to buy or sell the underlying asset at a specified price on or before specified time.

His upside potential is unlimited while losses are limited to the Premium paid by him to the option writer.

Option seller/ writer : is the one who is obligated to buy (in case of Put option) or to sell (in case of call option), the underlying asset in case the buyer of the option decides to exercise his option. His profits are limited to the premium received from the buyer while his downside is unlimited.

Option Series: An option series consists of all the options of a given class with the same expiration date and strike price. e.g. BSXCMAY15500 is an options series which includes all Sensex Call options that are traded with Strike Price of 15500 & Expiry in May. (BSX Stands for BSE Sensex (underlying index), C is for Call Option, May is expiry date & strike Price is 15500).

2 What is Assignment ?

When holder of an option exercises his right to buy/ sell, a randomly selected (by computer) option seller is assigned the obligation to honor the underlying contract, and this process is termed as Assignment.

3. What is European & American Style of options ?

An American style option is the one which can be exercised by the buyer at any time, till the expiration date, i.e. anytime between the day of purchase of the option and the day of its expiry. The European kind of option is the one which can be exercised by the buyer only on the expiration day and & not any time before that.

4. How are options different from futures ?

The significant differences in Futures and Options are as under:

* Futures are agreements/contracts to buy or sell specified quantity of the underlying assets at a price agreed upon by the buyer & seller, on or before a specified time. Both the buyer and seller are obligated to buy/sell the underlying asset.

* In case of options the buyer enjoys the right & not the obligation, to buy or sell the underlying asset.

* Futures Contracts have symmetric risk profile for both the buyer as well as the seller, whereas options have asymmetric risk profile. In case of Options, for a buyer (or holder of the option), the downside is limited to the premium (option price) he has paid while the profits may be unlimited. For a seller or writer of an option, however, the downside is unlimited while profits are limited to the premium he has received from the buyer.

* The Futures contracts prices are affected mainly by the prices of the underlying asset. The prices of options are however; affected by prices of the underlying asset, time remaining for expiry of the contract, interest rate & volatility of the underlying asset.

5. **Explain "In the Money", "At the Money" & "Out of the money" Options ?**

An option is said to be "at-the-money", when the option's strike price is equal to the underlying asset price. This is true for both puts and calls.

A call option is said to be "in the money" when the strike price of the option is less than the underlying asset price. For example, a Stock A" call option with strike of 3900 is "in-the-money", when the spot price of Stock "A" is at 4100 as the call option has a positive exercise value. The call option holder has the right to buy the Stock "A" at 3900, no matter by what amount the spot price exceeded the strike price. With the spot price at 4100, selling Stock "A" at this higher price, one can make a profit.

On the other hand, a call option is out-of-the-money when the strike price is greater than the underlying asset price. Using the earlier example of Sensex call option, if the Sensex falls to 3700, the call option no longer has positive exercise value. The call holder will not exercise the option to buy Sensex at 3900 when the current price is at 3700 and allow his "option" right to lapse.

	CALL OPTIONS		PUT OPTIONS
In-the-money:	Strike Price< Spot Price of underlying asset	-	Strike Price > Spot Price of underlying asset
At-the-money:	Strike Price = Spot Price of underlying asset	-	Strike Price = Spot Price of underlying asset

Out-of the-money:Strike Price > Spot Price of underlying asset - Strike Price< Spot Price of underlying asset

A put option is in-the-money when the strike price of the option is greater than the spot price of the underlying asset. For example, a Stock "A" put at strike of 4400 is in-the-money when the spot price of Stock "A" is at 4100. When this is the case, the put option has value because the put option holder can sell the Stock "A" at 4400, an amount greater than the current Stock "A" of 4100. Likewise, a put option is out-of-the-money when the strike price is less than the spot price of underlying asset. In the above example, the buyer of Stock "A"put option won't exercise the option when the spot is at 4800. The put no longer has positive exercise value and therefore in this scenario, the put option holder will allow his "option" right to lapse.

6. **What are Covered & Naked Calls ?**

A call option position that is covered by an opposite position in the underlying instrument (for example shares, commodities etc),is called a covered call. Writing covered calls involves writing call options when the shares that might have to be delivered (if option holder exercises his right to buy), are already owned. E.g.A writer writes a call on Reliance and at the same time holds shares of Reliance so that if the call is exercised by the buyer, he can deliver the stock.

Covered calls are far less risky than naked calls (where there is no opposite position in the underlying), since the worst that can happen is that the investor is required to sell shares already owned at below their market value. When a physical delivery uncovered/ naked call is assigned on exercise, the writer will have to purchase the underlying asset to meet his call obligation and his loss will be the excess of the purchase price over the exercise price of the call reduced by the premium received for writing the call.

7. **What is the Intrinsic Value of an option ?**

The intrinsic value of an option is defined as the amount, by which an option is in-the-money, or the immediate exercise value of the option when the underlying position is marked-to-market..

For a call option: Intrinsic Value = Spot Price - Strike Price For a put option: Intrinsic Value = Strike Price - Spot Price The intrinsic value of an option must be a positive number or 0. It can'tbe negative. For a call option, the strike price must be less than the price of the underlying asset for the call to have an intrinsic value greater than 0. For a put option, the strike price must be greater than the underlying asset price for it to have intrinsic value.

8. **Explain Time Value with reference to Options ?**

Time value is the amount option buyers are willing to pay for the possibility that the option may become profitable prior to expiration due to favorable change in the price of the underlying. An option loses its time value as its expiration date nears. At expiration an option is worth only its intrinsic value. Time value cannot be negative.

9. **What are the factors that affect the value of an option (premium)?**

There are two types of factors that affect the value of the option premium:

(1) Quantifiable Factors:

* underlying stock price

* the strike price of the option

* the volatility of the underlying stock

* the time to expiration and

* the risk free interest rate

(2) Non Quantifiable Factors:

* Market participants" varying estimates of the underlying asset's future volatility

* Individuals" varying estimates of future performance of the underlying asset, based on fundamental or technical analysis

* The effect of supply & demand- both in the options marketplace and in the market for the underlying asset

* The "depth" of the market for that option - the number of transactions and the contract's trading volume on any given day.

10. **What are different pricing models for options ?**

The theoretical option pricing models are used by option traders for calculating the fair value of an option on the basis of the earlier mentioned influencing factors. The two most popular option pricing models are: Black Scholes Model which assumes that percentage change in the price of underlying follows a lognormal distribution. Binomial Model which assumes that percentage change in price of the underlying follows a binomial distribution.

11. **Who decides on the premium paid on options & how is it calculated ?**

Options Premium is not fixed by the Exchange. The fair value/ theoretical price of an option can be known with the help of pricing models & then depending on market conditions the price is determined by competitive bids & offers in the trading environment. An option's premium / price is the sum of Intrinsic value & time value (explained above). If the price of the underlying stock is held constant, the intrinsic value portion of an option premium will remain constant as well. Therefore, any change in the price of the option will be entirely due to a change in the option's time value. The time value component of the option premium can change in response to a change in the volatility of the underlying, the time to expiry, interest rate fluctuations, dividend payments & to the immediate effect of supply & demand for both the underlying & its option

12. **What is an Option Calculator ?**

An option calculator is a tool to calculate the price of an Option on the basis of various influencing factors like the price of the underlying and its volatility, time to expiry, risk free interest rate etc. It also helps the user to understand how a change in any one of the factors or more, will affect the option price. The option calculator is available at the Option Calculator Section.

13. **Who are the likely players in the Options Market ?**

Developmental institutions, Mutual Funds, Domestic & Foreign Institutional Investors, Brokers, Retail participants are the likely players in the Options Market.

14. **Why should I invest in Options? What do options offer me ?**

Besides offering flexibility to the buyer in the form of right to buy or sell, the major advantage of options is their versatility. They can be as conservative or as speculative as one's investment strategy dictates. Some of the benefits of Options are as under:

* High leverage as by investing small amount of capital (in the form of premium), one can take exposure in the underlying asset of much greater value.

* Pre-known maximum Risk for an option buyer

* Large profit potential & limited risk for Option buyer3

* One can protect his equity portfolio from a decline in the market by way of buying a protective put wherein one buys puts against an existing stock position this option position can supply the insurance needed to overcome the uncertainty of the marketplace. Hence, by paying a relatively small premium (compared to the market value of the stock), an investor knows that no matter how far the stock drops, it can be sold at the strike price of the Put anytime until the Put expires. E.g. An investor holding 1 share of Stock "A" at a market price of Rs 3800 thinks that the stock is over-valued and therefore decides to buy a Put option" at a strike price of Rs. 3800/- by paying a premium of Rs 200/- If the market price of Stock "A" comes down to Rs 3000/, he can still sell it at Rs 3800/- by exercising his put option. Thus by paying a premium of Rs. 200, he insured his position in the underlying stock.

15. How can I use options ?

If you anticipate a certain directional movement in the price of a stock, the right to buy or sell that stock at a predetermined price, for a specific duration of time can offer an attractive investment opportunity. The decision as to what type of option to buy is dependent on whether your outlook for the respective security is positive (bullish) or negative (bearish). If your outlook is positive, buying a call option creates the opportunity to share in the upside potential of a stock without having to risk more than a fraction of its market value (premium paid). Conversely, if you anticipate downward movement, buying a put option will enable you to protect against downside risk without limiting profit potential. Purchasing options offer you the ability to position yourself according to your market expectations in a manner such that you can both profit and protect hedge) with limited risk.

16. Once I have bought an option & paid the premium for it, how does it get settled ?

Option is a contract, which has a market value like any other tradable commodity. Once an option is bought there are following alternatives that an option holder has: You can sell an option of the same series as the one you had bought & close out /square off your position in that option at any time on or before its expiration date. You can exercise the option on the expiration day in case of European Option or; on or before the expiration day in case of an American option. In case the option is "Out of Money" at the time of expiry, one will not exercise his option, not being profitable and therefore, it will lapse or expire worthless.

17. **What are the risks for an Option buyer ?**

The risk/ loss of an option buyer is limited to the premium that he has paid.

18. **What are the risks for an Option writer ?**

The risk of an Options Writer is unlimited whereas his gains are limited to the Premiums earned. When an uncovered call is exercised for physical delivery, the call writer will have to purchase the underlying asset and his loss will be the excess of the purchase price over the exercise price of the call reduced by the premium received for writing the call.

The writer of a put option bears a risk of loss if the value of the underlying asset declines below the exercise price. The writer of a put bears the risk of a decline in the price of the underlying asset potentially to zero. When put option holder exercises his option in the falling market,the put writer is bound to purchase the underlying at strike price, even if the underlying is otherwise available in the spot at lower price.

19. How can an option writer take care of his risk ?

Option writing is a specialized job, which is suitable only for the knowledgeable investor who understands the risks, has the financial capacity and has sufficient liquid assets to meet applicable margin requirements. The risk of being an option writer may be reduced by the purchase of other options on the same underlying asset and thereby assuming a spread position or by acquiring other types of hedging positions in the options/ futures and other correlated markets.

20. Who can write options in Indian Derivatives market ?

In the Indian Derivatives market, SEBI has not created any particular category of options writers. Any market participant can write options. However, the margin requirements are stringent for options writers.

21. What are Stock Index Options ?

The Stock Index Options are options where the underlying asset is a Stock Index e.g. Options on "Sensex". Index Options were first introduced by Chicago Board of Options Exchange (CBOE) in 1983 on its Index "S&P 100". As opposed to options on Individual stocks, index options give an investor the right to buy or sell the value of an index which represents group of stocks.

22. What are the uses of Index Options ?

Index options enable investors to gain exposure to a broad market, with one trading decision and frequently with one transaction. To obtain the same evel of diversification using individual stocks or individual equity options, numerous decisions and trades would be necessary. Since, broad exposure can be gained with one trade, transaction cost is also reduced by using Index Options. As a percentage of the underlying value, premiums of Index options are usually lower than those of equity options as equity options are more volatile than the Index.

23. Who would use index options ?

Index Options are effective enough to appeal to a broad spectrum of users, from conservative investors to more aggressive stock market traders. Individual investors might wish to capitalize on market opinions (bullish, bearish or neutral) by acting on their views of the broad market or one of its many sectors. The more sophisticated market professionals might find the variety of index option contracts excellent tools for enhancing market timing decisions and adjusting asset mixes for asset allocation. To a market professional, managing the risk associated with large equity positions may mean using index options to either reduce their risk or to increase market exposure.

24. What are Options on individual stocks ?

Options contracts where the underlying asset is an equity stock, are termed as Options on stocks. They are mostly American style options cash settled or settled by physical delivery. Prices are normally quoted in terms of the premium per share, although each contract is invariably for a larger number of shares, e.g. 100.

25. Which are the stocks on which options are available ?

Stocks are selected on the basis of they satisfying various eligibility and selection criteria. The various stocks, available for trading on the Derivatives Segment of the exchange, can be viewed at the List Of Products Section.

26. What is the market lot size of different stock option contracts ?

The market lots for the stocks available for trading on the Derivatives Segment of the exchange can be viewed at the Contract Specifications Section.

27 **How will introduction of options in specific stocks benefit an investor ?**

Options can offer an investor the flexibility one needs for countless investment situations. An investor can create hedging position or an entirely speculative one, through various strategies that reflect his tolerance for risk. Investors of equity stock options will enjoy more leverage than their counterparts who invest in the underlying stock market itself in form of greater exposure by paying a small amount as premium. Investors can also use options in specific stocks to hedge their holding positions in the underlying (i.e. long in the stock itself), by buying a Protective Put. Thus they will insure their portfolio of equity stocks by paying premium. ESOPs (Employees" stock options) have become a popular compensation tool with more and more companies offering the same to their employees. ESOPs are subject to lock in periods, which could reduce capital gains in falling markets - Derivatives can help arrest that loss

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Weekly Options

1. What are Weekly Stock and Index Options ?
2. How many Weekly Options will be available for trading ?
3. How are Weekly Options different from Monthly Options ?
4. What will happen if expiry day is a Trading Holiday ?
5. What are the Similarities between Monthly and Weekly Options?
6. What are the benefits of Weekly Option Contracts?
7. What are the Risk Management measures taken at the Exchange level ?
8. Can we compare the premium quoted for Weekly Options with that of ?

1. **What are Weekly Stock and Index Options ?**

Presently, the Stock and Index Options are offered for near, middle and far month contract series. In response to a demand from market participants for shorter maturity options, BSE has decided to offer Weekly Options series (normally Monday to Friday) in addition to the existing Monthly Options series. Initially contracts for 1 week and 2 weeks duration will be launched and thereafter, every week a fresh contract will be launched with a 2 weeks maturity. Hence normally, an investor will have, on any Monday, a choice of either a 1 week Option or 2 weeks Option.

Exchange Traded Options based on a Stock or Index with shorter maturity of One or Two weeks are known as Weekly Options.

2. **How many Weekly Options will be available for trading ?**

One week and Two week Options will be available for the market participants for trading.

3. **How are Weekly Options different from Monthly Options ?**

Weekly Options differ mainly in terms of maturity period. Currently Monthly Options have maturity of 1 month, 2 months or 3 months. As 1 month options expire,another options series

get generated. In case of Weekly Options, the maturity will be either 1 week or 2 weeks.

Monthly Options Series will expire on last Thursday of every month. In case of Weekly Options, series will expire on Friday of every week.For Example if the Weekly Options are launched on September 13, 2004, commencement and expiration schedule will be as follows:

Week	Start Date	Option	Expiry Date
1	04/08/2008	2 week Option	15/08/2008
2	11/08/2008	2 week Option	22/08/2008
3	27/9/2004	2 week Option	8/10/2004
4	4/10/2004	2 week Option	15/10/2004

In the above table the weekly series which are generated on 1st week i.e. on 04/08/2008 will be expiring on 15/08/2008 and similarly the weekly series will be generated for 2nd, 3rd and 4th week. Thus effectively, on any Monday, say, on 11/08/2008, an investor will have a choice to invest in either a 1 week Option expiring on 15/08/2008 (residual time of the 2 week option opened on 04/08/2008) or the 2 week Option expiring on 22/08/2008, that has been opened on 11/08/2008.

In case of weekly series generated on 3rd week i.e. 18/08/2008 the weekly option will be expiring on 29/08/2008, If the expiry day i.e. 29/08/2008 fall on a trading Holiday, then the expiry previous trading day i.e. 28/08/2008 is the last Thursday of the month (i.e. on the same day, the Monthly series is expiring) then the relevant Weekly series expiring on that day will not be generated.

4. **What will happen if expiry day is a Trading Holiday ?**

If the expiry day of Weekly Options fall on a trading Holiday, then the expiry (as per SEBI guidelines) will be on the previous trading day.

If that previous trading day is the last Thursday of the month (i.e. on the same day, the Monthly series is expiring) then the relevant Weekly series expiring on that day will not be generated.

5. **What are the Similarities between Monthly and Weekly Options?**

The parameters viz. Underlying, Contract Multiplier, Tick size, Price Quotation, Trading Hours, Strike price Intervals of the Weekly Options will remain exactly the same as that of Monthly Options.

6. What are the benefits of Weekly Option Contracts?

* Weekly Options will command lower premium due to shorter maturity. Thus the Weekly Options will cost less than the Monthly Options.

* For similar capital outlay as Monthly Options, participants can take larger positions.

* Weekly Options will provide opportunity for Arbitrage between :

  o "One week to maturity"options and "two week to maturity" options.

  o Weekly Options and Monthly Options.

* On account of low cost, the liquidity will improve, as more participants would come in.

* Weekly Options would lead to better price discovery and improvement in market depth.

* The market participants would be able to take a short-term view in the underlying also.

* Weekly Options would provide market participants short term insurance for their short-term portfolio.This would result in better price discovery and improvement in market efficiency.

7. What are the Risk Management measures taken at the Exchange level ?

Since the introduction of Weekly Options is just the addition of new series and not a new product as such, the Risk Containment measures adopted for the Weekly Options would be similar to those applied for Monthly Options.

8. Can we compare the premium quoted for Weekly Options with that of Monthly Options ?

The theoretical cost of an at-the-money call option with one month to expiry where the underlying price is Rs. 320 with annual volatility of 50% is Rs.19 and that of an at-the-money call option with 5 days to expiry is Rs.7.50.

Long dated Options

1. What are Long dated Options on "SENSEX@"?

2. What are Equity Long dated Options?

3. When do Long dated Options expire?

4. What are the trading hours for Long Dated Options?

5. What are the features of Long dated Options?

6. What option series will be available for Long dated Options?

1 **What are Long dated Options on "SENSEXÂ®"?**

BSE has introduced 'Long Dated Options on "SENSEX@ "whereby the members can trade in Sensex (normal lot of 15 only and not 'mini' Sensex) Options contracts with an expiry upto 3 years. These long-term options provide the holder the right to purchase, in the case of a call, or sell, in the case of a put, a specified number of quantity at a pre-determined price up to the expiration date of the option, which can be three years in the future.

2 **What are Equity Long dated Options?**

Equity Long dated Options are currently not available in BSE however these are long-dated put and call options on stock.

3 **When do Long dated Options expire?**

As with normal options, the expiration date is the last Thursday of the month if it's a holiday then expiry will be a day before Thursday.

4 **What are the trading hours for Long Dated Options?**

As with regular equity options, the trading hours for LONG DATED OPTIONS are from 9:55 a.m. to 3:30 p.m. IST.

5 **What are the features of Long dated Options?**

Longer Tenure

Investor can use long-term calls to diversify their portfolios. Long term put provide investors with means to hedge current stock holdings.

Longer term Options offer a good alternative to a longer-term trader to gain exposure to a prolonged period in a given security without having to roll several short-term contracts.

6 **What option series will be available for Long dated Options?**

The options series available for the Sensex (normal lot of 15) Options contracts will be as below:

1. The 3 existing serial month contracts (i.e. Near middle and Far month) would continue.

2. The following additional 3 quarterly months of the cycle Mar/Jun/Sep/Dec would be available.

3. Further, 5 additional semi-annual months of the cycle Jun/Dec would be available, so that at any point in time there would be options contract with up to 3 years tenure available.

These series will be available for trading from 29- February -2008.

To illustrate, from the March series onwards i.e. from February 29, 2008 onwards, the users will get to trade the following Futures and Options contracts on the normal Sensex market lot of 15 :

1. Three monthly Futures contracts viz. March, April and May 2008

2. Three monthly Options contracts viz. March, April and May 2008

3. Three quarterly Options contracts viz. June 2008, September 2008, December 2008

4. Five semi-annual Options contracts viz. June 2009, December 2009, June 2010, December 2010 and June 2011

FAQs: Futures and Options trading in India

WITH the exit of badla from the coming month, the stockmarket will see the introduction of options and futures in a big way. For investors who have difficulty in understanding the terminologies associated with options and futures as well as its modes of working, here's some lucid explanation.

Important Terminology
Underlying - The specific security / asset on which an options contract is based.

Option Premium - This is the price paid by the buyer to the seller to acquire the right to buy or sell

Strike Price or Exercise Price - The strike or exercise price of an option is the specified/ pre-determined price of the underlying asset at which the same can be bought or sold if the option buyer exercises his right to buy/ sell on or before the expiration day.

Expiration date - The date on which the option expires is known as Expiration Date. On Expiration date, either the option is exercised or it expires worthless.

Exercise Date - is the date on which the option is actually exercised. In case of European Options the exercise date is same as the expiration date while in case of American Options, the options contract may be exercised any day between the purchase of the contract and its expiration date (see European/ American Option)

Open Interest - The total number of options contracts outstanding in the market at any given point of time.

Option Holder: is the one who buys an option which can be a call or a put option. He enjoys the right to buy or sell the underlying asset at a specified price on or before specified time. His upside potential is unlimited while losses are limited to the Premium paid by him to the option writer.

Option seller/ writer: is the one who is obligated to buy (in case of Put option) or to sell (in case of call option), the underlying asset in case the buyer of the option decides to exercise his option. His profits are limited to the premium received from the buyer while his downside is unlimited.

Option Class: All listed options of a particular type (i.e., call or put) on a particular underlying instrument, e.g., all Sensex Call Options (or) all Sensex Put Options

Option Series: An option series consists of all the options of a given class with the same expiration date and strike price. E.g. BSXCMAY3600 is an options series which includes all Sensex Call options that are traded with Strike Price of 3600 & Expiry in May.

(BSX Stands for BSE Sensex (underlying index), C is for Call Option , May is expiry date and strike Price is 3600)

What is Assignment?

When the holder of an option exercises his right to buy/ sell, a randomly selected option seller is assigned the obligation to honor the underlying contract, and this process is termed as Assignment.

What are European and American Style of options?
An American style option is the one which can be exercised by the buyer on or before the expiration date, i.e. anytime between the day of purchase of the option and the day of its expiry.

The European kind of option is the one which can be exercised by the buyer on the expiration day only & not anytime before that.

How are options different from futures?

The significant differences in Futures and Options are as under:

Futures are agreements/contracts to buy or sell specified quantity of the underlying assets at a price agreed upon by the buyer and seller, on or before a specified time. Both the buyer and seller are obligated to buy/sell the underlying asset.

In case of options the buyer enjoys the right and not the obligation, to buy or sell the underlying asset.

Futures Contracts have symmetric risk profile for both buyers as well as sellers, whereas options have asymmetric risk profile.

In case of Options, for a buyer (or holder of the option), the downside is limited to the premium (option price) he has paid while the profits may be unlimited.

For a seller or writer of an option, however, the downside is unlimited while profits are limited to the premium he has received from the buyer.

The futures contracts prices are affected mainly by the prices of the underlying asset. Prices of options are however, affected by prices of the underlying asset, time remaining for expiry of the contract and volatility of the underlying asset.

It costs nothing to enter into a futures contract whereas there is a cost of entering into an options contract, termed as Premium.

Explain In the Money, At the Money and Out of the money Options.

An option is said to be 'at-the-money', when the option's strike price is equal to the underlying asset price. This is true for both puts and calls.

A call option is said to be in-the-money when the strike price of the option is less than the underlying asset price. For example, a Sensex call option with strike of 3900 is 'in-the-money', when the spot Sensex is at 4100 as the call option has value.

The call holder has the right to buy a Sensex at 3900, no matter how much the spot market price has risen. And with the current price at 4100, a profit can be made by selling Sensex at this higher price.

On the other hand, a call option is out-of-the-money when the strike price is greater than the underlying asset price. Using the earlier example of Sensex call option, if the Sensex falls to 3700, the call option no longer has positive exercise value. The call holder will not exercise the option to buy Sensex at 3900 when the current price is at 3700. (Please see table)

A put option is in-the-money when the strike price of the option is greater than the spot price of the underlying asset. For example, a Sensex put at strike of 4400 is in-the-money when the Sensex is at 4100. When this is the case, the put option has value because the put holder can sell the Sensex at 4400, an amount greater than the current Sensex of 4100.

Likewise, a put option is out-of-the-money when the strike price is less than the spot price of underlying asset. In the above example, the buyer of Sensex put option won't exercise the option when the spot is at 4800. The put no longer has positive exercise value.

Options are said to be deep in-the-money (or deep out-of-the-money) if the exercise price is at significant variance with the underlying asset price.

What are Covered and Naked Calls?

A call option position that is covered by an opposite position in the underlying instrument (for example shares, commodities etc), is called a covered call.

Writing covered calls involves writing call options when the shares that might have to be delivered (if option holder exercises his right to buy), are already owned.

E.g. A writer writes a call on Reliance and at the same time holds shares of Reliance so that if the call is exercised by the buyer, he can deliver the stock.

Covered calls are far less risky than naked calls (where there is no opposite position in the underlying), since the worst that can happen is that the investor is required to sell shares already owned at below their market value.

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The intrinsic value of an option is defined as the amount by which an option is in-the-money, or the immediate exercise value of the option when the underlying position is marked-to-market.

For a call option: Intrinsic Value = Spot Price - Strike Price

For a put option: Intrinsic Value = Strike Price - Spot Price

The intrinsic value of an option must be a positive number or 0. It cannot be negative. For a call option, the strike price must be less than the price of the underlying asset for the call to have an intrinsic value greater than 0. For a put option, the strike price must be greater than the underlying asset price for it to have intrinsic value.

Explain Time Value with reference to Options.

Time value is the amount option buyers are willing to pay for the possibility that the option may become profitable prior to expiration due to favorable change in the price of the underlying. An option loses its time value as its expiration date nears. At expiration an option is worth only its intrinsic value. Time value cannot be negative.

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the time to expiration and;

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Non-Quantifiable Factors :

Market participants' varying estimates of the underlying asset's future volatility

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The effect of supply & demand- both in the options marketplace and in the market for the underlying asset

The "depth" of the market for that option - the number of transactions and the contract's trading volume on any given day.

What are different pricing models for options?

The theoretical option pricing models are used by option traders for calculating the fair value of an option on the basis of the earlier mentioned influencing factors.

An option pricing model assists the trader in keeping the prices of calls & puts in proper numerical relationship to each other & helping the trader make bids & offer quickly. The two most popular option pricing models are:

Black Scholes Model which assumes that percentage change in the price of underlying follows a normal distribution.

Binomial Model which assumes that percentage change in price of the underlying follows a binomial distribution.

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An option's premium / price is the sum of Intrinsic value and time value (explained above). If the price of the underlying stock is held constant, the intrinsic value portion of an option premium will remain constant as well.

Therefore, any change in the price of the option will be entirely due to a change in the option's time value.

The time value component of the option premium can change in response to a change in the volatility of the underlying, the time to expiry, interest rate fluctuations, dividend payments and to the immediate effect of supply and demand for both the underlying and its option.

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Pre-known maximum risk for an option buyer

Large profit potential and limited risk for option buyer

One can protect his equity portfolio from a decline in the market by way of buying a protective put wherein one buys puts against an existing stock position.

This option position can supply the insurance needed to overcome the uncertainty of the marketplace. Hence, by paying a relatively small premium (compared to the market value of the stock), an investor knows that no matter how far the stock drops, it can be sold at the strike price of the Put anytime until the Put expires.

E.g. An investor holding 1 share of Infosys at a market price of Rs 3800/-thinks that the stock is over-valued and decides to buy a Put option' at a strike price of Rs. 3800/- by paying a premium of Rs 200/-

If the market price of Infosys comes down to Rs 3000/-, he can still sell it at Rs 3800/- by exercising his put option. Thus, by paying premium of Rs 200,his position is insured in the underlying stock.

How can I use options?

If you anticipate a certain directional movement in the price of a stock, the right to buy or sell that stock at a predetermined price, for a specific duration of time can offer an attractive investment opportunity.

The decision as to what type of option to buy is dependent on whether your outlook for the respective security is positive (bullish) or negative (bearish).

If your outlook is positive, buying a call option creates the opportunity to share in the upside potential of a stock without having to risk more than a fraction of its market value (premium paid).

Conversely, if you anticipate downward movement, buying a put option will enable you to protect against downside risk without limiting profit potential.

Purchasing options offer you the ability to position yourself accordingly with your market expectations in a manner such that you can both profit and protect with limited risk.

Once I have bought an option and paid the premium for it, how does it get settled?
Option is a contract which has a market value like any other tradable commodity. Once an option is bought there are following alternatives that an option holder has:

You can sell an option of the same series as the one you had bought and close out /square off your position in that option at any time on or before the expiration.

You can exercise the option on the expiration day in case of European Option or; on or before the expiration day in case of an American option. In case the option is 'Out of Money' at the time of expiry, it will expire worthless.

What are the risks involved for an options buyer?
The risk/ loss of an option buyer is limited to the premium that he has paid.

What are the risks for an Option writer?

The risk of an Options Writer is unlimited where his gains are limited to the Premiums earned. When a physical delivery uncovered call is exercised upon, the writer will have to purchase the underlying asset and his loss will be the excess of the purchase price over the exercise price of the call reduced by the premium received for writing the call.

The writer of a put option bears a risk of loss if the value of the underlying asset declines below the exercise price. The writer of a put bears the risk of a decline in the price of the underlying asset potentially to zero.

How can an option writer take care of his risk?

Option writing is a specialized job which is suitable only for the knowledgeable investor who understands the risks, has the financial capacity and has sufficient liquid assets to meet applicable margin requirements. The risk of being an option writer may be reduced by the purchase of other options on the same underlying asset thereby assuming a spread position or by acquiring other types of hedging positions in the options/ futures and other correlated markets.

Who can write options in Indian derivatives market?
In the Indian Derivatives market, Sebi has not created any particular category of options writers. Any market participant can write options. However, margin requirements are stringent for options writers.

What are Stock Index Options?

The Stock Index Options are options where the underlying asset is a Stock Index for e.g. Options on S&P 500 Index/ Options on BSE Sensex etc.

Index Options were first introduced by Chicago Board of Options Exchange in 1983 on its Index 'S&P 100'. As opposed to options on Individual stocks, index options give an investor the right to buy or sell the value of an index which represents group of stocks.

What are the uses of Index Options?
Index options enable investors to gain exposure to a broad market, with one trading decision and frequently with one transaction. To obtain the same level of diversification using individual stocks or individual equity options, numerous decisions and trades would be necessary.

Since, broad exposure can be gained with one trade, transaction cost is also reduced by using Index Options. As a percentage of the underlying value, premiums of index options are usually lower than those of equity options as equity options are more volatile than the Index.

Who would use index options?
Index Options are effective enough to appeal to a broad spectrum of users, from conservative investors to more aggressive stock market traders.

Individual investors might wish to capitalize on market opinions (bullish, bearish or neutral) by acting on their views of the broad market or one of its many sectors.

The more sophisticated market professionals might find the variety of index option contracts excellent tools for enhancing market timing decisions and adjusting asset mixes for asset allocation.

To a market professional, managing risks associated with large equity positions may mean using index options to either reduce risk or increase market exposure.

What are Options on individual stocks?
Options contracts where the underlying asset is an equity stock, are termed as Options on stocks. They are mostly American style options cash settled or settled by physical delivery.

Prices are normally quoted in terms of the premium per share, although each contract is invariably for a larger number of shares, e.g. 100.

How will introduction of options in specific stocks benefit an investor?
Options can offer an investor the flexibility one needs for countless investment situations. An investor can create hedging position or an entirely speculative one, through various strategies that reflect his tolerance for risk.

Investors of equity stock options will enjoy more leverage than their counterparts who invest in the underlying stock market itself in form of greater exposure by paying a small amount as premium.

Investors can also use options in specific stocks to hedge their holding positions in the underlying (i.e. long in the stock itself), by buying a Protective Put. Thus they will insure their portfolio of equity stocks by paying premium.

ESOPs (Employees' stock options) have become a popular compensation tool with more and more companies offering the same to their employees. ESOPs are subject to lock in periods, which could reduce capital gains in falling markets - Derivatives can help arrest that loss along with tax savings.

An ESOPs holder can buy Put Option in the underlying stock & exercise the same if the market falls below the strike price & lock in his sale prices

Whether exchange traded equity options are issued by companies underlying them.
The equity options traded on exchange are not issued by the companies underlying them. Companies do not have any say in selection of underlying equity for options.

Whether the holders of equity options contracts have all the rights that the owners

of equity shares have.
Holder of the equity options contracts do not have any of the rights that owners of equity shares have - such as voting rights and the right to receive bonus, dividend etc. To obtain these rights a Call option holder must exercise his contract and take delivery of the underlying equity shares.

What are Leaps (long term equity anticipation securities)?
Long term equity anticipation securities (Leaps) are long-dated put and call options on common stocks or ADRs.

These long-term options provide the holder the right to purchase, in case of a call, or sell, in case of a put, a specified number of stock shares at a pre-determined price up to the expiration date of the option, which can be three years in the future.

What are exotic Options?
Derivatives with more complicated payoffs than the standard European or American calls and puts are referred to as Exotic Options. Some of the examples of exotic options are as under:

Barrier Options: where the payoff depends on whether the underlying asset's price reaches a certain level during a certain period of time.

CAPS traded on CBOE (traded on the S&P 100 & S&P 500) are examples of Barrier Options where the pay-out is capped so that it cannot exceed $30.

A Call CAP is automatically exercised on a day when the index closes more than $30 above the strike price. A put CAP is automatically exercised on a day when the index closes more than $30 below the cap level.

Binary Options: are options with discontinuous payoffs. A simple example would be an option which pays off if price of an Infosys share ends up above the strike price of say Rs. 4000 & pays off nothing if it ends up below the strike.

What are Over-The-Counter Options?
Over-The-Counter options are those dealt directly between counter-parties and are completely flexible and customized. There is some standardization for ease of trading in the busiest markets, but the precise details of each transaction are freely negotiable between buyer and seller.

Where can I trade in Options and Futures contracts.
Like stocks, options and futures contracts are also traded on any exchange. In Bombay Stock Exchange, stocks are traded on BSE On Line Trading (BOLT) system and options and futures are traded on Derivatives Trading and Settlement System (DTSS).

What is the underlying in case of Options being introduced by BSE?
The underlying for the index options is the BSE 30 Sensex, which is the benchmark index of Indian Capital markets, comprising 30 scrips.

What are the contract specifications of Sensex Options?
BSE's first index options is based on BSE 30 Sensex. The Sensex options would be European style of options i.e. the options would be exercised only on the day of expiry.

They will be premium style i.e. the buyer of the option will pay premium to the options writer in cash at the time of entering into the contract.

The Premium and Options Settlement Value (difference between Strike and Spot price at the time of expiry), will be quoted in Sensex points The contract multiplier for Sensex options is INR 50 which means that monetary value of the Premium and Settlement value will be calculated by multiplying the Sensex Points by 50.

For e.g. if Premium quoted for a Sensex options is 50 Sensex points, its monetary value would be Rs. 2500 (50*50).

There will be at-least 5 strikes (2 In the Money, 1 Near the money, 2 Out of the money), available at any point of time. The expiration day for Sensex option is the last Thursday of Contract month.

If it is a holiday, the immediately preceding business day will be the expiration day.

There will be three contract month series (Near, middle and far) available for trading at any point of time. The settlement value will be the closing value of the Sensex on the expiry day.

The tick size for Sensex option is 0.1 Sensex points (INR 5). This means the minimum price fluctuation in the value of the option premium can be 0.1.In Rupee terms this translates to minimum price fluctuation of Rs 5. (Tick Size * Multiplier =0.1* 50).

What is SPAN?

Specific Portfolio Analysis of Risk (SPAN) is a worldwide acknowledged risk management system developed by Chicago Mercantile Exchange (CME). It is a portfolio-based margin calculating system adopted by all major Derivatives Exchanges.

Objective of SPAN

SPAN identifies overall risk in a complete portfolio of futures and options at the same time recognizing the unique exposures associated with both inter-month and inter-commodity risk relationships.

It determines the largest loss that a portfolio might suffer with in the period specified by the exchange i.e may be day (or) two. BSE has licensed SPAN from CME for calculating margin requirements at the Exchange level. At the same time members can also calculate margin requirements of their clients by using PC SPAN.

What is PC-SPAN?

PC-SPAN is an easy to use program for PC's which calculates SPAN margin requirements at the members' end. How PC SPAN works:

Each business day the exchange generates risk parameter file (parameters set by the exchange) which can be down loaded by the member.

The position file consisting of members' trades (own + clients) and the risk parameter file has to be fed into PC-SPAN for calculation of Margins payable for the trades executed.

What will be the new margining system in the case of Options and futures?

A portfolio based margining model (SPAN), would be adopted which will take an integrated view of the risk involved in the portfolio of each individual client comprising of his positions in all the derivatives contract traded on the Derivatives Segment.

The Initial Margin would be based on worst-case loss of the portfolio of a client to cover 99 per cent VaR over two days horizon. The Initial Margin would be netted at client level and shall be on gross basis at the Trading/Clearing member level.The Portfolio will be marked to market on a daily basis.

How will the assignment of options takes place?

On Exercise of an Option by an Option Holder, the trading software will assign the exercised option to the option writer on random basis based on a specified algorithm.

What does an investor need to do to trade in options?

An investor has to register himself with a broker who is a member of the BSE Derivatives Segment.

If he wants to buy an option, he can place the order for buying a Sensex Call or Put option with the broker. The Premium has to be paid up-front in cash.

He can either hold on to the contract till its expiry or square up his position by entering into a reverse trade.If he closes out his position, he will receive Premium in cash, the next day.

If the investor holds the position till expiry day and decides to exercise the contract, he will receive the difference between Option Settlement price and the Strike price in cash.If he does not exercise his option, it will expire worthless.

If an investor wants to write/ sell an option, he will place an order for selling Sensex Call/ Put option. Initial margin based on his position will have to be paid up-front (adjusted from the collateral deposited with his broker) and he will receive the premium in cash, the next day.

Everyday his position will be marked to market and variance margin will have to be paid. He can close out his position by a buying the option by paying requisite premium. The initial margin which he had paid on the first position will be refunded.

If he waits till expiry, and the option is exercised, he will have to pay the difference in the Strike price and the options settlement price, in cash. If the option is not exercised, the investor will not have to pay anything.

What steps will be taken by the exchange to create awareness about options amongst masses?

The exchange is conducting free of cost futures and options awareness programs for member brokers and their clients. This will be conducted across the country to reach investors at large.

For On line tutorials in Options by Chicago Board Options Exchange. CLICK HERE (provided you're connected to Internet)

Click here-in-below for links to web-sites wherein you find Educational Videos on OPTIONS:-

- **Option Basics: What is an Option?**
- **Options Trading**
- **Option Trading - How to Find the Stock - Part 1**
- **Option Trading -How To Find the Stock-Part 2**
- **Option Trading - How To Find the Stock-Part 3**
- **Why Trade Options?**
- **Option Trading Advice and Mentoring!**
- **Free Lesson 1 - Make Money Understanding Put Spreads**
- **Iron Condor *Options Trading* Stock Market Income Strategy**
- **Trading Options and Volatility**