Demystifying Derivatives

The Sharekhan Guide to Derivatives

Sharekhan

YOUR GUIDE TO THE FINANCIAL JUNGLE

Contents

Foreword

Ever since the Security and exchange board of India has allowed trading in equities-based derivatives on stock exchanges in June 2000, we have seen a lot of new initiatives have been taken to improvise and make the derivative segment more vibrant and within the reach of the market participants. We have seen the total number of stocks in the derivative segment has increased to around 183 stocks from 30 index based stocks in the beginning and the total average daily volumes has increased 35000 plus that is growth of more than 100% a year for the last six years, all indicating that this segment is growing at a outrageous pace and is becoming increasingly important day by day as this segment gives the flexibility to use it according to the individual needs i.e. hedging, arbitrage and speculation. Indeed the derivatives market is fast emerging as an important business segment for both investors and brokers.

Investors will find that there are lots of opportunities to make money once they understand the concept of derivatives and its application. Though there are several publications on this subject, a simple and concise write-up is rare. Share khan's *Derivatives Digest* explains the concept of derivatives in a simple talk book manner wherein Sharekhan himself replies to a series of questions on derivatives. I am sure that after "digesting" the contents of the book the reader would be able to use derivatives products with more ease in his day-to-day trading.

A Sheru

July 2007

Prologue

I was visiting our Bangalore branch office last week. Great place and charming people! But Bangalore is not what I am going to talk about today. Instead I would relate the incident that happened on my way to Bangalore for therein lies a tale.

I was in an early morning flight, well settled in a window seat and looking forward to spending my time in air admiring the rising sun. But as it happened a nice rotund gentleman in a crisp white shirt and carefully creased black trousers came and occupied the seat next to mine. After he had settled down, he turned to me and offered his hand, "I am *paisewallah*," he said.

"Yeah? And I am the lord of the financial jungle," was at the tip of my tongue but I controlled myself and just mouthed, "Sharekhan."

Sharekhan—as in *Zanzeer*?" my self-proclaimed wealthy neighbour asked me.

"No, Sharekhan as in stocks and shares," I corrected.

"Stocks and shares? Hey! Even I dabble in shares. Have some blue chips in my portfolio, I have. What about you?" was his next question.

Obviously he hadn't heard of me. "I am a stock broker," was my modest reply.

"Do you deal in derivatives? Now a days I am hearing a lot about derivatives on the television, but due to lack of knowledge I am not able to make a head and tale out of it and that is why I am not getting into it. You see I have some money [as if I could doubt after the way he'd introduced himself ☺] and want to try out derivatives. Can you tell me something about derivative?" he looked at me questioningly.

"Sure." I replied and offered him my card, saying "If you ever need any help with derivatives trading or with equities, mutual funds, insurance and depository services for that matter, just call me." "Meanwhile what do you wish to know about derivatives?" I asked.

"Everything," he answered with a grin.

I could see my dreams of enjoying the sunrise evaporating…but all in a good cause, I told myself. And so began our discussion that ended only with our journey; I am going to reproduce below the same in toto and hope you find it as useful as did my fellow-traveller whom I am going to refer to as Paisewallah (that's how he introduced himself after all ☺) from here on.

Paisewallah: So what are derivatives?

Sharekhan: Derivatives are financial contracts whose value/price is dependent on the behaviour of the price of one or more basic underlying assets (often simply known as the underlying). These contracts are legally binding agreements, made on the trading screen of stock exchanges, to buy or sell an asset in future. The asset can be a share, index, interest rate, bond, rupee dollar exchange rate, sugar, crude oil, soybean, cotton, coffee and what have you.

Paisewallah: Why don't you give me some examples of derivatives?

Sharekhan: A very simple example of derivatives is curd, which is derivative of milk. The price of curd depends upon the price of milk which in turn depends upon the demand and supply of milk.

See it this way. The price of Reliance Triple Option Convertible Debentures (Reliance TOCD) used to vary with the price of Reliance shares. And the price of Telco warrants depends upon the price of Telco shares. Do American depository receipts/ global depository receipts of ICICI, Satyam and Infosys traded on stock exchanges in the USA and England have their own values? No. They draw their price from the underlying shares traded in India. Consider how the value of mutual fund units changes on a day-to-day basis. Don't mutual fund units draw their value from the value of the portfolio of securities under the schemes? Aren't these examples of derivatives? Yes, these are. And you know what, these examples prove that derivatives are not so new to us.

Nifty options and futures, Reliance futures and options, Satyam futures and options etc are all examples of derivatives. Futures and options are the most common and popular forms of derivatives.

Paisewallah: That sounds interesting. I would like to know the history of derivatives, especially the Indian part of it…

Sharekhan: The derivatives markets has existed for centuries as a result of the need for both users and producers of natural resources to hedge against price fluctuations in the underlying commodities. Although trading in agricultural and other commodities has been the driving force behind the development of derivatives exchanges, the demand for products based on financial instruments-such as bond, currencies, stocks and stock indices-have now far outstripped that for the commodities contracts.

India has been trading derivatives contracts in silver, gold, spices, coffee, cotton and oil etc for decades in the gray market. Trading derivatives contracts in organised market was legal before Morarji Desai's government banned forward contracts. Derivatives on stocks were traded in the form of *Teji* and *Mandi* in unorganised markets. Recently futures contract in various commodities were allowed to trade on exchanges. For example, now cotton and oil futures trade in Mumbai, soybean futures trade in Bhopal, pepper futures in Kochi, coffee futures in Bangalore etc.

In June 2000, National Stock Exchange and Bombay Stock Exchange started trading in futures on Sensex and Nifty. Options trading on Sensex and Nifty commenced in June 2001. Very soon thereafter trading began on options and futures in 31 prominent stocks in the month of July and November respectively. Currently there are 183 stocks trading on NSE Derivative and the list is continuously growing.

Paisewallah: How many stocks are trading in Futures & Option? What is the minimum quantity we need to trade?

Sharekhan: The minimum quantity you can trade in is one market lot. The market lot is different for different stocks/index. Sample this. Time to time list will keep changing. As on now there are 183 stocks and 5 index trading.

Paisewallah: What are forward contracts?

Sharekhan: A forward contract is a customised contract between the buyer and the seller where settlement takes place on a specific date in future at a price agreed today. The rupee-dollar exchange rate is a big forward contract market in India with banks, financial institutions, corporate and exporters being the market participants.

Paisewallah: What are the main features of a forward contract?

Sharekhan: The main features of a forward contract are:

- It is a negotiated contract between two parties and hence exposed to counter party risk. eg: Trade takes place between A&B@ 100 to buy & sell x commodity. After 1 month it is trading at Rs.120. If A was he buyer he would gain Rs. 20 & B Loose Rs.20. In case B defaults you are exposed to counter party Risk i.e. you will now entitled to your gains. In case of Future, the exchange gives a counter guarantee even if the counter party defaults you will receive Rs.20/- as a gain.
- Each contract is custom designed and hence unique in terms of contract size, expiration date, asset type, asset quality etc.
- A contract has to be settled in delivery or cash on expiration date as agreed upon at the time of entereing into the contract.

- In case one of the two parties wishes to reverse a contract, he has to compulsorily go to the other party. The counter party being in a monopoly situation can command the price he wants.

Paisewallah: What are futures?

Sharekhan: Futures are exchange-traded contracts to buy or sell an asset in future at a price agreed upon today. The asset can be share, index, interest rate, bond, rupee-dollar exchange rate, sugar, crude oil, soybean, cotton, coffee etc.

Paisewallah: Tell me about the standard terms in a futures contract…

Sharekhan: The standard terms in any futures contract are:

- Quantity of the underlying asset
- Quality of the underlying asset (not required in case of financial futures)
- Expiration date
- The unit of price quotation (not the price)
- Minimum fluctuation in price (tick size)
- Settlement style

For example: when you are dealing in May 2007 Satyam futures contract, you know that the market lot, ie the minimum quantity you can buy or sell, is 600 shares of Satyam, the contract would expiry on May 31, 2007, the price is quoted per share, the tick size is 5 paise per share or (600*0.05) = Rs30 per contract/ market lot, the contract would be settled in cash and the closing price in the cash market on expiry day would be the settlement price.

Paisewallah: What is the difference between forward and futures contracts?

Sharekhan: A futures contract is nothing but a form of forward contract. You can differentiate a forward contract from a futures contract on the following lines:

- Customised vs Standardised contract: forward contracts are customised while futures contracts are standardised. Terms of forward contracts are negotiated between the buyer and the seller. While the terms of futures contracts are decided by the exchange on which these are traded.
- Counter Party Risk: in forward contracts there is a risk of counter party default. In case of futures the exchange becomes counter party to each trade and guarantees settlement.
- Liquidity: futures are much more liquid and their price is transparent as their price and volumes are reported in the media.

- Squaring off: a forward contract can be reversed with only the same counter party with whom it was entered into. A futures contract can be reversed on the screen of the exchange as the latter is the counter party to all futures trades.

Paisewallah: Is there a theoretical way of pricing futures?

Sharekhan: The theoretical price of a futures contract is spot price of the underlying plus the cost of carry. Please note that futures are not about predicting future prices of the underlying assets.

In general, Futures Price = Spot Price + Cost of Carry

The Cost of Carry is the sum of all costs incurred if a similar position is taken in cash market and carried to expiry of the futures contract less any revenue that may arise out of holding the asset. The cost typically includes interest cost in case of financial futures (insurance and storage costs are also considered in case of commodity futures). Revenue may be in the form of dividend.

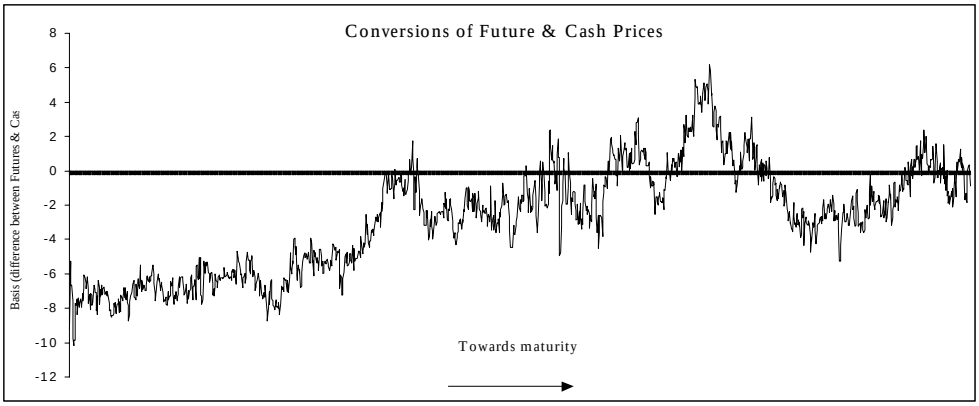
Though one can calculate the theoretical price, the actual price may vary depending upon the demand and supply of the underlying asset.

Paisewallah: Can you explain with a few examples how futures are priced?

Sharekhan: Suppose Reliance shares are quoting at Rs1500 in the cash market. The interest rate is about 12% per annum. The cost of carry for one month would be about Rs15. As such a Reliance future contract with one-month maturity should quote at nearly Rs1515. Similarly Nifty level in the cash market is about 4000. One month Nifty future should quote at about 4040. However it has been observed on several occasions that futures quote at a discount or premium to their theoretical price, meaning below or above the theoretical price. This is due to demand-supply pressures. Everytime a Stock Future trades over and above its cost of carry i.e. above Rs. the arbitragers would step in and reduce the extra premium commanded by the future due to demand. eg: woud buy in the cash market and sell the equal amount in the future. Hence creating a risk free arbitrage, vice-versa for the discount. It is also observed that index futures generally don't command a huge premium as stocks, due to many reasons such as dividends in index stocks, hedging and speculation etc which keeps the index premium under check.

Paisewallah: What happens to the futures price as a contract approaches expiry?

Sharekhan: As the futures contract approaches expiry, the difference between cash and futures prices (called Basis) reduces as time to expiry reduces; thus futures and cash prices start converging. On expiry day, the futures price should equal cash market price.



Paisewallah: How does settlement take place?

Sharekhan: Presently both stock and index futures are settled in cash. The closing price in the cash segment is considered as the settlement price. The difference between the trade price and the settlement price is ultimately your profit/loss.

Paisewallah: What would happen in case of delivery-based settlement?

Sharekhan: Stock-based derivatives are expected to be settled in delivery. On expiry of the futures contract, the buyer/seller of the future would receive a long/short position at the closing price in the cash segment on the next trading day. This position in the cash segment would merge with any other position the buyer/seller has. In case the buyer/seller wants he can square up this position by selling/buying the shares. Or else he would be required to deliver/receive the underlying shares on the settlement day (eg T+2) in the cash segment.

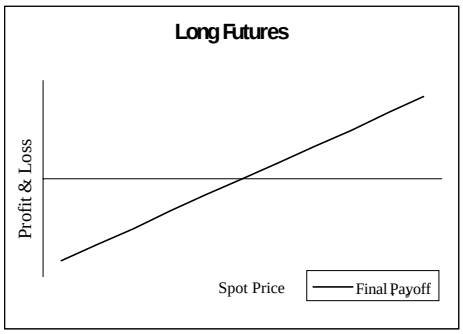
The aforesaid methodology is not final yet. Sebi guidelines in this regard are awaited. You can call me to know the exact methodology once the regulator and exchanges announce the same.

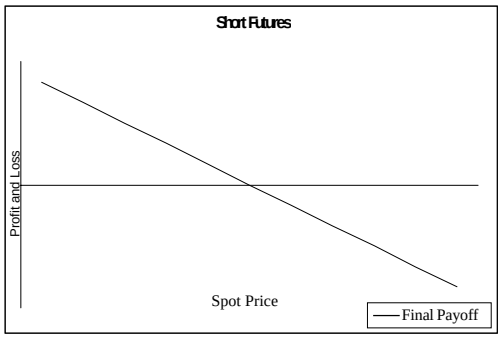
Paisewallah: Okay. But what would happen to the settlement of index-based derivatives?

Sharekhan: Index-based derivatives would continue to be settled in cash.

Paisewallah: How can I use futures contracts?

Sharekhan: You can do directional trading using futures. In case you are bullish on the underlying stock or index, you can simply buy futures on stock/index. Similarly if you are bearish on the underlying, you can sell futures on stock/index.





Paisewallah: Can I square up my position at any time before expiry?

Sharekhan: Yes. It is not necessary to wait for the expiry day once you have initiated the position. You can square up your position at any time during the trading session, booking profit or cutting losses.

Paisewallah: What are the advantages and risks of trading in futures over cash?

Sharekhan: The biggest advantage of futures is that you can short sell without having stock and you can carry your position for a long time, which is not possible in the cash segment because of rolling settlement. Conversely you can buy futures and carry the position for a long time without taking delivery, unlike in the cash segment where you have to take delivery because of rolling settlement.

Further futures positions are leveraged positions, meaning you can take a Rs100 position by paying Rs25 margin and daily mark-to-market loss, if any. This can enhance the return on capital deployed. For example, you expect a Rs100 stock to go up by Rs10. One way is to buy the stock in the cash segment by paying Rs100. You make Rs10 on investment of Rs100, giving about 10% returns. Alternatively you take futures position in the stock by paying about Rs30 toward initial and mark-to-market margin. You make Rs10 on investment of Rs30, ie about 33% returns. Please note that taking leveraged position is very risky, you can even lose your full capital in case the price moves against your position.

Paisewallah: What are the advantages of index futures?

Sharekhan: After listening to the news and other happenings in the economy, you take a view that the market would go up. You substantiate your view after talking to your near and dear ones. When the market opens, you express your view by buying ABC stock. The whole market goes up as you expected but the price of ABC stock falls due to some bad news related to the company. This means that while your view was correct, its expression was wrong.

Using Nifty/Sensex futures you can express your view on the market as a whole. In this case you take only market risk without exposing yourself to any company specific risk. Though trading on Nifty or Sensex might not give you a very high return as trading in stock can, yet at the same time your risk is also limited as index movements are smooth, less volatile without unwarranted swings.

Paisewallah: How can I use volume and open interest figures to predict the market movement?

Sharekhan: The total outstanding position in the market is called open interest. In case volumes are rising and the open interest is also increasing, it suggests that more and more market participants are keeping their positions outstanding. This implies that the market participants are expecting a big move in the price of the underlying. However to find in which direction this move would be, one needs to take help of charts.

In case the volumes are sluggish and the open interest is almost constant, it suggests that a lot of day trading is taking place. This implies sideways price movement in the underlying. To track it on a daily basis you subscribe to Derivative Infokit, which is available on our website www.sharekhan.com

Paisewallah: What happens to my position in the futures contract when corporate announcements like dividend, bonus, stock split, rights etc are made?

Sharekhan: An intelligent question. In the event of such corporate announcements, the exchanges adjust the position such that economical value of your position on cum-benefit and on ex-benefit day is the same.

Paisewallah: Please explain these adjustments with the help of some examples. What is the effect of dividend on futures?

Sharekhan: While calculating the theoretical price of a futures contract, the interest rate should be taken as net of dividend yield. So on announcement of the dividend, the futures price should be discounted by the dividend amount.

However as per the policy of Sebi and stock exchanges, if the dividend is more than 10% of the market price of the stock on the day of dividend announcement, the futures price is adjusted. The exchanges roll over the positions from last-cum-dividend day to the ex-dividend day by reducing the settlement price by dividend. In such a case, the price of futures does get affected by the announcement of such exceptional dividends.

Suppose Reliance is trading at Rs1500 and a two-month Reliance future which has 45 days to maturity is trading at Rs1520. Reliance declares 250% dividend, ie

Rs25. The dividend amount is less than 10% of the market price of Reliance, so the exchange would not adjust the position. As such the market adjusts this dividend in the market price and the futures price goes down by Rs25 to Rs 1495.

Paisewallah: How a bonus would affect my position?

Sharekhan: The lot size of the stock that gives bonus gets adjusted according to the ratio of the bonus. The position is transferred from cum-bonus to ex-bonus day by adjusting the settlement price to neutralise the effect of bonus.

For example: the current lot size of satyam is 600. Suppose Cipla announces a bonus of 1:1. You are long on 600 shares of Satyam and the settlement price of Cipla on cum-bonus day is Rs500. On ex-bonus day your position becomes long on 1200 shares at Rs250. Thereafter the lot size of Cipla would be 1200.

Paisewallah: How can I hedge my stock position using futures?

Sharekhan: Suppose you are holding a stock that has futures on it and for two to three weeks the stock does not look good to you. You do not want to lose the stock but at the same time you want to hedge against the expected adverse price movement of the stock for two to three weeks.

One option is to sell the stock and buy it back after two to three weeks. This involves a heavy transaction cost and issue of capital gain taxes. Alternatively you can sell futures on the stock to hedge your position in the stock. In case the stock price falls, you make profit out of your short position in the futures. Using stock futures you would virtually sell your stock and buy it back without losing it. This transaction is much more economical as it does not involve cost of transferring the stock to and from depository account.

You might say that if the stock had moved up, you would have made profit without hedging. However it is also true that in case of a fall, you might have lost the value too without hedging. Please remember that a hedge is not a device to maximise profits. It is a device to minimise losses. As they say, a hedge does not result in a better outcome but in a predictable outcome.

Paisewallah: I am holding a stock that does not have futures on it; can I still hedge my position using futures?

Sharekhan: Yes. You can hedge your cash market position in stocks that do not have stock futures by using index futures. Before we go any further, we need to understand the term called *beta*. Beta of a stock is nothing but the movement of the stock relative to the index. So suppose a stock X moves up by 2% when the

Nifty moves up by 1% and it goes down by 2% when the Nifty falls by 1%, the beta of this stock is 2. Beta is crucial in deciding how much position should be taken in index futures to hedge the cash market position.

Suppose you have a long position in ABB worth Rs2 lakh. The beta of ABB is 1.1. To hedge this position in the cash market you need to take an opposite position in Nifty futures worth 1.1 x 2, ie worth Rs2.2 lakh.

Suppose Nifty futures are trading at 1100 and the market lot for Nifty futures is 200. Then each market lot of Nifty is worth Rs2.2 lakh. Therefore to hedge your position in ABB you need to sell one contract of Nifty futures.

Paisewallah: Is this hedging with index futures perfect?

Sharekhan: No. Hedging is like marriage and one should not expect it to be perfect. The beta taken in the calculation of the position of Nifty futures is historical and there is no guarantee that it will be the same in future. So any deviation of beta makes the hedge imperfect.

Suppose you want to hedge your position in ABB for 15 days and during those 15 days ABB becomes very volatile and the beta goes up as high as 1.5. In this case your hedging position of one contract is not sufficient and you will be under hedged.

It is very difficult (in fact impossible) to get perfect hedge but one can improve the perfection by adjusting the position in Nifty futures from time to time.

Paisewallah: What does the term basis mean?

Sharekhan: The difference between the futures price and cash price is called basis. Generally futures prices are higher than cash prices (positive basis) as we are positive interest rate economy. However there are times when futures prices are lower than cash prices (negative basis). Basis is also popularly termed spread by the trading community.

Paisewallah: I have some liquid money—an stock futures help me earn risk-free interest?

Sharekhan: Yes, they can. Using stock futures you can deploy this money to earn risk-free interest. Suppose Satyam is quoting at Rs500 in the cash segment and one-month future is quoting at 510, you can earn risk-free interest by following the steps mentioned below:

- Buy Satyam in cash market at Rs500 and simultaneously sell Satyam future at 510.
- Pay Rs500 to take delivery of Satyam stock in cash market.

- On expiry of Satyam future contract, the short position would be transferred to your account in the cash segment and a delivery order would be issued against you.
- Deliver the Satyam stock.
- Whatever happens to the price of Satyam, you earn Rs510-500=10 on Rs500 for one month.
- Need to have mark to mark margins in your account, incase Satyam moves up.

If required the future position can be rolled over to the next month position with a difference of Rs4-5. This roll-over process can continue till you want to get your money back.

Paisewallah: If futures are quoting below the cash market price, can I gain using futures?

Sharekhan: Yes, of course. But you need to have that stock. Suppose one-month SBI future is quoting at 1200 while SBI is quoting at Rs1210 in the cash segment. Follow the steps mentioned below to make risk-free money.

- Sell SBI in the cash market at Rs1210 and simultaneously buy SBI future at 1200.
- Receive Rs1210 and make delivery of SBI stock in the cash market.
- On expiry of the SBI future contract, the long position would be transferred to your account in the cash segment and a receive order would be issued to you.
- Get your SBI stock back.
- Whatever happens to the price of SBI, you earn Rs1210-1200=10 on your stock.

I can make you aware of such opportunities to make risk-free money on your stocks lying idle in the depository account. Just call me or visit my site sharekhan.com.

Paisewallah: Can I borrow against my shares using stock futures?

Sharekhan: Yes, you can and that is the advantage of futures. Instead of going to the banker and complying with a whole lot of formalities, you can in fact just call me to help you raise money against your shares using futures.

Suppose ACC is quoting at Rs800 in the cash segment and one-month ACC futures are quoting at 810. Follow the steps mentioned below to raise money against your ACC shares.

- Sell ACC in the cash market at Rs800 and simultaneously buy ACC futures at 810.
- Receive Rs800 and make delivery of ACC stock in the cash market.

- On expiry of the ACC futures contract, the long position would be transferred to your account in the cash segment and a receive order would be issued to you.
- Get your ACC stock back.
- Whatever happens to the price of ACC, you lose Rs810-800=10 to raise money against your shares as cost.

Paisewallah: I have seen that the difference between the spot and futures prices varies intra-day, can you explain how to do arbitrage to make money in such situations?

Sharekhan: When the futures are quoting at a premium to their theoretical price, one can buy cash and short futures. When the prices come in line, that is when the difference between the futures and cash prices comes down, reverse the positions. Conversely when the futures are quoting at a discount to the theoretical price, one can sell cash and buy futures. When the prices come in line, that is the difference between the futures and cash prices goes up, reverse the positions. This way it is possible to take advantage of fluctuations in the basis. Please note that there is the risk of execution of order. Also you need to decide the arbitration band depending on the transaction cost you bear. In case you want to know in detail about this product, please contact me.

Paisewallah: What are options?

Sharekhan: Options are contracts that give the buyers the right (but not the obligation) to buy or sell a specified quantity of certain underlying asset at a specified price on or before a specified date. On the other hand, the seller is under obligation to perform the contract (buy or sell the underlying). The underlying asset can be share, index, interest rate, bond, rupee-dollar exchange rate, sugar, crude oil, soybean, cotton, coffee etc.

The options that give their buyer the right to buy are called "Call Options" and those which give their buyer the right to sell are called "Put Options".

Paisewallah: Can you explain call option on a stock with an example?

Sharekhan: Sure. Suppose you have a right to buy 1,000 shares of Hindustan Lever at Rs200 per share on or before May 31, 2007. In other words you are a buyer of a call option on Hindustan Lever. The option gives you the right to buy 1,000 shares. You have the right to buy Hindustan Lever shares at Rs200 per share.

The seller of this call option who has given you the right to buy from him is under obligation to sell 1,000 shares of Hindustan Lever at Rs200 per share on or before May 31, 2007 whenever asked.

Paisewallah: Can you explain put option on a stock with an example?

Sharekhan: Suppose you have the right to sell 300 shares of Bharat Heavy Electricals at Rs1300 per share on or before May 31, 2007. In other words you are a buyer of a put option on Bharat Heavy Electricals. The option gives you the right to sell 300 shares. You have the right to sell Bharat Heavy Electricals shares at Rs1300 per share. The seller of this put option who has given you the right to sell to him is under obligation to buy 300 shares of Bharat Heavy Electricals at Rs1300 per share on or before May 31, 2007 whenever asked.

Paisewallah: Can you explain put option on an index with an example?

Sharekhan: Suppose you have the right to sell 50 Nifty units at 4000. In other words you are a buyer of a put option on Nifty. The option gives you the right to sell 50 Nifty units. You have the right to sell 50 units of Nifty at 4000. The seller of this call option who has given you the right to sell to him is under obligation to buy 50 units of Nifty.

Paisewallah: Till when the buyer enjoys the right and the seller obliges?

Sharekhan: Option contracts have an expiry date specified by exchanges. The buyer enjoys the right and the seller is under obligation to fulfill the right till the option contract expires. May 31, 2007 is the expiry date in the aforesaid example. Normally as per the contract specifications of options given by the National Stock Exchange and Bombay Stock Exchange, last Thursday of the contract month is the expiry day. In case the last Thursday of a month is a holiday, the previous business day is considered as the expiry day. However you must check with the dealer about the expiry date before placing the order for buying or selling options.

Paisewallah: What are the contract months available for options?

Sharekhan: There is one-, two- and three-month contracts available presently. It is expected that once these contracts become liquid, the exchanges would introduce contracts of longer-term expiry/maturity.

Paisewallah: What is a strike price or exercise price?

Sharekhan: The price at which you have the right to buy or sell is called the strike price. In the examples given above, the price of Rs200 per share in case of Hindustan Lever or of Rs1300 per share in case of Bharat Heavy Electricals is called strike price or exercise price.

Paisewallah: Who decides the strike price?

Sharekhan: The exchanges decide the strike price at which call and put options are traded. Generally to simplify matters, the exchanges specify the strike price interval

for different levels of underling prices, meaning the difference between one strike price and the next strike price over and below it.

For example, the strike price interval for Hindustan Lever is Rs5. This means that there would be strike prices available with an interval of Rs5. Typically you can see options on Hindustan Lever with strike prices of Rs180, Rs185, Rs190, Rs195, Rs200 etc.

Paisewallah: What are the strike price intervals specified by exchanges presently?

Sharekhan: Following are the strike price intervals specified by exchanges:

Price level of Underlying	Strike Price Interval (in Rs)
Less than or equal to 50	2.5
above 50 to 250	5.0
above 250 to 500	10.0
above 500 to 1000	20.0
above 1000 to 2500	30.0
above 2500	50.0

Paisewallah: What happens when the underlying price moves up or down and I want to buy an option with a strike price that is not available on screen?

Sharekhan: As the price of underlying moves up or down, the exchanges introduce more strike prices in keeping with the strike price interval rules. At any point in time, there are at least five strike prices (one near the stock price, two above the stock price and two below the stock price) available for trading in one-, two- and three-month contracts. Only incase of a very big move strike prices may not be available on an intra-day basis, as they are introduced at the end of the day for next day trading.

Paisewallah: How can I buy call and put options?

Sharekhan: Call and put options are traded on-line on the trading screens of the National Stock Exchange and Bombay Stock Exchange like any other securities. You can also place your orders with Sharekhan to buy or sell option contracts. We are registered brokers and authorised to deal in futures and options on index and stocks on the National Stock Exchange and Bombay Stock Exchange.

Paisewallah: Who fixes the price of call and put options?

Sharekhan: The price of options is decided between the buyers and sellers on the trading screens of the exchanges in a transparent manner. You can see the best five orders by price and quantity. You can place market, limit and stop loss order etc.

You can modify or delete your pending orders. The whole process is similar to that of trading in shares.

Paisewallah: Do I have to wait till expiry once I buy or sell an option or can I square up my position?

Sharekhan: You are not compelled to wait till expiry of the option once you have bought or sold an option. Instead you can buy an option and square up the position by selling the identical option (same expiry and same strike) at any time before the contract expires. You can sell an option and square up the position by buying an identical option. You can buy first and sell later or you can initiate your position by selling and then buying—there is no restriction on direction. The difference between the selling and buying prices is your profit/loss. The process is similar to that of trading in shares.

Paisewallah: What are American style options? Is it possible for the buyer of such options to exercise his option before expiry?

Sharekhan: Ideally the buyer should find a seller in the market to square up his long position, as he would get a better value for his option. However if a seller is not available, he can exercise his option at the end of the trading session. To exercise an option, call your broker before the exercise timings specified by the exchange. To find the exercise timings, refer to the option's contract specifications. I will be glad to provide such information to you.

Option contracts which can be exercised on or before the expiry are called American options. All stock option co ntracts are American style.

Paisewallah: What are European style options? Is it possible for the buyer of an index option to exercise his option before expiry?

Sharekhan: The options on Nifty and Sensex or any other index options are European style options-meaning that buyer of these options can exercise his options only on the expiry day. He cannot exercise them before expiry of the contract as is the case with options on stocks. As such the buyer of index options needs to square up his position to get out of the market.

Paisewallah: What are the factors that affect the price of an option?

Sharekhan: There are five fundamental factors that affect the price of an option. These are:

1. Price of the underlying stock or index
2. Strike price/exercise price of the option

3. Time to expiration of the option
4. Risk-free rate of interest
5. Volatility of the price of underlying stock or index

Adjust the price for dividend expected during the term of the option to arrive at fine prices.

Paisewallah: What is volatility?

Sharekhan: Volatility is the measure of speed of the movement of underlying prices. In other words it is the probability of the movement of underlying prices. For example, when it is said that daily volatility of the closing price of a stock is 2%, it means that there is 50% probability that the stock price can go up or down 2% from its previous close.

Paisewallah: How to compute annual volatility if I know the figures of daily volatility?

Sharekhan: Multiply the daily volatility by the square root of the time for which you want to compute the volatility. Suppose daily volatility of a stock is 2%. Then annual volatility of the stock would be $2*\sqrt{T} = 2*\sqrt{256} = 2*16 = 32\%$. It has been assumed that there are 256 working days in a year to keep things simple. In the same way you can calculate the volatility for one month, three months or any time period using the daily volatility.

Paisewallah: Can you explain how the probability of price movement of the underlying helps to find the price of an option?

Sharekhan: Consider this: suppose a stock is trading at Rs70. There is 40% probability that the stock price would move to Rs80. Similarly the probabilities of the price being Rs90, Rs100, Rs110 and Rs120 are 25%, 15%, 10% and 5% respectively. What would be your expected return if you were the buyer of a call option with a strike price of Rs100? If the stock price were to finish at Rs80, Rs90 and Rs100, the call option would expire worthless. If the stock price were to finish at Rs110 or Rs120, you would gain Rs10 and Rs20 respectively. Your expected return from the call would be:

(40%*0)+(25%*0)+(15%*0)+(10%*10)+(5%*20) = 11.

This means that you would like to pay anything less than Rs11 for this option to make a profit and the seller would always like to get anything more than Rs11 for giving you this option.

Paisewallah: What happens in the real world?

Sharekhan: It is possible to take "n" number of prices and assign different probability numbers to each of the price to compute the expected return and the value of an option. But in real world there are infinite number of possibilities and this approach of computing price is not feasible. Alternatively, the volatility figure, which is nothing but indicated probability, is taken to find the price of an option.

Paisewallah: Is there an easier way to find the theoretical price of an option?

Sharekhan: Yes, there are scientific formulae available to compute the theoretical value of an option. The most popular mathematical model for computing the price of European style options is known as Black and Scholes model. Binomial model is used to find the fair value of premium of American style options. These formulae are complex mathematical functions and need fair amount of understanding of differential calculus, a branch of mathematics. Instead of spending too much effort in understanding the formulae, it is prudent to use ready-made tools for computing option prices. There are Excel sheets and software available for computing option prices which apply these algorithms. Put in the value of the five factors of an option into the software to find the theoretical price of the option. You can download option calculator from my website www.sharekhan.com free of cost. It has a complete guide on how to use the software.

Paisewallah: Can you explain option pricing with an example?

Sharekhan: What would be the value of a June 28, 2007 Reliance Industries call option with Rs1680 strike price when Reliance Industries is trading at Rs1700, there are 30 days remaining in expiry, the risk-free interest rate is 8% and annual volatility of Reliance Industries' price is 48%? Put in the value of the five factors in the option calculator downloaded from my site. Suppose this price is Rs80...

Paisewallah: I understand the price can be Rs20 as I am getting the right to buy Reliance Industries shares at Rs1680 when Reliance Industries is quoting at Rs1700. Can you explain why I should pay Rs85 for this option?

Sharekhan: Intelligent question. The difference of Rs20 between the strike price and the spot price is the value this option is holding right now. If you pay Rs20 and immediately exercise the option, you would neither gain nor lose. But this option is giving you the right to buy Reliance Industries shares at Rs1680 till June 28, 2007, which is 30 days away. The seller would like to get something for the risk of price rise during this period. Hence Rs60 (premium minus intrinsic value) is the time value of the option.

Paisewallah: Can you explain the pricing of a put option with an example?

Sharekhan: What would be the value of an June 28, 2007 ITC put option with Rs160 strike price when ITC is trading at Rs155, there are 30 days remaining in expiry, the risk-free interest rate is 8% and the annual volatility of ITC's price is 40%? Put in the value of the five factors in the option calculator downloaded from my site sharekhan.com. Suppose you find the price is Rs10...

Paisewallah: I can understand the price can be Rs5 as I am getting the right to sell ITC shares at Rs160 when ITC is quoting at Rs155. Can you explain why I should pay Rs10 for this option?

Sharekhan: The difference of Rs5 between the spot and the strike price is the value this option is holding right now. If you pay Rs5 and exercise the option immediately, you would neither gain nor lose. But this option is giving you the right to sell ITC shares at Rs160 till June 28, 2007, which is 30 days away. The seller would like to get some money for the risk of price falling during this period. The time value of the option is Rs5 (premium minus intrinsic value).

Paisewallah: Can I say that premium is the sum of intrinsic and time value of an option?

Sharekhan: Yes. You can divide the premium of an option into two components: intrinsic value and time value.

Paisewallah: Would the intrinsic value of relaince industries call option with Rs1,700 strike price be negative when reliance is quoting at Rs 320?

Sharekhan: No. The intrinsic value of an option is never negative, though it can be zero. The entire premium of such options consists of time value only.

Paisewallah: Can time value be negative?

Sharekhan: No. Like intrinsic value, time value too is never negative, though it can be zero.

Paisewallah: What is extrinsic value?

Sharekhan: Extrinsic value is nothing but another term used to describe time value.

Paisewallah: When is an option called in-the-money option?

Sharekhan: Those options, which have certain intrinsic value, are called in the money, by virtue of the fact that they are holding some money right now. For

example, when SBI is quoting at Rs1300, an SBI call option with Rs1280 strike price is in the money because you have the right to buy at a price lower than the market price of the underlying. All those call options which have their strike price lower than the spot price of the underlying are in the money.

Similarly when SBI is quoting at Rs1300, an SBI put option with Rs1320 strike price is in the money because you have the right to sell at a price higher than the spot price of the underlying. All those put options which have their strike price higher than the spot price of the underlying are in the money.

Paisewallah: When is an option called out of the money?

Sharekhan: Those options whose intrinsic value is zero are called out of the money, by virtue of the fact that they are not holding any money right now. For example, when SBI is quoting at Rs1300, an SBI call option with Rs1320 strike price is out of the money because you have the right to buy at higher price than the spot price of the underlying. All those call options which have their strike price higher than the spot price of the underlying are out of the money.

Similarly when SBI is quoting at Rs1300, an SBI put option with Rs1280 strike price is out of the money because you have the right to sell at a price lower than the spot price of the underlying. All those put options which have their strike price lower than the spot price of the underlying are out of the money.

Paisewallah: When is an option called near or at the money?

Sharekhan: Those options which have their strike price closest to the spot price of the underlying are called near-the-money options because these options are due to get in or out of the money. The options whose strike price is the same as the spot price of the underlying are called at-the-money options.

Paisewallah: Are options permanently at, in or out of the money?

Sharekhan: No. Options are not permanently in, at or out of the money. It is the movement of the spot price that makes the options in, at or out of the money. The same option which is in the money can become out of the money when the price moves adversely.

Paisewallah: How does settlement of the option take place on exercise/expiry?

Sharekhan: Presently stock options are settled in cash. This means that when the buyer of the option exercises an option, he receives the difference between the spot price and the strike price in cash. The seller of the option pays this difference.

It is expected that stock options would be settled by delivery of the underlying stock. This means that on exercise of a call option, a long position of the underlying

stock effectively at the strike price would be transferred in the cash segment in the account of the buyer of the call option who has the right to buy. An opposite short position at effectively the strike price would be transferred in the cash segment in the account of the seller of the call option who has obligation to sell.

Similarly on exercise of a put option, a short position in the underlying stock effectively at the strike price would be transferred in the cash segment in the account of the buyer of the put option who has the right to sell. An opposite long position at effectively the strike price would be transferred in the cash segment in the account of the seller of the put option who has the obligation to buy.

However guidelines in this regard are awaited from Sebi. Please check the exact method of delivery-based settlement once the regulator and exchanges announce it.

Paisewallah: How is the seller chosen against whom the obligation is assigned?

Sharekhan: When a buyer exercises his option, the exchange randomly selects a seller at client level and assigns the obligation againsts him. This process is called assignment. The seller of an option should be alert all the time as it is possible that an option could be assigned against him. Your broker would inform you about such an assignment.

Paisewallah: What can I do with the position so transferred in my account in the cash segment?

Sharekhan: It totally depends upon you. You can square up your position or let it go for the settlement on T+2 days. You receive the shares on payment of money if you have long position. You receive money against delivery of shares if you have short position.

However the exact method of delivery-based settlement has yet to be announced.

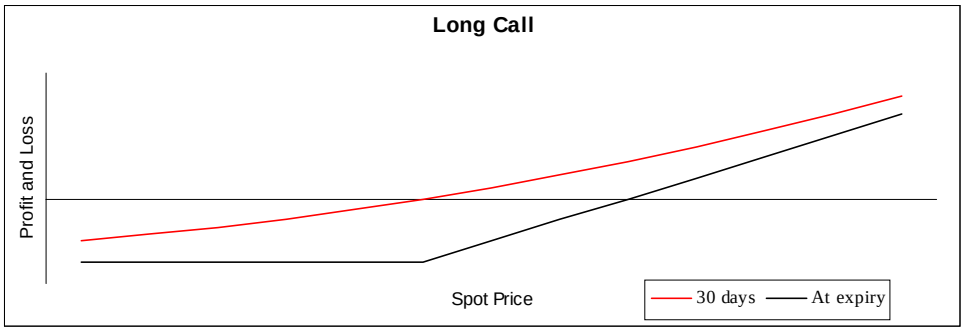
Paisewallah: What happens in case the buyer of an option forgets to exercise his option till expiry?

Sharekhan: On the day of expiry if the option is in the money, the exchange automatically exercises it and pays the difference between the settlement/closing price and the strike price to the buyer. The seller of the option pays this difference.

Paisewallah: How does the time value vary for at-, in- and out-of-the-money options?

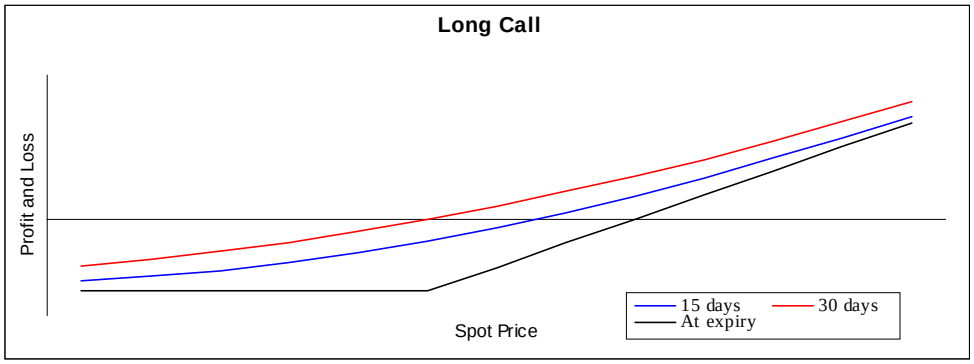
Sharekhan: The following graph shows how the premium of 30-day maturity, Rs1,700 strike price call option on Reliance varies with the movement of the spot price of Reliance. Study the price movement of the option carefully. You would find that the time value is the highest when the spot price is equal to the strike price, the option is at the money. As the spot price rises above the strike price, the option becomes in the money and its intrinsic value increases but its time value

decreases. In the same way as the spot price falls below the strike price, the option becomes out of the money and its intrinsic value becomes zero while its time value decreases.



Paisewallah: How does option premium vary with maturity of the option?

Sharekhan: The buyers of longer maturity options enjoy the right to longer duration and the sellers are subject to risk of price movement of the underlying during a longer term, since the price of both call and put options increases as the time to expiry increases. The following graph shows the prices of 15- and 30-day maturity, Rs260 strike price call options on Reliance when the spot price of Reliance is Rs260.



Paisewallah: How does option premium vary with risk-free interest rate?

Sharekhan: As the risk-free rate of interest increases, the price of call options increases and that of put options decreases and vice-versa.

Paisewallah: How does the price of an option vary with the movement of the spot price of the underlying?

Sharekhan: As the spot price of the underlying rises, the value of the call option increases and that of put options decreases. As the spot price of the underlying falls, the price of the call option decreases and that of the put option increases.

Paisewallah: What happens to my position in the options contract when corporate announcements like dividend, bonus, stock split, rights etc are made?

Sharekhan: Good question. In the event of such corporate announcements, the exchanges adjust the option positions such that the economical value of your position on the cum-benefit day and the ex-benefit day is the same.

Paisewallah: Please explain these adjustments with the help of some examples. What is the effect of dividend on options?

Sharekhan: According to Sebi regulations, if the value of the declared dividend is more than 10% of the spot price of the underlying on the day of dividend announcement, on ex-dividend date the strike price of the options on a stock are reduced by the dividend amount. In case the declared dividend is lower than 10% of the spot price, then there is no adjustment for the dividend by the exchange and the market adjusts the price of options taking the dividend into consideration.

Suppose Hindustan lever is trading at Rs200 and it announces a dividend of Rs30 per share. Since it is more than 10% of the prevailing market price, all the available strike price of Reliance options get reduced by Rs30 on ex-dividend date. The option with strike price of Rs200 stands at Rs170 and so on. If you are long 1000 Hindustan Lever 260 call . Your position on ex-dividend date would become long 1000 Hindustan Lever call 230.

At the same time ACC is trading at Rs800 and it announces a dividend of Rs10 per share. Since it is lower than 10% of the underlying price, no change is made in the option contracts of ACC. The ACC option with a strike price of Rs800 on last-cum-dividend date will remain as Rs800 strike price on ex-dividend date.

The stock price reduces by the dividend amount on the ex-dividend date. This means the call option price decreases and the put option price increases on ex-dividend date. In reality the market adjusts the option price as soon as the dividend is announced.

Paisewallah: How does bonus affect my position in stock options?

Sharekhan: The lot size and strike price of the stock option contract gets adjusted according to the bonus ratio. For example: if Infosys announces a bonus of 1:1, then the market lot of Infosys changes from 100 shares to 200 shares on ex- bonus day and the strike price of all the options on Infosys are reduced to half. Suppose you are short 100 Infosys put 2000, on ex-bonus day your position would become short 200 Infosys put 1000.

Paisewallah: How does the margin system work in option trading?

Sharekhan: Since the risk of the buyer of an option is limited to the premium paid, there is no margin required from the buyer of the option. The buyer's cost is

limited to the premium paid. The risk of the option seller is unlimited and therefore he needs to pay the margin as prescribed by the exchange at the time of entering into an option contract. To reduce the default risk, the option position of the seller is marked to market every day.

Paisewallah: If I have two opposite positions in futures and options, then do I have to pay margin on both the positions?

Sharekhan: Yes. You have to pay margin on your positions but the net margin required is lower than the margin on two separate positions. Suppose you have sold one futures contract on ACC at Rs800 and simultaneously bought an ACC call option with a strike price of Rs800 at Rs20. In this portfolio one position is bullish and the other bearish, so in case ACC'S price goes up, one position would gain and the other would lose. Similarly if ACC'S price goes down, one position would gain while the other would lose. These are hedging positions. Hence the margin is less.

Paisewallah: How are options different from futures?

Sharekhan: In case of futures, both the buyer and the seller are under obligation to fulfill the contract. They have unlimited potential to gain if the price of the underlying moves in their favour. On the contrary, they are subject to unlimited risk of losing if the price of the underlying moves against their views.

In case of options, however, the buyer of the option has the right and not the obligation. Thus he enjoys an asymmetric risk profile. He has unlimited potential to profit if the price of the underlying moves in his favour. But a limited potential to lose, to the extent of the premium paid, in case the price of the underlying moves against the view taken. Similarly the seller of the option is under obligation. He has limited potential to profit, to the extent of the premium received, in case the price of the underlying moves in his favour. But an unlimited risk of losing in case the price of the underlying moves against the view taken.

Paisewallah: How are options different from futures in terms of price behaviour?

Sharekhan: Trading in futures is one-dimensional as the price of futures depends upon the price of the underlying only. Trading in option is two-dimensional as the price of an option depends upon both the price and the volatility of the underlying.

Paisewallah: I want to know all about the behaviour of the price of an option?

Sharekhan: You need to understand and appreciate various option Greeks like delta, gamma, theta, vega and rho to completely comprehend the behaviour of option prices.

Paisewallah: What is delta of an option and what is its significance?

Sharekhan: For a given price of underlying, risk-free interest rate, strike price, time to maturity and volatility, the delta of an option is a theoretical number. If any of the above factors changes, the value of delta also changes. Delta can be computed using the option calculator downloaded from www.sharekhan.com.

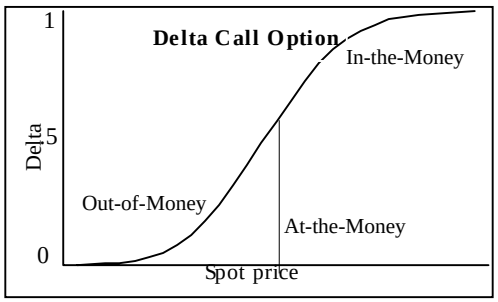
The delta of an option tells you by how much the premium of the option would increase or decrease for a unit change in the price of the underlying. For example, for an option with delta of 0.5, the premium of the option would change by 50 paise for a Rs1 change in the price of the underlying. Delta is about 0.5 for near/at-the-money options. As the option becomes in the money, the value of delta increases. Conversely as the option becomes out of the money, the value of delta decreases.

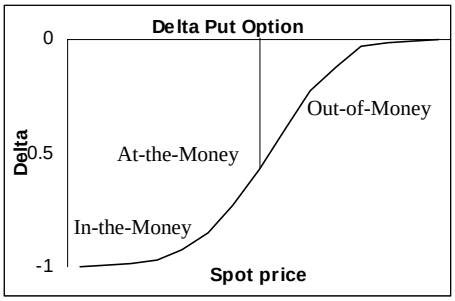
In other words, delta measures the sensitivity of options with respect to change in the price of the underlying. Deep out-of-the-money options are less sensitive in comparison to at-the-money and deep in-the-money options.

Delta is positive for a bullish position (long call and short put) as the value of the position increases with rise in the price of the underlying. Delta is negative for a bearish position (short call and long put) as the value of the position decreases with rise in the price of the underlying.

Delta varies from 0 to 1 for call options and from -1 to 0 for put options. Some people refer to delta as 0 to 100 numbers.

The Delta is an important piece of information for a option Buyer because it can tell him much of an option & buyer he can expect for short-term moves by the underlying stock. This can help the Buyer of an option which call / Put option should be bought. The factors which can change the Delta of an option are Stock Price, Volitility & No. of Days.





Paisewallah: What is theta of an option and its significance?

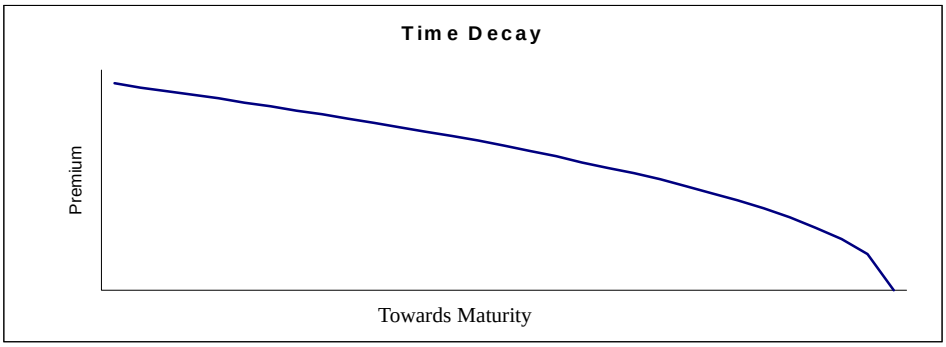
Sharekhan: The theta of an option is an extremely significant theoretical number for an option trader. Like the other Greek terms you can calculate theta using option calculator.

Theta tells you how much value the option would lose after one day, with all the other parameters remaining the same.

Suppose the theta of Infosys 30-day call option with a strike price of Rs2000 is 2.5 when Infosys is quoting at Rs2000, volatility is 50% and the risk-free interest rate is 8%. This means that if the price of Infosys and the other parameters like volatility remain the same and one day passes, the value of this option would reduce by Rs4.5.

Theta is always negative for the buyer of an option, as the value of the option goes down each day if his view is not realised. Conversely theta is always positive for the seller of an option, as the value of the position of the seller increases as the value of the option goes down with time.

Consider options as depreciating assets because of time decay and appreciating due to favourable price movements. If the rate of appreciation is more than that of depreciation hold the option, else sell it off. Further, time decay of option premium is very steep near expiry of the option. The following graph would make it clearer.



Paisewallah: What is vega of an option and its significance?

Sharekhan: Vega is also a theoretical number that can be calculated using an option calculator for a given set of values of underlying price, time to expiry, strike price, volatility and interest rate etc. Vega indicates how much the option premium would change for a unit change in annual volatility of the underlying.

Suppose the vega of an option is 0.6 and its premium is Rs15 when volatility of the underlying is 35%. As the volatility increases to 36%, the premium of the option would change upward to Rs15.6. Vega is positive for a long position (long call and long put) and negative for a short position (short call and short put).

Simply put, for the buyer it is advantageous if the volatility increases after he has

bought the option. On the other hand, for the seller any increase in volatility is dangerous as the probability of his option getting in the money increases with any rise in volatility.

Sometimes you might have observed that though seven to ten days have passed after you bought an option, the underlying price is almost in the same range while the premium of the option has increased. This clearly indicates that volatility of the underlying might have increased.

Paisewallah: What is gamma of an option and its significance?

Sharekhan: Gamma is a sophisticated concept. You need patience to understand it as it is important too. Like delta, the gamma of an option is a theoretical number. Feeding the price of underlying, risk-free interest rate, strike price, time to maturity and volatility, you can compute value of gamma using the option calculator downloaded from my site sharekhan.com.

The gamma of an option tells you how much the delta of an option would increase or decrease for a unit change in the price of the underlying. For example, assume the gamma of an option is 0.04 and its delta is 0.5. For a unit change in the price of the underlying, the delta of the option would change to 0.5 + 0.04 = 0.54. The new delta of the option at changed underlying price is 0.54; so the rate of change in the premium has increased.

If I were to explain in very simple terms: if delta is velocity, then gamma is acceleration. Delta tells you how much the premium would change; gamma changes delta and tells you how much the next premium change would be for a unit price change in the price of the underlying.

Gamma is positive for long positions (long call and long put) and negative for short positions (short call and short put). Gamma does not matter much for options with long maturity. However for options with short maturity, gamma is high and the value of the options changes very fast with swings in the underlying prices.

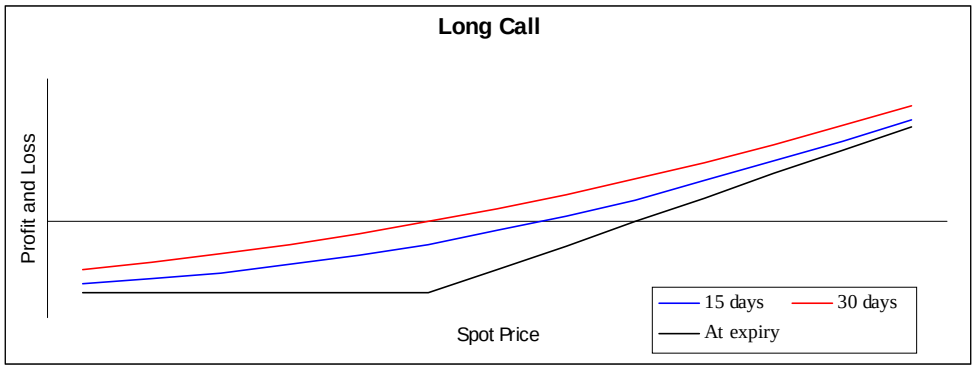
Paisewallah: How can I use options to express my views on the market and make money?

Sharekhan: Options are amazingly flexible financial instruments. Options give opportunity to make money provided you have a view, certain or fairly certain, on the market in terms of direction of the price and the speed with which the price is rising or falling. To learn more about such sophisticated strategies, please call my sales representative.

Paisewallah: I am very bullish on the market. What should be my strategy? What is the upside potential and downside risk? What happens as time passes and my view is not realised?

Sharekhan: When you are very bullish, buy a call option. When you are very bullish on the market as a whole, buy a call option on indices (Nifty/Sensex). When you are very bullish on a particular stock, buy a call option on that stock.

The more bullish you are, the more out of the money (higher strike price) should be the option you buy. No other position gives you as much leveraged advantage in a rising market with limited downside.



Upside potential: The price of the option increases as the price of the underlying rises. You can book profit by selling the same option at higher price whenever you think that the underlying price has come to the level you expected. At expiration the break-even underlying price is the strike price plus premium paid for buying the option.

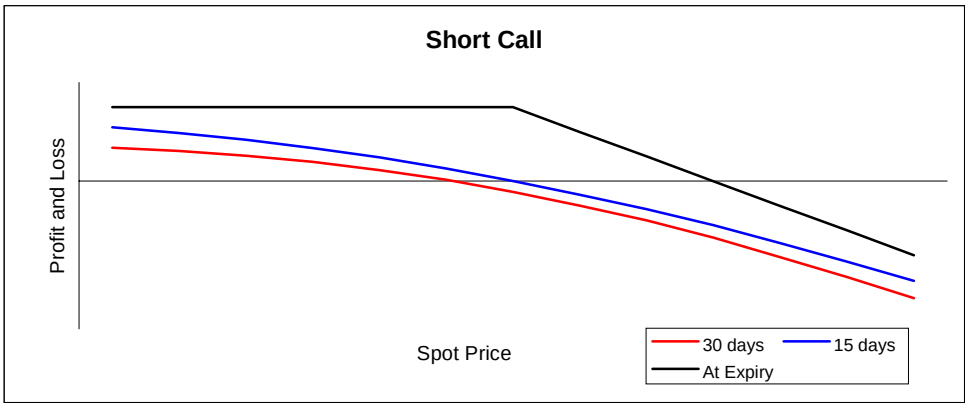
Downside risk: your loss is limited to the premium you have paid. The maximum you can lose is the premium, if the underlying price is below the strike price at expiry of the option.

Time decay characteristic: options are wasting assets in the hands of a buyer. As time passes, the value of the position erodes. If volatility increases, erosion slows down; if volatility decreases, erosion hastens.

Paisewallah: I firmly believe that the market in not going to rise. So what should be my strategy? What is the upside potential and downside risk? What happens as time passes?

Sharekhan: When you firmly believe that the underlying is not going to rise, sell a call option. When you firmly believe that index (Nifty/Sensex) is not going to

rise, sell a call option on index. When you firmly believe that a particular stock is not going to rise, sell call option on that stock. Sell out-of-the-money (higher strike price) options if you are only somewhat convinced; sell at-the-money options if you are very confident that the underlying would remain at the current level or fall.



Upside potential: your profit is limited to the premium received. At expiration the break-even is strike price plus premium. Maximum profit is realised if the underlying price is below the strike price.

Downside risk: the price of the option increases as the underlying rises. You can cut your losses by buying the same option if you think that your view is going wrong. Losses keep on increasing as the underlying rises and are virtually unlimited. Such a position must be monitored closely.

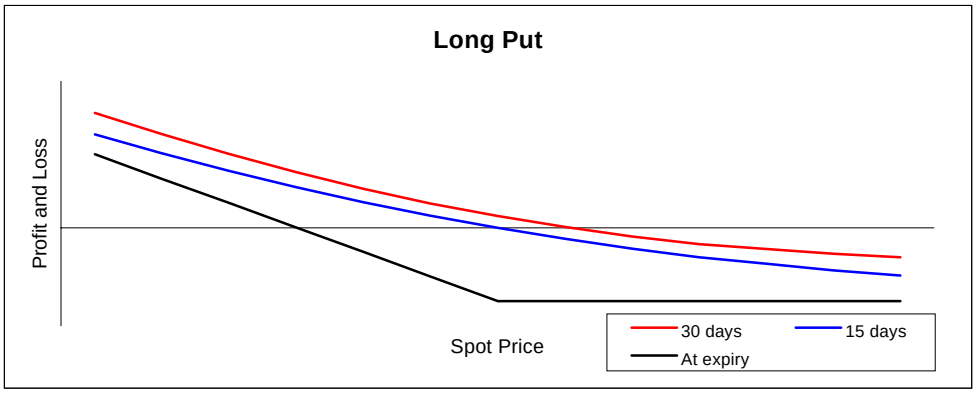
Time decay characteristic: options are growing assets in the hands of a seller. As time passes, the value of position increases as the option loses its time value. You get maximum profit if the option is at the money.

Paisewallah: I am very bearish on the market. So what strategy should I follow? What is the upside potential and downside risk? What happens as the time passes and my view is not realised?

Sharekhan: When you are very bearish, buy a put option. When you are very bearish on the market as a whole, buy put option on indices (Nifty/Sensex). When you are very bearish on a particular stock, buy put option on that stock. The more bearish you are, the more out of the money (lower strike price) should be the option you buy. No other position gives you as much leveraged advantage in a falling market with limited downside.

Upside potential: the price of the option increases as the price of the underlying falls. You can square up your position by selling the same option at a higher price

whenever you think that the underlying price has come to the level you expected. At expiration the break-even underlying price is the strike price minus premium paid for buying the option.



Downside risk: your loss is limited to the premium you have paid. The maximum you can lose is the premium, if the underlying price is above the strike price at expiry of the option.

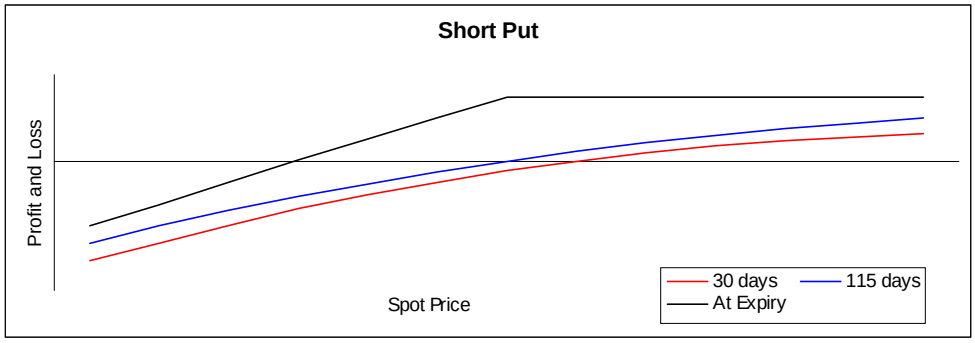
Time decay characteristic: options are wasting assets in the hands of a buyer. As time passes, the value of the position erodes. If the volatility increases, erosion slows; if the volatility decreases, erosion hastens.

Paisewallah: I firmly believe that the market in not going to fall, what is the strategy to be followed? What is the upside potential and downside risk? What happens with the passage of time?

Sharekhan: When you firmly believe that the underlying is not going to fall, sell a put option. When you firmly believe that index (Nifty/Sensex) is not going to fall, sell a put option on the index. When you firmly believe that a particular stock is not going to fall, sell put option on that stock. Sell out-of-the-money (lower strike price) options if you are only somewhat convinced; sell at-the-money options if you are very confident that the underlying would remain at the current level or rise.

Upside potential: your profit is limited to the premium received. At expiration the break-even is strike price minus premium. Maximum profit is realised if the underlying price is above the strike price.

Downside risk: the price of the option increases as the underlying falls. You can cut your losses by buying the same option if you think that your view is going to be wrong. Losses keep on increasing as the underlying falls and are virtually unlimited. Such a position must be monitored closely.

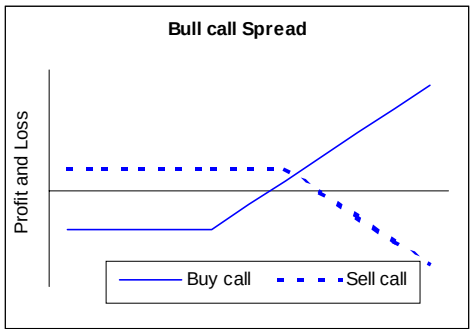


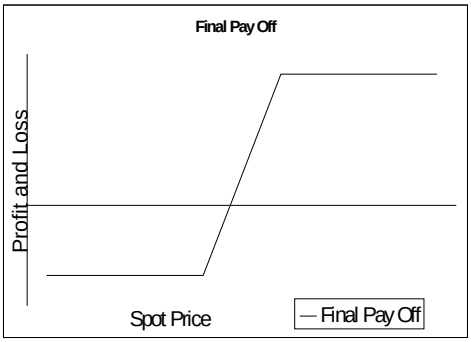
Time decay characteristic: options are growing assets in the hands of a seller. As time passes, the value of the position increases as the option loses its time value. Maximum profit is realised if the option is at the money.

Paisewallah: I am moderately bullish but not very sure that the underlying would not fall. What strategy should I follow? What is the upside potential and downside risk? What happens as time passes?

Sharekhan: When you think the underlying index or stock will go up somewhat or is at least more likely to rise than fall, *Bull Spread* is the best strategy.

Strategy implementation: a call option is bought with a lower strike price and another call option is sold with a higher strike price, producing a net initial debit. Or a put option is bought with a lower strike price and another put sold with a higher strike price, producing a net initial credit.





Upside potential: profit is limited.

Calls: difference between strikes minus initial debit.

Puts: net initial credit.

Maximum profit if underlying price at expiry is above the higher strike.

Downside risk: loss is limited.

Calls: net initial debit.

Puts: difference between strikes minus initial credit.

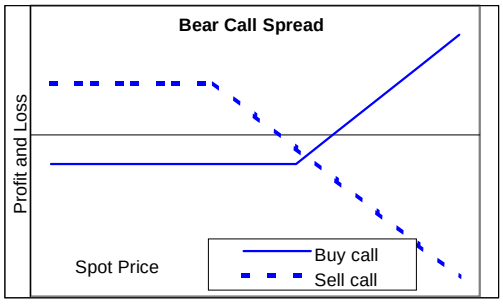
Maximum loss if the underlying price at expiry is below the lower strike.

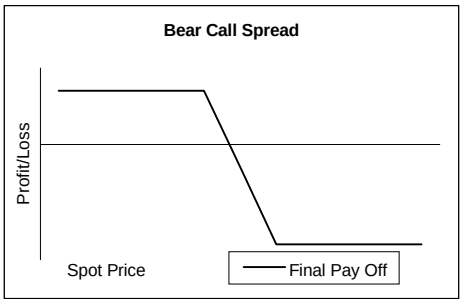
Time decay characteristic: time value erosion is not too significant because of balanced position.

Paisewallah: I am moderately bearish but not very sure that the underlying would not rise—what strategy should I follow? What is the upside potential and downside risk? What happens as time passes?

Sharekhan: When you think the underlying index or stock will go down somewhat or is at least more likely to fall than rise, *Bear Spread* is the best strategy.

Strategy implementation: a call option is sold with a lower strike price and another call option is bought with a higher strike price, producing a net initial credit or a put option is sold with a lower strike price and another put bought with a higher strike, producing a net initial debit.





Upside potential: profit is limited.

Calls: net initial credit.

Puts: difference between strikes minus initial debit.

Maximum profit if the market is below the lower strike at expiry.

Downside risk: profit is limited.

Calls: difference between strikes minus initial credit.

Puts: net initial debit.

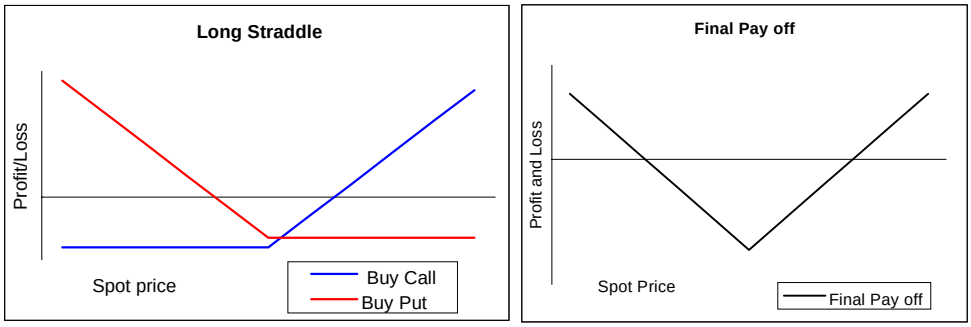
Maximum loss if the market is above the higher strike at expiry.

Time decay characteristic: time value erosion is not too significant because of balanced position.

Paisewallah: I am not sure of the direction but I believe that the underlying is going to rise or fall sharply. What should be my strategy? What is the upside potential and downside risk? What happens as time passes?

Sharekhan: When you think the underlying index or stock will rise or fall sharply but are not sure of the direction, *Long Straddle* is the best strategy.

Strategy implementation: buy a call and put option with the same strike price. Generally at-the-money strike price is preferred.



Upside potential: the profit is unlimited if the underlying moves sharply in either direction. Lower point of break-even is the strike price minus the premium paid for buying both the options. Higher point of break-even is the strike price plus premium paid.

Downside risk: the loss is limited to the extent of premium paid. Maximum loss occurs if the underlying price is exactly at the strike price level at expiry of the options.

Time decay characteristic: as both the long options are at the money, the rate of time value erosion becomes very high as the options approach maturity. Such positions are rarely held till expiry if the view is not realised.

Paisewallah: I am not sure of the direction but I believe that the underlying is going to rise or fall in a big way, what is the strategy? What is the upside potential and downside risk? What happens as time passes?

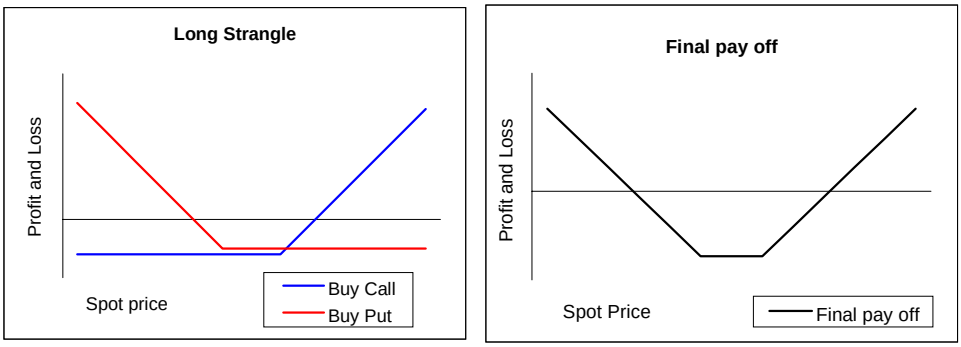
Sharekhan: When you think the underlying index or stock will rise or fall in a big way but are not sure of the direction, *Long Strangle* is the best strategy.

Strategy implementation: buy out-of-the-money call and put options.

Upside potential: the profit is unlimited if the underlying moves substantially in either direction. Lower point of break-even is the lower strike price minus premium

paid for buying both the options. Higher point of break-even is the higher strike price plus premium paid.

Downside risk: this occurs if the underlying price is between the lower and higher strike price at expiry of the options.

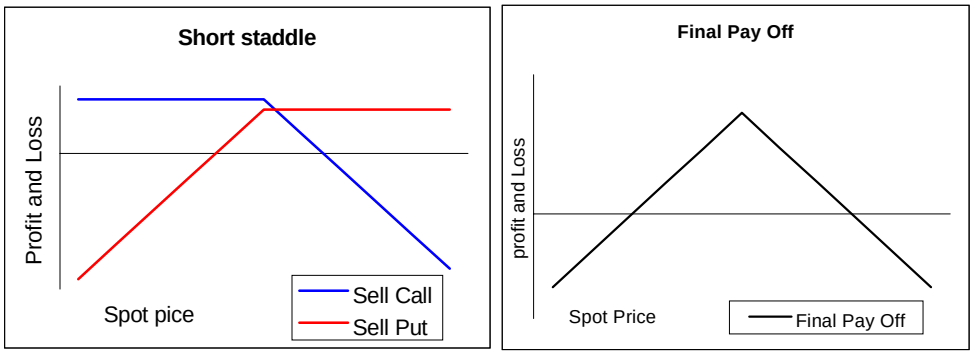


Time decay characteristic: time value erosion decreases the value of the position as time passes. Such positions are rarely held till expiry if the view is not realised.

Paisewallah: I believe that the underlying will fluctuate in a narrow range—it will neither rise nor fall. What should be my strategy? What is the upside potential and downside risk? What happens as time passes?

Sharekhan: When you think the underlying index or stock will fluctuate in a narrow range and neither rise nor fall, *Short Straddle* is the best strategy.

Strategy implementation: sell a call and put option with the same strike price. Generally at-the-money strike price is preferred.



Upside potential: the profit is limited to the extent of the premium received. Maximum profit is realised if the underlying price is exactly at the strike price at expiry of the options.

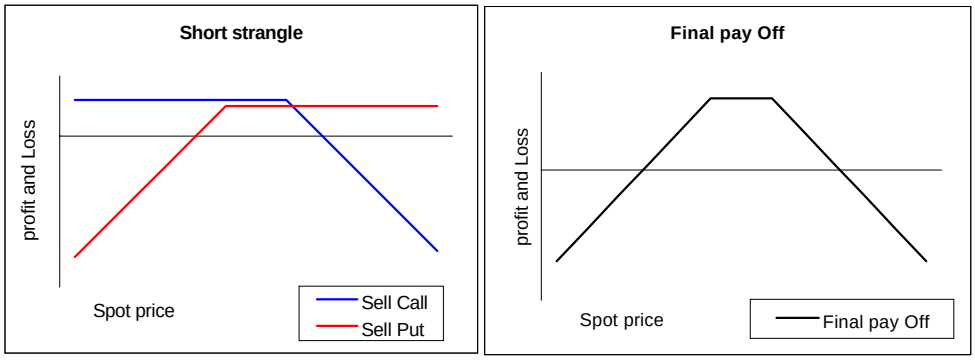
Downside risk: the loss is unlimited if the underlying moves sharply in either direction. Lower break-even point is strike price minus premium received. Higher break-even point is strike price plus the premium received. Such positions must be monitored closely. It is prudent to square up the position at close of the expiry.

Time decay characteristic: as both short options are at the money, the position increases in value as time passes because time value erosion becomes very high as the options approach maturity.

Paisewallah: I believe that the underlying will fluctuate in a broader range. What strategy should I follow? What is the upside potential and downside risk? What happens as time passes?

Sharekhan: When you think the underlying index or stock will fluctuate in a broader range, *Short Strangle* is the best strategy.

Strategy implementation: sell out-of-the-money call and put options.



Upside potential: the profit is limited to the extent of the premium received. Maximum profit is realised if the underlying price is between the lower and higher strike prices at expiry of the options.

Downside risk: the loss is unlimited if the underlying moves substantially in either direction. Lower break-even point is lower strike price minus premium received. Higher break-even point is higher strike price plus the premium received. Such positions must be monitored closely.

Time decay characteristic: the position increases in value as time passes because the time value of the options erodes.

Paisewallah: What are Strip and Strap strategies?

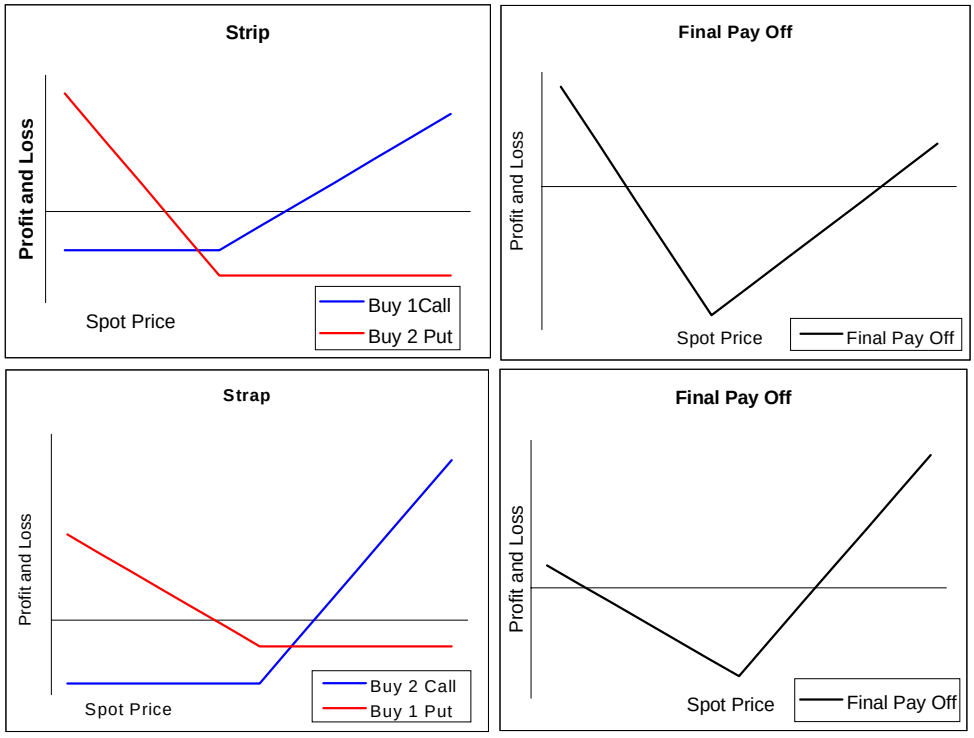
Sharekhan: These strategies are quite similar to Straddle. The only difference is that unlike straddle, call and put options are not bought in equal numbers. In

Strip strategy, the number of puts bought or sold is double that of call options. In Strap, the number of calls bought or sold is double that of put options.

You buy strip when you expect sharp movement in the prices of the underlying but are a little biased towards downward movement, so you buy more put than call options. Likewise while buying strap you are little biased towards upward movement, you buy more call than put options.

You sell strip when you expect the price to fluctuate in a narrow range but you also believe that in case the price moves beyond the range, it would move upward, so you sell more put than call options. Likewise while selling strap you are a little biased toward downward movement of the underlying price in case it breaks the range.

The following pay-off diagrams would give a fair idea of going strip and strap.



Paisewallah: I believe that the underlying will fluctuate in a narrow range but am not very sure of it moving sharply in either direction. What should be my strategy? What is the upside potential and downside risk? What happens as time passes?

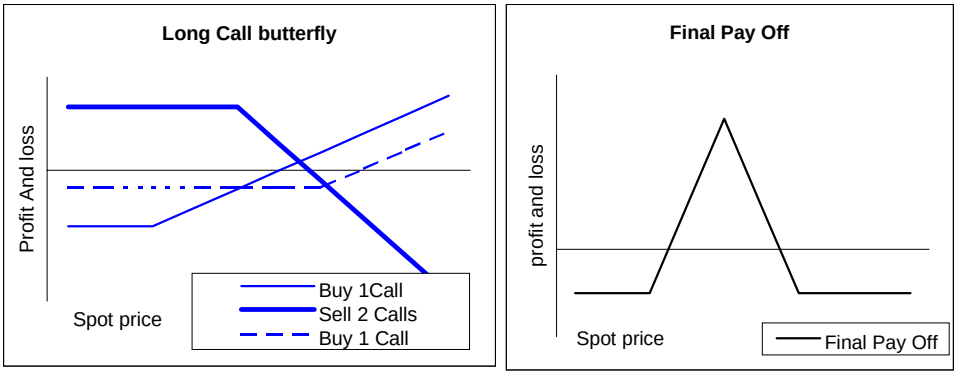
Sharekhan: When you believe that the underlying will fluctuate in a narrow range but are not very sure of it moving sharply in either direction, Long Butterfly is the best strategy.

Strategy implementation: buy one in-the-money call, sell two at-the-money calls and buy one out-of-the-money call option. The same strategy can be implemented using put options also. It is difficult to execute four transactions simultaneously. As such there is execution risk involved.

Upside potential: the profit is limited to the extent of the difference between the lower and middle strike prices minus initial debit.

Downside risk: the loss is limited to the extent of initial debit.

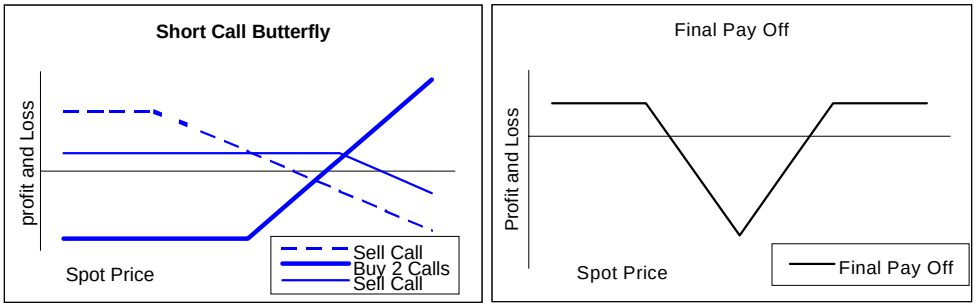
Time decay characteristic: time works against.



Paisewallah: I am not sure of the direction and am fairly certain that the underlying is going to rise or fall sharply. What strategy should I follow? What is the upside potential and downside risk? What happens as time passes?

Sharekhan: When you are not so sure that the underlying index or stock will rise or fall sharply and are not certain about the direction, *Short Butterfly* is the best strategy.

Strategy implementation: sell one in-the-money call, buy two at-the-money calls and sell one out-of-the-money call option. The same strategy can be implemented using put options also. It is difficult to execute four transactions simultaneously. As such there is execution risk involved.



Downside risk: the loss is limited to the extent of the difference between the lower and middle strike prices minus initial credit received.

Upside potential: the profit is limited to the extent of initial credit received.

Time decay characteristic: time works in favour.

Paisewallah: I want to be expert in this subject, what should I do?

Sharekhan: Some very good reference books on the subject are available in the market. You can check any of the following books and websites:

"Futures and Options" by Vora and Bagri, "Options, Futures and Other Derivatives" by John C. Hull, "McMillan on Options" by Lowerence McMillan, "Option Volatility Trading" by Shally Natenberg. As for websites, you can check these out: sharekhan.com (my site), numa.com, cboe.com and liffe.com.

Epilogue

As I answered the last question of Mr Paisewallah, I heard them announce that we would land in a few minutes.

Mr Paisewallah digested my last few words, nodded and turned to me, "that was quite a learning experience! Must try out derivatives. You know what? I have made up my mind.After setting my feet on ground I am going to call your Bangalore branch, get myself registered and start dealing in derivatives!"

Oh, well! Here was another convert to derivatives. My time in the flight had obviously been put to good use.

We fastened our seat-belts and waited for the plane to land. Soon we were on ground—we collected our belongings and prepared to alight. As I got out, I inhaled the crisp morning air and—

"It was nice meeting you. Do call me—here is my card," it was Mr Paisewallah again.

I took his card, wished him a happy day and moved on. Later on as I turned over his card in my hand, his name caught my eye: I M Paisewallah it read!

***

The next day I saw Mr Paisewallah again—at our Bangalore branch this time. He was (yes, you guessed it) trading in derivatives.

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The derivatives market offers lots of money-making opportunities to those who understand the concept of derivatives and its application. Though there are several publications on this subject, a simple and concise write-up is rare. Sharekhan's *Derivative Digest* explains the concept of derivatives in a simple talk book manner wherein Sharekhan himself replies to a series of questions on derivatives. After "digesting" the contents of the book the reader should be able to use derivatives products with more ease in his day-to-day trading.

Sharekhan
Your guide to the financial jungle

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