



STRATEGY FOR RISK MANAGEMENT THROUGH DERIVATIVES OPTION AND GREEKS : CASELET METHODOLOGY

¹Dr. Chitra Gounder, N L Dalmia Institute of Management Studies and Research

²Prof Prakash Rathod, N L Dalmia Institute of Management Studies and Research

ABSTRACT:

This paper was undertaken with the objective to study the basics of derivatives markets in India and also to understand and analyze option pricing, payoff and impact of Greeks on options pricing

The exposure of the market for financial derivative products, most notably forwards, futures and options, can be tracked to protect them against uncertainty arising out of fluctuations in securities. Derivatives are risk management instruments which obtain their value from an underlying asset. In modern times the derivative markets have gained importance in terms of their crucial role in the economy. The increasing investments in stocks, both domestic and international market have attracted my interest in this area.

In financial terms, the Option Greeks are referred to as the quantities that are representing the sensitivity of the portfolio of the derivative with respect to spot prices and their volatility. As these quantities of sensitivities are denoted by the Greek letters, that's why the name Greek is given to them. Basically there are five Greeks that this study will focus on are Delta, Gamma, Vega, Theta and Rho. Option trading can be taken to next level with the help of understanding of Greeks and their hedging techniques. The option Greeks will help the traders to better understand the probable risk and reward of an option position. In addition, the option Greeks numbers change as there is change in actual stock price and volatility.

INTRODUCTION:

The financial market has experienced various qualitative changes in last decade due to exceptional growth of derivatives. A large number of organizations consider derivatives as an important role in implementing their financial strategies. Derivative market has showcase change in the volume of business and trade because of globalization and advancement in India as well as everywhere throughout the world. With this, there is change in exchange rates, interest rates and stock prices of financial markets which have increased the financial risk of the world. Therefore, it was necessary to develop a new financial instrument to reduce the financial risk. The basic purpose behind this instrument is to give insurance against unfavorable movements.

To alleviate risk SEBI set up a 24 member committee under the chairmanship of Dr. L. C. Gupta to introduce derivative trading and suitable regulatory framework for trading in derivatives in India. A derivative is a financial instrument whose value is derived from the prices of an underlying asset. That underlying asset can be equity shares or index, precious metals, commodities, currencies, interest rates, etc. A derivative instrument doesn't have its individual value it is always dependent on the underlying asset.

In the cutting edge world, there are wide ranges of derivatives products that are accessible; they are either exchanged straightforwardly between two parties over phone or electronic media which are bought as over the counter (OTC) derivatives or they are either exchanged on organized exchange and they are called as exchange traded derivatives. . Other types of derivatives being traded today are futures, options, interest rate swaps, etc.

India has been trading derivatives contract in silver, gold, spices, cotton, coffee, oil and gas etc for many years in the gray market. Derivatives on stocks were traded in form of Teji and Mandi in unorganized markets. The derivatives markets need both the producers and users of natural resources to hedge against the price fluctuations in the underlying assets. Although we can say that trading in agricultural and other commodities has been the driving force behind the development of derivatives exchange in India.

The Indian derivatives market is relatively younger and immature compared to other developed markets. The derivatives market was introduced in June 2000 with introduction of Index futures. It was expected that a market for derivatives would increase the efficiency of the market. An efficient and active market is one that promotes speculation, which is a huge source of liquidity for the markets. Therefore, a market that provides opportunities for speculation along with provisions for hedging would be ideal in that direction.

RESEARCH OBJECTIVES:

- i. To study and analyze find the Payoff (profit / loss) of option writer and option holder under different position
- ii. To study and analyze about the risk management with the help of derivatives and option Greeks.

LITERATURE REVIEW:

Romagos, C. P. (2011), states in their paper that the holder (buyer) of an option is allowed to walk away from the contract if market factors that became unfavorable and exercise whenever profitable. Option Greeks or the sensitivity of an option's premium to changes in market factors that is key to successful options trading. Greek parameters on option premium sensitivity to changes in dividend yields have not yet been advanced and its properties have not yet been investigated broadly. This study aims to find a model that will measure the possible change in the stock option's premium whenever the announced dividend yield differ from the one which was previously paid. This was done by taking the first partial derivative of Merton's extension from the Black-Scholes pricing model of options with respect to the dividend yield variable. This study has found that for a dividend-paying stock option, if a change in dividends is announced, then the difference of the previously issued dividends and the newly announced dividends is a significant indicator with regard to the immediate movements in the premium of the stock option. The significance of the said change in dividends was measured through a simple linear regression model and the change in the dividend yield variable proved to be significant. This was an expected outcome as options holder will have to account for a possible decline

in the underlying stock's price due to dividend issuance, effectively decreasing or increasing the option premium depending on whether it is a call or a put, respectively.

Ghose, S., & Rath, A. (2016) states in their paper that from the economic point of view financial derivatives are cash flows that are conditionally stochastic and discounted to present value. In the last decade, the derivatives market in India has grown astronomically. This paper analyzes whether the growth of the derivatives segment has overtaken the cash market in National Stock Exchange (NSE) and Bombay Stock Exchange (BSE). The paper also analyzes the Pearson's correlation between the Turnover (T/O) of BSE cash segment and derivatives segment, stock futures, index futures, index call options and index put options, stock call options and stock put options. On the basis of the study, it can be concluded that derivatives do indeed facilitate transfer of risk and that this segment has gradually overtaken the cash segment in terms of T/O. There is a correlation between the T/O of BSE cash segment, derivatives segment, stock futures, index futures, index call options and index put options, stock call options and stock put options. Investors should be updated with the affairs of the market and industry as a whole as indices are very sensitive to news and react to any untoward incident sharply. Investors should take professional help initially and educate themselves in order to get better results.

Ederington, L. H., & Guan, W. (2003) states in their paper that whether any second order derivatives other than gamma and any third order derivatives are important in explaining the changes in the prices of S&P 500 future option over one week holding periods. He found that normally gamma is most important; several other higher order derivatives have considerable incremental explanatory power. Particularly important in accounting for option price changes are the derivatives of delta with respect to volatility and time to expiration and the derivatives of gamma with respect to the asset price and volatility. For shorter term option, consideration of higher order derivatives decreases the mean supreme unexplained value change by 60% for at the money options and by at least 75% for out of the money option. They found that in spite of its theoretical problems and inability to explain the cross-sectional option price pattern, the Black and Scholes model's Greeks accurately describes the time series option price changes over higher order Greeks are incorporated. They additionally discovered that making delta-Vega-gamma neutral portfolio of S&P 500 option neutral in terms of these four higher order Greeks leads to significant reduction in the risk of an unhedged price change.

RESEARCH METHODOLOGY:

This study is based on Secondary data.

Secondary data is collected from various sources such as text books, reports, research articles, papers presented at various national and international seminars, conferences, workshops, etc. Secondary data was also used to conceptualize the degree of risk involved in derivatives. Apart from this the secondary data is also taken from websites of companies, NSE and BSE.

The collected data has been carefully classified, tabulated and interpreted on the basis of which tables, charts and pay off graphs are drawn. Percentages are drawn from tabulated frequencies and the data is analyzed accordingly. The analysis of the data helped in drawing inferences and better understanding of the charts and graphs.

FINDINGS AND ANALYSIS OF RISK MANAGEMENT THROUGH DEREVATIVES OPTION AND GREEKS

I) Analysis on Payoffs of Options Contracts: (Call Option and Put Option)

1) LONG CALL

For aggressive investors who are very bullish about the prospects for a stock / index, buying calls can be an excellent way to capture the upside potential with limited downside risk. Buying a call is the most basic of all options strategies. It constitutes the first options trade for someone already familiar with buying / selling stocks and would now want to trade options. Buying a call is an easy strategy to understand. When you buy it means you are bullish. Buying a Call means you are very bullish and expect the underlying stock / index to rise in future.

When to Use: Investor is very **bullish** on the stock / index.

Risk: Limited to the Premium. (Maximum loss if market expires at or below the option strike price).

Reward: Unlimited

Breakeven: Strike Price + Premium

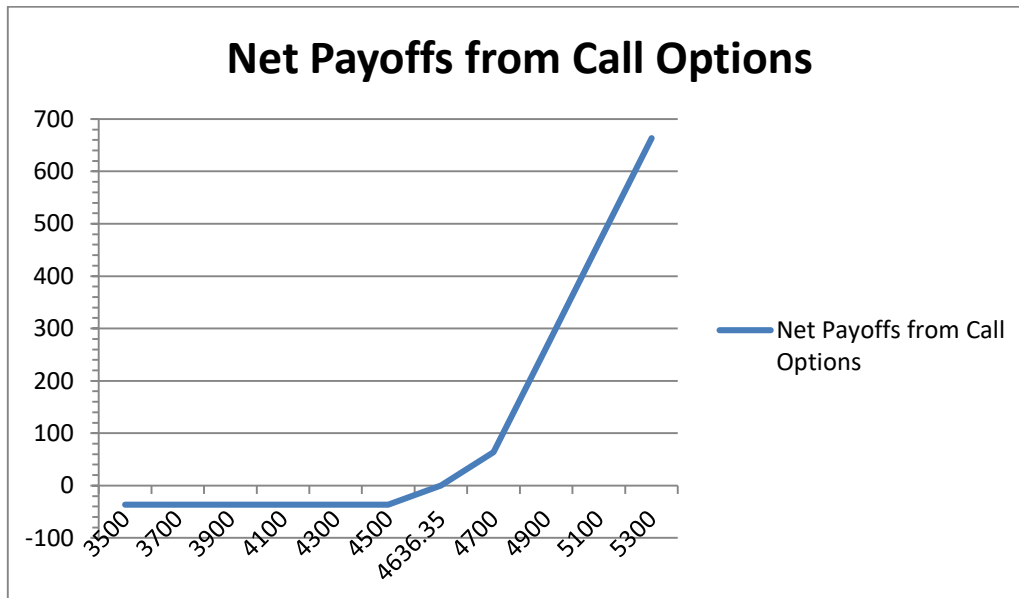
Example

Strategy: Buy Call Option		
Spot Price	Ultratech	4191.10
Call Option	Strike price	4600
Mr. XYZ Pays	Premium	36.35
	Breakeven Point	4636.35

Mr. XYZ is bullish Ultratech Cements on 24th June, when the Ultratech Cements is at 4191.10. He buys a call option with a strike price of Rs. 4600 at a premium of Rs. 36.35, expiring on 31st July. If the Ultratech Cements goes above 4636.35, Mr. XYZ will make a net profit (after deducting the premium) on exercising the option. In case the Ultratech Cements stays at or falls below 4600, he can forego the option (it will expire worthless) with a maximum loss of the premium.

Payoffs Schedules at Different Spot Prices:

On Expiry Spot Closes At	Net Payoffs from Call Options
4100	-36.35
4300	-36.35
4500	-36.35
4636.35	0
4700	63.65
4900	263.65
5100	463.35
5300	663.35



ANALYSIS:

This strategy limits the downside risk to the extent of premium paid by Mr. XYZ (Rs. 36.35). But the potential return is unlimited in case of rise in Nifty. A long call option is the simplest way to benefit if you believe that the market will make an upward move and is the most common choice among first time investors in Options. As the stock price / index rise the long Call moves into profit more and more quickly.

2) SHORT CALL:

When you buy a Call you are hoping that the underlying stock / index would rise. When you expect the underlying stock / index to fall you do the opposite. When an investor is very bearish about a stock / index and expects the prices to fall, he can sell Call options. This position offers limited profit potential and the possibility of large losses on big advances in underlying prices. Although easy to execute it is a risky strategy since the seller of the Call is exposed to unlimited risk.

A Call option means an Option to buy. Buying a Call option means an investor expects the underlying price of a stock / index to rise in future. Selling a

Call option is just the opposite of buying a Call option. Here the seller of the option feels the underlying price of a stock / index is set to fall in the future.

When to use: Investor is very aggressive and he is **very bearish** about the stock /index.

Risk: Unlimited

Reward: Limited to the amount of premium

Break-even Point: Strike Price + Premium

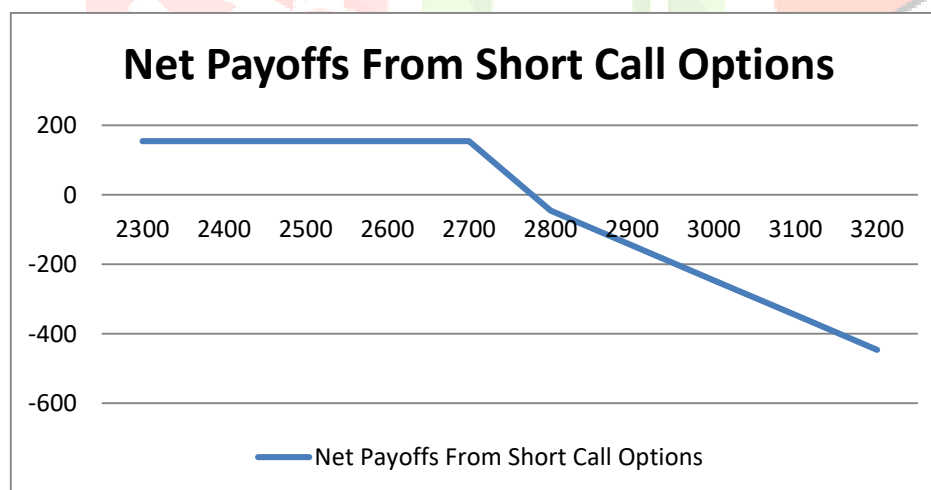
Example:

Mr. XYZ is bearish about Bajaj Auto and expects it to fall. He sells a Call option with a strike price of Rs. 2600 at a premium of Rs. 154, when the current Bajaj Auto spot price is at 2694. If the Nifty stays at 2600 or below, the Call option will not be exercised by the buyer of the Call and Mr. XYZ can retain the entire premium of Rs.154.

Strategy: Short Call Option		
Spot Price	Bajaj-Auto	2694
Call Option	Strike price	2600
Mr. XYZ Receives	Premium	154
	Breakeven Point	2754

Payoffs Schedule at different spot price:

On Expiry Bajaj-Auto Closes At	Net Payoffs From Short Call Options
2300	154
2400	154
2500	154
2600	154
2700	154
2754	0
2800	-46
2900	-146
3000	-246
3100	-346
3200	-446



ANALYSIS:

This strategy is used when an investor is very aggressive and has a strong expectation of a price fall (and certainly not a price rise). This is a risky strategy since as the stock price / index rises, the short call loses money more and more quickly and losses can be significant if the stock price / index fall below the strike price. Since the investor does not own the underlying stock that he is shorting this strategy is also called Short Naked Call.

3) LONG PUT

Buying a Put is the opposite of buying a Call. When you buy a Call you are bullish about the stock / index. When an investor is bearish, he can buy a Put option. A Put Option gives the buyer of the Put a right to sell the stock (to the Put seller) at a pre-specified price and thereby limit his risk. A long Put is a **Bearish** strategy. To take advantage of a falling market an investor can buy Put options.

When to use: Investor is bearish about the stock /index.

Risk: Limited to the amount of Premium paid. (Maximum loss if stock / index expires at or above the option strike price).

Reward: Unlimited

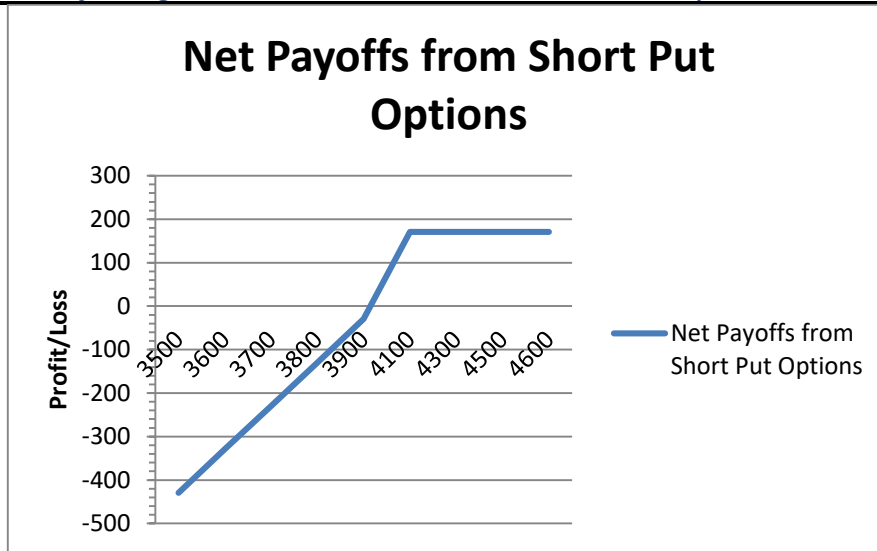
Break-even Point: Stock Price – Premium

Example: Mr. XYZ is bearish on Bajaj-Auto on 24th June, when the Bajaj-Auto is at 2694. He buys a Put option with a strike price Rs. 2600 at a premium of Rs. 52, expiring on 31st July. If the Bajaj-Auto goes below 2548, Mr. XYZ will make a profit on exercising the option. In case the Bajaj-Auto rises above 2600, he can forego the option (it will expire worthless) with a maximum loss of the premium.

Strategy: Long Put Option		
Spot Price	Bajaj-Auto	2694
Put Option	Strike price	2600
Mr. XYZ Pays	Premium	52
	Breakeven Point	2548

Payoffs Schedule at Different Spot Prices:

On Expiry Bajaj-Auto Closes at	Net Payoffs from Long Put Option
2100	448
2200	348
2300	248
2400	148
2500	48
2548	0
2600	-52
2700	-52
2800	-52
2900	-52



ANALYSIS:

A bearish investor can profit from declining stock price by buying Puts. He limits his risk to the amount of premium paid but his profit potential remains unlimited. This is one of the widely used strategies when an investor is bearish.

4) SHORT PUT

Selling a Put is opposite of buying a Put. An investor buys Put when he is bearish on a stock. An investor Sells Put when he is **Bullish** about the stock – expects the stock price to rise or stay sideways at the minimum. When you sell a Put, you earn a Premium (from the buyer of the Put). You have sold someone the right to sell you the stock at the strike price.

If the stock price increases beyond the strike price, the short put position will make a profit for the seller by the amount of the premium, since the buyer will not exercise the Put option and the Put seller can retain the Premium (which is his maximum profit). But, if the stock price decreases below the strike price, by more than the amount of the premium, the Put seller will lose money. The potential loss is being unlimited (until the stock price fall to zero).

When to Use: Investor is very **Bullish** on the stock / index. The main idea is to make a short term income.

Risk: Put Strike Price – Put Premium.

Reward: Limited to the amount of Premium received.

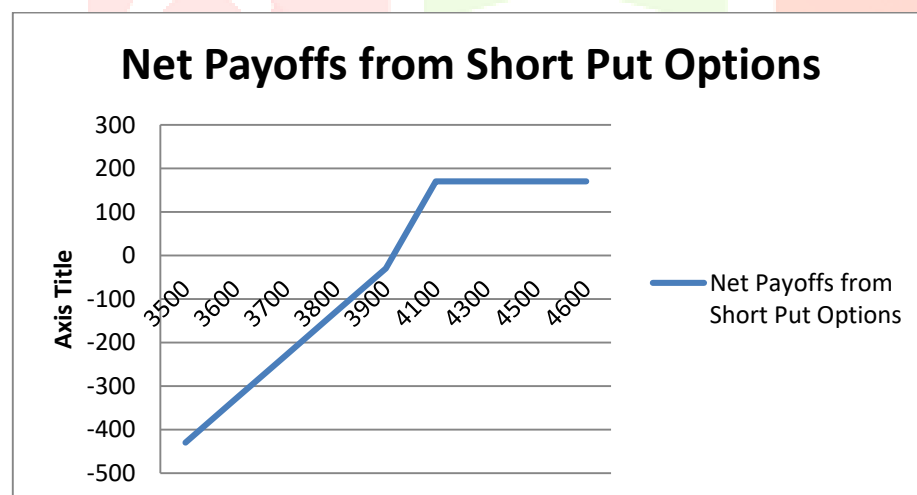
Breakeven: Put Strike Price - Premium

Example: Mr. XYZ is bullish on Ultratech Cements when it is at 4191.10. He sells a Put option with a strike price of Rs. 4100 at a premium of Rs. 170.50 expiring on 31st July. If the Ultratech Cements stays above 4100, he will gain the amount of premium as the Put option buyer won't exercise his option. In case the Ultratech Cements falls below 4100, Put option buyer will exercise the option and the Mr. XYZ will start losing money. If the Ultratech Cements falls below 3929.50, which is the breakeven point, Mr. XYZ will lose the premium and more depending on the extent of the falling price of Ultratech Cements.

Strategy: Short Put Option		
Spot Price	Ultratech	4191.10
Call Option	Strike price	4100
Mr. XYZ Receives	Premium	170.5
	Breakeven Point	3929.5

Payoffs Schedule at different spot values:

On Expiry Closes at	Ultratech	Net Payoffs from Short Put Options
3500		-429.50
3600		-329.50
3700		-229.50
3800		-129.50
3900		-29.50
3929.50		0
4100		170.50
4300		170.50
4500		170.50
4600		170.50



ANALYSIS:

Selling Puts can lead to regular income in a rising or range bound markets. But it should be done carefully since the potential losses can be significant in case the price of the stock / index falls. This strategy can be considered as an income generating strategy.

SETTLEMENT OF CALL OPTION AND PUT OPTIONS:

- **Call Options:**

When you sell or buy options, you can either leave your position before the expiry date, through a balancing exchange in the derivatives market, or hold your position open until the point that the option contract

terminates. In this way, the clearing house settles the trades that have made by the trader or investor. Such options are called European style options.

There are two different ways to settle – squaring off and physical settlement. On the off chance that you choose to square off your position before the expiry of the contract, you should sell a similar number of call options that you have acquired, of the same underlying stock at the same month maturity date with the same strike price.

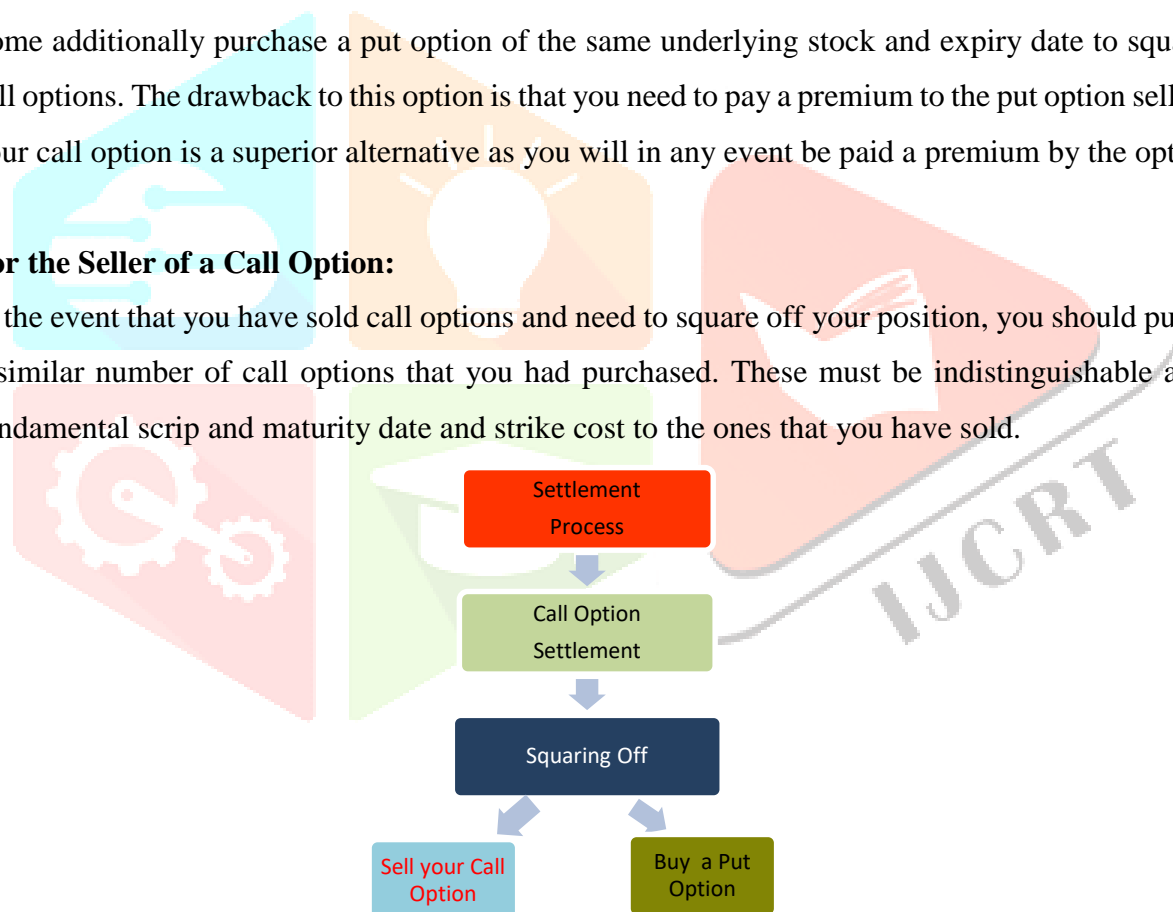
For a Buyer of a Call option

For instance, in the event that you have bought two ITC stock's call options with a strike price of 500 and a strike premium of Rs 100, which lapse toward the finish of March, you should sell the above two options of ITC Ltd., keeping in mind the end goal to square off your position. When you square off your position by offering your options in the market, as the vender of an option, you will receive a premium. The contrast between the premium at which you purchased the options and the premium at which you sold them will be your benefit or misfortune.

Some additionally purchase a put option of the same underlying stock and expiry date to square off their call options. The drawback to this option is that you need to pay a premium to the put option seller. Offering your call option is a superior alternative as you will in any event be paid a premium by the option buyer.

For the Seller of a Call Option:

In the event that you have sold call options and need to square off your position, you should purchase back a similar number of call options that you had purchased. These must be indistinguishable as far as the fundamental scrip and maturity date and strike cost to the ones that you have sold.



For the Buyer of a Put Option:

In the event that you choose to square off your situation before the expiry of the agreement, you should purchase a similar number of put options of the same underlying stock with the same maturity date and same strike price. On the off chance that you have obtained two ITC put options with a strike of 500, a strike premium of Rs 100, and expiry month of August, you will have to purchase two ITC call options contracts with an expiry month of August to square off your position in the derivatives market. In this way,

these two cancels the position of each other. Whatever is the distinction in strike price could be your benefit or misfortune.

You can likewise settle by offering the two put options contracts you hold so as to square off your position. Along these lines, you will win a premium on the agreements as the vender. The distinction between the premium at which you purchased the put option and the premium at which you sold them will be your benefit or misfortune. Or then again, you can exercise your options on or before the termination date.

For the Seller of a Put Option:

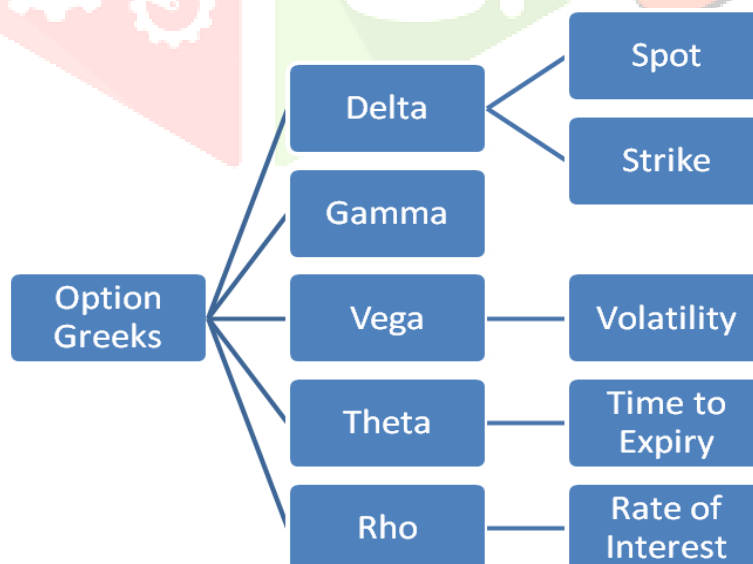
In the event that you have sold put options and need to square off your position, you should purchase back a similar number of put options that you have composed. These must be indistinguishable regarding the underlying stock or index and maturity date to the ones that you have sold.

On the off chance that the options contract gets exercised at the latest of the termination date, the stock exchange will compute the benefit/misfortune on your position. This will be founded on the distinction between the strike price and the closing market price of the stock or index on the expiry day.

Your misfortunes will be balanced against the margins that you have given to the exchange and the adjusted margins will be acknowledged to your record with the broker.

II) Studying Impact of OPTION GREEKS on different position :

To maintain a large portfolio efficiently, thorough knowledge of option Greeks is very important. Option Greeks give a thorough understanding of the portfolio position. The value of each option Greeks has its own important while taking and cutting position. Trader should know the level of Greeks to maintain the portfolio efficiently. By taking neutral position on Greeks, trader can maintain profit while minimizing risk.



Delta (Δ):

Delta measures the change in option price for a unit change in the price of underlying. So, if my delta is 0.46 it shows that for each unit increase in underlying options price will increase by 0.46 & for each unit decrease in underlying my options price will decrease by 0.46.

Important points for DELTA:

- Delta of Call option is always positive & Delta of Put option is always negative.
- Buy Call option, delta is positive & Sell Call option, delta is negative.
- Buy Put option, delta is negative & Sell Put option, delta is positive.
- Delta of Call & Put ranges from 0 to 1 & 0 to -1 respectively.
- Total Absolute value of Call Delta & Put Delta always comes to 1.
- Delta of future is always 1.

(a)	(b)	(c)	(d)= (b)*(c)	(e)
Option	Delta	Quantity	Portfolio Delta	Signifies
Buy Call	+	+	+	Bullish position
Sell Call	+	-	-	Bearish position
Buy Put	-	+	-	Bearish Position
Sell Put	-	-	+	Bullish position

Delta Relationship:

Variables	Call Delta	Put Delta
Spot	Positive	Negative
Strike	Negative	Positive
Volatility	Positive	Negative
Time: ATM options approaches to	0.5	-0.5
OTM options approaches to	0 to 0.4	-0.4 to 0
ITM options approaches to	0.6 to 1	-0.6 to -1
Rate of Interest	Positive	Negative

Gamma (γ):

Gamma measures the change in delta with respect to per unit change in underlying. If Gamma value is 0.008 that shows that my next move in delta will be 0.008 if underlying changes by 1. So gamma shows what will be the next change in delta with respect to change in underlying.

Important points for Gamma:

- Gamma of option is always positive.
- Gamma of Call & Put option is same.
- Gamma is highest at ATM & decreases as underlying moves away.
- Gamma of Future is 0.

(a)	(b)	(c)	(d)= (b)*(c)	(e)
Option	Gamma	Quantity	Portfolio Gamma	Signifies
Buy Call	+	+	+	Long Gamma position
Sell Call	+	-	-	Short Gamma position
Buy Put	+	+	+	Long Gamma position
Sell Put	+	-	-	Short Gamma position

Gamma Relationship:

Variables	Gamma
Spot	Highest at ATM & reduces as underlying moves away
Strike	Highest at ATM & reduces as underlying moves away
Volatility	Negative
Time	Positive
Rate of Interest	Negative

Vega (v):

Vega measures the change in option price per unit change in Volatility. A Vega value of 6.87 shows that for every unit increase in volatility, option price will increase by 6.87. Thus Vega shows effect of volatility on option price.

Important points for Vega:

- Vega of option is always positive.
- Vega of Call & Put option is same.
- Vega is highest at ATM & decreases as underlying moves away.
- Vega of Future is 0.

(a)	(b)	(c)	(d)= (b)*(c)	(e)
Option	Vega	Quantity	Portfolio Vega	Signifies
Buy Call	+	+	+	Long Vega position
Sell Call	+	-	-	Short Vega position
Buy Put	+	+	+	Long Vega position
Sell Put	+	-	-	Short Vega position

Vega Relationship:

Variables	Vega
Spot	Highest at ATM & reduces as underlying moves away
Strike	Highest at ATM & reduces as underlying moves away
Volatility	Negative
Time	Positive
Rate of Interest	Negative

Theta (Θ):

Theta measures the change in option price per day change in time to expiry. If theta is -6.87 that signify that for each day passes towards expiry the option price will decrease by 6.87.

Important points for Theta:

- Theta of option is always negative.
- Theta of Call & Put option is same. (When rate of interest is not considered into calculation)
- Theta is highest at ATM & decreases as underlying moves away.
- Theta of Future is 0.

(a)	(b)	(c)	(d)= (b)*(c)	(e)
Option	Theta	Quantity	Portfolio Theta	Signifies
Buy Call	-	+	-	Short Theta position
Sell Call	-	-	+	Long Theta position
Buy Put	-	+	-	Short Theta position
Sell Put	-	-	+	Long Theta position

Theta Relationship:

Variables	Theta
Spot	Highest at ATM & reduces as underlying moves away
Strike	Highest at ATM & reduces as underlying moves away
Volatility	Positive
Time	Negative
Rate of Interest	Positive for Call

Rho (ρ):

Rho measures the change in option price with unit change in rate of interest. If Rho of Put option is -6.87 that signify that for each unit increase in interest rate, Put option price will decrease by 6.87.

Important points for Rho:

- Rho of Call option is always positive & Rho of Put option is always negative.
- Rho of Call & Put option is different.
- Rho is highest at ATM & decreases as underlying moves away.
- Rho of Future is 0.

(a)	(b)	(c)	(d)= (b)*(c)	(e)
Option	Rho	Quantity	Portfolio Rho	Signifies
Buy Call	+	+	+	Long Rho position
Sell Call	+	-	-	Short Rho position
Buy Put	-	+	-	Long Rho position
Sell Put	-	-	+	Short Rho position

Rho Relationship:

Variables	Call Rho	Put Rho
Spot	Positive	Negative
Strike	Negative	Positive
Volatility	Negative	Positive
Days of Expiry	Positive	Positive
Rate of Interest	Positive	Negative

Interpretation of Results of Option Greeks:

POSITION	DELTA	GAMMA	VEGA	THETA	RHO
Long Futures	Positive	0	0	0	0
Short Futures	Negative	0	0	0	0
Long Call	Positive	Positive	Positive	Negative	Positive
Short Call	Negative	Negative	Negative	Positive	Negative
Long Put	Negative	Positive	Positive	Negative	Positive
Short put	Positive	Negative	Negative	Positive	Negative

CONCLUSION:

In the current scenario, investing in stock markets is a major challenge ever for professionals. Derivatives acts as a major tool for reducing the risk involved in investing in stock markets for getting the best results out of it. Awareness about the various uses of derivatives can help investors to reduce risk and increase profits. Though the stock market is subjected to high risk, by using derivatives the loss can be minimized to an extent. Derivative securities markets play an important role by allowing investors who do not want the risks associated with holding an asset to transfer it to those who do. However, because they are markets for risk as opposed to physical assets, derivatives markets can be very dangerous places for unsophisticated investors.

People who reduce their risk by entering a derivative market are called hedgers, and those who increase their risk are called speculators. Derivatives are mostly used for hedging purpose.

At present scenario the derivatives market is increased to a great position. Approximately its daily turnover reaches to the greater stage than that of cash market, the average daily turnover of the NSE in derivatives market is 5,00,000 (volume).

Options have benefits as well as drawbacks. options are riskier as compared to equity but simultaneously gives unlimited profit with limited loss ,so the people who are willing to take more risk or who are experienced enough ,they should trade in options . benefits of option are Cost Efficiency- Options have great leveraging power. An investor can obtain an option position which is similar to a stock position almost identically but at a huge cost saving.Less Risk- There are situations in which buying options is riskier than holding equities, but options can be used to reduce risk. Options can be less risky for investors because taking the position in options it requires less investment than equities. Higher Potential Returns- Options have higher risks but pay higher returns compared to stocks. More Strategic Alternatives- Options offer various investment alternatives since they are very versatile and works as a flexible tool. More ways and combinations can be used to form different strategies.

Some of Drawbacks of Options are Higher spreads- Options have higher spreads because of the lack of liquidity which means the investor will have to pay more in options trade. Complicated- Options are very complicated for new investors. Most beginners and even some advanced investors think they understand them but in reality, they don't. Time Decay- Options decay faster and the value goes down with the passage of time. Less information- Value of an option is affected by many factors so it becomes difficult to predict its movement or get standard analytical information like the implied volatility. Options not available for all stocks- Options are not available for all stocks which limit the investors in this practice.

The Option Greeks are referred to as the quantities that are representing the sensitivity of the portfolio of the derivative with respect to spot prices and their volatility. As these quantities of sensitivities are denoted by the Greek letters, that's why the name Greek is given to them. Basically there are five Greeks that this study will focus on are Delta, Gamma, Vega, Theta and Rho. Option trading can be taken to next level with the help of understanding of Greeks and their hedging techniques. The option Greeks will help the traders to better understand the probable risk and reward of an option position. In addition, the option Greeks numbers change as there is change in actual stock price and volatility.

SCOPE AND LIMITATION OF THE STUDY:

Scope:

This study gives information about the Indian Financial Derivatives : Options. It also gives an explanation of the option Greeks that act as a helpful tool for hedging of derivatives, portfolio diversification and price discovery..

This study may be useful for the advisory agents and the investors to manage the price risk that prevails in the market. Moreover, it is helpful for the investors to hedge their profits through the use of derivatives and option Greeks. Further this study can be used for co-relation of option Greeks with option premium. Further this study can also be done for explaining the option strategies with the help option sensitivity of the underlying and scenario analysis risk management using historical & implied volatility.

Limitation:

1. The study is applicable to derivatives market only and focuses on price discovery and risk hedging using option Greeks.
2. The study doesn't cover all the Greek letters, i.e., Charm (Delta Decay), Vomma, Veta, Vanna, Ultima, etc.
3. The study has covered only equity as an underlying asset.
4. The study was carried out only on secondary information and it is carried out for a short period of two months only hence the findings of the study cannot be generalized.
5. The study is not based on the international perspective of derivatives market which exists in NASDAQ, CBOT, etc

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