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RESEARCH ARTICLE

OPTIMAL TRADING STRATEGIES AND PERFORMANCE OF OPTIONS AT NSE.

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Abstract

Option is the most important segment in derivatives market in India. One of the most powerful aspects of trading with options is that there's an option strategy for almost any situation. Straddles and strangles are *non-directional* strategies, meaning that they have the ability to profit whether the price of the underlying index moves up or down. Financial derivatives have emerged as one of the biggest market of the world during the past two decades in terms of trading volume, number of index and stock options available for trading, participation of investors in derivatives market. It is also observed that investors are showing lot of interest in the derivatives market. However, investors have lost lot of money in the derivatives market due to lack of knowledge about the product and investment strategies etc. The risk involved in futures and options trading can be minimized / return on futures and options trading can be improvised through designing suitable investment strategies. So, investors need to develop risk management as well as risk analysis tool which is the key to limiting risks. The derivatives contract is standardized contract. In India, the BSE Sensex and S&P Nifty are the popular indices on futures and options trading. The everyday price changes will occur on underlying assets. Some of the major factors such as weather, war, Debt, refugee displacement, land reclamation and micro &macro economic factors will affect the index prices. Options can be used to create portfolio with unique features, capable of achieving investment objectives. Keeping this view the present paper proceeds to investigate the operational strategies and performance of options trading at NSE in India.

Introduction:-

In finance, an option is a contract which gives the owner the right, but not the obligation, to buy or sell an underlying asset or instrument at a specified strike price on or before a specified date. The seller incurs a corresponding obligation to fulfil the transaction that is to sell or buy, if the long holder elects to "exercise" the option prior to expiration. The buyer pays a premium to the seller for this right. An option which conveys the right to buy something at a specific price is called a call; an option which conveys the right to sell something at a specific price is called a put. The power of options lies in their versatility. Options enable investor to adapt or adjust their position according to any situation that arises. Options can be as speculative or as conservative as investor want.

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This means investor can do everything from protecting a position from a decline to outright betting on the movement of a market or index.

Options trading are an extremely vast field unlike stock trading. In stock trading, investor either buy or sell short the stock itself, that's all there is to it. However, in options trading, there are two kinds of options; Call options and Put options on every option able stock and each kind of option can be bought or shorted or put together into combinations of advanced strategies in order to cater to specific outlooks.

Portfolio risk refers to the possibility that an investment portfolio will not earn the expected or desired rate of return. Investors attempt to reduce this risk through diversification or hedging (taking an offsetting position in a related security). Portfolio risk includes both systematic and unsystematic risk. Systematic risk is risk that impacts the overall market; for example, inflation, interest rate changes, or economic conditions. Unsystematic risk, such as product defects or management turnover, is unique to individual securities.

Objectives of the study:-

The objectives of the study are set as follows;

1. To learn about NSE's Derivatives Market and Options Trading.
2. To study about Optimal Strategies of Options.
3. To know the outcome of Optimal Strategies.

Research Methodology:-

The study on the topic Operational Strategies and Performance of Options Trading in India is based exclusively on secondary data taken from various articles, newspapers and bulletins and reports issued by NSE. The study period ranging from 2014 to 2016.

Returns:-

Long = $R_t = (P_t - P_{t-1})/ P_{t-1} * 100$ or (Current Stock price – Previous day stock price)/ Previous day stock price*100)

Short = (Current Stock price – Next day stock price)/ Next day stock price*100)

Where,

R_t = Return at the time

P = The Closing price of the day

P_{t-1} = The Closing price of the day $_{t-1}$

Optimal Trading Strategies of options:-

Straddle:-

This strategy involves two options of same strike prices and same maturity. A long straddle position is created by buying a call and a put option of same strike and same expiry whereas a short straddle is created by shorting a call and a put option of same strike and same expiry.

Long Straddle:-

If a person buys both a call and a put at these prices, then his maximum loss will be equal to the sum of these two premiums paid, which is equal to 393. And, price movement from here in either direction would first result in that person recovering his premium and then making profit. This position is undertaken when trader's view on price of the underlying is uncertain but he thinks that in whatever direction the market moves, it would move significantly in that direction.

Pay off Charts for Long Straddle:-

Let us say Nifty is trading at Rs 6,000 and premiums for ATM call and put options are 257 and 136 respectively.

Now, let us analyze his position on various market moves. Let us say the stock price falls to 5300 at expiry. Then, his pay offs from position would be:

Long Call: 257 (market price is below strike price, so option expires worthless)

Long Put: 136 (5300 - 6000) = 564

Net Flow: 564 – 257 = 307

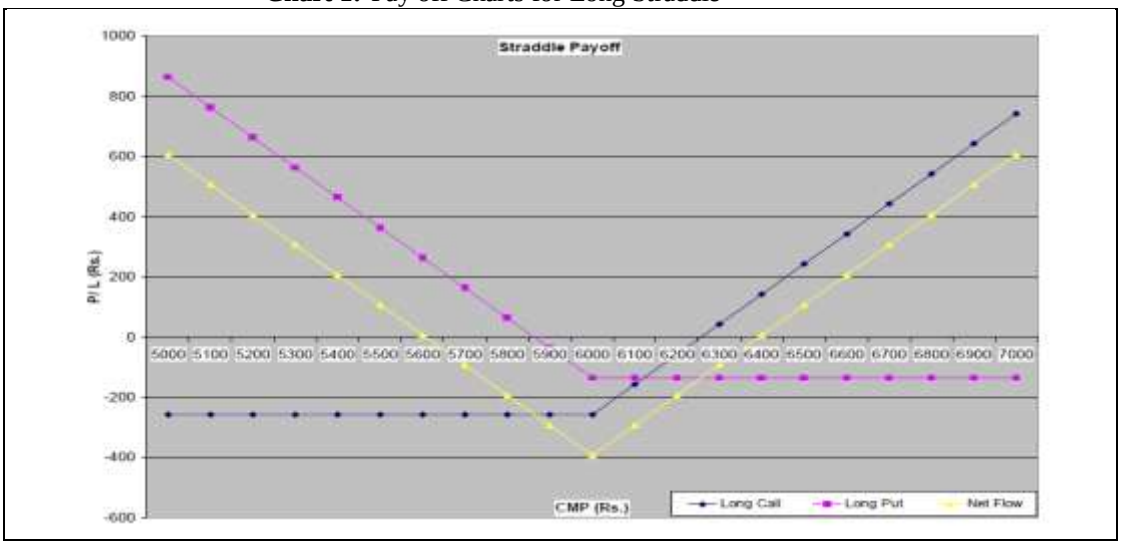
As the stock price keeps moving down, loss on long call position is limited to premium paid, whereas profit on long put position keeps increasing.
Now, consider that the Nifty price shoots up to 6700.
Long Call: 257 (6000 – 6700) = 443
Long Put: 136
Net Flow: 443 – 136 = 307

As the Nifty price keeps moving up, loss on long put position is limited to premium paid, whereas profit on long call position keeps increasing.

Thus, it can be seen that for huge swings in either direction the strategy yields profits. However, there would be a band within which the position would result into losses. This position would have two Break even points (BEPs) and they would lie at "Strike – Total Premium" and "Strike + Total Premium". Combined pay-off may be shown as follows:

Option	Call	Put
Long / Short	Long	Long
Strike	6000	6000
Premium	257	136
Spot	6000	

Chart 1:-Pay off Charts for Long Straddle



It may be noted from the picture, that maximum loss of Rs. 393 would occur to the trader if underlying expires at strike of option viz. 6000. Further, as long as underlying expires between 6393 and 5607, he would always incur the loss and that would depend on the level of underlying. His profit would start only after recovery of his total premium of Rs. 393 in either direction and that is the reason there are two breakeven points in this strategy.

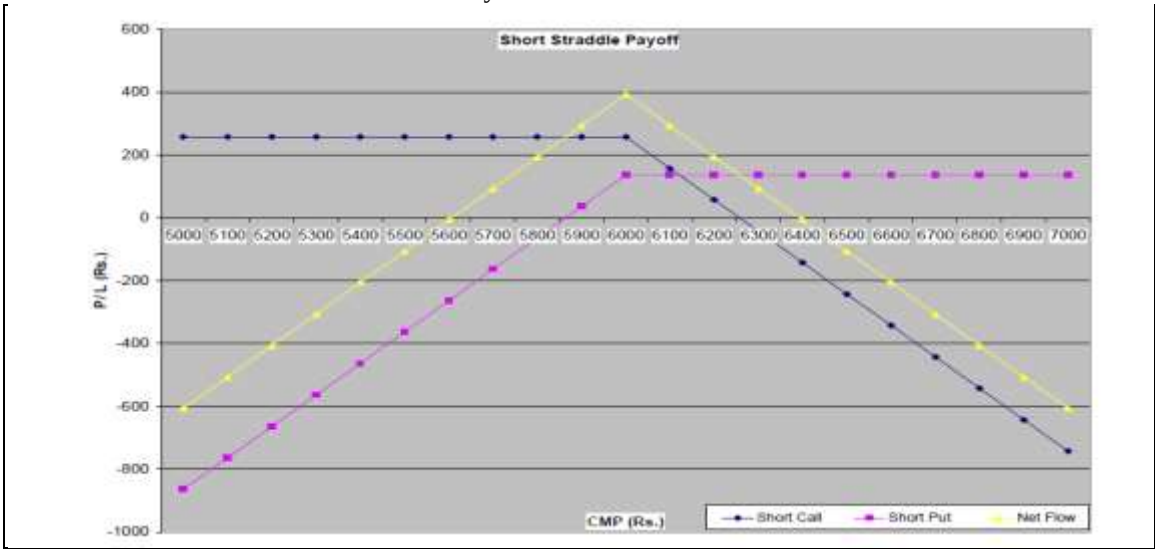
Short Straddle:-
This would be the exact opposite of long straddle. Here, trader's view is that the price of underlying would not move much or remain stable. So, he sells a call and a put so that he can profit from the premiums. As position of short straddle is just opposite of long straddle, the pay off chart would be just inverted, so what was loss for long straddle would become profit for short straddle.

Pay off Charts for Short Straddle:-
Position may be shown as follows:

Option	Call	Put
Long / Short	Short	Short

Strike	6000	6000
Premium	257	136
Spot	6000	

Chart 2:-Pay off Charts for Short Straddle



It should be clear that this strategy is limited profit and unlimited loss strategy and should be undertaken with significant care. Further, it would incur the loss for trader if market moves significantly in either direction – up or down.

Strangle:-
This strategy is similar to straddle in outlook but different in implementation, aggressionand cost.

Long Strangle:-
As in case of straddle, the outlook here (for the long strangle position) is that the market will move substantially in either direction, but while in straddle, both options have same strike price, in case of a strangle, the strikes are different. Also, both the options (call and put) in this case are out-of-the-money and hence the premium paid is low.

Pay off Charts for Long Strangle:-
Let us say the cash market price of a stock is 6100. 6200 strike call is available at 145 and 6000 put is trading at a premium of 140. Both these options are out-of-the-money.

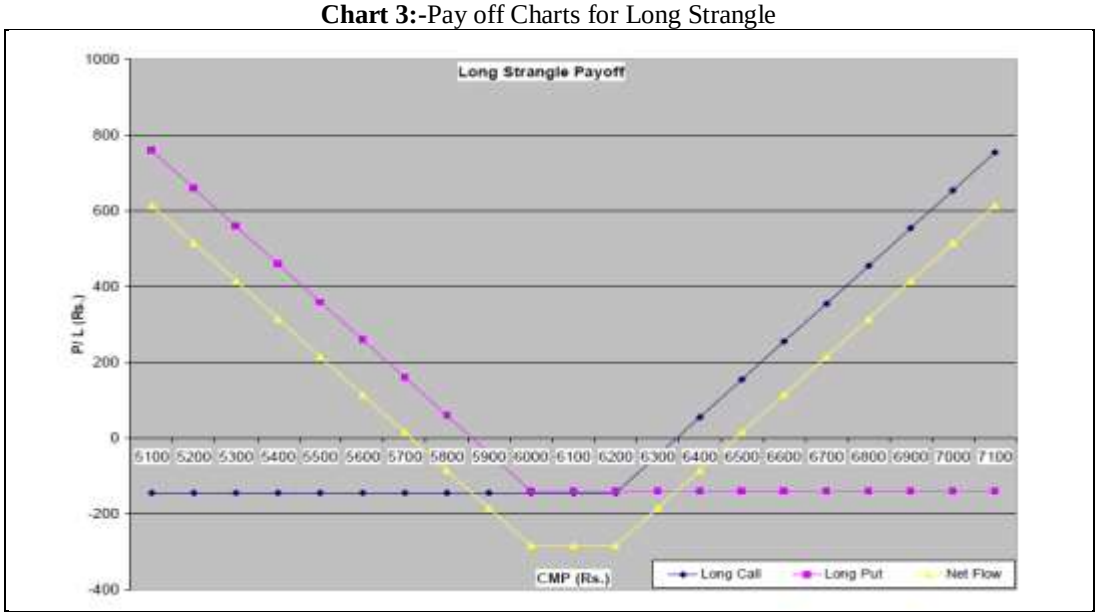
Option	Call	Put
Long / Short	Long	Long
Strike	6200	6000
Premium	145	140
Spot	6100	

If a trader goes long on both these options, then his maximum cost would be equal to the sum of the premiums of both these options. This would also be his maximum loss in worst case situation. However, if market starts moving in either direction, his loss would remain same for some time and then reduce. And, beyond a point (BEP) in either direction, he would make money. Let us see this with various price points.

If spot price falls to 5700 on maturity, his long put would make profits while his long call option would expire worthless.
Long Call: - 145, Long Put: -140 – 5700 + 6000 = 160
Net Position: 160 – 145 = 15
As price continues to go south, long put position will become more and more profitable and long call's loss would be maximum limited to the premium paid.

In case stock price goes to 6800 at expiry, long call would become profitable and long put would expire worthless.
Long Call: -145 – 6200 + 6800 = 455
Long Put: -140
Net Position: 455 – 140 = 315

Chart 3:-Pay off Charts for Long Strangle



In this position, maximum profit for the trader would be unlimited in both the directions – up or down and maximum loss would be limited to Rs. 285, which would occur if underlying expires at any price between 6000 and 6200. Position would have two BEPs at 5715 and 6485. Until underlying crosses either of these prices, trader would always incur loss.

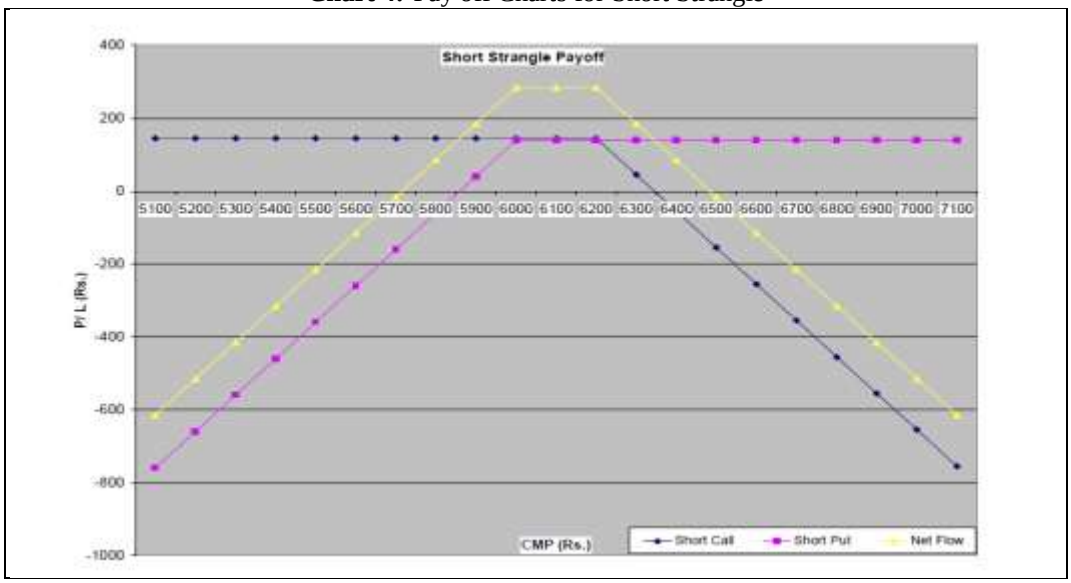
Short Strangle:-

This is exactly opposite to the long strangle with two out-of-the-money options (call and put) shorted. Outlook, like short straddle, is that market will remain stable over the life of options. Pay offs for this position will be exactly opposite to that of a long strangle position. As always, the short position will make money, when the long position is in loss and vice versa.

Pay off Charts for Short Strangle:-

Option	Call	Put
Long / Short	Short	Short
Strike	6200	6000
Premium	145	140
Spot	6100	

Chart 4:-Pay off Charts for Short Strangle



In this position, maximum loss for the trader would be unlimited in both the directions – up or down and maximum profit would be limited to Rs. 285, which would occur if underlying expires at any price between 6000 and 6200. Position would have two BEPs at 5715 and 6485. Until underlying crosses either of these prices, trader would always make profit.

Table 1:-Result of Long Short Return of Straddle and Strangle Strategies from 2014 to 2016

Expiry Date, Year	Long Straddle Return	Short Straddle Return	Long Strangle Return	Short Strangle Return
30-Jan-14	-0.34	-0.06	-0.59	0.05
26-Feb-14	-0.52	0.48	-0.80	1.18
27-Mar-14	0.54	-0.57	1.18	-0.68
24-Apr-14	-0.64	0.67	-0.93	1.29
29-May-14	0.04	0.12	0.05	0.19
26-Jun-14	0.76	-0.19	1.21	-0.20
31-Jul-14	-0.35	0.41	-0.46	0.85
28-Aug-14	0.08	-0.32	0.14	-0.39
25-Sep-14	-0.61	0.93	-0.85	1.16
30-Oct-14	-0.43	0.03	-0.63	0.15
27-Nov-14	-0.50	0.13	-0.70	0.53
24-Dec-14	1.20	-0.49	1.49	-0.58
29-Jan-15	0.71	-0.59	1.05	-0.67
26-Feb-15	-0.67	0.69	-0.86	1.47
26-Mar-15	-0.54	-0.15	-0.74	-0.17
30-Apr-15	-0.22	0.77	-0.28	0.96
28-May-15	-0.40	0.90	-0.52	1.04
25-Jun-15	0.29	0.69	0.26	0.73
30-Jul-15	-0.48	0.79	-0.61	0.86
27-Aug-15	0.82	-0.53	1.01	-0.62
24-Sep-15	-0.36	0.84	-0.52	0.96
29-Oct-15	0.16	0.21	0.27	0.35
26-Nov-15	-0.07	0.31	-0.21	0.71
31-Dec-15	-0.50	0.94	-0.69	1.05
28-Jan-16	3.03	-0.49	3.95	-0.57
25-Feb-16	1.31	-0.51	1.46	-0.59

31-Mar-16	0.86	-0.53	1.22	-0.59
28-Apr-16	-0.39	0.77	-0.55	0.91
26-May-16	-0.54	0.62	-0.79	1.19
30-Jun-16	-0.48	0.58	-0.62	1.61
28-Jul-16	-0.16	-0.24	-0.16	-0.29
25-Aug-16	-0.75	1.18	-0.96	1.37
29-Sep-16	-0.09	0.66	0.00	0.70
27-Oct-16	-0.85	1.27	-1.06	1.53
24-Nov-16	1.65	-0.58	2.05	-0.66
29-Dec-16	-0.68	1.01	-0.86	1.17

The above table describes that the long and short return of four strategies have given positive return on cumulative basis and Short strangle has given highest return followed by Short straddle, long strangle and long straddle which shows finest strategies of overall options.

Table 2:-Result of Positive and Negative Return of Straddle and Strangle Strategies from 2014 to 2016

Overall Trend	Long Straddle Return	Short Straddle Return	Long Strangle Return	Short Strangle Return
Positive	13 contract	23 contract	14 contract	24 contract
Negative	23 Contract	13 contract	22 contract	12 contract

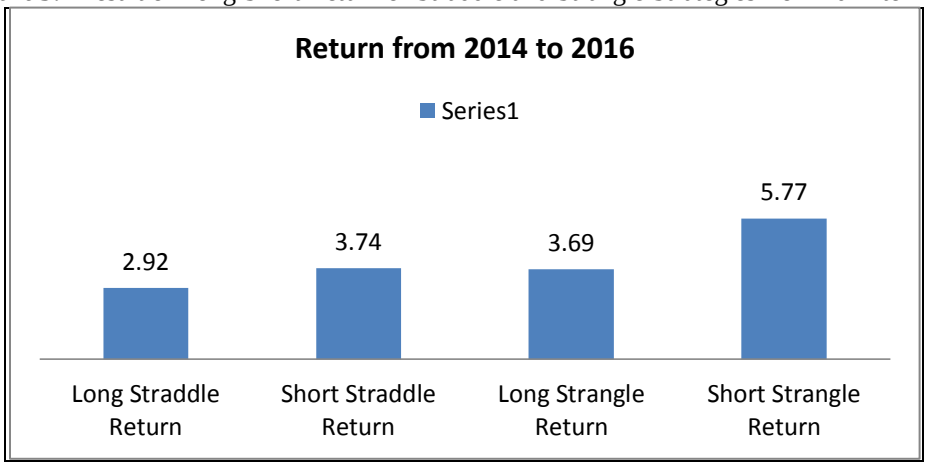
The above table indicates comparing the long and short return of straddle and strangle strategies of options. This analysis indicates 74 positive contract returns and 70 negative contacts out of 144 contact of selected period from 2014 to 2016.

Table 3:- Result of Long Short Return of Straddle and Strangle Strategies from 2014 to 2016

Long Straddle Return	Short Straddle Return	Long Strangle Return	Short Strangle Return
2.92	3.74	3.69	5.77

The above table shows that the long and short return percentage of four strategies have given positive return on cumulative basis and indicates better strategies of straddle and strangle in the options market.

Chart 5: -Result of Long Short Return of Straddle and Strangle Strategies from 2014 to 2016



The above Chart shows that the long and short return of four strategies have given positive return on cumulative basis and Short strangle has given highest return followed by Short straddle, long strangle and long straddle which shows best strategies of overall options.

Conclusion:-

Option strategies provide means of risk reduction, anyone who is at risk from a price change can use options to offset that risk. Different strategies are useful for different market perceptions of the price movements. Option

trading strategies are used for both hedging and speculation. In different market perception and price movements different strategies are useful. Option strategies are complex positions created including a combination of options and underlying shares which help the investor to benefit from his view. Hence the complexities of the investment risks and their management gives rise to commensurate solution through a serious of innovative strategies in the form of a combination of options of different types. It is indeed attribute to the versatility of the mechanics of option trading that a customized solution can be worked out for each specific risk management problem.

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