ISSN (Online) : 2455 - 3662
SJIF Impact Factor :4.924

EPRA International Journal of

# Multidisciplinary Research

**Monthly Peer Reviewed & Indexed International Online Journal**

***Volume: 3 Issue: 11 November 2017***

***Published By : EPRA Journals***

SJIF Impact Factor: 4.924 Volume: 3 | Issue: 11 |November 2017

EPRA International Journal of Multidisciplinary Research (IJMR) ISSN (Online): 2455-3662

# AN APPLICATION OF OPTION TRADING STRATEGIES

**Ms. Pranjal Desai[1]**
[1]Teaching Assistant,
SRIMCA, Uka Tarsadia University,
Bardoli, Gujrat, India

**Mr. Mayur Patel[2]**
[2]Student,
SRIMCA, Uka Tarsadia University,
Bardoli, Gujrat, India

## ABSTRACT

*The study is all about an application of option trading strategies in financial market. The aim of the study is understand the various option strategies which gives investors more profit. For the study researcher use descriptive research design that will describe the pay-off of call and put option by using appropriate strategy, the raw data of nifty index will be used from 1st July, 2016 to 31st June, 2017 from NSE web site (www.nseindia.com). For the analysis researcher test the different strategies like Long call, Long put, Butterfly call, Bull spread, Bear spread, Strangle, Straddle, Strip, Strap. Here the researcher find that those investor have bullish market sentiment they used the long call option, bull call spread for hedging the risk and maximize their profit and those investor who are neutral or range bound, not having bullish or bearish market sentiment they used butterfly strategy and other strategies is used in the volatility market sentiment. So researcher conclude that the option trading strategies are used in different market condition and the strategies give maximum profit and managing risk of investors. With trading in option market, the investment made is up to the premium paid and good return get by the investor. So, we can say that, to making profit in the market, this different option strategy is very useful. Also we can conclude that by using options strategy the investors can mitigate or reduce risk but can't completely eliminate risk associated in it.*

**KEYWORDS:** *Call Option, Put Option, Butterfly call, Bull spread, Bear spread, Strangle, Straddle, Strip, Strap.*

## I. INTRODUCTION

Rational investors with limited capital, once constrained, can now achieve full diversification benefits through investing in index derivatives, for maximizing the returns on their funds for a given level of risk. All the investment decisions possess varying degree of risks. Returns come in the form of income such as interest or dividends or through growth in capital values (i.e. capital gains) short terms as well as long term.

The emergence of derivative market products are forward, future and option are traded in the derivatives market. Comparing to stock market, derivatives markets are more risky. Because everything should be in a contract format. Derivatives are risk management instruments, which derive their value from an underlying asset. The underlying asset can be

bullion, index, share, bonds, Currency, interest, etc., Banks, Securities firms, companies and investors to hedge risks, to gain access to cheaper money and to make profit, use derivatives. Derivatives are likely to grow even at a faster rate in future.

The rest of the paper is organized as: the section II provides literature review, Section III offers discussion in research methodology. Results and discussion are given in section IV. The paper ends with conclusion and recommendation.

## II. REVIEW OF LITERATURE

**Ramasamy. V and Dr. G. Prabakaran (2017)** analyzed the impact of risk-return analysis on stock futures and options trading in Indian equity derivatives market with special reference to NSE. The main objective of the study is to evaluate futures and options in equity derivatives of selected software companies of Infosys and TCS and find out the risk and return relationship in future and option contract. They collect daily closing price of the futures and options contracts from April 2016 to June 2016 from the www.nseindia.com and underlying asset of Infosys and TCS stock futures and options to be used for the study. The statistical tools used to measures the futures and options price movements are; Risk (alpha & beta), Return and Descriptive Statement Analysis. The study found that the highest return was gained from short positions in put options in the both the stocks. Indian derivatives markets were more unstable throughout the study period and the comparative return analysis of Infosys stock future and TCS stock future has maximum return in the month of April (10% & 16%). The comparative return analysis of Infosys & TCS stock option has highest return in the month of May & June 2016 (88.34% & 88.25%). The comparative risk analysis of Stock Future & option Infosys & TCS has utmost minimum risk in stock option 0.46 & less market volatility, the maximum risk in stock option is 2.20 & more market volatility is 2.20. The stock futures volatility is normal of 0.65. They are a lesser amount of volatile than market.

**Michael L. Hemler and Thomas W. Miller (2015)** analyzed the Performance of Options-Based Investment Strategies: Evidence for Individual Stocks during 2003–2013. The objective is to examine the relative performance of options-based investment strategies versus a buy-and-hold strategy in the underlying stock. They collected top ten stocks monthly returns from five strategies that include a long stock position as one component: long stock, covered call, protective put, collar, and covered combination by using four standard performance measures: Sharpe ratio, Jensen's alpha, Treynor ratio, and Sortino ratio. They found that the covered combination and covered call strategies generally outperform the long stock strategy, which in turn generally outperforms the collar and protective put strategies regardless of the performance measure considered. These results hold for the entire period 2003–2013 and both sub periods 2003–2007 and 2008–2013 and suggested that options-based strategies can be useful in improving the risk-return characteristics of a long equity portfolio. Inferences regarding superior or inferior performance are problematic.

**L. Backiya (2015)** analyzed Risk and Return Analysis of Stock Future and Option Derivatives Trading in India. The objective of the study is to find out the risk and return relationship in future and option contract and assess risk management tools and its strategies. This study attempt to test the volatility of stock index prices in Indian Derivatives market with special reference to NSE and also this study should focus on oil manufacturing industry BPCL & ONGC in the period of April – June 2014 by using alpha, beta and Descriptive Statement. The analysis found that the comparative return analysis of ONGC stock future and BPCL stock future has maximum return in the month of May & June 2014 (16% & 14%) and The comparative return analysis of ONGC & BPCL stock option the BPCL only has maximum return in the month of May & June 2014 (14% & 3%) and the comparative risk analysis of Stock Future & option ONGC and BPCL has highest minimum risk in stock option 0.05 & less market volatility is 0.94. The maximum risk in stock future is 1.2 & more market volatility is 1.2 so that they conclude that the derivative market is burgeoning with its divergent products, yet there to, lack of economics of scale, tax and legal bottlenecks, increased off-balance sheet exposure of Indian banks, need for an independent regulator etc.

**K. Soniya, G. Mohanraj, Dr.P. Karthikeyan (2013)** analyzed a study on financial derivatives (Future & Options) with special reference to ICICI & SBI. The objective is to analyze the operations of futures and options and to find the profit/loss position of futures buyer and seller and also the option writer and option holder. For analysis is ICICI BANK, SBI and the contract taken one month contract (1st Feb 2012 to 1st Mar 2012). They found that in bullish market the call option writer incurs more losses so the investor is suggested to go for a call option to hold, whereas the put option holder suffers in a bullish market, so he is suggested to write a put option. In bearish market the call option holder will incur more losses so the investor is suggested to go for a call option to write, whereas the put option writer will get more losses, so he is suggested to hold a put option. In the above analysis the market price of SBI is having low volatility, so the call option writer enjoys more profits to holders. The future price of SBI is moving

along with the market price. If the buy price of the future is less than the settlement price, than the buyer of a future gets profit. If the selling price of the future is less than the settlement price, than the seller incur losses. The future price of ICICI is moving along with the market price. If the buy price of the future is less than the settlement price, than the buyer of a future gets profit. If the selling price of the future is less than the settlement price, than the seller incur losses.

**Benjamin Bruder, Nicolas Gaussel (2011)** analyzed Risk-Return Analysis of Dynamic Investment Strategies. The objective is a need for final investors to compare them in order to understand which the determining factors in their performance are, how they compare and whether it makes sense to pay fees to a professional investment manager. For the study they collected data of S&P index from 1988 to 2009 and used Sharpe ratio, factor analysis and specialized index benchmarking for analysis. They categorized investment strategies in one of three families: directional, contrarian and trend-following and found that directional strategies show the same kind of behavior as the underlying, contrarian and trend-following strategies show asymmetric return distributions. Those asymmetric behaviors can be misleading at first sight, as a seemingly stable strategy may hide large potential losses.

**Nadima El-Hassan, Tony Hall, Jan-Paul Kobarg (2004)** analyzed Risk and Return of Covered Call Strategies for Balanced Funds: Australian Evidence**.** The objective is to analyses the performance of a balanced portfolio where funds are invested across various asset by using two balanced portfolios in which the first balanced portfolio involved the distribution of funds across five asset classes including Australian equity (40%), international equity (25%), fixed income (20%), property (10%) and cash (5%) and second portfolio used the same balanced portfolio but incorporated a covered call strategy on the Australian equity component of the portfolio**.** The data collected from July 1, 1997 to June 24, 2004 from 4 sources: Datastream, IRESS, SIRCA and the ASX and analyzed the performance of a balanced portfolio where funds are invested across various asset classes.The covered call strategy was implemented by selling 5-15% out-of-the-money (3 months maturities) stock call options on the Australian equity component of the portfolio represented by the stocks in the S&P/ASX 20 index. The results show that covered call strategies have the effect of enhancing the average return of the portfolio, reducing the standard deviation of returns and improving the risk-adjusted returns of the balanced portfolio. The covered call strategies also have the effect of reducing the range of the returns observed for the portfolio as would be expected for such a strategy.

**Pedro Santa-Clara, AlessioSaretto (2004)** analyzed Option Strategies: Good Deals and Margin Calls. The objective is to investigate the risk and return of a wide variety of trading strategies involving options on the S&P 500 through consider naked and covered positions, straddles, strangles, and calendar spreads, with different maturities. They collected daily closing prices for options and futures in the period between January 1985 and May 2001, European options on the S&P500 index and daily closing bid and ask quotes for the period between January 1996 and December 2002. They found that strategies involving short positions in options generally compensate the investor with very high Sharpe ratios, which are statistically significant even after taking into account the non-normal distribution of returns also found that the strategies' returns are substantially higher than warranted by asset pricing models, the returns of the strategies could only be justified by jump risk if the probability of market crashes were implausibly higher than it has been historically so they conclude that the returns of option strategies constitute a very good deal.

**Dr. N. Maruti Rao** conducted to develop investment strategies for retail investors by using technical analysis of automobile sector. The objective of the study is to develop stock option strategy for auto stock and develop a model for selecting stock option strategy for retail investors. For this study Auto industry was selected for the study i.e. Tata Motors, Maruti Suzuki India and Mahindra and Mahindra and data are collected from BSE and NSE from 2nd January to 10th February 2012. The data analyzed by using Exponential Moving Average Method, charts, etc. Predicting future price of stock. He conclude that the Investors in option market can use Exponential Moving Average Method for selecting option strategies and strike price and option premium which may be of immense help to them in hedging risk associated with investment in option market but also helps in maximizing profit if prices of underlying stock moves in a direction as per the prediction made by using EMAM.

**Dr. N. S. Malik** analyzed Risk-Return Dynamics of Derivative Based Investment Strategies. The objective is to explore the use of index derivatives in the portfolio adopted by individual investors and also to examine the impact of the use of leveraging on the value of index based portfolio of derivatives. For the study daily prices of S&P CNX Nifty collected from January 1, 1998 to October 25, 2007 (2466 observations). Researcher used statistical and econometric techniques in the light of theoretical background of the problem and the researcher's insight regarding the working of Indian capital market. They find that the index derivatives provide individuals with

the opportunity to invest in a well-diversified portfolio to exploit the emerging potential of the market. Evidences suggests that if index futures (naked) and covered call are considered for long terms on rolling basis as an investment strategy by using value at risk (VaR) measure, it amounts in translating significantly higher rate of returns to its respectively increased risk. Only option backed strategies like straddle and strangle does not at all result in any incentive, if bench marked with cash portfolio.

**Chirag Babulal Shah** examined on back testing of Bull CallDebit spread strategy on Nifty Index Options. The main objective is to prove that wealth creation can be done by a disciplined approach to option strategies and with a long term time frame. The data collected from NSE Nifty index stock options and check the results of Bull Call Spread strategy from January 2008 to December 2014. He found that the market has behaved in quite random manner. In some months there had been extreme movements and in some there was no movement at all. The direction of the market has been up in 38 months and down in 34 months from its starting point of the expiry period. However, due to the payoff return or risk vs return of the strategy, and the leverage obtained by trading options, the returns are considered excellent so this strategy has proved to yield profits in the long run.

## III. RESEARCH METHODOLOGY

### Objective

- To assess option strategies for maximize wealth
- To understand the risk management systems in derivative segment.
- To understand the various options strategies.
- To implement the appropriate strategies i.e. to identify the right strategy with respect to the market sentiments.

### Research design

Descriptive research design is use for study. As the project will describe the pay-off of call and put option by using appropriate strategy, the raw data of nifty index will be used from 1st July, 2016 to 31st June, 2017.

### Assumptions

- There is no transaction cost (Brokerage).
- Short sell is allowed.
- There is no daily valuation of option in order to generate profit and loss (In short Mark to Market is not allow).
- Option Premium is calculated by using Premium Calculator.

### Limitation of the Study

- Option trading strategies are very complex and difficult and therefore it requires more time and effort to understand their utilization.

## IV. ANALYSIS AND INTERPRETATION

### 1. Long call

**Please refer figure 1.**

The long call strategy is used when the buyer anticipate upward in index price. So buyer buy a call option at in the money it at higher price in future to make a profit. To minimize the risk buyer buy call option with strike price equal to or close to underlying price. In the above graph, buyer short index price at 8328.35 and buy call option with strike price of ₹8300 with the premium of ₹838.55. When index price exceeds 9138.55 the investor exercise the call option and in spot index price goes upward 8328.35 than buyer get benefit. By adding payoff investor get net profit by applying this hedging strategy. The maximum profit in long call option ₹536.55.

### 2. Long Put

**Please refer figure 2.**

The long put strategy is used when the buyer anticipate downward in index price. So buyer buy a put option at in the money it at lower price in future to make a profit. To minimize the risk buyer buy put option with strike price equal to or close to underlying price. In the above graph, buyer short index price at 8328.35 and buy put option with strike price of ₹8300 with the premium of ₹388.5. When index price decline 8688.5 the investor exercise the put option and in spot index price goes downward 8328.35 than buyer get benefit. By adding payoff investor get net profit by applying this hedging strategy. The maximum profit in long put option ₹3.25.

### 3. Bull Call Spread

**Please refer figure 3.**

Bull Spread is used when investors assume that market has bullish sentiment and strategy created by the purchasing a call option and selling another call option of Nifty Index with same expiry but higher strike price. The strike price in purchasing call option ₹8300 with premium ₹838.55 and strike price of writing call is ₹8400 with premium ₹1509.4. The holder will exercise long call option if prices will increase. Market goes upward then the long call gives profit of ₹536.55 and if market goes down then short call gives profit of ₹2015.15. Combination of a long call and short call gives high profit of ₹2045.95.

### 4. Bear Call Spread

**Please refer figure 4.**

Bear Call Spread is used when investors assume that market has Bearish sentiment and strategy created by the selling call option and purchasing a call option of Nifty Index with same expiry but higher strike price. The strike price in purchasing call option is ₹8400 with premium ₹1509.4 and strike price of writing call is ₹8300 with premium ₹838.55. The holder will exercise long call option if prices will increase. Market goes upward then the long call gives

profit but here it gives loss of ₹1509.4 because market does not beat the strike price and if market goes down then short call gives profit of ₹1230.3. Combination of a long call and short call gives high loss of ₹604.25.

**5. Butterfly Call Spread**

**Please refer figure 5.**

Butterfly spread used when the investor is neutral on market direction and bearish on volatility. It results from positions in options with three different strike prices which involve buying a call option with relatively low strike price, buying another call option with relatively large strike price and selling two call options with strike price which should be halfway between low and large strike price. Here buying one call option with strike price ₹8200 with premium of ₹323.35, buying another call option with strike price ₹8400 with premium of ₹1509.4 and selling two call options with strike price of ₹8300 with premium of ₹838.55. Market goes upward then the lower price call gives profit of ₹1151.75, if market goes down then 2 short calls gives profit of ₹2460.6 which is limited and the high price call gives loss of ₹1509.4. Combination of a calls (high, 2middle (short calls), low) gives loss of ₹2594.55.

**6. Straddle Spread**

**Please refer figure 6.**

A Straddle strategy is a volatility strategy and is used when the index price is expected to show large movements. In this strategy investor purchase both call and put option of nifty index with same strike price. If the price of the share increases, the call option is exercised while the put expires worthless and if the price of the share decreases, the put option is exercised, the call expires worthless. Here, investor purchases call option for ₹838.55 and put option for ₹388.5 with the strike price of ₹8300. Market is goes upward then the long call gives profit of ₹536.55. And if market goes down then long put gives profit of ₹3.25. Combination of two call and a put gives high profit of ₹148.05.

**7. Strangle Spread**

**Please refer figure 7.**

A Strangle strategy is used when the index price is expected to show large movements. In this strategy investor purchase both call and put option of nifty index with different strike price. If the price of the share increases, the call option is exercised while the put expires worthless and if the price of the share decreases, the put option is exercised, the call expires worthless. Here, investor purchases call option for ₹838.55 with the strike price of ₹8300 and put option for ₹460 with the strike price of ₹8200. Market goes upward then the long call gives profit of ₹1073.1 and the put option gives loss of ₹460. Combination of two call and a put gives high profit of ₹613.1.

**8. Strip Spread**

**Please refer figure 8.**

A strip strategy is a volatility strategy and is used when the index price is expected to show large movements. In this strategy investor purchase call and two put option of nifty index with same strike price. If the price of the share increases, the call option is exercised while the put expires worthless and if the price of the share decreases, the put option is exercised, the call expires worthless. Here, investor purchases call option for ₹838.55 and put option for ₹388.5 with the strike price of ₹8300. Market is goes upward then the long call gives profit of ₹536.55 and if market goes down then long put gives profit of ₹6.5. Combination of a call and two put option does not give profit here.

**9. Strap Spread**

**Please refer figure 9.**

A strap strategy is a volatility strategy and is used when the index price is expected to show large movements. In this strategy investor purchase two call and put option of nifty index with same strike price. If the price of the share increases, the call option is exercised while the put expires worthless and if the price of the share decreases, the put option is exercised, the call expires worthless. Here, investor purchases call option for ₹838.55 and put option for ₹388.5 with the strike price of ₹8300. Market is goes upward then the long call gives profit of ₹1073.1 and if market goes down then long put gives profit of ₹3.25. Combination of two call and a put gives high profit of ₹684.6.

## Results

The result shows that those investor have bullish market sentiment they used the long call option, bull call spread for hedging the risk and maximize their profit and those investor who are neutral or range bound, not having bullish or bearish market sentiment they used butterfly strategy and other strategies is used in the volatility market sentiment.Here by holding the 1 year option contract the longcall, bull call spread, butterfly call spread, bear call spread, strangle spread and strapspread strategy gives profit and long put, straddle spread and strip spreadstrategy will give losses on expiration date.

Current Price at expiry date 29th June, 2017 is 9504.1

Profit and loss on 29th June, 2017

| Strategy | Profit/Loss on 29th June, 2017 |
|---|---|
| Long Call | ₹ 365.55 |
| Long Put | ₹ -388.5 |
| Bull Call Spread | ₹ 1874.95 |
| Butterfly Call Spread | ₹ 2252.55 |
| Bear Call Spread | ₹ 433.25 |
| Strangle Spread | ₹ 271.1 |
| Straddle Spread | ₹ -22.95 |
| Strip Spread | ₹ -411.45 |
| Strap Spread | ₹ 342.6 |

## V. CONCLUSION

As we have seen there are various option strategies that can be utilized to provide investors with enhanced returns. Finding and implementing a strategy involves research and constant monitoring of both the micro and macroeconomic picture and should be utilized by investors. If investors can do better implement of these strategies than he will have a higher likelihood of success. Option trading strategies are used in different market condition and the strategies give maximum profit and managing risk of investors. With trading in option market, the investment made is up to the premium paid and good return get by the investor. So, we can say that, to making profit in the market, this different option strategy is very useful. Also we can conclude that by using options strategy the investors can mitigate or reduce risk but can't completely eliminate risk associated in it.

## VI. RECOMMENDATION

The risk averse investors can avoid large losses by using the Hedging strategies.If market has bullish sentiment then Long Call, Bull Call Spreads, Bull Put Spreads and Strap strategies should be used.

If market has bearish sentiment then Long Put, Bear Call Spreads, Bear Put Spreads and Strip strategies should be used.

If market is neutral then Butterfly Spreads should be used.

If market has high volatility sentiment then long straddle, strangle should be used.

## REFERENCE

### Books:


1. *N. D. Vohra, Futures and Options, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2nd edition.*


### Research Paper:


1. *Dr. N Maruti Rao. "Developing option strategies by using technical analysis: a case study of automobile sector". Vol.1 No. 6, June, ISSN 2277 3622 pp. 94-103*
2. *http://indianresearchjournals.com/pdf/IJMFSMR/2012/June/10.pdf*
3. *Nadima El-Hassan, Tony Hall, Jan-Paul Kobarg (2004). "Risk and Return of Covered Call Strategies for Balanced Funds: Australian Evidence". September 23, 2004*
4. *http://www.asx.com.au/documents/products/covered_calls_report_final.pdf*
5. *L. Backiya (2015). "Risk and Return Analysis of Stock Future and Option Derivatives Trading in India". Volume: 5 Issue: 1 Jan 2015 ISSN - 2249-555X pp. 268-271*
6. *https://www.worldwidejournals.com/indian-journal-of-applied-research-(IJAR)/file.php?val=January_2015_1421737887___74.pdf*
7. *Dr. N. S. Malik. "Risk-Return Dynamics of Derivative Based Investment Strategies".*
8. *https://www.nseindia.com/content/research/comppaper195.pdf*
9. *Ramasamy. V and Dr. G. Prabakaran (2017). "Impact of risk-return analysis on stock futures and options trading in Indian equity derivatives market with special reference to NSE". ISSN: 2320-5407 Int. J. Adv. Res. 5(3), pp. 489-499*
10. *http://www.journalijar.com/uploads/77_IJAR-16104.pdf*
11. *Soniya, G. Mohanraj, Dr.P. Karthikeyan (2013). "A study on financial derivatives (Future & Options) with special reference to ICICI & SBI". Volume 1, Issue 2, October-December, 2013, pp. 11-21, © IASTER 2013 ISSN Online: 2347-2847, Print 2347-8276*
12. *http://www.iaster.com/uploadfolder/2ASTUDYONFINANCIALDERIVATIVESGM7Nov13Copy/2A%20STUDY%20ON%20FINANCIAL%20DERIVATIVES%20GM7Nov13%20Copy.pdf*
13. *Chirag Babulal Shah. "A Study on back testing of Bull CallDebit spread strategy on Nifty Index Options". e-ISSN: 2278-487X, p-ISSN: 2319-7668. PP 72-80*
14. *http://www.iosrjournals.org/iosr-jbm/papers/ies-mcrc-ibrc/volume-2/RC-25.pdf*
15. *Pedro Santa-Clara, AlessioSaretto (2004). "Option Strategies: Good Deals and Margin Calls". PP.1-42*
16. *http://www.econ.yale.edu/~shiller/behfin/2005-04/santa-clara-saretto.pdf*
17. *Benjamin Bruder, Nicolas Gaussel (2011). "Risk-Return Analysis of Dynamic Investment Strategies". Issue # 7 June 2011 PP. 9-36*
18. *http://www.lyxor.com/uploads/tx_bilyxornews/Risk-Return_Analysis_of_Dynamic_Investment_Strategies.pdf*

19. *Michael L. Hemler and Thomas W. Miller (2015). "The Performance of Options-Based Investment Strategies: Evidence for Individual Stocks during 2003–2013".*
20. *https://www.optionseducation.org/content/dam/oic/documents/literature/files/perf-options-strategies.pdf*

## Websites:

1. *https://www.nseindia.com*
2. *http://www.finideas.com/MarketGuide.aspx?ID=14*
3. *http://www.finideas.com*

## FIGURES


**Figure 1: Call option payoff**

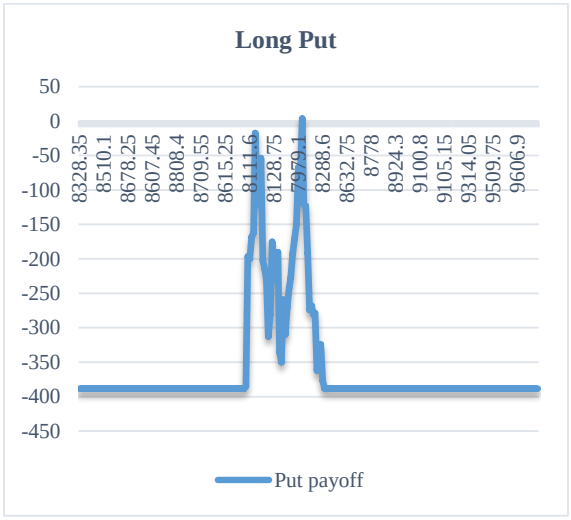


**Figure 2: Put option payoff**

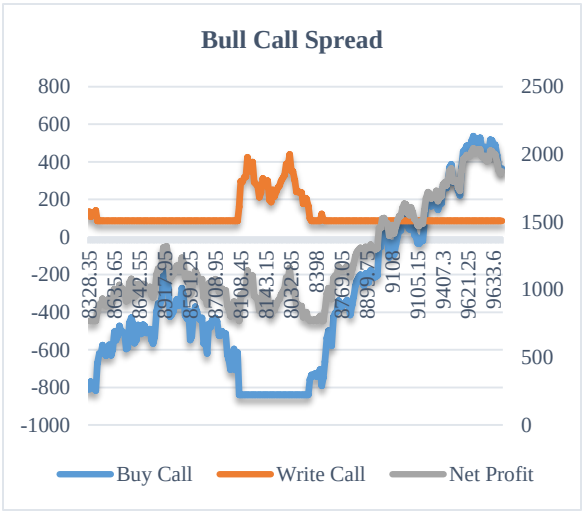


**Figure 3: Bull Call option payoff**

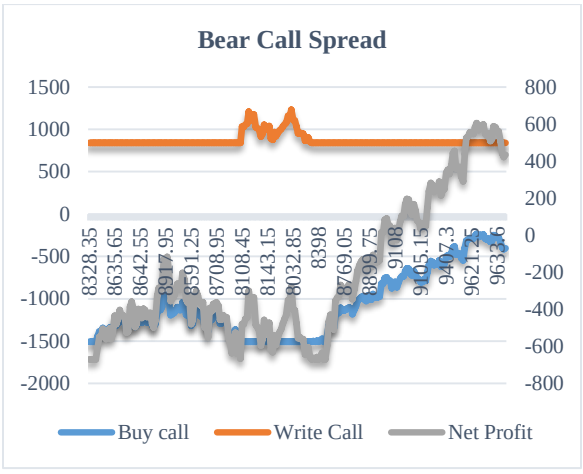


**Figure 4: Bear Call option payoff**

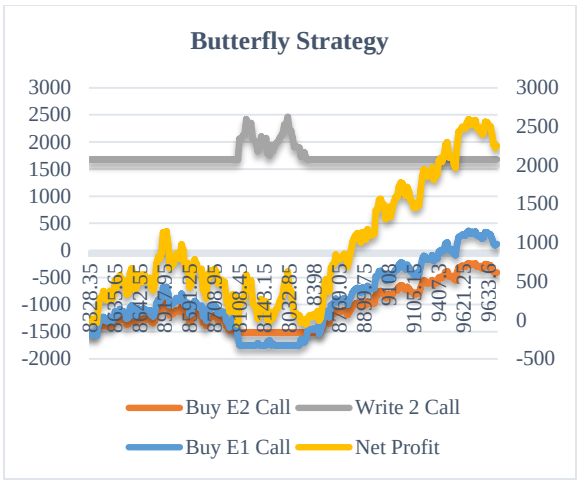


**Figure 5: Butterfly Call Spread payoff**

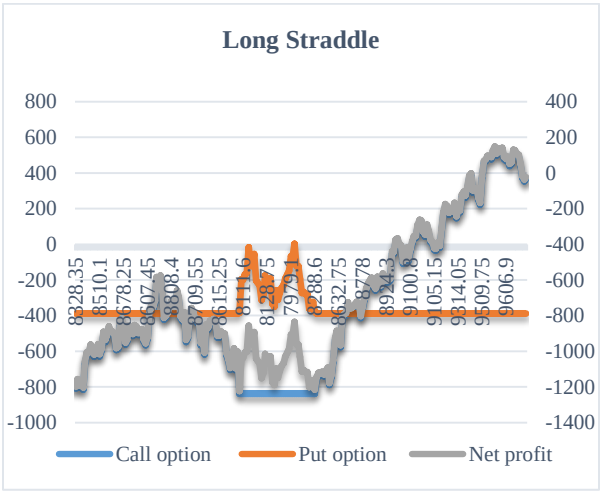


**Figure 6: Straddle Spread payoff**

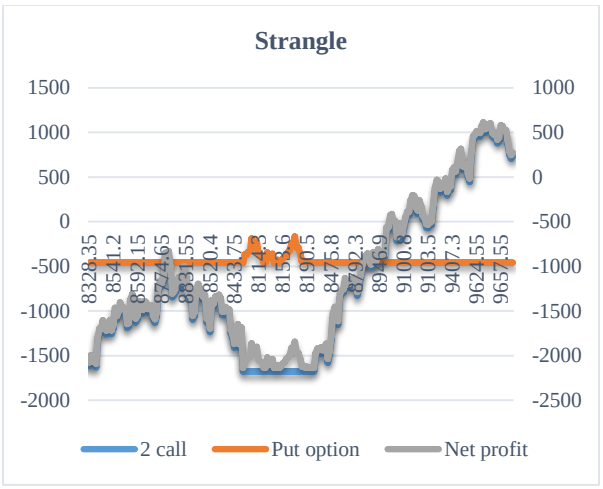


**Figure 7: Strangle Spread payoff**

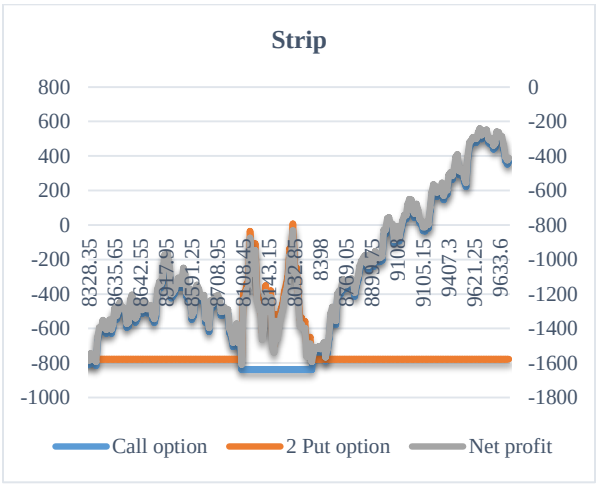


**Figure 8: Strip Spread payoff**

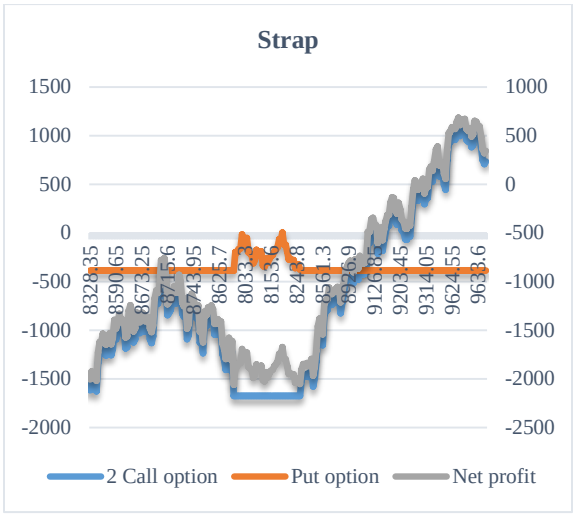


**Figure 9: Strap Spread payoff**