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A Study on the Payoff Analysis of Bull Spread and Covered Call Strategies of Bank Nifty Index

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ABSTRACT
Stock market is a place where the investor trades various financial instruments like bonds, shares, derivatives and debentures. The objective of this report is ***"to study the payoff analysis of Bull spread and covered call strategies of banknifty index".*** *Banknifty is the popular stock index that measures changes that takes place in the stock market (banking stocks) by measuring price movement and market performance. Banknifty is derived from 3 words i.e. National Stock Exchange, banks and Fifty, as it is a collection of top performing 12 banking stocks that are actively traded.*

This study applies back-testing strategy using banknifty options data to find the effectiveness of the Bull spread Strategy and Covered call strategy with banknifty. The study was conducted during the period between January 2020 to 2022 by using two years of data. Closing prices are used in the calculation of call payoff and MTM. All data are taken from the website www.nse.com. Based on the market conditions, option call prices have been assumed and intraday movements of options were ignored. Banknifty options are having weekly settlements which mean a new contract will open on Friday and close on the next Thursday. Hence for the past 2 years, we are having around 100 payoffs.

This study's findings will help an investor to analyze and make a better decision regarding the strategy to be applied to gain more profit. Based on meticulous research it is found that the option selling strategy gives the best results followed by the covered call strategy. Bullspread strategy is not advisable as continuously it is giving losses. This study in conclusion advises investors not to go for a call option buying strategy as they are likely to lose all the capital in a very short time.

KEY WORDS*: Options Payoff, Bull Spread, Bear Spread, Covered call Strategy and option writing.*

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I. INTRODUCTION:

The share market is a platform where buyers and sellers come together to trade on publicly listed shares during specific hours of the day. People often use the terms 'share market' and 'stock market' interchangeably. The derivative is a financial instrument of investment whose value is derived from and depends on the value of the underlying assets. It is a product or a contract whose value is derived from other underlying asset values.

The main aim of the report is to investigate the relationship between the variables within a population. As financial markets are very complex and volatile, the opportunity of making profits and losses is huge. But many investors' even, financially knowledgeable executives find it difficult to invest and get a reasonable return in markets. Hence, finding out new efficient strategies would reduce the risk and increase profit.

With so many strategies available, the research mainly focuses on determining whether bullspread and covered call strategies are profitable concerning the NSE benchmark index banknifty.

II. LITERATURE REVIEW

1. Higgins, C. J. (2011). has found out that selling option is better than buying option after studying options for hedging and speculation on securities.

2. Fahlenbrach, R., & Sandås, P. (2010). Suggested that option strategies are used both by traders who possess non –public information about future volatility and by uninformed speculators who appear to follow unprofitable trend chasing strategies.

3. Kozul, N. (2010). Stated that in derivative market the most creative or innovative investment and arbitrage and hedging strategies are existing daily with different or complex pay- out scenarios and risk exposures.

4. Santa-Clara, P., & Saretto, A. (2009).concluded that margin requirements for option writers effectively restrain the traders in using strategies.
5. Wen-liang, G. H., & He, H. R. (2014). found that foreign institutional investors who are most knowledgeable and informed traders wishes to use out-of–the money options to reduce risk and improve profitability.

6. Vashishtha, A., & Kumar, S. (2010). Determined that the global derivatives market has developed in India at an astonishing speed with large number of investors and institutions taking part with volumes amongst the highest in the world.

7. Narang, S., & Vij, M. (2013). Concluded spot returns, volume, and volatility are high on expiration day and they build up further on the day after expiry which shows that the Indian market is weakly efficient and options are very volatile during this period.

8. Malhotra, M. (2012). Discovered that in derivatives market price discovery is one of the important functions and volume of trading is very high in Indian derivatives markets and is likely to achieve very high turnover in the coming years.

9. Mutum, K. (2020). Identified that the options trading performance might be improved if volatility forecasting incorporating investor sentiment, particularly IVIX, was incorporated in the decision-making process at the Indian options market

10. G.Y.Vishwanath and Auxilia, P. M. (2017) proved that hedging can be effectively achieved when we use options of high market cap stocks.

III. RESEARCH METHODOLOGY:

- Analytical Research Design.
- Convenience sampling method.

Hypothesis:
$1H_{0:}$ Mean return of banknifty and bear spread strategy are statistically similar
$1H_1$: Mean return of banknifty and bear spread strategy are statistically not similar
$2H_0$: Mean return of banknifty and covered call strategy are statistically similar
$2H_1$: Mean return of banknifty and covered call strategy are statistically not similar

OBJECTIVES

- To find out the pay-off of bear spread strategy using banknifty options
- To find out the pay-off of covered call strategy using banknifty options

LIMITATONS:

- Only two years study was under taken
- Closing prices were taken from nse.com for settlement rates
- Intra Day movements were ignored
- Analysis uses only closing rates
- Option prices are assumed based on the market trends
- All securities move differently based on many factors and markets are volatile hence, this study which was conducted using banknifty options may not be applicable for other index and stocks

FINANCIAL ANALYSIS

Rate of Return:
Return on investment (ROI) is the metric used to analyze the performance of the efficiency or profitability of an investment or to compare the efficiency of several investments, ROI allows to directly analyze the amount of return on a certain investment in relation to the cost of the investment.

$$ROI = \frac{\text{Closing price- prev Closing price} * 100}{\text{Prev Closing Price}}$$

Bull Spread Strategy

- Sell one call at strike price X and buy one call at strike price X+Y
- For example, Buy banknifty strike price 35000 call at 500 and sell banknifty strike price 35100 call at 400.
- When the market is bullish this strategy is likely to be profitable.

Covered call strategy

- Buy one stock or index
- Sell one option of the stock or index which you are holding
- This should be done continuously for many settlements
- Example: Buy banknifty futures at 35000- (investments is 16000*25) i.e., 875000
- Every week sell a banknifty option and cover it on the last day
- Example: Sell Banknifty 35000 call at 150/- and wait for the settlements

Statistical Analysis

The statistical analysis helps in collecting and interpretation of data in order to uncover patterns and trends, which involves the investigating trends, patterns, and qualitative data.

Descriptive Statistics

This helps in organizing and summarizing the data this is used in inferential statistics to check the formal test of Hypotheses and helps in estimating the population.

IV. FINDINGS, CONCLUSIONS AND SUGGESTIONS:

Findings:

Bull spread strategy returns:

Descriptive statistics	
Mean	-1.1249
Standard Error	0.54196
Median	-4.10256
Mode	-5.29101
Standard Deviation	5.419601
Sample Variance	29.37208
Kurtosis	-1.55939
Skewness	0.040353
Range	19.47611
Minimum	-12.2222
Maximum	7.253886
Sum	-112.49
Count	100

- The mean return of the strategy is -1.1% which means consistently the strategy is giving negative returns.
- The mode is -0.529% which shows many times we get this return.
- The range of the strategy is 19 which means very high risk. That is the return ranges between -12.2%.
- Over all this bull spread strategy looks not good enough for investors to use.

Covered call strategy retuns:

Descriptive statistics	
Mean	0.22817
Standard Error	0.237832
Median	1.084881
Mode	------
Standard Deviation	2.366402
Sample Variance	5.59986
Kurtosis	12.9163
Skewness	-3.04642
Range	16.31846
Minimum	-13.1245
Maximum	3.19399
Sum	22.58883
Count	99

- The mean return per week is 0.22% which is 0,22% which is good return. We can get this return consistently.
- The range of this strategy is 16 with minimum return being -13% to maximum return 3.2%.
- The overall analysis indicates this strategy can be used by investors to get decent returns from stock markets.

Simple call option buying strategy returns :

Descriptive statistics	
Mean	-10.9646
Standard Error	14.7438
Median	-100
Mode	-100
Standard Deviation	146.699
Sample Variance	21520.59
Kurtosis	14.87305
Skewness	3.062851
Range	1009.143
Minimum	-100
Maximum	909.1429
Sum	-1085.5

Count	99

- The mean return is -11% which means investors will lose money in this strategy. The mode is -100% which means most of the time investors will lose 100% of their capital. The range is 1000 which indicates very very high risk.
- The minimum return is -100% and maximum return is 900%.

Suggestions:

Bull spread strategy:
This is not a profitable strategy (for banknifty) based on our research. In spite of being in bull market postcovid this strategy is giving negative returns. Hence, this strategy should be tested for different stocks and indices at different periods of time.

Covered call strategy:
This strategy gives a very decent return. Here, we are selling the calls every week as part of our strategy. Though it was a bull market we are able to get a good returns. In our study we assume the starting date as a January 2 2020 which was before covid hence we have purchased the bank banknifty index at a very high price. Suppose we had purchased during covid the returns would have been very high. This proves that covered call strategy can be used at all times. We might conclude this as the best strategy.

Simple call option buying strategy:
This strategy gives big losses consistently which is more than 10% of the capital per week. This means the investor will lose all his money within 2 months of trading. Hence this is not recommended for investors.
The opposite of option buying strategy is option selling (naked option writing strategy). This is likely to give 10% return every week. The only problem is the high amount of margin required for call selling which is around 125000 rupees.

V. Conclusion:

Based on meticulous research it is found that Option selling strategy gives best returns followed by covered call strategy. We advise investors not to go for call option buying strategy as they are likely to lose all the capital in a very short time.

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