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# OPTION SELLING STRATEGY: A QUANTITATIVE STRATEGY OF OPTION SELLING FOR RETAIL OR HNI

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**Abstract:**

Option Selling is one of the most talked about and mis-understood topic in the world of financial markets. On one hand it provides abundant opportunities for retail as well as High Net Worth Individuals a.k.a HNI, and on the other hand it open the doors of unlimited risk and which has destroyed many traders in seconds. The options wold is a seller's setup. Meaning there by, if has been no seller, there won't be any buyer. In this research paper we will study and analyse the answer to the very basic question, i.e. Is Option Selling possible for a retailor? OR Is it possible to earn Consistent Income from financial markets through Option selling, without knowing or worrying about the direction of the markets? Yes, "Without Knowing the Direction of the The Market?"

## Introduction

Options trading and especially Options selling is amongst the most talked about topic the Financial world. However, as per study, only a small amount of option sellers is being able to make money. The answer to why they are unable to make money lies in their approach. Majority of options sellers sells with the belief of eating up the entire premium. Some time it happens, but in majority cases "NOT". In this research paper, we have analysed a quantitative approach to sell option without knowing or worrying about the direction of market. The strategy is based upon simple logic of risk management and exiting at predefined levels. This is a quantitative approach and thus is required to be followed at cast without thinking of market conditions.

## Literature Review

(April 2013, Pallavi, Raju, & Raju,)"OPERATIONAL STRATEGIES AND PERFORMANCE OF OPTIONS TRADING IN INDIA"

This paper beautifully introduces the reader to options world in India and explains how an investor can reduce his/her portfolio risk through options trading. Before explaining various ways in which options can be traded, the paper explains in depth the options and its types. It also explains the mechanism of how it works and how it can be used in favour of trader or an investor. Data of almost 9-110 years has been utilized and showcased in this research paper.

(Krishnan & G, January 2018) in this article named "Performance Analysis of Volatile Strategy under Indian Options Market" explains how to minimize risk and maximise profits. It explains to use both call and put simultaneously. The trader should analyse the markets and its volatility before entering into any trading strategy, especially options because of its

inherent characteristic of depletion. The paper explains that when market scenario is highly volatile, the premium sky rocket and option seller can earn beautifully bt deploying a strangle.

**Research Blueprint**

**Title:** A Quantitative Strategy of Option Selling for Retail or HNI

**Problem:** It is impossible to clearly detect the direction of market. One can however, through various technical tools can find a probable direction, but there is no surety of that. So is there any non-directional strategy that can be applied on intraday basis on small or large capital?

**Hypothesis:**

With the introduction of weekly options, the options tend to deplete its value through theta on minute-to-minute basis.

- The risk of a trader whether a retail or HNI is limited.
- Most of market traders are intraday players who do not want to carry any over-night position.
- The trader has the basic knowledge of call and put and is well aware of putting Stop loss orders.
- The trader know basic option lingos such ATM. OTM, ITM, SL etc.
- The trader id unaware of market direction and want a defined risk strategy.

**End Goal**

The study aims to devise a non-directional, predefined, risk managed strategy which is poised to give returns better than any fixed deposits offered by any leading financial institutions. Also, it target to suit even a small pocket trader.

**The Gap**

There is gap in market when it come to selling options. The only myth that is available in the financial markets when it comes to selling option is that, it is game for deep pockets. The study aims to fill this gap and provide a small trader a strategy to deploy on intraday basis even on smaller capital.

**Instruments and data source**

The research revolves around Nifty and bank Nifty weekly options. For data on options pricing and back testing we have used stock mock and Opstra define edge, NSE India website & Investopedia.

**Tools**

We have used Opstra define edge to back-test the data. Also, the calculation is based on simply the difference between the selling and buying price.

**Research Methodology**

This particular strategy has been designed to take the advantage of theta decay on intraday basis. This strategy is extremely simple and easy to use. A trader has to just sell both call and put options with a predefined Stop loss and exit the position before the closing bell.

Now some important points that were discovered when we went deep into the strategy.

Selling ATM calls and Puts will surely increase the amount of profit but on the same time increase the drawdowns as well.

As per the historical behavior of weekly options, the theta decay happens most on Thursday i.e. on expiry and least on Friday i.e. the start of series.

Keeping in mind the above combination, I have devised it in a way that the moves from strangle to straddle. Meaning thereby, on Friday, we sell 500 points OTM call & put, on Monday 400 points OTM, Tuesday 300 Points OTM, Wednesday 200 points OTM and finally on Thursday its ATM.

A stop loss of 25-30% is kept on both sides with an option of trailing is also back tested. It means, if call leg SL of 30% is hit, we trail the Put leg as well. Historically, on some days it saved on V shape recovery days. But on some days it lowered the profit percentages as well. However, there can be many combinations one can have for re-entry. But to keep it simple and basic, there is no re-entry kept.

There is another variant to this strategy that was developed during the course of back test. It is selling a fixed priced premium at different timings. The entry at different times is kind of protection as compared to entry at similar timings. Selling options at different timings lowers the drawdowns.

Now, let us see what is the motive of this strategy.

The motive behind this strategy is to take benefit of theta decay over the day. As we have studied, that whether market moves or not the options are meant to decay their value and have to become zero, if they expire Out Of Money (OTM).

Let us have quick review of ATM. OTM and ITM option lingos

In options trading, OTM, ATM, and ITM are terms used to describe the relationship between the strike price of an option and the current price of the underlying asset. These terms stand for Out of The Money (OTM), At The Money (ATM), and In The Money (ITM). Here's what each term signifies:

- **Out of The Money (OTM):** An option is considered OTM when the current price of the underlying asset is unfavorable for the option holder. For call options, an OTM option has a strike price that is higher than the current price of the underlying asset. For put options, an OTM option has a strike price that is lower than the current price of the underlying asset. OTM options have no intrinsic value and are entirely composed of time value.
- **At The Money (ATM):** An option is classified as ATM when the strike price of the option is equal to the current price of the underlying asset. In other words, there is no intrinsic value in an ATM option. The option's value is derived solely from its time value.
- **In The Money (ITM):** An option is considered ITM when the current price of the underlying asset is favorable for the option holder. For call options, an ITM option has a strike price that is lower than the current price of the underlying asset. For put options, an ITM option has a strike price that is higher than the current price of the

underlying asset. ITM options have both intrinsic value and time value, with the intrinsic value representing the immediate profit if the option were exercised.

It's important to note that the classification of OTM, ATM, and ITM can vary depending on the context and the specific strategy or perspective being considered. Traders use these terms to analyze the position of an option relative to the current market conditions and to assess the potential profitability or risk associated with the option.

Trailing Stop loss: This is a risk management tool that efficiently holds the profits. An excellent feature that avoids the behavioural intervention during the trade. Firstly, let us understand Stop loss. It is simply an exit point beyond which one should wait. It is the thresh hold limit of loss burden one should bear. It might be dependent on once appetite to bear risk or how one has devised a strategy. Now next come trailing the stop loss or rather trailing your profits.

A trailing stop loss is a type of stop loss order that is designed to protect profits by adjusting the stop loss level as the price of an asset moves in a favorable direction. It is commonly used by traders and investors to lock in gains while allowing for potential further upside.

Here's how a trailing stop loss works:

- **Setting the Initial Stop Loss:** When a trader enters a position, they would typically set an initial stop loss order at a certain price level below the current market price. This stop loss level represents the maximum tolerable loss the trader is willing to incur if the trade goes against them.
- **Trailing the Stop Loss:** As the price of the asset moves in a favorable direction and reaches a predefined threshold or percentage, the trailing stop loss order starts to move dynamically, adjusting the stop loss level based on a specified trailing parameter. The trailing parameter can be defined in terms of a fixed price distance or a percentage.
- **Protecting Profits:** The trailing stop loss order follows the price movement, maintaining a set distance or percentage below the highest price achieved since the trade was initiated. If the price starts to reverse and hits the trailing stop loss level, the order is triggered, and the position is closed, locking in profits obtained up to that point.

The advantage of a trailing stop loss is that it allows traders to capture additional gains if the price continues to move favourably while protecting profits in case of a reversal. It helps to automate the process of adjusting the stop loss level, reducing the need for constant manual monitoring and decision-making.

However, it's worth noting that trailing stop losses do not guarantee protection against all potential losses, particularly in volatile markets where prices can fluctuate rapidly. Traders should carefully consider their risk tolerance, market conditions, and the specific trailing parameters they set when utilizing trailing stop loss orders.

In this strategy, one can also set trailing stop loss in terms of movement. For instance, if the price has moved to our favour by Rs.10 then Stop loss should be trailed by Rs.10/5 (as the case may be). Like, we have bought an option at Rs.100 and kept a 30% stop loss which will be Rs.70. Now, we can also trail the SL point step by step as well. For every Rs1 movement of option price in our favour the SL point will be trailed by Rs.50. So if the price has reached

to Rs.140 i.e. Rs.40 in our favour, the stop loss which was initially placed at Rs.70 (30 points) will be trailed by 20 points (40*.5) will be at Rs.70+20=Rs90. This is another way of trailing profit.

Profits can also be trailed in absolute manner. Like if the positions that we have entered are generating a profit of Rs.1500 and the potential to generate further profit is still present, we can set to exit when profit comes back to Rs.750. In this way, we remained in position and risked only from what we have earned. In financial markets, it is important to secure the capital. There is a popular saying" One who stays, WINS". It clearly means that it is utmost important to secure the capital first. Placing Stop loss is most commonly used risk management tool. Trailing or non-trailing is a secondary question and depends upon once individual trading style or strategy.

Stop loss orders play a crucial role in trading and are considered an essential risk management tool. Here are some key reasons why stop loss orders are important in trading:

- **Risk Management:** Stop loss orders help traders manage their risk by defining a predetermined exit point for a trade. By setting a stop loss level, traders can limit their potential losses if the trade moves against them. This allows for better control over the amount of capital at risk in any given trade.
- **Emotional Discipline:** Trading can be emotionally challenging, and it's common for traders to become attached to their positions or let emotions guide their decision-making. Setting a stop loss order helps remove emotions from the equation by enforcing a predefined exit strategy. It helps traders stick to their trading plan and avoid making impulsive or irrational decisions based on emotions.
- **Protection against Market Volatility:** Financial markets can be volatile, and prices can experience significant fluctuations within short periods. Stop loss orders act as a safeguard against unexpected adverse price movements. They help protect traders from substantial losses during volatile market conditions and provide a level of downside protection.
- **Time Efficiency:** Stop loss orders offer a practical solution for traders who cannot constantly monitor their positions. Once a stop loss order is set, it will automatically execute if the price reaches the specified level, even if the trader is not actively watching the market. This feature allows traders to manage multiple positions and focus on other aspects of their trading strategy without the need for constant monitoring.
- **Risk-Reward Ratio:** Stop loss orders allow traders to define their risk-reward ratio before entering a trade. By setting a stop loss level and a profit target, traders can calculate their potential risk and reward for a given trade. This helps in assessing whether a trade aligns with their risk management and profitability objectives.

It's important to note that stop loss orders are not foolproof and do not guarantee protection against all potential losses. In certain market conditions, such as extreme price gaps or slippage, stop loss orders may not be executed at the specified price. Traders should always use stop loss orders in conjunction with other risk management strategies and consider the specific characteristics of the market they are trading in.

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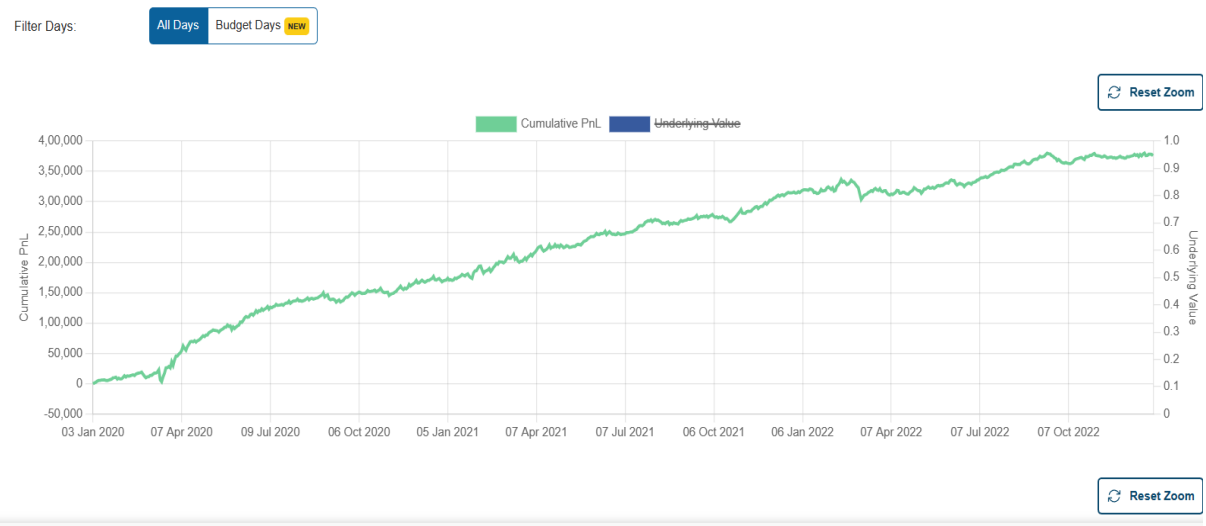
- **Mechanism:** The modus operandi of this particular strategy is extremely simple and one can also use artificial intelligence to automate the same to avoid human and emotional intervention. So entry and exits and points are definitive, Stop loss is definitive and exit is definitive. This strategy absolutely reflects and inculcates all the essential ingredients of framework in which a trader should play. This strategy after a lot of back testing and combinations worked out to a great robotic intraday tool for a trader.
- **Back testing:** It is important to see and ponder upon the back-testing results. We start with simply selling ATM at/around 1045AM with a fixed SL of 30% on all days.

Here is a chart of Cummlative P&L


Over a period of one year the strategy has generated a profit of Rs.48752 which includes a slippage of 0.02% which is enough to cover brokerage and other expenses. The capital margin required for this is approximately 1.5 lakhs. Keeping and amount of Rs.200000, a 25% ROI is earned which is by and far way above any bank FD or index.

I have further back tested the same on "Algotest simulator" to know if the same strategy was followed year on year basis. I have back-tested from 03/01/2020 till 02/01/2023, a period of 3 years and have achieved astonishing results. The strategy has generated a whooping profits of Rs.377985 after adjusting for slippage, which is approximately 188.99% of capital of Rs.200000. The same ROI if calculated on the margin blocked will come to 252%. However, if the profits earned were used to increase the lot size, the profits would have been enormous.

The Cummlative profit graph, back test results and yearly break up as follows:



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| | In Sample | Out Sample | | In Sample | Out Sample |
|---|---|---|---|---|---|
| Overall Profit | ₹ 48,752.7 | ₹ -2,084.1 | Average Loss on Losing Trades | ₹ -1,822.16 | ₹ -2,084.08 |
| No. of Trades | 248 | 1 | Max Profit in Single Trade | ₹ 7,054.9 | ₹ -2,084.1 |
| Average Profit per Trade | ₹ 196.58 | ₹ -2,084.08 | Max Loss in Single Trade | ₹ -10,338.65 | ₹ -2,084.1 |
| Win % | 58.06 | 0 | Max Drawdown | ₹ -34,563.9 | ₹ -2,084.1 |
| Loss % | 41.94 | 100 | Days of Max Drawdown | 21 [16/2/2022 to 8/3/2022] | 1 [3/1/2023 to 3/1/2023] |
| Average Profit on Winning Trades | ₹ 1,654.57 | ₹ 0 | | | |

| Year | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | ₹ 8,080 | ₹ 3,347 | ₹ 34,020 | ₹ 33,342 | ₹ 16,507 | ₹ 24,345 | ₹ 16,521 | ₹ 13,652 | ₹ -4,116 | ₹ 4,397 | ₹ 13,033 |
| 2021 | ₹ 3,952 | ₹ 27,151 | ₹ 12,626 | ₹ 14,267 | ₹ 8,868 | ₹ 11,914 | ₹ 20,278 | ₹ -5,306 | ₹ 10,894 | ₹ 3,102 | ₹ 18,756 |
| 2022 | ₹ 4,544 | ₹ 12,967 | ₹ -13,887 | ₹ -943 | ₹ 9,823 | ₹ 4,632 | ₹ 19,963 | ₹ 14,328 | ₹ -1,801 | ₹ 10,496 | ₹ -1,088 |
| 2023 | ₹ -2,390 | ₹ 0 | ₹ 0 | ₹ 0 | ₹ 0 | ₹ 0 | ₹ 0 | ₹ 0 | ₹ 0 | ₹ 0 | ₹ 0 |

* The returns are annualized for calculation

I would like to mention here the power and magic of simplicity. The simple thigs are always the best and this concept applies to trading in options as well. The more we complicate, the difficult it becomes to trade.

The steps are extremely simple to understand, enter a straddle, please 25-30% stop loss. Exit at stop loss or before the market closes, whichever is earlier. To further make the strategy secure and less drawdown, we can perform in following manner.

| Day | Strike selection | P&L | Max. Drawdown |
|---|---|---|---|
| Friday | OTM5 | 44000 | 7000(approx.) |
| Monday | OTM4 | 56686 | 9000(approx.) |
| Tuesday | OTM3 | 71456 | 7000(approx.) |
| Wednesday | OTM2 | 70065 | 4000(approx.) |
| Thursday | ATM | 120437 | 5000(approx.) |
| Total | | 362645 | |

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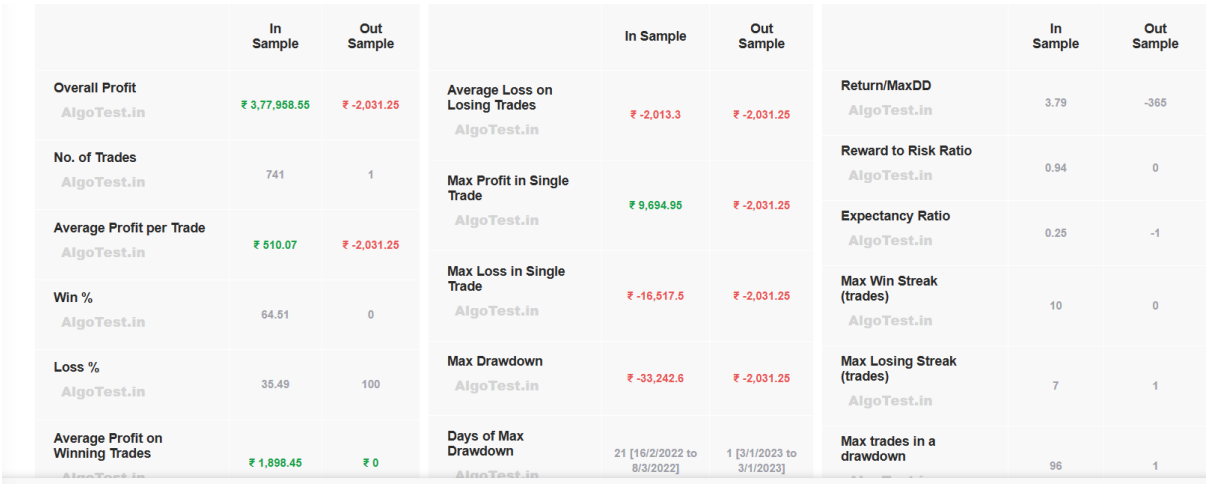
Now let us revisit the results where we sell ATM straddle on daily basis.



| | In Sample | Out Sample |
|---|---|---|
| Overall Profit | ₹ 3,77,958.55 | ₹ -2,031.25 |
| No. of Trades | 741 | 1 |
| Average Profit per Trade | ₹ 510.07 | ₹ -2,031.25 |
| Win % | 64.51 | 0 |
| Loss % | 35.49 | 100 |
| Average Profit on Winning Trades | ₹ 1,898.45 | ₹ 0 |

| | In Sample | Out Sample |
|---|---|---|
| Average Loss on Losing Trades | ₹ -2,013.3 | ₹ -2,031.25 |
| Max Profit in Single Trade | ₹ 9,694.95 | ₹ -2,031.25 |
| Max Loss in Single Trade | ₹ -16,517.5 | ₹ -2,031.25 |
| Max Drawdown | ₹ -33,242.6 | ₹ -2,031.25 |
| Days of Max Drawdown | 21 [16/2/2022 to 8/3/2022] | 1 [3/1/2023 to 3/1/2023] |

| | In Sample | Out Sample |
|---|---|---|
| Return/MaxDD | 3.79 | -365 |
| Reward to Risk Ratio | 0.94 | 0 |
| Expectancy Ratio | 0.25 | -1 |
| Max Win Streak (trades) | 10 | 0 |
| Max Losing Streak (trades) | 7 | 1 |
| Max trades in a drawdown | 96 | 1 |

The profits above are almost similar which amounts to Rs3,77,958, but there is a contrasting difference the maximum drawdown which never crossed Rs7000 level if strangle to straddle technique is followed as compared to Rs.33242 if daily straddle is sold.

It is important to note that, profits are important but and efficient strategy should also aim at reducing drawdowns. So, here we have devised how straddle to strangle approach in daily theta decay is better than selling straddle on daily basis. Above I have sold straddle only on Thursday, because theta decay is maximum on this expiry day and ATM will have maximum value to loose.

**Conclusion**

With this study, it is evident that an option selling strategy that can be deployed with even a smaller capital (enough for one lot), which is risk managed, which is able to provide a return better than that of any fixed deposit that can also be utilised with huge capital is possible. It is more of a quantitative approach to trade options with pre-defined risk levels and without making any analysis for predicting the direction of markets.

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