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Crafting The Edge Beyond Plain Vanilla: Risk–Return Insights From Advanced Option Strategies Trading Strategies

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Abstract
This research examines the comparative performance of advanced options strategies—specifically, the Straddle and Strangle—over a five-year period (2020–2024) using historical data from NIFTY 50 index options traded on the National Stock Exchange of India. The study evaluates profitability across three contract maturities—near-month, next-month, and far-month—under varying market conditions, including bullish, bearish, moderate, and highly volatile phases. Using a back testing approach, both long and short positions were simulated to assess their behaviour in different volatility environments. The findings reveal that Short Strangle consistently outperforms in most market conditions due to the benefits of time decay, whereas Long Strangle proves profitable primarily in far-month contracts during periods of prolonged high volatility. Straddle strategies deliver stable but comparatively lower returns, with Short Straddle outperforming Long Straddle in trending markets. The study provides practical guidelines for traders and investors in selecting option strategies aligned with volatility expectations, market direction, and expiry horizons. Recommendations are also made for future research into complex multi-leg spreads that combine the strengths of Straddles and Strangles.

Keywords: Profitability, Straddle, Strangle, Option strategies, NIFTY Index.

Introduction
The introduction of derivative products into the Indian financial markets has transformed the way investors manage risk, speculate, and enhance portfolio performance. Among the wide range of derivatives, options have emerged as one of the most versatile tools for hedging and trading. The flexibility to enter into a position without the obligation to exercise—combined with a relatively small upfront premium—makes options attractive to both retail and institutional traders.

A call option gives its holder the right, but not the obligation, to buy the underlying asset at a predetermined strike price, whereas a put option grants the right to sell at the strike price. While the maximum loss for the buyer is limited to the premium paid, the seller's potential loss can be significant if the market moves sharply against their position. This asymmetry in

payoff structures has led to the development of numerous option strategies aimed at either minimizing losses or maximizing potential profits.

Two of the most widely used strategies in volatile markets are the **Straddle** and the **Strangle**.

- **Straddle**: This involves buying a call and a put option at the same strike price and the same expiry. The strategy profits when the market moves significantly in either direction, as gains from one leg offset losses from the other, potentially generating net profit beyond the combined premium paid.
- **Strangle**: This is a variation where the trader buys out-of-the-money call and put options with the same expiry but different strike prices. The cost is typically lower than a Straddle, but a larger market move is required for profitability.

The effectiveness of these strategies depends heavily on volatility. A sudden market swing can lead to substantial gains in Long Straddle or Strangle positions, while stable markets tend to favor Short positions in these strategies due to premium decay. This research focuses on examining the performance of both strategies under various market conditions using NIFTY 50 options data.

Relevance of the Study

Volatility has increased in recent years due to geopolitical uncertainty, economic disruptions, and rapid changes in investor sentiment. In such conditions, option strategies are not just speculative tools but essential hedging mechanisms. This study's relevance lies in providing empirical evidence of how Straddles and Strangles perform in different environments, offering traders a data-backed guide for strategy selection.

Structure of the Paper

The remainder of this paper is organized as follows: the Literature Review presents prior research on derivatives and volatility strategies; the Methodology section explains the data and procedures used for backtesting; Results and Discussion analyze the year-by-year outcomes; and the Conclusion summarizes key findings and implications. Detailed tables of monthly results are provided in the Annexures for reference.

Literature Review

Research on options strategies spans both theoretical and empirical approaches. Scholars have examined the role of derivatives in hedging, speculation, and improving market efficiency, while also warning about their risks.

Derivatives and Risk Management

Garg & Sharma (2024) highlight that derivatives, particularly options, are essential for hedging against unpredictable price swings in volatile markets. They emphasize the importance of aligning strategies with market outlook to control downside risk. Sahoo (2017) echoes this view, noting that options provide flexibility unmatched by other instruments, allowing traders to tailor risk exposure to their objectives.

Volatility and Strategy Performance

Krishnan & Raju (2018) investigate the direct link between volatility and options profitability. They find that volatility spikes often lead to outsized gains for long volatility strategies like Long Straddles and Strangles. However, in range-bound markets, short strategies benefit more from time decay. Gautam & Kavidayal (2016) also document the rapid expansion of

India's derivatives market, cautioning that increased liquidity comes with heightened volatility and potential systemic risks.

Forecasting and Model-Based Trading
Rostan et al. (2020) explore ARIMA-based forecasting for equity markets, demonstrating its utility in improving the timing and selection of options trades. Shivaprasad et al. (2022) build on this by showing that statistical forecasting models can significantly improve win rates in directional strategies, though their applicability to neutral strategies like Straddles and Strangles requires careful volatility assessment.

Investor Awareness and Market Education
Cirappa & Tejashwini (2022) emphasize the low level of awareness among Indian retail investors regarding derivatives. They argue that without proper knowledge, many traders misuse advanced strategies, leading to unnecessary losses. Stankovska (2017) adds that derivatives should be viewed as both a shield and a sword—capable of protecting portfolios but equally capable of inflicting substantial losses if misunderstood.

Taken together, these studies provide a strong theoretical and empirical foundation for the current research, reinforcing the importance of studying Straddles and Strangles in a structured, market-specific context.

Objectives of the Study
The present research aims to:
1. **Compare Profitability**
Evaluate the relative performance of Straddle and Strangle strategies across different market conditions and contract maturities.
2. **Assess the Impact of Expiry Dates**
Determine how near-month, next-month, and far-month expiries influence profitability and risk profiles.
3. **Analyse Volatility Influence**
Understand how varying degrees of volatility—ranging from stable markets to extreme fluctuations—affect outcomes.

Data and Methodology
Data Source
This study is based on historical data for NIFTY 50 index options traded on the National Stock Exchange (NSE) from January 2020 to December 2024. The dataset includes daily open, high, low, close prices, and premiums for both call and put contracts across various strike prices and expiries. The data was sourced directly from the NSE database to ensure accuracy and completeness.
The chosen period captures a variety of market phases:
- **2020** – Marked by pandemic-induced volatility and sharp market swings.
- **2021** – Predominantly bullish, with periodic corrections.
- **2022** – One of the most volatile years in the sample, driven by global uncertainty.
- **2023** – Strong bullish momentum with elevated investor optimism.
- **2024** – Moderately volatile, with range-bound trading dominating.

Strategies Tested
The research focuses on two well-known volatility-based options strategies:

1. **Long Straddle, Long Strangle, Short Straddle, Short Strangle.**
2. All strategies were tested across **near-month**, **next-month**, and **far-month** contracts.

Entry and Exit Rules

- **Entry Date:** First trading day of the month.
- **Exit Date:** Expiry day of the contract.
- **Position Size:** One lot per trade, with lot sizes based on NSE standards for each period.
- **Adjustments:** No mid-term adjustments were made; positions were held until expiry.

Strike Price Selection

For Straddle strategies, the strike was chosen at-the-money based on the spot price on the first trading day of the month.
For Strangle strategies, strikes were chosen approximately one step above and below ATM for the call and put respectively.

Strike Prices Used for Each Year

For Straddle Strategy
The following strike prices were selected each year for Straddle (Call & Put):
2020: 11,500
2021: 15,500
2022: 18,600
2023: 19,000
2024: 22,000
For Strangle Strategy
The following strike price pairs were selected each year for Strangle (Call & Put):
2020: Call: 14,500, Put: 11,500
2021: Call: 16,000, Put: 15,500
2022: Call: 17,000, Put: 18,600
2023: Call: 17,800, Put: 19,000
2024: Call: 21,000, Put: 22,000
This strike selection methodology ensures that the strategies reflect realistic trading scenarios and that the premiums represent actual market conditions for the given strikes.

Back testing Process

1. Back testing Strategies

To evaluate the effectiveness of Long Straddle and Long Strangle, a backtesting approach was implemented using Excel:
Historical price movements and volatility were used to simulate the performance of the strategies.
Profit/loss trends were analysed for near, next, and far-month contracts under different market conditions (volatile, bullish, stable, etc.).

2. Performance Evaluation

The final step involved calculating the frequency of profitable trades across different expiration periods and market conditions. This helped determine which strategy (Straddle or Strangle) was more effective under specific market scenarios. The study further examined:
How different contract maturities impact profitability.
The role of option expiration dates in influencing strategy outcomes.
How market volatility affects Straddle and Strangle performance.

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Results and Discussion

The performance of Straddle and Strangle strategies varied significantly across years, driven by differences in volatility, market direction, and contract maturity. To preserve clarity, only **summary tables** are presented here, showing the number of profitable months for each strategy. Detailed month-wise trade results are included in the annexures.

2020 – Pandemic-Induced Volatility

Maturity	Market Condition	Long Straddle	Short Straddle	Long Strangle	Short Strangle
Near	Volatile	5	7	4	8
Next	Volatile	6	6	6	6
Far	Volatile	5	7	4	8

Analysis:

The extreme volatility during the COVID-19 outbreak created sharp intraday swings, benefiting long volatility strategies. However, the rapid decay of premiums in the absence of sustained trends allowed Short Strangle to outperform in terms of total profitable months. Far-month contracts provided stability for Long Strangle, but the higher initial cost reduced net gains.

2021 – Bullish Momentum with Mild Corrections

Maturity	Market Condition	Long Straddle	Short Straddle	Long Strangle	Short Strangle
Near	Bullish	4	8	5	7
Next	Bullish	5	7	6	6
Far	Bullish	3	9	6	6

Analysis:

A trending bullish market in 2021 reduced the chances for Long Straddle and Strangle to perform well, as premiums on the losing leg eroded rapidly. Short Straddle was the standout performer in near and far-month contracts, benefiting from stable upward momentum. Far-month Long Strangle positions saw occasional wins when the market experienced sharp corrections.

2022 – High Volatility and Market Uncertainty

Maturity	Market Condition	Long Straddle	Short Straddle	Long Strangle	Short Strangle
Near	Highly Volatile	3	9	3	9
Next	Highly Volatile	2	10	1	11
Far	Highly Volatile	6	6	12	0

Analysis:

2022 was one of the most volatile years in recent history, driven by global macroeconomic shocks and geopolitical tensions. The most remarkable finding here was the dominance of **Long Strangle in far-month contracts**, with 12 profitable months — indicating that holding longer-dated options during sustained volatility can be significantly rewarding. Conversely,

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Short Strangle failed in far-month contracts due to large price swings that exceeded strike ranges.

2023 – Strong Bullish Trend

Maturity	Market Condition	Long Straddle	Short Straddle	Long Strangle	Short Strangle
Near	Highly Bullish	3	9	3	9
Next	Highly Bullish	4	8	4	8
Far	Highly Bullish	5	7	5	7

Analysis:
The consistent bullish rally in 2023 saw limited opportunities for long volatility strategies. Short Straddle and Short Strangle dominated due to predictable upward price movement and gradual premium erosion. Interestingly, far-month Long positions did slightly better than in 2021 because of periodic volatility spikes that came with profit-booking phases.

2024 – Moderately Volatile, Range-Bound Market

Maturity	Market Condition	Long Straddle	Short Straddle	Long Strangle	Short Strangle
Near	Moderate	4	8	3	9
Next	Moderate	4	8	3	9
Far	Moderate	4	8	2	10

Analysis:
2024 was characterized by moderate volatility and largely range-bound movement in NIFTY 50. Short strategies had a clear advantage, with Short Strangle producing the highest consistency. Long volatility strategies struggled, especially in far-month contracts, due to the absence of significant breakouts.

Conclusion

The comparative analysis of Straddle and Strangle strategies over the five-year period from 2020 to 2024 highlights how market conditions, contract maturities, and volatility levels shape the profitability of options trading approaches.
Several key findings emerge from this study:

1. **Short Strangle as the Consistent Performer**

Across most years and market environments, Short Strangle outperformed other strategies in terms of the number of profitable months. Its ability to benefit from time decay, coupled with the reduced likelihood of both strike prices being breached in range-bound or moderately trending markets, makes it a reliable choice for traders seeking steady returns.

2. **Long Strangle's Outlier Performance in High Volatility**

While generally less profitable in stable markets, Long Strangle demonstrated extraordinary profitability in 2022's far-month contracts, with 12 out of 12 months generating gains. This reinforces the idea that long volatility strategies are best deployed when prolonged uncertainty or structural market shocks are anticipated.

3. **Short Straddle's Strength in Trending Markets**

Short Straddle showed strong results during bullish years like 2021 and 2023, particularly in near and far-month contracts. In directional markets with low intraday volatility, the premium erosion on both sides works heavily in the seller's favor.

4. **Contract Maturity Matters**

Far-month contracts tend to favour long volatility strategies when significant market events are expected, as they offer more time for the underlying to make large moves. Conversely, near and next-month contracts generally favour short strategies because the accelerated time decay works in the seller's favour.

5. **Market Environment is the Deciding Factor**

The strategy that works in one year may underperform in another. For example, Long Strangle was a poor performer in 2021 and 2024 but excelled in 2022. This underscores the need for traders to align strategy choice with the prevailing volatility regime rather than applying a fixed approach throughout the year.

Practical Implications

- For **range-bound or moderately trending markets**: Short Strangle remains the most effective, offering consistent returns with controlled risk.
- For **sustained high volatility periods**: Long Strangle in far-month contracts provides the highest payoff potential.
- For **strongly trending markets**: Short Straddle often delivers superior performance.

Limitations of the Study

This research did not account for transaction costs, margin requirements for short positions, or slippage in execution. While these factors may reduce net profitability, the relative performance rankings between strategies are unlikely to change significantly.

Scope for Future Research

Future studies can expand this work by:

- Including other index options like Bank NIFTY to test if results are consistent across asset classes.
- Incorporating spreads (Iron Condors, Iron Butterflies) to assess risk-adjusted returns.
- Testing adaptive strategies that shift between long and short volatility positions based on real-time volatility indicators like India VIX.

References

1. Alam, S. I. (2022). The 4S of option trading strategies: Straddle, strangle, strap, strip. *Journal of Economic Studies and Financial Research, 3*(1).
2. Brunhuemer, A., Larcher, G., & Larcher, L. (2021). Analysis of option trading strategies based on the relation of implied and realized S&P500 volatilities. *ACRN Journal of Finance and Risk Perspectives, 10*, 166-2.
3. Cirappa, D., & Tejashwini, H. (2022). Derivatives awareness among retail investors: A study on usage and perception. *International Journal of Management and Commerce Innovations, 10*(2), 45–52.
4. Garg, R., & Sharma, A. (2024). Derivatives as a tool for risk management: An empirical study on Indian markets. *Journal of Risk and Financial Management, 17*(1), 1–12. https://doi.org/10.3390/jrfm17010012
5. Gautam, P., & Kavidayal, P. C. (2016). The growth of derivatives market in India: An empirical study. *International Journal of Advanced Research, 4*(8), 1475–1485.

6. Hemler, M. L., & Miller Jr, T. W. (2015). The performance of options-based investment strategies: Evidence for individual stocks during 2003-2013. *Working Paper*.
7. Isakov, D., & Morard, B. (2001). Improving portfolio performance with option strategies: Evidence from Switzerland. *European Financial Management, 7*(1), 73–91.
8. Krishnan, R., & Raju, V. (2018). Volatility and profitability of options strategies: Evidence from Indian markets. *Asian Journal of Finance & Accounting, 10*(2), 123–141. https://doi.org/10.5296/ajfa.v10i2.13451
9. Krishnan, D., & Raju, G. (2018). Performance analysis of volatile strategy under Indian options market. *Indian Journal of Commerce and Management Studies, 9*(1), 87–94.
10. Rostan, P., Kumar, S., & Mehta, R. (2020). Forecasting financial markets using ARIMA models: Evidence from Indian stock indices. *International Journal of Finance & Economics, 25*(3), 389–400. https://doi.org/10.1002/ijfe.1792
11. Rostan, P., Rostan, A., & Nurunnabi, M. (2020). Options trading strategy based on ARIMA forecasting. *PSU Research Review, 4*(2), 111–127.
12. Sahoo, A. (2017). Financial derivatives in India: A case for policy and practice. *Global Business Review, 18*(5), 1267–1283. https://doi.org/10.1177/0972150917710139
13. Sahoo, A. P. (2020). Impact of derivatives on Indian capital market: A literature review. *Srusti Management Review, 13*(2).
14. Shivaprasad, B., Nair, P., & Thomas, A. (2022). Forecast-based derivatives trading strategies: A comparative analysis. *Journal of Economics and Business, 78*(4), 112–127. https://doi.org/10.1016/j.jeconbus.2022.105973
15. Shivaprasad, S. P., Geetha, E., Kishore, L., & Matha, R. (2022). Choosing the right options trading strategy: Risk-return trade-off and performance in different market conditions. *Investment Management & Financial Innovations, 19*(2), 37.
16. Srivastava, G., & Sumra, H. (2024). Investigation to discover a robust standardized template for option straddle strategy in Indian markets. *Journal of Financial Markets, Forthcoming*.
17. Stankovska, A. (2017). Derivatives: Double-edged financial instruments. *European Journal of Business and Management, 9*(14), 65–71.
18. Stankovska, A. (2017). Global derivatives market. *Seeu Review, 12*(1), 81–93.