Report for 2CentsCapital

Student Rishabh Mishra

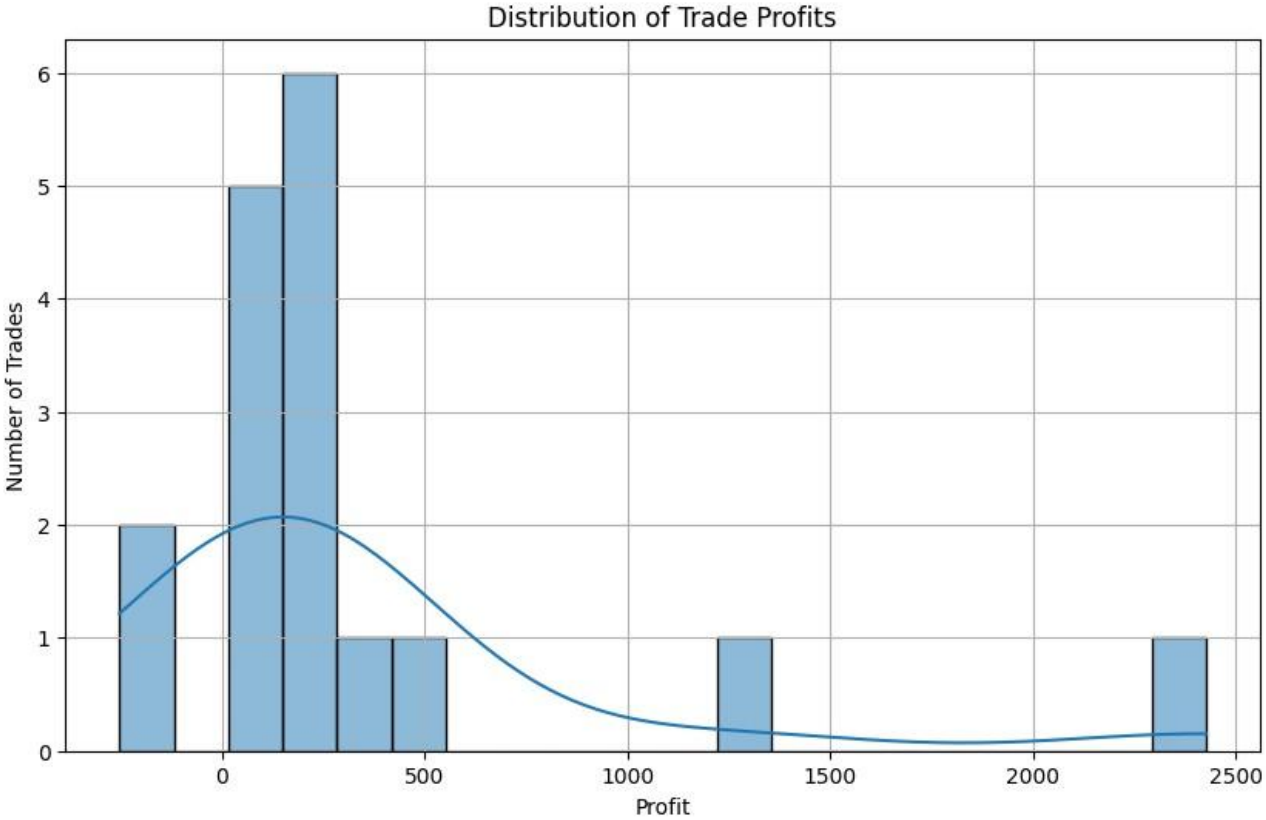
Task 1.1

Strategy with Dynamic Hedging for period with High volatility

Straddle: Buy a call and a put option with the same strike price and expiration date. This strategy profits from significant price movements in either direction. Dynamic Hedging: Adjust the delta exposure over time to maintain a delta-neutral position, mitigating directional risk. Entry Criteria:

Enter the straddle when implied volatility is high (identified as periods where iv is more than 1.5 standard deviations above the mean). Choose options that are at-the-money (ATM) to maximize sensitivity to volatility changes. Exit Criteria:

Exit the position at option expiration. Or earlier if a target profit or stop-loss threshold is met. The sensitivity analyses help us understand how the strategy performs under different volatility levels and strike price selections. A straddle benefits from significant price movements, but the high cost of options during high volatility periods can impact profitability. Dynamic hedging can mitigate directional risk but may incur additional transaction costs.



Task 1.2

Bull Call Spread Strategy in a Bullish Market with Low Volatility Objective: To profit from a moderate rise in the underlying asset's price during a bullish market with low implied volatility while limiting risk. Rationale: In a bullish market with low volatility, options premiums are relatively inexpensive. A bull call spread involves buying a call option at a lower strike price (closer to the current price) and simultaneously selling a call option at a higher strike price. This strategy reduces the net cost compared to buying a single call option and caps both potential profit

and loss. Dynamic Hedging: Adjust the position by dynamically hedging with the underlying asset to manage delta exposure and mitigate risks from adverse price movements.

2. Entry, Exit, and Risk Management Criteria Entry Criteria Market Condition: Identified bullish market with low implied volatility by looking for below average (roughly mean - 0.5* sd) along with steady upward trend Option Selection: Long Call: Buy a call option at-the-money (ATM) or slightly in-the-money (ITM). Short Call: Sell a call option out-of-the-money (OTM) with a higher strike price. Expiration: Both options should have the same expiration date, preferably near-term (e.g., 30 days). Implied Volatility: Low relative to historical levels, making options cheaper to purchase. Exit Criteria

Profit Target: Exit the position if the spread value reaches a predetermined profit target (e.g., 50Stop Loss: Exit if the spread value decreases to a predetermined loss threshold (e.g., 50Expiration: Close both positions before expiration to avoid assignment or let them expire if in profit. Risk Management Position Sizing: Limit the amount invested to a small percentage of the total portfolio (e.g., 5Dynamic Hedging: Delta Hedging: Adjust the hedge by buying or selling the underlying asset to maintain a neutral or desired delta exposure. Hedging Frequency: Rebalance when delta changes significantly (e.g., by 0.1). Transaction Costs: Account for commissions and slippage in calculations.

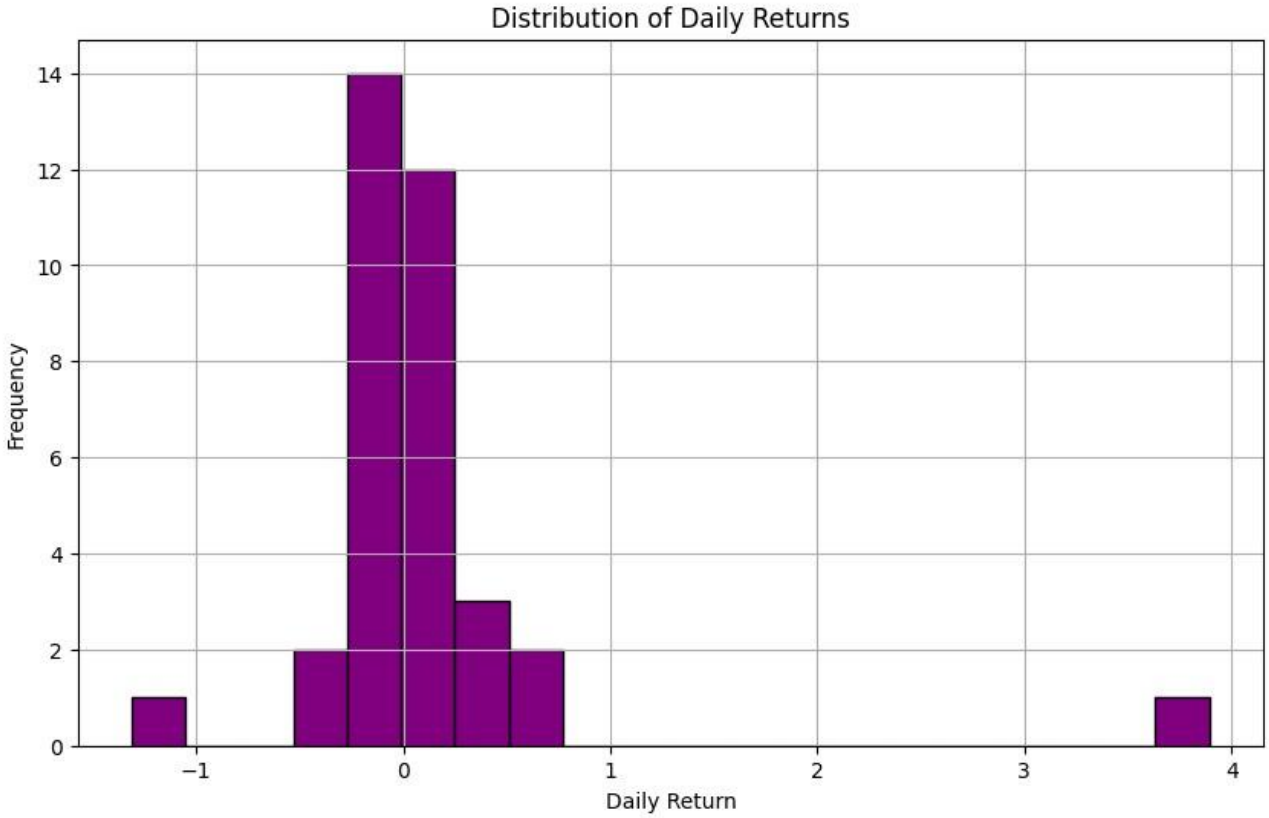
. Conclusion and Potential Improvements Conclusion Implementing a bull call spread strategy during bullish low volatility periods can be an effective way to profit from moderate price increases while limiting risk. Dynamic hedging enhances risk management by adjusting exposure to price movements.

Task 1.3

Long Put Strategy with Dynamic Hedging in a Bearish Market with High Volatility Objective: Profit from an anticipated decline in the underlying asset's price during a bearish market with high implied volatility. Rationale: In a bearish market with high implied volatility, put options are more expensive due to increased demand for downside protection. Purchasing a put option allows you to profit from a price decline while limiting the downside risk to the premium paid. Dynamic hedging helps manage the position's delta exposure over time, mitigating risks from adverse price movements.

2. Entry, Exit, and Risk Management Criteria Entry Criteria Market Condition: Identified bearish market with high implied volatility. Option Selection: Strike Price: At-The-Money (ATM) or slightly In-The-Money (ITM) put options. Expiration: Near-term options (e.g., 30 days to expiry) to benefit from the anticipated price movement. Implied Volatility: High relative to historical levels. Exit Criteria Profit Target: Exit the position if the option's value increases by a predetermined percentage (e.g., 50Stop Loss: Exit if the option's value decreases by a predetermined percentage (e.g., 30Expiration: Exit at option expiration if neither target nor stop-loss is hit. Risk Management Position Sizing: Limit the amount invested in the option to a small percentage of the total portfolio (e.g., 2Dynamic Hedging: Delta Hedging: Adjust the hedge by buying or selling the underlying asset to maintain a desired delta exposure. Hedging Frequency: Rebalance when delta changes significantly (e.g., by 0.1). Transaction Costs:
Account for commissions and slippage in calculations. Insights: The Long Put Strategy performed effectively during periods of significant downward movements in the underlying asset's price, especially when implied volatility was high. Dynamic Hedging successfully managed delta exposure, mitigating some of the risks associated with large price swings. Transaction Costs can accumulate, especially with frequent hedging adjustments, impacting overall profitability.

Sensitivity Analysis revealed that the strategy's performance is highly sensitive to implied volatility levels and the chosen strike prices.



Task 2

In comparing the two options trading scenarios, it is evident that the differing time horizons significantly influence the risk-reward profiles and strategic flexibility available to traders. In Scenario 1, with a short call at 60 days to expiry and a long call at 70 days, the longer time frames allow for effective management of positions, leveraging time decay to benefit the short call while providing a buffer against potential losses with the long call. This scenario offers greater opportunities for adjustments based on market conditions and volatility, making it more favorable for strategic trading.

Conversely, Scenario 2, featuring a short call with 0 days to expiry and a long call with just 1 day remaining, presents heightened risks due to the immediate threat of assignment and rapid time decay. The short call is particularly vulnerable to price movements, while the long call has limited potential for profit given its minimal time value. In this scenario, traders face constraints on their ability to make strategic adjustments, often necessitating quick decisions to mitigate losses. Overall, the analysis underscores the critical role of time in options trading strategies, highlighting the advantages of longer expirations for more tactical maneuvering.

Task 3

In the long term, protective collar strategy, worked out the best for me when combined with dynamic hedging. This involves holding a long position while selling OTM to generate premium and buying a OTM as protection.

The Protective Collar Strategy is an effective risk management tool that balances protection against downside risk with limited upside potential. By combining a long position in the underlying asset with options, traders can:

Limit Potential Losses: The long put provides a safety net if the underlying asset's price declines. Offset Premium Costs: The short call generates premium income, reducing the net cost of the protective put. Cap Potential Gains: The short call limits upside potential if the underlying asset's price exceeds the call's strike price. Potential Improvements Dynamic Strike Selection:

Utilize technical indicators or volatility metrics to dynamically select optimal strike prices for puts and calls. Advanced Risk Management:

Incorporate stop-loss mechanisms or trailing stops to exit positions under adverse conditions. Monitor and adjust other Greeks (Gamma, Vega) to manage additional risk dimensions. Rolling the Collar:

Before options expire, close existing options and open new ones with extended expiries to maintain continuous protection and premium income. Volatility Forecasting:

Use models like GARCH to forecast implied volatility, aiding in better option selection and premium assessments.