Detailed Report on Trading Strategy Analysis

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Introduction

This report outlines the methodology and results of a trading strategy applied to straddle price data for September, excluding weekends. The primary objective was to simulate trading decisions based on specific price triggers and assess the strategy's performance through various metrics.

Data Preparation

Data Source and Loading: The analysis began with loading the daily trading data for straddle prices from a CSV file named `ultimate_combined_data.csv`. This file included data fields for dates, straddle prices, index spots, and synthetic futures.

Timestamp Assignment: To facilitate time-specific analysis, timestamps were generated for each minute of the trading hours from 9:00 AM to 3:30 PM for each day. This step was crucial for aligning the data with the trading periods and ensuring accurate simulation of the trading strategy.

Methodology

Trading Rules: The strategy involved several key decision points and actions:

- **Monitoring**: The straddle price was continuously monitored starting at 09:20 each trading day.
- **Price Increase to 125%**: If the price reached 125% of its lowest recorded point during the day, the strategy noted the highest price within the following minute.
- **Price Decrease by 5%**: A sell signal (SIGNAL-1 SELL) was issued if the price then decreased by 5% from the noted high within that minute.
- **Price Returns to Low Point**: A close signal (SIGNAL-2 CLOSE) was issued if the price returned to its lowest recorded point after reaching the 125% increase.
- **Stop Loss**: The position was exited if the price increased by 15% from the last execution point (STOPLOSS).
- **Trade Limit**: The trades were limited to a maximum of four per day to manage risk.

Simulation Execution: The trading strategy was executed day-by-day using a loop through each trading day. The script recorded trades based on the rules and calculated daily profit and loss.

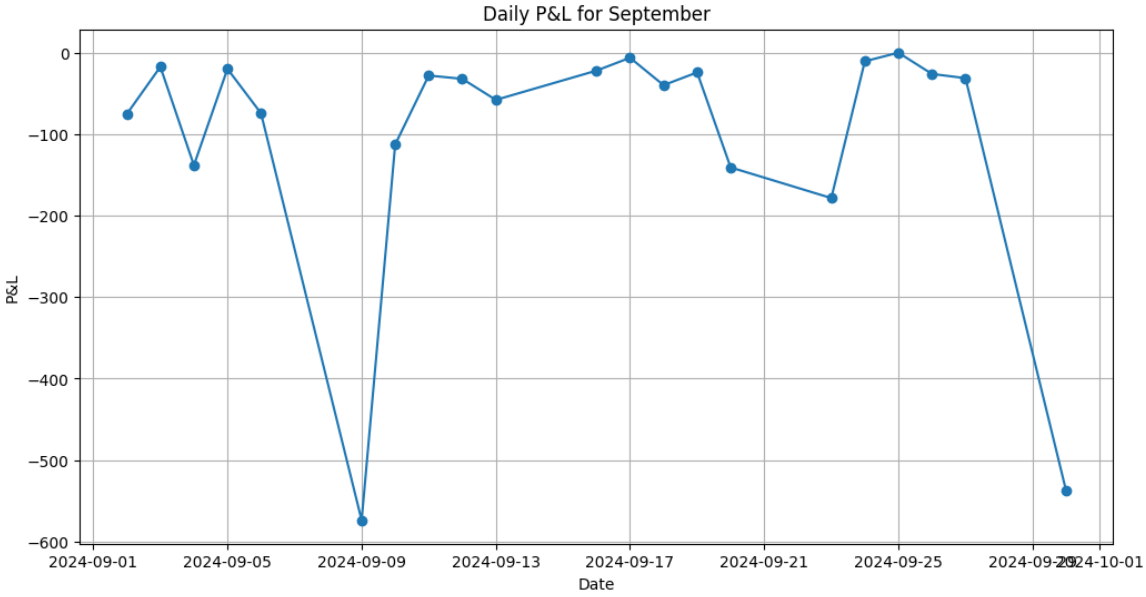
Assumptions

- The **exit strategy** assumed that trades not closed by signals were exited at the last price of the day.
- **Immediate execution** at signal prices was assumed without slippage or transaction costs.

Results

Performance Metrics:

- **Daily Profit and Loss**: Calculated for each trading day.
- **Profit and Loss Days**: The number of days resulting in a net profit or a net loss was recorded.



- **Maximum Drawdown**: The largest drop from peak to trough during the trading period was calculated to assess risk exposure.

Visualization: The daily P&L for September was plotted to visually assess the strategy's performance over the month. This plot highlighted the days with significant gains or losses and helped in understanding the volatility and risk of the trading strategy.

Conclusion

The trading strategy demonstrated varied performance with the specified rules. While the strategy provided structured decision-making, the overall performance suggested potential areas for improvement, such as refining exit strategies and enhancing trade execution parameters to mitigate risks and improve profitability.