Zero Extrinsic Hedged Back Spreads (ZEEHBS): A Modified Options Trading Strategy for Generating Alpha in Volatile Markets

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Abstract

This paper explores a modified version of the Zero Extrinsic Hedged Back Spreads (ZEEHBS) options trading strategy as a means to generate alpha in volatile market conditions. The ZEEHBS strategy is an extension of the ZEBRA (Zero Extrinsic Back Ratio Adjustment) strategy, which involves selling at-the-money calls and buying two in-the-money calls, aiming to minimize extrinsic value. The ZEEHBS strategy incorporates a 50% hedge by shorting 50 shares of the underlying equity or creating a synthetic short position using options. This approach allows for limited downside risk and unlimited upside potential, with the ability to profit from both bullish and bearish outlier events. The strategy is typically implemented on options contracts with one week to expiration. This paper will also discuss the maintenance of the ZEEHBS position, including adjustments for when the underlying asset rises or falls in value. The strategy is particularly effective when initiated in low volatility conditions, as it benefits from the subsequent increase in volatility and significant moves in the underlying asset. It is argued that the ZEEHBS strategy is similar to tail risk hedging, which allocates a small portion of a portfolio to out-of-the-money options to protect against black swan events. This paper also documents automating the ZEEHBS strategy using historical options data from the QuantConnect platform, allowing for backtesting and the implementation of automated adjustments based on market conditions. The ZEEHBS strategy has the potential to generate consistent alpha, particularly in recent uncertain and volatile market conditions, and suggest further research into the strategy's performance during earnings events. The modified ZEEHBS strategy created by the authors generated a return of 42.61% when backtested from January 2021-January 2024, inclusive, in comparison to that of SPDR® S&P 500 ETF Trust ($SPY), which

generated a return of 35.06%. The modified ZEEHBS strategy also had a maximum drawdown of -9.8%, versus -23.93% for $SPY.

Introduction

The strategy outlined in this paper is based on a basic Zero Extrinsic Hedged Back Spreads (ZEEHBS) strategy. The ZEEHBS strategy is an extension of the ZEBRA (Zero Extrinsic Back Ratio Adjustment) strategy, which involves selling at-the-money calls and buying two in-the-money calls, aiming to minimize extrinsic value. This is similar to a long straddle but has close to 0 extrinsic value, but a deeper valley on the downside. The market does not typically fall 1% a week, then 1% then the next week, and then keep following that pattern. Usually, it will start to fall off much more or will jump back up very quickly, generating profit on this strategy. Thus, the strategy will lose money when the underlying does not move much week over week, and the strategy will be able to generate profit when there are larger periods of volatility. This strategy is great when put on in low volatility conditions because of a narrower valley on the downside and less debit, then when volatility rises and the underlying does big moves, we will be able to generate alpha. In many portfolios years ago, a 60% equity and 40% bonds split was ideal. Now the idea of tail risk hedging by adding a very small amount of our portfolio to out-of-the-money options in the case of a major black swan event is a good idea. This is similar to ZEEHBS because we have a hedge against downside outlier events, but we generate alpha when the stock goes bullish, or a sharp decrease in the underlying. If treasury futures are used or an instrument that is correlated with interest rates, and also an equity strategy, the strategy may be making money consistently if the strategies are performing well, but in the event of outliers, our portfolio will not be able to make profit and may lose lots. This is why this strategy should be implemented, because in the event of big up moves, and big down moves, alpha can be generated. In the long term, it is believed that the strategy should generate positive returns, especially in recent uncertain and volatile conditions. It may be interesting to see the effects of this strategy during earnings periods.

Development Process

The final strategy that was tested and benchmarked uses proprietary modifications that will remain proprietary. These modifications deviate away from the ZEEHBS strategy slightly, but still keep the principle of the approach, such as changing how the underlying is leveraged and daily maintenance principles. Some modifications that have not been included and will be considered include using probabilistic volatility and market direction analysis. Although the modifications made to this strategy are not explicitly detailed, the results are still significant and conclusions can be drawn from the direction the

strategy is going towards. During the development and research cycle there has been a heavy emphasis on avoiding overfitting. All changes made are based on theory and hypothesis that should yield a change that does not specifically change the strategy to fit the backtesting period outlined in this paper (January 2021-January 2024, inclusive). The time period selected was also entirely arbitrary, mostly based on the availability of data provided. Code execution, backtesting, and data was all hosted on the QuantConnect platform. Data was provided by AlgoSeek on QuantConnect, whereas the code was written in Python on the QuantConnect platform using their algorithm framework.

Performance Metrics

The metrics observed to gauge success include:

- Max Drawdown (Valley of Death)

- Sharpe Ratio

- Probabilistic Sharpe Ratio (PSR)

- Return

- Win Rate

Results

Using SPY as the benchmark, the comparative results from January 2021-January 2024, inclusive, can be observed.
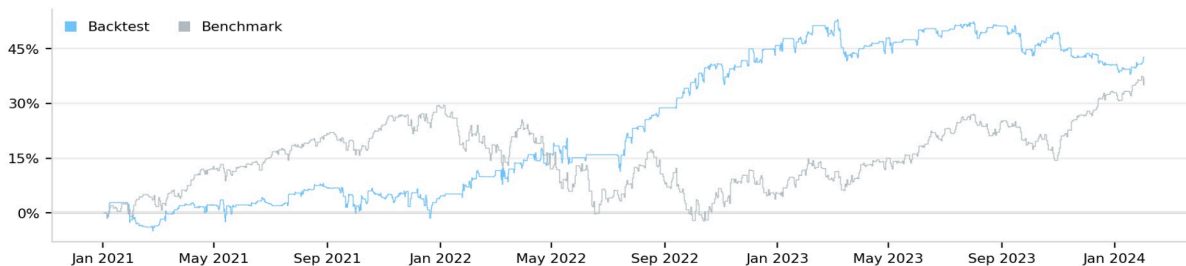

Figure 1.1

Strategy	Return	Max Drawdown	Win Rate	Sharpe Ratio	PSR
SPY	35.06%	-23.93%	-	0.5	-
Modified ZEEHBS	42.61%	-9.8%	77%	0.554	0.2937

Figure 1.2

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All writing, code, visualizations, and research were created and performed by those listed in this paper. Analysis, rating, and valuation information contained in this paper does not constitute financial advice. Consult a licensed professional investment advisor before making any investment decisions.