Palantir Long call Hedging Strategy

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Palantir technologies (TICKR: PLTR) is a US based software company that has emerged in the past two years as a strong competitor in the AI race. They are dedicated to building data integration platforms that help companies and organizations like the US Government to analyze complex data and streamline processes. Palantir has been in the center of the AI narrative because of their central and monopolistic role in data analysis, as well as reaching historic P/E valuations. For many investors, Palantir serves as a benchmark in analyzing where in the stock market AI bubble we currently are. Palantir holds a P/E ratio of 413.09, a Beta of 1.50, and some of the highest implied volatilities.

This report aims to hedge 1 long call holding 100 shares of Palantir, for a strike price of 195, on the maturity date of 21-11-2025. Given that the time of expiration has passed, this report will serve as a back test to quantify how successful traditional hedging methods are in hedging Palantir. Due to the report being completed alone, the hedging strategy will cover delta hedging, and delta-Vega hedging but goes into meticulous detail.

2. Single option

The selected financial instrument is a Palantir long call with a strike price (K) of 195 dollars expiring on November 21st, 2025, and the data will begin measuring 45 days beforehand on October 7th, 2025.

Table 1: Option Data Summary

Date	Call Price $	Spot Price $	Implied Volatility σ	Delta Δ
2025-10-07	12.3	182.17	0.66	0.44
2025-10-22	7.0	175.49	0.68	0.33
2025-11-03	21.15	207.18	0.78	0.67
2025-11-20	0.01	154.85	1.523	0.002

The spot price column of the table captures Palantir's volatility, reflecting the uncertainty surrounding AI valuations. This report chooses the strike price of 195$ because of professional valuations oscillating between 185$ and 205$. To analyze hedging dynamics, the report hedges 1 call including 100 shares. The total position includes two positions:

1. Original portfolio (OP): 1 long call = Call value $\times$ 100
2. Replicating portfolio (RE): Short stock position = $(100 \times \Delta)$

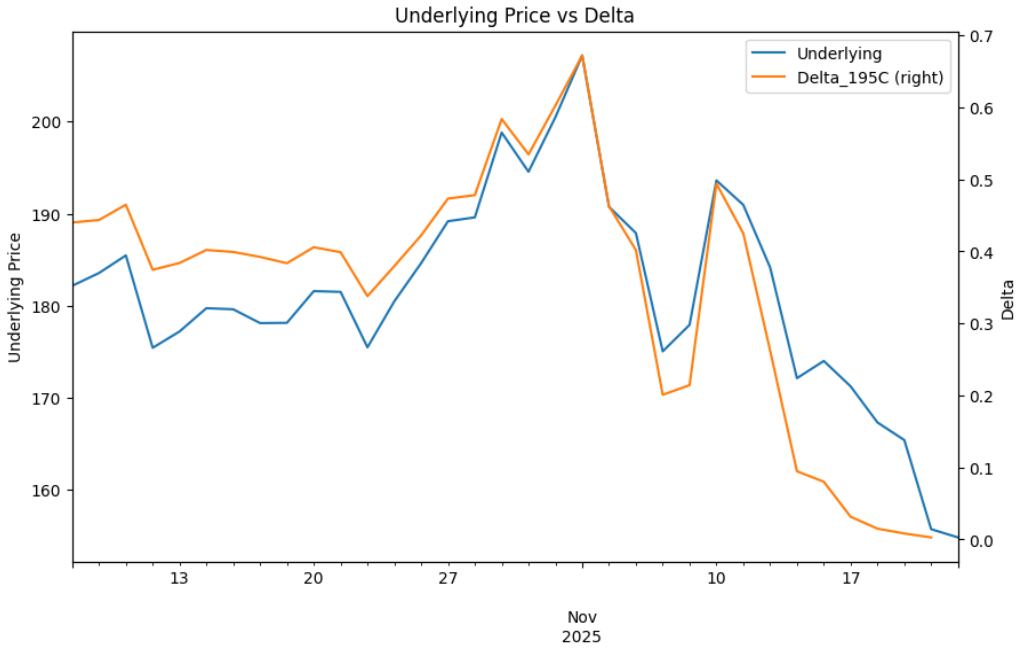

Figure 1: Delta vs Underlying price

The graph above demonstrates the evolution of the stock price and the delta of the call option. It demonstrates a positive relationship where the delta closely follows the underlying stock price, which is indicative of a positive gamma. From a theoretical standpoint, it is possible to infer the sigmoid behavior of delta. As the price of Palantir rises, the option which was set at a strike price of 195$ becomes more in the money, meaning that the probability of the call being profitable also rises. This can be observed on November 3rd, where it reaches a spot price of 207$, and a delta expansion to 0.67.
The long call has a positive gamma, meaning that delta will move directionally with the spot price. When the spot price ends at 154$ (Deep OTM), the delta crashes to 0.

2.1 Delta-Hedging a Palantir Long call

The following analysis demonstrates the statistics and mechanics of the delta hedge of a Palantir long call (1 call = 100 shares). The total position includes the original portfolio (1 long call), and a replicating portfolio (shorting underlying stock) to neutralize directional risk.

Date	Spot price	Call price	Hedge Position	Original Portfolio (Long Call)	Replicating Portfolio (Short Stock)
2025-10-07	182.17	12.3	-44.01	1230	-8017
2025-10-22	175.49	7.0	-33.77	700	-5927
2025-11-03	207.18	21.15	-67.2	2115	-13923
2025-11-20	154.85	0.01	-0.27	1.0	-42.76

The table above numerically shows the evolution of our position. As the spot price of Palantir decreases, so does the delta and our previous hedge is too heavy, so we buy shares to realize a profit on our short position. As the stock price rises, we short more shares to remain neutral. This dynamic is known as gamma scalping. From these values of portfolio value, one cannot see the hedging principle at work.

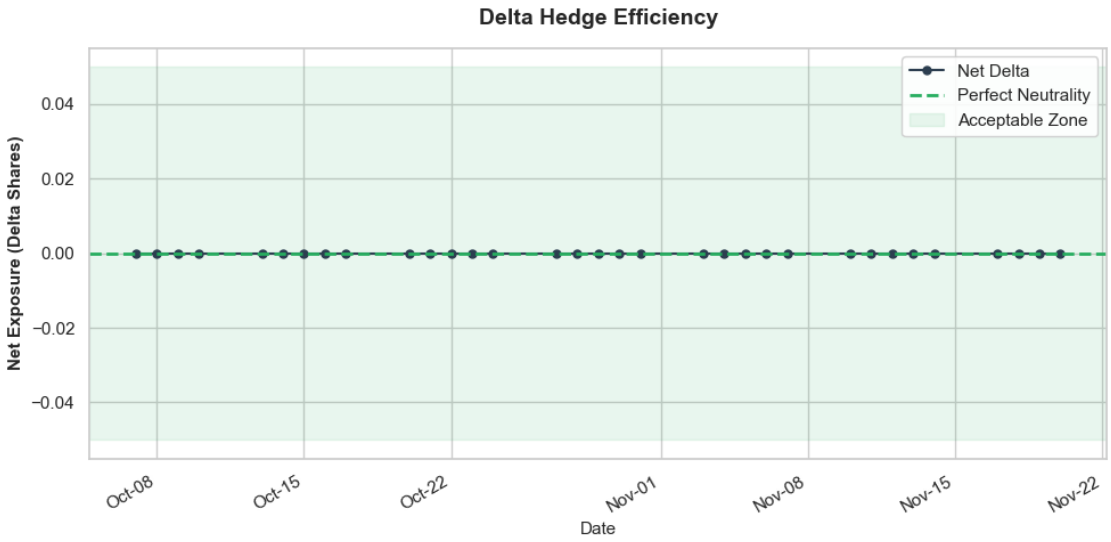

Figure 2: Delta hedge efficiency

The graphic above illustrates the net delta of our position. This shows that because of our rehedging frequency the delta of our position is insensitive to small movements in Palantir's price. The net delta exposure calculates how sensitive our total portfolio is to changes in Palantir stock. The way it is calculated in this report is

$$Net\ \Delta = Option\ \Delta \times\ 100 + Shares\ held$$

In the first day of our contract, this calculation looks like the following:

$$Day\ 1\ net\ \Delta = 0.44 \times 100 +\ -44 = 0$$

The net delta exposure is calculated each day, meaning that we are never exposed to price swings.

The following table shows the changes in PnL (Profit and Loss) from both portfolios, along with the total PnL of our position. The table clearly demonstrates the mirroring effect attempted by the delta hedging.

Date	Original Portfolio PnL	Replicating Portfolio PnL	Total PnL
2025-10-08	-45	-61.17	-106
2025-10-22	-195	+240	+45
2025-11-03	+430	-404	+25
2025-11-20	-2	7.98	+5.98

The table above numerically shows the neutrality maintained by the hedging principle, the rally which resulted in a spot price of 207$, and a crash to 154$ still resulted in a neutral PnL.

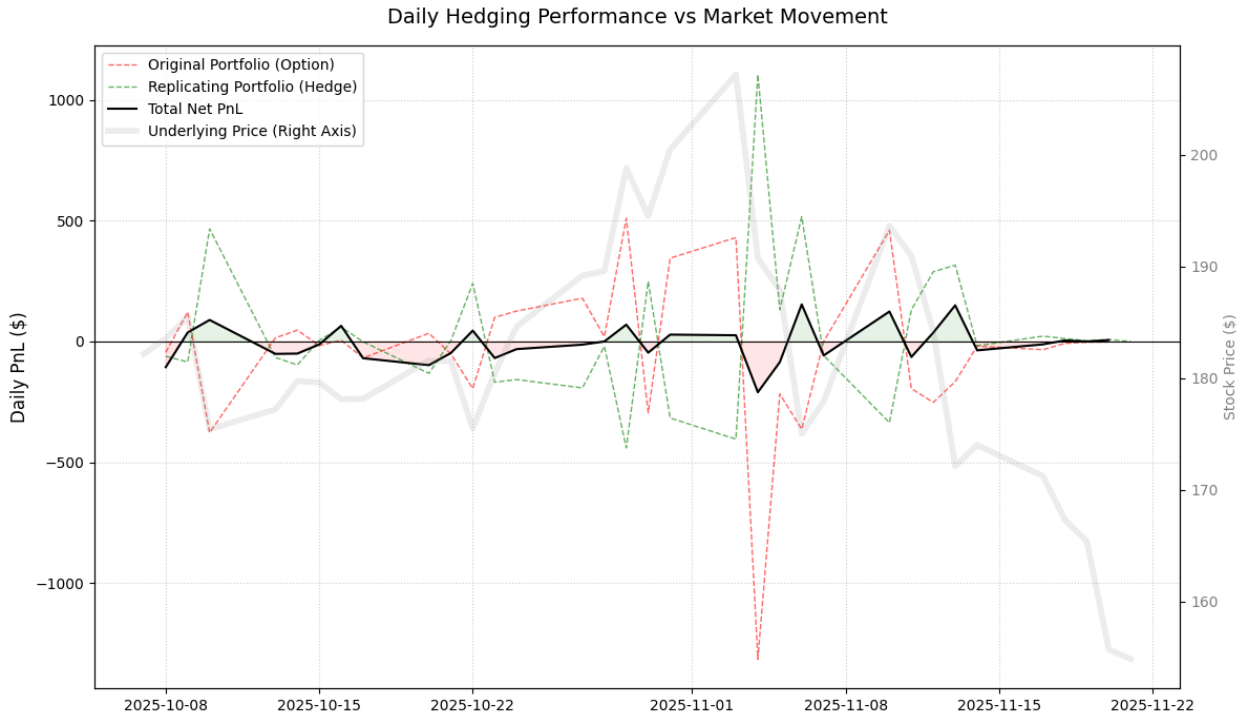

Figure 3: Daily PnL performance

From the figure, it is possible to see the underlying stock price in the background, and how its volatility influences the dynamics of the portfolios. Once can see the mirror relationship between the short stock portfolio and the long call portfolios, but most importantly is the result that can be observed. While the long call and the short stock portfolios have a very tumultuous path, the total net PnL is close to 0 throughout these 45 days, which would indicate a healthy hedging dynamic.

2.2 Delta - Hedge results

The objective in this experiment was to assess the success of purely delta hedging a long call in one of the most volatile stocks in the AI scene and isolate the delta risk as well as the volatility of the long component. At time of maturity this stock ended deep OTM, costing us the premium we originally paid (1230$) on October 7th. Over the 45-day period, there was severe turbulence in the stock, and it oscillated between 207$ down to 154$. Had the option not been hedged, there would have been a loss of 1230$ that the premium cost us, because of hedging, we lost a total of -225$ instead. This goes to show the efficacy of the delta hedging, we prevented a loss of 1230$ and ended with a loss 225$. In a perfect hedge, this would have been negated to a loss of 0. One important factor to consider, is that so far, we have not considered transaction costs, which would drag more of our loss. The following graph showcases the cumulative sum of all three portfolios and shows the success of our delta portfolio. It showcases the long call portfolio gaining value when the stock price rallies into ITM, while losing values as it crashes OTM. Similarly, in a mirror fashion, the short stock portfolio rallies to protect our loss when the stock crashes.

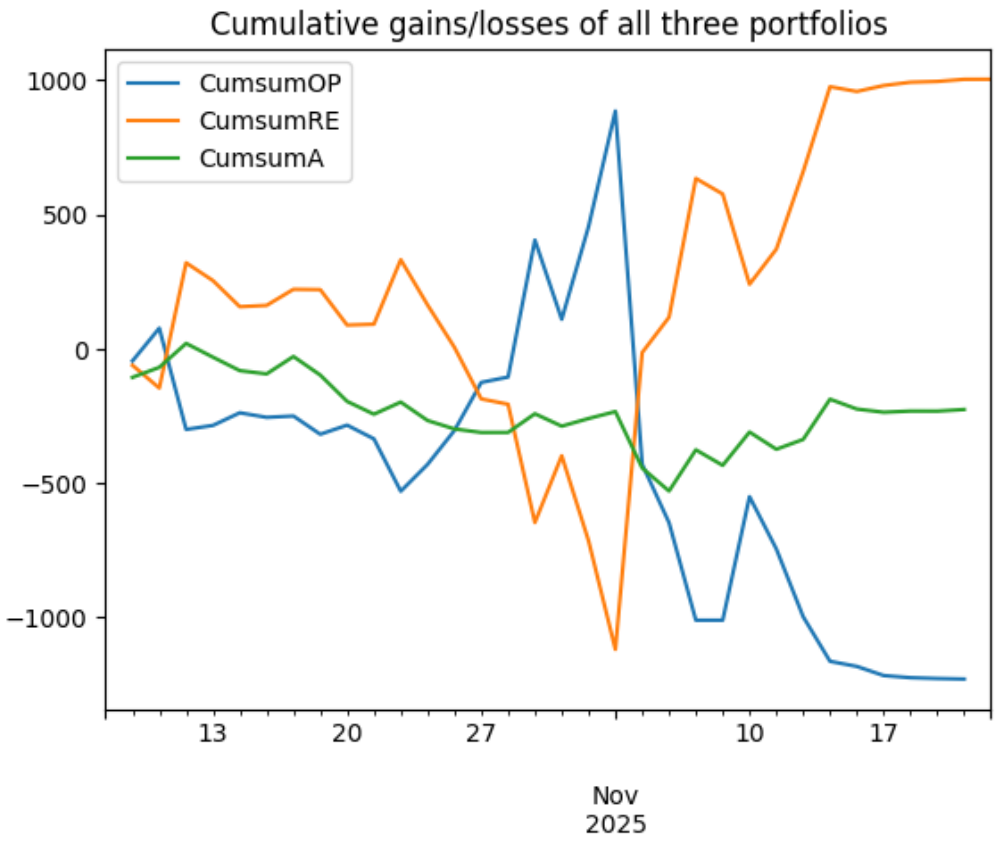

Figure 4 Cumulative gains of portfolios

Our summary statistics from the Delta hedging can be summarized in the following table:
Summary statistics:

Cumulative loss OP	**Cumulative gain RE**	**Cumulative loss Total**	**Error E**
-1229	1003.18	-225.81	6009.4

For our error we calculated it using the provided formula:

$$E = \frac{1}{n-1} \times \sum_{i=1}^{n} A\_i^2$$

We use A^2 to properly capture the daily movements in our total portfolio since some will be positive, and some will be negative. There to get an accurate and not a reduced version of E, we use the squared value instead. Since our hedge was not close to being perfect, we will now attempt to use a delta-vega hedge. This report attempted to use Delta-Vega hedge because our portfolio remained exposed to changes in the implied volatility. In theory, introducing a hedging option to neutralize volatility changes because the underlying stock has a vega of 0, therefore another hedging instrument must be included.

2.3 Delta - Vega hedging a Palantir Call long call

The delta-vega hedging introduces another hedging tool which is another option. I will use a similar option with the same strike price, same underlying, but a different maturity date which is January 16th, 2026. This will allow us to modify our replicating portfolio to include more than just the short stock position. The replicating portfolio will now include a short position in the hedging option, as well as a short position in the underlying stock. The following graph tracks the evolution of the quantity shorted of each instrument in the new replicating portfolio.

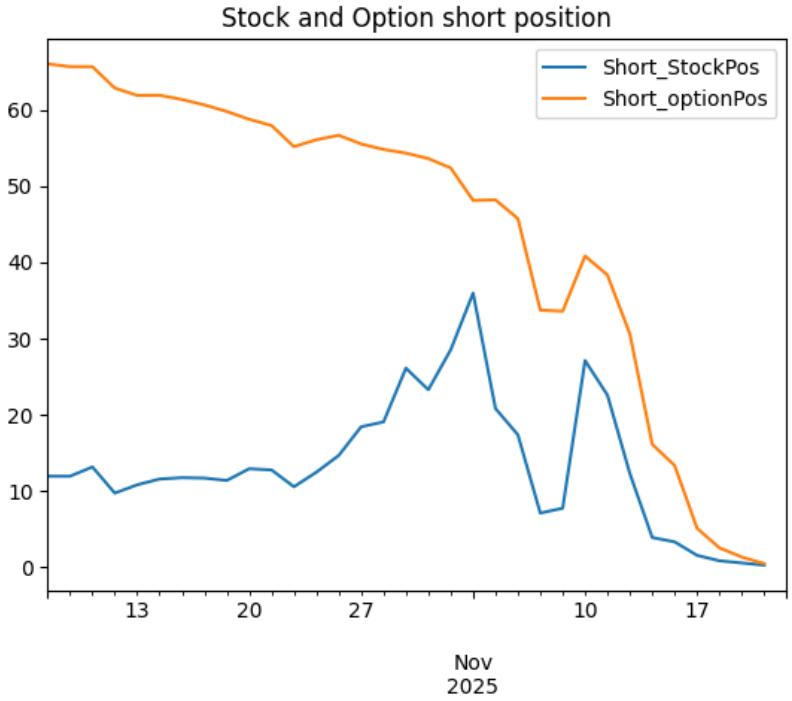

Figure 5 Stock short and option short

These positions are dictated by the alpha and the eta, which can be observed in the following graph. In delta – Vega hedging we are no longer just mitigating the changes in the underlying stock price; we are also mitigating the evolution of the implied volatility. The eta determines how many longer maturity hedging options we are shorting to match the Vega of the original option, ensuring volatility shocks are matched.

Figure 6 Alpha vs eta

The following table shows the profit and loss of both portfolios, as well as the combined one.

Date	Original Portfolio PnL	Replicating portfolio PnL	Total PnL
2025-10-08	-45	-17.42	-62.42
2025-10-22	-195	+196.29	+1.29
2025-11-03	+430	-76	+354
2025-11-20	-2.0	+6.05	4.05

The following graph visually displays the net PnL of all three portfolios, showcasing how the Total PnL is close to 0 which indicates a healthy hedging mechanism.

Instantly it is possible to see that when the movement of the underlying stock is stable, the delta-vega hedge has a more neutral PnL than the delta hedge. This must do more with the replicating position; when the underlying stock price crashed to 154 on November 3rd, the original portfolio lost value as it headed to deep OTM territory. In the delta hedge, we are holding more of the underlying short stock which is very profitable in this crash. In the delta-vega hedge we hold much less of the underlying short stock, limiting the profitability of the replicating portfolio and in turn enhancing the loss made by the original portfolio. One can observe that the delta-vega hedge has been successful, but we must also analyze its cumulative gains and losses throughout.

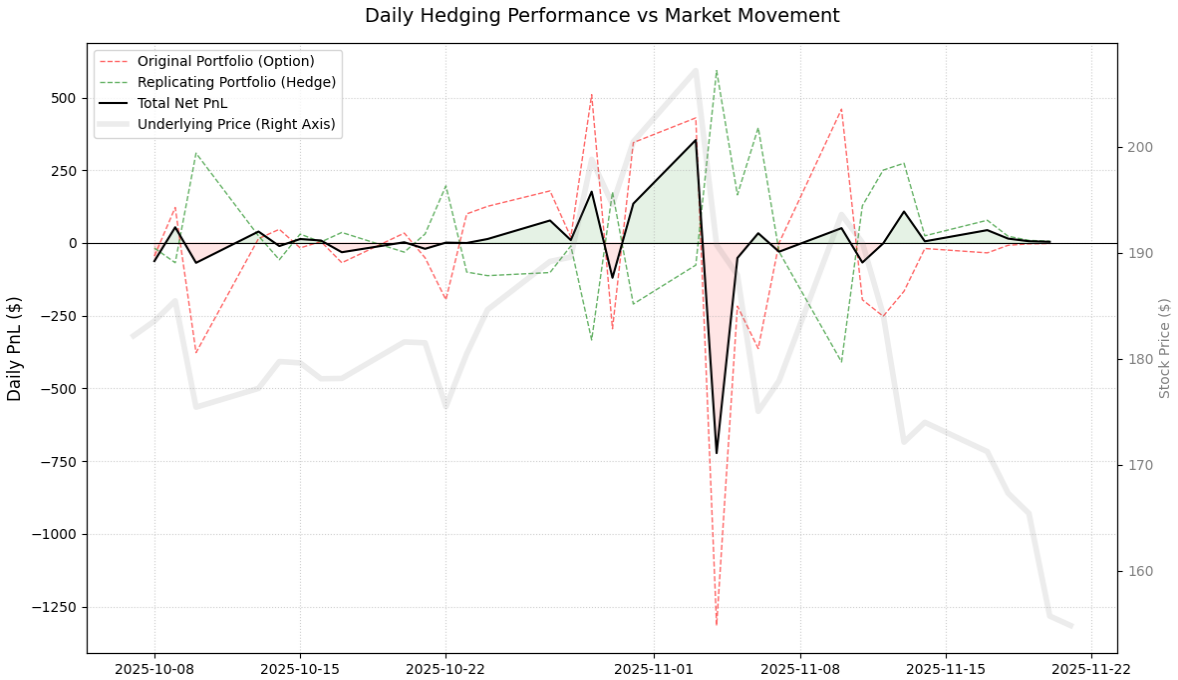

Figure 7 Daily PnL performance

2.4 Delta - Vega hedge results.

Graph: Cumulative gains and losses of the position.

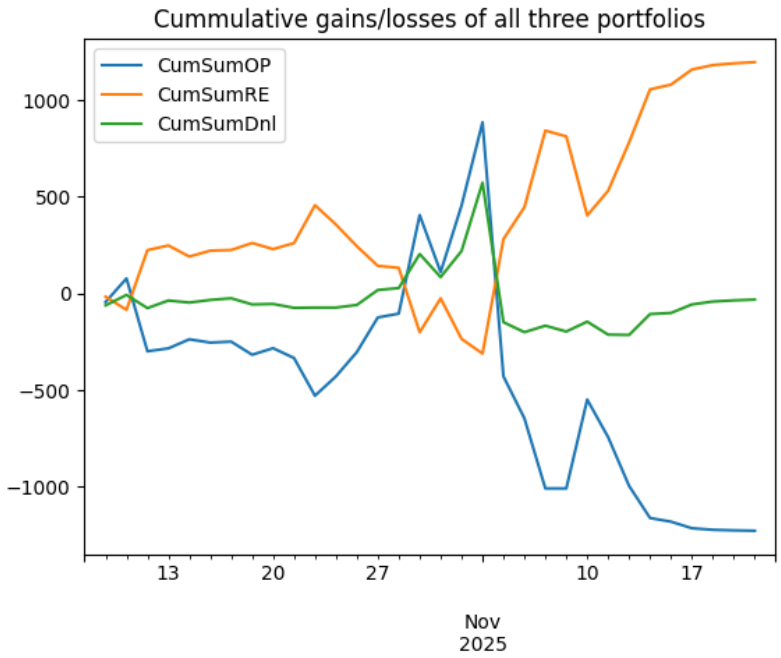

Figure 8 Cumulative gains of portfolios

Results:

Cumulative Loss OP	Cumulative gain RE	Cumulative loss Total	Error E
-1229	+1196.59	-32.41	2441.634

The results indicate the same loss in the long call as we ended deep OTM, but our hedging portfolio with the short stock and the short hedging option has a higher cumulative gain. This gain upended our loss to only -32.41, which is a much better result than the loss from the delta hedge. The following section will cover clear graph comparison of the two.

2.5 Delta vs Delta-Vega hedge results.

The following tables will properly convey the differences between the hedging techniques. The results clearly indicate that the better results were obtained by the Delta-Vega hedging technique. The short stock position acts as the main counterbalance to the long call, moving in the opposite direction to swings in the underlying stock price. However, it does not help in countering the volatility of the long call because the vega of the underlying stock price is 0. We introduce another instrument which is the hedging option, and it targets the volatility exposure from the long call.

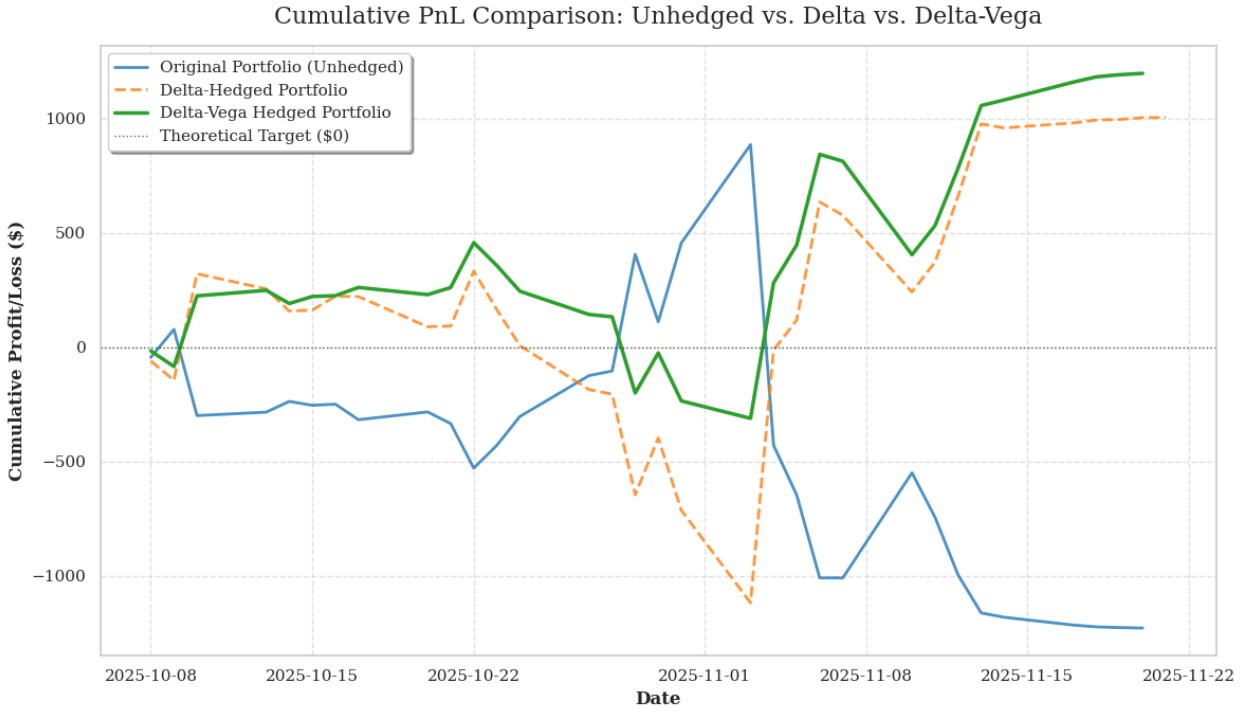

Figure 9 Delta vs Delta-Vega performance

This graph illustrates the inverse relationship of the long call and its hedging portfolios. Both portfolios achieved the main goal of protecting capital losses from exposure in the long call, especially as the value of the long call expires at 0. From the shorting position in the delta hedge, the portfolio profits from the price crash

which offsets the loss of the call value. The delta-vega position further enforced this protection mechanism; it profited from the directional decline of the price through its short stock position but also captured profit from the volatility in the short option position.

The following graph illustrates the difference between the gains of the two total portfolios. The graph illustrates the cumulative profit and loss from each of the total portfolios. It is observable that both portfolios are successful in remaining close to 0, but the gray area showcases the volatility slippage (Difference in hedging, stemming from volatility protection). When Palantir rallied to 207 on November 3rd, the delta only portfolio did not rally due to the unhedged implied volatility. The delta-vega hedge experienced a sharp gain in profit due to its limited exposure to a short stock, which did not limit the significant gain we had from the long call increasing a dramatic price increase. Overall, the delta-vega hedge was more successful due to it being closer to a 0 PnL at maturity. We did not lose as much as we would have unhedged, or in the delta only hedge.

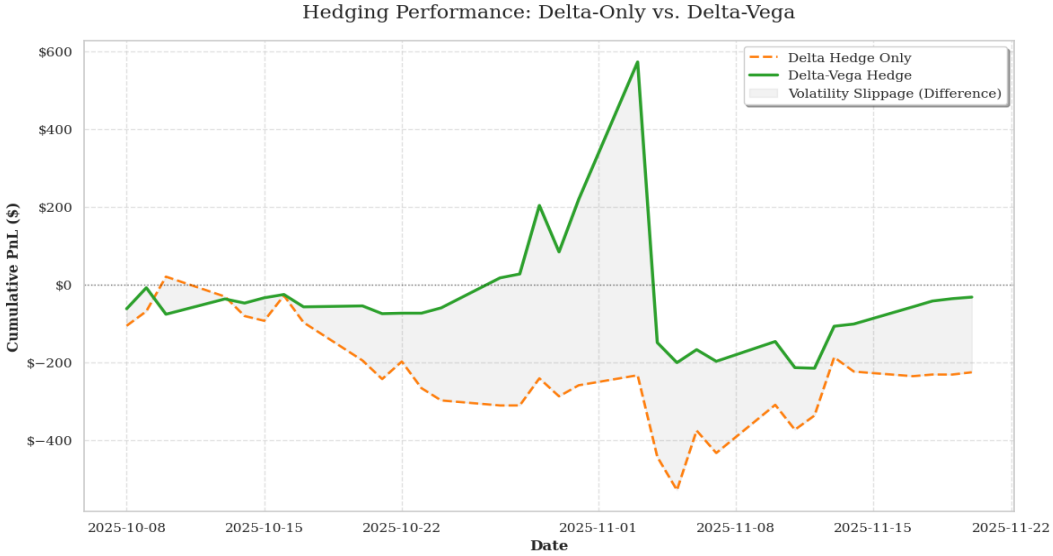

Figure 10 Performance comparison

The goal of the delta vega portfolio is to minimize the vega, and this can be investigated by graphing the following. It illustrates that our delta-vega hedge was close to flawless, and the precision of our hedge. It fluctuates at a range of 10^{-15} which is a negligible amount. This can be seen in figure (11):

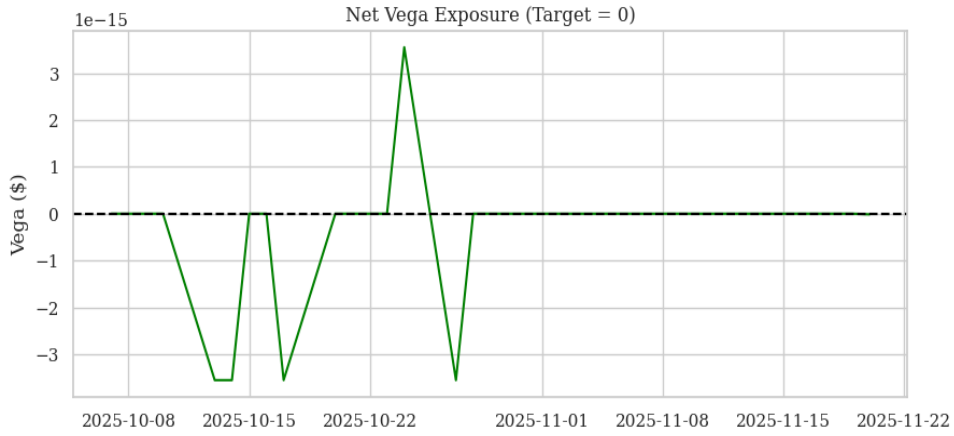

Figure 11 Net Vega exposure

3. Delta hedging a long call on a 3-month time to maturity.

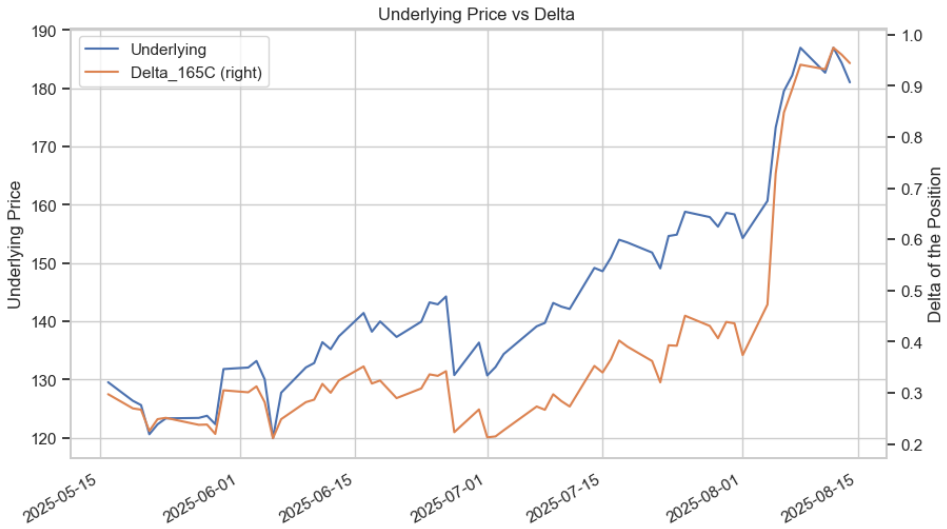

Figure 12 Delta vs Underlying price

In this three-month figure, one can notice it follows the same pattern from the first delta hedge, the delta follows the underlying price in long calls. As the underlying price increases, so does our protection size.

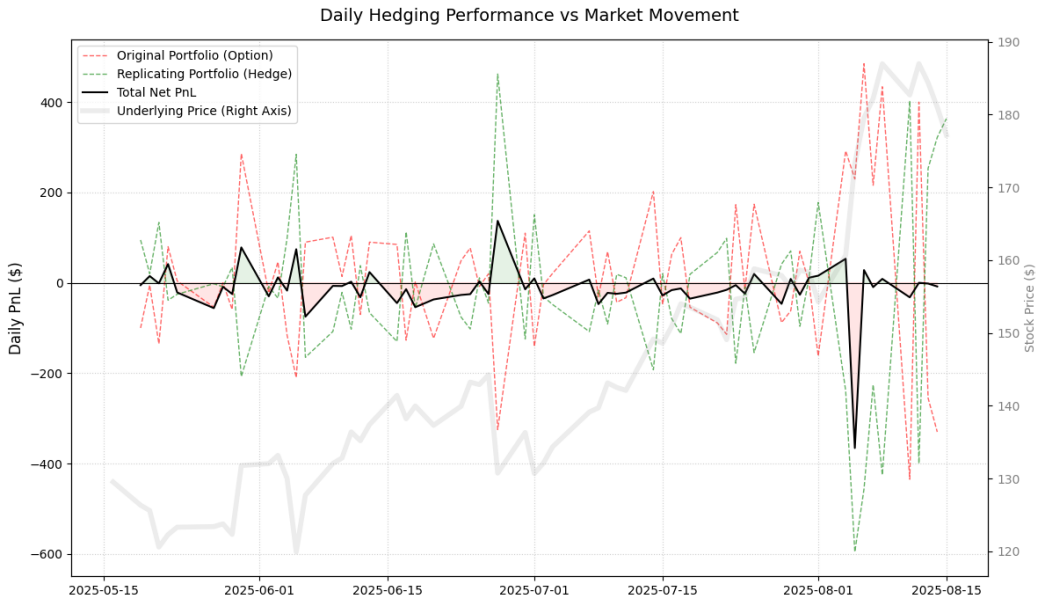

Figure 13 Daily PnL performance

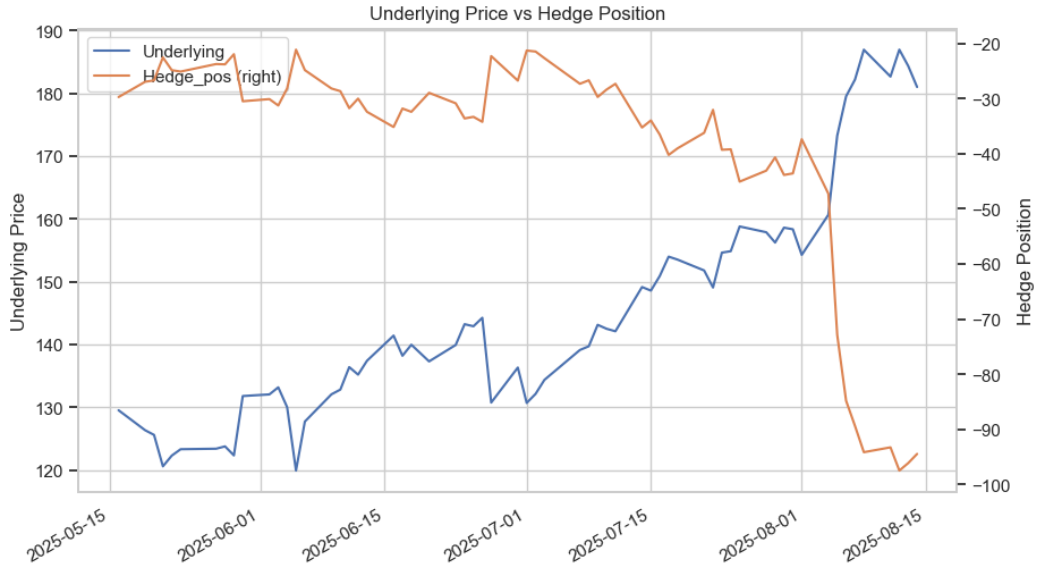

Figure 14 Underlying price vs Hedge position

In figure (14) you can see how the delta works in a mirror manner, for all price hikes there is a hedge response of shorting more. In the final rally towards the end of the contract, you can see how the hedge position grows to -95 shares.

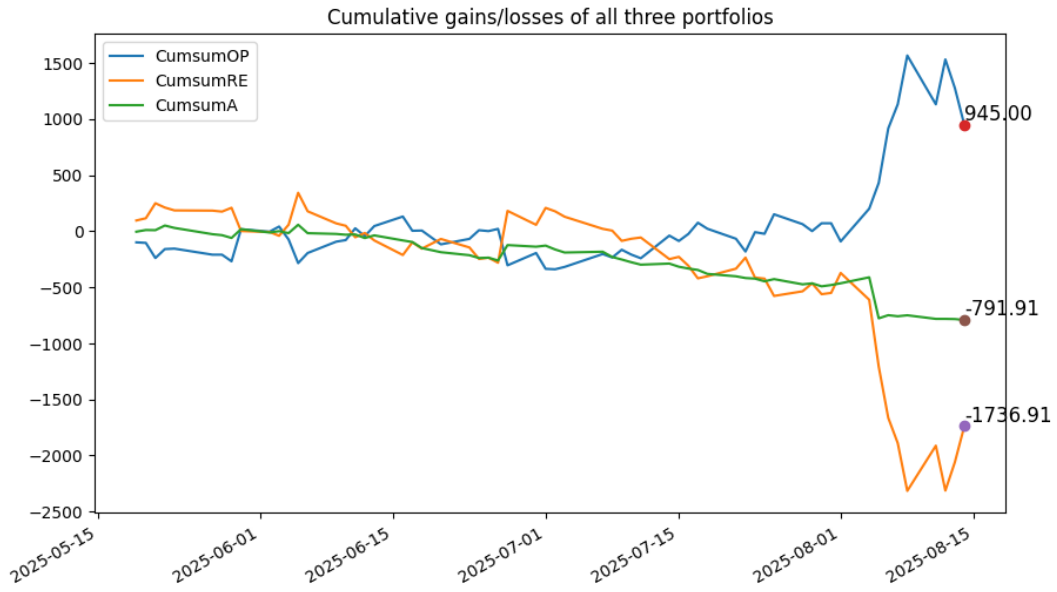

Figure 15 Cumulative gain results

In figure (15) it is possible to see the results of the hedge and its total movements and final positions. This is an interesting comparison to the first three-month hedge. The first hedge ends in a smaller loss because the hedge protected the portfolio from the crash in the underlying stock. The first hedge contract ended deep ITM, rendering our long call worthless, but our short was profitable. On the other hand, this long call ends OTM, where our long call would have been profitable, but our hedge lost a lot of money and negated our returns. This perfectly showcases that hedging with delta is not for a profitable strategy but serves simply as a protection for *losses* which was not the case here.

4. Conclusion

This report attempted to backtest a hedging strategy on the highly volatile Palantir comparing two different strategies. Pure delta hedging a 45-day long call protected us from a unhedged loss of -1230, narrowing it to -225. However, there was exposure to volatility, and we had to introduce a delta-vega hedge. This clearly improved the hedge, narrowing the -1230 loss to only -32 delivering a much lower loss. Then the report compared the 45-day long call delta hedge to a 3-month long call delta hedge. This was successful in showing the mechanics of options and hedging them. The first long call ended deep OTM, leading to a loss in the long call and protecting our hedge. On the other hand, the second long call ended deep ITM, leading to a gain in the long call, but a loss in our hedge. This goes to show that hedging is not a strategy for profit, but for protection to downside. With further time and space, this report would benefit from transaction costs.