Options strategies and market analysis

Assignment 3

May 30,2024

Submission Deadline: June 02,23:59.

1.If we find that your code is entirely written using ChatGPT or another AI source, we will not consider your submission. However, you are allowed to take help from the internet to code. The code should be your own work.

2.Refrain from any means of plagiarism.

3.The deadline will not be extended, so please ensure that you adhere to it and submit your work before the deadline.

Ques 1. You own a call option with a Delta of 0.60 on an underlying stock currently priced at $50. You hold 100 of these call options. If the stock price increases to $55, estimate the new Delta of your options, assuming the Gamma is 0.05. How many shares of the underlying stock should you buy or sell to adjust your position to remain delta-neutral?

Ques 2. A put option has a Vega of 0.25 and the current implied volatility is 20%. If the implied volatility increases to 25%, calculate the change in the price of the put option, assuming all other factors remain constant.

Ques 3. You hold a long position in 50 call options with a Theta of -0.05. The options have 30 days until expiration. Calculate the total time decay loss you would expect to incur over the next 10 days, assuming Theta remains constant.

Ques 4. Use appropriate methods to find the daily and annualized volatility of any five stocks. Compare your results with the actual daily and annualized volatility provided by a trusted source from which you downloaded the data (you can use yfinance for data collection of stocks)

Ques 5. State some crucial points that you deduce from option Greeks while trading an option. Note that these points should be your own observations.