8,194,1.00 Derivatives Modeling in Python
University of St.Gallen
Spring Semester 2024
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Black-Scholes and Greeks

1 Learning Objectives

- Implementation of a dynamic delta-hedging strategy
- Implementation of a dynamic delta-gamma-hedging strategy

2 Literature

"Derivatives" Lecture Notes, Topic: Black Scholes II
John C. Hull, *Options, Futures, and Other Derivatives*, 10th Ed., Prentice-Hall, 2018, Chapter 19

3 Problems

3.1 Dynamic Hedging: Delta-Hedge

Use Python to simulate the price evolution of a stock. Implement a strategy which hedges the position of a call option by constructing a delta neutral portfolio. Readjust this portfolio regularly.

3.2 Dynamic Hedging: Delta-Gamma-Hedge

Use Python to simulate the price evolution of a stock. Implement a strategy which hedges the position of a call option by constructing a delta and gamma neutral portfolio. Readjust this portfolio regularly.