



Lab 3

Deadline: 19 December 2025, 22:00.

All solutions must be in a single PDF file and uploaded to the LMS portal.

1. Consider the SABR model

$$\begin{aligned} dS_t &= v_t S_t^\beta dW_t^1 \\ dv_t &= \eta v_t dW_t^2, \\ dW_t^1 dW_t^2 &= \rho dt. \end{aligned}$$

Assume interest rate is zero.

- (a) (1 point) Derive the hedging error decomposition in SABR model.
(b) (1 point) Derive the hedging error decomposition in Heston model.
(c) (1 point) Perform a qualitative assessment of the components obtained from the models in the previous parts.
2. (1 point) Take the hedging error decomposition for a call option from the first lab and rewrite it considering that the price of the underlying asset is an Ito process with jumps.