

Comparing Stochastic and Local Volatility Pricing of Barrier Options

Using the official stochastic volatility Monte Carlo code posted on the intranet and the local volatility Monte Carlo code from Homework 2, price a one year at-the-money lookback call that is monitored once a day (assume 252 working days in a year). Use the same parameters as in Homework 2 – namely:

$$v = 0.04$$

$$\bar{v} = 0.04$$

$$\lambda = 10$$

$$\eta = 1$$

$$\rho = -1$$

Intuition

What is the intuition behind the difference in price in the two cases? Appeal to the dynamics of the implied volatility skew in your answer.