

Using $S_0 = 44.0681$ (last close on 2025-05-30)

Estimated annualized volatility (from 352 returns): 19.9096%

Monte Carlo estimate (plain antithetic):

Price = 0.742950 SGD

Std error = 0.004937

95% CI = [0.733274, 0.752626]

Monte Carlo with control variate adjustment:

Price (CV) = 0.742480 SGD

Std error (CV) = 0.003573

95% CI (CV) = [0.735477, 0.749483]

Black-Scholes benchmark (S_0 , $\sigma_{\hat{}}$, r):

BS Price = 0.739163 SGD

Results saved to mc_option_result.csv