Assignment 6.

Given November 29, due December 13.

Objective: Experiment with sensitivity analysis

Refer to assignment 5. We want to estimate the following sensitivities to within 5%:

$$\begin{aligned}
\Lambda &= \frac{\partial f}{\partial \sigma_S(0)} \ , \\
\Delta &= \frac{\partial f}{\partial S(0)} \ , \\
\Omega &= \frac{\partial f}{\partial \mu} \qquad \text{(the last Greek).}
\end{aligned}$$

For each Greek, try the three methods:

- Finite difference of independent estimates
- The "same paths" method
- The "score function" method

To make this work, you *must* make error bars for the estimates of the sensitivities. This is particularly importand when not using the score function method since the sensitivity depends in part on the change in the probability of default. Comment on the results. Note that different methods are best for different sensitivities.