HW5 - Calculate Option Price with Changing Interest Rate

我使用 QL 套件的 Hull-White Process 產出一段時間內的利率集，再用蒙地卡羅模擬法計算未來的可能資產價格，最終根據執行價集折現率計算 call 和 put 的價格。

Step1：Create List of Interest Rate by Hull-White Process

計算流程:

1. 輸入 Sigma of Interest rate, a, timestep, length (in years), forward rate, number of paths
2. 用 QL 套件計算 Hull-White Process
3. 產出一段時間內的利率集及走勢圖

Step2 : Calculate Option Price by Monte Carlo with Changing Interest Rate

1. 輸入 strike price, risk-free interest rate, delta T, Sigma of stock, stock price
2. 以蒙地卡羅計算未來資產價格
3. 產出 call 和 put 的價格及走勢圖