

Hw4 Rainbow

Description:

Use Monte Carlo simulation to calculate the rainbow option's price.

User Manual:

Double click "Hw4 Rainbow.exe"

→Click "Input" at the upper left corner of the window

→Input the following parameters in the dialogue box:

N: Number of underlying assets

r: One-year risk-free interest rate (e.g., 10% $\Rightarrow r = 0.1$)

T: Expiration date (e.g., 6 months $\Rightarrow T = 0.5$)

K: Strike price

m: Number of outer simulation times

S_i : Current price of the i th asset, $i = 1, 2, \dots, N$

q_i : One-year dividend yield of the i th asset, $i = 1, 2, \dots, N$ (e.g., 2% $\Rightarrow q_i = 0.02$)

V_i : Variance of the one-year rate of return of the i th asset, $i = 1, 2, \dots, N$ (e.g., One-year volatility is 30% $\Rightarrow V_i = 0.3 * 0.3 = 0.09$)

Cov_{ij} : Covariance of the one-year rates of return of the i th and j th assets, $i, j = 1, 2, \dots, N$

Simulation Method: Simulate m runs with 1000 times each run (Indirect) or $m * 1000$ runs directly (Direct)

Multidimensional Moment Matching: With (With) or without (Without)

→Click "OK" at the lower right corner of the dialogue box (or "Cancel" if you would like to exit the dialogue box)

→Calculation result will be shown on the display area of the window

→If you would like to perform another calculation, click "Input" at the upper left corner and repeat the process above. (The dialogue box will save the parameters you input last time.) Or you can click "X" at the upper right corner of the window to exit the program.