Bonus2 NGARCH

Description:

Under the assumption of the NGARCH model, use Monte Carlo simulation and the multinomial tree model to calculate the European call and put prices, respectively. The American call and put prices are also required in the case of the multinomial tree model.

User Manual:

Double click "Bonus2 NGARCH.exe"

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

→Input the following parameters in the dialogue box:

h, B0, B1, B2, C, lambda: Parameters in the NGARCH model, where h is the current h

S: Current stock price

K: Strike price

r: One-day risk-free interest rate (e.g., One-year risk-free interest rate is 10% => r = 0.1 / 365 = 0.0002739)

days: Expiration date (e.g., 3 months => days = 365 * (3 / 12) = 91)

q: One-day dividend yield (e.g., One-year dividend yield is 2% => q = 0.02 / 365 = 0.0000547)

Pricing Method: Use Monte Carlo simulation (Monte Carlo) or the multinomial tree model (Multinomial Tree). If "Monte Carlo" is checked, specify the number of outer simulation (m). The European call and put prices will be displayed as a table. If "Multinomial Tree" is checked, specify the number of subperiods within one day (n) and the number of h s at each node (p). The European and American options (including both call and put) prices will be displayed as a table.

→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.