

To: Computational Finance Course Participants
Fr: Jesper Andreasen
St: Week 1
Dt: 21 Nov 2022

Agenda

Class 25 Nov 2022 13:15-16 in room 4-0-05 at the Bio Center.

Bring your Windows laptop. We recommend that you try starting on the list below before class on Friday.

A few introductory remarks about the course, and then we will get practical.

To do list

Install Visual Studio C++ 2019 community version or newer on your lap top.

Download the project CompFin from GitHub: <https://github.com/brnohu>.

Compile the project and try to run the spreadsheet week1.xls through the debugger.

Check the function xBachelierCall () against handmade calculations in a spreadsheet.

Make an xll function called xBachelierImplied() that exposes kBachelier::implied() to the spreadsheet.

Test your function xBachelierImplied().

Write a new class kBlack that has the same methods as kBachelier.

Make xll functions xBlackCall() and xBlackImplied() that expose kBlack::call() and kBlack::implied() respectively.

Test the functions xBlackCall() and xBlackImplied().

Notes

Bachelier formula:

$$c = (s - k)\Phi(x) + v\sqrt{T}\phi(x) \quad , x = \frac{s - k}{v\sqrt{T}}$$

Black formula:

$$C = S\Phi(x_+) - K\Phi(x_-) \quad , x_{\pm} = \frac{\ln(S / K)}{v\sqrt{T}} \pm \frac{1}{2}v\sqrt{T}$$