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Case Study 2

The source code contains 2 header files and 3 cpp files.

- “function.h” and “functions.cpp” are the given functions, containing the tridiagonal solver and the exponential integral
- “main.cpp” allow the user to choose the parameters to test EuroPricerPut. It prints the price of our put, and the time required to find it.
- “EuroPricerPut.h” and “EuroPricerPut.cpp” is a class, where methods and attributes are stated in the header, while everything is defined in the .cpp

Our class has 2 important public methods:
-The constructor, which define the variable specific to each pricer (theta, volatility, mu, and Y)
-The method calculate, that returns the price of a put, based on the different parameters (interest rates, strike, spot, maturity) and with the accuracy desired (number of time and price iterations, the size of our grid).
This method use the tridiagonal solver to find at each time (starting from the last one, and going back recursively), what is the price for each spot on our grid, of the put.
As for every tridiagonal matrix, one important point is the boundary conditions, which are solved as explained in class.

All the other private methods of the class, are simply there to simplify the expressions, or to accelerate the calculations by stocking some values (because expint is long to calculate).

NB: as it is required in Visual Studio, we #include "stdafx.h" to make a console application project

Results: