

**HW 2: Volatility surface by Dufire equation (1994)**

**(Due: Oct. 1, 2018)**

1. The purpose of this homework is to making a volatility surface using option data observed in market. Choose any day (for example, Sep. 17, 2018) and get option prices for various maturities and moneyness. Apply Dufire formula and any difference scheme for partial derivatives. Extend volatility surface up to 3-year maturity.

Long-maturity options (for example, 3-year maturity option) are hardly traded. How do you calculate the IV of longer-term options which are not traded.

As you are instructed in class, you don't have to hand in the program file but a hard copy for the answer.