37011 Financial Markets Instruments

Assignment Part 3

due 11 May 2025

Solutions must be submitted on Canvas as a Jupyter notebook

1. Suppose that you can trade (buy or sell) any of the European call and put options in the file `options1.csv` at the prices given, and that the current price of the underlying asset is 100. There is one mispriced option in this data set. Find it using put/call parity. Trading only in these options, how could you lock in a riskless profit? *(7 marks)*

2. For each maturity, generate a separate 2D plot of the European call option prices in the file `options2.csv`. Suppose that you can trade (buy or sell) any of these options. Trading only in these options, how could you lock in a riskless profit? *(4 marks)*

3. For each maturity, generate a separate 2D plot of the European call option prices in the file `options3.csv`. Suppose that you can trade (buy or sell) any of these options. Trading only in these options, how could you lock in a riskless profit? *(5 marks)*

4. Suppose that you can trade (buy or sell) any of the European call options in the file `options4.csv` at the prices given, that the current price of the underlying asset is 150, the asset pays no dividends and that interest rates will always be positive. There is one mispriced option in this data set. Trading in these options and if necessary the underlying asset, and investing/borrowing at the riskfree interest rate, how could you lock in a riskless profit? *(4 marks)*