
Introduction to Financial Engineering (HW8)

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- Please follow the guidelines for assignments given in the Module Handbook.
 - All programs should be written in R (compilable without errors or warnings).
 - You should submit a write-up (.pdf) of the program as well as the source code (.r).
 - File names should be as `yoursurname_yourname_HW8.extension`
 - You should submit via moddle.
 - Deadline: 22nd December 2023 at 10am.
1. On Black Monday, the return on the S&P 500 was -22.8% . Ouch! Use the code of Question 2 from handout HW2 to download historical data from S&P 500. Plot the time series from the last two years of data before, but including, Black Monday. From the plot you can see that the Black Monday was highly unusual.
 - (a) Use the time series up to, but not including, the black Monday and make an histogram of returns.
 - (b) Compute the Value at Risk within a 1 day horizon and 99% confidence.
 - (c) What conclusions can you extract?
 2. Use the code from Question 2 (d) from handout HW5 to compute a put option's risk metrics. Using the same settings as the ones established in HW5 Question 2 (d), consider you sell a PUT option, compute:
 - (a) the Value at Risk at maturity with 99% confidence;
 - (b) the tail Value at Risk at maturity with 99% confidence.