Ingeniería Comercial

Universidad de Chile

Semestre Primavera 2019

Homework 1

Course: Finance I / ENFIN415

Lecturer: Erwin Hansen

Instructions

- Due date: 23:59 pm of September 6, 2019.
- You can work in groups.
- Send your homework to finance.hansen@gmail.com with email's subject "Homework1-Finance1-Lastname".
- Send a zip file containing two files: one with your calculations and a word/pdf file with a summary of your results and analysis.

Exercises

In the attached database, you will find return data for 5 industry indices in the US. Returns are monthy and span the period January, 2010 to June 2019. Using the period 2010 to 2018, complete the following exercises:

1. Analyze the historical performance of each sector
   (a) Plot the cumulative return of each index in a single graph.
   (b) Compute descriptive statatistic: mean, volatility, skewness and kurtosis. Comment your results.
   (c) Report the historical Sharpe ratio of each sector. Which index showed the largest Sharpe ratio?
2. Build and plot the efficcient frontier.
3. Find the optimal portfolio of risky assets using the Markowitz method. Report the weights, return and standard deviation of this portfolio.
4. Find the minimum variance portfolio. Report the weights, return and standard deviation of this portfolio. How this portfolio compares with the one computed in (3).
5. Evaluate, out-of-sample, the portfolios found in (3) and (4). In particular, compute the portfolio returns during 2019 and the Sharpe ratio during this period. Which portfolio performs the better?