

EMPIRICAL FINANCE 3.2

– GROUP ASSIGNMENT 1 –

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General Instructions

Availability

Each week's coding assignment is available from Friday 00:00.

Deadline

The deadline to submit is the following week's Monday 23:59, no exceptions!

Tutorials

Each Friday at 13:30, the tutorial session is dedicated to the assignment. Justus will walk you through the assignment. You will receive useful coding tips. You can ask questions and get troubleshooting support.

Canvas Submission Requirements

Each group submission must include:

1. A PDF with written answers that includes: (a) a cover page with group number, member names and student ids, (b) answers to questions Q1 and Q2 below, and (c) an Appendix with the printed replication code.
2. A replication code file that is fully self-contained and allows to reproduce all results in R-Studio.

Important

If the code does not replicate the provided answers, the assignment will receive 0 points. Clear cases of fraud will be reported to the exam commission.

Groups

You will work in groups of four. No extensions will be granted. Plan ahead and make it work. Document your workload division via e-mail or Canvas group page to insure against slacking.

Weighting

Each assignment counts for 5% of the final grade (total of 30% across all six assignments).

Grading Each assignment can earn a maximum of 10 points (see grading rubric below) and the grade is equivalent to the points earned. Any questions about the grading must be asked within 48h of publishing the grade on Canvas.

Table 1: Grading Rubric

Q1(a) - Output	1 point
Q1(a) - Analysis	1 point
Q1(b) - Output	1 point
Q1(b) - Analysis	1 point
Q2(a) - Output	1 point
Q2(a) - Analysis	1 point
Q2(b) - Output	1 point
Q2(b) - Analysis	1 point
Layout and Writing	1 point
Best Coding Practices	1 point

Preparations

Navigate to the excel file 'Group Assignment Stocks' and identify the stock associated with your group number. For your assigned stock, independently obtain the stock ticker. For the indicated date range, import the stock prices using the tidyquant package. Load the stock prices into R and calculate the log-returns for the indicated years.

Comment: If you struggle with downloading the data, you may request a csv file with returns from Justus against a 2 point deduction.

Questions

Q1. Stock prices and returns

- (a) Plot the prices and returns over time in separate plots. Present the plots and comment briefly on what you see.
- (b) Compute relevant summary statistics for these series. Formally present them in a table and comment if necessary.

Q2. Return distributions

- (a) Obtain and plot a figure that visually represents the distribution of the returns. Add visuals that depict the distribution of an equivalent normally distributed variable. Present the figure in your pdf. Briefly and clearly state your conclusions on the properties of the variables that are exhibited.
- (b) Formally test for normality using an appropriate test. Present the results in a table and formally explain the test you did, including hypotheses. Briefly and clearly state your conclusions.