

# MC2-Homework-1

From Quantitative Analysis Software Courses

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## Overview: Finance Question

The purpose of this assignment is to help you study for the midterm by involving you in the creation of the midterm. The TAs and the instructors will select the best 70 or so questions for the actual exam. If your question is selected you will get full credit for this homework.

## Task

You are to create a multiple choice question regarding the Finance part of the course for the midterm. You should provide:

- The question itself.
- 4 possible answers labeled a) through d)
- Short, complete, explanation for the correct answer.

Your 4 answers should include one unambiguously correct response and at least one other attractive answer that might be selected if the student is not well informed. The intent is that these questions should be easy if the student has been following along in the class and hard if they have not. I do NOT want these to be trick questions, or questions that require encyclopedic knowledge.

Submit your response as text only `question.txt`. We do not want PDFs, image files or word documents.

## Topic for your question

If your last name begins with these letters: Your topic should be drawn from this book chapter

- KEG: Chapter 4: Market-Making Mechanics or Chapter 2: So You Want to Be a Hedge Fund Manager (your choice)
- HALF: Chapter 5: Introduction to Company Valuation
- WORD: Chapter 7: Framework for Investing: The Capital Asset Pricing Model (CAPM)
- ZINC: Chapter 8: The Efficient Market Hypothesis (EMH)-Its Three Versions
- PUB: Chapter 9: The Fundamental Law of Active Portfolio Management
- STYX: Chapter 10: Modern Portfolio Theory: The Efficient Frontier and Portfolio Optimization
- QVMJ: Chapter 11: Event Studies or Chapter 12: Overcoming Data Quirks to Design Trading Strategies (your choice)

## Disclaimer

If your question is selected for use in the exam, we may not use it verbatim. It might be modified slightly for clarity, the parameters might be changed slightly, or it may be modified to make it more suitable for the exam format.

## What to turn in

- Submit your question as a single file `question.txt` via t-square. It is essential that you use that name exactly.
- Do not submit other files.
- Do not submit word documents, image files, zip files or PDFs.
- Make sure your file is named correctly.
- Under no circumstance should you submit a word document.

## Sharing and discussing questions

Unlike other assignments in this class it is OK to post and discuss your prospective "answer" to this assignment on piazza. However, keep in mind that if you copy someone else's question from piazza, it will of course be considered plagiarism.

## Rubric

The question will be scored from 0 to 95%. 10% will be deducted for each criteria not met.

For the question:

- Is the question on the correct topic?
- Is the question unambiguous? There should be only one possible interpretation of the meaning of the question.
- Are there multiple plausible answers? If one made a wrong assumption or math mistake they might choose the alternative, wrong answer.
- There should be only one correct answer.
- The question should not be too hard. i.e., it should not require memorization of Pandas API calls, or complex calculations.
- The question should not be too easy. i.e., it should not be trivial.

For the answer part:

- Python questions must be validated with transcripts of actual python code and output. The example code should be completely self contained, including import statements, etc.

Other penalties:

- Question is fundamentally wrong -50%
- No answer is provided -50%
- No python transcript (if the question is python related) -50%

If acceptable overall for use as an exam question:

- +5%

Note that even if the question is "good enough" for use in the exam it may not actually be used.

## Example

```
Which is a better measure of portfolio performance, and why: Sharpe Ratio or cumulative return?

a) Sharpe Ratio is better because it considers P/E ratio and book value.
b) Cumulative return is better because it includes consideration of risk.
c) Cumulative return is better because risk does not matter.
d) Sharpe Ratio is better because it considers risk and return.

Correct answer is d) because Sharpe Ratio = sqrt(sampling_frequency) * mean(daily_return)
```

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