



FIN 3080 Investment Analysis and Portfolio Management

SPRING 2021 || CUHK(SZ)

PROJECT 1

Instruction:

1. You have **48** hours to complete the project and the deadline is on **Monday, 12:00(noon) March 8th, 2021**. Late submission of assignments will not be accepted.
2. Please submit your answer in PDF (name your file with the format “Student ID1+XXX, Student ID2+XXX, Student ID3+XXX”). One group member submits your group assignment.
3. Submit the **code files** as an attachment.

Contact:

TA1: Dandanli@link.cuhk.edu.cn TA2: shannonwang@cuhk.edu.cn

Case1

你的老板最近在一个会议上听说了原来资本市场上还有个 CAPM，想要了解下 CAPM 到底能不能解释中国市场上的股票回报率，于是让你利用周末去检验一下。你虽然学习过 CAPM 的原理，但是从来没有实际检验过，于是去查阅了相关资料，发现有两篇论文可以参考，这两篇论文用同样的方法分别检验了中国和美国股票市场上 CAPM 是否成立。通过学习这两篇论文你掌握了检验的方法，决定使用 2017 年 1 月 4 日至 2020 年 12 月 27 日间的深圳和上海主板（包括中小板）的所有股票周回报率进行 CAPM 检验。你老板大约懂得 CAPM 原理，但是显然没有读过这两篇论文，因此你需要仔细写明检验步骤和基本检验想法，以及所有结果。你老板当然喜欢更加直观的图表结果，但是你也想展示出自己的严谨性，因此要用表格结合图形的形式报告你的主要结论。

Case2

(1) 你在量化基金实习，你的老板在某个会议上听说有人通过交易小市值股票获得不错收益，因此想看看是不是真的如此，他让你去检验是不是小市值股票的回报率平均高于大市值股票。你决定使用沪深主板（包括中小板）所有股票来检验。你老板最喜欢简单直接的通过构造 10 个不同 portfolio，比较不同 portfolio 回报率来说明问题。

你希望在老板面前露一手，因此希望进一步探索其它可能产生高回报率的市场传言。

(2) 比如你听说股票市场上有所谓追涨杀跌的策略，根据过去 1 个月或者 3 个月的回报率来选股然后持有 1 月，再根据过去 1 个月或者 3 个月的回报率来选股票，持有一个月，每月如此，比如还是分 10 组，那些上月回报率高的股票是否下月平均回报率还是高？

(3) 最后，你听说巴菲特喜欢买便宜股票比如 P/B 比率比较低的股票，能否通过分组法来检验是否当前 P/B 比率低的股票未来的回报率比较高？（研究月度回报率一般我们都用 2006 年开始的月度数据）



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Case1

Recently your boss heard about CAPM model in a meeting. He wants to know whether CAPM can explain the return in the Chinese stock market, so he asks you to test it during the weekend. Though you have been studying about CAPM in class, you have never tested it by data, so you checked the relevant information and found that there are two papers you can refer to. These two papers use the same method to test whether CAPM holds in the Chinese stock market and the US stock markets. After studying these two papers, you know how to test it and decide to use the weekly returns of all stocks that listed on both Shenzhen and Shanghai main boards (including small and medium-sized boards) from January 4, 2017 to December 27, 2020 for CAPM testing. Your boss knows something about the principles of CAPM, but has not read these two papers, so you need to carefully write down the steps and explanations of your tests, as well as all the results. Your boss might prefer intuitive graphical results presenting, but you also want to show your rigorous thinking, so you need report your main findings in the form of tables combined with graphs.

Case2

- (1) You are an intern in a quantitative fund. Your boss heard that someone is winning good returns from trading small-capitalization stocks in a meeting, so he wants to see if this is the case. He asks you to test whether the small-cap stocks have an average return higher than large market capitalization stocks. You decide to use all stocks on the Shanghai and Shenzhen main boards (including the small and medium-sized boards) for the test. Your boss prefers simply and directly constructing 10 different portfolios and comparing the return rates of different portfolios to find the results.
- (2) Besides that, since you want to impress your boss, you also want to further explore other market rumors that may generate high returns. For example, you have heard that there is a strategy of chasing ups and downs in the stock market — select stocks based



on the rate of return in the past 1 month or 3 months, then hold them for 1 month, and when the next month comes, select stocks based on the rate of return in the past 1 month or 3 months..., and do it for every month. If you still build 10 portfolios based on this strategy, will those stocks with high returns in the previous month still have a high average return next month?

- (3) Finally, you heard that Buffett likes to buy cheap stocks, such as stocks with low P/B ratios. Can you use the sorting and grouping method to test whether stocks with low current P/B ratios will have higher returns in the future? (We generally use monthly data starting in 2006 when we study topics related to monthly return)