

FIN3080_Assignment 3 Report

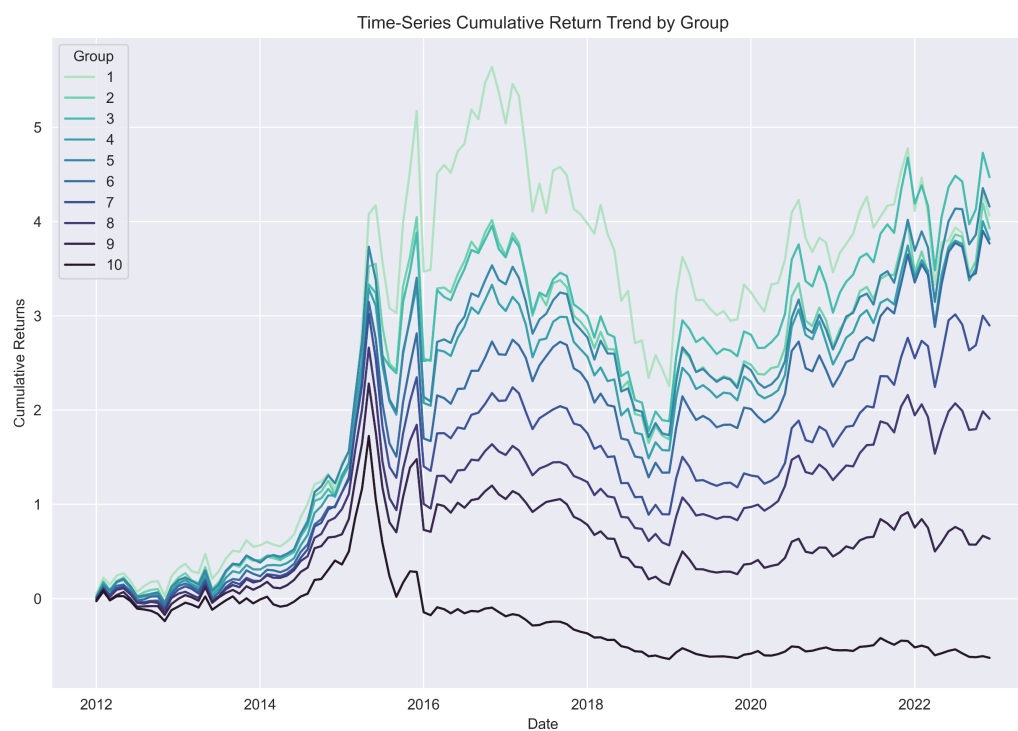
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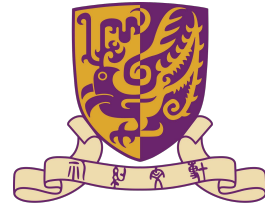
Problem 1

Problem 1-1: Plot a Bar Chart for Average Monthly Portfolios Returns



Problem 1-2: Plot Ten Time-Series for Cumulative Portfolio Returns





Problem 1-3: Discuss Findings

Finding 1

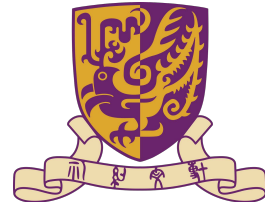
- **Observation:** In the bar chart, there is a crystal-clear relationship between group and average monthly return (The purple line trend). To be specific, for the portfolio / group with higher last month return, it has lower average monthly return.
- **Analysis:** There are several possible explanations
 - **Asset Pricing Perspective:** Explain with APT, higher the last month return, higher the beta value of different factors. For most of the stocks, betas of factors (Market Premium, Book-Market, Size etc) would change after one month, so the return will more likely to be lower in a month. So, for the portfolio with higher last month return, it has lower average monthly return.
 - **Corporate Finance Perspective:** Required rate of return of stocks are cost of equity. Cost of equity is affected by investor sentiment and dividend policy, these two factors would change from month to month generally, which means cost of equity is relatively unstable after one month. So, for the portfolio with higher last month return, it has lower average monthly return.

Finding 2

- **Observation:** In the bar chart, the trend is not obvious for the first three groups.
- **Analysis:**
 - The last month returns for the first three groups are small, and the difference between these groups is relatively small, so the average monthly returns of these groups are similar.

Finding 3

- **Observation:** Before 2022, the trend is that for the portfolio / group with higher last month return, it has lower cumulative return.
- **Analysis:** There are several possible explanations:
 - **Asset Pricing Perspective:** Explain with APT, higher the last month return, higher the beta value of different factors. For most of the stocks, betas of factors (Market Premium, Book-Market, Size etc) would change after one month, so the return will



more likely to be lower in a month. So, for the portfolio with higher last month return, it has lower cumulative return.

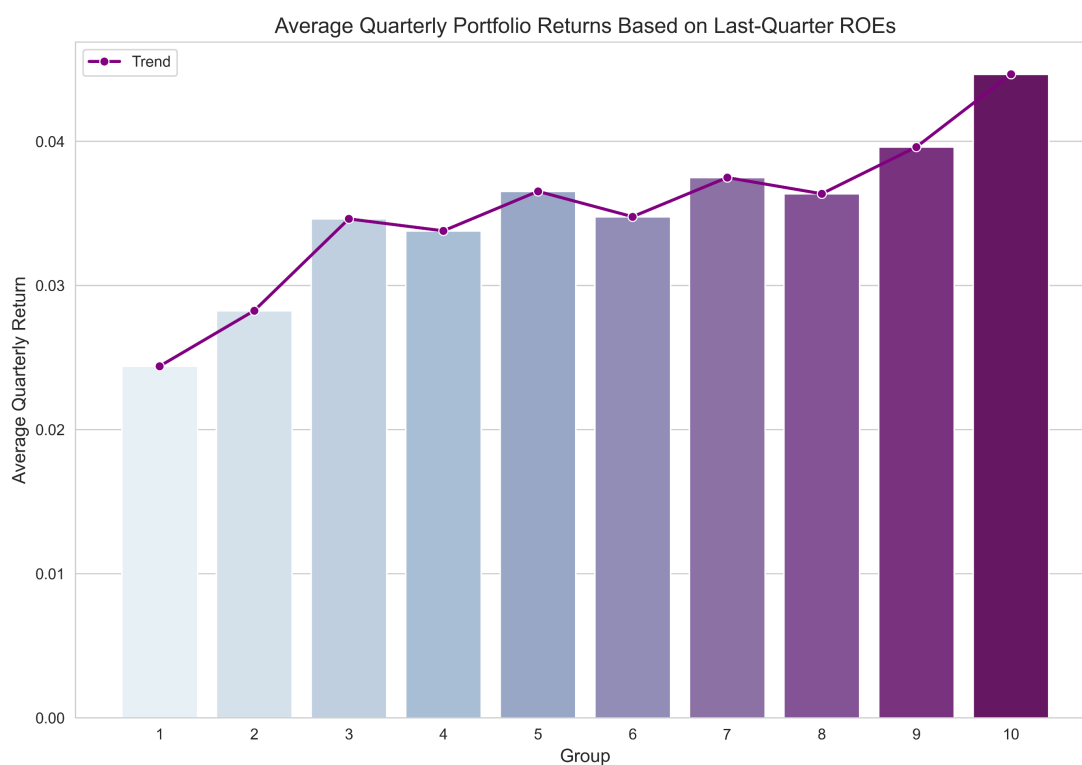
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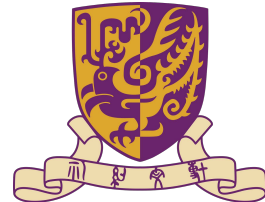
Finding 4

- **Observation:** Starting from 2022, cumulative returns for the first five groups converge together.
- **Analysis:**
 - My personal guess is that it may due to the development of quantitative finance. Quantitative traders may depend on such factor (Last month return) to make the alpha of this strategy close to 0. The outcome is that the cumulative returns for the first five groups converge together.

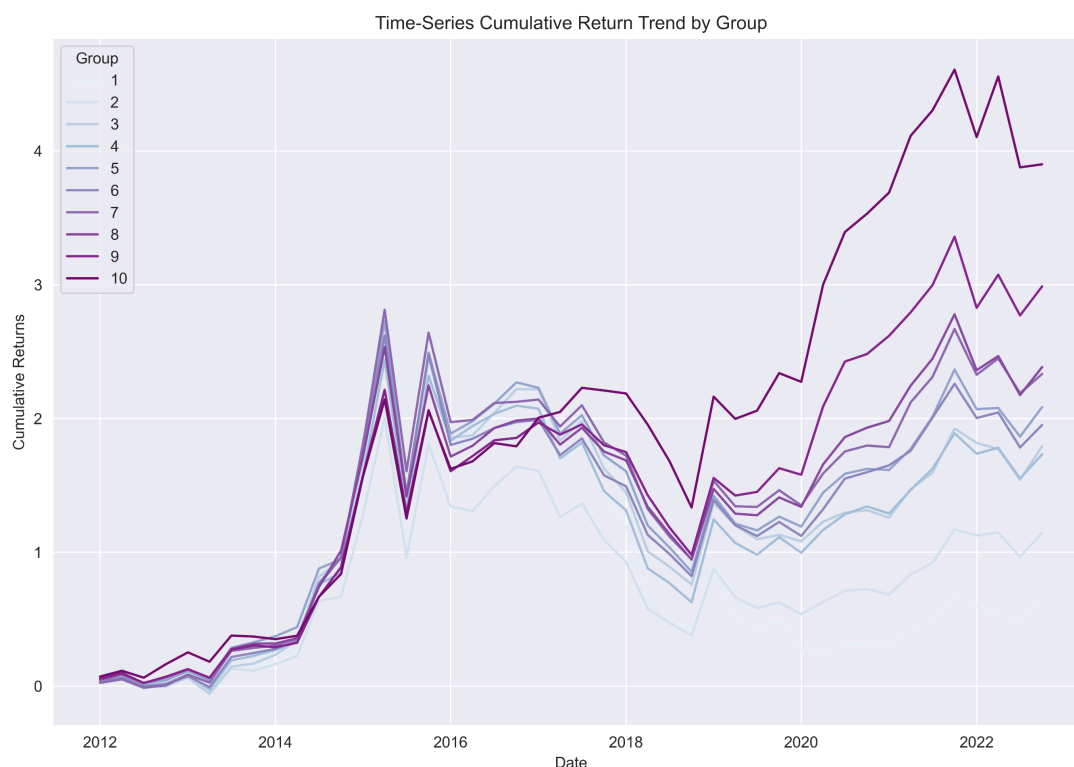
Problem 2

Problem 2-1: Plot a Bar Chart for Average Quarterly Portfolios Returns





Problem 2-2: Plot Ten Time-Series for Cumulative Portfolio Returns



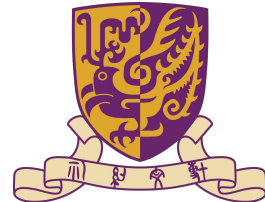
Problem 2-3: Discuss Findings

Finding 1

- **Observation:** In the bar chart, there is a crystal-clear relationship between group and average quarterly return (The purple line trend). To be specific, for the portfolio / group with higher last quarter ROE, it has higher average quarterly return.
- **Analysis:**
 - Higher ROE means higher earnings per equity, means higher profitability of the firm, means a more substantial positive cash flow in the future, which is more attractive to investors. Then the demand of the stock is higher, the stock price would be pushed up, then the stock return increases.

Finding 2

- **Observation:** From 2012 to 2018, the trends of all the portfolios are similar and synchronized. While starting from 2018, performance of different groups diverges, to be specific, for the group with higher last quarter ROE, it has higher cumulative return.
- **Analysis:** There are several possible explanations:



- The China Securities Regulatory Commission encourages companies to list, but lacks a sound system for delisting.
- Before 2018 (relative short term), most of listed firms behave relatively normally (Normal ROE), stock returns of listed companies with different earnings performance (different ROE) are similar.
- After 2018 (relative long term), defects of delisting system are exposed, the stock returns of listed companies with different earnings performance (different ROE) are clearly differentiated.

Data Acquisition and Data Processing Highlights

Data Acquisition Highlights

- **Return on Equity:** When accessing data from CSMAR, I set the condition “**Statement Type = Consolidated Statements**” since Consolidated statements reflect the financial position and operating results of the entire enterprise group while the Parent statements only reflect the business situation of the parent company.
- **Return on Equity:** Employ **Return on Equity - TTM** since TTM-version ROE provides a more up-to-date picture of a company’s ROE.
- **Market Type Extraction:** Market Type = 1, 4, 64 (Including SME)

Data Processing Highlights

- **Quarterly Return:** Quarterly returns are computed by compounding monthly returns.