Part 11: project 2 mini-presentation

2. What’s the methodology of the portfolio construction and how is it implemented in Project 2 codebase?

1) What is a long-short portfolio?

Long-short portfolio is an investment strategy that allows investors to achieve returns and reduce market risks by holding both long and short positions. In this strategy, investors buy assets they think will perform better than the market and short assets they think will perform worse. This strategy allows investors to look for profit opportunities when the market moves in any direction, whether up or down. This spreads risk across multiple assets and reduces reliance on the performance of a single asset or market.

2) Construction method:

In this project, the long-short portfolio return is calculated by subtracting the year-month equal-weighted return of the first quantile from the year-month equal-weighted return of the last quantile. By ranking the returns of stocks every month, and then ranking them into several segments. Will hold stocks in the best range and short stocks in the worst range. Because the rank will be different every month, the stocks selected each month may be different.

3) Code implementation:

A. Explain ETL: "Extract, Transform, Load". Extract data from multiple disparate data sources and clean and transform this data to meet analytical needs. Finally they are loaded into a centralized system for analysis.

Use the **read\_prc\_csv()** function to extract the adjusted closing price of the specified stock code within the defined date range from the CSV file. Then organize it into a pandas sequence.

 Use the **daily\_return\_cal()** function to calculate the daily return from the read price information.

 Use the **monthly\_return\_cal()** function to calculate the monthly return from the read price information.

 Finally, use the **aj\_ret\_dict()** function to summarize the two report results into a dictionary.

B. Calculate volatility: Calculate by analyzing stock price changes.

 Use the **vol\_cal()** function to calculate volatility. Here volatility is calculated by calculating the daily closing price standard deviation of the price.

 Use **merge\_tables()** to merge monthly volatility and monthly returns. Organize into tables to build a portfolio.

C. Construct an ls portfolio: buy stocks in the last quantile and short stocks in the first quantile every month.

 Use **strong\_sorting()** to divide stocks into q quantiles, and each stock is assigned a ranking based on characteristics.

 Use the **pf\_cal()** function to make investment decisions based on these quantiles, selecting long investments in the best-performing stocks and short investments in the worst-performing stocks to calculate the overall monthly return of the portfolio.