Chenyang Li

chenyangli@ece.utoronto.ca
sjtulichenyang@126.com

1 Basic static strategy description

Our basic static strategy can be described as follows:

1. Here, we set the trading period to be 10 days as an example, but in reality, we have the flexibility to adjust the investment frequency (e.g., daily, half-monthly, monthly, etc.).

2. For each stock i, calculate the return for a specific period of 10 days. Then calculate the average return m_i and standard deviation s_i for each stock. It's important to note that we use all available historical data from the first day to the last day to calculate m_i and s_i, and these values will not be updated during transactions. Essentially, we use future information in the previous trading strategy.

3. Calculate the optimal leverage based on the Kelly formula, which is given by $f_i = (m_i - R_f)/s_i^2$ (where R_f is the risk-free rate of return, set to 0 in this case).

4. Allocate the money to stock i based on the percentage $p_i = f_i / \sum f_i$. Besides, during transaction, we will set f_i to 0 under two conditions: 1) if $f_i < 0$, indicating a negative excess return, we should not invest, and 2) if the stock does not exist after 10 days, we will not invest.

5. Suppose we have \$1,000,000. We will start investing on the first day and then reallocate the money pool after every 10 days while running the strategies.

2 Results

Invest \$1,000,000 at the first day.

1)trading period=10; $f_i = 0$ if $f_i < 0$ or stock delisted after trading period ; the final cash amount is 3,698,925.72;

2)trading period=10; $f_i = 0$ if $f_i < 1$ or stock delisted after trading period ; the final cash amount is 4,090,989.91;

3)trading period=5; $f_i = 0$ if $f_i < 0$ or stock delisted after trading period; the final cash amount is 3,703,413.76;

4)trading period=5; $f_i = 0$ if $f_i < 1$ or stock delisted after trading period; the final cash amount is 4,072,062.33;

3 Graph

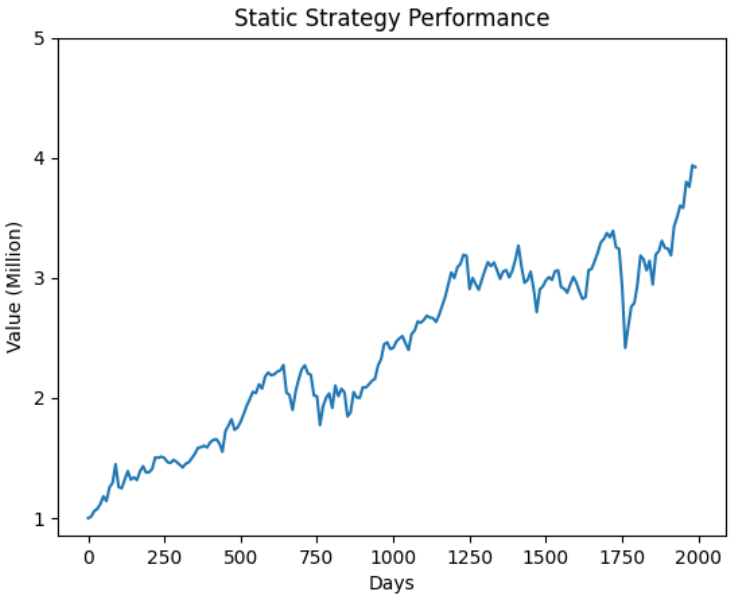

Figure 1: Trading period = 10; $f_i = 0$ if $f_i < 1$