MATH 584 Homework 3

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Before the writte up, I first claim some settings different from the problem statement. Due to the large time of running, I only use the first 2 assets to do problem 1 and 5 assets to do problem 2. And also for transaction costs I only do with Transaction cost $\lambda = 0$ case.

Problem 1

(a)

For this question, I use first 2 assets and test the strategy using T-costs $\lambda = 0$. I plot the relative PnL and absolute PnL process and save all PnL values in "absolute_PnL1.csv" and "relative_PnL1.csv" files.

The Sharpe Ratio for absolute PnL is -0.028858250792814597, and for relative PnL is too small to show.

The plot is as follows:

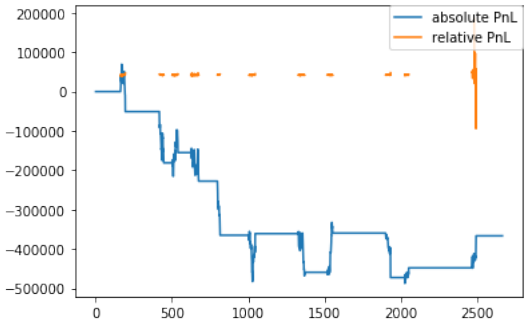

Figure 1: PnL process for asset 1

(b)

For this question, I use first 2 assets and test the strategy using T-costs $\lambda = 0$. I plot the relative PnL and absolute PnL process and save all PnL values in "absolute_PnL1b.csv" and "relative_PnL1b.csv" files.

The Sharpe Ratio for absolute PnL is -0.018348849866976644, and for relative PnL is too small to show.

The plot is as follows:

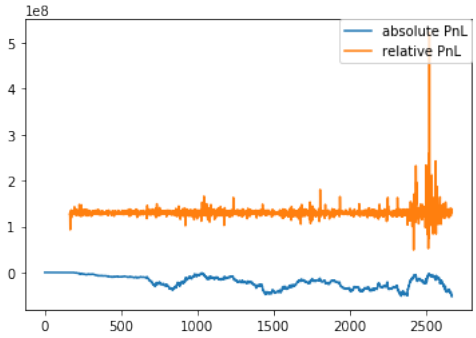

Figure 2: PnL process for asset 1

(c)

For this question, I use first 5 assets and test the strategy using T-costs $\lambda = 0$. I plot the relative PnL and absolute PnL process and save all PnL values in "absolute_PnL1b.csv" and "relative_PnL1b.csv" files.

The Sharpe Ratio for absolute PnL is 0.060693118141089165, and for relative PnL is too small to show.

The plot is as follows:

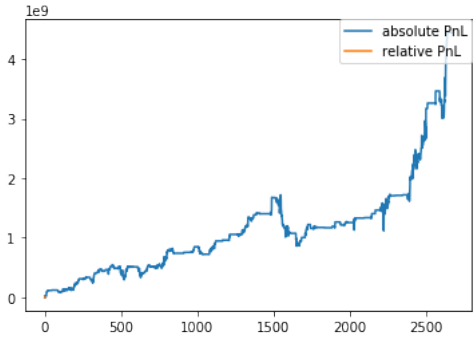

Figure 3: PnL process for asset 1