Hedge Fund Strategies and Risk

Research

Assignment 10: Implementation

- As always, do not share links or materials outside of students enrolled in this class.
- Show your work whenever possible.
- Generative AI is allowed for Learning but not Production (e.g. writing, solving, analyzing).
- Using common library functions is allowed, but recoding basics (beta etc.) is better practice.

The third week, we focus on coding and analyzing the strategy.

■ Assignment
  A. READINGS. Read any papers necessary for your research.
  B. EXERCISE. Research guidance and updates. See below. Keep in mind that these are done in groups, and their scores are combined into the final paper scores; update meetings are scored as groups and sometimes as individuals.
  C. CHALLENGE. See below. As Exercises are no longer independently graded, Challenges are essentially no longer extra credit (though they may improve your paper and thereby increase total score).
  D. GROUPING. Research. Complete the research in your groups.
    A. ***Please be careful not to plagiarize or use generative AI in the coming reports. I hate having to turn students in to the Dean's Discipline Process, but am under obligation to do so if a problem is observed.***
    B. Bring a physical printout (2-sided and stapled) of your write-up (should be just a few pages) for Professor to read more quickly.
  E. QUESTIONS. In your groups: Write a Question based on this week's class. Meet with your group to answer each others' questions, and fix or improve them if possible. Select the "best" one for the group (which will also be part of everyone's score). Transfer all individual Questions there in the format given. Mark the group-selected Question as instructed. Practice other groups' Questions if desired.

■ Exercise
  A. CODE. This is the main part of the assignment. Attach all code in an appendix (need not be printed). *Be absolutely sure not to look at any OOS data until Conclusion (week 5), as this is the one thing that cannot be taken back; failure to follow this rule will greatly hurt both your learning experience and your score.*
  B. PNL GRAPH. Show the cumulative simple daily pnl graph.
  C. SUMMARY STATISTICS. Calculate all stats as promised in the Specification.

D. ANALYSIS. Analyze the pnl graph and summary statistics.
E. EXPECTATION. Compare to your expectations as listed in your Highlights and analyze differences.

- Hints
  A. There is no language requirement; you are free to use whatever suits you. In hedge funds, we typically only care about the result. Of course, do not copy code from anywhere or use any pre-built simulation platforms.
  B. There should be only one line (unless you have an unusual pre-approval from the Professor; a single benchmark as a comparison is an exception). Remember to label axes appropriately.
  C. It's not too late to add further statistics if you have a need for more.
  D. Start by commenting on general shape and characteristics, and relate to correctness. We then typically explain any unusual behavior. Explanations may be economic, or commentary on strategy details (typically flaws).
  E. Make your best explanation for why your estimates were wrong (or right!).
- Challenge
  A. At least three team members code separately. Show all results. Compare and fix.
  B. Show with and without trx cost, long vs short.
  C. Per Research2Challenge.A.
  D. Include alpha or robustness checks.
  E. Also discuss your expectations of the differences in the original team member implementations of A, including bugs and different design decisions.