Cointegration, Error-Correction, and Pairs Trading

Finance 5330: Project 2

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Introduciton

This project is based on the research article *Illuminating the Profitability of Pairs Trading: A Test of the Relative Pricing Efficiency of Markets Water Utility Stocks* by Gutierrez and Tse (GT). GT examine the profitability of the basic pairs trading strategy. This strategy relies on identifying pairs of assets that are cointegrated. GT study stocks in the water utility industry in the hopes that pairs of them will be cointegrated.

Your assignment is to reproduce Exhibit 2 Panel A and Panel B, as well as Exhibit 3 (all panels) for the three stocks that they choose. The deliverable will be a Jupyter notebook with Julia or Python (or whatever) code that carries out the calculations and documents them. You should make tables of the results in your document and write several paragraphs of prose to explain the results.

This project does not require you to carry out the analysis for the actual trading strategy returns. Instead, you are required to discuss how the results you found in your analysis of cointegration and error-correction enable you to form such strategies. Outline a strategy of how you would use the econometric foundation from your analysis to set up and carry out pairs trading strategies in real life. What factors need to be considered when going from econometric models to real life trading? What data, systems, or other factors need to be considered? How does having an econometric foundation aid the process? What other statistical, machine learning, or econometric methods or procedures would aid your plan? What concerns about the process do you forsee as the portfolio manager?