Statistics 434: Bullet Points for Day 21

Co-integration and Statistical Arbitrage

When one reasons about asset prices, there is a recurring tension between "trend following" and "mean reversion." So far, almost all of the tools that we have considered in our course have had more to say about the "trend following." With the notion of co-integration we enter new territory. This territory includes some important economic ideas (such as purchase price parity), some ideas with a real hedge fund flavor to them (such as pairs trading), and some classic portfolio ideas (such as rebalancing).

- Comments on the Final Project and the Project Proposal
- Spurious Regressions — Where and Why
  1. Regression of two simulated random walks
  2. You get significant α and β "every time"
  3. How this trap shows up in the real world — and boy does it!
  4. A test to tell if a regression is spurious, or not
- Co-integration
  1. Two origins of the multipliers
     (a) Economic Theory — e.g. PPP
     (b) Pure Empirics — e.g. Regressing I(1)'s.
  2. The Error Correcting Interpretation and the Dog Story
- Co-integration and trading strategies
  1. Synthetic Indeces
  2. Pairs Trading
  3. Generalized Statistical Surrogates
  4. The "Constantly Rebalanced Portfolio"

Quote of the Day:

"Wishful thinking can dominate much of the work of a profession for a decade, but not indefinitely." — Robert Schiller in "From Efficient Market Theory to Behavioral Finance" (Cowles Commission Report, 2002)