

Statistics 434: Bullet Points for Day 15 Time Series Regression, CAPM, and the Three Factor Model

For us, time series regressions are typified by the Capital Asset Pricing Model (CAPM) and the Fama French Three Factor Model (FF3FM). We'll also add to your tool kit by discussing the likelihood function and its major applications: Maximum likelihood estimation and the likelihood ratio tests. You've actually been using these for all of your statistical career.

Finally, we'll take a more extensive look at the Akaike Information Criterion, which you may have seen in your regression course. Here the AIC also helps us to select models, but it can also be used to combine forecasts. It is the second kind of application that seems to offer the most promise in financial times eries.

- Discussion of the In-coming HW
- Time Series Regression
 1. CAPM
 2. Three Factor Model
 3. OLS in S-Plus (CAPM Examples)
- Probability Densities and the Likelihood Function
 1. Densities and Likelihood
 2. Maximum Likelihood Estimation
 3. The Likelihood Ratio Test
- Akaike Information Criterion
 1. Model Selection Tool
 2. The AIC Delta
 3. Using Deltas to express the “probability of a model”
 4. How to combine forecasts using AIC

Quote of the Day

“Clearly, some believe early empirical evidence is consistent with the CAPM. And, some believe recent evidence leads to the conclusion that the CAPM is dead. But others await a meaningful test.”

— Robert Grauer, in “Field Notes: Is the CAPM testable?” *Canadian Investment Review*