Introduction to Empirical Methods in Finance

This course is an introduction to empirical finance with a focus on selected topics and econometric methods. The course will cover time-series and cross-sectional properties of asset returns, empirical tests of asset pricing models and other topics time permitting. The interplay between asset pricing theories, statistical assumptions and relevant econometric techniques is explored in the context of published empirical work, including classical papers as well as a more recent research.

Prerequisites: Finance 911
Co-requisites: First-year course in econometrics

Course Material

- A list of assigned and suggested readings for each topic is given below. I expect you to read the assigned material before the class.

Course Evaluation

The course grade is based on the final take-home exam (60%), two “referee reports” (20%), and problem sets (20%). You may work on the problem sets in groups of no more than 4 people and submit a single group assignment; “referee reports” and the final exam require individual work and should not be discussed among students.

Course Outline with the Required(*) and Supplemental Readings

1. Return Moments and Temporal Dependence: distributional assumptions and sample moments of asset returns; notions of market efficiency; random walk tests; mean reversion and long-run predictability; time-averaging effects

   (*) CLM (1997), Chapters 1 & 2 (skip 2.6).


2. Asset Pricing Overview: pricing equation; stochastic discount factor; risk and risk premia; mean-variance frontier; expected return–beta representation; consumption-based CAPM; equity premium puzzle

(*) Cochrane (2005), Chapters 1 & 2, 8.1–8.2


3. CAPM – Time-Series and Cross-Sectional Tests: Gibbons-Ross-Shanken statistic; Fama-MacBeth procedure; portfolio approach to the tests; size and value premia; conditional v.s. unconditional tests

(*) CLM (1997), Chapter 5
(*) Cochrane (2005), Chapters 9.1, 8.3(pp.136-140, 143), 8.4, 12.3


4. GMM: general framework and asymptotics; estimation of the spectral density matrix; application to discount factor models; GMM v.s. MLE

(*) Cochrane (2005), Chapters 10 & 11, 14.1–14.2


5. Arbitrage and Multifactor Asset Pricing Models: estimation and testing of linear factor models; factor analysis and principal components; estimation of non-linear discount factor models; conditional tests

(*) CLM (1997), Chapter 6

(*) Cochrane (2005), Chapters 9.4, 12–16


6. Over-reaction, Risk v.s. Mis-pricing, Data-snooping Biases


7. Present-Value Relations and Time-Series Predictability: present-value relation and its testable implications, volatility tests, predictability regressions and finite-sample inference, VAR approach

CLM (1997), Chapter 7
Boudoukh J., M. Richardson, R. Whitelaw (2005), The myth of long-horizon predictability, NBER working paper 11841.


(*) Stambaugh R.F. (1986), Bias in regressions with lagged stochastic regressors, University of Chicago working paper 156.


8. Econometrics of Event Studies: measuring abnormal performance; size and power of event study tests; long-horizon event studies; event-time v.s. calendar-time approach; event endogeneity and cross-sectional tests

(*) CLM (1997), Chapter 4


9. Bootstrap Methods


10. TBA (time permits)