

NATIONAL TAIWAN UNIVERSITY
Department of Finance
Financial Econometric Methods and Applications

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3366–9541

Objective

The purpose of this course is to introduce econometric methods that are readily applied to finance topics. I will emphasize on the methodology and cover some applications. I will not provide “recipes” for these methods; instead, I will discuss the properties of these methods in details so that students can understand why and how these methods work. Some of the methods are still new and may be developed to dissertation topics. Students are strongly encouraged to pursue this possibility and discuss with me your ideas.

Prerequisite

The students who wish to take this course are expected to have completed the Ph.D. econometrics core courses in this Department. The knowledge of programming language (matlab, Gauss, or R) would be helpful, but not required.

Reading

1. Koenker, R. (2005). *Quantile Regression*, Cambridge University Press.
2. Kuan, C.-M. (2009). Lecture notes, Available at ceiba.ntu.edu.tw/972FEMA or homepag.ntu.edu.tw/~ckuan (please constantly check for new versions).
3. Singleton, K. J. (2006). *Empirical Dynamic Asset Pricing*, Princeton University Press.
4. Taylor, S. J. (2005). *Asset Price Dynamics, Volatility, and Prediction*, Princeton University Press.

Course Outline

Topic 1 Time Series Diagnostic Tests

1. Tests of serial uncorrelatedness
2. Tests of serial independence
3. Tests of time reversibility
4. Application: Tests of random walk and GARCH models

Topic 2: Bootstrap and Tests of Inequality Constraints

1. Bootstrap

2. Asymptotic properties
3. Stationary bootstrap
4. Application: Tests without data snooping bias

Topic 3: Generalized Method of Moments

1. GMM estimation methods
2. Asymptotic properties
3. Test of over-identifying restrictions
4. Application

Topic 4: Robust Tests

1. HAC estimation
2. KVB approach
3. Robust M test
4. Application: Robust test of serial correlatedness
5. Robust test of over-identifying restrictions

Topic 5: Quantile Regressions

1. Conditional quantiles
2. Estimation
3. Wald, rank-score and LR tests
4. Application: Return-volume relations

Office Hours: Friday 10–12 or by appointment.

Grading

1. The grade is determined by homework assignments (20%), a term paper (50%) and paper presentation (30%).
2. The term paper will be a review of some (published or unpublished) papers. The term paper should not be too long; a reasonable size is, with proper spacing, about 8–10 pages in \LaTeX and 16–20 pages in Microsoft Word. Each paper can have at most **two** co-authors. Please consult me on the topic of your paper before proceeding.
3. A presentation of the term paper is also required. If there are two co-authors, both must present the paper jointly.
4. The guidelines for the term paper and presentation will be distributed later.