Financial Econometrics (ECON I)

Alois Geyer (VGSF)

Email: alois.geyer@wu-wien.ac.at
Website: http://www.wu-wien.ac.at/~geyer

Course Description:

This course covers basic elements of regression and time series analysis. The idea is to cover a rather wide range of topics with a focus on understanding and applying key principles. Econometric theory is covered on a level, which is sufficient to understand empirical financial research and to appropriately use selected econometric techniques. Topics will be presented as far as possible in the context of financial theory and research. The course can also serve as a starting point for a more advanced course in econometrics.

Topics covered:

- Regression analysis (least squares, implications, interpretations)
- Finite and large sample properties of least squares estimates
- Maximum likelihood estimation; LM, LR and Wald tests
- Specifications and model selection
- Generalized least squares
- Endogeneity and instrumental variable estimation
- Generalized method of moments
- Financial time series analysis, ARMA models, nonstationary models, diffusion models in discrete time and GARCH models
- Vector time series models (VAR models and cointegration)
- State space modeling and the Kalman filter

Time Schedule:

Fri,	Feb 20,	14.00-17.30, WU-H46; MR-I
Sat,	Feb 21,	09.30-13.00, WU-H46; MR-I
Sat,	Feb 21,	14.00-17.30, WU-H46; MR-I
Mon,	Mar 9,	14.00-17.30, WU-H46; MR-I
Fri,	Mar 13,	09.30-13.00, WU-H46; MR-I
Fri,	Mar 20,	09.30-13.00, WU-H46; MR-I
Mon,	Mar 23,	14.00-17.30, WU-H46; MR-I
Wed,	Mar 25,	14.00-17.30, WU-H46; MR-I
Fri,	Mar 27,	09.30-13.00, WU-H46; MR-I
Mon,	Mar 30,	14.00-17.30, WU-H46; MR-I
Wed,	Apr 1,	14.00-17.30, WU-H46; MR-I
Thu,	Apr 2,	14.00-17.30, WU-H46; MR-I
Fri,	Apr 3,	09.30-13.00, WU-H46; MR-I
Mon,	Apr 6,	14.00-17.30, WU-H46; MR-I

Location:

Wirtschaftsuniversität Wien H46, 1190, Heiligenstädterstraße 46

Examination:

Wednesday Apr 15 (subject to change)

Course Prerequisites:

Mathematics (e.g. matrix algebra, polynomials, derivatives, etc.), statistics (e.g. probability theory, sampling distributions, hypothesis testing, etc.) and basic finance. Computing skills required: Excel and EViews. EViews is very easy to learn and use (mainly from watching me during class or using my EViews support)

Course Preparation:

Participants are expected to have read the appropriate sections (announced at the end of each class) from the lecture notes (see below). They should be well acquainted with the contents of the reviews. These will not be repeated during the course.

Assignments:

Participants have to do assignments based on the exercises specified in the lecture notes. The purpose of the assignments is to practice, to repeat the theory, and to obtain a collection of empirical evidence on financial data.
The assignments must be sent to alois.geyer@wu-wien.ac.at *at least one day before* the next lecture. Participants are expected to send their assignment in time even if they cannot attend.
Participants will be randomly selected to present the results of their assignments. This is a very informal presentation. However, participants should be prepared for questions asked during the presentation of their own or other participants' assignments.

Grading:

Grading will be based on assignments, questions asked during presentations, and *mainly* on the basis of the final exam.

Course materials:

Lecture notes Data files

Links: (if some of these link are broken you may want to inspect http://www.wu-wien.ac.at/ifr/people/geyer/links)

- EViews support (interactive slide-shows and other EViews related links)
- EViews tutorial (PDF-file by Joseph Hirschberg)
- John Cochrane's unpublished lecture notes "Time Series for Macroeconomics and Finance" (1997) available from Cochrane's web site in PDF or PS format.
- Rydberg, T.H. (1999), Realistic Statistical Modelling of Financial Data (PDF)(PS) (published in *International Statistical Review*).
- Teaching materials provided by Marcia Schafgans
- Teaching materials provided by Kevin Sheppard
- Lecture notes (several PDF files) by Joseph Hirschberg
- Data prepared by the Federal Reserve
- FRED: Federal Reserve Economic Data (over 3000 US economic time series)
- Companion website of Econometric Analysis by William Greene
- Data prepared by Robert Shiller
- Data prepared by Kenneth French
- Data used in the 2nd edition of the book "Analysis of Financial Time Series" by Ruey Tsay
- Data used in the book "The Econometric Modelling of Financial Time Series" by Terence Mills
- Data used in the book "A Guide to Modern Econometrics" by Marno Verbeek
- Data sources collected by D.J.C.Smant
- Yahoo Financial Statistics (retrieve historical market data from finance.yahoo.com using a spreadsheet written by Michael Kishinevsky)
- Historical Exchange Rates: O&A UBC
- Futures data created by Justin Chan, Jason C. Hsu, and Pedro Santa-Clara
- Econometric Benchmark Datasets
- Research in Finance (link collection)
- Resources in Econometrics and Finance (link collection)