Financial Econometrics

Professor: José Olmo
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Course Description

The course begins with basic concepts from cross-sectional regression analysis and time series. These concepts are paramount for developing more advanced methods for modeling nonstationary data and multivariate financial data. In particular, the course will cover multivariate methods such as Vector Autoregressive (VAR) processes and cointegration analysis for handling systems of variables. Each topic will be illustrated by computer sessions using STATA and real financial data.

Objectives

The objective of the course is to provide students with the econometric and statistical tools needed to carry out empirical analysis in Finance. After completion students will be familiar with the main techniques for modelling financial data, statistically testing financial hypotheses and determining suitable measures to assess credit and market risk.

Methodology

There will be 10 two-hour theory sessions with one-hour classes following each theory session. The theory sessions will develop the course material. The lectures are based on the main textbook and some additional readings that are complemented by slides which highlight the main concepts. Empirical examples will be used to illustrate the methodologies introduced in class using STATA.

The class sessions will teach how to use STATA to apply the techniques introduced in the theory sessions on real datasets. Students will also be assigned problem sets in which they will have to apply the techniques introduced in the lectures.

Evaluation criteria

The module will be assessed through two components: there is a coursework project with a weight of 25% of the final mark and a final exam with a weight of 75%.

For the coursework, students will have to choose a topic in finance, macroeconomics or banking with a strong empirical content.

Students are required to attend 80% of classes. Failing to do so without justified reason will imply a Zero grade in the participation/attendance evaluation item and may lead to suspension from the program.

As with all courses taught at the UPF BSM, students who fail the course during regular evaluation will be allowed ONE re-take of the examination/evaluation. Students that pass any Retake exam should get a 5 by default as a final grade for the course. If the course is again failed after the retake, students will have to register again for the course the following year.

In case of a justified no-show to an exam, the student must inform the corresponding faculty member and the director(s) of the program so that they study the possibility of rescheduling.
the exam (one possibility being during the “Retake” period). In the meantime, the student will get an “incomplete”, which will be replaced by the actual grade after the final exam is taken. The “incomplete” will not be reflected on the student’s Academic Transcript.

Plagiarism is to use another’s work and to present it as one’s own without acknowledging the sources in the correct way. All essays, reports or projects handed in by a student must be original work completed by the student. By enrolling at any UPF BSM Master of Science and signing the “Honor Code,” students acknowledge that they understand the schools’ policy on plagiarism and certify that all course assignments will be their own work, except where indicated by correct referencing. Failing to do so may result in automatic expulsion from the program.”

**Calendar and Contents**

Class 1 (Monday, 2 October): Time series and dynamic regressions  
Class 2 (Monday, 9 October): Unit roots and random walks  
Class 3 (Monday, 16 October): Unit roots and random walks (cont.)  
Class 4 (Monday, 23 October): ARCH models  
Class 5 (Monday, 30 October): ARCH models (cont.)  
Class 6 (Monday, 6 November): Multivariate models: VAR and Structural VAR models  
Class 7 (Tuesday, 7 November): Multivariate models: VAR and Structural VAR models (cont.)  
Class 8 (Monday, 13 November): Cointegration and cointegrated systems  
Class 9 (Monday, 20 November): Panel data analysis  
Class 10 (Monday, 27 November): Panel data analysis (cont.)

**Final exam: 11 December**

**Reading Materials / Bibliography/ Resources**

**Main readings**


**Some other econometrics textbooks**

The econometrics of financial markets, Campbell, Lo and MacKinlay, 1997  

**Bio of Professor**

Jose Olmo is Professor of Financial Economics at University of Southampton. He holds a BSc. in Mathematics from Universidad de Zaragoza and a PhD in Economics from Universidad Carlos III de Madrid. Previous to this appointment, Jose was Reader in Economics at University of Southampton, Associate Professor and ARAID Research Fellow at Centro Universitario de la Defensa, and Senior Lecturer at City University London. His main research interests are in

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Note: This document is only informational, detailed contents and faculty may change.