London South Bank University

EST 1892

Module Guide

Financial Econometrics

BBS_6_FIE

School of Business

Level 6

Table of Contents

1. MODULE DETAILS

Module Title:	Financial Econometrics
Module Level:	6
Module Reference Number:	BBS_6_FIE
Credit Value:	20
Student Study Hours:	200
Contact Hours:	60
Private Study Hours:	140
Pre-requisite Learning (If applicable):	BBS_5_ECO Introduction to Econometrics
Co-requisite Modules (If applicable):	Not applicable
Course(s):	BSc Economics courses
Year and Semester	Year 3 Semester 2
Module Coordinator:	Dr. Weiou Wu
MC Contact Details (Tel, Email, Room)	07590 852010, wuw6@lsbu.ac.uk, LRC Floor 2
Teaching Team & Contact Details (If applicable):	N/A
Subject Area:	Economics
Summary of Assessment Method:	50% Coursework and 50% in-class assessment
External Examiner appointed for module:	Dr Paraskevas Pagas

2. SHORT DESCRIPTION

This module focuses on the use of modern econometric methodology for dealing with problems in the area of finance and provides students with the econometric tools applied in the area. It applies the techniques of mathematics, statistics and econometrics to analyse financial data so as to understand and model the underlying financial and/or economic conditions. In achieving the above, use of specialist software packages i.e. Stata is employed to analyse real world examples. The examples and data are accessible through prestigious database Bloomberg. Empirical applications are considered in the stock, bond and exchange rate markets.

3. AIMS OF THE MODULE

The module aims to develop knowledge and understanding of the theories and tools used in financial econometric, so as to choose and apply the appropriate tools and techniques to carry out empirical analysis of financial markets efficiency, models of equity return, financial time-series data, asset pricing, volatility and risk measurement. The module also aims to develop the ability to reach conclusions in the domain of finance and financial economics problems by following appropriate analytic procedures.

4. LEARNING OUTCOMES

4.1 Knowledge and Understanding

On completion of the module students will be able to:

- Comprehensively understand the theories and tools of financial econometrics used in the area of finance.
- Analyse and model financial data using intermediate and sophisticated statistical/econometric techniques.

4.2 Intellectual Skills

On completion of the module students will be able to:

- Critically analyse and synthesise, including the ability to identify assumptions, evaluate statements in terms of evidence, to detect false logic or reasoning, to identify implicit values, and to define terms adequately and to generalise appropriately.
- Demonstrate effective quantitative problem solving and decision making skills will be enhanced building on previous econometric modules.

4.3 Practical Skills

On completion of the module students will be able to:

- Understand how to use the econometric package Stata and be familiar with Bloomberg.
- Develop extensive data management skills within the package Stata such as combining data sets using the merge, append commands.
- Combine an empirical research of primary data with a written report in order to present the results in the best manner.

4.4 Transferable Skills

Students will be able to advance their

- Mathematical and statistical skills,
- Use of information technology,
- Understanding of financial econometric methodologies, and
- Ability to critical analyse complex financial problems.

5. ASSESSMENT OF THE MODULE

Coursework and In-class Assessment

(i) A piece of group coursework circa 4,500 words (or equivalent to 1500 per individual student) to count for 50% of the marks for the module. This coursework will place great emphasis on the use of Stata software to solve and analyse empirical problems.

Deadline for Submission: 11:55PM on 18/05/2020 (Week 14)

(ii) A two-hour in-class individual assessment to count for 50% of the marks for the module. The assessment will place greater emphasis on the demonstration of basic technical and numerical skills, in the form of a problem-solving project using Bloomberg data in Stata.

Date and Time: 30/03/2020, 15:00 – 17:00 (Week 10)

6. FEEDBACK

Feedback will normally be given to students 15 working days after the final submission of an assignment or as advised by their module leader.

General feedback, applying to all students, will also be placed on the module VLE site within 15 working days.

7. INTRODUCTION TO STUDYING THE MODULE

7.1 Overview of the Main Content

- Downloading data.
- Data management for time series.
- Review of the CLRM assumptions.
- Time series approach: the autocorrelation function and the partial autocorrelation function. Concept of stationarity and non-stationarity in mean. Introduction to ARIMA models.
- Random walk models: Unit root tests for non-stationarity in the mean: Dickey fuller tests.
- Cointegration and Error Correction Models
- Modelling volatility: ARCH, GARCH models
- Forecasting
- Software: Application of theory in computer labs using Stata and Bloomberg

The above outlines the theoretical aspects of the module. In addition to the above the student will develop skills within Stata to produce appropriate econometric models which will, at the very least, enable the student to analytically interpret the underlying economic themes.

7.2 Overview of Types of Classes

This module will be delivered via a weekly 2 hour lecture and a 2 hour seminar in a computer suite.

Weekly lectures will provide the framework for the areas of study and computer-based seminars will enable students to practically implement and develop the knowledge gained in the lecture.

Weekly lectures will provide the framework for the areas of study. Laboratory and classroom based seminars will enable students to practically put to use the knowledge gained in the lecture by using different software. In addition the learning and teaching will be enhanced by VLE channels.

7.3 Importance of Student Self-Managed Learning Time

Student responsibility in the learning and development process will be emphasised. Students are required to undertake directed self-study and prepare solutions/discussions to questions relative to various topic areas. Students will be encouraged to identify for themselves particular problems of difficulty and to use seminar discussions, where appropriate, for the resolution

of these. Students must regularly access the Moodle site for this module. They should download the class/lecture material from the Moodle site, and do the recommended reading, before each lecture/class.

Where appropriate, students are also expected to spend additional time using the Bloomberg and Stata software, in order to derive maximum benefit from seminar time. The programme of teaching, learning and assessment gives guidance on the textbook reading required for each week, the purpose of which is to encourage further reading both on and around the topic

7.4 Employability

On completion of this module students should have the techniques of mathematics, statistics and econometrics to analyse financial data in a business context. These skills are essential for anyone anticipating employment within the accounting and/or finance sector.

8. THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

Week	Topic	Recommended Reading
1	Introduction to Time Series	Wooldridge, Chapter 10 pp.311-323
2	The CLRM and its assumptions	Wooldridge, Chapter 12 and Gujarati, Chapter 4
3	Linear and nonlinear Correlation	Elton and Gruber, Chapter 13
4	MA and AR Processes	Gujarati, Chapter 22 pp.838-839 and Wooldridge, Chapter 11 pp.346-348
5	ARMA and ARIMA Processes	Gujarati, Chapter 22 pp.839-846
6	Stationarity and Unit Roots	Alexander, Chapter II.5 pp.201-224
7	Cointegration and Error Correction	Alexander, Chapter II.5 pp.225-250
8	Non-Linearity and ARCH	Gujarati, Chapter 22 pp.856-862 and Mills, Chapter 4
9	GARCH and Volatility	Gujarati, Chapter 22 pp.856-862
10	Forecasting	Gujarati, Chapter 22

9. STUDENT EVALUATION

Towards the end of the Semester you will be invited to complete a standardised evaluation questionnaire relating to this module.

10. LEARNING RESOURCES

Reading List

Core Reading:

- Koop, G. (2005) Analysis of Financial Data, Wiley
- Wooldridge, J. (2012) Introductory Econometrics: A Modern Approach
- Gujarati, D.(2011) Basic Econometrics, McGraw Hill.

Additional Reading:

- Mills, T. C., The Econometric Modelling of Financial Time Series, C.U.P. 1999.
- Watsham TJ and Parramore K, Quantitative Methods in Finance, ITP, 1998.
- Pindyck, R. and Rubenfeld D, Econometric Models and Economic Forecasts, Mcgraw Hill, 1999.