

IB2B2-15 Financial Econometrics

26/27

Department

Warwick Business School

Level

Undergraduate Level 2

Module leader

Richard White

Credit value

15

Module duration

10 weeks

Assessment

Multiple

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module aims at providing a solid training in econometric methods for the empirical analysis of financial markets. The core of the module is an undergraduate-level introduction to financial econometrics, and it is meant to equip the student with the quantitative skills needed for carrying on research projects in empirical finance.

A key part of the module is the use of the program MATLAB, which will be used to perform empirical analysis, the project and to aid learning and understanding of the techniques taught. It is also an introduction to using programs more generally.

The use of MATLAB can be a little daunting in the first instance and has a steep learning curve. However, its use has many benefits - as a method of learning and acquiring some transferable basic programming skills. Throughout the course, we will use it as simply as possible, performing basic tasks. NOTE: MATLAB will NOT be examined in the in person exam (70% of overall mark), BUT is required to be used for the group project (20% of overall mark).

The second challenging aspect of the course that students have found difficult is the use of matrix algebra when describing the linear regression model (with more than one variable). I appreciate it is difficult, but would like to emphasise that most of the course does not require explicit use of it, and once we have established some properties/formula then we can proceed. This material will be examinable in the summer exam (not the group project)

The module is challenging, requiring significant effort and application, but the skills acquired are necessary for data analysis and for appreciating the value of rigorous empirical evidence, and as such, they are useful when considering future careers. They are also intellectually rewarding.

This module is only open to WBS undergraduate students, and some students taking joint degrees with WBS and another department. Students from other departments cannot take this module. To find detailed availability and to apply for this module, log in to my.wbs.ac.uk using your normal IT login details and apply via the my.wbs module application system. Once you've secured a place on my.wbs you should apply via your home department's usual process, which usually takes place via eVision.

Note that you do not require the module leader's permission to study a WBS module, so please do not contact them to request it.

[Module web page](#)

Module aims

The module aims to provide a solid grounding in the principles and techniques of modern financial econometrics. In doing so, it will serve as an introduction to key econometric and statistical methods of empirical investigation in Finance and Financial Economics.

The module aims to equip students with the following competencies, in particular:

1. Establish the specific characteristics of a financial dataset.
2. Undertake empirical analysis of financial-markets data.
3. Understand the features of univariate time-series modelling.
4. Use of econometric software packages as tools for quantitative and statistical analysis.

Teaching will be via lectures and seminars, where the seminars go through problems and questions related to the lecture material and show practical applications of the concepts and techniques introduced in lectures.

To illustrate concepts the chosen software for the course is sometimes used.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

The linear regression model – single and multiple variable (cross-sectional), using some basic matrix algebra

Hypothesis testing, dummy variables, heteroskedasticity

Regression analysis with Time Series Data

Trends, Non-stationarity, Unit roots, Cointegration

Forecasting using ARIMA models

Panel data estimation: fixed effects/first differences

Learning outcomes

By the end of the module, students should be able to:

- Explain the theoretical principles underpinning a suite of introductory econometrics and statistical tools.
- Select the most appropriate model specification and econometric setup to answer a research question in empirical Finance.
- Assess the robustness and power of a suite of statistical and econometric techniques for analysing financial data.

Indicative reading list

[Reading lists can be found in Talis](#)

Subject specific skills

Upon successful completion of the module, students will be able to:

- (a) carry out robust empirical analysis of cross-sectional, time-series and panel data in Finance.
- (b) critically evaluate and replicate aspects of published empirical finance studies.

Transferable skills

Upon successful completion of the module, students will be able to:

- (a) design and undertake small inquiry-based projects in empirical finance.
 - (b) critically evaluate a range of econometric techniques for analysing financial data.
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Study

Study time

Type	Required
Lectures	10 sessions of 1 hour (7%)
Seminars	9 sessions of 1 hour (6%)
Online learning (independent)	10 sessions of 1 hour (7%)
Private study	48 hours (32%)
Assessment	73 hours (49%)
Total	150 hours

Private study description

No private study requirements defined for this module.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group D5

	Weighting	Study time	Eligible for self-certification
Group Report	20%	14 hours	No
Participation	10%	8 hours	Yes (extension)
Participation/attendance at seminars and lectures and activities via my.wbs.			
Centrally-timetabled examination (On-campus) Exam	70%	51 hours	No

- Answerbook Gold (24 page)
- Students may use a calculator

Assessment group R5

	Weighting	Study time	Eligible for self-certification
Individual Assignment	30%		Yes (extension)
In-person Examination - Resit Exam	70%		No

- Answerbook Gold (24 page)

Feedback on assessment

In-class and on my.wbs

[Past exam papers for IB2B2](#)

Availability

Pre-requisites

To take this module, you must have passed:

- All of
 - [IB122-15 Business Analytics](#)

Anti-requisite modules

If you take this module, you cannot also take:

- EC203-30 Applied Econometrics
- EC226-30 Econometrics 1

Courses

This module is Optional for:

- Year 2 of UIBA-NN02 BSC International Management with Marketing
- Year 2 of UIBA-NN01 BSC Management with Marketing
- Year 2 of UIBA-NN03 BSC Management with Marketing (With Placement Year)
- UIBA-N20B BSc in Management
 - Year 2 of N20B Management
 - Year 2 of N20B Management
 - Year 2 of N23K Management with Accounting
 - Year 2 of N234 Management with Digital Business
 - Year 2 of N235 Management with Entrepreneurship
 - Year 2 of N232 Management with Finance
 - Year 2 of N252 Management with Marketing
 - Year 2 of N23L Management with Strategy and Organisation
- Year 2 of UIBA-N400 Undergraduate Accounting and Finance
- Year 3 of UIBA-N403 Undergraduate Accounting and Finance (with Foundation Year)
- UIBA-N401 Undergraduate Accounting and Finance (with Placement Year/Undergraduate Partnership Programme)
 - Year 2 of N401 Accounting and Finance (Placement)
 - Year 2 of N402 Accounting and Finance (Undergraduate Partnership Programme)
- Year 2 of UGEA-RN21 Undergraduate German and Business Studies
- Year 2 of UIPA-L8N1 Undergraduate Global Sustainable Development and Business
- UIBA-N20F Undergraduate International Management
 - Year 2 of N20F International Management
 - Year 2 of N20F International Management
 - Year 2 of N20S International Management (with Accounting)
 - Year 2 of N20T International Management (with Chinese)

- Year 2 of N20P International Management (with Entrepreneurship)
- Year 2 of N20M International Management (with Finance)
- Year 2 of N20U International Management (with French)
- Year 2 of N20L International Management (with Marketing)
- Year 2 of N20V International Management (with Spanish)
- Year 2 of N20W International Management (with Strategy and Organisation)
- Year 2 of N20N International Management with Digital Business
- Year 2 of N20E Management (with Foundation Year)
- Year 2 of N234 Management with Digital Business
- UIBA-N20J Undergraduate Management (with Foundation Year and Placement Year/Undergraduate Partnership Programme)
 - Year 3 of N20J Management (Foundation Year and Placement)
 - Year 3 of N20K Management (Foundation Year and UPP)
 - Year 3 of N23H Management with Digital Business (with Foundation Year and Placement Year)
 - Year 3 of N23J Management with Entrepreneurship (with Foundation Year and Placement Year)
 - Year 3 of N23G Management with Finance (with Foundation Year and Placement Year)
 - Year 3 of N255 Management with Marketing (with Foundation Year and Placement Year)
- UIBA-N20E Undergraduate Management (with Foundation Year)
 - Year 3 of N20E Management (with Foundation Year)
 - Year 3 of N23N Management with Accounting (with Foundation Year and Placement Year)
 - Year 3 of N23M Management with Accounting (with Foundation Year)
 - Year 3 of N23E Management with Digital Business (with Foundation Year)
 - Year 3 of N23F Management with Entrepreneurship (with Foundation Year)
 - Year 3 of N23D Management with Finance (with Foundation Year)
 - Year 3 of N252 Management with Marketing
 - Year 3 of N254 Management with Marketing (with Foundation Year)
 - Year 3 of N23P Management with Strategy and Organisation (with Foundation Year)
- UIBA-N20C Undergraduate Management (with Placement Year/Undergraduate Partnership Programme)
 - Year 2 of N20M International Management (with Finance)
 - Year 2 of N20B Management
 - Year 2 of N20D Management (Undergraduate Partnership Programme)
 - Year 2 of N20C Management (with Placement Year)
 - Year 2 of N20Q Management with Accounting (with Placement Year)
 - Year 2 of N236 Management with Digital Business (with Placement Year)
 - Year 2 of N237 Management with Entrepreneurship (with Placement Year)
 - Year 2 of N232 Management with Finance
 - Year 2 of N233 Management with Finance (with Placement Year)
 - Year 2 of N253 Management with Marketing (with Placement Year)
 - Year 2 of N23L Management with Strategy and Organisation
 - Year 2 of N20R Management with Strategy and Organisation (with Placement Year)