ECON334

Financial Econometrics

S1 Day 2014

Economics

Contents

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General Information

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Credit points
3

Prerequisites
27cp including (6cp at 200 level including (ECON241 or STAT272))

Corequisites

Co-badged status

Unit description
This unit is highly recommended for students majoring in economics and finance. Finance professionals use econometric techniques in portfolio management, risk management and securities analysis. This unit is intended to provide students with the tools necessary for financial applications. Statistical techniques are developed within the context of particular financial applications. Recent empirical evidence is also discussed. Although ECON232 is not a prerequisite, it is highly recommended.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Apply financial econometric tools to modeling, estimation, inference and forecasting of financial data.

Understand different estimation methodologies.

Critically evaluate empirical econometric work.

Present comprehendible results to a non-technical audience.

Assessment Tasks

Name	Weighting	Due
Class Test	30%	Week 7
Individual Assignment	20%	Week 10
Final Examination	50%	University Examination Period

Class Test

Due: **Week 7**
Weighting: **30%**

The class test will be held during the lectures in Week 7. The test will cover all material up to and including Week 6. A calculator is needed for the test and attendance is compulsory. If you fail to attend the test you will be awarded a zero mark. There will be no catch-up or supplementary examinations. Students who experience serious misadventure and are unable to attend either test should submit a letter with appropriate documentary evidence to the Faculty of Business and Economics Student Services (BESS in E4B106) **within 5 days of the test**.

On successful completion you will be able to:

- Apply financial econometric tools to modeling, estimation, inference and forecasting of financial data.
- Understand different estimation methodologies.

Individual Assignment

Due: **Week 10**
Weighting: **20%**

The assignment is due at **4pm on Friday of Week 10**. Extensions are generally only granted for medical reasons or as a result of other extenuating circumstances, and must be agreed upon with the lecturer before the deadline for assignment submission has passed. If no arrangement is in place, assignments will be penalised at a rate of 20% per day or part thereof that the assignment is late. For example, if an assignment is late by less than 24 hours, 20% of the final mark will be deducted as penalty; if an assignment is late by more than 24 hours but less than 48 hours, 40% of the final mark will be deducted as penalty. Students are strongly recommended to keep a photocopy of their assignment to ensure against loss. In early Week 10, tutorial boxes designated ECON334 will be prepared in the Business and Economics Student Services (BESS, E4B106) where students can submit their assignments. In addition, students must also submit an

electronic copy through iLearn.

On successful completion you will be able to:
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Final Examination

Due: **University Examination Period**
Weighting: **50%**

A two-hour examination will be held in the final examination period. It will contribute 50% of your final raw score. The final examination will be based on all the work covered throughout the duration of the semester. The exam will include a mixture of theoretical and numerical questions. Students will be provided with further details regarding the exam as it approaches.

Computer outputs and statistical tables are provided. Non-programmable calculators without alphabetic storage capability and an A4 page with hand-written or type-in notes are allowed into the examination room. The time and venue of the exam will be organised and announced in due time by the University.

You are expected to present yourself for examination at the time and place designated in the University Examination Timetable. The timetable will be available in Draft form approximately eight weeks before the commencement of the examinations and in Final form approximately four weeks before the commencement of the examinations. http:// exams.mq.edu.au/.

The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration. The University's policy on special consideration process is available at http://www.mq.edu.au/policy/docs/special_consideration/policy.html.

If a Supplementary Examination is granted as a result of the Special Consideration process the examination will be scheduled after the conclusion of the official examination period.

Important Notes

Your final mark for the course will be based on the weights and raw marks allocated for each assignment or examination. However, your mark may not be the same number as produced by that formula, as scaling of marks may be necessary to obtain an appropriate distribution of grades. The scaling applied will preserve the order of marks (i.e. if your raw mark exceeds that of another student, then your scaled mark will exceed the scaled mark of that student), and may be either up or down.

On successful completion you will be able to:

- Apply financial econometric tools to modeling, estimation, inference and forecasting of financial data.
- Understand different estimation methodologies.
- Critically evaluate empirical econometric work.

Delivery and Resources

Classes

- Number and length of classes: 3 hours face-to-face teaching per week consisting of 1 x 2 hour lecture and 1 x 1 hour tutorial
- The timetable for classes can be found on the University web site at:http://www.timetables.mq.edu.au/

Required and Recommended Texts and/or Materials

The prescribed text for the unit is:

Brooks, C. (2008) Introductory Econometrics for Finance, 2nd Edition, Cambridge, University Press.

It can be purchased from the Macquarie University Co-op Bookshop, and it is also available in the Macquarie Library. Additional, useful but not required, references include:

o Campbell, J., Lo, A., and Mackinlay, C. (1997) The Econometrics of Financial Markets, Princeton University Press, (this book may be too advanced for our class, but contains a lot of interesting material)

o Ruey S. Tsay. (2011) Analysis of Financial Time Series, 3rd Edition, John Wiley Press.

• Material such as lecture slides, examples, and tutorial questions will be available on the unit home page. The text and lecture notes, together with the lectures and additional references will provide students with a clear indication of the basic content of the unit.

• It is recommended that students attend all lectures and tutorials for several reasons including:

o Not all the material in the text is included in the unit, and not all the material in the unit is covered in the text. In some places the text deals with issues in greater depth than is necessary for the unit, and in other places it doesn't go far enough. The lectures contain all the unit material taught at the level required for the assessment tasks, and are your guide to the unit content.

o The approaches to some problems that are recommended by the lecturer are different to those in the text.

o The lectures will include guidance about the style and content of the final exam and recommendation about study technique.

o It is difficult (and often impossible) for staff to provide meaningful assistance to students outside class times on topics for which they did not attend the relevant lectures and tutorials.

Technology Used and Required

Students are required to use a computer to carry out certain tasks of the course, such as tutorials and assignments. The software programs used in this course include EViews 7.0 and Microsoft Excel. Students do not have to use EViews 7.0 to perform their tutorial and assignment tasks if they are familiar with other programs, but discussions in the lectures and tutorials, as well as in the test and examination questions will be based on output that is produced using EViews.

Unit Web Page

• Course material is available on the learning management system (iLearn), which can be found at: http://ilearn.mq.edu.au.

• The following information will be available on iLearn:

- Unit Guide
- Announcements
- Lecture slides
- Selected tutorial solutions
- Information on Assessments
- Staff consultation hours and contact details
- Other relevant material

You are strongly encouraged to regularly visit the website and use it as a resource centre to assist with your learning. If you are unable to access the website because you are not aware of or have forgotten your username and password, please contact the IT helpdesk located on Level 1 of the Library on 9850 6500. The IT helpdesk will also be able to assist you with using iLearn. Please remember to log out when you have finished using iLearn. Failure to do so could result in unauthorised access to your account.

Learning and Teaching Activities

This unit is taught as a mix of tutorials and lectures. The lectures are designed to provide the tools which can then be applied in tutorials. Tutorials are based mainly on empirical applications which require the use of econometric software packages. How to use these packages is taught in tutorials which are held in the computer labs.

- Lectures – large group learning (2 hour each teaching week)
- Self-study activities – learning by doing (about 6 hours each teaching week and 9 hours each week during the 2-week mid-semester recess)
- Tutorials –small group learning (1 hour each teaching week)

Unit Schedule

The list below is a proposed study plan, but this may be modified as we progress through the semester to allow us to take more or less time with different sections of the course as required.

Week No.	Lecture Topic	Tutorials
1	Understanding Financial Data, Revision of Basic Statistical and Mathematical Concepts – textbook Ch.1 + lecture notes	
2	Review of regression and hypothesis testing – textbook Ch. 2 + lecture notes	Tutorial Week 2
3	Review of regression and hypothesis testing – textbook Ch. 3 + lecture notes	Tutorial Week 3
4	Review of regression and hypothesis testing – textbook Ch. 4. + lecture notes	Tutorial Week 4
5	Stationary time series models and forecasting – textbook Ch. 5 + lecture notes	Tutorial Week 5
6	Stationary time series models and forecasting – textbook Ch. 5 + lecture notes	Tutorial Week 6
7	CLASS TEST	Tutorial Week 7
	MID-SEMESTER BREAK	
8	Modeling Volatility – textbook Ch. 8 + lecture notes	Tutorial Week 8
9	Modeling Volatility – textbook Ch. 8. + lecture notes	Tutorial Week 9
10	Models with Trend – textbook Ch. 8 + lecture notes Assignment due Friday 4pm at BESS	Tutorial Week 10
11	Multivariate Models - textbook Ch. 6 + lecture notes	Tutorial Week 11
12	Long-Run Relationships in Finance - textbook Ch. 7 – textbook Ch. 8	Tutorial Week 12
13	Review	Tutorial Week 13

Learning and Teaching Activities

Lectures - large group learning (2 hour each teaching week)

Lectures are intended to provide an overview of statistical and econometrics techniques that are critical to the core themes of the unit. Students are expected to read the relevant chapters before

each lecture. Additional reading material such as academic papers and research reports will be provided on the website.

Self-study activities - learning by doing (about 6 hours each teaching week and 9 hours each week during the 2-week mid-semester recess)

ECON334 relies heavily on independent learning where students read the relevant chapter, revise the lecture notes, prepare answers to the pre-set tutorial questions and extend themselves by doing additional reading, questions, exercises and problems.

Tutorials - small group learning (1 hour each teaching week)

Tutorials constitute a critical learning experience of this unit and students must attend them. The tutor will facilitate a highly student-centred discussion of answers to pre-set tutorial questions. A tutorial is also an active forum to present to the tutor difficulties you encountered when preparing for the pre-set tutorial questions. Ask your tutor questions and further guidance on how to approach questions. Students are expected to complete the tutorials empirical work and attempt the tutorial questions before each tutorial.?

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://informatics.mq.edu.au/help/.

When using the University's IT, you must adhere to the Acceptable Use Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Apply financial econometric tools to modeling, estimation, inference and forecasting of financial data.

- Understand different estimation methodologies.
- Critically evaluate empirical econometric work.

Assessment tasks

- Class Test
- Individual Assignment
- Final Examination

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Apply financial econometric tools to modeling, estimation, inference and forecasting of financial data.
- Understand different estimation methodologies.
- Critically evaluate empirical econometric work.

Assessment tasks

- Class Test
- Individual Assignment
- Final Examination

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcome

- Present comprehendible results to a non-technical audience.

Assessment tasks

- Class Test

• Individual Assignment

• Final Examination

Research and Practice

• This unit uses research by Macquarie University researchers as follows:

1. Joyeux, R., and Milunovich, G., (2010) "Testing Market Efficiency in the EU Carbon Futures Market", *Applied Financial Economics*, 20(10), 803- 809.

2. Shi, S., & Arora, V. (2012). "An application of models of speculative behaviour to oil prices", *Economics Letters*, *115*(3), 469-472.

3. Shi, S. (2013), "Specification sensitivities in the Markov-switching unit root test for bubbles", *Empirical Economics*, *45*(2), 697-713.

4. Phillips, P. C., Shi, S., & Yu, J. (2013), "Specification Sensitivity in Right-Tailed Unit Root Testing for Explosive Behaviour", *Oxford Bulletin of Economics and Statistics*, forthcoming.

• This unit uses research from external sources (as referenced in the textbook)

• This unit gives you practice in applying research findings in your assignments

• This unit gives you opportunities to conduct your own research