AFIN329

Derivative Instruments

S1 Evening 2017

Dept of Applied Finance and Actuarial Studies

Contents

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General Information

Unit convenor and teaching staff
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Credit points
3

Prerequisites
6cp at 200 level including (AFIN252 or AFIN270 or STAT272)

Corequisites

Co-badged status

Unit description
This unit explores the characteristics and pricing of derivatives. The importance of the
principles of hedging and arbitrage in derivative pricing, is considered. Derivatives
investigated include forwards, futures, options and various structured products. In particular,
the unit covers non-standard securities and numerical methods.

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:

> Understand the concepts of option pricing theory and the role of derivatives
>
> Apply financial derivatives such as forward/futures and options to solve quantitative problems
>
> Develop skills to price options and other derivatives.
>
> Examine the principles of hedging, arbitrage theory and structured products

General Assessment Information

It is the responsibility of students to view their marks for each within session assessment on iLearn within 20 working days of posting. If there are any discrepancies, students must contact the unit convenor immediately. Failure to do so will mean that queries received after the release of final results regarding assessment tasks (not including the final exam mark) will not be addressed.

Assessment criteria for all assessment tasks will be provided on the unit iLearn site.

Assessment Tasks

Name	Weighting	Hurdle	Due
Early Diagnostic Assessment	5%	No	Week 4
Class Test	35%	No	Week 7
Final Examination	60%	No	University Examination Period

Early Diagnostic Assessment

Due: **Week 4**
Weighting: **5%**

Submission

The Early Diagnostic Assessment is an online multiple choice quiz that will be held in Week 4. Refer to iLearn for for further details closer to the date.

No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task, except for cases in which an application for disruptions to studies is made and approved.

Please use the quiz as an indicator of whether you are progressing satisfactorily in the unit. If you are having difficulties, please see the Unit Convenor and consider withdrawing before the submission date in Week 4.

On successful completion you will be able to:

- Understand the concepts of option pricing theory and the role of derivatives
- Examine the principles of hedging, arbitrage theory and structured products

Class Test

Due: **Week 7**
Weighting: **35%**

Submission

The Class Test is scheduled to be held during regular lecture day and time in *Week 7*. Refer to iLearn for further details (test venues will be posted closer to the class test date).

Total time available for the class test is 90 minutes. The class test is based on topics covered during lectures 1 to 5, inclusive. No dictionaries of any kind are allowed in the class test. Non-programmable calculators are allowed, provided that they are not capable of storing text.

During the exam you will be provided with a formula sheet (attached to the back of your exam paper). It will contain useful formulas that have been encountered during the course, however it the student's responsibility to identify the correct formula to be used for any particular question within the paper.

Penalties

No extensions will be granted. There will be a deduction of 10% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission – 20% penalty). This penalty does not apply for cases in which an application for disruption of studies is made and approved. No submission will be accepted after solutions have been posted.

On successful completion you will be able to:

- Apply financial derivatives such as forward/futures and options to solve quantitative problems
- Develop skills to price options and other derivatives.

Final Examination

Due: **University Examination Period**
Weighting: **60%**

Examination conditions

The **final exam** is based on topics covered during lecture weeks 1 to 13, inclusive. Total time available for the final examination is 2 hours plus 10 minutes reading time. No dictionaries of any kind are allowed in the final examination. Non–programmable calculators are allowed, provided that they are not capable of storing text.

During the exam you will be provided with a formula sheet (attached to the back of your exam paper). It will contain useful formulas that have been encountered during the course, however it the student's responsibility to identify the correct formula to be used for any particular question within the paper.

The University Examination period commences on 12 June 2017. 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://www.timetables.mq.edu.au/exam

The University recognizes that students may experience disruptions that adversely affect their academic performance in assessment activities. In case of an unavoidable and unexpected event or illness, an application for disruption to studies can be lodged. The Disruption to Studies Policy applies only to serious and unavoidable disruptions that arise after a study period has commenced. If your application is approved, a supplementary exam will be held after the formal exam.

More information regarding disruption to studies is available here:

http://students.mq.edu.au/student_admin/exams/disruption_to_studies/

On successful completion you will be able to:
- Understand the concepts of option pricing theory and the role of derivatives
- Apply financial derivatives such as forward/futures and options to solve quantitative problems
- Develop skills to price options and other derivatives.
- Examine the principles of hedging, arbitrage theory and structured products

Delivery and Resources

Delivery and Resources

Classes

- The weekly three hour class for this unit consists of a two hour lecture and a one hour tutorial.
- The timetable for classes can be found on the University web site at:
  https://timetables.mq.edu.au/

Prizes

Prizes for this unit (see).

http://www.buisnessandeconomics.mq.edu.au/undergraduate_degrees/prizes_scholarships

Required and Recommended Texts and/or Materials

- *The required textbook is 'Fundamentals of Futures and Options Markets', John C. Hull, Sirimon Treepongkaruna, Richard Heaney, David Pitt and David Colwell, Pearson, 2014*
- *This is available for purchase from the Macquarie University Co-op Bookshop, and a copy will be available in the closed reserve section of the Macquarie Library.*

Technology Used and Required

Unit Web Page

- The web page for this unit can be found at http://ilearn.mq.edu.au
- It is the responsibility of students to visit the unit regularly. Course material is available on the learning management system (iLearn).
- Lecture notes, tutorial solutions, unit announcements, and other reference materials will be posed to this site throughout the semester

Unit Schedule

Lecture Week	Lecture Topic
1	Introduction to Derivatives and Mechanics of Futures Market
2	Hedging Strategies using Futures
3	Interest rates
4	Determination of Forward and Futures Prices
5	Swaps and Ethics
6	Mechanics of Option Markets and Properties of Stock Options
7	**CLASS TEST**

	BREAK
8	Trading Strategies Involving Options
9	Introduction to Binomial Trees
10	Valuing Stock Options: The Black Scholes Model
11	Options on Stock Indices and Currencies and Futures Options
12	Greek Letters
13	Revision

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_2016.html

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

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

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/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Supplementary Exam

Further information regarding supplementary exams, including dates, is available here
http://www.businessandeconomics.mq.edu.au/current_students/undergraduate/how_do_i/special_consideration

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://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

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

Graduate Capabilities

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement.

They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Develop skills to price options and other derivatives.
- Examine the principles of hedging, arbitrage theory and structured products

Assessment tasks

- Class Test
- Final Examination

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

- Understand the concepts of option pricing theory and the role of derivatives
- Apply financial derivatives such as forward/futures and options to solve quantitative problems
- Develop skills to price options and other derivatives.
- Examine the principles of hedging, arbitrage theory and structured products

Assessment tasks

- Early Diagnostic Assessment
- Class Test
- 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

- Understand the concepts of option pricing theory and the role of derivatives
- Apply financial derivatives such as forward/futures and options to solve quantitative problems
- Develop skills to price options and other derivatives.

Assessment tasks

- Early Diagnostic Assessment
- Class Test
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Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Understand the concepts of option pricing theory and the role of derivatives
- Apply financial derivatives such as forward/futures and options to solve quantitative problems
- Examine the principles of hedging, arbitrage theory and structured products

Assessment tasks

- Early Diagnostic Assessment
- Class Test
- Final Examination

Research and Practice

- This unit gives you practice in applying research findings in your assignments
- This unit gives you opportunities to conduct your own research