AFIN329

Security Pricing and Hedging

S2 Day 2014

Applied Finance and Actuarial Studies

Contents

General Information

Unit convenor and teaching staff
Unit Convenor
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Credit points
3

Prerequisites
6cp at 200 level including (ACCG252 or AFIN252)

Corequisites

Co-badged status

Unit description
This unit explores the principles, theory and techniques of asset pricing. The first half of the unit focuses on portfolio analysis and multifactor models applicable to problems in investment analysis and asset allocation. The second half of the unit focuses on pricing techniques driven by arbitrage arguments. Arbitrage or relative pricing arguments underpin powerful, robust methods for pricing derivative securities. Upon successful completion of this unit students will: understand the economic arguments underlying important asset pricing models; be able to apply the models to practical problems; and have developed an awareness of the need to consider the limitations of models and techniques when applied to non-textbook examples. The unit aims to develop graduate capabilities in critical, analytical and integrative thinking, problem solving and research.

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
Be able to apply financial derivatives such as forward/futures and options to solve quantitative methods in finance theory
Develop and apply skills to price options and its role as finance professionals
Examines the principles of hedging, arbitrage theory and structured products

Assessment Tasks

Name	Weighting	Due
Class Participation	5%	Lecture Weeks 2-13
Class Test	20%	Week 9
Assignment	15%	Submission Weeks 10
Final Examination	60%	University Examination Period

Class Participation

Due: **Lecture Weeks 2-13**
Weighting: **5%**

Each week you will be marked on your participation in problem solving activities as well as an oral component where you will be asked to critically analyze and discuss a tutorial question.

What is required to complete the unit satisfactorily

Regular participation in problem solving activities and class discussions as well as completion of homework assignments by the due date.

On successful completion you will be able to:

- Understand the concepts of option pricing theory and the role of derivatives
- Be able to apply financial derivatives such as forward/futures and options to solve quantitative methods in finance theory
- Develop and apply skills to price options and its role as finance professionals
- Examines the principles of hedging, arbitrage theory and structured products

Class Test

Due: **Week 9**
Weighting: **20%**

Submission

The Class Test is scheduled to be held during regular lecture day and time in ***Week 9 (week commencing 13th October, 2014)***. 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 6, 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.

Extension

No extensions will be granted. Students who do not sit the test will be awarded a mark of 0, except for cases in which an application for special consideration is made and approved.

Penalties

Students who have not completed this exam will be awarded a mark of zero for this task, except for cases in which an application for special consideration is made and approved. If approval is granted then you have to complete a supplementary class test during ***week 11 commencing (27th October, 2014).***

On successful completion you will be able to:

- Understand the concepts of option pricing theory and the role of derivatives
- Be able to apply financial derivatives such as forward/futures and options to solve quantitative methods in finance theory
- Examines the principles of hedging, arbitrage theory and structured products

Assignment

Due: **Submission Weeks 10**
Weighting: **15%**

The assignment question will be posted on iLearn in Lecture Week 3 ***(commencing 18th August, 2014).*** Students will be required to carry out research as a group (4-5 students) to meet the requirements of the assignment. These groups must be formed by Lecture Week 3. Groups must be composed of students within the same tutorial group. Tutors must be advised of the members of these groups by the end of Lecture Week 3.

Submission

The assignment must be submitted by each group in type written format (one for each group. No electronic submissions allowed) to BESS in ***Lecture Week 10.***

Extension

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 cases in which an application for special consideration is made and approved.

On successful completion you will be able to:

- Understand the concepts of option pricing theory and the role of derivatives
- Develop and apply skills to price options and its role as finance professionals

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 3 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.

The University Examination period commences on 17th November 2014. 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

Supplementary Exams

The University recognises 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.

Further information regarding supplementary exams, including dates, is available here:

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

What is required to complete the unit satisfactorily

To be eligible to pass this unit, a pass is required in the final examination.

On successful completion you will be able to:

- Understand the concepts of option pricing theory and the role of derivatives
- Be able to apply financial derivatives such as forward/futures and options to solve quantitative methods in finance theory
- Examines 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

- ***For the first two weeks of the unit, the required textbook is E. J. Elton, M.J. Gruber, S.J. Brown and W.N. Goetzmann, Modern Portfolio Theory and Investment Analysis, J. Wiley & Sons (8th Edition) 2009. However the relevant resources and Chapters will be provided to you (No hard-copy is required to purchase)***
- ***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 - (4 August)	Overview of Mean-Variance Portfolio Theory

2 - (11 August)	Mean Variance Portfolio Theory and Techniques for Calculating the Efficient Frontier
3 - (18 August)	Introduction to Derivatives and Mechanics of Futures Market
4 - (25 August)	Hedging Strategies using Futures and Determination of Forward and Futures Prices
5 - (1 September)	Swaps
6 - (8 September)	Mechanics of Option Markets and Properties of Stock Options
7 - (15 September)	Trading Strategies Involving Options
22 September - 6 October	**Mid-Semester Recess**
8 - (7 October)	Introduction to Binomial Trees
9 - (13 October)	***Class Test***
10 - (20 October)	Valuing Stock Options: The Black Scholes Model
11 - (27 October)	Options on Stock Indices and Currencies and Futures Options
12 - (3 November)	Greek Letters
13 - (10 November)	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.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/

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://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

- Understand the concepts of option pricing theory and the role of derivatives
- Be able to apply financial derivatives such as forward/futures and options to solve quantitative methods in finance theory
- Develop and apply skills to price options and its role as finance professionals
- Examines the principles of hedging, arbitrage theory and structured products

Assessment tasks

- 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
- Be able to apply financial derivatives such as forward/futures and options to solve

quantitative methods in finance theory
- Develop and apply skills to price options and its role as finance professionals
- Examines the principles of hedging, arbitrage theory and structured products

Assessment tasks

- Class Participation
- Class Test
- Assignment
- Final Examination

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
- Be able to apply financial derivatives such as forward/futures and options to solve quantitative methods in finance theory

Assessment tasks

- Class Participation
- Class Test
- 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

- Examines the principles of hedging, arbitrage theory and structured products

Assessment tasks

- Class Participation
- Assignment

Changes from Previous Offering

Changes Since Last Offering (S1 2014): Only 1 textbook is required for use throughout the length of the course.

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

Weekly Curriculum and Homework Schedule

Readings: Lecture for Week 1

- Elton, Gruber, Brown & Goetzmann Chapter 4

Questions and Problems: Ch. 4: 1.2 & 3

Readings: Lecture for Week 2

- Elton, Gruber, Brownian & Goetzmann Chapters 5 & 6

Questions and Problems: Ch. 5: 1, 4 . Ch. 6: 1, 2 Extension Ch. 5: 5 & Ch. 6: 5

Readings: Lecture for Week 3

- Hull et al, Chapters 1&2

Questions and Problems: Ch.1: 1.9, 1.12, 1.16, 1.20, 1.22, 1.32 Ch. 2: 2.8, 2.9, 2.25 & 2.28

Readings: Lecture for Week 4

- Hull et al, Chapters 3&5

Questions and Problems: Ch.3: 3.9, 3.11, 3.12, 3.13, 3.14, 3.15 & 3.19 Ch 5. 5.8, 5.13, 5.16, 5.20

Readings: Lecture for Week 5

- Hull et al, Chapter 7

Questions and Problems: Ch. 7: 7.8, 7.9, 7.12, 7.15, 7.16, 7.17 & 7.22

Readings: Lecture for Week 6

- Hull et al, Chapters 9 &10

Questions and Problems: Ch. 9: 9.8, 9.9, 9.10, 9.13, 9.20 & 9.23 Ch. 10: 10.8, 10.9, 10.10, 10.14 & 10.23

Readings: Lecture for Week 7

- Hull et al, Chapter 11

Questions and Problems: Ch. 11: 11.8, 11.9, 11.12, 11.19 & 11.22

Readings: Lecture for Week 8

- Hull et al, Chapter 12

Questions and Problems: Ch. 12: 12.9, 12.10, 12.11, 12.12 & 12.13

Readings: Lecture for Week 10

- Hull et al, Chapters 13

Questions and Problems: Ch.13: 13.8, 13.9, 13.10 & 13.12

Readings: Lecture for Week 11

- Hull et al, Chapters 15 & 16

Questions and Problems: Ch. 15: 15.8, 15.9 & 15.10 Ch. 16: 16.8, 16.9, 16.11, 16.17, 16.18 & 16.19

Readings: Lecture for Week 12

- Hull et al, Chapter 17

Questions and Problems: Ch.17: 17.8, 17.9, 17.13, 17.18 & 17.21

Week 13: Revision

Changes since First Published

Date	Description
06/08/2014	Portfolio Theory will be taught.