ACST 871D, 871X
Investment and Asset Modelling

Semester 2, 2012

Department of Applied Finance and Actuarial Studies
Year and Semester: 2012, S2

Unit convenor: James McCulloch

ACST 871 Credit points: 4

Students in this unit should read this unit guide carefully at the start of semester. It contains important information about the unit. If anything in it is unclear, please consult one of the teaching staff in the unit.
**ABOUT THIS UNIT**

This unit examines investment from an actuarial practitioner’s perspective. The unit examines the attributes and characteristics of asset classes and the application of models from economics and finance to investment management. Stochastic asset models are constructed and evaluated, with particular emphasis on the relationship between assets and liabilities. Students gaining a grade of credit or higher in all of ACST402, ACST403, ACST404 and ACST871 are eligible for exemption from Part 2 of the professional exams of the Institute of Actuaries of Australia.

There are 2 complementary lecture streams in this course. Practical investment management will be taught by Paul Scully FIAA. Investment theory will be taught by Dr James McCulloch.
**TEACHING STAFF**

- **Dr James McCulloch** is the unit convenor and will present 6 lectures on investment theory this includes a final revision lecture. Contact email: James.McCulloch@mq.edu.au.

- **Paul Scully FIAA** will present 7 lectures on practical investment management this includes a final revision lecture. Contact email: Paul.Scully@mq.edu.au.

- **Hong Xie** is the teaching administrator for this unit. For all administrative enquiries, please contact him via private email. Contact email: Hong.Xie@mq.edu.au

**CONSULTATION**

**CONSULTATION TIMES**

You are encouraged to seek help at a time that is convenient to you from a staff member teaching on this unit during their regular consultation hours. In special circumstances, an appointment may be made outside regular consultation hours. Staff will not conduct any consultations by email.

Consultation times for this unit will be during the tutorial period, the final hour of the 3 hour combined lecture and tutorial session.

Students experiencing significant difficulties with any topic in the unit must seek assistance immediately.
CLASSES

Any alterations to the class times or locations will be advised in class and on the Blackboard.

Campus classes

Lectures for this unit will be held on Saturdays between 10am and 1pm in the Price Lecture Theatre, Building W5A, Macquarie University, North Ryde. The first lecture will be on August 4th.

Distance education class

If you have enrolled for distance you will have access to all materials from the face to face classes (learning guides, lecture slides/overheads, handouts, exercises etc) and the same discussions and other activities via the ACST404/871 iLearn.

The 2 hour lecture and 1 hour tutorial will be stored using iLearn software and will be available as a download from iLearn.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

There are 2 required textbooks for this course:

Practical Investment Management

Fitzherbert, Richard

Investment Principles for Actuaries, ISBN 978 0 85813 072 2
(Referred to elsewhere in this unit outline as FITZ)

Investment Theory

Zvi Bodie, Alex Kane & Alan Marcus

Investments, ISBN 9780073530703
(Referred to elsewhere in this unit as BKM)

BKM is available from the Macquarie University Co-op Bookshop. Distance education students can obtain BKM from on-line booksellers such as Amazon. FITZ is available from Australian Institute of Actuaries online bookshop web address http://www.actuaries.asn.au/TechnicalResources/OnlineBookshop.aspx. The texts are also available on 2 hour closed reserve in the Macquarie University Library.
As additional and recommended texts, students may also consider purchasing:

Zvi Bodie, Alex Kane & Alan Marcus

**Student Solutions Manual for Investments**, ISBN 9780077316143

The solutions manual can be purchased from the Co-op bookshop together with the **BKM** text as a value pack.

Additional readings as PDF files will also be made available via the iLearn system.

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**UNIT WEB PAGE & TECHNOLOGY USED AND REQUIRED**

**All Students**

The ACST404/871 iLearn page is integral to this course unit, whether you are a distance student or in a face to face class.

iLearn can be accessed via [http://ilearn.mq.edu.au](http://ilearn.mq.edu.au).

We will make announcements about unit administration and assessment tasks via iLearn. These announcements will be sent as emails to your Macquarie University student email account. You should check your student email account regularly, at least every couple of days.

Before using the iLearn website, please read the document called Security Policy and Rules Governing the Use of Computing and Communications Facilities at Macquarie University, which is available at [http://www.ocs.mq.edu.au/POLICIES/mqrules.html](http://www.ocs.mq.edu.au/POLICIES/mqrules.html)

**Distance Education Students**

The 2 hour lecture and 1 hour tutorial will be stored using *iLearn* software and will be available as a download from *iLearn*.

It is very important that distance students check their student email for unit announcements regularly, at least every couple of days. In particular, towards the end of semester you should check for announcements on the final exam.
### Unit Assessment

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<td>Diagnostic Test</td>
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<tr>
<td>Assignment</td>
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<td>1,2,3,4,5</td>
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<tr>
<td>Final Exam</td>
<td>70%</td>
<td>1,2,3,4,5</td>
<td>1,2,3,4,5</td>
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### 1. Diagnostic Test

**Due Date:** Week 4  
**Weight:** 5%

**Submission**  
An online multiple choice diagnostic test will be released on iLearn on the 18th August at 10:00am. Students will have 1 week to complete the test. The test will close at 10:00am 25th August.

**Extension**  
No extensions will be granted. Students who have not completed the diagnostic test prior to the deadline will be awarded a mark of 0 for the test, except for cases in which an application for special consideration is made and approved.

**What is required to complete the unit satisfactorily**

This quiz is designed to give you diagnostic feedback on your performance and risks/deficiencies in the unit so far. Your lecturer will give individual feedback. Students who are deemed to be at risk will be counselled and encouraged to seek academic assistance at staff consultation times regularly.
2. Assignment

Due Date: Week 9

Weight: 25%

Submission

The assignment will be released on September 15th at 10:00am on iLearn and must be submitted electronically on iLearn by October 13th at 11:59pm.

Penalties

Late assignments will be accepted up to 72 hours after the submission deadline. 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 special consideration is made and approved.

What is required to complete the unit satisfactorily

In order to pass this unit, students must have satisfactory performance in both the assignment and the final exam. Exemptions from IAAust Part II requirements will also be determined after considering performance on both the coursework and the final exam in this unit and in the two Actuarial Control Cycle units.
3. Final Examination

Due Date: University Examination Period

Weight: 70%

Examination conditions.

A 3 hour final examination for this unit will be held during the University Examination period. The University Examination period in Second Half Year 2012 is from November 10 to December 2.

Calculators will be allowed in the final examination but a clear indication of the steps involved in every calculation must be shown. Any machines that have a text retrieval capacity, specifically those with a full alphabet on the keyboard, are not allowed. Calculators may be checked at the commencement of the examination, and the make/model may be recorded.

Dictionaries are not permitted in the final examination, and no reference materials are allowed to be taken into the final examination.

What is required to complete the unit satisfactorily:

In order to pass this unit, students must have satisfactory performance in both the assignment and the final exam. Exemptions from IAAust Part II requirements will also be determined after considering performance on both the coursework and the final exam in this unit and in the two Actuarial Control Cycle units.

You should ensure that your handwriting in the final examination is legible. If we can’t read your answer, then we can’t give you any marks.

Local (Sydney-based) students are expected to present themselves 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. See http://www.timetables.mq.edu.au/exam

Distance students (outside Sydney) must contact Hong Xie to organize (and confirm) the location and supervision for the final examination. If these students do not confirm their exam city by the announced due date, there is a risk that their examination will not be organized.

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.

The Macquarie University examination policy details the principles and conduct of examinations at the University. The policy is available at: [http://www.mq.edu.au/policy/docs/examination/policy.htm](http://www.mq.edu.au/policy/docs/examination/policy.htm)

**LEARNING OUTCOMES**

At the end of this unit students will have developed the following skills:

1. Explain the behaviour of different investment types under different economic conditions, recognising risk factors, including issuer default, counterparty failure, systemic liquidity, the collapse of speculative bubbles, shocks to the system and cyclical/structural changes.

2. Develop an understanding of the methods used for valuation of the common forms of debt, equity, property and derivative investments. In particular students should be aware of:
   - Valuation methods and principals
   - Data requirements and sources
   - The assumptions and limitations of the valuation models.

3. Develop an understanding of the major economic and financial theories relevant to investment:
   - Capital Asset Pricing Model (CAPM)
   - Multifactor Pricing Model (APT)
   - The Efficient Market Hypothesis (EMH)
   - Behavioural Finance.

4. Construct, critically evaluate and apply asset models that are appropriate to the management of liabilities.

5. The practical and optimal construction and performance measurement of actively managed multi-asset portfolios.
1. 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: 1, 2, 3, 4, 5.
- Assessment Task: Assignment, Final Examination.

2. 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 Outcomes: 1, 2, 3, 4, 5.
- Assessment Task: Assignment, Final Examination.

3. Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

- Assessment Task: Assignment, Final Examination.
4. 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: 1, 2, 3, 4, 5.
- Assessment Task: Online Test, Assignment, Final Examination.

5. 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: 1, 2, 3, 4, 5.
- Assessment Task: Assignment, Final Examination.
6. Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

- Assessment Task: Assignment

7. 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:

This graduate capability is supported by:

- Learning Outcomes: 2, 5.
- Assessment Task: Assignment

ACADEMIC HONESTY

The nature of scholarly endeavour, dependent as it is on the work of others, binds all members of the University community to abide by the principles of academic honesty. Its fundamental principle is that all staff and students act with integrity in the creation, development, application and use of ideas and information. This means that:

- all academic work claimed as original is the work of the author making the claim
- all academic collaborations are acknowledged
- academic work is not falsified in any way
- when the ideas of others are used, these ideas are acknowledged appropriately.
Further information on the academic honesty can be found in the Macquarie University Academic Honesty Policy at http://www.mq.edu.au/policy/docs/academic_honesty/policy.html
GRADUATES

Macquarie University uses the following grades in coursework units of study:

- HD - High Distinction
- D - Distinction
- CR - Credit
- P - Pass
- F - Fail

Grade descriptors and other information concerning grading are contained in the Macquarie University Grading Policy which is available at:

GRADING APPEALS AND FINAL EXAMINATION SCRIPT VIEWING

If, at the conclusion of the unit, you have performed below expectations, and are considering lodging an appeal of grade and/or viewing your final exam script please refer to the following website which provides information about these processes and the cut off dates in the first instance. Please read the instructions provided concerning what constitutes a valid grounds for appeal before appealing your grade.

http://www.businessandedeconomics.mq.edu.au/new_and_current_students/undergraduate_current_students/how_do_i/grade_appeals

SPECIAL CONSIDERATION

The University is committed to equity and fairness in all aspects of its learning and teaching. In stating this commitment, the University recognises that there may be circumstances where a student is prevented by unavoidable disruption from performing in accordance with their ability. A special consideration policy exists to support students who experience serious and unavoidable disruption such that they do not reach their usual demonstrated performance level. The policy is available at:
http://www.mq.edu.au/policy/docs/special_consideration/procedure.html

STUDENT SUPPORT SERVICES

Macquarie University provides a range of Academic Student Support Services. Details of these services can be accessed at http://www.student.mq.edu.au.
Access to all student computing facilities within the Faculty of Business and Economics is restricted to authorised coursework for approved units. Student ID cards must be displayed in the locations provided at all times.

Students are expected to act responsibly when utilising University IT facilities. The following regulations apply to the use of computing facilities and online services:

- Accessing inappropriate web sites or downloading inappropriate material is not permitted. Material that is not related to coursework for approved unit is deemed inappropriate.
- Downloading copyright material without permission from the copyright owner is illegal, and strictly prohibited. Students detected undertaking such activities will face disciplinary action, which may result in criminal proceedings.

Non-compliance with these conditions may result in disciplinary action without further notice.

Students must use their Macquarie University email addresses to communicate with staff as it is University policy that the University issued email account is used for official University communication.

**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.