ACCG839
Portfolio Management¹

Semester 2, 2011

Department of Applied Finance and Actuarial Studies

¹ Ver 1.0: August 2, 2011
ABOUT THIS UNIT

This unit explores the principles, theory and techniques of portfolio management. We commence by studying the simplest mean-variance optimisation problem to introduce important results from portfolio theory and asset pricing - with a particular focus on the role of factor pricing models in portfolio construction and performance evaluation. We then consider the economic rationale for active portfolio management, with reference to economic theory and results from empirical study. After studying the challenges and techniques applicable to portfolios with exposure to specific asset classes we consider alternative criteria for management and portfolio evaluation - avoiding the problematic behavioural and distributional assumptions associated with the mean-variance framework.

TEACHING STAFF

Convener: Dr Egon Kalotay
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Phone: 9850 8490
Email: egon.kalotay@mq.edu.au

CONSULTATION TIMES

Consultation hours for this unit will be provided on the Blackboard web page.

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. You may, however, phone staff during their consultation hours.

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

In seeking help:
• DO bring along your attempt at the question or problem at hand. Asking a specific question (even if it's basic) is likely to be far more productive than going to a tutor and saying something like 'I don't understand options'.

• DO NOT delay. Often students come along a week or two before the final exam to ask questions about issues they should have clarified weeks or months earlier. It's usually too late. The materials in this unit are not well suited to last minute cramming.

**CLASSES**

The weekly class is a 3-hour seminar held at 3-6pm on Thursdays in E4B316.

**REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS**

The recommended text for purchase is:


However, we will supplement the book by Strong with readings from journals and other textbooks. Other useful texts are listed below – I have placed copies of the first three in Special Reserve at the library.


Refer to the unit web page for other useful references and resources.

**TECHNOLOGY USED AND REQUIRED**

Necessary technology: scientific or business calculator without alphanumeric capabilities, internet access, computer with MS Excel.

Useful technology: The MATLAB software environment is very useful if you intend doing this sort of work professionally.

For details of the student version refer to:

UNIT WEB PAGE

Log in to Blackboard at: https://learn.mq.edu.au

LEARNING OUTCOMES

The specific learning outcomes of this unit can be summarised in terms of the following capabilities.

Upon successful completion of this unit you will:

1. Know the behavioural and statistical assumptions underlying the tools and techniques of portfolio management and have developed an awareness of their rationale and limitations;

2. Understand the economic principles of arbitrage and market efficiency - with a particular focus on their implications for funds management;

3. Be able to apply key factor pricing models to practical problems in portfolio construction and performance evaluation - both as statistical tools and as economic points of reference;

4. Have an understanding of the sources of modelled risk and approaches to managing such exposures;

5. Have gained an understanding of alternative criteria for constructing portfolios and benchmarking performance;

6. Have developed an awareness of the need to consider the limitations of models and techniques when applied outside of textbook examples - including exposures to risks that are outside the scope of standard models.

Please note that “understand” implies that you are able to do more than simply define a concept. If you can explain it accurately in your own words with minimal reliance on technical jargon, then you are well on the way. If you can provide examples of its valid application, and examples where its application may be suspect or erroneous, then you have understood the concept.

GRADUATE CAPABILITIES

In addition to the discipline-based learning objectives, all academic programs at Macquarie seek to develop the capabilities the University's graduates will need to develop to address the challenges, and to be effective, engaged participants in their world.

This unit contributes to this by developing the following graduate capabilities:

1. Discipline Specific Knowledge and Skills (See “Learning Outcomes”)
2. Critical, Analytical and Integrative Thinking
3. Problem Solving and Research Capability
4. Effective Communication
5. Commitment to Continuous Learning

**TEACHING AND LEARNING STRATEGY**

The first two hours of each class will be a lecture-style presentation, the third hour an interactive tutorial.

1. You are strongly advised to attempt all assigned tutorial questions before the weekly tutorial class, and before consulting the solutions. It is very easy to be lulled into a false sense of security by simply reading questions and looking at the solutions.

2. Each week you are required to submit your attempt at the questions marked with a star (*). Submit the starred questions only. These mini-assignments must be submitted on time. Your assignment submission record will serve as a record of your attendance. Four of the submitted assignments, randomly selected, will be assigned a mark. Assignments will be marked out of 3 on the basis of both effort and outcome. Here is the grading scale:
   - 3/3 is awarded for a complete, well-presented attempt. Answers should be substantially correct but need not be error free.
   - 2/3 is awarded for a complete, satisfactory attempt. Less than full marks are awarded due to a shortfall in the substance or presentation of the submitted work.
   - 1/3 is awarded for an incomplete or incoherent attempt. This mark may also be awarded if your answers are completely wrong or unsubstantiated.
   - 0/3 is awarded if you do not submit the questions on time in your assigned tutorial, or, if what you submit does not merit a mark

3. ALTERNATIVELY: each week I will ask one or more students to present one or more answers to tutorial questions. If you are asked to present a solution then it is your presentation that will be marked on a similar scale. That is, students who present their work during class will be awarded their assignment mark for that week on the basis of their class presentation.

4. Tutorial work carries a 5% assessment weight.

5. Solutions to tutorial questions will be provided at the end of the week in which they're due.

**TESTS**

Over the course of the semester you will be required to do three tests of varying length and coverage. The format of the tests is as follows:
Early Diagnostic Test (Week 3)

a. Duration: 20 mins
b. Coverage: material covered in weeks 1 and 2
c. Question mix: short answers, some calculations
d. Assessment weight: 10%

The primary purpose of this test is to provide you with an early indication of your progress in the subject – particularly if you have had to catch up on background material. If you do not do well in the early diagnostic test then you need to understand why and rectify the problem(s). Seek remedial help if necessary.

Mid-Semester Test (Week 7)

a. Duration: 60 mins, commences at 3:05pm
b. Coverage: All material covered lectures 1-5 (inclusive)
c. Question mix: short answers, some calculations
d. Assessment weight: 25%

End-of-Semester Test (Week 13)

a. Duration: 120 mins, commences at 3:05pm
b. Coverage: All material covered lectures 1-12 (inclusive)
c. Assessment weight: 35%

Please note the following general rules:

1. Non-programmable calculators may be used in all tests, but dictionaries are NOT permitted.
2. As per the statement on plagiarism at the end of this document, anyone caught colluding or otherwise cheating in any of the tests will receive zero marks. Further, the matter will be pursued at University level.

MAJOR ASSIGNMENT (GROUPWORK)

The major assignment is a group project requiring you to do work applying the concepts and techniques we study to an applied problem. Details of the topic(s) and requirements will be provided in Week 4, but some general information follows.
1. You can start thinking about your groups during the early weeks of semester, bearing in mind that groups will be restricted to four students (no more, no less – unless the final number of students in the unit requires a departure from this rule).

2. Please let me know if you would like me to assign you to a group. All group allocations will need to be approved and registered by the unit convener.

3. The assignment will involve: calculations, report writing and oral presentations.

4. The final written report is due at the commencement of the Week 12 lecture.

5. All group members will be required to supply a signed statement of contribution to the work submitted for assessment.

SCHEDULE OF WEEKLY COVERAGE

Week 1: Introduction & Overview  (Week beginning August 1, 2011)

Topics: Objectives, some statistical and mathematical background, definitions etc.
Reading: Lecture notes and supplements, + Strong Ch 1 & 2.

Week 2: Traditional (Mean-Variance) Portfolio Theory  (Week beginning August 8, 2011)

Topics: Risk aversion, discrete versus continuous compounding, optimisation problem, estimation issues
Reading: Strong, Chapter 5; Elton, Gruber, Brown and Goetzmann (EGBG) Ch 4 & 5.

Week 3: Asset Allocation Parameters  (Week beginning August 15, 2011)

Topics: Issues of estimation, shrinkage, factor models
Reading: Strong Chapter 6; Haugen Chapter 6; EGBG Chapter 7.

Week 4: Informational Efficiency  (Week beginning August 22, 2011)

Topics: Definitions, theory, empirical evidence with relevance to funds management.
Reading: Strong, Chapter 8, Reilly and Brown (RB) Ch 6


Week 5: Equity Portfolio Management  (Week beginning August 29, 2011)

FBE version 11 19/1/11
Topics: Index investment, active management, investment strategies (strategic, tactical, statistical arbitrage etc), Black-Litterman
Reading: Strong Chapters 11 & 15

Week 6: Equity Portfolio Management, Bond-Related Concepts (Week beginning September 5, 2011)

Topics: Black-Litterman, Bond-related definitions, valuation, term structure, etc.
Reading: Strong Chapter 12, plus additional readings on Black-Litterman

Week 7: Mid-Semester Test (Week beginning September 12, 2011)

Assignment groups will make progress reports after the test this week.

Mid-Semester Break: September 19-September 30, 2011

Week 8: Bond Portfolio Management (Week beginning October 3, 2011)

Topics: Risk sources (price volatility, credit etc), duration, convexity, call provisions, portfolio construction.
Reading: Strong Chapter 16 + additional reading(s) on Blackboard.

Week 9: Performance Measurement (Week beginning October 10, 2011)

Topics: Jensen, Sharpe, Treynor Indices; Information ratio, Portfolio Performance Index (PPI), Extrapolation issues.
Reading: Strong Chapter 19, RB Ch 25, plus additional readings on Blackboard.

Week 10: Portfolio Construction (Extensions), Derivatives and Portfolio Management (Week beginning October 17, 2011)

Topics: Alternative objectives and portfolio construction criteria; role of derivatives.
Reading: Strong Chapter 24 + additional readings

Week 11: Models: Limitations & Failure (Week beginning October 24, 2011)

Topics: Behavioural biases, statistical issues and potential responses


Interesting background: Nassim Nicholas Taleb: the prophet of boom and doom, Sunday Times, June 2008

Week 12: Summary and Miscellaneous Extensions and Group Presentations (Week beginning October 31, 2011)
Week 13: End of Semester Test *(Week beginning November 7, 2011)*

As a matter of basic courtesy mobile phones should be turned off during all classes (lectures and tutorials); not simply set to "silent".

**LECTURE MATERIAL:** will be available on the web, prior to the lecture - usually the week before the lecture. Log in to the unit web page on Blackboard from: https://learn.mq.edu.au and check the page regularly for updates.

The lecture materials define the unit content. As a general rule, if a textbook or journal reading covers a topic that is not mentioned in the lectures, it will only be examinable if it is covered in one of the assigned tutorial questions.

**ABOUT READINGS AND HOMEWORK:** Always check the lecture materials for reading and tutorial questions.

I reserve the right to adjust (if required) the mix or scheduling of topics as we go. I provide a definitive set of readings and tutorial questions at the end of each set of lecture slides, and I will provide supplementary reading materials on Blackboard.

**Research and Practice**

- This unit uses research by Macquarie University researchers (Week 10, 11)
- This unit uses research from external sources (Most Weeks)
- This unit gives you practice in applying research findings in your assignments
Relationship between Assessment and Learning Outcomes

Assessment Weightings for Final Grading

Students will be awarded an overall grade and a Standardised Numerical Grade (SNG) in accordance with their performance in all assessment components, weighted as follows:

<table>
<thead>
<tr>
<th>Assessment Component</th>
<th>Weighting</th>
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<tbody>
<tr>
<td>Early Diagnostic Test</td>
<td>10%</td>
</tr>
<tr>
<td>Tutorial Assignments</td>
<td>5%</td>
</tr>
<tr>
<td>Mid-Semester Test</td>
<td>25%</td>
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<tr>
<td>Major Assignment</td>
<td>25%</td>
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<tr>
<td>End of Semester Test</td>
<td>35%</td>
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To be awarded a passing grade in this unit (SNG of 50% or higher) a student must obtain a passing score on the combined mark obtained by summing the scores on: the Early Diagnostic test (/10), the Mid-Semester test (/25) and the End-of-Semester Test (/35) - that is, a combined mark of 35/70 or higher.

The assessment is designed to help you fulfil, and for us to evaluate your attainment of the learning objectives. Whilst all the assessment tasks are designed with the learning objectives in mind, the primary emphasis of each can be summarised as follows:

- Tutorial assignments include a mix of questions designed to highlight everything from important definitions and basic calculations, to problems that require creative application of the basic principles. That is, applications that extend somewhat beyond the examples provided in textbooks. As such, doing the problem type questions (many of which are to be submitted) will help you attain learning objectives (1)-(5). Tutorial assignment questions based on extra readings from journals and magazines focus specifically on learning objective (6).

- The early diagnostic test, mid-semester test and end-of-semester test are designed to assess your meeting of learning objectives (1)-(5).

- The major assignment is designed to help you attain learning objectives (1)-(6) in the context of a stylised application, as well as graduate capabilities that are critical to working independently and communicating the rationale and results of your work to others. Doing a realistic task using real data is a great way to build your understanding and confidence.
<table>
<thead>
<tr>
<th>Due date</th>
<th>Tutorial Assignments</th>
<th>Early Diagnostic Test</th>
<th>Mid-Semester Test</th>
<th>Major Assign</th>
<th>End of Semester Test</th>
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<tbody>
<tr>
<td>Weekly</td>
<td>Week 3</td>
<td>Week 7</td>
<td>Week 12 + milestones</td>
<td>Week 13</td>
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<tr>
<th>% Weighting</th>
<th>5%</th>
<th>10%</th>
<th>25%</th>
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<th>35%</th>
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<tr>
<th>Grading method - marking criteria/standards</th>
<th>Detailed on Page 4</th>
<th>Task specific - provided upon return of marked work</th>
<th>Task specific - provided upon return of marked work</th>
<th>As per task sheet.</th>
<th>Assessed in accordance with marking guide</th>
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<th>Submission method</th>
<th>In class</th>
<th>In class</th>
<th>In class</th>
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<tr>
<th>Feedback (type, method, date)</th>
<th>Mark awarded in accordance with disclosed standards</th>
<th>Mark awarded in accordance with disclosed standards</th>
<th>Mark awarded in accordance with disclosed standards</th>
<th>Mark awarded in accordance with disclosed standards</th>
<th>Final Grade</th>
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<tr>
<th>Estimated student workload (hours)</th>
<th>13 hours weekly (including reading)</th>
<th>20 min. in-class</th>
<th>1-hour + reading time</th>
<th>20 hours</th>
<th>2-hour + reading time</th>
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<th>Learning outcomes assessed</th>
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<th>Graduate capabilities assessed</th>
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**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

Please be aware that you can expect a zero tolerance approach to plagiarism or any other form of cheating in this unit. If you're caught, you will receive zero marks for your efforts and the matter will be pursued in accordance with University procedures.

**GRADES**

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:


**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.

**IT CONDITIONS OF USE**
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.