ECFS871

Risk and Portfolio Construction

AFC Term 1 MB 2019

Department of Applied Finance

Contents

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General Information

Unit convenor and teaching staff
Lecturer
Anthony Corr
anthony.corr@mq.edu.au
Contact via Email

Credit points
2

Prerequisites
(Admission to MAppFin or MAppFin(Adv) or GradDipAppFin) and (AFCP801 or ECFS865)

Corequisites

Co-badged status

Unit description
This unit deals with the key issues relating to the building of institutional portfolios. Students will learn how to identify, measure and control various risks within a portfolio. Building on this knowledge the unit examines practical and theoretical aspects in the application of Modern Portfolio Theory (MPT) to the real world. Several extensions of MPT and alternative portfolio construction approaches are also examined. Emphasis is placed on the impact that errors in inputs and incorrect assumptions have on portfolio outcomes. Teaching uses a mixture of lectures and hands-on spreadsheets to illustrate the ideas.

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:

Identify and measure sources of institutional portfolio risks.

Understand, apply and interpret strategies to control portfolio risks, including their appropriate applications and limitations.

Distinguish the key attributes of alternative portfolio construction techniques, including their appropriate applications and limitations. Apply appropriate alternative portfolio construction and risk control techniques to 'real world' situations.

Understand, apply and interpret a range of return forecasting methods.

Construct and effectively manage an institutional portfolio.

General Assessment Information

To pass this unit the student needs to (1) Achieve an aggregate mark of 50 or more, and; (2) Pass the Final Exam.

Assessment Tasks

Name	Weighting	Hurdle	Due
Pre-unit Assignment	5%	No	First class
Assignment	35%	No	Refer to iLearn
Final Exam	60%	Yes	Refer to Timetable

Pre-unit Assignment

Due: **First class**
Weighting: **5%**

Summary of Assessment Task

Individual / Group: Individual.

Due Date: At first class.

Grading Method: Refer to 'Standards Required to Complete the Unit Satisfactorily' section.

Submission Method: At start of first class.

Duration: Refer to Assignment coversheet.

Extension Requests:

- No extensions will be granted unless prior arrangements have been made with the lecturer. No submission will be accepted after solutions have been provided.
- In the absence of such arrangements, late submission will result in zero marks, unless an application for Special Consideration is made and approved. Refer to MAFC Program Rules at www.mafc.mq.edu.au for information on the University's Special Consideration Policy.

On successful completion you will be able to:
- Identify and measure sources of institutional portfolio risks.

Assignment

Due: **Refer to iLearn**

Weighting: **35%**

Summary of Assessment Task

Individual / Group: Individual.

Due Date: Refer to the unit's iLearn site.

Grading Method: Refer to 'Standards Required to Complete the Unit Satisfactorily' section.

Submission Method: Online via Turnitin on the unit's iLearn site.

Duration: Refer to Assignment coversheet.

Extension Requests:

- No extensions will be granted unless an application for Special Consideration is made and approved. If you have extenuating circumstances that prevent you from submitting your assignment by the due date, you must apply for Special Consideration as soon as reasonably possible. Refer to MAFC Program Rules at www.mafc.mq.edu.au for information on the University's Special Consideration Policy.
- Unless such prior arrangements have been made, any late submission of assignments will automatically be penalised. 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).
- No submissions will be accepted after solutions have been posted.

Other Information: The Assignment will be placed on iLearn.

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- Understand, apply and interpret a range of return forecasting methods.
- Construct and effectively manage an institutional portfolio.

Final Exam

Due: **Refer to Timetable**
Weighting: **60%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

Summary of Assessment Task

Individual / Group: Individual.

Due Date: Refer to Timetable.

Grading Method: Refer to 'Standards Required to Complete the Unit Satisfactorily' section.

Submission Method: As per MAFC Program Rules at www.mafc.mq.edu.au

Duration: 2 hours plus 10 minutes reading time.

Examination Conditions:

- All examinations are open book. Any material and aid is permitted.
- Exam times and locations are noted in the unit timetable at www.mafc.mq.edu.au.
- Refer to MAFC Program Rules at www.mafc.mq.edu.au.

Extension Requests:

- You are expected to present yourself for examination at the time and place designated in the relevant MAFC Timetable at www.mafc.mq.edu.au.
- Deferral of an examination is not permitted unless an application for Special Consideration is made and approved.
- Refer to MAFC Program Rules at www.mafc.mq.edu.au for information on the University's Special Consideration Policy or non-attendance at an examination.

On successful completion you will be able to:
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Delivery and Resources

CLASSES

Face-to-Face Teaching: Generally 20 hours.

Timetable: Detailed timetable for classes are on the Centre's website at www.mafc.mq.edu.au

Consultation Times:

Students who wish to contact any of the teaching staff may do so through:

- The unit's iLearn site, in relation to general queries (so that all students may benefit); or

- Individual consultation with the lecturer by email in the first instance, if necessary.

REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS

Text: Nil

Additional Readings:

- Additional readings are included in the unit notes and on iLearn.

- **Students should assume these readings are examinable unless otherwise advised.**

Lecture Notes: Available in printed form and electronically via iLearn.

Laptop Computer: Spreadsheet examples are used frequently to illustrate course content. It is *recommended* that you bring a laptop computer to most effectively participate in class exercises. This is not compulsory. If you do not have access to a laptop you can do the exercises at another time.

Study Problems: Students are required to work systematically through suggested technical examples. These examples will not be collected but they will help you prepare for the exams. Answers to the examples will be posted on iLearn.

Calculators: In examinations, hand held calculators are permitted. Mobile phones and computers are not permitted.

Pre-unit Materials: Students should have a thorough understanding of the statistical topics from the AFCP812 Quantitative and Economic Analysis gateway unit and all topics in AFCP801 Portfolio Management and Valuation.

Assumed Access: Access to a computer with word processing and spreadsheet capability is assumed, as is general student computer literacy.

TECHNOLOGY USED AND REQUIRED

Unit iLearn Site:

- Found by logging on to iLearn ilearn.mq.edu.au, then clicking on *ECFS871 Risk and Portfolio Construction*.

- This is where you will find forums, downloadable resources and links to important pages.

- The forum allows you to communicate with other students and lecturer(s) and may provide supplementary material.

- You are requested to post your questions on the forums at least 24 hours prior to the assignment submission date or the examination date. Questions posted after that time

may not be answered. **Please try to not leave your questions to the last few days.**

Important Notice:

- It is important that you familiarise yourself with the unit's iLearn site.
- Students should check the unit's iLearn site regularly (minimum twice a week and prior to all lectures) and look for updates and distribution of materials (including case studies) related to the unit or assessments and, if relevant, participate in forum discussions.

Unit Schedule

Sources of Portfolio Risk

- Deconstructing the investment process
- Sources of portfolio risks: market, competitor, absolute (e.g. volatility), relative (e.g. tracking error vs a benchmark), downside, upside, legal, behavioural
- Control of risks using qualitative means: what risks can be controls and how
- Quantitative: pros & cons of alternative metrics
- Decomposing quantitative risk and how that's used for risk budgeting and alpha transport
- Benchmarking – principles and issues

Sources of Error and their Implications

- What types of errors occur in a portfolio construction process? What are their impacts? Are some more serious than others? Is an optimiser an error maximiser?
- How can we mitigate the impact of errors?
- Topics covered are: utility theory, optimisation algorithms, statistical characteristics of financial data, measurement of errors, the impact of errors, shrinkage estimators

Factor Models

- Types of factor models: macroeconomic, statistical & fundamental
- Building a returns model
- Performance attribution using a fundamental factor model
- Building a risk model

Alternative Portfolio Construction Approaches

- Reverse Optimisation/Implied Returns
- Black-Litterman
- Asset-Liability modelling
- Using Resampling – Monte-Carlo techniques
- Life Cycle Investing

- Risk Focused Strategies – minimum variance, risk parity

- Capital Protection Strategies - using derivatives

Forecasting Returns

- Smart Beta

- Theoretically consistent forecasts

Case Studies

- Small groups will be formed to review and present a relevant paper to the class. This is not assessable.

Learning and Teaching Activities

Strategy

The Master of Applied Finance degree adopts a deep teaching and learning strategy, in which students acquire and retain knowledge and also are able to make sense of the issues and concepts and apply them in the "real world". The degree relies heavily on student engagement and participation by: (a) Continuous learning throughout the term. This is encouraged through a combination of students undertaking prescribed reading throughout the units and/or completion of practice problems, case studies, assignments, class presentations etc and interaction via forums in the unit's iLearn site; and (b) Assessments, which enable the student to demonstrate his/her understanding of the learning objectives achieved through the continuous learning.

Student Participation

Students participate in this unit by: (a) Attending lectures and participating in class discussion; (b) Before each class, completing the recommended readings of notes and text, and working systematically through suggested problem sets; (c) Interacting on the unit's iLearn site; and (d) Completing all assessment tasks and exams. On average, the unit will require students to complete, for every hour of class time, approximately 3 hours private study.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy

- Academic Integrity Policy

- Academic Progression Policy

- Assessment Policy

- Fitness to Practice Procedure

- Grade Appeal Policy

- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Undergraduate students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) 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 or if you are a Global MBA student contact globalmba.support@mq.edu.au

Students should also consult the MAFC Program Rules found at http://www.mafc.mq.edu.au

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 enquiry service (MAFC-specific)

For all student enquiries, please contact studentsupport@mafc.mq.edu.au

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.

Learning Skills

Learning Skills (http://www.students.mq.edu.au/support/learning_skills/) 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 Enquiries

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

If you are a Global MBA student contact globalmba.support@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

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Identify and measure sources of institutional portfolio risks.
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- Understand, apply and interpret a range of return forecasting methods.
- Construct and effectively manage an institutional portfolio.

Assessment tasks

- Assignment

- Final Exam

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

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Assessment tasks

- Pre-unit Assignment
- Assignment
- Final Exam

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

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Assessment tasks

- Pre-unit Assignment
- Assignment
- Final Exam

Important Notice

This Unit Guide may be subject to change. Students will be advised, via an "Announcement on iLearn", if the Unit Guide is changed.

The latest version is available at https://unitguides.mq.edu.au/.

Students should read the Unit Guide carefully at the start of term. It contains important information about the unit. If anything is unclear, please consult one of the unit lecturers.

Standards Required to Complete the Unit Satisfactorily

University Policy on Grading:

- Macquarie University's Academic Senate has established a Grading Policy available at http://www.mq.edu.au/policy/docs/grading/policy.html. Your final result will include:
  - A Grade ranging from Fail Hurdle to High Distinction; and
  - A numerical Mark, which is a summation of the individual assessment components, providing the examination component is passed.
- It is important to note:
  - The Policy does not require that a minimum or maximum number of students are to be failed in any unit;
  - Grades will not be allocated to fit a predetermined distribution; and
  - Grades for all individual assessment items will be released to students, but Marks may not necessarily be released.

Specific Unit Grading:

- To pass this unit the student needs to (1) Achieve an aggregate mark of 50 or more, and; (2) Pass the Final Exam.
  - Students who have attained a total raw mark of 50% or greater in a unit, but have failed the unit's exam requirement and who have demonstrated "sufficient effort" in the exam, will be granted a single opportunity to sit a Supplementary Exam which will be graded on a pass/fail basis. The unit Mark and Grade for students who pass this examination will be those corresponding to the original total raw mark of all their assessment tasks, including the original exam. That is,

the Supplementary Hurdle Exam only determines the meeting of the hurdle requirement. Students who have attained a raw mark of 50% or greater in a unit, yet failed all attempts at the requirement, will be awarded a Fail Hurdle grade with a final Mark of 49.

- All final Marks and Grades in the Applied Finance Centre are determined by a grading committee and are not the sole responsibility of the Unit Convenor.

Grade	Expectation
High Distinction	Provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application as appropriate to the discipline.
Distinction	Provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.
Credit	Provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; convincing argumentation with appropriate coherent justification; communication of ideas fluently and clearly in terms of the conventions of the discipline.
Pass	Provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.
Fail	Does not provide evidence of attainment of learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; missing, undeveloped, inappropriate or confusing argumentation; incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.
Fail Hurdle	Student has obtained a raw mark over 50, yet failed all available attempts of at least one hurdle assessment.

Review of Grade and final examination Script viewing:

- A student who has been awarded a final grade for a unit and who does not believe it is an accurate reflection of their performance, and has grounds for such a claim and can demonstrate those grounds, may apply to have their grade reviewed.

- For information on requesting a review of grade and/or viewing your final exam script, please refer to the University's Grade Appeal Policy at http://www.mq.edu.au/policy/docs/gradeappeal/policy.html and MAFC Program Rules at http://www.mafc.mq.edu.au.