F71EM Enterprise Risk Management 2

Lecturer: Andrew Cairns

Office: Colin Maclaurin Building S.08

E-mail: A.J.G.Cairns@hw.ac.uk

Module Web Page: http://www.macs.hw.ac.uk/~andrewc/erm2/

Tel: 0131 451 3245

Aim

The aims of this module are:

• To provide a good grounding in the best practice of risk management within an organisation
• To understand economic measures of capital and capital allocation
• To have a thorough understanding of operational risk in its various forms
• To identify and measure risks and then to take actions to mitigate risks and exploit risky opportunities through good risk management strategies.

Syllabus

• Credit risk models
  – Structural models; reduced form models
  – Commercial credit risk models: KMV; CreditMetrics; CreditRisk+

• Regulatory regimes
  – Basel II and Solvency II: underlying principles and calculation methods

• Risk management control cycle
  – Describe typical risk management control cycles and explain the relevance of each component

• Risk management governance and culture
  – Sarbanes-Oxley and other international risk frameworks; underlying principles
  – Risk management governance structures and the risk management culture
Governance issues including agency, audit and legal risk
Rating agency assessments of an organisation’s risk management operation

- Economic capital
  - Economic measures of value and their uses in corporate decision making
  - Capital allocation and the role of risk measures

- Operational risk
  - Examples of operational risk
  - Methods and tools for managing operational risk
  - Different ways of quantifying operational risk under Basel II

- Case studies
  - Examples of past disasters and good practice and the lessons to be learned
  - Risk analysis of real and hypothetical scenarios including non-quantifiable risks; views of different stakeholders

- Risk management and optimisation
  - Articulating an organisation’s risk appetite and risk objectives; translating these into risk tolerances.
  - Determining an organisation’s overall risk exposure
  - How risks and risky opportunities affect the selection of strategy
  - Developing and recommending strategies for risk optimisation
    * Methods for transferring risk to other organisations including financial derivatives, securitisation, insurance, reinsurance, insurance-linked securities
    * Techniques for managing credit risk
    * Different types of securitisation
    * Risk reduction within an organisation
    * Advantages and disadvantages of different approaches to risk reduction; e.g. costs and benefits; information asymmetry; transparency; liquidity; basis risk; moral hazard
    * Dynamic versus static hedging using financial derivatives; practical considerations
    * Modern approaches to immunisation of interest-rate risk
    * Asset-liability modelling
    * Optimising risks and opportunities relative to the Board’s declared risk appetite and risk tolerances
Learning outcomes

On completion of this module the student should be able to:

- Show an awareness of the Basel II and Solvency II and other regulatory environments and implement their main requirements
- Evaluate market risk using a standard method under pillar 1 of Basel II.
- Demonstrate an understanding of the main international guidelines on good risk management practice and good governance
- Understand how a ratings agency assess risk management practice and use this to improve risk management practice in an organization
- Show how to measure the economic value of a risky venture and how this can be used to influence decision making
- Understand the different methods for how to allocate capital within an organization and apply these methods in a variety of situations
- Demonstrate a good understanding of the different types of operational risks that might arise in an organization, and be able to identify potential operational risks in a given scenario
- Use quantitative and qualitative methods for analyzing operational risk
- Propose solutions for the management and mitigation of operational risk in a variety of scenarios
- Analyse multivariate operational risk data using standard methods under Basel II and internal models
- Analyse real and hypothetical case studies of good and bad risk management practice
- Analyse real and hypothetical scenarios from the perspective of different stakeholders
- Demonstrate how to establish at Board level an organisation’s risk appetite, risk objectives and risk tolerances
- Show to optimize risk and opportunities given Board-level constraints on risk appetite and risk tolerances
- Determine an organisation’s overall risk exposure
- Develop and recommend strategies for active management of risks using a variety of methods
- Recommend risk mitigation strategies by transfer of risk
- Demonstrate a good understanding of the different sources of credit risk and credit spreads
• Show an awareness of the different approaches to modelling, management and mitigation of credit risk
• Recommend risk reduction strategies without transferring risk to an external agency
• Demonstrate an understanding of the pros and cons of the different approaches to risk mitigation
• Show an understanding of modern methods for immunization of interest-rate risk
• Show an understanding of the importance of asset-liability modeling for a financial institution
• Develop a risk-management control cycle appropriate to a given scenario

In terms of personal abilities:

• Show an appreciation of the interface between academic theory and industrial practice
• Demonstrate the ability to learn independently and as part of a group
• Manage time, work to deadlines and prioritise workloads
• Present results in a way that demonstrates that they have understood the technical and broader issues of financial risk management
• Show an appreciation of the societal role of risk management in protecting the consumer and other stakeholders

**Timetable**

The timetable has 5 hours per week:

• Monday 9.15 - 10.15 in SR 1.12 (lecture)
• Monday 12.15 - 1.15 in SR 1.12 (lecture)
• Friday 9.15 - 11.15 in SR 1.12 (lecture)
• Thursday 1.15 - 2.15 in SR 1.12 (tutorial)

You should assume that lectures will continue right up to the end of week 12 (March 31). Occasionally I might be away from university and unable to give timetabled classes. I will give you plenty of advance warning if this is likely to be the case.

There will be no tutorial on 12 January.
Office Hours

There are no fixed office hours for this module. However feel free to visit the lecturer on *Monday or Thursday* to discuss any aspect of the module at any time. Ideally, please e-mail the lecturer to make an appointment.
Lectures

Lectures will consist of a mixture of notes and discussion, supplemented by guided compulsory reading from various sources.

_It is essential that you listen carefully during the discussions and take notes as appropriate._ (If I don’t give you enough time to note down the points made in class please let me know, so that I can slow down!)

Feedback

The module offers various opportunities for feedback on your progress:

- Written feedback on your continuous assessment.
- You can get feedback on other aspects of the module by visiting the lecturer during office hours or by making an appointment by e-mail.

Special needs

If you have any relevant special needs or disabilities that have not been notified to the university, then please see the Student Welfare Service as soon as possible. Where appropriate, the lecturer will prepare special handouts, or you might be allowed extra time in exams. For example, anyone with visual impairments should notify the university in order that I can prepare suitable handouts.

Assessment

- All students
  - 20% of the final mark will be based on coursework that will be carried out during semester 2. (The handin date for the assignment will be 6 March.)
  - 80% of the final mark will be derived from the final exam after the Easter break.

The module website will have two past papers.

ST9 exemption for MSc in Actuarial Management students

ERM-2 contributes towards an ST9 exemption for Actuarial Management students along with ERM-1 in semester 1. Successful students will then also be eligible for the international CERA credential.

The mark that we will use to decide on exemptions will be calculated differently from the 50/50 calculation for university purposes (see above). ST9 and CERA place less emphasis on
the quantitative elements of the syllabus than we do here. Therefore, the ST9 exemption mark will be based on 40% of the ERM-1 mark plus 60% of the ERM-2 mark. Additionally, only specified sections of the semester 1 and 2 assignments will count towards the ST9 exemption mark. These specified sections will be made clear when the assignments are issued.

To summarise, there are four components to the exemption mark:

- ERM-1 exam: 32%
- ERM-1 assignment: 8%
- ERM-2 exam: 48%
- ERM-2 assignment: 12%

Reading


Mobile Phones

Mobile phones must be switched off at all times in lectures, tutorials and lab sessions. At exam time mobile phones may not be taken into the exam hall.