



7,320: Quantitative Risk Management

Subject information

ECTS-Credits: 4

Attached courses

Timetable	Language	Lecturer
7,320,1.00 Quantitative Risk Management	English	De Giorgi Enrico

Course information

Course prerequisites

Course content

The global financial crises that erupted in 2008 has intensified the interest in risk management among financial institutions. It is now generally recognized that poor risk management has been one of the causes of the current financial crises. In particular, credit risk and operational risk, the first being the risk that a counterparty in a financial contract might fail to fulfill its contractual obligations, the second being the risk of losses due to management failures or inadequate systems, are not well understood.

This course focuses on quantitative models for assessing credit and operational risk. After a brief introduction to risk factors and risk measures, we discuss the two main approaches for modelling credit risk. We then study extreme value theory, that deals with extreme events (as big losses due to management failures), and apply it to assess operational risk.

Course structure

1. Introduction

- (a) Need for Risk Management
- (b) Risk Factors
- (c) Risk Measures: From Value-at-Risk to Convex Risk Measures

2. Credit Risk

- (a) Structural Credit Models: Merton Model and Extensions
- (b) Reduced Form Credit Model
- (c) An Application: Retail Credit Risk Modelling

3. Operational Risk

- (a) Introduction
- (b) Extreme Value Theory (ETV)
- (c) Application of EVT to Operational Risk Valuation

Course literature

1. De Giorgi, Enrico (2010): Quantitative Risk Management, Lecture Notes, HSG.
2. Embrechts, Paul, Rüdiger Frey, and Alexander McNeil (2005): *Quantitative Risk Management: Concepts, Techniques and Tools*, Princeton University Press.

Course additional information

There will be a group exercise. Good knowledge of a statistical software like MATLAB or R is recommended.

Information about the Examination

Examination type

decentral - Oral examination (individual examination) (80%, 15 mins.)

Examination aids

no regulation necessary

No rules for examination aids are required for this examination.

- For written examinations at home (term paper), courses without credits, etc., no specific rules for examination aids are required.
- The regulations of the University of St. Gallen and the rules of academic work (sources and aids must always be identified) are applicable in a subsidiary fashion.
- All written work must be accompanied by a declaration of authorship.

Question language: **English**

Answer language: **English**

decentral - Group examination paper (20%)

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Answer language: **English**

Examination content

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Exam-relevant literature

De Giorgi, Enrico (2010): Quantitative Risk Management, Lecture Notes, HSG.

Attention please:

We would like to point out to you that this fact sheet has absolute priority over other information such as StudyNet, faculty members' personal databases, information provided in lectures, etc.

When will the fact sheets become binding?

Information about courses: from the start of the bidding process on 26 August 2010

Information about decentral examinations: after the 4th semester week on 18 October 2010

Information about central examinations: from the start of the enrolment period for the examinations on 8 November 2010

Please look at the fact sheet once more after these deadlines have expired.