

Financial Risk Management

Programme course

6 credits

Finansiell riskhantering

TPPE32

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial
Engineering and Logistics

Date determined
2017-01-25

Main field of study

Industrial Engineering and Management

Course level

Second cycle

Advancement level

A1X

Course offered for

- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Mathematics, Master's programme
- Applied Physics and Electrical Engineering - International, M Sc in Engineering

Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Prerequisites

Introductory courses in statistics, probability theory, calculus, linear algebra, optimization

Intended learning outcomes

The main aim of the course is to present models and techniques for measuring, controlling and changing financial risk exposure. By completion of the course the student should be able to

- Describe different views on risk and explain how risk relates to expected return.
- Describe and distinguish different financial- and non-financial risk types.
- Describe, implement, analyze and compare methods used to measure risk, evaluate different risk measures and analyze and forecast financial time series.
- Derive central results for and compute different measures of risk.
- Explain how financial regulations affect financial markets.
- Present and critically review studies on financial risk management.
- Apply methods for ethical analysis of financial risks and systematically reflect on, and discuss about, how the society is affected by financial risks.

Course content

- Financial risks (Market-, credit-, liquidity-, and operational risk)
- Business risks (Strategic-, macroeconomic, and political risks)
- Time series analysis (Descriptive statistics, empirical properties)
- Volatility-, and correlation forecasts (EWMA, GARCH, Maximum-likelihood estimation, Copula)
- Risk measures (Value-at-Risk, Expected shortfall, Extreme value theory, Back-testing, Stress-testing)
- Financial regulation (Basel I, II och III, Solvency II)
- Risk mapping (Risk factors)
- Ethical analysis of risk

Teaching and working methods

The teaching is organized in lectures and seminars. The seminars will be used for presentations and discussions of the group assignments in the course.

Examination

UPG2	Seminar assignment	2 credits	U, G
MUN2	Oral examination	4 credits	U, 3, 4, 5

Grades

Four-grade scale, LiU, U, 3, 4, 5

Other information

Supplementary courses:

Portfolio Management, Financial Valuation Methodology, , Financial Optimization

Department

Institutionen för ekonomisk och industriell utveckling

Director of Studies or equivalent

Fredrik Persson

Examiner

Jonas Ekblom

Course website and other links

<http://www.iei.liu.se/prodek/utbildning/tppe32>

Education components

Preliminary scheduled hours: 30 h

Recommended self-study hours: 130 h

Course literature

Hull J.C., Risk Management and Financial Institutions

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.