Winter Semester 2015/2016

Econometric Risk Management in Finance
Block Lecture

Prof. Dr. Sevtap Kestel

Target Audience:	Students attending any of the Master Programs offered by the Department (all specializations).
Language:	The course is taught in English.
Requirements:	Knowledge in Principles of Finance, Econometrics will be an advantage to follow the theoretical part of the course.
Credit points:	4 ECTS
Exam:	Final exam, date t. b. a.
Literature / Main References:	• Financial Risk Manager Handbook by Philippe Jorion, 6th Ed., John Wiley and Sons, 2009. • Risk Management by Michel Crouhy, Dan Galai, Robert Mark, McGraw Hill, 2000. • Investment Risk Management by Yen Yee Chong, John Wiley, 2004.

Learning / Qualification target:	Highly changing demand and supply structure in the market, increasing effect of globalization, economic fluctuations, environmental disasters are just some of the challenges that economies have to consider. For these reasons Risk Management became one of the vital steps to be taken as an important part of the economic policy. This course provides an overview on the risk management techniques, especially, on finance by using econometric and statistical techniques. The main parts of the course are quantitative analysis and the components of risks related to financial markets. The quantitative part contains characterizing random variables, linear transformation of random variables and their distributions, simulation technique, simulation of Markov processes and yields, VaR methods, linear models, time variation at risk, GARCH, EWMA, Risk adjusted performance measures, risk and risk aversion with utility functions and expected values, stress testing and back testing. Risk management practices introduce the analyses of market, credit, operational and investment risk in general. Case studies discussing current examples of the lack of proper risk management in world-wide known companies in last decade constitute the application part of the lecture which will be covered during the lectures and tutorials.

The targets proposed will be achieved through the interactive classwork and assignments given through the semester. A term project may be given to enable students to practice the topics covered. |
| Content: | 1. Introduction
Risk management definition, steps and major techniques; risk aversion, utility and expectation, Jensen's inequality, Example: Determination of optimal insurance premium by utility theory
2. Quantitative Analysis: Random variable, linear transformation of random variables, sum and portfolios of random variables and their distributions, Simulation techniques
3. Risk Management practices: Market risk management, credit risk management, operational risk management, investment risk management, Basel II.
4. VaR, Simulating VaR, Markov process, yields, Risk adjusted performance measures, The mean-variance criterion, stress testing, back testing
5. Linear models, time variation at risk, GARCH, EWMA
6. Case studies |

Timetable:	**Lecture**:		
	Monday, 18 January 2016,	10:00-12:00	Raum 3 (Peterhof)
	Monday, 18 January 2016,	12:00-14:00	Raum 3 (Peterhof)
	Tuesday, 19 January 2016,	10:00-12:00	HS 1034
	Tuesday, 19 January 2016,	16:00-18:00	HS 1132
	Wednesday, 20 January 2016,	12:00-14:00	HS 1243
	Wednesday, 20 January 2016,	14:00-16:00	HS 3118
	Thursday, 21 January 2016,	14:00-16:00	Raum 1 (Peterhof)
	Thursday, 21 January 2016,	16:00-18:00	Raum 1 (Peterhof)
	Monday, 25 January 2016,	10:00-12:00	Raum 3 (Peterhof)
	Monday, 25 January 2016,	12:00-14:00	Raum 3 (Peterhof)
	Tuesday, 26 January 2016,	10:00-12:00	HS 1034

Classwork/Tutorial/PC Tutorial:

Friday, 22 January 2016,	14:00-16:00	CIP-Pool 2114a, KG II
Wednesday, 27 January 2016,	14:00-18:00	CIP-Pool 2114 (PC-Übungsraum), KG II

Invited Lecture:

Friday, 29 January 2016,	13:00-15:00	HS 1034