

# **Risk Management**

## **Course Outline**

- I. Introduction to Risk and Risk Management
  - a. Risk & Reward
  - b. Concept of Risk Aversion
  - c. Prospect Theory – An Analysis of Decision under Risk
  - d. An approach to define Risk Management
  - e. Internal and External Reporting and Communication
- II. Risk Management Processes
  - a. Risk Management Schemes
  - b. COSO-Cube
  - c. Risk Treatment
- III. Structure and Classification of Risks
  - a. Describing, Estimating, and Classifying Risk
  - b. Operational Risk
  - c. Procurement, Sales and Financial Risk
- IV. Quantitative Risk Measurement
  - a. Probability & Consequences
  - b. Quantitative Risk Measures
    - i. Standard Deviation
    - ii. Semi Variance
    - iii. Value at Risk (VaR)
  - c. Risk Adjusted Performance Measures (RAPM)
- V. Risk Management and Hedging
  - a. Introduction to Derivatives & Hedging
  - b. Hedging with Forwards, Futures, and Swaps
  - c. Introduction to Options
  - d. Hedging with Options
- VI. Default Risk
  - a. Measuring an Expected Loss (EL)
  - b. Risk-adjusted Lending Rates
  - c. Control of Default Risk

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## **(A small choice of) Learning objectives**

- Understanding the interplay between risk and reward.
- You will receive several approaches to define risk and risk management. It will be your goal to be able to conceptualize them theoretically and work with them in a practical manner.
- Knowing how our behavior changes in the face of uncertainty and what we can do to quantify and then minimize that uncertainty. Our aversion to risk brings us to analyze it and ask what that means for financial and economic situations.
- The company's communication system crashes? Employees are underperforming or causing excessive errors? An elephant has somehow managed to destroy the company headquarters? Each of these represent potential cases of operational risk, ie how business operations and processes can be disrupted.
- Understanding and using a simple but important tool in statistical analysis, standard deviation is a measure of the amount of dispersion or variation in a value set.
- Being capable of calculating and interpreting the Value-at-Risk with various adjustments and changes.
- Hedging is an important tool to mitigate risk. You will have a closer look into the theoretical and practical aspects of various financial instruments, which allow for a reduction of risk in the case of unsure outcomes.

## **Basic Literature:**

- Wolke (2017): Risk Management
- Hull (2018): Risk Management and Financial Institutions
- Hull (2017): Options, Futures and other Derivatives
- Berk/DeMarzo (2014): Corporate Finance
- Hopkin, Paul (2017): Fundamentals of Risk Management
- Kahneman/Tversky (1973): Prospect Theory - An Analysis of Decision under Risk

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## **Lecture: Methods and Expectations**

**There will be a various modes of interaction, including but not limited to:**

- Traditional Lecture: I will instruct, explaining the material.
- In Class Work: You and groups of your choosing will collaborate to solve problems related to the material.
- Homework: I will provide problems and readings that you will be expected to have completed by the next lecture. Advantage: Practice solving problems in your own speed level for exam preparation.
- Readings & Discussion: I will provide you some academic papers that we are going to discuss in class.
- Student Teacher Interaction: Please, ask questions during the lecture! If you do not completely understand the material, it is more than likely that there are others as well.