RISK MANAGEMENT
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Dzhangir Dzhangirov

dzhangir-at-gmail.com

Alexei Goriaev

agoriaev-at-nes.ru

TA: TBA

Course description

This course will provide you with effective tools of managing risks faced by the firm. We examine a broad range of risks: from financial risks measured by statistical models to those risks, which are hard to quantify but are nevertheless very important for the firm. The course structure is based on a holistic framework of the enterprise-wide risk management (ERM), which includes identification, evaluation, treatment, and monitoring of risks.
We start with discussion of the risk framework, risk appetite, risk processes, risk-based pricing and risk infrastructure. You will learn how financial institutions create value via risk management and how they are regulated. The core of the course is the measurement of market and credit risk using Value at Risk (VaR) and other metrics. In addition to that, we discuss how to evaluate operational, political, and other 'soft' risks. Finally, we consider the execution of risk strategy in a company using ERM approach, with the focus on the role of CRO. Numerous real-world examples and cases will be used to illustrate application of given concepts.

Grading

The course grade will be based on one individual home assignment (10%), three cases (30%), and closed-book final exam (60%). Active class participation may add up to 5% bonus points (note that quality rather than quantity of your interventions will count).

The cases must be prepared in groups of 3-4 people. Work on the case involves preliminary group discussion, writing a case report answering given questions, and being ready to present your solution in the class with slides. The case report should contain problem statement (including relevant information from the case), analysis (assumptions, arguments, computations, optimal and alternative solutions), and conclusions (summary of your logic and recommendations). It should be written as executive report to your superior; the maximum length is 3 pages (all tables and supporting data can be put into a separate appendix). The report must be based on information contained in the case and your own analysis, not on someone else's solutions that may be available at the web (I will check those to ensure there are no similarities). It should be submitted by the beginning of the class discussing the case. Each case contributes 10% to the total points for the grade. *If someone is not ready to discuss the case in the class, he or she receives zero points for a given case.*

The final exam is closed-book consisting of two parts: (i) questions that require short specific answers, and (ii) practical problems that require deeper analysis. To pass the course, one should score at least 30% for the exam.

Course intended schedule and contents

Class	Topic	Reading
1	**Overall risk framework, Enterpise Risk Management** The role of risk management, risk setup in organization, risk appetite statement, risk committees	[1] ch.1-2 [2] ch.1-2
2	**Regulation** Overview of regulatory requirements: Basel I-II-III-IV	[1] ch.3 [2] ch.15-17, 26
3	**Market risk** Processes and models. Risk IT infrastructure in Global Markets	[1] ch.7 [2] ch.8, 10, 12 [3] chapters on volatility, VaR
4	**Credit risk** Processes and models. Risk-based pricing. Active credit portfolio management.	[1] ch.9-10 [2] ch.18-19 [3] chapters on credit risk
5	**Credit risk** *Hand in case 1: Wellfleet bank* Modeling credit risk: recovery rate, credit exposure and probability of default. Credit ratings and historical default probabilities. Scoring models. Modeling credit spread. The advanced models of credit risk: CreditMetrics and KMV.	[1] ch.11 [2] ch.21 [3] chapters on credit risk
6	**Operational risk** *Hand in case 2: Societe Generale* Evaluation and management of 'soft' risks and black swans.	[1] ch.13 [2] ch.23
7	**Enterprise risk management (ERM)** *Hand in case 3: Hydro One* Implementation of the ERM. Role of CRO. Risk dashboard, KRI and EWI. Use of risk-adjusted measures such as RAROC. The future of risk management.	[1] ch.4, 15 [2] ch.27

Dzhangir is going to teach classes 1-4 and Alexei will deliver the remaining classes.

Description of course methodology

Students are expected to effectively prepare to each class by doing pre-reading of the assigned materials. Before each class, we will send you information about the upcoming class: required and optional readings, questions for self-preparation (what you should learn before the class), home assignments and cases.

Sample tasks for course evaluation

Sample question from the case:

Assess the GGC loan proposal by discussing its advantages and potential risks. Analyze the economic revenue and profit from the deal calculated by the bank's managers. Which factors may make these numbers lower than expected? Should Wellfleet accept the deal or not?

Sample question from the exam:

Many experts like to stress the importance of "black swans" or "unknown unknowns" (when we haven't even thought of the possible event) for the corporate risk management. How can a company deal with this? Suggest and discuss at least three different approaches.

Course materials

Required textbooks and materials

1. Круи, М., Галай, Д., Марк, Р., 2011, Основы риск-менеджмента, Юрайт.
2. Hull, John C., Risk Management and Financial Institutions, 4th ed. Prentice-Hall.
3. Hull, John C., Options, Futures, and Other Derivatives, Prentice-Hall.

[1] and [2] are two main readings for the course. [1] is more general and less technical, while [2] is more focused on banks and models. [3] may serve as complementary readings for topics related to market, credit, and operational risk. In addition, students are expected to study the additional materials made available at the course page at my.NES.

Academic integrity policy

Cheating, plagiarism, and any other violations of academic ethics at NES are not tolerated.