

Theoretical Corporate Finance

Part I: Agency Problems and Capital Structure

The Graduate School of Finance (GSF)

Aalto University

Spring 2024

Mikko Leppämäki (Aalto University), lectures

&

Sina Ghavamabadi (Aalto University), exercises

Lectures, 26 hours

Tuesday	9.1.	10.00 - 13	U250a Finavia, Otakaari 1
Wednesday	10.1.	10.00 - 13	U262 KPMG, Otakaari 1
Tuesday	16.1.	10.00 - 12	U250a Finavia, Otakaari 1
Wednesday	17.1.	10.00 - 12	U262 KPMG, Otakaari 1
Tuesday	23.1.	10.00 - 12	U119 Deloitte, Otakaari 1
Wednesday	24.1.	10.00 - 12	U262 KPMG, Otakaari 1
Tuesday	30.1.	10.00 - 12	U250a Finavia, Otakaari 1
Wednesday	31.1.	10.00 - 12	U262 KPMG, Otakaari 1
Tuesday	6.2.	10.00 - 12	U250a Finavia, Otakaari 1
Wednesday	7.2.	10.00 - 12	U262 KPMG, Otakaari 1
Tuesday	13.2.	10.00 - 12	U250a Finavia, Otakaari 1
Wednesday	14.2.	10.00 - 12	U262 KPMG, Otakaari 1

Exercises, 12 hours

Wednesday	17.1.	12.15 - 14	U261 OP, Otakaari 1
Wednesday	24.1.	12.15 - 14	U261 OP, Otakaari 1
Wednesday	31.1.	12.15 - 14	U261 OP, Otakaari 1
Wednesday	7.2.	12.15 - 14	U261 OP, Otakaari 1
Wednesday	14.2.	12.15 - 14	U261 OP, Otakaari 1
Wednesday	21.2.	12.15 - 14	U261 OP, Otakaari 1

Exams

Exam: Friday, March 1, at 10:00 - 14:00

Retake Exam: tba

Assessment: The total points of the course are 100. The grading is based on the written examination (80 % weight) and exercises (20 % weight). In order to pass the course one needs at least 50% of the total points, which gives a minimum passing grade. In addition, one has to get at least 50% of the points from the written exam (i.e. 40 points) and at least 50% of the points from the exercises (i.e. 10 points). The grades are 5=Excellent, 4=Very good, 3=Good, 2= Satisfactory, 1=Sufficient and 0=Fail.

Exercises: Assignments will be posted on the home page of the course and you have about one week to solve them. You are expected to submit only the question marked with (*) in the assignment. However, it is highly recommended that you make an attempt at solving all questions before the exercise session for your own benefit. You can earn up to 20 points from the questions marked with (*) towards the final grade. Please send the answers for the questions marked with (*) directly to sina.ghavamabadi@aalto.fi before the exercise session. *Please keep a copy of your answers, since the answers are not returned.*

Honor Code: Please note that when you submit your answers to the exercises marked with (*) you simultaneously declare that answers to the questions are your own. Please note also that the teaching material of the exercises including the answers for the exercises is for your personal use only. Do not distribute the material further to your future colleagues.

Exams: There are written exams covering parts I and II of the course separately. There will also be a retake exam covering both parts. It is expected that you master the material covered in lectures, exercises and in the required readings as indicated in the reading list. In addition, you are encouraged to get familiar with the additional readings announced at the lectures. The questions in the exam will be similar(ish) as in the exercises. *By working on your own with the exercises helps you in learning new material and prepares to solve problems at the exam. Try to solve as many exercises as you can - the best way to learn!*

Objective: Part I of the course offers a *doctoral level introduction* to the theoretical corporate finance research with the help of game theory and contracting. We focus in part I on agency problems and capital structure by examining financial contracting under moral hazard, financial contracting under asymmetric information and signaling in finance. In particular, we examine how agency problems affect the way how corporations optimally finance their activities by taking into consideration the strategic behavior of other market participants.

Prerequisites: You are assumed to have basic knowledge of static optimization, utility functions, expected utility theory and some basic knowledge of microeconomics. However, I am not assuming that you have (although it would be helpful) background knowledge in noncooperative game theory. The first week of lectures are mainly devoted to the basics of noncooperative game theory (with finance applications) and different equilibrium concepts that will be used later in the course.

Teaching material: Lecture notes and exercises will be posted on the home page of the course. You will be provided with a password that opens the documents.

Course Objectives of Part I:

1. Introduce noncooperative *game theory and contracts* as the two main tools of theoretical corporate finance research.
2. Introduce and explain why and what type of *agency problems* are associated with external finance/capital structure?
3. To familiarize you with the *formal way of modeling* and solving agency problems by using game theory and contracts.
4. Explain in detail how firms can *optimally finance* their activities given various type of agency problems.

Teaching Plan

0. Brief Introduction to Noncooperative Game Theory/Contracts

- basic elements of games
- solving techniques
- equilibrium concepts: NE, SPE, BE, PBE
- (contracting under moral hazard)

1. Corporate Financing under Moral Hazard

- moral hazard constraining financing possibilities; credit rationing
- under supply of effort and risk shifting
- optimality of debt
- debt overhang & debt renegotiation
- nonverifiable cash flows: strategic default and threat of termination
- inalienable human capital: access to external funding

2. Corporate Financing under Asymmetric Information

- asymmetric information constraining financing possibilities
- contract design and full equilibrium analysis
- pecking order theory

3. Signaling in Corporate Finance

- actions revealing private information to financiers/capital market
- signalling with externalities or to several audiences

4. Debt, Managerial Incentives and Entrenchment

- empire building managers controlled by debt set by the owners/shareholders
- the role of long term debt set by the owners/shareholders to control managers' investment choices
- the manager choosing debt level to self restrain from the inefficient actions/investments
- short and long term debt (debt maturity) chosen by the manager or shareholders