Theoretical Corporate Finance

Part I: Agency Problems and Capital Structure

The Graduate School of Finance (GSF)

Aalto University

Spring 2021

Mikko Leppämäki (Aalto University), lectures
&
Matteo Vacca (Aalto University), exercises

Lectures, 24 hours

Tuesday	12.1.	10.00 - 12	online
Wednesday	13.1.	10.00 - 12	online
Thursday	14.1.	10.00 - 12	online
Tuesday	19.1.	10.00 - 12	online
Wednesday	20.1.	10.00 - 12	online
Thursday	21.1.	10.00 - 12	online
Tuesday	26.1.	10.00 - 12	online
Wednesday	27.1.	10.00 - 12	online
Thursday	28.1.	10.00 - 12	online
Tuesday	2.2.	10.00 - 12	online
Wednesday	3.2.	10.00 - 12	online
Thursday	4.2.	10.00 - 12	online

Exercises, 12 hours

Wednesday	20.1.	13.15 - 16	online
Wednesday	27.1.	13.15 - 16	online
Wednesday	3.2.	13.15 - 16	online
Wednesday	10.2.	13.15 - 16	online

Exams

Exam: Wednesday, February 17 at 10:00
Retake Exam: tba

Assessment: The total points of the course are 100. The grading is based on the written examination (70 % weight) and exercises (30 % weight). In order to pass the course one needs at least 40% of the total points, which gives a minimum passing grade. In addition, one has to get at least 40% of the points from the written exam (i.e. 28 points) and at least 40% of the points from the exercises (i.e. 12 points). The grades are 5=Excellent knowledge, 4=Very good knowledge, 3=Good knowledge, 2= Satisfactory knowledge, 1=Sufficient knowledge and 0=Fail.

Exercises: Assignments will be posted on the home page of the course and typically you have about one week to solve them. You can earn up to 30 points from the questions marked with (*) towards the final grade. Please send the answers for the questions marked with (*) in electronic form directly to matteo.vacca@aalto.fi before the exercise session. *Please keep a copy of your answers when you hand them in, since the answers are not returned.*

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 (second) 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 oart 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, and that is why durign first week first we devode most of the time to the basics of noncooperative game theory and contracts.

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/Topics (subject to small changes during the course)

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
- (asymmetric information and firm formation)

3. Signaling in Corporate Finance

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