

FIN-410

Real options and financial structuring

Valta Philip

| Cursus | Sem. | Type |
|-----------------------|-------------|-------------|
| Financial engineering | MA1, MA3 | Obl. |

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|----------------------------|---------------------|
| Language of teaching | English |
| Credits | 4 |
| Session | Winter |
| Semester | Fall |
| Exam | During the semester |
| Workload | 120h |
| Weeks | 14 |
| Hours | 4 weekly |
| Courses | 2 weekly |
| Exercises | 2 weekly |
| Number of positions | |

Remark

Only for MA3

Summary

The course covers advanced topics in corporate finance such as the design and valuation of corporate securities, the issuing process for these securities, real options and their implications for valuation and financial structuring. The course provides applications of the theory through case studies

Content

1. Capital structure
2. The security issuance process
3. Valuation of corporate securities
4. Real options
5. Continuous time real option models

Keywords

Real options - financial contracting - financing decisions

Learning Prerequisites**Required courses**

- Derivatives
- Introduction to finance
- Quantitative methods in finance
- Stochastic calculus I
- Stochastic calculus II

Learning Outcomes

By the end of the course, the student must be able to:

- Describe and compare the different methods of valuation for corporate securities, such as discounted cash flow, peer comparison, and real options method, and evaluate their relative performance in different settings.

- Explain the security issuance process and contrast the differences in the process for the issuance of equity and debt securities.
- Derive the optimal investment and financing strategies in structural real options models, and economically interpret the different parts of the equations.
- Discuss the methods for the valuation of real options and apply these concepts to problem settings in case studies.
- Coordinate and develop ideas how to solve specific problems related to the valuation of corporate securities and financial structuring, while working in a team.
- Structure and compose a document with solutions to questions related to the valuation of real options, and present these solutions in front of other students.

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Communicate effectively, being understood, including across different languages and cultures.
- Negotiate effectively within the group.
- Make an oral presentation.
- Write a scientific or technical report.

Teaching methods

Lectures, assignments, case studies, and presentations.

The assignments and case studies are open book and done in groups of students

Expected student activities

The students are expected to attend the lectures.

The students will work in groups to solve problem sets and case studies. They will have to hand in their solutions to the problem sets and case studies, which will be graded and count 40% towards the final grade. The case studies will also lead to short class presentations by teams of students.

Assessment methods

40% Assignments and case studies

60% Final exam

Final exam is closed-book

Supervision

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| Office hours | Yes |
| Assistants | Yes |
| Forum | No |

Resources

Bibliography

Dixit and Pindyck, Investment under Uncertainty, Princeton University Press

Berk and DeMarzo, Corporate Finance, Pearson Education

Tirole, The Theory of Corporate Finance, Princeton University Press

Ressources en bibliothèque

- [Corporate Finance / Berk](#)
- [Investment under Uncertainty / Pindyck](#)
- [The Theory of Corporate Finance / Tirole](#)

Websites

- http://www.valta.ch/teaching_epfl.html

Moodle Link

- <http://moodle.epfl.ch/enrol/index.php?id=14636>