Dynamic asset pricing

Julien Hugonnier
Ecole Polytechnique Federale de Lausanne
Swiss Finance Institute
Email: Julien.Hugonnier@epfl.ch

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Course outline

This course provides an advanced introduction to the methods and results of continuous time asset pricing. We will cover recent asset pricing models that have been proposed to study and explain the main asset pricing puzzles. Topics will include no-arbitrage restrictions on assets prices, complete and incomplete equilibrium models, learning, portfolio constraints and non additive preferences such as recursive utility.

Course requirements

The course will consists in six sessions of approximately 3.5 hours each. In addition to class attendance and participation, the course requirements include problem sets to be handed in and a three hour final exam that will take place at the end of the course.

Problem sets, class participation and the final exam will account for 25%, 5% and 70% of the final grade, respectively.

References

The course will be for the most part based on original research papers. However, the following basic references might come in handy:
Dynamic asset pricing


A nice —although a bit outdated—survey of the whole field of continuous-time asset pricing can be found in


Probability & stochastic processes


Readings

For each lecture, the prior reading of one or more articles may be either recommended or mandatory. The complete list of these papers is given lecture by lecture in the next section. Not all readings are required for the class but any serious PhD student who wants to specialize in asset pricing will need to read all the articles that follow at some point. Required readings are indicated by a black dot ●.
Detailed contents

Lecture “−1” : The market model

☐ Information Structure

☐ Price Dynamics

☐ Arbitrage and Admissible trading strategies

☐ The fundamental theorem of Asset Pricing

☐ The second FTAP and the representation of Martingales.

References :


Lecture “0” : Pricing and hedging in complete markets

☐ Arbitrage and replication

☐ The fundamental PDE of Markovian models

☐ The Black–Scholes–Merton formula

☐ Forward and Futures

☐ Bond pricing and the forward measure

References :


Lecture 1: Portfolio and consumption choice in complete markets

- The static budget constraint
- The Martingale Approach
- The Myopic Portfolio and the Hedging Demands
- Explicit Solutions

References:

Lectures 2–3: Equilibrium models (with complete markets)

□ The Lucas Model
□ The CCAPM
□ Multiple Agents: Aggregation and the Representative Agent
□ Multiple Stocks and Market Completeness
□ Multiple Goods Economies
□ Production economies

References:


**Lecture 4: Non time–additive utility**

- Non Time Additive Preferences
- Internal Habit
- External Habit
Recursive Utility

References:


### Lecture 5: Incomplete information and learning

- Incomplete vs. Asymmetric Information
- Filtering
- Impact on Asset Prices.

### References:


**Lecture 6-7 : Frictions**

- Portfolio constraints
- Incomplete Markets
- Fictitious Market Completion
- The Dual Problem
- Equilibrium
- Bubbles?

**References :**


