

# MASTER OF SCIENCE IN WEALTH MANAGEMENT

## MAÎTRISE UNIVERSITAIRE EN GESTION DE PATRIMOINE

### DISCRETE TIME ASSET PRICING (S413055)

Prof. Fabio TROJANI

6 ECTS

Semester: Autumn

Teaching language: English

#### Description

This course presents the modern approach to the pricing of financial assets based on the stochastic discount factor (SDF) methodology. This methodology gives the representation of the price of any financial asset as the expectation of its stochastically discounted final payoff. It allows to treat in a unified way the pricing problem of financial assets under general market conditions, including settings with, for instance, stochastic interest rates and volatilities. We first introduce the SDF approach to the representation and the computation of asset prices in a discrete-time setting. Applications to the pricing problem under stochastic volatilities or stochastic interest rates will be also highlighted. We then address the empirical analysis of SDF models, by showing how it can be naturally developed within the Generalized Method of Moments (GMM) setting. Examples of real data applications to asset pricing problems, relevant both for academic research and in the practice, will be discussed.

#### Bibliography

Additional references:

[1] Cochrane, J. 2001, Asset Pricing, Princeton University Press.

[2] Gourieroux, C. and J. Jasiak, 2001, Financial Econometrics: Problems, Models, and Methods, Princeton University Press.

#### Courses recommended

The course is self-contained and can be followed by interested students of Masters in Finance, Economics and Statistics with a reasonable engagement and time investment. Basic knowledge of concepts from Utility Theory and Probability Theory, which will be also discussed and illustrated in the class in the context of the different applications, can help to gain more intuition on some of the models discussed. Interested PhD students can also use this class as a preparatory step for a PhD in Finance focusing on asset pricing.

#### Assessment

Written exam