UNIVERSITY OF LONDON

Course information 2023-24
FN2203 Principles of asset pricing

General information

MODULE LEVEL: 6

CREDIT: 30

NOTIONAL STUDY TIME: 300 hours

Summary

This course focuses on the pricing of financial assets. It builds on concepts covered in FN1024 Introduction to Finance. However, this course puts more emphasis on the underlying statistical theory and relies more on the use of mathematical methods. Time discounting and the theory of present value are reviewed. Equity and fixed income valuation techniques are covered separately. Equity valuation is approached under the constant growth model. Under the fixed income valuation topic particular attention is given to the term structure of interest rates and the bond price sensitivity to changes in that term structure. The course also covers portfolio diversification theory and the impact of portfolio risk on asset pricing equilibrium. The theory of efficient markets is introduced and discussed. Derivative pricing techniques are introduced, including the risk neutral probability method and the replicating portfolio approach.

Conditions

Prerequisite: If taken as part of a BSc degree, the following course(s) must be passed before this course may be attempted:

- EC1002 Introduction to economics

AND

- **Either** MT105a Mathematics 1 **OR** MT105b Mathematics 2 **OR** MT1174 Calculus **OR** MT1186 Mathematical methods.

Aims and objectives

- Provide students with a thorough grounding in asset pricing
- Develop students' skills in applying pricing methods to realistic scenarios.
- Provide a critical overview of the research on financial market efficiency.
- Allow students to develop an understanding of how securities markets operate.

Learning outcomes

By the end of the course, successful students will be able to:

- Identify and explain the modern theories of asset valuation.
- Calculate financial returns, their expected value and volatility.
- Calculate the price of equity, listing and describing the underlying assumptions.
- Summarize bond pricing models and the term structure of interest rate.

Please consult the current EMFSS Programme Regulations for further information on the availability of a course, where it can be placed on your programme's structure, and other important details.

- Identify and critically assess the optimal portfolio choice.
- Use equilibrium asset pricing models.
- Apply valuation by arbitrage, option pricing and risk-neutral valuation.

Essential reading

Detailed course programmes and reading lists are distributed at the start of the course. Illustrative texts include:

- Berk, J., and DeMarzo, P. Corporate Finance. (Pearson, 2019) 5th Global Edition [ISBN: 9781292304151].
- Brealey, R.A., Myers, S.C., Allen, F., and Edmans, A. Principles of Corporate Finance. (McGraw Hill, 2023) 14th Edition [ISBN: 9781265074159].
- Bodie,Z., Kane, A., and Marcus, J.M. Investments. (McGraw Hill, 2020), 12th edition [ISBN: 9781260571158].

Assessment

This course is assessed by a three-hour and fifteen-minute closed-book written examination.

Syllabus

Present value calculations: annuities, perpetuities, annuities due and perpetuities due; continuous compounding.

Bond valuation: valuing coupon, and zero coupon, bonds via present value methods; the term structure of interest rates and bond valuation; yield to maturity and realised returns; interest rate risk and Macaulay duration; spot and forward interest rates; modelling the term structure of interest rates; corporate bonds, credit ratings and credit spreads.

Stock valuation: dividend discount models; the Gordon Growth model; earnings, payout ratios and stock prices; company valuation and the Present Value of Growth Opportunities; price multiples.

Portfolio Theory and the Capital Asset Pricing model: investor preferences; the mathematics of security portfolios; investor portfolio selection; market equilibrium and the CAPM.

Efficient security markets: defining informational efficiency; why should markets be efficient?; problems with testing efficiency; evidence on the efficiency of stock markets; puzzles and anomalies.

How to beat the market and mutual fund performance: betting on beta; factor models; the quest for alpha; model of mutual fund flows.

Derivative pricing: the definition of a derivative contract; how to price derivatives using absence of arbitrage; forwards and futures contracts; pricing forwards on stocks and commodities; swaps; option contracts; practical uses of options contracts; bounds on option premia; option pricing via binomial models and Black-Scholes.