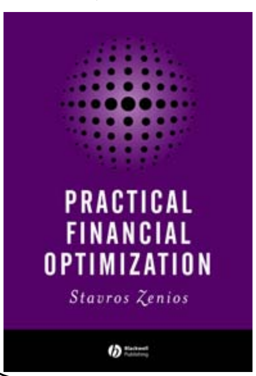
Practical Financial Optimisation: Decision Making for Financial Engineers,

1 December 2005, London

Presenter

Professor Stavros Zenios is known internationally for his work in computational finance and financial services, high-performance and parallel computations, and operations research. In his career he authored two books, edited twelve books and journal issues, and (co)authored over 130 scholarly articles in some of the premier journals in the field. He holds two US patents on financial engineering methods. His book with Yair Censor Parallel Optimization received the 1999 ICS prize of the Institute of Operations Research and the Management Sciences. His article with A. Soteriou in Management Science on banking services received a Best Paper Award from the Decision Sciences Institute at the 1999 International Meeting. In 2000 he was a Marie Curie Fellow of the European Commission.

Forthcoming Book:



Workshop Programme:

Optimisation, as a normative model for portfolio diversification, was proposed as early as 1952. But it was in the 1980s that we saw the proliferation of optimisation models in financial decision making. The catalysts for this development have been the emergence of *financial engineering* and the move towards *enterprise-wide risk management.*

The need to integrate multiple interrelated risk factors of the global enterprise brought to the fore the power of optimisation models. At the same time developments of large-scale numerical optimization techniques, advances in optimisation models for planning under uncertainty, and the availability of user-friendly modelling languages, put optimisation tools in the hands of researchers and practitioners with little background in optimisation theory. Thus, the synergies between optimisation tools and financial decision-making have flourished. And the symbiosis between these two disciplines is becoming more fertile as we enter the 21st Century marked by business globalisation, rapid technological changes, financial innovations, and increased volatility in the financial markets.

This short course will give an introduction to financial optimisation models as used to support decision-making for financial engineers. It will highlight the significance of enterprise wide risk management and review the disparate sources of risk faced by today's global institutions. Scenario analysis will be introduced as a flexible and powerful tool for dealing with uncertainty. Scenario based optimisation models will be discussed, paying particular emphasis to the optimisation of Value-at-Risk and Conditional Value-at-Risk.

Finally we will build towards multi-period dynamic portfolio optimisation models. Such state-of-the-art models can be used to optimise the risks exposure of an enterprise over long planning horizons, taking into account both assets and liabilities, and allowing for dynamic strategies.

The lectures will conclude with the analysis of two large-scale real world applications: Managing credit risk in the corporate bond portfolio market, and managing insurance products with minimum guarantees for the UK and the Italian markets.

Lecture 1: Enterprise wide risk management and the sources of financial risk

Lecture 2: Scenario analysis and scenario optimisation; Conditional Value-at-Risk

Lecture 3: Multi-period stochastic programming and the optimisation of dynamic strategies

Lecture 4: Case Studies:

- Credit risk portfolio management
- Endowments with minimum guarantees

Guest Presentation:
Portfolio Optimisation Models and Properties of Return Distributions

- Construction a portfolio whose return distribution has specified desirable properties
- Different aspects and measures of risk considered
- Decisions made in respect of a reference distribution

-- Professor Gautam Mitra, CARISMA, Brunel University

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Related Events

- ☐ Workshop: Optimisation and its use in Business Applications, 3-4 Oct. 2005
- ☐ Decision Making Under Uncertainty: Stochastic Programming Workshop, 5-6 Oct. 2005
- ☐ Financial Planning using Integer Quadratic Programming, 7 Oct. 2005 Fin ☐ SC ☐

Registration Fees

	1	2	3	4	5 days
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