

<<金融市场数学>>

图书基本信息

书名：<<金融市场数学>>

13位ISBN编号：9787510005671

10位ISBN编号：7510005671

出版时间：2010-4

出版时间：世界图书出版公司

作者：埃利奥特

页数：352

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：<http://www.tushu007.com>

前言

This work is aimed at an audience with a sound mathematical background wishing to learn about the rapidly expanding field of mathematical finance. Its content is suitable particularly for graduate students in mathematics who have a background in measure theory and probability. The emphasis throughout is on developing the mathematical concepts required for the theory within the context of their application. No attempt is made to cover the bewildering variety of novel (or exotic) financial instruments that now appear on the derivatives markets; the focus throughout remains on a rigorous development of the more basic options that lie at the heart of the remarkable range of current applications of martingale theory to financial markets. The first five chapters present the theory in a discrete-time framework. Stochastic calculus is not required, and this material should be accessible to anyone familiar with elementary probability theory and linear algebra. The basic idea of pricing by arbitrage (or, rather, by non-arbitrage) is presented in Chapter 1. The unique price for a European option in a single-period binomial model is given and then extended to multi-period binomial models. Chapter 2 introduces the idea of a martingale measure for price processes. Following a discussion of the use of self-financing trading strategies to hedge against trading risk, it is shown how options can be priced using an equivalent measure for which the discounted price process is a martingale. This is illustrated for the simple binomial Cox-Ross-Rubinstein pricing models, and the Black-Scholes formula is derived as the limit of the prices obtained for such models. Chapter 3 gives the fundamental theorem of asset pricing, which states that if the market does not contain arbitrage opportunities there is an equivalent martingale measure. Explicit constructions of such measures are given in the setting of finite market models. Completeness of markets is investigated in Chapter 4; in a complete market, every contingent claim can be generated by an admissible self-financing strategy (and the martingale measure is unique) . Stopping times, martingale convergence results, and American options are discussed in a discrete-time framework in Chapter 5.

<<金融市场数学>>

内容概要

本书旨在讲述研究现代金融市场衍生证券，如期权、期货和交换业务等所需的数学知识。建立在著名的Black-Scholes理论基础上的理想化连续时间模型需要对现代微积分有较深的了解。然而，书中许多潜在的知识点完全可以在离散时间的框架内理解。

本书是在第1版的基础上做了较多增补，使得连续时间理论应用范围更加广泛，更加详细地介绍Black-Scholes模型及其推广、期限结构和消费投资问题。

增加的内容有：一致性风险测度及其在对冲中的应用；一般离散市场模型中资产估价的第一基本定理；不完全离散市场的套利区间；完全离散市场的特征；Black-Scholes模型中的风险、回报和灵敏度。

本书内容安排相当谨慎、详细，而不是泛泛罗列所有尽可能多的内容，对期权的处理相当精辟。通过本书的学习，读者也可以了解更多的科研动态。

目次：套利定价；鞅测度；第一基本定理；完全市场；离散时间美国期权；连续时间随机计算；美国卖方期权；债券和期限结构；消费投资策略；风险度量。

读者对象：数学专业的研究生、科研人员以及具有一定数学背景的金融爱好者。

书籍目录

Preface Preface to the Second Edition 1 Pricing by Arbitrage 1.1 Introduction: Pricing and Hedging 1.2
 Single-Period Option Pricing Models 1.3 A General Single-Period Model 1.4 A Single-Period Binomial
 Model 1.5 Multi-period Binomial Models 1.6 Bounds on Option Prices 2 Martingale Measures 2.1 A
 General Discrete-Time Market Model 2.2 Trading Strategies 2.3 Martingales and Risk-Neutral Pricing 2.4
 Arbitrage Pricing: Martingale Measures 2.5 Strategies Using Contingent Claims 2.6 Example: The Binomial
 Model 2.7 From CRR to Black-Scholes 3 The First Fundamental Theorem 3.1 The Separating Hyperplane
 Theorem in R^n 3.2 Construction of Martingale Measures 3.3 Pathwise Description 3.4 Examples 3.5
 General Discrete Models 4 Complete Markets 4.1 Completeness and Martingale Representation 4.2
 Completeness for Finite Market Models 4.3 The CRR Model 4.4 The Splitting Index and Completeness 4.5
 Incomplete Models: The Arbitrage Interval 4.6 Characterisation of Complete Models 5 Discrete-time American
 Options 5.1 Hedging American Claims 5.2 Stopping Times and Stopped Processes 5.3 Uniformly
 Integrable Martingales 5.4 Optimal Stopping: The Snell Envelope 5.5 Pricing and Hedging American Options
 5.6 Consumption-Investment Strategies 6 Continuous-Time Stochastic Calculus 6.1 Continuous-Time
 Processes 6.2 Martingales 6.3 Stochastic Integrals 6.4 The Itô Calculus 6.5 Stochastic Differential
 Equations 6.6 Markov Property of Solutions of SDEs 7 Continuous-Time European Options 7.1 Dynamics
 7.2 Girsanov's Theorem 7.3 Martingale Representation 7.4 Self-Financing Strategies 7.5 An Equivalent
 Martingale Measure 7.6 Black-Scholes Prices 7.7 Pricing in a Multifactor Model 7.8 Barrier Options 7.9
 The Black-Scholes Equation 7.10 The Greeks 8 The American Put Option 8.1 Extended Trading Strategies
 8.2 Analysis of American Put Options 8.3 The Perpetual Put Option 8.4 Early Exercise Premium 8.5
 Relation to Free Boundary Problems 8.6 An Approximate Solution 9 Bonds and Term Structure 9.1 Market
 Dynamics 9.2 Future Price and Futures Contracts 9.3 Changing Numeraire 9.4 A General Option Pricing
 Formula 9.5 Term Structure Models 9.6 Short-rate Diffusion Models 9.7 The Heath-Jarrow-Morton
 Model 9.8 A Markov Chain Model 10 Consumption-Investment Strategies 10.1 Utility Functions 10.2
 Admissible Strategies 10.3 Maximising Utility of Consumption 10.4 Maximisation of Terminal Utility 10.5
 Consumption and Terminal Wealth 11 Measures of Risk 11.1 Value at Risk 11.2 Coherent Risk Measures
 11.3 Deviation Measures 11.4 Hedging Strategies with Shortfall Risk Bibliography Index

章节摘录

插图：The unreasonable effectiveness of mathematics is evidenced by the frequency with which mathematical techniques that were developed without thought for practical applications find unexpected new domains of applicability in various spheres of life. This phenomenon has customarily been observed in the physical sciences; in the social sciences its impact has perhaps been less evident. One of the more remarkable examples of simultaneous revolutions in economic theory and market practice is provided by the opening of the worlds first options exchange in Chicago in 1973, and the ground-breaking theoretical papers on preference-free option pricing by Black and Scholes [27] (quickly extended by Merton [222]) that appeared in the same year, thus providing a workable model for the rational market pricing of traded options. From these beginnings, financial derivatives markets worldwide have become one of the most remarkable growth industries and now constitute a major source of employment for graduates with high levels of mathematical expertise. The principal reason for this phenomenon has its origins in the simultaneous stimuli just described, and the explosive growth of these secondary markets (whose levels of activity now frequently exceed the underlying markets on which their products are based) continues unabated, with total trading volume now measured in trillions of dollars. The variety and complexity of new financial instruments is often bewildering, and much effort goes into the analysis of the (ever more complex) mathematical models on which their existence is predicated.

<<金融市场数学>>

编辑推荐

《金融市场数学(第2版)(英文版)》是由世界图书出版公司出版的。

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:<http://www.tushu007.com>