

<<金融衍生品数学模型>>

图书基本信息

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前言

In the past three decades, we have witnessed the phenomenal growth in the trading of financial derivatives and structured products in the financial markets around the globe and the surge in research on derivative pricing theory, leading financial institutions are hiring graduates with a science background who can use advanced analytical and numerical techniques to price financial derivatives and manage portfolio risks, a phenomenon coined as Rocket Science on Wall Street. There are now more than a hundred Master level degree programs in Financial Engineering/Quantitative Finance/Computational Finance in different continents. This book is written as an introductory textbook on derivative pricing theory for students enrolled in these degree programs. Another audience of the book may include practitioners in quantitative teams in financial institutions who would like to acquire the knowledge of option pricing techniques and explore the new development in pricing models of exotic structured derivatives. The level of mathematics in this book is tailored to readers with preparation at the advanced undergraduate level of science and engineering majors, in particular, basic proficiencies in probability and statistics, differential equations, numerical methods, and mathematical analysis. Advance knowledge in stochastic processes that are relevant to the martingale pricing theory, like stochastic differential calculus and theory of martingale, are introduced in this book. The cornerstones of derivative pricing theory are the Black-Scholes-Merton pricing model and the martingale pricing theory of financial derivatives. The renowned risk neutral valuation principle states that the price of a derivative is given by the expectation of the discounted terminal payoff under the risk neutral measure, in accordance with the property that discounted security prices are martingales under this measure in the financial world of absence of arbitrage opportunities. This second edition presents a substantial revision of the first edition. The new edition presents the theory behind modeling derivatives, with a strong focus on the martingale pricing principle. The continuous time martingale pricing theory is motivated through the analysis of the underlying financial economics principles within a discrete time framework. A wide range of financial derivatives commonly traded in the equity and fixed income markets are analyzed, emphasizing on the aspects of pricing, hedging, and their risk management. Starting from the Black-Scholes-Merton formulation of the option pricing model, readers are guided through the book on the new advances in the state-of-the-art derivative pricing models and interest rate models. Both analytic techniques and numerical methods for solving various types of derivative pricing models are emphasized. A large collection of closed form price formulas of various exotic path dependent equity options (like barrier options, lookback options, Asian options, and American options) and fixed income derivatives are documented.

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内容概要

本书旨在运用金融工程方法讲述模型衍生品背后的理论，作为重点介绍了对大多数衍生证券很常用的鞅定价原理。

书中还分析了固定收入市场中的大量金融衍生品，强调了定价、对冲及其风险策略。

本书从著名的期权定价模型的Black-Scholes-Merton公式开始，讲述衍生品定价模型和利率模型中的最新进展，解决各种形式衍生品定价问题的解析技巧和数值方法。

目次：衍生品工具介绍；金融经济和随机计算；期权定价模型；路径依赖期权；美国期权；定价期权的数值方案；利率模型和债券计价；利率衍生品：债券期权、LIBOR和交换产品。

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