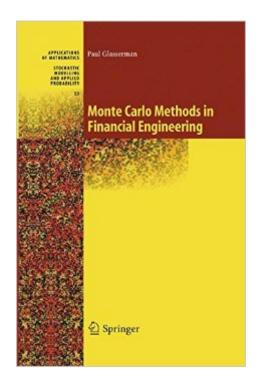
The book was found

Monte Carlo Methods In Financial Engineering (Stochastic Modelling And Applied Probability) (v. 53)





Synopsis

From the reviews: "Paul Glasserman has written an astonishingly good book that bridges financial engineering and the Monte Carlo method. The book will appeal to graduate students, researchers, and most of all, practicing financial engineers [...] So often, financial engineering texts are very theoretical. This book is not." --Glyn Holton, Contingency Analysis

Book Information

Series: Stochastic Modelling and Applied Probability (Book 53) Hardcover: 596 pages Publisher: Springer; 2003 edition (August 7, 2003) Language: English ISBN-10: 0387004513 ISBN-13: 978-0387004518 Product Dimensions: 6.1 × 1.3 × 9.2 inches Shipping Weight: 2.5 pounds (View shipping rates and policies) Average Customer Review: 4.2 out of 5 stars Â See all reviews (25 customer reviews) Best Sellers Rank: #332,879 in Books (See Top 100 in Books) #80 in Books > Business & Money > Economics > Public Finance #115 in Books > Textbooks > Business & Finance > Economics > Economic Theory #455 in Books > Textbooks > Business & Finance > Finance

Customer Reviews

This new book, written by an active contributor to the field of Monte Carlo methods in finance, summarizes the ongoing interaction between theory and practice in a way that is readily accessible to graduate students and practitioners in quantitative finance. The book is as self-contained as possible: basic notions on Monte Carlo simulation and option pricing are recalled in the first chapter and the second chapter explains how random number generators are designed. Chapter 3 explains how to generate sample paths for some commonly used stochastic models: multifactor Gaussian models, square root diffusions, diffusions with Poisson jumps, some examples of Lévy processes and the LIBOR market model. Instead of giving a general result and leaving the reader on his own, the author treats each example with a fair amount of detail.Chapter 4, which is the longest and probably the best chapter in the book, discusses variance reduction techniques. Variance reduction is what makes all the difference between a basic Monte Carlo simulation and a state-of-the-art algorithm incorporating the tricks of the trade. Apart from classical topics such as control variates, stratified sampling and importance sampling, the author (briefly) discusses more advanced topics

such as the Weighted Monte Carlo method of Avellaneda et al., viewing it as a variance reduction method. While computation of prices as expectations are standard applications of the Monte Carlo methods, two other issues in finance have turned out to be more challenging to solve using Monte Carlo simulation: the computation of sensitivities ("Greeks") and the pricing of American options, which involves the maximization of conditional expectations.

Monte Carlo simulations are extensively used not only in finance but also in network modeling, bioinformatics, radiation therapy planning, physics, and meteorology, to name a few. This book gives a good overview of how they are used in financial engineering, with particular emphasis on pricing American options and risk management. Aspiring financial engineers will find much that is helpful in the book, and after reading it should be able to apply the methodologies in the book in whatever financial institution they find themselves employed. The mathematics may be too formidable for a practical trader, but the book is targeted to readers who intend to work as financial engineers in a high-powered financial institution. Due to constraints of space, only the last two chapters will be reviewed here. The next-to-last chapter discusses the difficult problem of pricing American options, which the author introduces as an `embedded optimization problem': the value of an American option is found by finding the optimal expected discounted payoff, in order to find the best time to exercise the option. When applying Monte Carlo simulation, the author restricts himself to options that can only be exercised at a finite, fixed set of opportunities, with a discrete Markov chain used to model the underlying process representing the discounted payoff from the exercise of the option at a particular time. This allows the use of dynamic programming, which the author does throughout the chapter, with the further simplification that the discounting is omitted. The author also shows how to find the optimal value by finding the best value within a parametric class, giving in the process a more tractable problem. This approach considers a parametric class of exercise regions or stopping rules.

Download to continue reading...

Monte Carlo Methods in Financial Engineering (Stochastic Modelling and Applied Probability) (v. 53) Case Studies in Certified Quantitative Risk Management (CQRM): Applying Monte Carlo Risk Simulation, Strategic Real Options, Stochastic Forecasting, ... Business Intelligence, and Decision Modeling Applied Probability and Stochastic Processes Monte Carlo Methodologies and Applications for Pricing and Risk Management Making Monte Carlo: A History of Speculation and Spectacle Building Winning Algorithmic Trading Systems, + Website: A Trader's Journey From Data Mining to Monte Carlo Simulation to Live Trading (Wiley Trading) Clay Modelling for Beginners: An

Essential Guide to Getting Started in the Art of Sculpting Clay ~ (Clay Modelling | Clay Modeling | Clay Art) Interest Rate Modelling: Financial Engineering Level Crossing Methods in Stochastic Models (International Series in Operations Research & Management Science) A Primer For The Mathematics Of Financial Engineering, Second Edition (Financial Engineering Advanced Background Series) Solutions Manual - A Linear Algebra Primer for Financial Engineering (Financial Engineering Advanced Background Series) (Volume 4) Interest Rate Modelling in the Multi-Curve Framework: Foundations, Evolution and Implementation (Applied Quantitative Finance) Applied Econometric Time Series (Wiley Series in Probability and Statistics) Statistical Learning with Sparsity: The Lasso and Generalizations (Chapman & Hall/CRC Monographs on Statistics & Applied Probability) Modelling Techniques for Business Process Re-engineering and Benchmarking (IFIP Advances in Information and Communication Technology) Probability and Statistics for Engineering and the Sciences Entity-Relationship Approach - ER '94. Business Modelling and Re-Engineering: 13th International Conference on the Entity-Relationship Approach, ... (Lecture Notes in Computer Science) Practical Financial Modelling, Third Edition: The Development and Audit of Cash Flow Models Analysis of Financial Time Series (Wiley Series in Probability and Statistics) Biologically Inspired Algorithms for Financial Modelling (Natural Computing Series) Dmca