

1. Record Nr.	UNINA9910814678603321
Autore	Huynh Huu Tue
Titolo	Stochastic simulation and applications in finance with MATLAB programs // Huu Tue Huynh, Van Son Lai and Issouf Soumare
Pubbl/distr/stampa	Chichester, England ; ; Hoboken, N.J., : John Wiley & Sons, c2008
ISBN	9786613372376 9781283372374 1283372371 9781118467374 111846737X 9780470722138 0470722134
Edizione	[1st ed.]
Descrizione fisica	1 online resource (356 p.)
Collana	Wiley finance
Classificazione	DAT 306f MAT 605f QP 890 ST 601 M35 WIR 160f
Altri autori (Persone)	LaiVan Son Soumarelsouf
Disciplina	332.01/51923 332.0151923
Soggetti	Finance - Mathematical models Stochastic models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Stochastic Simulation and Applications in Finance with MATLAB® Programs; Contents; Preface; 1 Introduction to Probability; 1.1 Intuitive Explanation; 1.1.1 Frequencies; 1.1.2 Number of Favorable Cases Over The Total Number of Cases; 1.2 Axiomatic Definition; 1.2.1 Random Experiment; 1.2.2 Event; 1.2.3 Algebra of Events; 1.2.4 Probability Axioms; 1.2.5 Conditional Probabilities; 1.2.6 Independent Events; 2 Introduction to Random Variables; 2.1 Random Variables; 2.1.1 Cumulative Distribution Function; 2.1.2 Probability Density Function 2.1.3 Mean, Variance and Higher Moments of a Random Variable2.1.4

Characteristic Function of a Random Variable; 2.2 Random vectors; 2.2.1 Cumulative Distribution Function of a Random Vector; 2.2.2 Probability Density Function of a Random Vector; 2.2.3 Marginal Distribution of a Random Vector; 2.2.4 Conditional Distribution of a Random Vector; 2.2.5 Mean, Variance and Higher Moments of a Random Vector; 2.2.6 Characteristic Function of a Random Vector; 2.3 Transformation of Random Variables; 2.4 Transformation of Random Vectors

2.5 Approximation of the Standard Normal Cumulative Distribution Function; 3 Random Sequences; 3.1 Sum of Independent Random Variables; 3.2 Law of Large Numbers; 3.3 Central Limit Theorem; 3.4 Convergence of Sequences of Random Variables; 3.4.1 Sure Convergence; 3.4.2 Almost Sure Convergence; 3.4.3 Convergence in Probability; 3.4.4 Convergence in Quadratic Mean; 4 Introduction to Computer Simulation of Random Variables; 4.1 Uniform Random Variable Generator; 4.2 Generating Discrete Random Variables; 4.2.1 Finite Discrete Random Variables

4.2.2 Infinite Discrete Random Variables: Poisson Distribution; 4.3 Simulation of Continuous Random Variables; 4.3.1 Cauchy Distribution; 4.3.2 Exponential Law; 4.3.3 Rayleigh Random Variable; 4.3.4 Gaussian Distribution; 4.4 Simulation of Random Vectors; 4.4.1 Case of a Two-Dimensional Random Vector; 4.4.2 Cholesky Decomposition of the Variance-Covariance Matrix; 4.4.3 Eigenvalue Decomposition of the Variance-Covariance Matrix; 4.4.4 Simulation of a Gaussian Random Vector with MATLAB; 4.5 Acceptance-Rejection Method; 4.6 Markov Chain Monte Carlo Method (MCMC)

4.6.1 Definition of a Markov Process; 4.6.2 Description of the MCMC Technique; 5 Foundations of Monte Carlo Simulations; 5.1 Basic Idea; 5.2 Introduction to the Concept of Precision; 5.3 Quality of Monte Carlo Simulations Results; 5.4 Improvement of the Quality of Monte Carlo Simulations or Variance Reduction Techniques; 5.4.1 Quadratic Resampling; 5.4.2 Reduction of the Number of Simulations Using Antithetic Variables; 5.4.3 Reduction of the Number of Simulations Using Control Variates; 5.4.4 Importance Sampling; 5.5 Application Cases of Random Variables Simulations

5.5.1 Application Case: Generation of Random Variables as a Function of the Number of Simulations

Sommario/riassunto

Stochastic Simulation and Applications in Finance with MATLAB Programs explains the fundamentals of Monte Carlo simulation techniques, their use in the numerical resolution of stochastic differential equations and their current applications in finance. Building on an integrated approach, it provides a pedagogical treatment of the need-to-know materials in risk management and financial engineering. The book takes readers through the basic concepts, covering the most recent research and problems in the area, including: the quadratic re-sampling technique, the Least Squared Method, the d
