Derivatives The Theory And Practice Of Financial Engineering

The market for financial derivatives is far and away the largest and most powerful market in the world, and it is growing exponentially. In 1970 the yearly valuation of financial derivatives was only a few million dollars. By 1980 the sum had swollen to nearly one hundred million dollars. By 1990 it had climbed to almost one hundred billion dollars, and in 2000 it approached one hundred trillion. Created and sustained by a small number of Euro corporations, and hedge funds, the derivatives market has an enormous impact on the economies of nations—particularly poorer nations—because it controls the price of money. Derivatives bought and sold by means of computer keystrokes in London and New York affect the price of food, clothing, and housing in Johannesburg, Kuala Lumpur, and Buenos Aires. Arguing that social theorists concerned with globalization must familiarize the world economy based on the rapid circulation of capital, Edward LiPuma and Benjamin Lee offer a concise introduction to financial derivatives. LiPuma and Lee explain how derivatives are essentially wagers—often on the fluctuations of national currencies—based on models that aggregate and price risk. They describe how these financial instruments are changing the face of capitalism, undermining the power of nations and perpetrating a domination on postcolonial societies. As they ask: How does one know about, let alone demonstrate against, an unlisted, virtual, offshore corporation that operates in an unregulated electronic space using a secret proprietary trading strategy to buy and sell arcane financial instruments? LiPuma and Lee provide a necessary look at the obscure but consequential role of financial derivatives in the global economy.

Derivatives by Paul Wilmott provides the most comprehensive and accessible analysis of the art of science in financial modeling available. Wilmott explains and challenges many of the tried and tested models while at the same time offering the reader many new and previously unpublished ideas and techniques. Paul Wilmott has produced a compelling and essential new work in this field. The basics of the established theories-such as stoch binomial trees and interest-rate models-are covered in clear and precise detail, but Derivatives goes much further. Complex models-such as path dependency, non-probabilistic models, static hedging and quasi-Monte Carlo methods-are introduced and explained to a highly sophisticated level. But theory in itself is not enough, an understanding of the role the techniques play in the daily world of finance is also examined through the use of sp inclusion of Visual Basic programs. The book is divided into six parts: Part One: acts as an introduction and explanation of the fundamentals of derivatives theory and practice, dealing with the equity, commodity and currency worlds. Part Two: takes the mathematics of Part One to a more complex level, introducing the concept of path dependency. Part Three: concerns extensions of the Black-Scholes world, both classic and modern. Part F income products. Part Five: describes models for risk management and measurement. Part Six: delivers the numerical methods required for implementing the models described in the rest of the book. Derivatives also includes a CD containing a wide variety of implementation material related to the book in the form of spreadsheets and executable programs together with resource material such as demonstration software and relevant contrib style remains readable and compelling making Derivatives the essential book on every finance shelf.

Malliavin Calculus in Finance: Theory and Practice aims to introduce the study of stochastic volatility (SV) models via Malliavin Calculus. Malliavin calculus has had a profound impact on stochastic analysis. Originally motivated by the study of the existence of smooth densities of certain random variables, it has proved to be a useful tool in many other problems. In particular, it has found applications in quantitative finance, as in the computat the efficient estimation of the Greeks. The objective of this book is to offer a bridge between theory and practice. It shows that Malliavin calculus is an easy-to-apply tool that allows us to recover, unify, and generalize several previous results in the literature on stochastic volatility modeling related to the vanilla, the forward, and the VIX implied volatility surfaces. It can be applied to local, stochastic, and also to rough volatilities (driven by a fra leading to simple and explicit results. Features Intermediate-advanced level text on quantitative finance, oriented to practitioners with a basic background in stochastic analysis, which could also be useful for researchers and students in quantitative finance Includes examples on concrete models such as the Heston, the SABR and rough volatilities, as well as several numerical experiments and the corresponding Python scripts Covers applic options, and options on the VIX. The book also has a Github repository with the Python library corresponding to the numerical examples in the text. The library has been implemented so that the users can re-use the numerical code for building their examples. The repository can be accessed here: https://bit.ly/2KNex2Y.

General Fractional Derivatives: Theory, Methods and Applications provides knowledge of the special functions with respect to another function, and the integro-differential operators where the integrals are of the convolution type and exist the singular, weakly singular and nonsingular kernels, which exhibit the fractional derivatives, fractional integrals, general fractional derivatives, and general fractional integrals of the constant and variable o respect to another function due to the appearance of the power-law and complex herbivores to figure out the modern developments in theoretical and applied science. Features: Give some new results for fractional calculus of constant and variable orders. Discuss some new definitions for fractional calculus with respect to another function. Provide definitions for general fractional calculus of constant and variable orders. Report new results o with respect to another function. Propose news special functions with respect to another function and their applications. Present new models for the anomalous relaxation and rheological behaviors. This book serves as a reference book and textbook for scientists and engineers in the fields of mathematics, physics, chemistry and engineering, senior undergraduate and graduate students. Dr. Xiao-Jun Yang is a full professor of Applied Math University of Mining and Technology, China. He is currently an editor of several scientific journals, such as Fractals, Applied Numerical Mathematics, Mathematical Modelling and Analysis, International Journal of Numerical Methods for Heat & Fluid Flow, and Thermal Science.

The LIBOR Market Model and Beyond

Financial Derivatives

Uses and Abuses of Financial Derivatives

Theory and Practice, Second Edition

Risk Takers

Asset Allocation, Valuation, Portfolio Construction, and Strategies

This book introduces machine learning methods in finance. It presents a unified treatment of machine learning and various statistical and computational disciplines in quantitative finance, such as financial econometrics and discrete time stochastic control, with an emphasis on how theory and hypothesis tests inform the choice of algorithm for financial data modeling and decision making. With the trend towards increasing computational resources and larger datasets, machine learning has grown into an important skillset for the finance industry. This book is written for advanced graduate students and academics in financial econometrics, mathematical finance and applied statistics, in addition to quants and data scientists in the field of quantitative finance. Machine Learning in Finance: From Theory to Practice is divided into three parts, each part covering theory and applications. The first presents supervised learning for cross-sectional data from both a Bayesian and frequentist perspective. The more advanced material places a firm emphasis on neural networks, including deep learning, as well as Gaussian processes, with examples in investment management and derivative modeling. The second part presents supervised learning for time series data, arguably the most common data type used in finance with examples in trading, stochastic volatility and fixed income modeling. Finally, the third part presents reinforcement learning and its applications in trading, investment and wealth management. Python code examples are provided to support the readers' understanding of the methodologies and applications. The book also includes more than 80 mathematical and programming exercises, with worked solutions available to instructors. As a bridge to research in this emergent field, the final chapter presents the frontiers of machine learning in finance from a researcher's perspective, highlighting how many well-known concepts in statistical physics are likely to emerge as important methodologies for machine learning in finance.

Book and CDROM include the important topics and cutting-edge research in financial derivatives and risk management.

Suitable for advanced undergraduate or graduate business, economics, and financial engineering courses in derivatives, options and futures, or risk management, this text bridges the gap between theory and practice.

"Over the past two decades, the mathematically complex models of finance theory have had a direct and wide-ranging influence on finance practice. Nowhere is this conjoining of intrinsic intellectual interest with extrinsic application better exemplified than in derivative-security pricing. The backgrounds of the authors of Options, Futures and Exotic Derivatives fit perfectly this pattern of combining theory and practice and so does their book. The range and depth of subject matter show excellent taste for what is essential to know the field and what is relevant and important to its application in the financial world. In addition to its fine subject-defining, the book delivers on subject-content, with rigorous derivations presented in a clear, direct voice for the serious student, whether academic or practitioner. To the reader: Bon Appetit!" Robert C. Merton, Harvard Business School Long-Term Capital Management, L.P. "One of the merits of this book is that it is self-contained. It is both a textbook and a reference book. It covers the basics of the theory, as well as the techniques for valuation of many of the more exotic derivatives. It contains a detailed knowledge of the field. What is more, however, it is written with a deep understanding of the economics of finance." From the Foreword by Oldrich Alfons Vasicek "The authors have done an admirable job at distilling what is relevant in option research in one single volume. I wish I'd had the chance to read it before writing my own book." Nassim Taleb, veteran option arbitrageur and bestselling author of Dynamic Hedging: Managing Vanilla and Exotic Options "This is a delightful promenade in derivatives land. The book is encyclopaedic yet crisp and inspired. It is the story - told in equations - of the charms and spells of options and their underlying mathematics." Jamil Baz, Head of Financial Strategies, Lehman Brothers Europe Building steadily from the basic mathematical tools to the very latest techniques in exotic options, Options, Futures and Exotic Derivatives covers all aspects of the most innovative and rapidly developing area of international financial markets - the world of over-the-counter and tailor-made derivative asset pricing. Written by a globally renowned team of authors this book offers comprehensive coverage of exotic derivative assets and * Deals with numerous new forms of exotic options and option pricing * Provides detailed explanations of different models and numerical methods * Offers a deep understanding of the economics of finance With questions and review sections throughout, Options, Futures and Exotic Derivatives provides a thorough introduction to a crucial and expanding area in the world of finance for both finance students and practitioners.

Volatility and Correlation

Corporate and Institutional Applications

Interest Rate Models - Theory and Practice

Machine Learning in Finance

Financial Derivatives in Theory and Practice

Malliavin Calculus in Finance

Written by the quantitative research team of Deutsche Bank, the world leader in innovative equity derivative transactions, this book acquaints readers with leading-edge thinking in modeling and hedging these transactions. Equity Derivatives offers a balanced, integrated presentation of theory and practice in equity derivative markets. It provides a theoretical treatment of each new modeling and hedging concept first, and then demonstrates their practical application. The book covers: the newest and fastest-growing class of derivative instruments, fund derivatives; cutting-edge developments in equity derivative modeling; new developments in correlation modeling and understanding volatility skews; and new Web-based implementation/delivery methods. Marcus Overhaus, PhD, Andrew Ferraris, DPhil, Thomas Knudsen, PhD, Frank Mao, PhD, Ross Milward, Laurent Nguyen-Ngoc, PhD, and Gero Schindlmayr, PhD, are members of the Quantitative Research team of Deutsche Bank's Global Equity Division, which is based in London and headed by Dr. Overhaus.

Three experts provide an authoritative guide to the theory and practice of derivatives Derivatives: Theory and Practice and its companion website explore the practical uses of derivatives and offer a guide to the key results on pricing, hedging and speculation using derivative securities. The book links the theoretical and practical aspects of derivatives in one volume whilst keeping mathematics and statistics to a minimum. Throughout the book, the authors put the focus on explanations and applications. Designed as an engaging resource, the book contains commentaries that make serious points in a lighthearted manner. The authors examine the real world of derivatives finance and include discussions on a wide range of topics such as the use of derivatives by hedge funds and the application of strip and stack hedges by corporates, while providing an analysis of how risky the stock market can be for long-term investors, and more. To enhance learning, each chapter contains learning objectives, worked examples, details of relevant finance blogs technical appendices and exercises.

This highly acclaimed text, designed for postgraduate students of management, commerce, and financial studies, has been enlarged and updated in its second edition by introducing new chapters and topics with its focus on conceptual understanding based on practical examples. Each derivative product is illustrated with the help of diagrams, charts, tables and solved problems. Sufficient exercises and review questions help students to practice and test their knowledge. Since this comprehensive text includes latest developments in the field, the students pursuing CA, ICWA and CFA will also find this book of immense value, besides management and commerce students. THE NEW EDITION INCLUDES • Four new chapters on 'Forward Rate Agreements', 'Pricing and Hedging of Swaps', 'Real Options', and 'Commodity Derivatives Market' • Substantially revised chapters—'Risk Management in Derivatives', 'Foreign Currency Forwards', and 'Credit Derivatives' • Trading mechanism of Short-term interest rate futures and Long-term interest rate futures • Trading of foreign currency futures in India with RBI Guidelines • Currency Option Contracts in India • More solved examples and practice problems • Separate sections on 'Swaps' and 'Other Financial Instruments' • Extended Glossary

This book provides thorough coverage of the institutional applications of equity derivatives. It starts with an introduction on stock markets' fundamentals before opening the gate on the world of structured products. Delta-one products and options are covered in detail, providing readers with deep understanding of the use of equity derivatives strategies. The book features most of the traded payoffs and structures and covers all practical aspects of pricing and hedging. The treatment of risks is performed in a very intuitive fashion and provides the reader with a great overview of how dealers approach such derivatives. The author also delivers various common sensical reasons on which models to use and when. By discussing equity derivatives in a practical, non–mathematical and highly intuitive setting, this book enables practitioners to fully understand and correctly structure, price and hedge these products effectively, and stand strong as the only book in its class to make these equity-related concepts truly accessible.

Interest Rate Modeling

Equity Derivatives Explained

Theory and Practice of CSA and XVA Pricing, Exposure Simulation and Backtesting

Products, Theory and Practices

FINANCIAL DERIVATIVES

Derivative Pricing in Discrete Time

This book provides a broad description of the financial derivatives business from a practitioner's point of view, with a particular emphasis on fixed income derivatives, a specific development on fixed income derivatives and a practical approach to the field. With particular emphasis on the concrete usage of mathematical models, numerical methods and the pricing methodology, this book is an essential reading for anyone considering a career in derivatives either as a trader, a quant or a structurer.

Publisher Description

In Advanced Equity Derivatives: Volatility andCorrelation, Sébastien Bossu reviews and explains theadvanced concepts used for pricing and hedging equity exoticderivatives. Designed for financial modelers, option tradersand sophisticated investors, the content covers the most importanttheoretical and practical extensions of the Black-Scholesmodel. Each chapter includes numerous illustrations and a shortselection of problems, covering key topics such as impliedvolatility surface models, pricing with implied distributions,local volatility models, volatility derivatives, correlationmeasures, correlation trading, local correlation models andstochastic correlation. The author has a dual professional and academic background,making Advanced Equity Derivatives: Volatility andCorrelation the perfect reference for quantitative researchersand mathematically savvy finance professionals looking to acquirean in-depth understanding of equity exotic derivatives pricing andhedging.

This book introduces readers to the financial markets, derivatives, structured products and how the products are modelled and implemented by practitioners. In addition, it equips readers with the necessary knowledge of financial markets needed in order to work as product structurers, traders, sales or risk managers. As the book seeks to unify the derivatives modelling and the financial engineering practice in the market, it will be of interest to financial practitioners and academic researchers alike. Further, it takes a different route from the existing financial mathematics books, and will appeal to students and practitioners with or without a scientific background. The book can also be used as a textbook for the following courses: • Financial Mathematics (undergraduate level) • Stochastic Modelling in Finance (postgraduate level) • Financial Markets and Derivatives (undergraduate level) • Structured Products and Solutions (undergraduate/postgraduate level)

THEORY, CONCEPTS AND PROBLEMS

An Introduction to Equity Derivatives

Theory, Tools and Hands-on Programming Application

Modern Derivatives Pricing and Credit Exposure Analysis

From Theory to Practice

Financial Mathematics, Derivatives and Structured Products

DerivativesTheory and PracticeJohn Wiley & Sons

Risk Takers: Uses and Abuses of Financial Derivatives goes to the heart of the arcane and largely misunderstood world of derivative finance and makes it accessible to everyone—even novice readers. Marthinsen takes us behind the scenes, into the back alleyways of corporate finance and derivative trading, to provide a bird's-eye view of the most shocking financial disasters of the past quarter century. The book draws on real-life stories to explain how financial derivatives can be used to create or to destroy value. In an approachable, non-technical manner, Marthinsen brings these financial derivatives situations to life, fully exploring the context of each event, evaluating their outcomes, and bridging the gap between theory and practice.

Skilled investors know that to play in today's high-risk global-investment environment, they must maximize return while hedging risk. To do this successfully, investors must understand the intricacies and nuances of a myriad of investment vehicles, many relatively new to the investment arena. In Derivative Securities: The Complete Investor's Guide, two renowned experts show how a unified approach to derivatives that pays equal attention to options and futures pricing in both theory and practice, allows the investor to achieve his or her goals. Particular attention is paid to the issue of credit risk in pricing and the crucial function of risk management.

Finance and Derivatives teaches all of the fundamentals of quantitative finance clearly and concisely without going into unnecessary technicalities. You'll pick up the most important theoretical concepts, tools and vocabulary without getting bogged down in arcane derivations or enigmatic theoretical considerations. --Paul Wilmott Finance and Derivatives: Theory and Practice is a collection of exercises accompanied by the relevant financial theory, covering key topics that include: present value, arbitrage pricing, portfolio theory, derivates pricing, delta-hedging and the BlackScholes model. As well as being ideally placed to complement undergraduate and postgraduate studies, Finance and Derivatives: Theory and Practice is also highly valuable as a self-study guide for practitioners. Key Features: * No prior finance background is required, as the book starts with basic notions and gradually increases in difficulty through each chapter, ending with more advanced concepts. * Students can make progress at their own pace as each chapter includes course notes, exercises and solutions. * The authors have an excellent knowledge of both the academic environment and the finance industry, making the book well balanced between theory and practice. * Supplementary material for readers and lecturers is provided on an accompanying website.

Global Derivatives

Modern Pricing of Interest-Rate Derivatives

General Fractional Derivatives

An Introduction to the Mathematics of Financial Derivatives

Theory and Practice of Trading, Valuation, and Risk Management

Finance and Derivatives

A succinct book that provides readers with all they need to know about the equity derivatives business. It deals with vanilla equity products, their usage, structuring and their risk management. The author efficiently bridges the gap between theory and practice, constantly linking risk management tools with specific business objectives.

A step-by-step explanation of the mathematical models used to price derivatives. For this second edition, Salih Neftci has expanded one chapter, added six new ones, and inserted chapter-concluding exercises. He does not assume that the reader has a thorough mathematical background. His explanations of financial calculus seek to be simple and perceptive.

Everything you need to get a grip on the complex world of derivatives Written by the internationally respected academic/finance professional author team of Sebastien Bossu and Philipe Henrotte, An Introduction to Equity Derivatives is the fully updated and expanded second edition of the popular Finance and Derivatives. It covers all of the fundamentals of quantitative finance clearly and concisely without going into unnecessary technical detail. Designed for both new practitioners and students, it requires no prior background in finance and features twelve chapters of gradually increasing difficulty, beginning with basic principles of interest rate and discounting, and ending with advanced concepts in derivatives, volatility trading, and exotic products. Each chapter includes numerous illustrations and exercises accompanied by the relevant financial theory. Topics covered include present value, arbitrage pricing, portfolio theory, derivates pricing, delta-hedging, the Black-Scholes model, and more. An excellent resource for finance professionals and investors looking to acquire an understanding of financial derivatives theory and practice Completely revised and updated with new chapters, including coverage of cutting-edge concepts in volatility trading and exotic products An accompanying website is available which contains additional resources including powerpoint slides and spreadsheets. Visit www.introeqd.com for details.

Sound risk management often involves a combination of both mathematical and practical aspects. Taking this into account, Understanding Risk: The Theory and Practice of Financial Risk Management explains how to understand financial risk and how the severity and frequency of losses can be controlled. It combines a quantitative approach with a

Theory, Extensions and Applications

Financial Derivatives and the Globalization of Risk

The Theory and Practice of Investment Management

Theory and Applications

Derivatives

Understanding Risk

The 2nd edition of this successful book has several new features. The calibration discussion of the basic LIBOR market model has been enriched considerably, with an analysis of the impact of the swaptions interpolation technique and of the exogenous instantaneous correlation on the calibration outputs. A discussion of historical estimation of the instantaneous correlation matrix and of rank reduction has been added, and a LIBOR-model consistent swaption-volatility interpolation technique has been introduced. The old sections devoted to the smile issue in the LIBOR market model have been enlarged into a new chapter. New sections on local-volatility dynamics, and on stochastic volatility models have been added, with a thorough treatment of the recently developed uncertain-volatility approach. Examples of calibrations to real market data are now considered. The fast-growing interest for hybrid products has led to a new chapter. A special focus here is devoted to the pricing of inflation-linked derivatives. The three final new chapters of this second edition are devoted to credit. Since Credit Derivatives are increasingly fundamental, and since in the reduced-form modeling framework much of the technique involved is analogous to interest-rate modeling, Credit Derivatives -- mostly Credit Default Swaps (CDS), CDS Options and Constant Maturity CDS - are discussed, building on the basic short rate-models and market models introduced earlier for the default-free market. Counterparty risk in interest rate payoff valuation is also considered, motivated by the recent Basel II framework developments.

Containing many results that are new, or which exist only in recent research articles, Interest Rate Modeling: Theory and Practice, 2nd Edition portrays the theory of interest rate modeling as a three-dimensional object of finance, mathematics, and computation. It introduces all models with financial-economical justifications, develops options along the martingale approach, and handles option evaluations with precise numerical methods. Features Presents a complete cycle of model construction and applications, showing readers how to build and use models Provides a systematic treatment of intriguing industrial issues, such as volatility and correlation adjustments Contains exercise sets and a number of examples, with many based on real market data Includes comments on cutting-edge research, such as volatility-smile, positive interest-rate models, and convexity adjustment New to the 2nd edition: volatility smile modeling; a new paradigm for inflation derivatives modeling; an extended market model for credit derivatives; a dual-curved model for the post-crisis interest-rate derivatives markets; and an elegant framework for the xVA.

Accompanying computer optical disc contains 'demos of commercial software, spreadsheets and code illustrating models and methods from the book, cutting-edge research articles..., data document and demo from CrashMetrics, the Value at Risk methodology'. (book)

This book is an essential purchase for all members of the shipping and financial communities. The book will also be required reading for academics and students of maritime or transportation-related university programs.

With Smile, Inflation and Credit

Equity Derivatives

Derivative Securities

Advanced Equity Derivatives

The Theory and Practice of Financial Engineering

Pricing, Applications, and Mathematics

This book discusses in detail the workings of financial markets and over-the-counter (OTC) markets, focusing specifically on standard and complex derivatives. The subjects covered range from the fundamental products in OTC markets, standard and exotic options, the concepts of value at risk, credit derivatives and risk management, to the applications of option pricing theory to real assets.To further elucidate these complex concepts and formulas, this book also explains in each chapter how theory and practice go hand-in-hand. This volume, a culmination of the author's 12 years of professional experience in the field of finance, derivative analysis and risk management, is a valuable guide for postgraduate students, academics and practitioners in the field of finance.

An updated guide to the theory and practice of investment management Many books focus on the theory of investment management and leave the details of the implementation of the theory up to you. This book illustrates how theory is applied in practice while stressing the importance of the portfolio construction process. The Second Edition of The Theory and Practice of Investment Management is the ultimate guide to understanding the various aspects of investment management and investment vehicles. Tying together theoretical advances in investment management with actual practical applications, this book gives you a unique opportunity to use proven investment management techniques to protect and grow a portfolio under many different circumstances. Contains new material on the latest tools and strategies for both equity and fixed income portfolio management Includes key take-aways as well as study questions at the conclusion of each chapter A timely updated guide to an important topic in today's investment world This comprehensive investment management resource combines real-world financial knowledge with investment management theory to provide you with the practical guidance needed to succeed within the investment management arena.

The term Financial Derivative is a very broad term which has come to mean any financial transaction whose value depends on the underlying value of the asset concerned. Sophisticated statistical modelling of derivatives enables practitioners in the banking industry to reduce financial risk and ultimately increase profits made from these transactions. The book originally published in March 2000 to widespread acclaim. This revised edition has been updated with minor corrections and new references, and now includes a chapter of exercises and solutions, enabling use as a course text. Comprehensive introduction to the theory and practice of financial derivatives. Discusses and elaborates on the theory of interest rate derivatives, an area of increasing interest. Divided into two self-contained parts ? the first concentrating on the theory of stochastic calculus, and the second describes in detail the pricing of a number of different derivatives in practice. Written by well respected academics with experience in the banking industry. A valuable text for practitioners in research departments of all banking and finance sectors. Academic researchers and graduate students working in mathematical finance.

This book helps students, researchers and quantitative finance practitioners to understand both basic and advanced topics in the valuation and modeling of financial and commodity derivatives, their institutional framework and risk management. It provides an overview of the new regulatory requirements such as Basel III, the Fundamental Review of the Trading Book (FRTB), Interest Rate Risk of the Banking Book (IRRBB), or the Internal Capital Assessment Process (ICAAP). The reader will also find a detailed treatment of counterparty credit risk, stochastic volatility estimation methods such as MCMC and Particle Filters, and the concepts of model-free volatility, VIX index definition and the related volatility trading. The book can also be used as a teaching material for university derivatives and financial engineering courses.

The Theory and Practice of Financial Risk Management

Options, Futures, and Other Derivatives

Theory, Methods and Applications

Financial Derivatives in Theory and Practice, Revised Edition

Advanced Derivatives Pricing and Risk Management

For use in classes at masters and postgraduate level, this text covers financial derivatives in theory and practice.

This text primarily discusses the pricing and hedging of derivatives and the determination of risks associated with writing options. Part 4 includes a compendium of examples, many providing solutions to problems set earlier in the text.

In recent years, interest-rate modeling has developed rapidly in terms of both practice and theory. The academic and practitioners' communities, however, have not always communicated as productively as would have been desirable. As a result, their research programs have often developed with little constructive interference. In this book, Riccardo Rebonato draws on his academic and professional experience, straddling both sides of the divide to bring together and build on what theory and trading have to offer. Rebonato begins by presenting the conceptual foundations for the application of the LIBOR market model to the pricing of interest-rate derivatives. Next he treats in great detail the calibration of this model to market prices, asking how possible and advisable it is to enforce a simultaneous fitting to several market observables. He does so with an eye not only to mathematical feasibility but also to financial justification, while devoting special scrutiny to the implications of market incompleteness. Much of the book concerns an original extension of the LIBOR market model, devised to account for implied volatility smiles. This is done by introducing a stochastic-volatility, displaced-diffusion version of the model. The emphasis again is on the financial justification and on the computational feasibility of the proposed solution to the smile problem. This book is must reading for quantitative researchers in financial houses, sophisticated practitioners in the derivatives area, and students of finance.

This book provides a comprehensive guide for modern derivatives pricing and credit analysis. Written to provide sound theoretical detail but practical implication, it provides readers with everything they need to know to price modern financial derivatives and analyze the credit exposure of a financial instrument in today's markets.

Exotic Derivatives and Risk

Options, Futures and Exotic Derivatives

Theory and Practice

The Complete Investor's Guide

Theory and Practice of Shipping Freight Derivatives

Theory, Application and Practice

This book provides an introduction to the mathematical modelling of real world financial markets and the rational pricing of derivatives, which is part of the theory that not only underpins modern financial practice but is a thriving area of mathematical research. The central theme is the question of how to find a fair price for a derivative; defined to be a price at which it is not possible for any trader to make a risk free profit by trading in the derivative. To keep the mathematics as simple as possible, while explaining the basic principles, only discrete time models with a finite number of possible future scenarios are considered. The theory examines the simplest possible financial model having only one time step, where many of the fundamental ideas occur, and are easily understood. Proceeding slowly, the theory progresses to more realistic models with several stocks and multiple time steps, and includes a comprehensive treatment of incomplete models. The emphasis throughout is on clarity combined with full rigour. The later chapters deal with more advanced topics, including how the discrete time theory is related to the famous continuous time Black-Scholes theory, and a uniquely thorough treatment of American options. The book assumes no prior knowledge of financial markets, and the mathematical prerequisites are limited to elementary linear algebra and probability. This makes it accessible to undergraduates in mathematics as well as students of other disciplines with a mathematical component. It includes numerous worked examples and exercises, making it suitable for self-study.