Record Nr.	UNINA9910819466503321
Autore	Rouah Fabrice <1964->
Titolo	The Heston model and its extensions in VBA + website / / Fabrice D. Rouah
Pubbl/distr/stampa	Hoboken, New Jersey : , : Wiley, , 2015 ©2015
ISBN	1-119-00330-X 1-119-00331-8
Descrizione fisica	1 online resource (0 pages) : illustrations
Collana	Wiley Finance Series
Classificazione	BUS027000
Disciplina	332.64/5302855133
Soggetti	Options (Finance) - Mathematical models
	Options (Finance) - Prices
	Finance - Mathematical models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Machine generated contents note: Foreword Preface Acknowledgments About This Book VBA Library for Complex Numbers Chapter 1: The Heston Model for European Options Model Dynamics The Heston European Call Price Dividend Yield and the Put Price Consolidating the Integrals Black-Scholes as a Special Case Conclusion Chapter 2: Integration Issues, Parameter Effects, and Variance Modeling Remarks on the Characteristic Functions Problems With the Integrand The Little Heston Trap Effect of the Heston Parameters Variance Modeling in the Heston Model Moment Explosions Bounds on Implied Volatility Slope Conclusion Chapter 3: Derivations Using the Fourier Transform Derivation of Gatheral (2006) Attari (2004) Representation Carr and Madan (1999) Representation Conclusion Chapter 4: The Fundamental Transform for Pricing Options The Payoff Transform Option Prices Using Parseval's Identity Volatility of Volatility Series Expansion Conclusion Chapter 5: Numerical Integration Schemes The Integrand in Numerical Integration Newton-Cotes Formulas Gaussian Quadrature Integration Limits, Multi-Domain Integration, and Kahl and Jackel Transform Fractional Fast Fourier Transform Conclusion Chapter 6:

1.

Parameter Estimation Estimation Using Loss Functions Speeding up the Estimation Differential Evolution Maximum Likelihood Estimation Risk-Neutral Density and Arbitrage-Free Volatility Surface Conclusion Chapter 7: Simulation in the Heston Model General Setup Euler Scheme Milstein Scheme Implicit Milstein Scheme Transformed Volatility Scheme Balanced, Pathwise, and IJK Schemes Quadratic-Exponential Scheme Alfonsi Scheme for the Variance Moment Matching Scheme Conclusion Chapter 8: American Options Least-Squares Monte Carlo The Explicit Method Beliaeva-Nawalkha Bivariate Tree Medvedev-Scaillet Expansion Chiarella and Ziogas American Call Conclusion Chapter 9: Time-Dependent Heston Models Generalization of the Riccati Equation Bivariate Characteristic Function Linking the Bivariate CF and the General Riccati Equation Mikhailov and Nogel Model Elices Model Benhamou-Miri-Gobet Model Black-Scholes Derivatives Conclusion Chapter 10: Methods for Finite Differences The PDE in Terms of an Operator Building Grids Finite Difference Approximation of Derivatives Boundary Conditions for the PDE The Weighted Method Explicit Scheme ADI Schemes Conclusion Chapter 11: The Heston Greeks Analytic Expressions for European Greeks Finite Differences for the Greeks Numerical Implementation of the Greeks Greeks Under the Attari and Carr-Madan Formulations Greeks Under the Lewis Formulations Greeks Using the FFT and FRFT American Greeks Using Simulation American Greeks Using the Explicit Method American Greeks from Medvedev and Scaillet Conclusion Chapter 12: The Double Heston Model Multi-Dimensional Feynman-Kac Theorem Double Heston Call Price Double Heston Greeks Parameter Estimation Simulation in the Double Heston Model American Options in the Double Heston Model Conclusion Bibliography About the Website Index. "Practical options pricing for better-informed investment decisions. The Sommario/riassunto Heston Model and Its Extensions in VBA is the definitive guide to options pricing using two of the derivatives industry's most powerful modeling tools--the Heston model, and VBA. Light on theory, this extremely useful reference focuses on implementation, and can help investors more efficiently--and accurately--exploit market information to better inform investment decisions. Coverage includes a description of the Heston model, with specific emphasis on equity options pricing and variance modeling, The book focuses not only on the original Heston model, but also on the many enhancements and refinements that have been applied to the model, including methods that use the Fourier transform, numerical integration schemes, simulation, methods for pricing American options, and much more. The companion website offers pricing code in VBA that resides in an extensive set of Excel spreadsheets. The Heston model is the derivatives industry's most popular stochastic volatility model for pricing equity derivatives. This book provides complete guidance toward the successful implementation of this valuable model using the industry's ubiquitous financial modeling software, giving users the understanding--and VBA code--they need to produce option prices that are more accurate, and volatility surfaces that more closely reflect market conditions. Derivatives pricing is often the hinge on which profit is made or lost in financial institutions, making accuracy of utmost importance. This book will help risk managers, traders, portfolio managers, quants, academics and other professionals better understand the Heston model and its extensions, in a writing style that is clear, concise, transparent and easy to understand. For better pricing accuracy, The Heston Model and Its Extensions in VBA is a crucial resource for producing more accurate model outputs such as prices, hedge ratios, volatilities, and graphs"--