Numerical Solution of Stochastic Differential Equations with Jumps in Finance (Stochastic Modelling and Applied Probability)

Eckhard Platen, Nicola Bruti-Liberati
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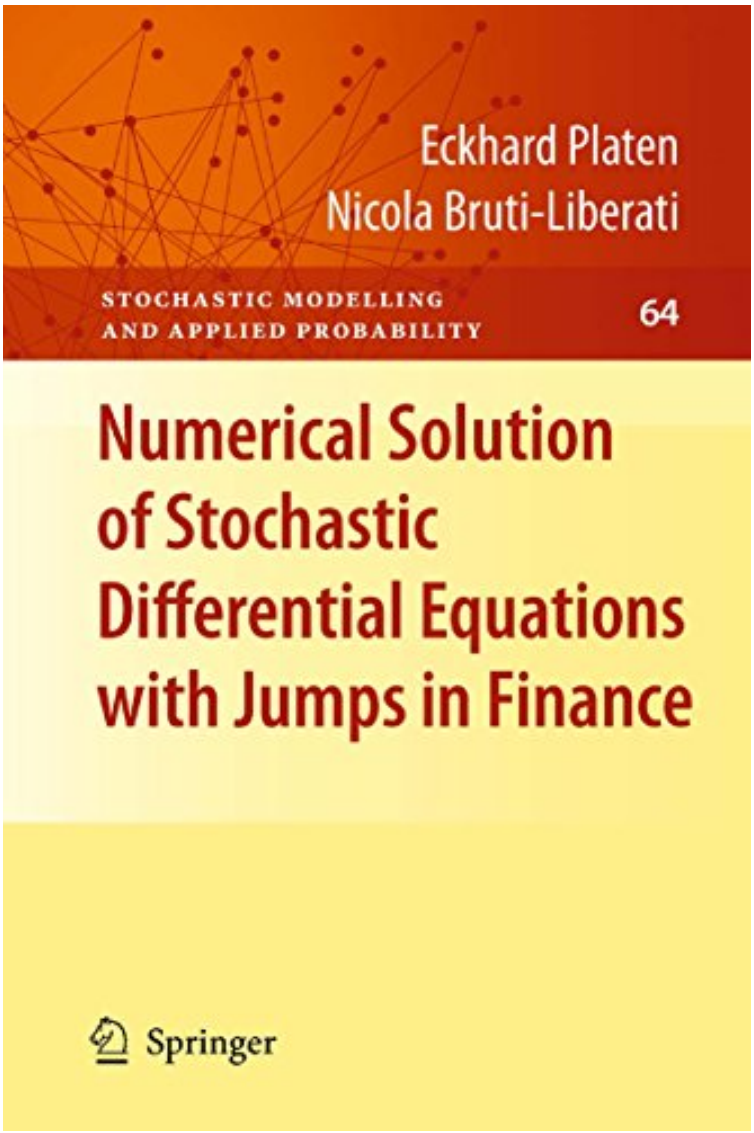

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Eckhard Platen, Nicola Bruti-Liberati : Numerical Solution of Stochastic Differential Equations with Jumps in Finance (Stochastic Modelling and Applied Probability) before purchasing it in order to gage whether or not it would be worth my time, and all praised Numerical Solution of Stochastic Differential Equations with Jumps in Finance (Stochastic Modelling and Applied Probability):

7 of 7 people found the following review helpful. Great BookBy KinderchocolateThe co-author of the book, Nicola

Bruti-Liberati is not actually directly involved. He was a student under Eckhard Platen and tragically killed in an accident. Nevethless Bruti-Liberati contributed to a great amount of materaials in the book, the book is in honor of him.This is a rigorous mathematics book, so expect some ridiculous definitions and proofs. Fortunately, the book provides extensive explaination of the intutions. The book is very well written and defined.What will you learn from the book? The theories of numerical methods that you don't see from other books. For example, do you know how to simulate an SDE with order of 3.0?The assumed knowledge is a strong grasp in stochastic calculus, forget it if you don't know Ito-Lemma or Taylor series.

In financial and actuarial modeling and other areas of application, stochastic differential equations with jumps have been employed to describe the dynamics of various state variables. The numerical solution of such equations is more complex than that of those only driven by Wiener processes, described in Kloeden Platen: Numerical Solution of Stochastic Differential Equations (1992). The present monograph builds on the above-mentioned work and provides an introduction to stochastic differential equations with jumps, in both theory and application, emphasizing the numerical methods needed to solve such equations. It presents many new results on higher-order methods for scenario and Monte Carlo simulation, including implicit, predictor corrector, extrapolation, Markov chain and variance reduction methods, stressing the importance of their numerical stability. Furthermore, it includes chapters on exact simulation, estimation and filtering. Besides serving as a basic text on quantitative methods, it offers ready access to a large number of potential research problems in an area that is widely applicable and rapidly expanding. Finance is chosen as the area of application because much of the recent research on stochastic numerical methods has been driven by challenges in quantitative finance. Moreover, the volume introduces readers to the modern benchmark approach that provides a general framework for modeling in finance and insurance beyond the standard risk-neutral approach. It requires undergraduate background in mathematical or quantitative methods, is accessible to a broad readership, including those who are only seeking numerical recipes, and includes exercises that help the reader develop a deeper understanding of the underlying mathematics.

cid and clear writing style of the exposition in combination with many interesting examples from mathematical finance.rdquo; (H. M. Mai, Zentralblatt MATH, Vol. 1225, 2012)From the Back CoverIn financial and actuarial modeling and other areas of application, stochastic differential equations with jumps have been employed to describe the dynamics of various state variables. The numerical solution of such equations is more complex than that of those only driven by Wiener processes, described in Kloeden Platen: Numerical Solution of Stochastic Differential Equations (1992). The present monograph builds on the above-mentioned work and provides an introduction to stochastic differential equations with jumps, in both theory and application, emphasizing the numerical methods needed to solve such equations. It presents many new results on higher-order methods for scenario and Monte Carlo simulation, including implicit, predictor corrector, extrapolation, Markov chain and variance reduction methods, stressing the importance of their numerical stability. Furthermore, it includes chapters on exact simulation, estimation and filtering. Besides serving as a basic text on quantitative methods, it offers ready access to a large number of potential research problems in an area that is widely applicable and rapidly expanding. Finance is chosen as the area of application because much of the recent research on stochastic numerical methods has been driven by challenges in quantitative finance. Moreover, the volume introduces readers to the modern benchmark approach that provides a general framework for modeling in finance and insurance beyond the standard risk-neutral approach. It requires undergraduate background in mathematical or quantitative methods, is accessible to a broad readership, including those who are only seeking numerical recipes, and includes exercises that help the reader develop a deeper understanding of the underlying mathematics.About the AuthorProf. Eckhard Platen holds the Chair in Quantitative Finance at the University of Technology, Sydney. Author of books on numerical methods for stochastic differential equations and recent book on benchmark approach at Springer Verlag. Has written more than 140 papers in finance, insurance and applied mathematics and serves on the editorial boards of five international journals including Mathematical Finance and Quantitative Finance