BOOK REVIEWS

A. J. ROBERTS, *Elementary Calculus of Financial Mathematics*, Society for Industrial and Applied Mathematics, Philadelphia, USA, 2008, ISBN: 978-0898716672, XII+120 pp.

This well written book is an introduction into the financial mathematics and its calculus made in an accessible manner. Necessary prerequisite mathematics for understanding this book are basic algebra, calculus, data analysis, probability, and Markov chains. It is organized in four chapters. The first chapter entitled "Financial Indices Appear to Be Stochastic Processes" deals with individual realizations of stochastic processes modeling financial series. Among their main properties are the drift and volatility and their slow convergence. The next chapter, "Ito's Stochastic Calculus Introduced", investigates how to manipulate symbolically SDEs and then Ito's formula is used to derive the Black-Scholes PDE that values financial options. Chapter 3, "The Fokker Planck Equation Describes the Probability Distribution", is dedicated to the statistics of stochastic processes, i.e., the probability distribution of their realizations. In the last chapter, "Stochastic Integration Proves Ito's Formula", the author put stochastic calculus on a firm theoretical footing, making the readers able to solve practical problems such as the valuations of options and understanding many of the more theoretical books and articles in financial mathematics and stochastic processes.

Each chapter includes color graphics for illustrating concepts, MATLAB/SCILAB scripts, and exercises for student practice and answers for a part of these exercises.

The book is completed by two appendices, a selective bibliography and an index. The appendices offer Matlab and Scilab code as well as alternate proofs of the Fokker-Planck equation and Kolmogorov backward equations.

Because the presentation of the material is very clear and completed with examples, programs and graphics this book is highly recommended to undergraduate students of mathematics or finance but also for people who are teaching financial mathematics.

Maria Crăciun