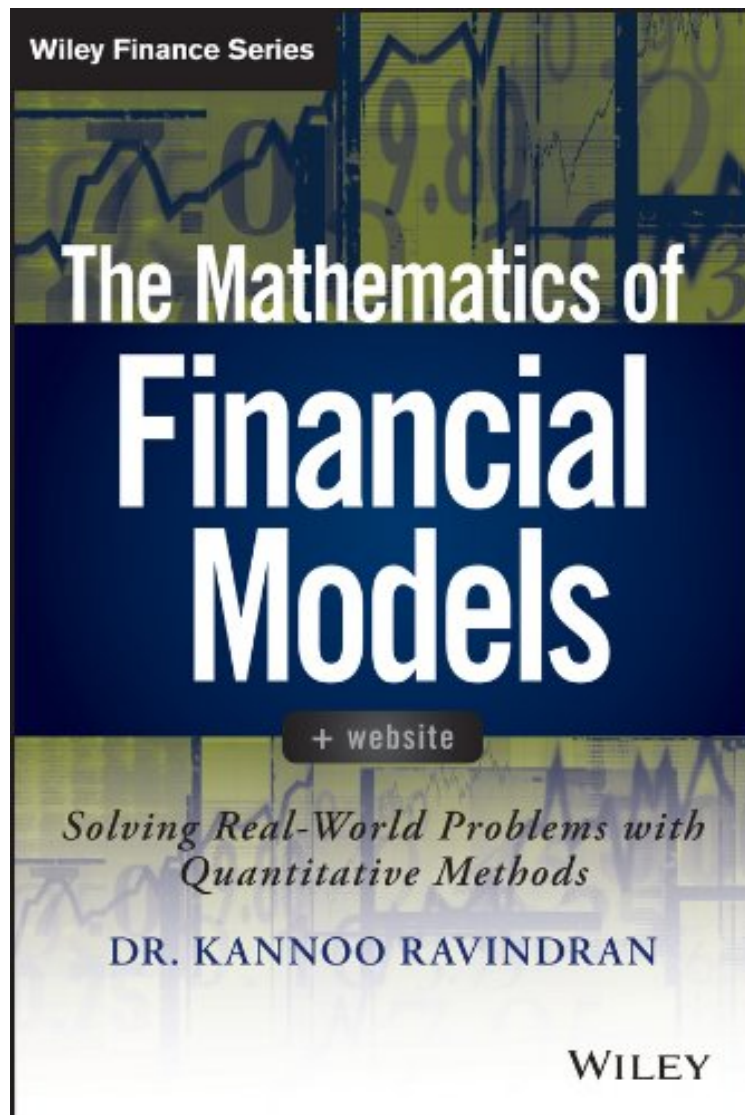


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## The Mathematics of Financial Models: Solving Real-World Problems with Quantitative Methods (Wiley Finance)

Kannoo Ravindran

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Learn how quantitative models can help fight client problems head-on Before financial problems can be solved, they need to be fully understood. Since in-depth quantitative modeling techniques are a powerful tool to understanding the drivers associated with financial problems, one would need a solid grasp of these techniques before being able to unlock their full potential of the methods used. In *The Mathematics of Financial Models*, the author presents real world solutions to the everyday problems facing financial professionals. With interactive tools such as spreadsheets for valuation, pricing, and modeling, this resource combines highly mathematical quantitative analysis with useful, practical methodologies to create an essential guide for investment and risk-management professionals facing modeling issues in insurance, derivatives valuation, and pension benefits, among others. In addition to this, this resource also provides the relevant tools like matrices, calculus, statistics and numerical analysis that are used to build the quantitative methods used. Financial analysts, investment professionals, risk-management professionals, and graduate students will find applicable information throughout the book, and gain from the self-study exercises and the refresher course on key mathematical topics. Equipped with tips and information, *The Mathematics of Financial Models* Provides practical methodologies based on mathematical quantitative analysis to help analysts, investment and risk-management professionals better navigate client issues Contains interactive tools that demonstrate the power of analysis and modeling Helps financial professionals become more familiar with the challenges across a range of industries Includes a mathematics refresher course and plenty of exercises to get readers up to speed *The Mathematics of Financial Models* is an in-depth guide that helps readers break through common client financial problems and emerge with clearer strategies for solving issues in the future.

From the Inside Flap Finance professionals face daily challenges when solving client problems related to investments, insurance, derivatives valuation, and pension benefit modeling; just to name a few. Finding solutions to these challenges means understanding the core of the problem, and employing quantitative techniques to model and analyze the problem. As part of the Wiley Finance Series, *The Mathematics of Financial Models: Solving Real-World Problems with Quantitative Methods*, Dr. Kanno Ravindran teaches readers how to use quantitative tools to solve real-world problems when there is a notion of cost (or money) involved. Dr. Ravindran uses decades of experience to discuss how quantitative methods can help businesses move through common roadblocks related to minimizing costs or maximizing revenue. While the scenarios presented are not exhaustive (because the list of potential challenges is almost infinite), the book provides readers the tools they need to learn to apply the methodologies to any number of everyday scenarios. Included with the text are real-world case studies and solutions that use transparent interactive tools like spreadsheets (for valuation, pricing, and modeling), mathematical formulae, and overview of select mathematical topics (e.g. matrices, calculus, probability, statistics, numerical analysis). The book specifically focuses on addressing difficulties encountered in the construction of zero curves, valuing vanilla and exotic options, and estimation and calibration of parameters used in pricing/hedging models. In addition to including a discussion on hedging strategies, real options, and variable annuities, the author has also created a frequently updated companion website offering additional resources to enhance the readability experience of this book. While some general understanding of basic financial and mathematical concepts is beneficial, this book is appropriate for any student or analyst who utilizes quantitative methods in their daily life. It offers not only self-study exercises but also a brief refresher course on quantitative tools to allow for independent study and a thorough understanding of the concepts. From the Back Cover Praise for *The Mathematics of Financial Models* "Dr. Kanno Ravindran does a great job in using applied quantitative methods to solve financial problems encountered in practice while discussing the practical nuances associated with the problem. The book explains the concept intuitively so it is very easy for readers to get it." This book is a must-read for anyone new to mathematical modeling in finance and serves as a great complement to any good book on finance and derivatives. "Dr. Pin Chung, FRM, ASA, MAAA, Chief Financial Officer and Chief Investment Officer, R+V International Business Services Limited, Dublin, Ireland "This is a unique work that provides easy-to-follow practical solutions in addition to the underlying theory for solving problems using quantitative methods. A must read for the new practitioner and a great refresher for the experienced practitioner." "Kirk Evans, FSA, MAAA, CFA, FRM, Vice President, Product

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“This book and the accompanying Excel worksheets are a valuable resource for quants and would-be quants.” —John Hull, Maple Financial Chair in Derivatives and Risk Management, Joseph L. Rotman School of Management, University of Toronto

“Dr. Kannoo Ravindran’s book is a welcomed addition to a student’s or practitioner’s library alike, given the range of topics it covers, the accompanying spreadsheet examples, and all the solid references that can be found at the end of each chapter. The author has done a great job of covering the diverse subject matter, like the chapter on financial guarantees embedded in life insurance products, and the one on hedge strategy effectiveness, and leaving readers with a set of building blocks to help them tackle real risk management problems they would face in the field.” —Peter M. Phillips, Managing Director, Aon Benfield Securities, Inc.

“Dr. Ravindran has written a valuable book that bridges the all-too-wide gap between theory and practice in mathematical finance. It is useful and should be required reading for students in quantitative finance programs, and yet is immediately accessible to many who work in the field, from front-office users to risk managers, modelers, programmers, and operations staff.” —Paul Staneski, Ph.D., Principal, Derivatives Solutions, LLC

About the Author  
DR. KANNOO RAVINDRAN consults with corporations on investments, derivatives trading, modeling, and risk management. He also lectures around the world on these topics and runs a private equity fund. Dr. Ravindran pioneered the use of derivatives to manage risks embedded in variable annuity products.