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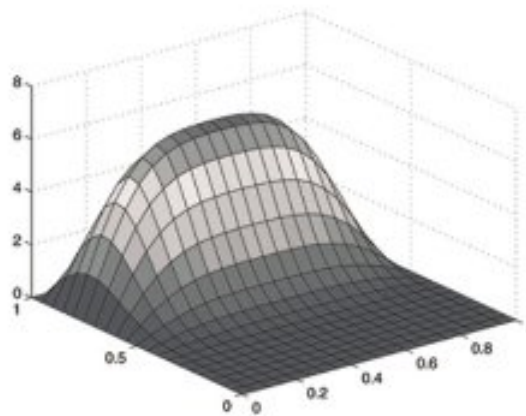
Numerical Methods in Finance and Economics: A MATLAB-Based Introduction (Statistics in Practice)

Paolo Brandimarte

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PAOLO BRANDIMARTE

Numerical Methods in Finance and Economics A MATLAB®-Based Introduction Second Edition



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Paolo Brandimarte : Numerical Methods in Finance and Economics: A MATLAB-Based Introduction (Statistics in Practice) before purchasing it in order to gage whether or not it would be worth my time, and all praised Numerical Methods in Finance and Economics: A MATLAB-Based Introduction (Statistics in Practice):

31 of 31 people found the following review helpful. Great all around book and excellent reference
 By Shafik Yaghmour
 I am using this as a secondary reference for a half-semester Matlab and Optimization course and it has been invaluable. The writing is crystal clear, the examples and code are pretty close to perfect for every section. The author writes in a very intuitive fashion and of the sections I have covered I don't think I have been lost or confused once, which in this field is uncommon. This is not really an introductory book for finance and if you read the preface, Brandimarte does explain that the book complements and does not replace more specific texts. I have been seen most of the material in this book covered in at least a cursory fashion in my Financial Engineering program and it makes a difference, so I would recommend that you are familiar with the material covered in Hull's "Options, Futures and Other Derivatives" or Neftci's "Principles of Financial Engineering" and Neftci's "Introduction to the Mathematics of Financial Derivatives" or similar texts. You also won't be able to get away without having at least some intermediate level linear algebra. You don't have to know it well but concepts such as conditioning, LU and Cholesky factorization should ring a bell. On the other hand some topics such as optimization I feel are covered very solidly. I am using "Optimization Methods in Finance" by Cornuejols and Tutuncu and although it is a great book I have to say that the examples in Brandimarte's book are much better and more intuitively explained, although clearly not in the same detail. My only gripe with the book is that he tends to use code from the toolboxes, which can be inconvenient if you are a student and only have the student version at home. Most of the time he builds the code from scratch but he uses toolbox code enough that it is annoying.

1 of 2 people found the following review helpful. Useful
 By Lizzy
 This book is quite useful to me. Especially for it connects the financial computation with Matlab software. Really helpful for studying financial engineering.

6 of 6 people found the following review helpful. A Classic
 By Bill
 I own the first edition, which is half the size of this one. I enjoyed that book, but I had always hoped that it would provide a more in-depth analysis. Well it appears my wishes have been answered. Paolo Brandimarte has expanded on his original outstanding work producing a rare book that can be used for self-study and which also provides practical exercises. It really is amazing how he has been able to touch on so many topics without sacrificing content in the process. The writing is lucid and the Matlab examples well-conceived. Anyone desiring to obtain a greater knowledge in the field of finance would be well-served in picking up this fine title. Of course, the book loses much of its impact if the reader does not have a copy of Matlab.

A state-of-the-art introduction to the powerful mathematical and statistical tools used in the field of finance. The use of mathematical models and numerical techniques is a practice employed by a growing number of applied mathematicians working on applications in finance. Reflecting this development, *Numerical Methods in Finance and Economics: A MATLAB-Based Introduction, Second Edition* bridges the gap between financial theory and computational practice while showing readers how to utilize MATLAB—the powerful numerical computing environment—for financial applications. The author provides an essential foundation in finance and numerical analysis in addition to background material for students from both engineering and economics perspectives. A wide range of topics is covered, including standard numerical analysis methods, Monte Carlo methods to simulate systems affected by significant uncertainty, and optimization methods to find an optimal set of decisions. Among this book's most outstanding features is the integration of MATLAB, which helps students and practitioners solve relevant problems in finance, such as portfolio management and derivatives pricing. This tutorial is useful in connecting theory with practice in the application of classical numerical methods and advanced methods, while illustrating underlying algorithmic concepts in concrete terms.

Newly featured in the Second Edition:

- * In-depth treatment of Monte Carlo methods with due attention paid to variance reduction strategies
- * New appendix on AMPL in order to better illustrate the optimization models in Chapters 11 and 12
- * New chapter on binomial and trinomial lattices
- * Additional treatment of partial differential equations with two space dimensions
- * Expanded treatment within the chapter on financial theory to provide a more thorough background for engineers not familiar with finance
- * New coverage of advanced optimization methods and applications later in the text

Numerical Methods in Finance and Economics: A MATLAB-Based Introduction, Second Edition presents basic treatments and more specialized literature, and it also uses algebraic languages, such as AMPL, to connect the pencil-and-paper statement of an optimization model with its solution by a software library. Offering computational practice in both financial engineering and economics fields, this book equips practitioners with the necessary techniques to measure and manage risk.

"Inquisitive statisticians may find this book an interesting read in which to put their theories and epistemology to the test." (Journal of American Statistics, 2008)

"In summary, this book is a "must have" for professionals and researchers who employ numerical methods in economic and financial modeling. The amount and quality of the material that the author offers is so generous that readers are likely to benefit from it even if they are not interested in some of the specific applications presented." (Interfaces, June 2008)

"...a broad and enjoyable introduction to computational finance." (Journal of the American Statistical Association, December 2007)

"...written in such a lucid way that it provides great pleasure in reading...excellent for students...of great value to practitioners who are new to the field." (MAA s, November 23, 2006)

From the Back Cover

A state-of-the-art introduction to the powerful mathematical and

statistical tools used in the field of finance. The use of mathematical models and numerical techniques is a practice employed by a growing number of applied mathematicians working on applications in finance. Reflecting this development, *Numerical Methods in Finance and Economics: A MATLAB-Based Introduction*, Second Edition bridges the gap between financial theory and computational practice while showing readers how to utilize MATLAB—the powerful numerical computing environment—for financial applications. The author provides an essential foundation in finance and numerical analysis in addition to background material for students from both engineering and economics perspectives. A wide range of topics is covered, including standard numerical analysis methods, Monte Carlo methods to simulate systems affected by significant uncertainty, and optimization methods to find an optimal set of decisions. Among this book's most outstanding features is the integration of MATLAB, which helps students and practitioners solve relevant problems in finance, such as portfolio management and derivatives pricing. This tutorial is useful in connecting theory with practice in the application of classical numerical methods and advanced methods, while illustrating underlying algorithmic concepts in concrete terms. Newly featured in the Second Edition: In-depth treatment of Monte Carlo methods with due attention paid to variance reduction strategies. New appendix on AMPL; in order to better illustrate the optimization models in Chapters 11 and 12. New chapter on binomial and trinomial lattices. Additional treatment of partial differential equations with two space dimensions. Expanded treatment within the chapter on financial theory to provide a more thorough background for engineers not familiar with finance. New coverage of advanced optimization methods and applications later in the text. *Numerical Methods in Finance and Economics: A MATLAB-Based Introduction*, Second Edition presents basic treatments and more specialized literature, and it also uses algebraic languages, such as AMPL, to connect the pencil-and-paper statement of an optimization model with its solution by a software library. Offering computational practice in both financial engineering and economics fields, this book equips practitioners with the necessary techniques to measure and manage risk.

About the Author PAOLO BRANDIMARTE is Professor of Quantitative Methods for Finance and Logistics at Politecnico di Torino in Italy. He is the author of several publications, including five books, on the application of optimization and simulation to diverse areas such as production management, telecommunications, and finance. Dr. Brandimarte has extensive teaching experience in engineering and economics faculties, including master's and PhD-level courses.