



Interest Rate Modeling. Volume 1: Foundations and Vanilla Models

By Leif B. G. Andersen, Vladimir V. Piterbarg

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Editorial Review

Review

The book is a collection of high quality material that is both very broad and very deep. Highly recommended and a must in the quant library. --Jesper Andreasen, Head of Quantitative Research, Danske Markets, Copenhagen

The authors bring their world-renowned knowledge to this important area of quantitative finance. This book is destined to become a classic. --Mark Broadie, Carson Family Professor of Business, Graduate School of Business, Columbia University

The authors have done what others have not dared to try: a massively comprehensive treatise on fixed-income modeling. --Darrell Duffie, Dean Witter Distinguished Professor of Finance, Graduate School of Business, Stanford University

From the Author

From Preface

For quantitative researchers working in an investment bank, the process of writing a fixed income model usually has two stages. First, a theoretical framework for yield curve dynamics is specified, using the language of mathematics (especially stochastic calculus) to ensure that the underlying model is well-specified and internally consistent. Second, in order to use the model in practice, the equations arising from the first step need to be turned into a working implementation on a computer. While specification of the theoretical model may be seen as the difficult part, in quantitative finance applications the second step is technically and intellectually often more challenging than the first. In the implementation phase, not only does one need to translate abstract ideas into computer code, one also needs to ensure that the resulting numbers being produced are meaningful to a trading desk, are stable and robust, are in line with market observations, and are produced in a timely manner. Many of these requirements are, as it turns out, extremely challenging, and not only demand a strong knowledge of actual market practices (which tend to deviate in significant ways from "textbook" theory), but also require application of a large arsenal of techniques from applied mathematics, chiefly approximation methods and numerical techniques. While there are many good introductory books on fixed income derivatives on the market, when we hire people who have read them we find that they still require significant training before they become productive members of our quantitative research teams. For one, while existing literature covers some aspects of the first step above, advanced approaches to specifying yield curve dynamics are typically not covered in sufficient detail. More importantly, there is simply too little said in the literature about the process of getting the theory to work in the real world of trading and risk management. An important goal of our book series is to close these gaps in the literature.

The three volumes of **Interest Rate Modeling** are aimed primarily at practitioners working in the area of interest rate derivatives, but much of the material is quite general and, we believe, will also hold significant appeal to researchers working in other asset classes. Students and academics interested in financial engineering and applied work will find the material particularly useful for its description of real-life model usage and for its expansive discussion of model calibration, approximation theory, and numerical methods. In preparing the books we have drawn on nearly 30 years of combined industry experience, and much of the material has never been exposed in book form before.

We owe a great debt of gratitude to our families for their support and patience, even when our initial plans for a brief book on tips and tricks for working quants ballooned into something more ambitious that consumed many evenings and weekends over the last six years.

From the Inside Flap

"Andersen and Piterbarg's book is a collection of high quality material that is both very broad and very deep. It covers the model theory from the basic to the very advanced, numerical methods in great detail, and on the product side everything from vanilla swaps to long dated Libor exotics. Thorny, but highly relevant, issues such as risk report computation are also treated in detail. Highly recommended and a must in the quant library."

Jesper Andreasen, Head of Quantitative Research, Danske Markets, Copenhagen

"Andersen and Piterbarg have hit a home run with this comprehensive treatment of interest rate modeling. The authors bring their world-renowned knowledge and years of industry experience to this important area of quantitative finance. This book is a must-read for students, researchers and practitioners --- it is destined to become a classic in the field."

Mark Broadie, Carson Family Professor of Business, Graduate School of Business, Columbia University

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Glady Curry:

The ability that you get from Interest Rate Modeling. Volume 1: Foundations and Vanilla Models could be the more deep you rooting the information that hide inside words the more you get serious about reading it. It doesn't mean that this book is hard to understand but Interest Rate Modeling. Volume 1: Foundations and Vanilla Models giving you excitement feeling of reading. The writer conveys their point in particular way that can be understood by anyone who read it because the author of this reserve is well-known enough. This book also makes your personal vocabulary increase well. It is therefore easy to understand then can go together with you, both in printed or e-book style are available. We recommend you for having this kind of Interest Rate Modeling. Volume 1: Foundations and Vanilla Models instantly.

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