

# Modeling Fixed-Income Securities and Interest Rate Options

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SECOND EDITION

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## Preface to the Second Edition

This book's primary purpose is to teach students the basics of fixed-income securities, but not in the fashion of traditional courses and texts in this area. Traditional fixed-income courses and texts emphasize institutional details, with theories included in an ad hoc fashion and only occasionally. In contrast, this book teaches the basics of fixed-income securities from a unified theoretical framework. The framework is that of the arbitrage-free pricing and complete-markets methodology. This textbook is therefore more abstract than traditional textbooks in this area. This is the reason for the word *modeling* in the title. It is the hope (and belief) of this author, however, that this material is the approach of the future.

As a secondary purpose, this textbook explains the arbitrage-free term structure models used for pricing interest rate derivatives, with particular emphasis on the Heath-Jarrow-Morton model and its applications. It is designed to make the Heath-Jarrow-Morton model accessible to MBAs and advanced undergraduates, with a minimum of course prerequisites—the course prerequisites are no more than some familiarity with high school algebra and mathematical reasoning. This textbook has already been used multiple times for an MBA class at Cornell's Johnson Graduate School of Management on fixed-income securities with no prerequisites other than a basic core finance course and a core quantitative methods course.

Contrary to what a quick skimming of the text might suggest, this book is designed for an MBA elective. Each chapter's material is introduced through examples; the examples are designed to illustrate the key concepts. The formal and more general presentation of the same material follows the examples. This organization facilitates various levels of presentation. For an MBA elective,

only the examples should be discussed in class. The formal presentation is left for background reading. For the Ph.D. level, the reverse order is appropriate.

The second edition differs considerably from the first. More chapters have been added to enrich the text's coverage, and the order of the chapters is slightly different, to better motivate and present the material. More explanation and discussion have been added to each chapter. More real-world examples and analysis are included to help bring the theory "alive" in the classroom.

To facilitate classroom use of this text, supplemental materials including my MBA lecture notes and MATLAB-based software for problem solution are available at [www.johnson.cornell.edu/faculty/jarrow](http://www.johnson.cornell.edu/faculty/jarrow). This web page will be updated from time to time.

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