

Preface

This is the revised edition in English of *Exercices de Finance des Marchés*, published in Paris by Dunod in 2002. The first textbook of its kind to compile course notes and exercises with solutions in the field of quantitative finance, it is designed as a complement to an MBA sequence in finance or an MS class in financial mathematics. It may also serve as a self-teaching guide for beginning practitioners and confirmed financiers who wish to catch up with financial theory and its applications.

From basic notions on interest rates to option pricing theory through portfolio optimization, we wanted this book to cover the essential theoretical and practical knowledge in the field, and yet be accessible to neophytes. As such, the only required background is an undergraduate level in mathematics – no prior knowledge in finance is assumed, except for a general understanding of basic economic concepts found in the press. A probability and calculus review is included in an appendix for those readers who need to refresh their memory in these particular areas.

We had to make some choices on the extent of the concepts we could cover, and the level of mathematical machinery we could employ. Our approach was to focus on first principles such as arbitrage or the risk-return trade-off; key concepts such as yield or Greek letters; and the major numerical methods such as binomial trees or Monte-Carlo simulations. We strived to keep the course notes as concise and straightforward as possible, while covering a fair amount of fundamental results illustrated with ‘real-life’ examples. We left non-essential proofs or advanced concepts in the exercises of higher difficulty, which we identified with an asterisk (*).

The result is ten chapters in ascending order of difficulty, which we recommend you to read in sequence:

- Chapters 1 and 2 deal with the time value of money and correspond to a core finance course;
- Chapters 3 and 5 cover bonds, arbitrage and risk-return, which are usually taught in an advanced core finance course;

- Chapters 4 and 6 introduce derivative securities and their valuation, which are taught in an advanced core finance course or in an elective;
- Chapters 7 and 8 cover the advanced valuation and management of options, corresponding to an intermediate MBA elective or a core MS course;
- Chapters 9 to 10 introduce continuous-time finance which would be taught in an advanced MBA elective or a core MS course.

We hope that our book will prove insightful and useful to students and practitioners. We are committed to continually improve successive editions and we will appreciate all feedback from our readers.