

# Preface

The purpose of this book is to give a comprehensive introduction to the modeling of financial derivatives, covering the major asset classes and stretching from Black and Scholes' lognormal modeling to current-day research on skew and smile models. The intended reader has a solid mathematical background and works, or plans to work, at a financial institution such as an investment bank or a hedge fund. The aim of the book is to equip the reader with modeling tools that can be used in the (future) work involving derivatives pricing, trading, or risk management.

The field of derivatives modeling is extensive and to keep the book within a reasonable size, certain sacrifices have been made. For instance, the implementation of models is not discussed as this can be viewed as an art rather than science and is therefore an ungrateful subject for a text book. Minor asset classes, such as inflation products, and asset classes that require specific mathematical tools, e.g., credit and mortgage products, have been left out. Furthermore, the financial basics are covered at a faster pace than in other introductory books to the area. For example, the martingale theory is summarized in a compact appendix, and the introduction to the Black–Scholes model is done by working directly in continuous space-time, in contrast to the pedagogical approach of initially reviewing the binomial model. This enables us to quickly go beyond the Black–Scholes framework and thereby focus on skew and smile models and on derivatives in specific asset classes.

The book is divided into four parts. The first part consists of Chaps. 1–4 and contains the general framework of derivatives pricing. This part is essential for the understanding of the rest of the book. An exception is Chap. 4 which a novice reader might find too abstract and is advised to skip and come back to later when the necessary financial maturity has been reached. The rest of the book consists of chapters that can be read independently. Chapters 5–8 cover skew and smile modeling. The pricing of exotic derivatives is the subject of the third part, Chaps. 9–10. The concluding fourth part comprises Chaps. 11–14 and applies the pricing methods to specific asset classes.

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