哈佛商学经典·英文原版影印

OPTIONS, FUTURES, AND OTHER DERIVATIVE SECURITIES

期权 期货和衍生证券

THIRD EDITION

JOHN C.HULL
约翰·赫尔 著

华夏出版社
HUA XIA PUBLISHING HOUSE
Prentice Hall

Options, Futures, and Other Derivatives

THIRD EDITION

JOHN C. HULL
University of Toronto

PRENTICE HALL International, Inc.

图书在版编目(CIP)数据

期权、期货和衍生证券:英文/(美)赫尔(Hull.J.C.)著 . - 北京:华夏出版社,1998.1

(哈佛商学经典)

ISBN 7-5080-1457-X

Ⅰ.期… Ⅱ.赫… Ⅲ.金融市场-基本知识-英文 Ⅳ.F830.9

中国版本图书馆 CIP 数据核字(97)第 26424 号

出版:华夏出版社

西蒙与舒斯特出版公司

发行:华夏出版社

经销:新华书店

印刷:中国建筑工业出版社印刷厂

开本:16 开

印数:1—5100 册

印张:37.25

版次:1998 年 1 月第 1 版

印次:1998 年 1 月第 1 次印刷

定价:89.00 元

本版图书凡有印装错误可及时向我社发行部调换

To My Family

Preface

This book is appropriate for graduate and advanced undergraduate elective courses in business, economics, and financial engineering. It is also suitable for practitioners who want to acquire a working knowledge of how derivatives can be analyzed.

One of the key decisions that must be made by an author who is writing in the area of derivatives concerns the use of mathematics. If the level of mathematical sophistication is too high, the material is likely to be inaccessible to many students and practitioners. If it is too low, some important issues will inevitably be treated in a rather superficial way. In this book, great care has been taken in the use of mathematics. Nonessential mathematical material has been either eliminated or included in end-of-chapter appendices. Concepts that are likely to be new to many readers have been explained carefully, and many numerical examples have been included.

The feature of this book that distinguishes it from others in the same area is that it provides a unifying approach to the valuation of all derivatives—not just futures and options. This book assumes that the reader has taken an introductory course in finance and an introductory course in probability and statistics. No prior knowledge of options, futures contracts, swaps, and so on is assumed. It is not therefore necessary for students to take an elective course in investments prior to taking a course based on this book.

CHANGES IN THIS EDITION

This edition contains more material than the second edition. Also, the material in the second edition has been updated, and the organization of the material has been improved in a number of places. The changes include:

1. There are now three chapters on interest rate derivatives (Chapters 4, 16 and 17). Most of Chapters 16 and 17 is new. Chapter 16 includes material on mortgage-backed securities; the way in which Black's model is used by market participants to value a range of different interest rate derivatives; and the convexity adjustments necessary when Black's model is used. Chapter 17 includes material on both equilibrium and no-arbitrage models of the

term structure. It provides an updated and detailed description of procedures for constructing interest rate trees. It also deals with the convexity adjustments necessary when Eurodollar futures are used to construct the zero curve.

2. A new chapter, Chapter 10, introduces one- and two-step binomial trees and shows how they can be analyzed using either no-arbitrage or risk-neutral valuation arguments.
3. Major changes have been made to the chapter on exotic options (Chapter 18). There is much more material on how to value barrier options, path-dependent options, lookback options, and options on two correlated assets. Static options replication is also covered.
4. Major changes have been made to the chapter on credit risk (Chapter 20). This now has more emphasis on discrete models and covers the valuation of convertible bonds.
5. New topics and new material have been introduced in many other places. For example, accounting and tax are covered in Chapters 2 and 6; day count conventions are discussed in Chapter 4; the material on swaps in Chapter 5 has been revised; there is more material on quantos in Chapter 13; the scenario analysis approach to risk management is discussed in Chapter 14; the material on Monte Carlo variance reduction procedures and finite difference methods in Chapter 15 has been increased; GARCH and the implied tree technique are discussed in Chapter 19.
6. New questions and problems have been added. As in the previous edition, those that are more difficult than average have been asterisked.

Readers of the first and second editions might have noticed that I have made a small change in the book's title. *Options, Futures, and Other Derivative Securities* has now become *Options, Futures, and Other Derivatives.*

ACKNOWLEDGMENTS

Many people have played a part in the production of this book. The academics and practitioners who have made excellent and useful suggestions include Emilio Barone, Giovanni Barone-Adesi, Alex Bergier, George Blazenko, Laurence Booth, Phelim Boyle, Peter Carr, Don Chance, J.-P. Chateau, Ren-Raw Chen, Michel Crouhy, Emanuel Derman, Dieter Dorp, Scott Drabin, Jerome Duncan, Steinar Ekern, David Fowler, Dajiang Gao, Jörgen Hallbeck, Ian Hawkins, Michael Hemler, Steve Heston, Kiyoshi Kato, Kevin Kneafsy, Bill Margrabe, Izzy Nelkin, Paul Potvin, Eric Reiner, Gordon Roberts, Chris Robinson, Cheryl Rosen, John Rumsey, Klaus Schurger, Michael Selby, Piet Sercu, Duane Stock, Edward Thorpe, Yisong Tian, P.V. Viswanath, Ton Vorst, George Wang, Jason Wei, Bob Whaley, and Alan White. I am particularly grateful to Eduardo

Schwartz, who read the original manuscript for the first edition and made many comments that led to significant improvements.

The first two editions of this book were very popular with practitioners, and much of the material in the book has been greatly influenced by the informal contacts I have had with practitioners. The students in my elective courses on derivatives at the University of Toronto have also influenced the evolution of the book.

Alan White, a colleague at the University of Toronto (formerly a colleague at York University), deserves a special acknowledgment. Alan and I have been carrying out joint research in the area of derivatives for many years. During that time we have spent countless hours discussing different issues concerning derivatives. Many of the new ideas in this book, and many of the new ways used to explain old ideas, are as much Alan's as mine. Alan read the original version of this book very carefully and made many excellent suggestions for improvement.

I would like to thank Michelle Wang and Bernie Hildebrandt for excellent research assistance. The staff at Prentice Hall have been a continual source of encouragement to me as this project has progressed. I would particularly like to thank Scott Barr (my original editor), Leah Jewell (editor of the second edition), Paul Donnelly (my current editor), and David Salierno (production editor).

John C. Hull

Brief Contents

Contents