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FUNDAMENTALS OF FUTURES AND OPTIONS MARKETS [第5版]

期货与期权市场导论

John C. Hull/著



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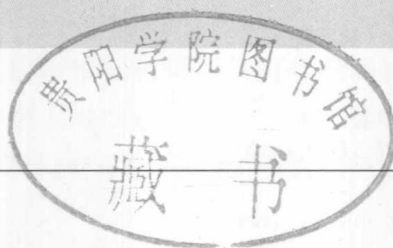
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出版者序言

在当前经济、金融全球化的背景下,中国经济的发展需要大量具备扎实理论功底、了解国际前沿理论、能够适应国际竞争需要的优秀金融人才。而培养优秀的国际金融人才,不仅离不开一流的师资,一流的学术成果,更离不开一流的教材。因此,大力开展双语教学,适当引进和借鉴国外优秀的原版教材,是加快中国金融教育步伐,使之与国际接轨的一条捷径。为此,北京大学出版社与国外著名出版公司圣智学习出版集团、培生教育出版公司和麦格劳-希尔教育出版公司合作推出了《金融学精选教材》系列丛书。本丛书中的大部分均同时包含英文版和翻译版,主要针对金融学专业及相关专业的本科生、研究生。丛书的筛选完全是本着“出新、出好、出精”的原则,目前所入选的图书均经过各个著名高校的相关学者的精心挑选,不仅包括国外金融领域的经典教材、最畅销教材,还包括金融领域中最新推出的教材,称得上是一套优中选精的丛书。

鉴于外版教材大多篇幅较长,且其中某些内容不适合我国的教学实际需要,因而我们对部分所选图书进行了必要的删节,成为英文改编版。在选书和删节的过程中,我们得到了北京大学光华管理学院徐信忠、刘力、周春生、姚长辉、于鸿君、唐国正,北京大学经济学院苏剑,厦门大学经济学院郑振龙,辽宁大学曲昭光等多位教师、学者的大力支持和帮助,在此,我们向他们表示衷心的感谢!

本丛书是对国外原版教材的直接或删节后影印,由于各个国家政治、经济、文化背景的不同,对于书中所持观点,还请广大读者在阅读过程中注意加以分析和鉴别。另外,我们在对原版图书进行删节、重新编排页码的同时,为了便于读者核对使用索引,仍保留了原书的页码,因此读者在阅读过程中可能会发现有跳页现象,而且由于删节,某些文中提到的页码有可能无法找到,对于由此给读者带来的诸多不便,我们深表歉意,恳请您的谅解。

《金融学精选教材》是一个开放的系列,以后将根据教材的供需状况和读者需要陆续增加其他品种,使之更加系统完善。我们欢迎所有关心中国金融学教育和发展的专家、学者及广大读者,为我们提出宝贵的意见和建议,并诚挚地希望您能向我们推荐您所接触到的国外优秀的金融学图书。

北京大学出版社
经济与管理图书事业部
2005年12月

《金融学精选教材》
丛书编委会
2005年12月

丛书序言

北京大学出版社策划出版的《金融学精选教材》系列图书与读者见面了,这是一件令人兴奋的好事。众所周知,现代经济已经进入金融经济时代。经济关系的国际化扩大了金融活动的空间,使得经济全球化、金融全球化的格局逐步形成。如何使广大金融学和相关专业的学生站在国际视野,全面而系统地了解现代金融活动的本质和金融市场运作的内在规律,已经成为世界各国金融学教育中必须面对的重大现实问题。

中国是一个金融人才短缺的国度,急需培养一大批高质量、具有国际先进知识的优秀金融人才,从而增强在经济全球化背景下的国际竞争力。而我们深知,要培养出一流的金融人才,不仅需要一流的师资和学者、一流的教学管理水平,而且还需要一流的教科书。作为在国内外从事了多年金融学研究 and 教学的学者,我们深感国内教材建设严重滞后,教材老化、脱离现实、远离前沿的现象非常严重。虽然随着近年来一批国外原版教科书的陆续引进,上述情况已经有所改善,但与国外相比还存在着很大的差距。将国外最优秀的著作引入中国,让国内的学生能够接触到国际最经典和前沿的理论知识,让国内的教师能够借鉴国际上最成熟先进的教材编写方式和教学方式,进而推动中国的现代金融教育,是中国的教育界和出版界共同肩负的神圣责任和使命。正是本着这样一种强烈的使命感,北京大学出版社在组织国内顶级专家编写优秀金融学教材和专著的同时,特地精选了一批在国际上享有盛誉的经典力作。

《金融学精选教材》系列所入选的图书包括三种类型:在专业领域内有着广泛影响的权威之作,比如 J. Weston, Mark Mitchell 和 J. Harold Mulherin 教授撰写的有着广泛影响的并购重组和公司治理教材 *Takeovers, Restructuring, and Corporate Governance* (第 4 版);国外最具畅销性的金融学教材,如 Copeland 等人的 *Financial Theory and Corporate Policy* (第 4 版);著名金融学专家的最新力作,如货币银行学专家 Stephen G. Cecchetti 教授编著的最新货币银行教材 *Money, Banking and Financial Markets*, 等等。这些著作都有一个共同特点,就是内容丰富,叙述严谨,深入浅出,非常适合金融学和相关专业高年级本科生、研究生和 MBA 作为教材或研究参考书;同时,由于理论与实践的并重,其中大多数著作对于金融行业的从业人员来说也具有很高的参考价值。为了满足不同层次教学以及双语教学的需要,本丛书中的大多数图书都将同时推出中文翻译版和英文影印版。

金融学精选教材系列是一个开放的系列,在出版社和丛书编委会的精心挑选和严格把关下,相信将有越来越多的国外优秀金融教材入选其中。我们热切期待更多的专家学者为我们提出宝贵的意见和建议,也衷心希望本丛书的出版能为中国的金融学教育和现代金融人才的培养作出一份贡献。

《金融学精选教材》

丛书编委会

2006 年 12 月

关于本书

目录

适用对象

本书适合作为经济学、金融学、商业专业的金融衍生品、金融工程等课程的教材,同时也可作为金融投资界从业人员的参考读物。

内容简介

本书全面而系统地讲解了衍生产品市场的机制、衍生产品的运用及其定价原理。作为一本基础性的金融衍生产品教材,本书基本囊括了作者的另一本中级教材《期货、期权与其他衍生品》(*Futures, Options and Other Derivatives*)中的基础理论,但是更加简明而通俗易懂,不要求学生具有很强的数理背景,从而能够更好地满足商学院和经济学院各个层次学生的需要。

作者简介

John C. Hull,加拿大多伦多大学教授,Bonharm 金融中心主任。他是国际公认的衍生品权威,其有关金融衍生产品的教材和著作被翻译成多种文字,并在全世界广泛流行。Hull 教授是八家学术杂志的联合编辑,曾任北美、日本和欧洲多家金融机构的顾问。除多伦多大学外,Hull 教授还曾在约克大学、哥伦比亚大学、纽约大学、格菲尔尔德大学、伦敦商学院任教。

主要特色

- **内容全面:**除了介绍主要的金融衍生产品以外,还介绍了其他同类教材未涉及的信用衍生证券,天气、能源和保险衍生证券,衍生品灾难等内容。
- **简明易懂:**专为广大商学院和经济学院的初学者而设计,未涉及微积分的内容,不要求学生具有很强的数理背景。每章末尾都附有大量习题和思考题,帮助学生理解所学内容。
- **实践性强:**“交易要点”通过简明直观的例子,帮助读者掌握每一种金融衍生品的交易策略;“商业瞬象”提供了真实世界中的 40 个商业案例,极具启发性。

本版更新

- 新增了一章关于信用衍生证券的内容(第 21 章)。
- 上一版本中的前 6 章被本版中的前 7 章所取代,以更受学生欢迎的方式介绍了远期、期货与互换合约。
- 以“商业瞬象”的形式向读者描述了真实世界中的 40 个案例。
- 修改了第 15 章至第 18 章的内容,以更好地满足学生和教师的需求。
- 比之前的版本更加完整地介绍了二叉树模型。
- 在第 4 章中增加了一个附录,介绍指数函数和对数函数。

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教辅资源

- 教师手册(含题库)
- 教学用 PPT

(教师请反馈本书最后的《教学支持说明》,培生教育集团将免费提供相关教辅资料。)

Preface

I was originally persuaded to write this book by colleagues who liked my other book *Options, Futures, and Other Derivatives*, but found the material a little too advanced for their students. *Fundamentals of Futures and Options Markets* covers much of the same ground as *Options, Futures, and Other Derivatives*, but in a way that readers who have had limited training in mathematics find easier to understand. One important difference between the two books is that there is no calculus in the present book. *Fundamentals* is suitable for undergraduate and graduate elective courses offered by business, economics, and other faculties. In addition, many practitioners who want to improve their understanding of futures and options markets will find the book useful.

Instructors can use this book in many different ways. Some may choose to cover only the first eleven chapters, finishing with binomial trees. For those who want to do more, there are many different sequences in which the material in Chapters 12 to 23 can be covered. From Chapter 16 onward, each chapter has been designed so that it is independent of the others and can be included in or omitted from a course without causing problems. I would recommend finishing a course with Chapter 23, which students always find interesting and entertaining.

What's New in This Edition

1. There is a new chapter on credit derivatives (Chapter 21).
2. The opening six chapters have been replaced by seven chapters that cover forward, futures, and swap contracts in a more student-friendly way. The chapter on hedging using futures has been moved to Chapter 3. Chapter 4 is now devoted to understanding how interest rates are calculated and used. Chapter 5 covers the determination of futures and forward prices. Chapter 6 deals with interest rate futures and Chapter 7 covers swaps.
3. Forty descriptions of real-world situations and interesting issues, referred to as *Business Snapshots*, illustrate points being made in the text.
4. There is a new release of DerivaGem (version 1.51), which includes Excel functions and examples of how they can be used.
5. The sequencing of Chapters 15 to 18 has been changed to better meet the needs of students and instructors.
6. The "Introduction to Binomial Trees" chapter has been extended to provide a more complete coverage of binomial trees in one place relatively early in the book.
7. For readers unfamiliar with the exponential and logarithm functions, an explanatory appendix has been added to Chapter 4.

8. The *Solutions Manual* has been expanded to become a *Solutions Manual and Study Guide*
9. There have been two changes to the mathematical notation. Here, K is used instead of X for an option's strike price, and δt , δx , etc., have been replaced by Δt , Δx , etc. (This reverses a change made in the last edition, where I was trying to avoid overworking Δ , but found that the change was not popular!)
10. New end-of-chapter problems have been added.

The book (including end-of-chapter references) has been fully updated. Many changes have been made to improve the presentation of material.

Software

DerivaGem version 1.51 is included with this book. This consists of two Excel applications: the *Options Calculator* and the *Applications Builder*. The Options Calculator consists of the software in the previous release (with minor improvements including the unlocking of worksheets). The Applications Builder consists of a number of Excel functions from which users can build their own applications. It includes a number of sample applications and enables students to explore the properties of options and numerical procedures more easily. It also allows more interesting assignments to be designed.

The software is described more fully at the end of the book. Updates to the software can be downloaded from my website:

<http://www.rotman.utoronto.ca/~hull>

Slides

Several hundred PowerPoint slides are available from my website. Instructors adopting the book for their courses are welcome to adapt the slides to meet their own needs.

Answers to End-of-Chapter Problems

At the end of each chapter (except the last) there are seven quiz questions that students can use to provide a quick test of their understanding of the key concepts. The answers to these are given at the end of the book. There are also over 270 Questions and Problems at the ends of chapters. Answers to these and advice for readers on how each chapter of the book should be studied are in the *Solutions Manual and Study Guide* (ISBN 0-13-144570-7), which is published by Prentice Hall. In addition, there are about one hundred Assignment Questions at the ends of chapters. Solutions to these are in the *Instructor's Manual*, which is available from Prentice Hall only to adopting instructors.

Acknowledgments

Many people have played a part in the production of this book. Academics, students, and practitioners who have made excellent and useful suggestions over the years include Farhang Aslani, Emilio Barone, Giovanni Barone-Adesi, George Blazenko, Laurence Booth, Phelim Boyle, Peter Carr, Don Chance, J. P. Chateau, Brian Donaldson, Jerome Duncan, Steinar Ekern, Robert Eldridge, David Fowler, Louis Gagnon, Mark Garman, Dajiang Guo, Bernie Hildebrandt, Jim Hilliard, Basil Kalymon, Patrick Kearney, Cheng-kun Kuo, Elizabeth Maynes, Eddie Mizzi, Izzy Nelken, Paul Potvin, Richard Rendleman, Gordon Roberts, Edward Robbins, Chris Robinson, John Rumsey,

Klaus Schurger, Eduardo Schwartz, Michael Selby, Piet Sercu, Yochanan Shachmurove, Bill Shao, Stuart Turnbull, Yisong Tian, Ton Vorst, George Wang, Zhanshun Wei, Bob Whaley, Alan White, Qunfeng Yang, and Jozef Zemek. Rebecca Sun provided excellent research assistance.

I would particularly like to thank Alan White. Alan is a colleague at the University of Toronto with whom I have been carrying out joint research in options and futures for over twenty years. We have spent many hours discussing different issues concerning options and futures markets. 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 has done most of the development work on the DerivaGem software.

Special thanks are due to my editor at Prentice Hall, Jackie Aaron, for her support, enthusiasm, advice, and encouragement. I am also grateful to Scott Barr, Leah Jewell, Paul Donnelly, and Maureen Riopelle, who at different times in the past have played key roles in the development of the book.

I welcome comments on the book from readers. My e-mail address is:

hull@rotman.utoronto.ca

John Hull
University of Toronto

1.1 FUTURES CONTRACTS

A *futures contract* is an agreement to buy or sell an asset at a certain time in the future for a certain price. There are many exchanges throughout the world trading futures contracts. The two largest futures exchanges in the United States are the Chicago Board of Trade (www.cbot.com) and the Chicago Mercantile Exchange (www.cme.com). Two of the largest exchanges in Europe are the London International Financial Futures and Options Exchange (www.liffe.com) and Eurex (www.eurexexchange.com). Other large exchanges include Bors' de Mercadorias y Futuros (www.bmf.com.br) in São Paulo, the Tokyo International Financial Futures Exchange (www.tiffe.com), the Singapore International Monetary Exchange (www.simec.com.sg), and the Sydney Futures Exchange (www.sfe.com.au). For a more complete list, see the table at the end of this book.

Futures exchanges provide a mechanism for people who want to buy or sell the future to trade with each other. In March, an investor in New York might contact a broker with instructions to buy 5,000 bushels of corn for July delivery. The broker would immediately communicate the client's instructions to the Chicago Board of Trade. At about the same time, another investor in Kansas might instruct a broker to sell 5,000 bushels of corn for July delivery. These instructions would be passed on to the Chicago Board of Trade. A price would be determined and the trade would be done.

The investor in New York who agreed to buy has what is called a *long futures position*; the investor in Kansas who agreed to sell has what is called a *short futures*

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