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北大光华管理学院 IMBA、MBA推荐用书

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固定收入证券市场及其衍生产品

Fixed Income Markets and Their Derivatives

第 2 版

Suresh M. Sundaresan
Columbia University/著

北京大学出版社
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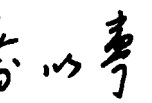
·院长寄语·

北京大学光华管理学院秉承北大悠久的人文传统、深邃的学术思想和深厚的文化底蕴，经过多年努力，目前已经站在中国经济发展与企业管理研究的前列，以向社会提供具有国际水准的管理教育为己任，并致力于帮助国有企业、混合所有制企业和民营企业实现经营管理的现代化，以适应经济全球化趋势。

光华MBA项目旨在为那些有才华的学员提供国际水准的管理教育，为工商界培养熟悉现代管理理念、原理和技巧的高级经营管理人才，使我们的MBA项目成为企业发展致富之源，为学员创造迅速成长和充分发挥优势的条件和机会。

为了适应现代人才需求模式和建立中国的一流商学院，北京大学光华管理学院正在推出国际MBA“双语双学位”培养方案；同时，为了配合北大MBA教育工作的展开，光华管理学院与北大出版社联合推出本套《当代全美MBA经典教材书系（英文影印版）》，并向国内各兄弟院校及工商界人士推荐本套丛书。相信我们这些尝试将会得到社会的支持。而社会对我们的支持，一定会使光华MBA项目越办越好，越办越有特色。

北京大学光华管理学院院长 

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出版者序言

2001年12月10日中国加入了世界贸易组织，从此，中国将进一步加大与世界各国的政治、经济、文化各方面的交流和合作，这一切都注定中国将在未来世界经济发展中书写重要的一笔。

然而，中国经济的发展正面临着前所未有的人才考验，在许多领域都面临着人才匮乏的现象，特别是了解国际贸易规则、能够适应国际竞争需要的国际管理人才，更是中国在未来国际竞争中所必需的人才。因此，制定和实施人才战略，培养并造就大批优秀人才，是我们在新一轮国际竞争中赢得主动的关键。

工商管理硕士(MBA)，1910年首创于美国哈佛大学，随后MBA历经百年风雨不断完善，取得了令世人瞩目的成绩。如今，美国MBA教育已经为世界企业界所熟知，受到社会的广泛承认和高度评价。中国的MBA教育虽起步较晚，但在过去10年里，中国的MBA教育事业发展非常迅速，也取得了相当显著的成绩。现在国内已经有50多所高等院校可以授予MBA学位，为社会培养了3000多名MBA毕业生，并有在读学员2万多人。

目前，国内的MBA教育市场呈现一片繁荣景象，但繁荣的背后却隐藏着种种亟待解决的问题。其中很大一部分问题的成因是因为目前我国高校使用的教材内容陈旧，与国外名校的名牌教材差距较大，在教学内容、体系上也缺乏与一流大学的沟通。为适应经济全球化，国家教育管理部门曾要求各高校大力推广使用外语讲授公共课和专业课，特别是在我国加入WTO后急需的上百万人才中，对MBA人员的需求更是占1/3之多，所以，大力开展双语教学，适当引进和借鉴国外名牌大学的原版教材，是加快中国MBA教育步伐，使之走向国际化的一条捷径。

目前，国内市场上国外引进版教材也是新旧好坏参差不齐，这就需要读者进行仔细的甄别。对于国外原版教材的使用，在这里我们要提几点看法。国外每年出版的教材多达几万种，如果不了解国外的教材市场，不了解国外原版教材的品质就可能找不到真正适合教学和学习的好的教材。对于不太了解外版教材的国内读者来说，选择教材要把握以下几点，即：选择国外最新出版的书；选择名校、名作者的书；选择再版多次并且非常流行的书。综合以上几点来看，目前国内市场上真正出新、出好、出精的MBA教材还是不多的。基于以上认识，北京大学出版社推出了《当代全美MBA经典教材书系(英文影印版)》，本套丛书的筛选正是本着以上提到的几点原则，即：出新、出好、出精。经过北京大学及国内其他著名高校的知名学者的精心挑选，本套丛书汇集了美国管理学界各个学科领域专家的权威巨著，称得上是一套优中选精的丛书。本套丛书现在已经推出了MBA主干课程、会计专业、金融专业课程教程三个系列，共45个品种。以后，我们还将陆续推出更多专业的英文影印版书籍。

致谢

本套教材是我社与国外一流专业出版公司合作出版的，是从大量外版教材中选出的最优秀的一部分。在选书的过程中我们得到了很多专家学者的支持和帮助，可以说每一本书都经过处于教学一线的专家、学者们的精心审定，本套英文影印版教材的顺利出版离不开他们的无私帮助，在此，我们对审读并对本套图书提出过宝贵意见的老师们表示衷心的感谢，他们是(按拼音排序)：

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出版声明

本套丛书是对国外原版教材的直接影印，由于各个国家政治、经济、文化背景的不同，原作者所持观点还请广大读者在阅读过程中加以分析和鉴别。我们希望本套丛书的出版能够促进中外文化交流，加快国内经济管理专业教学的发展，为中国经济走向世界做出一份贡献。

我们欢迎所有关心中国 MBA 教育的专家学者对我们的工作进行指导，欢迎每一位读者给我们提出宝贵的意见和建议。

北京大学出版社政经法编辑部

2002 年 11 月

关于本书

适用对象

本书适合作为 MBA 和高年级本科课程。

内容简介

本书提供固定收入证券市场和其衍生产品市场，包括国债、公司债、机构债和住房抵押贷款债券以及债务期权、期货、互换市场的总述。它帮助学生理解这些市场中的相应理论，让学生日后更自信、更聪明地作为公司顾客、债券交易商、银行家和投资者参与债券市场。

作者简介

Suresh M. Sundaresan 是 Columbia University 商学院金融研究所的 Chase Manhattan Bank 基金教授。他从 Carnegie-Mellon University 获博士学位。Sundaresan 教授已经出版了大量关于国债拍卖、利率期限结构、浮动利率、国库券、公司债券和衍生证券的论文。他曾经为 Goldman Sachs, Credit Suisse, Barclays, Lehman Brothers 和 Morgan Stanley 做过关于固定收入证券和衍生产品市场的咨询以及为它们做职员培训。

主要特色

详细描述：本书详尽描述了债券市场、交易商和机构参与者的特点。

阐明重要的模式：各个市场相关经验规律被总结。

提供关键分析工具：本书发展分析工具和数学模型，证券从业者可以广泛应用在固定收入证券市场。

实际数据：实际生活数据用于显著说明经验规律，把理论和实践结合，阐明理论在定价、风险管理、套利和相关领域的应用。

内容丰富：关键内容包括国债市场分析，包括拍卖机制、差价拍卖和国债的同价拍卖；描述分析首次发行市场、中间经纪人市场、拍卖市场和二板市场；公司债务定价和公司财务危机；风险管理技巧，比如风险定价和资本风险调整回报；资产组合管理技巧，包括组合（基金配比）、指数化、免疫和组合保险、经销商和其他上市衍生产品；基本贷款市场和资产证券化。

真实案例：本书把学术研究和实际考虑相结合，与其他同类书比较，本书在制度上有更多阐述。

本版更新

章节更新：加入的三章“通货膨胀指数债务市场”（第 7 章），“新兴债务市场”（第 11 章）及“信用风险”（第 18 章）涉及这些热点话题。

章节合并：以前版本的“收益曲线分析”在本版被分为两章。

章节重组：本书章节已经被重新组织给学生和教员，使得本书能集中在某些特定领域的同时不损失连续性。

内容更新：所有资料和经验证据被更新，市场的新发展也被加入。

网络参考：放在每章结尾的网络资源，鼓励读者探索和应用章节概念于现实世界事件和数据中。

Excel：Excel 电子表格介绍提供一个便捷的学习经验。

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教辅产品

答案手册 / 0324004486

Preface

Fixed-income markets have grown tremendously in the last three decades. Nearly two-thirds of the market value of all securities in the capital markets is fixed-income securities. The securities range from a simple zero coupon security, which pays only at its maturity, to securities that have uncertain cash flows with many implicit or explicit optional features. The subject matter of *Fixed Income Markets and Their Derivatives* is extraordinarily rich in market institutions and theories of valuation. In addition, a great deal of empirical evidence on the behavior of interest rates, inflation, default rates, prepayments, and so on, bridges the gap between the richness of market institutions and the relatively sophisticated models of valuation. This book attempts to capture the rich interplay between theory, empirical evidence, and the evolution of market institutions.

ORGANIZATION OF THIS EDITION

The second edition of *Fixed Income Markets and Their Derivatives* presents an integrated, self-contained analysis of the market institutions, theory, and empirical evidence in fixed-income markets and their derivatives. Three new chapters have been added, covering inflation-indexed debt markets, emerging market debt securities, and credit risk models. The sequencing of the chapters has been significantly changed, based on feedback received from users of the text, to promote better continuity and smoother flow. In addition, concepts that are mathematically advanced are presented in appendices to the chapters. The main body of each chapter focuses on applications and examples. Many EXCEL applications are included in this edition to show that the analytical tools developed in the text can be used in real-world applications.

The book has been reorganized into three parts. Part I of the book consists of six chapters that focus exclusively on fixed-income markets and basic analytical tools such as duration, convexity, and yield curve-related mathematics. Chapters 1 and 2 provide an overview of the markets and how they are organized. Chapter 3 describes how the government fixed-income securities market is structured, and describes auction mechanisms in detail. The analytical tools (sometimes known as "bond mathematics") are developed in Chapter 4. In Chapters 5 and 6 we develop concepts of yield curve analysis.

Part II consists of six chapters that cover fixed income markets such as inflation-indexed debt markets, mortgage-backed securities and emerging debt markets, as well as a discussion of portfolio management techniques. Chapters 7 through 11 are

devoted to the study of specialized fixed-income securities such as inflation-indexed bonds, agency securities, corporate debt, emerging market debt securities, and so on. Chapter 12 addresses portfolio management issues.

Part III consists of 7 chapters devoted to the study of fixed-income derivatives and the development of options pricing models, including all option-related tools and applications. Chapter 13 provides an overview of the fixed-income derivatives markets. Chapter 14 provides a self-contained development of basic options pricing principles, the Black-Scholes model, and the binomial options pricing model as they apply to fixed-income markets. Chapter 15 analyzes the Treasury futures contracts. Interest rate models and interest rate options pricing are developed in Chapter 16, and Chapter 17 provides a comprehensive treatment of Eurodollar futures markets and interest rate swaps. Credit risk models and credit derivatives are presented in Chapter 18. The last chapter presents risk management principles.

Below are additional details describing the content and objectives of each chapter:

- A comprehensive overview in **Chapter 1** provides a bird's-eye view of the global fixed-income markets and a perspective on key issues. This is done with an eye on institutional features and recent empirical evidence and data.
- A detailed description of how fixed-income markets are organized and who are the key players in the market is presented in **Chapter 2.** Primary dealership system, secondary markets, inter-dealer brokers, and so on, are discussed in detail. Major players (central banks, institutional investors, dealers, etc.) and their roles are discussed.
- **Chapter 3** presents in detail a description and analysis of when-issued markets, auction mechanisms, repo markets, and the financing of securities.
- The tools of bond mathematics, such as yield to maturity, yield to call, accrued interest, modified duration, MaCaulay duration, convexity, and so on, are developed in **Chapter 4.** Over 25 examples using real-life prices and yields are worked out to illustrate these important tools. Many EXCEL applications are provided. For advanced students, more difficult analytical concepts are presented in the appendix. Many applications such as spread trades and butterfly trades are illustrated.
- Yield curve analysis is developed in two parts. The first (in **Chapter 5**) develops how economic news releases take place in capital markets. The role of the central bank in controlling inflation and growth rate of the economy is discussed. The market's anticipation of the central bank's actions and the relationship between business cycle and real interest rates are also developed in this part. The second part (in **Chapter 6**) develops the tools of yield curve analysis, such as spot rates, forward rates, and par bond yield curve. The economics of stripping and reconstitutions are addressed in this part. Throughout we have used real-world prices and yields in developing the concepts of yield curve analysis.
- Inflation-indexed securities have been introduced in the United States and this market is treated in **Chapter 7.** We describe the development of this market and how the inflation-indexed securities are designed. The tax rules associated with this security and their possible effects are also addressed. The duration of inflation-indexed securities are computed and shown to be much higher than

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similar nominal bonds. The use of inflation-indexed securities along with nominal securities to extract expected inflation is also discussed.

- The agency and corporate debt securities are described in **Chapter 8.** The special status of agency markets and the possible changes in their status are addressed because of the implications on their pricing as well as for the overall market. The shrinking of the Treasury market and the new benchmark notes programs of the agencies are also discussed. The corporate debt securities such as commercial paper (CP), corporate bonds, and so on, are presented. Both investment grade and high-yield bond markets are described. The process of financial distress, the role of bankruptcy code, credit rating, and so on, are presented in detail.
- The mortgage-backed securities markets are discussed in **Chapter 9.** The focus is on the valuation of securities and the incentives that dictate prepayments.
- Tax-exempt securities markets are analyzed in **Chapter 10.** The steepness of the tax-exempt curve, the practice of yield burning, and the tax clienteles are discussed in this chapter.
- Emerging market debt securities are described in **Chapter 11.** The nature of the market, the absence of a bankruptcy code, the spread behavior, and Brady bonds are discussed in detail.
- **Chapter 12** provides a brief account of portfolio management techniques such as dedicated portfolio construction, indexation, immunization, and so on.
- An overview of the fixed-income derivatives markets is provided in **Chapter 13.** The products that are traded in the listed markets (exchanges) and the products that are traded in the dealer markets are presented. The overall breadth and depth of the markets are assessed.
- **Chapter 14** provides a self-contained treatment of options and their applications in the fixed-income area. The Black-Scholes and the binomial options pricing methods are developed. Their applications are illustrated in an EXCEL setting. Options of cash instruments and futures contracts are priced. Risk management applications are illustrated.
- Treasury futures contracts are analyzed in **Chapter 15.** The contract specifications, recent changes in the contract grade, and the economics behind the determination of cheapest deliverable bonds are presented in the context of real-world examples. Important concepts such as basis, basis after carry, implied repo rate, delivery options, and so on, are discussed in full detail.
- In **Chapter 16** we discuss the Eurodollar futures contracts and the interest rate swap markets. The basic ideas behind their development and valuation principles are shown through realistic examples. The factors that determine the swap rates are analyzed in detail. Caps, floors, collars, and options on swaps are valued.
- **Chapter 17** develops various models of interest rates. The Vasicek model; the Cox, Ingersoll, and Ross model; the Black, Derman, and Toy model, the Ho and Lee model; and the Heath, Jarrow, and Morton model are discussed. Some applications of these models for valuing interest rate derivatives are also shown.
- **Chapter 18** develops credit risk models. The structural model of Merton and its use by KMV in deriving equity-based probabilities of default are analyzed. The

development of reduced form models and the pricing of credit derivatives are briefly surveyed.

- The final chapter, **Chapter 19,** develops basic principles of risk management including portfolio value-at-risk (VAR).

ADDITIONAL LEARNING MATERIALS

Each chapter has several questions that test the reader on concepts developed in the chapter, as well as other issues. Some questions are designed based on historical data.

A solutions manual prepared by the author includes an introduction with a suggested course plan, allowing for either a quantitative or non-quantitative approach. The manual also provides solutions to the end-of-chapter questions in the text.

The book support Web site at http://sundaresan.swcollege.com includes additional updated information on bond pricing and hyperlinks to Internet resources mentioned in the text. Instructors and students are encouraged to visit the text's web site, as well as the South-Western Finance web site at http://finance.swcollege.com, where visitors will find resources such as Finance in the News, FinanceLinks Online, Wall Street analysts reports, and the Thomson Investors Network.

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Suresh Sundaresan

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