

高等院校双语教材 · 金融系列

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BOND MARKETS, (Seventh Edition) ANALYSIS AND STRATEGIES

债券市场 分析与策略 (第七版)

弗兰克·J·法博齐 (Frank J. Fabozzi) 著

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出 版 说 明

随着金融全球化进程的不断加快，金融人才的竞争日益激烈，用国际通用的英语来思考、工作、交流的能力也越来越重要。如何顺应这一潮流，培养和造就专业知识和语言水平都具有竞争力的金融人才，一直是各大高等院校和一些主要教材出版单位思考的重要问题，开展双语教学是教育界的共识。双语教学在我国主要指采用汉语和国际通用的英语教学，目的是培养全面的适合国际交流的高素质人才。由于我国长期以来缺乏英语交流的环境，开展双语教学面临着特殊的困难，我们认为双语教学从一开始就应该使用原版的优秀教材，保证语言的原汁原味。

顺应这一潮流，中国人民大学出版社携手国际著名的出版公司，推出了适合经济金融专业的双语系列教材。本套教材具有如下几个特色：

第一，精选教材。本套教材遴选了一批国外优秀的教材，涉及金融学、投资学、公司理财、金融市场与机构、国际货币与金融、国际投资、跨国公司财务管理、金融工程、银行管理、保险学等多门课程，涵盖了金融专业开设的主要必修科目。

第二，保持原教材的特色。本套双语教材广泛听取了一线任课教师的意见和建议，考虑到课时要求，部分图书采用了删减影印的形式，主要是删减了一些相互重复的以及不适应我国国情的内容，但在体系结构和内容特色方面都保持了原教材的风貌。

第三，内容紧扣学科前沿。本套教材基本上都选择国外最流行教材的最新版本，有利于老师和学生掌握国外教学研究的最新发展趋势。

第四，提供强大的教学支持。依托国外大出版公司的力量，本套教材为教师提供了配套的网上教辅资料，如教师手册、PPT课堂演示文稿、试题库等，从而使教学更为便利。

本套教材主要适用于高等院校经济金融专业的本科教学，同时也适用于金融行业从业人员以及对金融专业感兴趣的人士。

本套教材是对双语教学的积极探索，错误遗漏之处在所难免，恳请广大读者指正。

中国人民大学出版社

Preface

The first edition of *Bond Markets, Analysis, and Strategies* was published in 1989. The objective was to provide coverage of the products, analytical techniques for valuing bonds and quantifying their exposure to changes in interest rates, and portfolio strategies for achieving a client's objectives. In the five editions subsequently published and in the current edition, the coverage of each of these areas has been updated. In the product area, the updating has been primarily for the latest developments in structured products (mortgage-backed securities, asset-backed securities, and collateralized debt obligations) and credit derivatives. The updating of analytical techniques has been for interest rate and credit risk modeling.

Each edition has benefited from the feedback of readers and instructors using the book at universities and training programs. Many discussions with portfolio managers and analysts, as well as my experiences serving on the board of directors of several funds and consulting assignments, have been invaluable in improving the content of the book. Moreover, my structured finance course at Yale's School of Management and various presentations to institutional investor groups throughout the world provided me with the testing ground for new material.

I am confident that the seventh edition continues the tradition of providing up-to-date information about the bond market and the tools for managing bond portfolios.

NEW TO THIS EDITION

New Chapters

Chapter 11 Agency Mortgage Pass-Through Securities Only agency pass-through securities are covered with ample illustrations taken from actual agency transactions.

Chapter 13 Nonagency Residential Mortgage-Backed Securities Explains the structuring of nonagency mortgage-backed securities and their investment characteristics. An online appendix to this chapter discusses the subprime mortgage meltdown.

Significantly Revised Chapters

Chapter 6 Treasury and Agency Securities Thoroughly revised discussion on agency securities.

Chapter 10 Residential Mortgage Loans Now explains prime and subprime residential loans and the types of loans.

Chapter 12 Agency Collateralized Mortgage Obligations and Stripped Mortgage-Backed Securities Now only covers agency derivative securities.

Chapter 15 Asset-Backed Securities Includes illustrations from actual ABS transactions to clarify the concepts.

Chapter 30 Credit Derivatives Expanded coverage to include valuation of single-name credit default swaps and credit default swaps on non-corporate entities.

Online Appendices

Additional content available on the companion website at www.pearsonhighered.com/fabozzi/.

Chapter 13 Appendix Subprime Meltdown in 2007

Chapter 21 Appendix A Wachovia's credit report of the Lear Corporation

Chapter 21 Appendix B Example of a credit analysis

INSTRUCTOR SUPPLEMENTS

The following supplements are available to adopting instructors:

Instructor's Resource Center Register.Redeem.Login

www.pearsonhighered.com/irc is where instructors can access a variety of print, media, and presentation resources that are available with this text in downloadable, digital format.

It gets better. Once you register, you will not have additional forms to fill out, or multiple usernames and passwords to remember to access new titles and/or editions. As a registered faculty member, you can log in directly to download resource files, and receive immediate access and instructions for installing Course Management content to your campus server.

Need help? Our dedicated Technical Support team is ready to assist instructors with questions about the media supplements that accompany this text. Visit <http://247pearsoned.custhelp.com/> for answers to frequently asked questions and toll-free user support phone numbers. The following supplements are available to adopting instructors. Detailed descriptions of the following supplements are provided on the Instructor's Resource Center:

Electronic Instructor's Manual with Solutions

Prepared by Dr. Rob Hull of Washburn University School of Business. The Instructor's Manual contains chapter summaries and suggested answers to all end-of-chapter questions.

PowerPoint Presentation

Prepared by Dr. Rob Hull of Washburn University School of Business. The PowerPoint slides provide the instructor with individual lecture outlines to accompany the text. The slides include all of the figures and tables from the text. These lecture notes can be used as is or professors can easily modify them to reflect specific presentation needs.

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1

Introduction

LEARNING OBJECTIVES

After reading this chapter, you will understand

- the fundamental features of bonds
- the types of issuers
- the importance of the term to maturity of a bond
- floating-rate and inverse-floating-rate securities
- what is meant by a bond with an embedded option and the effect of an embedded option on a bond's cash flow
- the various types of embedded options
- convertible bonds
- the types of risks faced by investors in fixed-income securities
- the secondary market for bonds
- the various ways of classifying financial innovation

A bond is a debt instrument requiring the **issuer** (also called the **debtor** or **borrower**) to repay to the lender/investor the amount borrowed plus interest over a specified period of time. A typical (“plain vanilla”) bond issued in the United States specifies (1) a fixed date when the amount borrowed (the **principal**) is due, and (2) the contractual amount of interest, which typically is paid every six months. The date on which the principal is required to be repaid is called the **maturity date**. Assuming that the issuer does not default or redeem the issue prior to the maturity date, an investor holding a bond until the maturity date is assured of a known cash flow pattern.

For a variety of reasons to be discussed later in this chapter, the 1980s and 1990s saw the development of a wide range of bond structures. In the residential mortgage market

particularly, new types of mortgage designs were introduced. The practice of pooling of individual mortgages to form mortgage pass-through securities grew dramatically. Using the basic instruments in the mortgage market (mortgages and mortgage pass-through securities), issuers created derivative mortgage instruments such as collateralized mortgage obligations and stripped mortgage-backed securities that met specific investment needs of a broadening range of institutional investors.

SECTORS OF THE U.S. BOND MARKET

The U.S. bond market is the largest bond market in the world. The market is divided into six sectors: U.S. Treasury sector, agency sector,¹ municipal sector, corporate sector, asset-backed securities sector, and mortgage sector. The **Treasury sector** includes securities issued by the U.S. government. These securities include Treasury bills, notes, and bonds. The U.S. Treasury is the largest issuer of securities in the world. This sector plays a key role in the valuation of securities and the determination of interest rates throughout the world.

The **agency sector** includes securities issued by federally related institutions and government-sponsored enterprises. The distinction between these issuers is described in Chapter 6. The securities issued are not backed by any collateral and are referred to as **agency debenture securities**. This sector is the smallest sector of the bond market.

The **municipal sector** is where state and local governments and their authorities raise funds. The two major sectors within the municipal sector are the tax-backed debt sector and the revenue sector. Bonds issued in the municipal sector typically are exempt from federal income taxes. Consequently, the municipal sector is commonly referred to as the **tax-exempt sector**.

The **corporate sector** includes securities issued by U.S. corporations and non-U.S. corporations issued in the United States. Issuers in the corporate sector issue bonds, medium-term notes, structured notes, and commercial paper. The corporate sector is divided into the investment grade and noninvestment grade sectors. In some broad-based bond market indexes described later in this book, the corporate sector is referred to as the “credit sector.”

An alternative to the corporate sector where a corporate issuer can raise funds is the **asset-backed securities sector**. In this sector, a corporate issuer pools loans or receivables and uses the pool of assets as collateral for the issuance of a security. For example, Harley-Davidson uses loans it originated for its motorcycles as collateral for the issuance of asset-backed securities. The various types of asset-backed securities are described in Chapter 15.

The mortgage sector is the sector where the securities issued are backed by mortgage loans. These are loans obtained by borrowers in order to purchase residential property or to purchase commercial property (i.e., income-producing property). The mortgage sector is thus divided into the **residential mortgage sector** and the **commercial mortgage sector**. Chapters 10 through 13 cover the residential mortgage sector, and Chapter 14 covers the commercial mortgage sector.

Chapter 10 discusses the different types of residential mortgage loans and the classification of mortgage loans in terms of the credit quality of the borrower: prime loans and subprime loans. The latter loans are loans to borrowers with impaired credit ratings. Also,

¹ In later chapters, we will see how organizations that create bond market indexes provide a more detailed breakdown of the sectors.

loans are classified as to whether or not they conform to the underwriting standards of a federal agency or government-sponsored enterprise that packages residential loans to create residential mortgage-backed securities. Residential mortgage-backed securities issued by a federal agency (the Government National Mortgage Association or Ginnie Mae) or Fannie Mae or Freddie Mac (two government-sponsored enterprises) are referred to as **agency mortgage-backed securities**. Chapter 11 is devoted to the basic type of such security, an **agency mortgage pass-through security**, while Chapter 12 covers securities created from agency mortgage pass-through securities: **collateralized mortgage obligations** and **stripped mortgage-backed securities**. Residential mortgage-backed securities not issued by Ginnie Mae, Fannie Mae, or Freddie Mac are called **nonagency mortgage-backed securities** and are the subject of Chapter 13.

Non-U.S. bond markets include the Eurobond market and other national bond markets. We discuss these markets in Chapter 9.

OVERVIEW OF BOND FEATURES

In this section, we provide an overview of some important features of bonds. A more detailed treatment of these features is presented in later chapters. The bond **indenture** is the contract between the issuer and the bondholder, which sets forth all the obligations of the issuer.

Type of Issuer

A key feature of a bond is the nature of the issuer. There are three issuers of bonds: the federal government and its agencies, municipal governments, and corporations (domestic and foreign). Within the municipal and corporate bond markets, there is a wide range of issuers, each with different abilities to satisfy their contractual obligation to lenders.

Term to Maturity

The term to maturity of a bond is the number of years over which the issuer has promised to meet the conditions of the obligation. The maturity of a bond refers to the date that the debt will cease to exist, at which time the issuer will redeem the bond by paying the outstanding principal. The practice in the bond market, however, is to refer to the **term to maturity** of a bond as simply its **maturity** or **term**. As we explain subsequently, there may be provisions in the indenture that allow either the issuer or bondholder to alter a bond's term to maturity.

Generally, bonds with a maturity of between one and five years are considered **short-term**. Bonds with a maturity between five and 12 years are viewed as **intermediate-term**, and **long-term** bonds are those with a maturity of more than 12 years.

There are three reasons why the term to maturity of a bond is important. The most obvious is that it indicates the time period over which the holder of the bond can expect to receive the coupon payments and the number of years before the principal will be paid in full. The second reason that term to maturity is important is that the yield on a bond depends on it. As explained in Chapter 5, the shape of the yield curve determines how term to maturity affects the yield. Finally, the price of a bond will fluctuate over its life as yields in the market change. As demonstrated in Chapter 4, the volatility of a bond's price is dependent on its maturity. More specifically, with all other factors constant, the longer the maturity of a bond, the greater the price volatility resulting from a change in market yields.