2026

CFA®

Exam Prep

SchweserNotes™

Fixed Income and Derivatives

Level I Book 3

KAPLAN SCHWESER

Book 3: Fixed Income and Derivatives

SchweserNotes™ 2026

Level I CFA®

SCHWESERNOTES™ 2026 LEVEL I CFA® BOOK 3: FIXED INCOME AND DERIVATIVES

Published in 2025 by Kaplan, Inc.

ISBN: 978-1-0788-5125-1

CONTENTS

Learning Outcome Statements (LOS)

47. Fixed-Income Instrument Features

The candidate should be able to:

a. describe the features of a fixed-income security.
b. describe the contents of a bond indenture and contrast affirmative and negative covenants.

48. Fixed-Income Cash Flows and Types

The candidate should be able to:

a. describe common cash flow structures of fixed-income instruments and contrast cash flow contingency provisions that benefit issuers and investors.
b. describe how legal, regulatory, and tax considerations affect the issuance and trading of fixed-income securities.

49. Fixed-Income Issuance and Trading

The candidate should be able to:

a. describe fixed-income market segments and their issuer and investor participants.
b. describe types of fixed-income indexes.
c. compare primary and secondary fixed-income markets to equity markets.

50. Fixed-Income Markets for Corporate Issuers

The candidate should be able to:

a. compare short-term funding alternatives available to corporations and financial institutions.
b. describe repurchase agreements (repos), their uses, and their benefits and risks.
c. contrast the long-term funding of investment-grade versus high-yield corporate issuers.

51. Fixed-Income Markets for Government Issuers

The candidate should be able to:

a. describe funding choices by sovereign and non-sovereign governments, quasi-government entities, and supranational agencies.
b. contrast the issuance and trading of government and corporate fixed-income instruments.

52. Fixed-Income Bond Valuation: Prices and Yields

The candidate should be able to:

a. calculate a bond's price given a yield-to-maturity on or between coupon dates.
b. identify the relationships among a bond's price, coupon rate, maturity, and yield-to-maturity.
c. describe matrix pricing.

53. Yield and Yield Spread Measures for Fixed-Rate Bonds

The candidate should be able to:

a. calculate annual yield on a bond for varying compounding periods in a year.
b. compare, calculate, and interpret yield and yield spread measures for fixed-rate bonds.

54. Yield and Yield Spread Measures for Floating-Rate Instruments

The candidate should be able to:

a. calculate and interpret yield spread measures for floating-rate instruments.
b. calculate and interpret yield measures for money market instruments.

55. The Term Structure of Interest Rates: Spot, Par, and Forward Curves

The candidate should be able to:

a. define spot rates and the spot curve, and calculate the price of a bond using spot rates.
b. define par and forward rates, and calculate par rates, forward rates from spot rates, spot rates from forward rates, and the price of a bond using forward rates.
c. compare the spot curve, par curve, and forward curve.

56. Interest Rate Risk and Return

The candidate should be able to:

a. calculate and interpret the sources of return from investing in a fixed-rate bond.

b. describe the relationships among a bond's holding period return, its Macaulay duration, and the investment horizon.
c. define, calculate, and interpret Macaulay duration.

57. Yield-Based Bond Duration Measures and Properties

The candidate should be able to:

a. define, calculate, and interpret modified duration, money duration, and the price value of a basis point (PVBP).
b. explain how a bond's maturity, coupon, and yield level affect its interest rate risk.

58. Yield-Based Bond Convexity and Portfolio Properties

The candidate should be able to:

a. calculate and interpret convexity and describe the convexity adjustment.
b. calculate the percentage price change of a bond for a specified change in yield, given the bond's duration and convexity.
c. calculate portfolio duration and convexity and explain the limitations of these measures.

59. Curve-Based and Empirical Fixed-Income Risk Measures

The candidate should be able to:

a. explain why effective duration and effective convexity are the most appropriate measures of interest rate risk for bonds with embedded options.
b. calculate the percentage price change of a bond for a specified change in benchmark yield, given the bond's effective duration and convexity.
c. define key rate duration and describe its use to measure price sensitivity of fixed-income instruments to benchmark yield curve changes.
d. describe the difference between empirical duration and analytical duration.

60. Credit Risk

The candidate should be able to:

a. describe credit risk and its components, probability of default and loss given default.
b. describe the uses of ratings from credit rating agencies and their limitations.
c. describe macroeconomic, market, and issuer-specific factors that influence the level and volatility of yield spreads.

61. Credit Analysis for Government Issuers

The candidate should be able to:

a. explain special considerations when evaluating the credit of sovereign and non-sovereign government debt issuers and issues.

62. Credit Analysis for Corporate Issuers

The candidate should be able to:

a. describe the qualitative and quantitative factors used to evaluate a corporate borrower's creditworthiness.
b. calculate and interpret financial ratios used in credit analysis.
c. describe the seniority rankings of debt, secured versus unsecured debt and the priority of claims in bankruptcy, and their impact on credit ratings.

63. Fixed-Income Securitization

The candidate should be able to:

a. explain benefits of securitization for issuers, investors, economies, and financial markets.
b. describe securitization, including the parties and the roles they play.

64. Asset-Backed Security (ABS) Instrument and Market Features

The candidate should be able to:

a. describe characteristics and risks of covered bonds and how they differ from other asset-backed securities.
b. describe typical credit enhancement structures used in securitizations.
c. describe types and characteristics of non-mortgage asset-backed securities, including the cash flows and risks of each type.
d. describe collateralized debt obligations, including their cash flows and risks.

65. Mortgage-Backed Security (MBS) Instrument and Market Features

The candidate should be able to:

a. define prepayment risk and describe time tranching structures in securitizations and their purpose.
b. describe fundamental features of residential mortgage loans that are securitized.
c. describe types and characteristics of residential mortgage-backed securities, including mortgage pass-through securities and collateralized mortgage obligations, and explain the cash flows and risks for each type.
d. describe characteristics and risks of commercial mortgage-backed securities.

66. Derivative Instrument and Derivative Market Features

The candidate should be able to:

a. define a derivative and describe basic features of a derivative instrument.
b. describe the basic features of derivative markets, and contrast over-the-counter and exchange-traded derivative markets.

67. Forward Commitment and Contingent Claim Features and Instruments

The candidate should be able to:

a. define forward contracts, futures contracts, swaps, options (calls and puts), and credit derivatives and compare their basic characteristics.
b. determine the value at expiration and profit from a long or a short position in a call or put option.
c. contrast forward commitments with contingent claims.

68. Derivative Benefits, Risks, and Issuer and Investor Uses

The candidate should be able to:

a. describe benefits and risks of derivative instruments.
b. compare the use of derivatives among issuers and investors.

69. Arbitrage, Replication, and the Cost of Carry in Pricing Derivatives

The candidate should be able to:

a. explain how the concepts of arbitrage and replication are used in pricing derivatives.
b. explain the difference between the spot and expected future price of an underlying and the cost of carry associated with holding the underlying asset.

70. Pricing and Valuation of Forward Contracts and for an Underlying with Varying Maturities

The candidate should be able to:

a. explain how the value and price of a forward contract are determined at initiation, during the life of the contract, and at expiration.
b. explain how forward rates are determined for interest rate forward contracts and describe the uses of these forward rates.

71. Pricing and Valuation of Futures Contracts

The candidate should be able to:

a. compare the value and price of forward and futures contracts.
b. explain why forward and futures prices differ.

72. Pricing and Valuation of Interest Rates and Other Swaps

The candidate should be able to:

a. describe how swap contracts are similar to but different from a series of forward contracts.
b. contrast the value and price of swaps.

73. Pricing and Valuation of Options

The candidate should be able to:

a. explain the exercise value, moneyness, and time value of an option.
b. contrast the use of arbitrage and replication concepts in pricing forward commitments and contingent claims.
c. identify the factors that determine the value of an option and describe how each factor affects the value of an option.

74. Option Replication Using Put–Call Parity

The candidate should be able to:

a. explain put–call parity for European options.
b. explain put–call *forward* parity for European options.

75. Valuing a Derivative Using a One-Period Binomial Model

The candidate should be able to:

a. explain how to value a derivative using a one-period binomial model.
b. describe the concept of risk neutrality in derivatives pricing.

READING 47

FIXED-INCOME INSTRUMENT FEATURES

MODULE 47.1: FIXED-INCOME INSTRUMENT FEATURES

LOS 47.a: Describe the features of a fixed-income security.

Major types of fixed-income instruments include **loans**, which are private (nontradable) agreements between a borrower and lender, and **bonds** (or **fixed-income securities**), which are standardized, tradable securities representing a debt investment.

Investors in bonds are lending capital (referred to as **principal**, **par**, or **face value**) to the issuer of the bond. The issuer of the bond promises to repay this principal amount plus interest, typically in the form of a regular periodic **coupon** that is stated as a percentage of par. The capital raised is usually used to finance the long-term investments of the bond issuer. For a corporate issuer, loans and bonds are classified as long-term liabilities in the balance sheet.

Key features that are specified in a fixed-income security include the following:

- *Issuer*. Major issuers of bonds are sovereign national governments and corporations. Other issuers include local governments, supranational entities (e.g., the International Monetary Fund), quasi-government entities sponsored by the government (e.g., national railways), and special purpose entities, which are corporations set up to purchase financial assets and issue **asset-backed securities**, which are bonds backed by the cash flows from those assets.
- *Maturity*. The maturity date of a bond is the date on which the final cash flow is to be paid. Once a bond has been issued, the time remaining until maturity is referred to as the **tenor** of a bond. Bonds with original maturities (their tenor when they were first issued) of one year or less are referred to as **money market securities**. Bonds with original maturities of more than one year are referred to as **capital market securities**. Bonds that have no stated maturity date are called **perpetual bonds**.
- *Principal* (par or face value). The par value of a bond is the principal amount that will be repaid. Repayment of principal typically occurs at maturity, but debt instruments may specify that principal is paid back gradually over the life of the instrument, such as with a mortgage loan.
- *Coupon rate and frequency*. The coupon rate on a bond is the annual percentage of its par value that will be paid to bondholders. Some bonds make coupon interest payments annually, while others make semiannual, quarterly, or monthly payments. A

$1,000 par value semiannual-pay bond with a fixed 5% coupon would pay 2.5% of $1,000, or $25, every six months.

  - Some bonds pay coupons based on a variable market rate of interest at the date of coupon payment. These bonds are called **floating-rate notes (FRNs)** or floaters. The variable market rate of interest is called the **market reference rate (MRR)**, and an FRN promises to pay the variable reference rate plus a fixed margin. This added margin is typically expressed in **basis points**, which are hundredths of 1%.
  - Some bonds pay no interest before maturity and are called **zero-coupon bonds** or **pure discount bonds**. *Pure discount* refers to the fact that these bonds are sold at a discount to their par value, and the interest is all paid at maturity when bondholders receive the par value. A 10-year, $1,000, zero-coupon bond yielding 7% would sell for a bit more than $500 initially and pay $1,000 at maturity. (In our reading on Fixed-Income Bond Valuation we will show how to calculate the exact price.)

- *Seniority*. In the event of bankruptcy or liquidation of an issuer, debt investors' claims on the issuer's assets rank above those of equity investors, making debt *senior* to equity in the capital structure of the issuer. However, not all debt claims rank equally. **Senior debt** ranks higher than **junior debt** (also called **subordinated debt**), making senior debt a less risky investment from a credit risk perspective.
- *Contingency provisions*. A bond may have an **embedded option**, such as a call option, put option, or the right to convert the debt into equity. We will describe these options in later readings.

Yield Measures

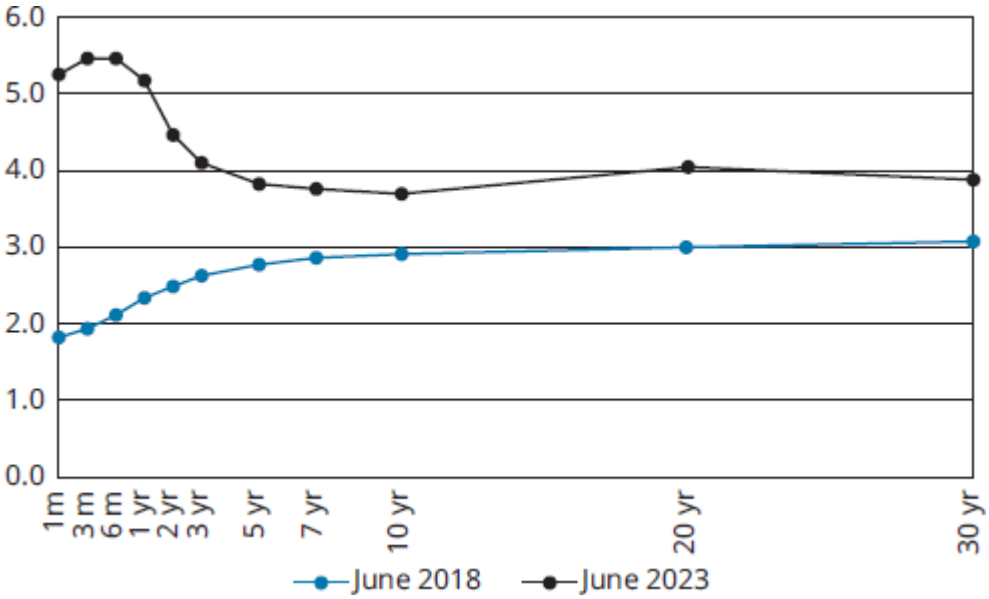
Given a bond's price and its expected cash flows, we can calculate the expected return from investing in the bond, referred to as the bond's **yield**. For a fixed-coupon bond, when prices fall, the bond offers a higher yield, and when prices rise, the bond offers a lower yield. As such, prices and yields are inversely related. We will perform yield calculations in later readings.

PROFESSOR'S NOTE

The inverse price/yield relationship for fixed-coupon bonds is a crucial concept that runs through the whole fixed income topic. If a bond with fixed cash flows is to offer a higher return (yield), the only way this is possible is through investors paying a lower price for the bond today. Hence, increasing bond yields imply decreasing bond prices, and decreasing bond yields imply increasing bond prices.

For a given issuer, we will likely find that bonds of different maturity will offer different yields. A graphical plot of these yields versus maturity is referred to as a **yield curve**. An example of yield curves for U.S. Treasury bonds is displayed in Figure 47.1.

Figure 47.1: U.S. Treasury Yield Curve



An upward-sloping yield curve (i.e., higher expected returns for longer-dated maturities), as U.S Treasuries exhibited in mid-2018, is referred to as a normal yield curve because this is the shape most frequently observed. A normal yield curve reflects investor demand for higher returns for longer-dated maturities due to higher levels of uncertainty (i.e., risk) over longer time frames. A downward-sloping yield curve, as U.S. Treasuries exhibited in mid-2023, is less common and is referred to as an **inverted yield curve**.

Government bonds are often deemed to be of the lowest credit risk (highest credit quality) in a particular market due to the fact the bonds are backed by the tax-raising powers of the government. A government bond yield curve is commonly used as a benchmark to assess the extra returns (called spreads) offered by more risky issuers, such as corporations. For example, if a 5-year corporate bond were yielding 6% and 5-year government bonds were yielding 5%, then the spread offered by the corporate bond is 6% − 5% = 1%. We will discuss credit spreads in more detail in later readings.

LOS 47.b: Describe the contents of a bond indenture and contrast affirmative and negative covenants.

The legal contract between the bond issuer (borrower) and bondholders (lenders) is called the **bond indenture**. The indenture defines obligations of, and restrictions on, the borrower, including the sources of repayment, and it forms the basis for all future interactions between the bondholder and the issuer.

Sources of Repayment

The source of the cash flows required to be paid by the bond issuer depends on the nature of the issuer and type of bond issue.

Sovereign (national government) bonds are repaid from taxes on economic activity and, in some cases, the ability of a government to create new currency. This tends to result

in sovereign debt being perceived as the lowest credit risk in a particular region.

Local government bonds are repaid from local government taxes or revenue from operational infrastructure, such as toll roads.

The sources of repayment for a corporate bond depend on the type of bond issue. A **secured bond** is repaid from the operating cash flow of the company, with the added security of a legal claim (called a **lien** or **pledge**) on specific assets of the company (referred to as **collateral**) in the event of issuer default. This contrasts with an **unsecured bond**, which, having no such claim, is repaid only from the operating cash flow of the issuing company.

For an asset-backed security (ABS), financial assets held by the special purpose entity that has issued the ABS provide the cash flows promised to the ABS investors. We will discuss these in more detail in later readings.

Bond Covenants

While debt investments do not provide voting rights in the same way as an equity investment, certain legal rules known as **covenants** can be written into the bond indenture.

Affirmative covenants specify requirements the issuer must fulfill. These may require the issuer to provide timely financial reports to bondholders, specify the use of proceeds from the bond issue, or specify a bondholder's right to redeem at a premium to par if the issuer is acquired in a merger or corporate takeover.

Two examples of affirmative covenants are **cross-default** and **pari passu** provisions. A cross-default clause states that if the issuer defaults on any other debt obligation, the issuer will also be considered in default on this bond. A pari passu clause states that the bond will have the same priority of claims as the issuer's other senior debt issues.

Negative covenants place restrictions on the issuer. These can include restrictions on:

- entering into asset sales and leaseback agreements;
- pledges of collateral (the company cannot use the same assets to back several debt issues simultaneously);
- issuance of debt that ranks more senior than existing debt (referred to as a **negative pledge clause**); and
- additional borrowings, share repurchases, or dividend payments. These actions can be subject to an **incurrence test** relating to the financial ratios of the company—for example, they can only be carried out if debt/EBITDA is below a specified threshold.

Negative covenants protect the interests of bondholders and prevent the issuing firm from taking actions that would increase the risk of default. However, covenants must not be so restrictive that they prevent the firm from taking advantage of opportunities or responding appropriately to changing business circumstances.

MODULE QUIZ 47.1

1. A fixed-coupon bond will pay a coupon equal to its:

   A. yield multiplied by price.

B. stated coupon rate multiplied by price.
C. stated coupon rate multiplied by face value.

2. When fixed-coupon bond prices fall:
   A. their yields rise.
   B. their yields fall.
   C. their coupon rates fall.

3. A bond's indenture:
   A. contains its covenants.
   B. is only required in the event of a lien on collateral.
   C. relates only to its interest and principal payments.

4. A clause in a bond indenture that requires the borrower to perform a certain action is *most accurately* described as a(n):
   A. trust deed.
   B. negative covenant.
   C. affirmative covenant.

KEY CONCEPTS

LOS 47.a

Basic features of a fixed income security include the issuer, maturity date, par value, coupon rate, coupon frequency, seniority, and contingency provisions.

- Issuers include corporations, governments, quasi-government entities, supranational entities and special purpose entities set up to issue asset-backed securities.
- Bonds with original maturities of one year or less are money market securities. Bonds with original maturities of more than one year are capital market securities. Bonds with no stated maturity are perpetual bonds.
- Par value is the principal amount that will be repaid to bondholders, usually at maturity.
- Coupon rate is the percentage of par value that is paid annually as interest. Coupon frequency may be annual, semiannual, quarterly, or monthly. Zero-coupon bonds pay no coupon interest and are pure discount securities.
- Senior debt ranks above junior (subordinated) debt should an issuer file for bankruptcy or undergo liquidation. Junior bonds with lower credit quality must offer investors higher yields to compensate for the greater probability of default.
- Contingency provisions are rights to take actions in response to some potential future event, such as the right for the issuer to call the bond back earlier than maturity.

The return earned from investing in a bond is referred to as the bond's yield. For a fixed coupon bond, there is an inverse relationship between the price and the yield (return) of the instrument. A plot of yield versus maturity for a certain issuer or class of bond is referred to as a yield curve.

The source of repayment for sovereign bonds is the country's taxing authority. For non-sovereign government bonds, the sources may be taxing authority or revenues from a

project. Corporate bonds are repaid with funds from the firm's operations. Securitized bonds are repaid with cash flows from a pool of financial assets.

Bonds are secured if they are backed by specific collateral or unsecured if they represent an overall claim against the issuer's cash flows and assets.

LOS 47.b

A bond indenture is a contract between a bond issuer and the bondholders which defines the bond's features and the issuer's obligations. An indenture specifies the entity issuing the bond, the source of funds for repayment, assets pledged as collateral, credit enhancements, and any covenants with which the issuer must comply. Affirmative covenants specify actions an issuer must take, negative covenants specify restrictions on the issuer.

ANSWER KEY FOR MODULE QUIZZES

Module Quiz 47.1

1. **C** A fixed-coupon bond has a stated coupon rate that is applied to the bond's face (principal or par) value. The yield of the bond is the return earned through paying the bond's price today and holding the bond to maturity. (LOS 47.a)

2. **A** For fixed-coupon bonds, prices and yields have an inverse relationship. If the price of the bond is falling, then the return (yield) from buying the bond at the lower price is rising. (LOS 47.a)

3. **A** An indenture is the contract between the company and its bondholders and contains the bond's covenants. (LOS 47.b)

4. **C** Affirmative covenants require the borrower to perform certain actions. Negative covenants restrict the borrower from performing certain actions. Trust deed is another name for a bond indenture. (LOS 47.b)

READING 48

FIXED-INCOME CASH FLOWS AND TYPES

MODULE 48.1: FIXED-INCOME CASH FLOWS AND TYPES

LOS 48.a: Describe common cash flow structures of fixed-income instruments and contrast cash flow contingency provisions that benefit issuers and investors.

A typical bond has a **bullet structure**, where principal (par value) is paid back in a single payment at maturity. Periodic payments across the life of the bond (referred to as the bond's **coupons**) are purely interest payments.

Consider a $1,000 par value 5-year bond with an annual coupon rate of 5%, issued at par. With a bullet structure, the bond's promised payments at the end of each year would be as follows.

Year	1	2	3	4	5
PMT	$50	$50	$50	$50	$1,050
Principal remaining	$1,000	$1,000	$1,000	$1,000	$0

A loan structure in which the periodic payments include both interest and some repayment of principal (the amount borrowed) is called an **amortizing loan**. If a bond (loan) is **fully amortizing**, this means the principal is fully paid off when the last periodic payment is made. Typically, automobile loans and home loans are fully amortizing loans. If the 5-year, 5% bond in the previous table had a fully amortizing structure rather than a bullet structure, the payments and remaining principal balance at each year-end would be as follows (final payment reflects rounding of previous payments).

Year	1	2	3	4	5
PMT	$230.97	$230.97	$230.97	$230.97	$230.98
Principal remaining	$819.03	$629.01	$429.49	$219.99	$0

This constant PMT can be calculated using a financial calculator:

N = 5; I/Y = 5; PV = 1,000; FV = 0; CPT → PMT = −230.97

Note that the constant yearly payment of $230.97, here, is partly interest and partly principal loan repayment. For example, in the first year, the interest component is 0.05 × $1,000 = $50; hence, the principal component is $230.97 − $50 = $180.97. The opening principal balance for the second year is, therefore, $1,000 − $180.97 = $819.03. In

subsequent years, the interest component of the $230.97 will decrease and the proportion relating to principal repayment will increase.

A bond can also be structured to be **partially amortizing** so that there is a repayment of some principal at maturity (referred to as a **balloon payment**). Unlike a bullet structure, the final payment includes just the remaining unamortized principal amount rather than the full principal amount. In the following table, the final payment includes $200 to repay the remaining principal outstanding.

Year	1	2	3	4	5
PMT	$194.78	$194.78	$194.78	$194.78	$394.78
Principal remaining	$855.22	$703.20	$543.58	$375.98	$0

This constant PMT can be calculated using a financial calculator:

N = 5; I/Y = 5; PV = 1,000; ***FV*** = ***–200***; CPT → PMT = –194.78

Other types of amortization schedules include **sinking fund provisions** for bonds and **waterfall structures** for asset-backed securities (ABSs) and mortgage-backed securities (MBSs).

Sinking fund provisions provide for the repayment of principal through a series of payments over the life of a bond issue. For example, a 20-year issue with a face amount of $300 million may require that the bond trustee redeems $20 million of the principal from investors selected at random every year beginning in the sixth year.

Sinking fund provisions offer both advantages and disadvantages to bondholders. On the plus side, bonds with a sinking fund provision have less credit risk because the periodic redemptions reduce the total amount of principal to be repaid at maturity. The presence of a sinking fund, however, can be a disadvantage to bondholders when interest rates fall due to **reinvestment risk**, which is the possibility of receiving cash flows early and only being able to reinvest them at lower yields.

Waterfall structures are used to establish principal repayments to holders of ABSs and MBSs. These structured products can be split into *tranches* of varying seniority. A common waterfall structure is for junior tranches not to receive any principal payment from the collateral pool until all senior tranches have been fully repaid. Interest payments would still be made to all tranches.

There are several coupon structures besides a fixed-coupon structure. We summarize the most important ones here.

Variable Interest Debt

Some bonds pay periodic interest that depends on the prevailing market rate of interest at the time future coupon payments are made. These bonds are called **floating-rate notes (FRNs)** or **floaters**. The variable market rate of interest is called the **market reference rate (MRR)**, and an FRN promises to pay the MRR plus some fixed margin (called a **credit spread**). This added margin is typically expressed in **basis points**, which are hundredths of 1%. A 120 basis point margin is equivalent to 1.2%.