

CHAPTER 11

Long-Term Liabilities: Notes, Bonds, and Leases

KEY POINTS

The following key points are emphasized in this chapter:

- Long-term notes payable, bonds payable, and leasehold obligations, and how companies use these instruments as important sources of financing.
- Economic consequences created by borrowing.
- Different forms of contractual obligations.
- The effective interest rate and how it is determined for contractual obligations.
- The effective interest method.
- How changes in market interest rates can lead to misstated balance sheet values for long-term liabilities.
- Operating leases, capital leases, and off-balance-sheet financing.

Ready Mix, Inc. is a publicly traded company that provides concrete mix to homebuilders, subcontractors, pool builders, homeowners, and industrial property developers, primarily in the southwestern United States, a region stunned by the 2008–2009 housing crisis. Ready Mix finances its business and its fleet of concrete trucks with long-term debt, primarily from Wells Fargo and the National Bank of Arizona. In its 10-Q filing with the SEC for the third quarter of 2009, Ready Mix disclosed that it had violated financial covenants in the loan contracts with both banks. Wells Fargo waived the violations, but required additional fees and collateral; National Bank of Arizona had not yet waived the violations and could still demand immediate payment of the principal. The 10-Q also stated that Ready Mix expected, as of December 31, 2009, to be in violation of the Wells Fargo covenants, and “if [Wells Fargo] were to accelerate the payment requirements, the Company would not have sufficient liquidity to pay off the related debt and there would be a material adverse effect on the Company’s financial condition and results of operations.”

In addition to notes payable, many large companies finance their operations with bonds payable and leasehold obligations. **Notes payable** are obligations evidenced by formal notes that normally involve direct borrowings from financial institutions or arrangements to finance the purchase of assets. **Bonds payable** are obligations that arise from notes (bonds) that have been issued for cash to a large number of creditors, called *bondholders*. **Leasehold obligations** refer to future cash payments (e.g., rent) required for the use or occupation of property during a specified period of time. Each of these liabilities represents an obligation to disburse assets (usually cash) for a time that extends beyond the period that defines current assets. The formal contracts underlying such arrangements contain a number of terms including, for example, the principal amount of the debt, the periodic interest payments, the time period over which the interest and principal are to be paid, and security (e.g., collateral) and other provisions, many of which are designed to protect the interests of the lenders.



For the most part the methods used to account for long-term liabilities under U.S. GAAP and IFRS are very similar.

Long-term borrowing arrangements, such as notes, bonds, and leases, are a common and major source of capital and financing for companies throughout the world. Funds used to acquire other companies, purchase machinery and equipment, finance plant expansion, pay off debts, repurchase outstanding stock, and support operations are often generated by issuing long-term notes and bonds or entering into lease agreements. For example, when Walt Disney Company acquired ABC Family for \$5.2 billion, it financed the purchase with long-term borrowings. In a typical year, U.S. companies will raise as much as \$300 billion by issuing bonds.

Accounting Trends and Techniques (AICPA, 2009) reported that, of the major U.S. companies surveyed, 74 percent disclosed long-term notes payable, 24 percent disclosed bonds payable, and 41 percent disclosed leasehold liabilities. At the end of 2008 AT&T reported long-term liabilities of over \$60 billion, consisting primarily of notes, bonds, and leasehold obligations.

The 2008 statement of cash flows for Eli Lilly included the following disclosures (dollars in millions).

	2008	2007	2006
Proceeds from issuing long-term debt	\$ 0.1	\$2,512.6	\$ 0
Repayments of long-term debt	(649.8)	(1,059.5)	(2,781.5)

Describe how this activity affected the company's 2008, 2007, and 2006 balance sheets.

THE RELATIVE SIZE OF LONG-TERM LIABILITIES

In Figure 11–1, we see that Internet firms carry a limited amount of long-term debt. It is also clear that while financial institutions rely very heavily on current liabilities (see Figure 10–2), their long-term debt is still greater than shareholders' equity. Recall from Figure 10–1 that the capital structure of financial institutions tends to be over 90 percent liabilities. GE has relied heavily on long-term debt primarily to finance its strategy to grow by acquiring other companies; note that its long-term debt is more than four times shareholders' equity. Over the years GE has reduced the size of its shareholders' equity by repurchasing its outstanding stock, which we discuss in Chapter 12. Lowe's, AT&T, and Chevron use long-term liabilities to finance large investments in property, plant, and equipment.

FIGURE 11–1

Long-term liabilities (LTL) as a percentage of total assets, total liabilities, and shareholders' equity¹

	LTL/ Total Assets	LTL/ Total Liabilities	LTL/ Shareholders' Equity
MANUFACTURING:			
General Electric (Manufacturer)	0.56	0.64	4.25
Chevron (Oil drilling and refining)	0.26	0.57	0.49
RETAIL:			
Kroger (Grocery retail)	0.45	0.58	2.01
Lowe's (Hardware retail)	0.20	0.45	0.37
INTERNET:			
Yahoo! (Internet search engine)	0.03	0.15	0.04
Cisco (Internet systems)	0.23	0.54	0.41
GENERAL SERVICES:			
AT&T			
(Telecommunications services)	0.48	0.75	1.31
Wendy's/Arby's (Restaurant services)	0.38	0.78	0.74
FINANCIAL SERVICES:			
Bank of America (Banking services)	0.16	0.18	1.69
Goldman Sachs (Investment services)	0.19	0.21	2.61

1. Long-term liabilities in Figure 11–1 include deferred income taxes, but many accountants believe that deferred income taxes do not represent a liability in an economic sense. See Appendix 10B for further discussion on deferred income taxes.



Information from the 2008 balance sheets of the Bank of New York, Google, and 3M is provided below. Match each company with the proper profile and explain your reasoning.

	1	2	3
Fixed assets/total assets	1%	26%	16%
Current liabilities/total assets	82%	18%	7%
Long-term liabilities/total assets	7%	33%	4%

THE ECONOMIC CONSEQUENCES OF REPORTING LONG-TERM LIABILITIES

In recent years, the importance of long-term debt has grown to unprecedented levels in the United States, brought on primarily by numerous takeovers, mergers, and acquisitions involving billions of dollars. In the 1980s and 1990s individuals like Henry Kravis, Robert Campeau, Michael Milken, Rupert Murdoch, Merv Griffin, and Donald Trump as well as large companies like Walt Disney and WorldCom engineered mega-mergers financed by gigantic amounts of long-term debt. Following these mergers, companies were left with the challenge of generating enough cash to meet the staggering debt payment schedules created by such borrowings. In many cases, this situation has increased the pressure on companies to more carefully manage their debt payments and to pay special attention to how this debt is reported on the balance sheet.

Credit ratings have become increasingly important because companies realize that improved credit ratings lead to lower borrowing costs. For example, Emerson, which reports \$3.8 billion in long-term debt and over \$200 million in interest costs each year, notes in its 2009 annual report that “the company’s strong financial position supports” ratings of A2 by Moody’s Investor Service and A by Standard & Poor’s as of September 30, 2009. Emerson has been approved to issue up to \$2.25 billion in additional debt and equity securities.



Prior to Sun Microsystems’ acquisition by Oracle Corporation, Standard & Poor’s downgraded Sun’s debt rating to BB+, a level considered “junk status” by the financial markets. S&P cited profitability concerns and lack of predictability in Sun’s financial results as reasons for the downgrade. The rating covers approximately \$1.3 billion of Sun’s debt. Explain how S&P came to this conclusion, how the downgrade will affect Sun, and how these effects may be represented on the financial statements.

In such a debt-laden environment, measures of solvency, the debt/equity ratio, and debt covenant provisions take on a particularly important role. As such, management has strong incentives to manage financial statement numbers by employing reporting strategies like “off-balance-sheet financing.”²

In response to this debt explosion and the threat of off-balance-sheet financing, the FASB passed a standard requiring companies to describe the risks associated with

2. Recall that “off-balance-sheet financing” involves the existence of debt obligations that are not listed in the liability section of the balance sheet.

financing arrangements not disclosed on the balance sheet. While this standard falls far short of providing all the information necessary to assess this risk, users can now better assess a company's potential obligations, whether or not they appear on the balance sheet.



Honeywell, an advanced technology manufacturer, includes in its annual reports a section titled "Financial Instruments" in which the company describes risks associated with fluctuating interest rates that could adversely affect the company, and how they are managed and controlled. Why is this disclosure necessary, and how is it useful to investors?

BASIC DEFINITIONS AND DIFFERENT CONTRACTUAL FORMS

Long-term obligations normally represent contractual agreements to make cash payments over a period of time. In addition to other terms, these contracts specify the period of time over which the payments are to be made as well as the dollar amount of each payment. Different contracts express these terms in different ways, giving rise to long-term obligations—and their associated cash flows—that take various forms.

Some contracts, called **interest-bearing obligations**, require periodic (annual or semiannual) cash payments (called **interest**) that are determined as a percentage of the **face, principal, or maturity value**, which must be paid at the end of the contract period. For example, a company may enter into an exchange in which it receives some benefit (e.g., cash, asset, or service) and, in return, promises to pay \$1,000 per year for two years and \$10,000 at the end of the second year. Such an obligation would have a life of two years, a **stated interest rate** of 10 percent ($\$1,000/\$10,000$), and a maturity, principal, or face value of \$10,000. The cash flows associated with this contract are illustrated as follows:

Period:	0	→	1	→	2
Payment:	+Receipt		−\$1,000		−\$1,000 −\$10,000

Non-interest-bearing obligations, on the other hand, require no periodic payments, but only a single cash payment at the end of the contract period. For example, a company may enter into another exchange in which it receives a benefit and, in return, promises to pay \$12,000 at the end of two years. This obligation, which is illustrated below, would have a life of two years, a stated interest rate of 0 percent, and a maturity, principal, or face value of \$12,000. Although the stated rate is zero, as we discuss later these notes include an element of interest.

Period:	0	→	1	→	2
Payment:	+Receipt		−\$0		−\$0 −\$12,000

In an **installment obligation**, periodic payments covering both interest and principal are made throughout the life of the contract. For example, a company may enter into an exchange in which it receives a benefit and, in return, promises to pay \$6,000 at the end of each of two years. The cash flows associated with this obligation are illustrated as follows:



The contractual forms illustrated above represent three common ways to schedule the cash payments associated with long-term obligations. Furthermore, each of these contractual forms may contain additional terms that specify assets pledged as security or **collateral** in case the required cash payments are not met (**default**), as well as additional provisions (**restrictive covenants**) designed to protect the interests of the lenders.



Currently, NIKE has an outstanding bond liability with a stated interest rate of 5.375 percent and a principal of \$25.1 million; Home Depot has capital lease obligations that require annual payments of \$88 million; and Foothill/Eastern Transportation Corridor Agency has an outstanding zero coupon bond due January 15, 2032. Briefly describe the nature of the cash payments required for each of these three debts.

It is also useful to consider the nature of that which is received in exchange for the contractual obligation. In the examples above, we have simply referred to it as the “receipt.” Often this “receipt” takes the form of cash, as in cases where companies borrow cash from financial institutions, promising to make payments in accordance with the terms of a loan contract. However, contractual obligations also can be exchanged for noncash items, such as long-lived assets, services, or other liabilities. Figure 11–2 illustrates the six possible kinds of notes that can be obtained by matching each of the three contractual forms with cash and noncash “receipts.”

FIGURE 11–2

Six possible kinds of notes

1. **Installment**
 - A. **Cash received (e.g., bank loan)**
 - B. **Noncash received (e.g., lease or real estate purchase)**
2. **Non-interest-bearing**
 - A. **Cash received (e.g., zero coupon bond)**
 - B. **Noncash received (e.g., equipment purchase)**
3. **Interest-bearing notes**
 - A. **Cash received (e.g., bond)**
 - B. **Noncash received (e.g., equipment purchase)**

In the next section, we introduce the important concept of the effective interest rate in the context of each of the six combinations illustrated in Figure 11–2. We then discuss notes payable, which can be related to all six combinations; bonds payable, which typically relate to 3A; and capital leases, which relate to 1B.



In its 2008 annual report, AT&T reported long-term debt of \$61 billion, composed of bonds, notes with varying stated interest rates (ranging from 2.95 to 9.10 percent), and leases. Briefly describe the basic contractual forms of each of these three forms of debt.

EFFECTIVE INTEREST RATE

The **effective interest rate** is the actual interest rate paid by the issuer of the obligation. It may or may not equal the interest rate stated on the contract (for interest-bearing notes). It is determined by finding the discount rate that sets the present value of the obligation's cash outflows equal to the fair market value (FMV) of that which is received in the exchange.³ When contractual obligations are exchanged for cash (1A, 2A, and 3A in Figure 11-2), the cash amount received represents the FMV of the receipt. When contractual obligations are exchanged for noncash items (1B, 2B, and 3B), the FMV of the noncash items must be determined through appraisals or some other means.⁴ The following examples show how the effective interest rate is determined for the three notes illustrated earlier: installment, non-interest-bearing, and interest-bearing.



In its 2008 annual report, Hewlett-Packard listed nearly \$14 billion in long-term debt, with annual interest rates ranging from 3.75 percent to 8.63 percent. The long-term debt includes notes, bonds, and leases. Consider these three types of long-term debts and discuss whether you think they are interest-bearing, non-interest-bearing, or installments. Are the interest rates indicated above stated rates or effective rates? Discuss.

Installment and Non-Interest-Bearing Obligations

Assume that Able Company entered into an installment obligation requiring the payment of \$10,000 at the end of each of two years. In return, the company received a benefit (cash or noncash) with an FMV of \$16,900. The cash flows associated with this exchange follow:

Period:	0	→	1	→	2
Payment:	+\$16,900		-\$10,000		-\$10,000

In this case, the company has received a benefit of \$16,900, promising to pay a \$10,000, two-year, ordinary annuity. The effective (actual) interest rate on the obligation is calculated by finding that interest rate which, when used to discount the two \$10,000 payments, results in a present value (PV) of \$16,900. The calculation can be set up in the following way:

$$\text{PV} = \text{Annuity Cash Payment} \times (\text{PV Table Factor Ordinary Annuity: } n = 2, i = ?)$$

$$\$16,900 = \$10,000 \times \quad ?$$

Rearranging,

$$\text{PV table factor} = \$16,900 \div \$10,000 = 1.69$$

Since $n = 2$, $i = 12\%$ (effective interest rate)

The effective interest rate is equal to 12 percent because a \$10,000, two-year, ordinary annuity discounted at 12 percent is equal to \$16,900, the FMV of the benefit received by Able in the exchange.⁵

3. The material in this chapter requires an understanding of present value, which is covered in Appendix A.

4. If the FMV of the noncash item received in the exchange cannot be determined, the effective interest rate must be estimated by considering the effective interest rates of other similar contractual obligations.

5. This method of computing an effective interest rate is also described and illustrated in Appendix A at the end the text.

The method used to compute the effective interest rate for a non-interest-bearing obligation is the same as that used for an installment obligation, except that the table factor is taken from the Present Value of a Single Sum table instead of the Present Value of an Ordinary Annuity table. For example, if Baker Company entered into a non-interest-bearing obligation requiring a single \$5,000 payment at the end of three years, receiving a benefit (cash or noncash) with an FMV of \$3,969, the effective interest rate would be computed as follows:

$$\begin{array}{rcl} \text{PV} & = & \text{Single Sum Cash Payment} \times (\text{PV Table Factor Single Sum: } n = 3, i = ?) \\ \$3,969 & = & \$5,000 \quad \times \quad ? \end{array}$$

Rearranging,

$$\begin{array}{l} \text{PV table factor} = \$3,969 \div \$5,000 = 0.7938 \\ \text{Since } n = 3, i = 8\% \text{ (effective interest rate)} \end{array}$$

In both cases the effective interest rate of a given contractual obligation is determined by the FMV of the benefit received in the exchange. If, for example, the FMV of the benefit received in the non-interest-bearing case was \$4,198 instead of \$3,969, the effective rate would have been 6 percent instead of 8 percent. Similarly, in the installment case, if the FMV received was \$17,355 instead of \$16,900, the effective rate would have been 10 percent instead of 12 percent.

Interest-Bearing Obligations

Assume that Clyde Company entered into an interest-bearing obligation requiring interest payments of \$1,000 at the end of each of two years and a principal payment of \$10,000 at the end of the second year. In return, the company received a benefit (cash or noncash) with an FMV of \$10,000. This obligation has a life of two years, a stated interest rate of 10 percent (\$1,000/\$10,000), and a maturity, face, or principal value of \$10,000. The cash flows associated with this exchange follow:

Period:	0	—————→	1	—————→	2
Payment:	+\$10,000		-\$1,000		-\$1,000 -\$10,000

In this case, the company has received a benefit of \$10,000, promising to pay a \$1,000, two-year, ordinary annuity in addition to a \$10,000 single sum payment at the end of two years. The effective (actual) interest rate on this obligation is calculated by finding that interest rate which, when used to discount all three payments, results in a present value of \$10,000. The correct rate is 10 percent.⁶

Note in this case that the effective rate of interest (10 percent) equaled the interest rate stated on the obligation (10 percent). This equality occurred only because the FMV of the benefit received (\$10,000) was equal to the maturity value of the obligation (\$10,000). Had the FMV of the benefit received not equaled the maturity value, the effective rate of interest would not have equaled the stated rate. For example, had the FMV of the receipt equaled \$9,662, the effective rate would have been 12 percent.

6. The correct rate can be found using a trial-and-error approach—that is, trying different interest rates until the present value of the cash payments is equal to the fair market value of the benefit. Most of you, however, have calculators that can compute the answer directly.

ACCOUNTING FOR LONG-TERM OBLIGATIONS: THE EFFECTIVE INTEREST METHOD

Understanding the effective rate of interest is important because it represents the actual rate of interest associated with an obligation. It is the foundation for the **effective interest method**, which is used to account for long-term contractual obligations—notes, bonds, and capital leases. This method consists of one basic rule:

The interest expense reported during each period of a long-term obligation's contractual life is computed by multiplying the effective interest rate by the balance sheet value of the obligation as of the beginning of the period.

The rationale underlying the effective interest method is that it leads to an interest expense amount each period that reflects the actual interest being paid on the obligation. In addition, it guarantees that the long-term liability on the balance sheet (note payable, bond payable, or lease liability) is reported throughout its life at the present value of its future cash flows, discounted at the effective interest rate. Recall from the discussion in Chapter 4 that present value is the theoretical goal of financial measurement.



At the end of 2008, Sherwin Williams reported long-term debt of \$304 million on its balance sheet. At an average effective interest rate of 7.45 percent, estimate the interest expense associated with this debt reported by the company on its 2009 income statement.

ACCOUNTING FOR LONG-TERM NOTES PAYABLE

Issuing long-term notes is a popular way for major U.S. companies to raise cash. Both **secured** (backed by collateral) and **unsecured notes** are widely used. *Accounting Trends and Techniques* (AICPA, 2009) reported that, of the major U.S. companies surveyed, 74 percent disclosed unsecured notes and 13 percent disclosed notes backed by collateral.

The issuance of notes normally involves only one or a small group of lenders (usually financial institutions) and can take a number of different contractual forms. Interest-bearing, non-interest-bearing, and installment notes are all quite common, and they can be exchanged for cash and/or noncash items. A **mortgage**, for example, is a cash loan, exchanged for an installment note that is secured by real estate. Machinery and equipment purchases are often received in exchange for (financed with) installment notes. When a note payable is issued to satisfy another outstanding note payable, a **refinancing** has occurred.

The following example illustrates the methods used to account for a non-interest-bearing note exchanged for equipment (2B in Figure 11–2), which is almost identical to such a note being exchanged for cash (2A). Bonds are normally interest-bearing notes exchanged for cash, so the discussion of bonds later in the chapter will cover 3A in Figure 11–2. Capital leases are a form of financing the purchase of long-term assets with installment notes, so that discussion later in the chapter will cover 1B in Figure 11–2.

Assume that on January 1, 2011, Seabell Inc. acquired a piece of equipment with an FMV of \$10,288 and, in return, signed a non-interest-bearing note payable with a maturity date of December 31, 2012, and a maturity value of \$12,000. The transaction and the associated accounting entries are described in Figure 11–3.

FIGURE 11-3 Accounting for a non-interest-bearing note exchanged for equipment

Period:	1/1/11	→	12/31/11	→	12/31/12
Payment:	+ Equipment (FMV = \$10,288)		-\$0		-\$0 -\$12,000

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Equipment (+A)	10,288	Interest Exp. (E, -RE)	823*	Interest Exp. (E, -RE)	889**
Disc. on Notes Pay. (-L)	1,712	Disc. on Notes Pay. (+L)	823	Disc. on Notes Pay. (+L)	889
Notes Pay. (+L)	12,000			Notes Pay. (-L)	12,000
				Cash (-A)	12,000

BALANCE SHEET VALUE

Notes payable	\$12,000		Notes payable	\$12,000
Less: Discount	<u>1,712</u>	\$10,288	Less: Discount	<u>889</u>
				\$11,111

GENERAL LEDGER

		Discount on Notes Payable	
(1/1/11)	1,712		
		(12/31/11 adj.)	823
(12/31/11)	889		
		(12/31/12 adj.)	889
	0		

* $\$10,288 \times 8\%$ ** $\$11,111 \times 8\%$

When Seabell acquires the equipment and issues the note, the equipment is recorded at its FMV, the notes payable account is recorded at its maturity value, and a discount on notes payable account is debited for the difference. The discount is listed on the balance sheet directly under notes payable and subtracted from it in determining the balance sheet value of the note payable, as illustrated in Figure 11-3. The discount can be viewed as a form of “unaccrued interest” because Seabell agreed to pay \$12,000 for a piece of equipment that at present is worth only \$10,288. Accordingly, the discount is amortized into interest expense over the two-year life of the note.

The effective interest method is then used to account for the note over its two-year life. First, the effective interest rate must be determined, which is equal to 8 percent, the interest rate that equates the present value of the note’s future cash flows with the FMV of the equipment (\$10,288). Then, the effective interest rate (8 percent) is multiplied by the book value of the note at the beginning of 2011 (\$10,288) to determine the interest expense for 2011 (\$823). The adjusting entry at the end of 2011 serves to recognize interest expense and amortize a portion of the discount. The remaining amount of the discount (\$889) is then subtracted from the notes payable account to determine the book value of the liability as of the end of 2011 (\$11,111). The same procedure is then followed at the end of 2012 to recognize interest expense and amortize the remainder of the discount (\$889), and the maturity value (\$12,000) is paid off at the end of the second year.

Several features of this example are important. First, the accounting treatment would have been virtually the same had a cash amount of \$10,288 been received instead of equipment with an FMV of \$10,288. Only the initial entry would have differed, reflecting a cash receipt instead of equipment.

Second, even though the note payable has no stated interest rate, it has an effective (actual) interest rate of 8 percent, which must be recognized over the life of the note. In line with the effective interest method, the interest expense in each period is simply the effective rate multiplied by the balance sheet value of the note at the beginning of that period. The interest expense recognized in the second period (\$889) is greater than that in the first (\$823) because the balance sheet value of the note increased from \$10,288 to \$11,111. The company was one year closer to the ultimate \$12,000 payment. Finally, the effective interest method ensured that the balance sheet value of the note throughout its life was equal to the present value of the note's future cash flows, discounted at the effective interest rate. For example, the present value of \$12,000 discounted back one year at 8 percent is equal to \$11,111 ($\$12,000 \times .92593$) and discounted back two years is equal to \$10,288 ($\$12,000 \times .85734$).⁷ These fundamental features are very important because they apply to other forms of notes as well as bonds and capital leases.



As of December 31, 2008, Verizon Communications reported notes and bond liabilities of \$50.7 billion less an unamortized discount of \$219 million. Compute the present value of the future cash payments associated with these debts, and explain what the unamortized discount is, how it was created, and how it will be accounted for in the future.

BONDS PAYABLE

Companies issue bonds to raise large amounts of capital, usually to finance expensive, long-term projects. For example, AT&T raised over \$12.4 billion through bond issuances in 2008. Proceeds were used for working capital, capital expenditures, debt repayments, and acquisitions.

Bonds are normally sold to the public through a third party (called an underwriter), such as an investment banker or a financial institution.⁸ They are usually interest-bearing notes that involve formal commitments requiring the issuing company to make cash interest payments to the bondholder and a principal payment (usually in the amount of \$1,000 per bond) when the bond matures, normally between five and thirty years from the date of issuance. After bonds are initially issued, they are generally freely negotiable; that is, they can be purchased and sold in the open market. Both the New York and the American Security Exchanges maintain active bond markets.

7. Instead of the effective interest method, some companies amortize discounts on long-term obligations (e.g., notes and bonds) using the straight-line method. That is, they amortize equal amounts of the discount into interest expense during each period of the note's life. According to generally accepted accounting principles, the straight-line method is acceptable only if it results in numbers (i.e., interest expense and book value of the note payable) that are not materially different from those produced by the effective interest method. The straight-line method misstates periodic interest expense and the balance sheet value of the note because it fails to reflect the actual interest rate paid by the borrower.

8. Major underwriters include J.P.Morgan, Goldman Sachs, Credit Suisse First Boston, Salomon Smith Barney, Citigroup, Morgan Stanley, and Union Bank of Switzerland (UBS).



During 2008 Unilever issued bonds for approximately 801 million euros. How was this issuance reflected in the company's balance sheet and statement of cash flows?

Bond Terminology

Figure 11–4 summarizes the important components of a bond. The **life** of the bond is the time period extending from the date of its issuance to its maturity date. At the **maturity date**, the end of the bond's life, an amount of cash equal to the face value (*principal*, *par value*, or *maturity value*) is paid to the bondholder. The *face value*, the

FIGURE 11–4 Bond terminology

Issuance Date	Time to Maturity					Maturity Date
	0	6 months	1 year	6 months	2 years	
Proceeds at Issuance	Interest Payment	Interest Payment	Interest Payment	Interest Payment	Interest Payment	Interest Payment
					...	Face Value Payment

TERMS OF BOND CONTRACT

Life: Time period from date of issuance to the maturity date, usually from five to thirty years.

Maturity date: Date when the dollar amount written on the face of the bond (face value) and final interest payment are paid to the bondholder.

Face value: Dollar amount written on the bond certificate. Sometimes referred to as the *principal*, *par value*, or *maturity value*, the face value is usually \$1,000.

Interest payment: The interest rate stated on the bond, multiplied by the face value. This rate is called the *stated rate*, or *coupon rate*, and it is usually fixed for the entire life of the bond.

Proceeds at issuance: Dollar amount collected when the bonds are issued, equal to the price the buyers paid for each bond multiplied by the number of bonds issued. This amount is usually net of issuance fees.

Effective interest rate: The actual interest rate paid on the bond. This rate, when used to discount the future interest and principal cash payments, results in a present value that is equal to the amount received by the issuer.

OTHER PROVISIONS OF THE BOND CONTRACT

Restrictions: The bond contract may restrict the issuing company in certain ways to ensure that the interest and principal payments will be made. For example, a certain current ratio or level of working capital may be required, dividends may be restricted, or additional debt may be limited.

Security: The bond contract may specify that collateral be paid in case of default (i.e., interest

or principal payments are not made). Unsecured bonds are called *debentures*.

Call provision: The bond contract may specify that the issuing company can buy back (retire) the bonds at a specified price after a certain date during the life of the bond. The specified price is usually greater than the face value.

amount written on the face of the bond, is usually \$1,000. The **interest payment** (sometimes called coupon payment), which is paid to the bondholders on each semi-annual interest payment date, is computed by multiplying the annual interest rate stated on the bond (the stated or coupon rate) by the face value of the issuance. This amount is then divided by two because the stated rate is an annual rate, and the interest payments are made every six months. The **proceeds**, the amount collected by the issuing company when the bonds are issued, are equal to the price paid by the purchasers of the bonds multiplied by the number of bonds issued. This amount is usually net of the issuance costs incurred by the issuing company.⁹

To illustrate, assume that on January 1, 2009, Northern States Power Company issued 2,500 bonds, each with a face value of \$1,000 and a stated interest rate of 5 percent, due to mature ten years later, on December 31, 2018. The company collected \$990 on each bond, which totaled approximately \$2.475 million for the entire bond issuance. In terms similar to those in Figure 11–4, the cash flows associated with this bond issuance and the calculations of the proceeds, the semiannual interest payment, and entire maturity value are shown in Figure 11–5.

FIGURE 11–5 Example of bond issuance: Northern States Power Company (dollars in thousands)

Issuance Date (1/1/09)	Time to Maturity: Thirty Years				Maturity Date (12/31/18)
0	6 months	1 year	6 months	2 years . . .	10 years
Proceeds	Interest	Interest	Interest	Interest . . .	Interest and face value
+\$2,475,000 ^a	–\$62,500 ^b	–\$62,500	–\$62,500	–\$62,500	–\$62,500 –\$2,500,000

^a2,500 bonds × \$990 = \$2,475,000

^b(2,500 bonds × \$1,000 × .05%) ÷ 2 = \$62,500

In addition to the face value, maturity date, and stated interest rate, the bond contract may include a number of other important provisions. Three such provisions are described in Figure 11–4: restrictive covenants, security, and call provisions.

Restrictive **covenants** are imposed by bondholders to protect their interests and may restrict management in a number of significant ways. Nordstrom, a large specialty store operating throughout the United States, stated in its annual report that the company has entered into long-term debt agreements that (1) limit additional long-term debt and lease obligations; (2) require that working capital must be at least \$50 million or 25 percent of current liabilities, whichever is greater; (3) limit short-term borrowings; and (4) restrict dividends to shareholders.

Security provisions also protect the interests of bondholders by ensuring that assets are pledged in case of default. As of fiscal year-end 2008, for example, La-Z-Boy Inc. had outstanding bonds with a balance sheet value of \$16.9 million, which were secured by land, buildings, and equipment. Bonds with no assets backing them are called

9. To simplify the discussion, these issuance costs are assumed to be zero in the remainder of the chapter.

unsecured bonds or debentures. At year-end, La-Z-Boy had outstanding debentures valued on the balance sheet at \$35 million.¹⁰

A **call provision** grants to the issuing company the right to retire (repurchase) outstanding bonds after a designated date for a specified price. This provision serves to protect the interests of the issuing company, enabling it to remove the debt if economic conditions are appropriate. If interest rates fall, for example, a company may wish to repurchase outstanding bonds that require relatively high interest payments.



The following quote came from an annual report of CBS, a major television network:

The . . . debentures are due June 1, 2022 and may not be redeemed prior to June 1, 2002. On and after that date they may be redeemed, at the option of the company, as a whole at any time or in part from time to time, at specified redemption prices.

Interpret this quote and explain why CBS may want the option to redeem its outstanding long-term debt.

The Price of a Bond

Bond prices are basically determined by what potential bondholders are willing to pay for the right to receive the semiannual interest payments and cash in the amount of the face value at maturity.¹¹ The credit rating of the issuing company as well as the stated interest rate, covenants, security arrangements, call provisions, and many other terms of the bond contract directly influence the price at which bonds are issued. Bonds issued by companies with high credit ratings, offering high stated interest rates, and backed by collateral tend to sell for higher prices than unsecured bonds issued by companies with low credit ratings, offering low stated interest rates.

Bond prices are usually expressed as a percentage of the face value (\$1,000) and may be less than, equal to, or greater than the face value. Bonds issued for less than \$1,000 are issued at a *discount*. Bonds issued for \$1,000 are issued at *face* (or *par*) *value*. Bonds issued for greater than \$1,000 are issued at a *premium*.



As of the end of 2008, Exxon Mobil had long-term debt outstanding in the amount of \$7.0 billion. Included in that amount were debentures due 2012 issued at a discount. What are debentures, and under what circumstances would they be issued at a discount?

The Effective Rate and the Stated Rate

As with other interest-bearing obligations, the effective (actual) rate of interest paid on a bond is not necessarily equal to the stated rate. Recall that the effective rate is that rate which, when used to discount the future contractual cash payments, results in a present value that is equal to the FMV of the receipt (i.e., issuance price). Depending

10. Debentures with a very low priority for the issuing company's assets in case of liquidation are referred to as *junk bonds*: bonds rated by credit-rating agencies at lower than investment grade.

11. A discussion of how bond prices are determined is contained in Appendix 11A.

on the relationship between the issuance price and the face value, the effective rate of interest on a bond may be lower than, equal to, or higher than the stated interest rate. Figure 11–6 illustrates these three relationships.

FIGURE 11–6 Bond prices and the relationship between the effective rate and the stated rate (bond terms: \$1,000 face value, a 6 percent stated rate, and a five-year life)

Effective Rate	Stated Rate	Face Value	Price (Present Value)	Type of Issue
1. 8%	> 6%	\$1,000	\$ 919 = \$30(8.1109) + \$1,000(.6756)	Discount
2. 4%	< 6%	1,000	1,090 = \$30(8.9826) + 1,000(.8203)	Premium
3. 6%	= 6%	1,000	1,000 = \$30(8.5302) + 1,000(.7441)	Par

The effective interest rates of three different bonds are compared. Each bond has a \$1,000 face value, a five-year life, and a 6 percent stated annual interest rate (paid semiannually). They differ in that #1 is issued at an \$81 discount (91.9), #2 is issued at a \$90 premium (109.0), and #3 is issued at par (100.0). In each case, the effective interest rate is determined by finding that rate which, when used to discount the interest and face value payments, results in a present value that equals the issue price.¹² The relationship among the price, the effective interest rate, and the stated interest rate is summarized as follows.

1. When the issuance price of a bond is greater than its face value (*premium*), the effective rate is less than the stated rate.
2. When the issuance price of a bond is less than its face value (*discount*), the effective rate is greater than the stated rate.
3. When the issuance price of a bond is equal to its face value (*par*), the effective rate is equal to the stated rate.



The effective interest rate on the debentures issued by Exxon Mobil, referred to on the previous page, was approximately 5 percent. Was the stated interest rate on the debentures above or below 5 percent? Explain.

Accounting for Bonds Payable

The effective interest method is used to account for bonds payable. The following examples use the effective interest method to account for two different bonds: one issued

12. When using present value tables to infer an effective interest rate or to compute the price of a bond, keep in mind that interest payments are made on a semiannual basis. Accordingly, when finding the table factors for the interest payment annuity and the lump-sum payment, the number of periods must be doubled and the discount rate must be halved. For example, the present value (PV) of a bond with a ten-year life, a \$1,000 face value, and a 10 percent stated interest rate, discounted at 8 percent, would be computed as below. Note that the table factors are based on an *n* of 20 (10×2) and an *i* of 4 percent ($8\%/2$).

$$\begin{aligned}
 \text{PV} &= \text{Semiannual interest (PV of annuity: } n = 20, i = 4\%) + \text{Face value (PV lump sum: } n = 20, i = 4\%) \\
 &= \quad \quad \$50 \quad \quad \quad (13.59) \quad \quad + \quad \$1,000 \quad \quad \quad (.456) \\
 &= \quad \quad \quad \quad \quad \quad \$679.50 \quad \quad \quad + \quad \quad \quad \quad \quad \quad \$456 \\
 &= \$1,135.50
 \end{aligned}$$

at face (par) value and one issued at a discount.¹³ The following information is used in both cases.

Assume that Webster International issues ten bonds, each with a face value of \$1,000, a stated interest rate of 10 percent, and time to maturity of two years. Interest payments of \$500 [$(\$10,000 \times 10\%) / 2$] are to be made semiannually. In Case 1, the bonds are issued at face (par), so that the effective rate (10 percent) equals the stated rate (10 percent). In Case 2, the bonds are issued at a discount, so that the effective rate (12 percent) is greater than the stated rate (10 percent). Figure 11–7 shows the cash flows associated with the two bond issuances. Note that the cash flows are identical for both, except for the issuance price.

FIGURE 11–7 Cash flows for bonds payable: Two cases compared

Issuance Date	6 months	1 year	6 months	Maturity Date
Face value: 10 bonds \times \$1,000 per bond = \$10,000 Semiannual interest payment: $(\\$10,000 \times 10\%) \div 2 = 500$				
Cash 1: Issued at \$10,000 (face)				
+ 10,000	– \$500	– \$500	– \$500	– \$ 500 – 10,000
Case 2: Issued at \$9,654 (discount)				
+ 9,654	– 500	– 500	– 500	– 500 – 10,000

CASE 1: BONDS ISSUED AT PAR

In Case 1, the bonds are issued at par (\$10,000) and the effective rate (10 percent) is equal to the stated rate (10 percent). The journal entries, balance sheet values of bonds payable, and present value of the future cash flows discounted at the effective interest rate are shown in Figure 11–8.

When bonds are issued at par, the journal entries are very straightforward because neither a discount nor a premium need be considered. The bonds payable account is simply carried on the balance sheet at \$10,000 until maturity. Note that the present value of the remaining cash flows, discounted at 10 percent, is also equal to \$10,000 throughout the life of the bond. The interest expense recognized in each six-month period (\$500) appears on the income statement and is calculated by multiplying the effective interest rate ($5\% = 10\% / 2$) by the balance sheet value of the bonds payable at the beginning of the period (\$10,000). This calculation is the essence of the effective interest method and in this case gives rise to an amount equal to the \$500 cash payment. These two dollar amounts are equal because the effective rate, which determines the interest expense, is equal to the stated rate, which determines the interest payment.

13. The methods used to account for bonds issued at a premium are very similar to those used to account for bonds issued at a discount. We do not illustrate them here because bonds issued at discounts are much more common.

FIGURE 11-8 Bonds issued at face value: Case 1

Date	Journal Entry		Balance Sheet Value	Present Value
Issue	Cash (+A)	10,000		
	Bonds Payable (+L)		10,000	\$10,000
	<i>Issued bond</i>			
6 months	Interest Expense (E, -RE)	500		
	Cash (-A)		500	10,000
	<i>Paid interest</i>			
1 year	Interest Expense (E, -RE)	500		
	Cash (-A)		500	10,000
	<i>Paid interest</i>			
6 months	Interest Expense (E, -RE)	500		
	Cash (-A)		500	10,000
	<i>Paid interest</i>			
Maturity	Interest Expense (E, -RE)	500		
	Cash (-A)		500	10,000
	<i>Paid interest</i>			
	Bonds Payable (-L)	10,000		
	Cash (-A)		10,000	0
	<i>Paid principal</i>			

Interest expense = Balance sheet value at beginning of period \times [effective interest rate (10%) \div 2]
 Cash interest payment = (\$10,000 \times 10%) \div 2
 Balance sheet value = Face value (\$10,000)
 Present value = Remaining cash outflows discounted at effective interest rate (10%)

CASE 2: BONDS ISSUED AT A DISCOUNT

In Case 2, the bonds are issued at a \$346 discount, and the effective rate of interest (12 percent) is greater than the stated rate (10 percent). Figure 11-9 shows the journal entries, balance sheet value of bonds payable, and present value of the future cash flows discounted at the effective interest rate.

The bond payable is initially recorded at \$10,000, which is greater than the \$9,654 cash proceeds; consequently, a \$346 **discount on bonds payable** is recognized. This discount is disclosed on the balance sheet as a contra liability and is subtracted from the bonds payable account. It can be viewed as unaccrued interest waiting to be expensed over the life of the bond. The balance sheet disclosure of the bonds payable account and the discount at issuance appears as follows:

Bonds payable	\$10,000	
Less: Discount on bonds payable	<u>346</u>	\$9,654

In applying the effective interest method, interest expense is calculated each period by multiplying the effective interest rate (6% = 12%/2) by the balance sheet value of the bond liability at the beginning of the period. For example, at the end of the first six-month

FIGURE 11-9 Bonds issued at a discount: Case 2

Date	Journal Entry		Balance Sheet Value	Present Value
Issue	Cash (+A)	9,654		
	Discount on Bonds Payable (-L)	346		
	Bonds Payable (+L)		10,000	\$ 9,654
	<i>Issued bond</i>			\$ 9,654
6 months	Interest Expense (E, -RE)	579		
	Discount on Bonds Payable (+L)		79	+ 79
	Cash (-A)		500	9,733
	<i>Paid interest and amortized discount</i>			9,733
1 Year	Interest Expense (E, -RE)	584		
	Discount on Bonds Payable (+L)		84	+ 84
	Cash (-A)		500	9,817
	<i>Paid interest and amortized discount</i>			9,817
6 months	Interest Expense (E, -RE)	589		
	Discount on Bonds Payable (+L)		89	+ 89
	Cash (-A)		500	9,906
	<i>Paid interest and amortized discount</i>			9,906
Maturity	Interest Expense (E, -RE)	594		
	Discount on Bonds Payable (+L)		94	+ 94
	Cash (-A)		500	10,000
	<i>Paid interest and amortized discount</i>			10,000
	Bonds Payable (-L)	10,000		
	Cash (-A)		10,000	0
	<i>Paid principal</i>			0

Interest expense = Balance sheet value at beginning of period \times [effective interest rate (12%) \div 2]
 Cash interest payment = (\$10,000 \times 10%) \div 2
 Balance sheet value = Face value (\$10,000) less unamortized discount
 or
 Balance sheet value at beginning of period + discount amortized during period
 Present value = Remaining cash outflows discounted at effective interest rate (12%)

period, the \$579 interest expense is computed thus: 6 percent \times \$9,654. The cash interest payment is only \$500, so \$79 is credited to the discount account. The \$79 of amortized discount represents the interest cost, recognized in the first period, associated with receiving only \$9,654 for a bond that requires a payment of \$10,000 at maturity. The remaining (unamortized) portion of the discount (\$267 = \$346 - \$79) is subtracted from bonds payable on the balance sheet to bring its balance sheet value to present value (\$9,733).¹⁴ This process is repeated every six months throughout the life of the bond, and eventually the entire discount is amortized into interest expense. Note also that the effective interest method ensures that the balance sheet value of the bond

14. Subtracting the unamortized portion of the discount from bonds payable is equivalent to adding the amortized amount of the discount to the balance sheet value, which is shown in Figure 11-9.

liability is equal to the present value of the remaining cash flows, discounted at 12 percent, throughout the life of the bond.

ISSUING BONDS AT PAR AND AT A DISCOUNT: A COMPARISON

Bond amortization tables for Case 1 (par) and Case 2 (discount) are contained in Figure 11–10. Recall that the effective (semiannual) interest rates for Cases 1 and 2 are 5 percent and 6 percent, respectively.

The effective interest method ensures that the actual interest rate on a bond issuance is constant throughout its life. Note, however, that interest expense is constant when bonds are issued at par and increasing when bonds are issued at a discount. This occurs because the effective rate is multiplied by the balance sheet value of the bonds payable, which is constant when bonds are issued at par and increasing when they are issued at a discount. In both cases, the balance sheet value is equal to the face value (\$10,000) when the bonds are paid off at maturity.



La-Z-Boy issued \$50 million in ten-year bonds to refinance other debt. The bonds had a stated rate of 5.25 percent. Assume that the bonds were issued on January 1 at an effective rate of 5.5 percent. Compute the proceeds from the bonds and the amount of interest expense recognized on the company's income statement.

FIGURE 11–10 Bonds amortization tables

Date	Interest Payment	Interest Expense	Amortization Discount/Premium	Unamortized Discount/Premium	Net Book Value
ISSUED AT PAR					
Issue					\$10,000
6 months	\$500	\$500	0	0	10,000
1 year	500	500	0	0	10,000
6 months	500	500	0	0	10,000
Maturity	500	500	0	0	10,000
ISSUED AT DISCOUNT					
Issue				\$346	\$ 9,654
6 months	\$500	\$579	\$79	267	9,733
1 year	500	584	84	183	9,817
6 months	500	589	89	94	9,906
Maturity	500	594	94	0	10,000
KEY:					
Interest payment = Stated (semiannual) interest rate (5%) × maturity value (\$10,000)					
Interest expense = Effective interest rate × net book value at beginning of period					
Amortized discount = Difference between interest payment and interest expense					
Unamortized discount = Discount of prior period minus amortized discount					
Net book value = Maturity value (\$10,000) minus unamortized discount					

The Effective Interest Method and Changing Interest Rates

We have stated on several occasions that the effective interest method ensures that long-term liabilities on the balance sheet are valued at the present value of the liability's future (remaining) cash flows, discounted at the effective interest rate *as of the date of issuance*. Under this method, the same effective interest rate is used throughout the life of the liability, even though interest rates in the financial markets may vary substantially. By ignoring changes in market interest rates, the effective interest method causes the balance sheet amount of the liability to equal something other than its actual present value. It fails to recognize economic gains and losses that affect the issuing company's financial condition.

To illustrate, assume that Olsen Foods issued ten bonds with a \$1,000 face value for \$1,000 each. The stated annual interest rate is 8 percent, and the bonds mature at the end of five years. Because the bonds were issued at face value, the effective interest rate is also 8 percent, and under the effective interest method, the following journal entry would be recorded at issuance:

Cash (+A)	10,000	
Bonds Payable (+L)		10,000
<i>Issued bonds (10 × \$1,000)</i>		

Throughout their five-year life, the bonds payable would be carried on the balance sheet at \$10,000, the present value (PV) of the remaining cash flows, discounted at 8 percent, the effective interest rate as of the issue date. If market interest rates fall by 2 percent during the first year of the bonds' life, however, the economic value of the bond liability becomes \$10,702, the present value of the remaining cash flows discounted at 6 percent (8% - 2%).¹⁵ As a result, Olsen would incur an economic loss of approximately \$702 (\$10,702 - \$10,000). The intuition underlying such a loss is that Olsen is paying an effective rate of 8 percent on its outstanding bonds, while market rates are somewhat lower. In addition, the liability on Olsen's balance sheet is understated by \$702.

If market interest rates rise by 2 percent during the first year, the economic value of the bond liability becomes \$9,354, the present value of the remaining cash flows discounted at 10 percent (8% + 2%).¹⁶ Olsen, therefore, would enjoy an economic gain of approximately \$646 (\$10,000 - \$9,354). In this case, Olsen is paying only 8 percent on its outstanding bonds while market interest rates are somewhat higher, and the liability on Olsen's balance sheet is overstated by \$646.



In its 2008 annual report, The Washington Post Company discloses long-term debt with a balance sheet value of \$400 million and a fair market value of \$398 million. Explain why the fair market value of the debt is less than its balance sheet value.

15. The economic value of the liability is equal to the liability's future cash flows discounted at the market rate.
 $\$10,702 = \$400 \text{ (PV annual: } n = 8, i = 3\%) + \$10,000 \text{ (PV single sum: } n = 8, i = 3\%)$
 $= \$400 \quad (7.01969) \quad + \$10,000 \quad (.78941)$

16. The economic value of the liability is equal to the liability's future cash flows discounted at the market rate.
 $\$9,354 = \$400 \text{ (PV annuity: } n = 8, i = 5\%) + \$10,000 \text{ (PV single sum: } n = 8, i = 5\%)$
 $= \$400 \quad (6.46321) \quad + \$10,000 \quad (.67684)$

FINANCIAL INSTRUMENTS, FAIR MARKET VALUES, AND OFF-BALANCE SHEET RISKS

Under the fair market value option, according to both U.S. GAAP and IFRS, companies can account for their long-term debts as described above (effective interest method, sometimes called amortized cost) or at fair market value. If the fair market value option is exercised, the amount of the debt is adjusted to fair market value, and the associated gain or loss appears on the income statement. In the illustration above with Olsen Foods, for example, when interest rates fell by 2 percent under the fair market value option, Olsen would book the following entry.

Loss on bonds payable	702	
Bonds payable		702
<i>To record loss on decreasing market interest rates</i>		

If interest rates rose to 10 percent, the entry would have been:

Bonds payable	646	
Gain on bonds payable		646
<i>To record gain on increasing market interest rates</i>		

While this option is available, most companies do not exercise it. Rather, they choose to disclose the fair market value of the debt in the footnotes. The following excerpt was taken from the 2008 annual report of Federal Express. The reader can ascertain from the footnote that market interest rates for Federal Express's long-term debt were below the debt's effective interest rates.

We had outstanding long-term debt with an estimated fair market value of \$2.4 billion at May 31, 2009 and \$1.9 billion at 2008 (balance sheet values were \$2.6 billion and \$2.0 billion, respectively). The underlying fair market values were estimated based on quoted market prices or the current rates offered for debt with similar terms and maturities.



Johnson & Johnson reported long-term debt of \$8.3 billion and \$7.1 billion as of the end of 2008 and 2007, respectively. The company reported that "the excess of the fair value over the carrying value of the debt was \$1.4 billion in 2008 and \$0.3 billion in 2007." Given that the effective interest rate of the long-term debt was similar in both years, what must have happened to make the difference between the balance sheet value and the market value so much greater in 2008?

Many companies also carry financial instruments that are not listed on the balance sheet, many of which involve significant risks. Examples include commitments to guarantee the credit of third parties (e.g., subsidiaries) and commitments to provide financing to customers who purchase certain inventory items. Another example is financing arrangements often designed to reduce the risks associated with fluctuations in interest rates and the value of foreign currencies relative to the U.S. dollar. While these arrangements are normally covered in advanced texts, users should know that the public disclosures of most major U.S. companies contain extensive descriptions of these instruments and that such instruments often reflect risks borne by the company that are captured nowhere on the balance sheet.

Bond Redemptions

Bonds can be **redeemed** (repurchased or retired) on or before the maturity date. When this occurs, amortization of any discount or premium is updated, the dollar amount in

the bonds payable account and any unamortized discount or premium are written off the books, a cash payment is recorded, and a gain or loss is recognized on the redemption if the cash payment differs from the net book value of the liability.

BOND REDEMPTIONS AT MATURITY

When bonds are redeemed at the maturity date, the issuing company simply pays cash to the bondholders in the amount of the face value and removes the bond payable from the balance sheet. At maturity, the bond payable is equal to the face value because, after the final entry to record interest expense, any discount or premium on the bonds will have been completely amortized. Journal entries to record bond redemptions at the maturity dates for bonds issued at face (Case 1) and at a discount (Case 2) appear in Figures 11–8 and 11–9, respectively. Note that in both cases, the journal entry to record the redemption takes the following form:

Bonds Payable (–L)	10,000	
Cash (–A)		10,000
<i>Redeemed bonds with a \$10,000 face value at maturity</i>		

BOND REDEMPTIONS BEFORE MATURITY

Many companies exercise call provisions or purchase their outstanding bonds on the open market before the maturity date. As indicated earlier, as economic conditions (especially interest rates) change, companies may wish to retire long-term debts.

To illustrate, consider companies that issued bonds in the mid-1980s when interest rates, compared to recent rates, were relatively high. As market interest rates dropped, many of these companies redeemed these bonds prior to maturity, recognizing losses because the market value of the debt exceeded its book value. Often new bonds were then issued at considerably lower rates. When Scott Paper Company, for example, retired \$72.1 million of unsecured bonds (with an effective rate of 11.5 percent) prior to maturity, it recognized a \$9.6 million loss on the transaction.



During the financial crisis of 2008–2009, the Federal Reserve Board pushed interest rates down and kept them at low levels to help boost economic activity. Explain what happened to bond prices while the Fed was pushing down interest rates, and how some companies with outstanding long-term debt before the crisis may have reacted to the lower rates, and why.

That same year, Scott issued additional debt with effective rates that averaged 8 percent to 9 percent.

To illustrate the redemption of a bond issuance prior to maturity at a loss, assume that bonds with a \$100,000 face value and a \$5,000 unamortized discount are redeemed for \$102,000. The \$7,000 loss on redemption would decrease net income and appear in a separate section of the income statement.

Bonds Payable (–L)	100,000	
Loss on Redemption (Lo, –RE)	7,000	
Discount on Bonds Payable (+L)		5,000
Cash (–A)		102,000
<i>Redeemed bonds prior to maturity</i>		

If these same bonds are redeemed for \$93,000, the following journal entry is recorded, and a gain on the redemption is recognized on the income statement as an extraordinary item:

Bonds Payable (–L)	100,000	
Discount on Bonds Payable (+L)		5,000
Cash (–A)		93,000
Gain on Redemption (Ga, +RE)		2,000
<i>Redeemed bonds prior to maturity</i>		



On a recent income statement, Cummins, Inc., a manufacturer of diesel engines, reported a loss from the early retirement of debt in the amount of \$12 million. Explain what happened to result in the recognition of this loss and why the \$12 million loss appeared in the operating section of the statement of cash flows as an add-back to net income.

LEASES

A **lease** is a contract granting use or occupation of property during a specified period of time in exchange for rent payments. Such contracts are a very popular way to finance business activities. Companies often lease rather than purchase land, buildings, machinery, equipment, and other holdings, primarily to avoid the risks and associated costs of ownership. *Accounting Trends and Techniques* (New York: AICPA, 2009) reports that, of the major U.S. companies surveyed, 99 percent disclosed some form of material lease arrangement. Many of the major retailers, for example, lease most of the facilities in which they conduct operations. The Limited stores are almost always leased for terms of ten years with multiple renewal options. The company's annual lease payments approximate \$600 million. *Forbes* recently noted:

Today, about a third of all capital spending is financial via leases rather than through direct ownership. A quarter of a trillion dollars worth of capital investment is owned by the 100 top leasing companies, a 17% increase over last year.

Operating Leases

In a pure leasing (or rental) arrangement, an individual or entity (*lessor*) who owns land, buildings, equipment, or other property transfers the right to use this property to another individual or entity (*lessee*) in exchange for periodic cash payments over a specified period of time. Normally, the terms of the lease are defined by contract, and over the period of the lease, the owner is responsible for the property's normal maintenance and upkeep. The lessee assumes none of the risks of ownership, and at the end of the lease, the right to use the property reverts to the owner.

These types of agreements are called **operating leases**, and accounting for them is straightforward. The property is reported as an asset on the owner's balance sheet, and the periodic rental payments are recorded as rent revenue on the owner's income statement. If applicable, as in the case of a fixed asset, the capitalized cost of the property is depreciated by the owner. The lessee, on the other hand, recognizes no asset or liability but simply reports rent expense on the income statement as the periodic rent payments are accrued.



During 2008, JCPenney paid \$302 million for its operating leases. How did the company account for these payments, and on which financial statements would activities associated with operating leases be reflected?

Capital Leases

Many contractual arrangements, which on the surface appear to be leases, are actually purchases financed with installment notes, where the risks and benefits of ownership have been transferred to the lessee. The present value of the periodic lease payments, for example, may approximate the FMV of the property. It is also possible that the property may revert, or be sold at a bargain price, to the lessee at the end of the lease period. Furthermore, the period of the lease may be equivalent to the asset's useful life. In such situations, the lessee has actually purchased the property from the lessor and is financing it with an installment note; that is, an asset has been received in exchange for an installment note payable. Such leases are referred to as **capital leases**, and they should be treated on the financial statements as purchases. That is, the leased property should be included as an asset on the balance sheet of the lessee, and the obligation associated with the future lease payments should be reported as a liability.

Suppose that on January 1, 2012, Hitzelberger Supply (lessee) signs an agreement to lease a bulldozer from Jones and Sons (lessor) for a period of two years. The contract specifies that Hitzelberger must pay \$10,000 on December 31 of 2012 and 2013, and the bulldozer can be purchased by Hitzelberger at the end of the lease for a nominal sum. The market price of the bulldozer at the time of the agreement is \$17,355, resulting in an effective interest rate of 10 percent, which is equivalent to the interest rate that would be charged if Hitzelberger borrowed funds to purchase the bulldozer.¹⁷

Hitzelberger should account for this arrangement as a capital lease because the present value of the lease payments discounted at the market rate of interest approximates the FMV of the bulldozer, and the company can purchase the bulldozer at the end of the lease period for a nominal sum. Although the transaction is described as a lease, in economic terms it is actually an installment purchase; stated another way, if Hitzelberger borrowed \$17,355 from a bank to purchase the bulldozer and signed a two-year note with a 10 percent interest rate, the loan payment would be \$10,000 per year for two years, the same payments required by the lease. Assuming that the bulldozer is depreciated on a straight-line basis over a five-year useful life, the entries shown in Figure 11–11 would be recorded by Hitzelberger over the life of the lease.

As with long-term notes payable and bonds payable, the effective interest method is used to compute the interest expense and amortize the lease liability. Specifically, the annual interest expense associated with the installment purchase is computed by multiplying the effective interest rate (10 percent) by the balance sheet value of the liability, and the dollar amount of the liability amortized each period is equal to the difference between the cash payment and the interest expense. This procedure ensures that the lease liability is carried on the balance sheet at present value throughout the life of the lease,

17. The effective rate of interest is determined by finding that rate which, when used to discount the future cash flows of the lease, results in a present value that is equal to the market price of the bulldozer. Refer to the discussion earlier in this chapter on the effective interest rate.

FIGURE 11-11

Accounting for a capital lease:
Hitzelberger
Supply

GENERAL JOURNAL

2012	Jan. 1	Machinery (+A)	17,355	
		Lease Liability (+L)		17,355
		<i>Recognized capital lease (\$10,000 × 1.7355^a)</i>		
	Dec. 31	Depr. Expense (E, −RE)	3,471	
		Accumulated Depr. (−A)		3,471
		<i>Recognized depreciation (\$17,355 ÷ 5)</i>		
		Interest Expense (E, −RE)	1,736 ^b	
		Lease Liability (−L) (plug)	8,264	
		Cash (−A)		10,000
		<i>Made first lease payment</i>		
2013	Dec. 31	Depr. Expense (E, −RE)	3,471	
		Accumulated Depr. (−A)		3,471
		<i>Recognized depreciation (\$17,355 ÷ 5)</i>		
		Interest Expense (E, −RE)	909 ^c	
		Lease Liability (−L) (plug)	9,091	
		Cash (−A)		10,000
		<i>Made second lease payment</i>		

^aPresent value of annuity table: $n = 2, i = 10\%$

^b $10\% \times \$17,355$

^c $10\% \times \$9,091$ [Unamortized lease liability (\$17,355 − \$8,264)]

assuming that market interest rates remain constant over that time period. Note also that Hitzelberger depreciates the cost of the machinery, reflecting that, for purposes of financial accounting, Hitzelberger is considered the owner of the bulldozer.



SUPERVALU's fiscal 2009 balance sheet includes assets under capital leases and capital lease obligations of \$1.03 billion and \$1.3 billion, respectively. Where on the financial statements would these numbers be found, and how did SUPERVALU estimate them?

Operating Leases, Capital Leases, and Off-Balance-Sheet Financing

Both operating leases and capital leases are commonly reported on the financial statements of U.S. companies. *Accounting Trends and Techniques* (New York: AICPA, 2009) reports that, of the companies surveyed, 46 percent disclosed both operating and capital leases, 52 percent disclosed operating leases only, and 1 percent disclosed capital leases only.

Recall that from the lessee's standpoint, an operating lease simply gives rise to a periodic rent expense, while a capital lease involves the recognition of an asset, a leasehold liability, and an additional depreciation expense. Because accounting for capital leases increases liabilities and assets and recognizes depreciation expense, all of which can negatively affect important financial ratios (e.g., capital structure leverage and return on assets), companies have incentives to account for leases as operating. In 1977,

the Financial Accounting Standards Board issued an accounting standard that identified a set of criteria for distinguishing capital from operating leases. In general, these criteria attempt to identify when a leasing arrangement actually represents an installment purchase and therefore should be treated as such (i.e., a capital lease) on the financial statements. Specifically, if any of the four criteria listed in Figure 11–12 are met, the lease should be treated as a capital lease.

FIGURE 11–12Capital lease
criteria

- 1. The lease transfers ownership of the property to the lessee.**
- 2. The lease contains a bargain purchase option.**
- 3. The lease term is 75 percent or more of the useful life of the property.**
- 4. The present value of the lease payments equals or exceeds 90 percent of the FMV of the property.**

Although these criteria are useful, they have not removed the effects of management's discretion on classifying leases. A study sponsored by the Financial Accounting Standards Board, conducted four years after the FASB established the criteria, found that "a majority of the companies surveyed were structuring the terms of new lease contracts to avoid capitalization." Such attempts to finance asset acquisitions without having to report liabilities on the balance sheet may be economically sound in view of the importance of financial ratios in debt covenants and investor and creditor decisions. In one particular case, *Forbes* magazine reported that Dierckx Equipment Corporation, a small, privately owned company, could "endanger its credit rating" by capitalizing its leases. Consequently, financial statement users should closely review the lease terms disclosed in the footnotes to financial statements and ascertain for themselves whether a leasing arrangement is in fact a rental agreement or an installment purchase. Furthermore, generally accepted accounting principles require that companies disclose in the footnotes the future cash payments associated with both their operating and their capital leases. Financial statement readers can use this information to ascertain the extent to which the financial statements are affected by the lease accounting method. For example, one could reconstruct the financial statements as if all leases had been accounted for as capital leases by computing the present value of the cash flow payments associated with the company's operating leases and including that dollar amount as both a liability and an asset on the balance sheet.



Capital lease accounting is an area where IFRS differs from U.S. GAAP. Under IFRS, the four specific criteria listed above are not used. Instead, IFRS leaves more to the judgment of the manager, stating that capital lease accounting should be used if substantially all the risks and rewards incidental to ownership have been transferred from the lessor to the lessee. This difference is one of many where IFRS relies on judgment and U.S. GAAP relies on rules.

The following disclosure was taken from the 2008 annual report of Macy's Inc., which includes a wide variety of well-known retailers, including Bloomingdale's. It describes the company's leasing activities.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Minimum rental commitments (excluding executory costs) at January 31, 2009, for noncancellable leases are:

	<i>Capitalized Leases</i>	<i>Operating Leases</i>	<i>Total</i>
	(millions)		
<i>Fiscal year:</i>			
2009	\$ 8	\$ 235	\$ 243
2010	7	236	233
2011	6	207	213
2012	5	191	196
2013	4	170	174
After 2013	<u>32</u>	<u>1,709</u>	<u>1,741</u>
<i>Total minimum lease payments</i>	<u>\$62</u>	<u>\$2,738</u>	<u>\$2,800</u>
<i>Less amount representing interest</i>	<u>27</u>		
<i>Present value of net minimum capitalized lease payments</i>	<u>\$35</u>		

Capitalized leases are included in the Consolidated Balance Sheets as property and equipment while the related obligation is included in short-term (\$4 million) and long-term (\$31 million) debt. Amortization of assets subject to capitalized leases is included in depreciation and amortization expense. Total minimum lease payments shown above have not been reduced by minimum sublease rentals of approximately \$83 million on operating leases.

This computation is useful because it can help users make better comparisons across companies that capitalize different percentages of their leases. For example, Home Depot and Lowe's capitalize different percentages of their leases, which can complicate the interpretation of any financial ratio (e.g., return on assets or capital structure leverage) comparisons across the two companies. To address this problem, an analyst could assume that both companies capitalize all their leases, and financial ratios computed on the adjusted numbers would be more comparable.

The following information was taken from the fiscal 2009 annual reports of SUPERVALU and Wal-Mart (dollars in millions). Assuming that the terms of each company's lease contracts are approximately equivalent, which company seems to be practicing off-balance-sheet financing more aggressively, and why? Describe how you could make the financial ratios of the two companies more comparable.

	Minimum lease payments under:	
	Capital leases	Operating leases
SUPERVALU	\$168	\$ 426
Wal-Mart	569	1,161

INTERNATIONAL PERSPECTIVE: THE IMPORTANCE OF DEBT FINANCING IN OTHER COUNTRIES

The nature of capital markets plays an important role in determining the nature and use of an accounting system. U.S. companies, for example, rely heavily on both debt and equity capital, which, in turn, influences the accounting systems to provide information for both equity and debt investors. Accordingly, the importance of both earning power

and solvency in the assessment of a company's financial health has been emphasized throughout the text.

In certain other countries, however, the sources of capital are not as balanced between equity and debt. In Japan and much of Western Europe, for example, the environment is characterized by a few very large banks that satisfy the capital needs of most businesses. The local stock and bond markets, though increasingly becoming more active, are not as heavily relied upon as they are in the United States. The dependence on borrowing in Japan has caused the normal debt/equity ratio for a Japanese company to be well in excess of 75 percent, with most of the debt being in the form of long-term notes from one or more of the large banks.

This situation has had two significant effects on the different accounting systems. First, the accounting disclosure requirements in non-U.S. countries and IFRS are not as comprehensive as those in the United States, partially because the information needs of the major capital providers (i.e., banks) are satisfied in a relatively straightforward way—through personal contact and direct visits. In many non-U.S. countries, for example, it is not unusual for the banks to have members on the boards of directors of the companies for which they provide debt capital. Such direct access is an efficient and practical way to monitor a company's financial health, and it precludes the need for extensive accounting disclosures for external parties.

A second way in which the heavy reliance on debt affects non-U.S. accounting systems is that the required disclosures and regulations tend to be designed either to protect the creditor or to help in the assessment of solvency. For example, the Japanese Commercial Code, which until very recently determined Japanese accounting rules, also set a ceiling on the profits available for dividends to shareholders. Such a regulation helped creditors by ensuring that there was adequate cash to meet debt payments on the company's outstanding loans.



The *Wall Street Journal* reported that Prada, the well-known Italian fashion house, planned to cut its debt levels by 385 million euros by selling assets and reducing inventories, and with a large tax rebate from the Italian government. The company hoped to be able to raise funds by issuing equity, but the financial markets were worried that Prada's debt levels were much too high. Why would high levels of debt make it difficult to raise equity capital? Explain how Prada's financial statements would change if it was successful with its plans.

ROE EXERCISE: MANAGING LONG-TERM DEBT

The ROE model, introduced and illustrated in Appendix 5A, provides a framework linking the management of a company's operating, investing, and financing activities to its return on the shareholders' investment (return on equity). The management of the nature and level of long-term debt represents an important financing activity.

As illustrated by the ROE model, management can increase return on equity by practicing leverage—using borrowed funds to finance investments that provide returns that exceed the cost (e.g., interest) of borrowing. Issuing bonds and long-term notes and using capital leases can generate huge amounts of funds that can be invested in projects, creating shareholder returns without requiring any shareholder capital. The result is upward pressure on ROE. This strategy, however, does increase a company's risk because it creates obligations to make future cash payments regardless of whether the projects are successful.

Key ratios within the ROE model that address these issues include common equity leverage, capital structure leverage, long-term debt as a percent of total assets, interest coverage, and interest expense as a percent of sales (see Figure 5–3). Analyzing these ratios and how they relate to changes in ROE is useful in assessing how companies manage their financing activities and, accordingly, is an important part of financial statement analysis.

ROE ANALYSIS

Access the Web site <http://www.wiley.com/college/pratt> and conduct ROE analyses on New York Times versus Washington Post and/or Dow Chemical versus DuPont, all of which carry significant levels of long-term debt, paying special attention to the level of the companies' leverage and whether leverage is being used effectively.

APPENDIX 11A

THE DETERMINATION OF BOND PRICES

This chapter states that bond prices are determined by the dollar amount investors are willing to pay for them. That is, what will investors pay for the right to receive the semiannual interest payments and a cash payment in the amount of the face value at maturity? This appendix identifies and discusses factors considered by debt investors when deciding whether to purchase bonds. These factors have a direct bearing on bond prices.

Suppose, for example, that on June 9, 2011, you were reading the *Wall Street Journal*, looking to purchase a bond. You note that on that day Treetley Enterprises lists bonds with the following terms:

Face value	\$1,000
Time to maturity	18 years
Stated annual interest rate (paid every 6 months)	8%
Current price	85$\frac{1}{4}$, or \$853

The decision to buy the bond involves three steps: (1) determine the effective rate of return, (2) determine your required rate of return, and (3) compare the effective rate to the required rate.

Determine the Effective (Actual) Rate of Return

The procedure used to determine the effective rate of return is discussed in this chapter. Recall that the effective rate is that rate which, when used to discount the bond's future cash flows, results in a present value equal to the bond price. The effective rate of the Treetley bond is approximately 10 percent.

Determine the Required Rate of Return

Now that you have determined the effective rate, you must decide whether it is large enough to satisfy you. In other words, what rate of return do you require on a bond with these terms issued by Treetley Enterprises?

Your required rate of return is determined by adding the return you could receive from investing your money in a risk-free security (i.e., risk-free return) to the risk premium you would attach to the Treetley bonds:

$$\text{Required Rate of Return} = \text{Risk-Free Return} + \text{Risk Premium}$$

Determine the Risk-Free Return

The **risk-free** (or **riskless**) **return** is the annual return you could receive by investing in a riskless security, a security where there is virtually no doubt that the interest and principal payments will be honored. Such securities are often backed by the federal government. The annual returns on **treasury notes**, which can be purchased from the federal government and mature up to six months from the date of issue, provide an approximation of the risk-free rate. The bank interest rate on savings accounts probably represents the lowest estimate of the risk-free return. The annual return on **certificates of deposit**, where a given amount of money is lent to a financial institution for a specified period of time, represents another, perhaps more relevant, example.

Keep in mind that the actual risk-free return can only be approximated and that it fluctuates from day to day, based on such factors as changes in the **prime interest rate** (the interest rate charged by banks to their best customers), changes in the **discount rate** (the lending rate charged to banks by the Federal Reserve Board), and the inflation rate expected in the future. Assume that on June 9, 2011, when you considered purchasing Treetley bonds, a reasonable approximation of the risk-free return was 3 percent.

Determine the Risk Premium

The **risk premium** is expressed as a percentage and reflects the probability that Treetley will default on the periodic interest payments or face value payment at maturity. If this probability is high, these bonds would be considered “high risk” and the risk premium would be relatively large, say 5–10 percent. If the probability is low, the risk premium would be considerably less, say 1–3 percent.

The risk premium is associated specifically with the company issuing the bonds. It is determined by a number of factors, including the credit rating of the company and the bond issuance, the solvency and earning power of the company, future movements in the economy and how these movements may affect the operations of the company, and the terms of the bond issuance. For example, covenant restrictions on future debt and dividend payments as well as collateral and call provisions can affect the risk premium by changing the risk levels faced by the holder of the bonds. Analyzing financial statements is an important part of assessing the risk premium associated with investing in a particular company.

Assume that you have assessed the factors described above and have determined that the risk premium associated with the Treetley bonds is 6 percent.

Compare the Effective Rate to the Required Rate

The effective rate of return on the Treetley bond is 10 percent. You have determined that your required rate of return is 9 percent (3% risk-free rate + 6% risk premium). Since the effective rate exceeds the required rate, you will purchase the bond. The bond is selling for \$853; in fact, you would be willing to pay \$920 for it, the present value of the bond’s future cash flows discounted at 9 percent, your required rate of return. Had your required return been greater than 10 percent, due to either a higher risk-free rate or a higher risk premium, you would not have purchased the bond and would not do so until the price decreased to the point where the effective rate exceeded your required rate.

Factors Determining Bond Prices

Bond prices, therefore, are determined by a market of investors, each assessing the economy-wide, risk-free rate as well as the risk premium associated specifically with the issuing company. Any factor affecting either of these two items affects bond prices. Factors that decrease either the risk-free rate or the risk premium tend to increase bond prices, while factors increasing either rate tend to decrease bond prices.

The *Wall Street Journal* often reports on how the actions of the Federal Reserve Board affect economy-wide interest rates. Almost without exception, when the Board acts to reduce interest rates, the bond market rallies, and when the Board acts to increase rates, bond prices fall. This relationship occurs because the Board's behavior has a direct effect on the risk-free rate of return. The *New York Times* once reported that Merrill Lynch & Company, which holds a huge portfolio of bond investments, "lost \$250 million in a given month because its bond investments plummeted in value when interest rates surged."

The close relationship between the risk premium and bond prices illustrates why companies are so interested in their credit ratings. A decrease in a company's credit rating ordinarily leads to an increase in the market's assessment of the company's risk premium and, accordingly, a decrease in the value of the company's outstanding debt. For example, when Standard & Poor's noted that the credit quality of the U.S. chemical companies, in general, had demonstrated increasing signs of stability, most of the companies in the entire industry saw their bond prices rise.

APPENDIX 11B

INVESTING IN BONDS

Many companies include bonds in their investment portfolios. Compared to equity securities, bonds are relatively low risk, providing periodic interest income in addition to potential capital gains (and losses) as market values increase (decrease). To illustrate how large bond investments can be, as of December 31, 2008, General Electric Capital Service (GECS) included on its balance sheet bonds issued by U.S. companies valued at over \$23 billion.

The method used to account for bond investments depends on management's intention, leading to three possible classifications: (1) held-to-maturity securities, (2) trading securities, and (3) available-for-sale securities. *Held-to-maturity securities* are, as the name suggests, bond investments that management does not intend to sell, intending instead to hold them until the maturity date, when the face value of the bond (usually \$1,000) will be received. *Trading debt securities* are bought and held principally for the purpose of selling them in the near future with the objective of generating a profit on short-term price changes. *Available-for-sale debt securities* are neither intended to be sold in the near future nor intended to be held until maturity. The methods used to account for bond investments classified as trading or available-for-sale are very similar to those described in Chapter 8, which covered investments in equity securities. Both are carried on the balance sheet at market values; holding gains and losses for trading debt securities are reflected on the income statement; and holding gains and losses for available-for-sale debt securities are reflected in the shareholders' equity section of the balance sheet and are part of comprehensive income. Next we discuss the method used to account for held-to-maturity bond investments. Note that under the fair market value option, discussed in Chapter 8, management can choose to account for any of the three classifications of bond investments at fair market value.

Similar to bonds payable, the *effective interest method* is used to account for bond investments. Under the effective interest method:

When a bond is purchased, the bond investment is recorded at cost; interest revenue each period over the life of the bond is computed by multiplying the effective interest rate by the balance sheet value of the bond investment at the beginning of the period; and bond investment is carried on the balance sheet at the present value of the bond's future cash flows discounted at the effective interest rate.

To illustrate, assume that Clancy Company purchases a bond with a face value of \$1,000, a maturity of two years, and a stated interest rate of 4 percent (\$20 in interest to be received every six months). Clancy paid \$929 for the bond, creating an effective interest rate of 8 percent, and intended to hold the bond until its maturity, two years in the future. Under the effective interest method, the bond investment would be accounted for over the two-year period as illustrated in Figure 11B-1.

FIGURE 11B-1 Accounting for held-to-maturity bond investments

Date	Journal Entry		Balance Sheet Value	Present Value
Purchase	Bond investment (+A)	929		
	Cash (-A)		929	\$ 929
6 months	Cash (+A)	20		
	Bond investment (+A)	17		+17
	Interest revenue (R, +RE)		37	946
1 year	Cash (+A)	20		
	Bond investment (+A)	18		+18
	Interest revenue (R, +RE)		38	964
6 months	Cash (+A)	20		
	Bond investment	18		+18
	Interest revenue (R, +RE)		38	982
Maturity	Cash (+A)	20		
	Bond investment (+A)	18		+18
	Interest revenue (R, +RE)		38	1,000
	Cash (+A)	1,000		
	Bond investment (-A)		1,000	

$$\text{Interest revenue} = \text{Balance sheet value at beginning of period} \times \frac{\text{effective interest rate (8\%)}}{2}$$

$$\text{Cash interest receipt} = \frac{\$1,000 \times .04}{2}$$

Balance sheet value = Balance sheet value + discount amortized during period
Present value = Remaining cash inflows discounted at effective interest rate (8%)

Note in the example that the discount on the bond, the difference between the face value (\$1,000) and the purchase price (\$929), is not separately disclosed. Rather, it is included in the bond investment account. Every six months the discount is amortized by increasing the bond investment account by the difference between the cash interest received and the interest revenue recognized. This method ensures that the bond investment on the balance sheet is equal to the present value of the remaining future cash inflows associated with the bond, discounted at the effective interest rate. In this way accounting for bond investments is very similar to accounting for bond liabilities, except asset and revenue accounts are involved instead of liability and expense accounts.

APPENDIX 11C**INTEREST RATE SWAPS AND HEDGING**

Almost all major companies rely on long-term debt financing (e.g., bond issuances) where the issuing company makes fixed interest rate payments to debtholders over the life of the debt contract. As illustrated in this chapter, entering into fixed-interest-rate contracts exposes the issuing company to market rate risks—when market interest rates rise, the market value of the liability falls and the company experiences an economic gain; as market interest rates fall, the value of the liability rises and the company experiences an economic loss. Effective risk management attempts to reduce these risks as much as possible because investors avoid risky investments. Creditors impose stricter credit terms (e.g., higher interest rates, stricter debt covenants), and equity investors are willing to pay lower prices when they judge that a company's risk level rises.

A common method used by companies to reduce such risks is called **hedging**, where a company enters into a contract that creates risks that counteract or balance the risks attempted to be hedged (reduced). The most common method of hedging market interest rate risk is called an **interest rate swap**.

To illustrate how an interest rate swap can be used to hedge risks, assume that Peirson Company issues for face value (\$1,000) a bond with a five-year maturity and a stated interest rate of 5 percent. This contract obligates Peirson to pay the bondholders \$25 ($[\$1,000 \times .05]/2$) every six months for five years. Peirson realizes that the fixed 5 percent interest rate exposes the company to fluctuations in the market value of the debt as market rates change over the five-year period. To remove these risks, Peirson can approach a third party (normally a bank) and enter into an interest rate swap, a contract where Peirson receives fixed interest payments of \$25 every six months, while agreeing to make periodic payments to the bank linked to the market rate of interest. If market rates increase above 5 percent, Peirson pays more than \$25 for the six-month period; if market rates decrease below 5 percent, Peirson pays less than \$25 for the six-month period. Note that the fixed payment made by Peirson to the bondholders (\$25 every six months) exactly equals the fixed payment received by Peirson from the bank. Thus, by entering into the interest rate swap, Peirson is now paying an interest rate on the debt that is linked to the market rate. Consequently, when market rates change, the fair market value of the debt will not change, remaining at \$5,000, the amount reported on the balance sheet.

The following excerpt was taken from a recent annual report of Emerson Electric, whose strategy ensures that the balance sheet value of the debt equals its market value over the life of the debt.

To efficiently manage interest costs, the company utilizes interest rate swaps as cash flow hedges of variable-rate debt or fair value hedges of fixed-rate debt.

REVIEW PROBLEM

Assume that Southern Carbide issues 500 bonds, each with a \$1,000 face value on January 1, 2012. The five-year bonds have an annual stated interest rate of 6 percent, to be paid semi-annually on December 31 and June 30. The bonds are issued at 91.89, providing an effective annual interest rate of 8 percent. A call provision in the bond contract states that the bonds can be redeemed by Southern Carbide after December 31, 2012, for 96.0. Assume that Southern Carbide exercises this provision on July 1, 2013.

Figure 11–13 provides the cash flows, journal entries, discount balance, and net book value of the bonds from the time of the bond issuance to the redemption. An explanation of each calculation follows.

FIGURE 11-13 Review problem

	Terms: Number of bonds issued: 500 Face value: \$1,000 Stated interest rate: 6% Time to maturity: 5 years Call Provision: Redeemable after 12/31/12 for .9600	Interest payment dates: Dec. 31, June 30 Issue date: January 1, 2012 Price: .9189 (\$459,450) Effective interest rate: 8%	
CASH FLOWS	12/31/11 → 1/1/12 → 6/30/12 → 12/31/12 → 6/30/13 → 7/1/13	→ 6/30/13 → 7/1/13	
+\$459,450 (proceeds)	-\$15,000 (interest)	-\$15,000 (interest)	-\$15,000 (interest) -\$480,000 (redemption)
GENERAL JOURNAL			
Cash 459,450 Discount 40,550 Bonds Pay. 500,000 <i>Issued bond</i>	Int. Exp. 18,378 Cash 15,000 Discount 3,378 <i>Paid interest and</i> <i>amortized discount</i>	Int. Exp. 18,513 Cash 15,000 Discount 3,513 <i>Paid interest and</i> <i>amortized discount</i>	Int. Exp. 18,653 Cash 15,000 Discount 3,653 <i>Paid interest and</i> <i>amortized discount</i> Bonds Pay. 500,000 Loss on R. 10,006 Discount 30,006 Cash 480,000 <i>Redeemed bond</i>
DISCOUNT BALANCE	\$40,550	\$40,550 - \$3,378 = \$37,172	\$37,172 - \$3,513 = \$33,659
NET BOOK VALUE	\$500,000 - \$40,550 = \$459,450	\$500,000 - \$37,172 = \$462,828	\$500,000 - \$33,659 = \$466,341
	Bonds Pay. = Bonds Payable Int. Exp. = Interest Expense Loss on R. = Loss on Redemption		\$33,659 - \$3,653 = \$30,006 (before redemption)
			\$500,000 - \$30,006 = \$469,994 (before redemption)

Cash Flow Calculations

Proceeds. The proceeds of the bond issuance (\$459,450) were calculated by multiplying the number of bonds issued (500) by the price per bond (\$918.90).

Interest Payments. The semiannual interest payment (\$15,000) was calculated by multiplying the number of bonds issued (500) by the face value of each bond (\$1,000) by half the stated annual interest rate (3 percent).

Redemption Payment (7/1/13). The payment required to redeem the bonds on July 1, 2013 (\$480,000), was calculated by multiplying the number of bonds issued (500) by the redemption price per bond (\$960).

Journal Entry Calculations

At Issuance. Cash (\$459,450) was equal to the cash proceeds. Bonds payable (\$500,000) was calculated by multiplying the number of bonds issued (500) by the face value of each bond (\$1,000). The discount (\$40,550) represents an interest cost ("unaccrued interest") waiting to be recognized over the life of the bond. It arises because the bond issuance, which will require a \$500,000 cash payment at maturity, generated only \$459,450 at issuance.

Interest Payments and Discount Amortization. The calculation of the cash interest payments is described above. The effective interest rate (8 percent) was computed by finding the rate that produced a present value equal to the price (\$459,450). The amount of interest expense recognized each period was calculated by multiplying half the effective interest rate (4 percent) by the net book value of the bond payable (\$500,000 – unamortized discount) at the beginning of the period. The credit to the discount represents the additional interest expense recognized each period because the bonds were issued at a discount.

Redemption (7/1/13). The calculation of the cash payment at redemption (\$480,000) was described earlier. The balance sheet value of the bonds at the time of the redemption (bonds payable: \$500,000, discount: \$30,006) is removed from the books. The loss on redemption (\$10,006) represents the difference between the cash paid to redeem the bonds and the balance sheet value of the bonds as of July 1, 2013.

Discount Balance and Balance Sheet Value of Bonds Payable

The ending discount balance each period was calculated by subtracting the amount of the discount amortized during the period from the balance at the beginning of the period. The balance sheet value of the bonds payable at the end of each period was calculated by subtracting the unamortized discount from the face value of the bond issuance (\$500,000).

SUMMARY OF KEY POINTS

- *Long-term notes payable, bonds payable, and leasehold obligations, and how companies use these instruments as important sources of financing.*

Long-term liabilities include notes payable, bonds payable, and leasehold obligations. They represent obligations that require the disbursement of assets (usually cash) at a future time beyond the period that defines current assets. Notes payable refer to obligations evidenced by formal notes. They normally involve direct borrowings from financial institutions or an arrangement to finance the purchase of assets. Bonds payable are notes issued for cash to a large number of creditors called *bondholders*. Leasehold obligations refer to future cash payments (i.e., rent) that are required for the use or occupation of property during a specified period of time.

Long-term notes, bonds, and leases are common and major sources of capital for companies throughout the world. Funds used to acquire other companies, purchase machinery and equipment, finance plant expansion, pay off debts, repurchase outstanding stock, and support operations are often generated by issuing long-term notes or bonds, or entering into lease agreements.

● *Economic consequences created by borrowing.*

Increased borrowing in the United States has forced managers to pay special attention to both their cash flow management policies and how the debt is reported in their financial statements. Credit ratings are assuming increasing importance because they link directly to the cost of borrowing and the firm's stock price. Management has entered into creative ways to generate sufficient cash to meet their debt obligations, and they manage the financial statement numbers by practicing strategies like "building hidden reserves," "taking a bath," and especially "off-balance-sheet financing."

● *Different forms of contractual obligations.*

There are three basic forms of contractual obligations: interest-bearing, non-interest-bearing, and installment. Interest-bearing obligations require periodic (annual or semiannual) cash payments (called interest) that are determined as a percentage of the face, principal, or maturity value, which must be paid at the end of the contract period. Non-interest-bearing obligations require no periodic payments but only a single cash payment at the end of the contract period. In an installment obligation, periodic payments covering both interest and principal are made throughout the life of the contract.

● *The effective interest rate and how it is determined for contractual obligations.*

The effective interest rate is the actual interest rate paid by the issuer of the obligation. It is determined by finding the discount rate that sets the present value of the obligation's cash outflows equal to the fair market value (FMV) of that which is received in the exchange. When contractual obligations are exchanged for cash, the cash amount received represents the FMV of the receipt. When contractual obligations are exchanged for noncash items, the FMV of the noncash items must be determined through appraisals or some other means.

● *The effective interest method.*

The effective interest method states that the interest expense reported during each period of a long-term obligation's contractual life is computed by multiplying the effective interest rate by the balance sheet value of the obligation as of the beginning of the period. It ensures that the long-term liability on the balance sheet is reported throughout its life at the present value of its future cash flows, discounted at the effective interest rate as of the issue date.

● *How changes in market interest rates can lead to misstated balance sheet values for long-term liabilities.*

The effective interest method ensures that over the life of an obligation its balance sheet value is equal to the present value of the obligation's future cash flows, discounted at the effective interest rate as of the date the obligation was issued. If the market rate of interest remains constant over the life of the obligation, then the obligation's balance sheet value will equal its present value. When market interest rates fluctuate, however, the actual present value of the obligation, discounted at the market rate, differs from the balance sheet value of the obligation, which is discounted at the original effective interest rate. In such cases, the balance sheet value of the liability is no longer an accurate measure of its present value, and economic gains and losses are experienced by the issuing company but not recognized on the financial statements. However, under the fair market value option, companies using either U.S. GAAP or IFRS can account for long-term debt at fair market value.

● *Operating leases, capital leases, and off-balance-sheet financing.*

Operating and capital leases are categories created by generally accepted accounting principles that define the methods used to account for lease contracts. Four criteria that determine whether the lessor or lessee bears the risks and rewards of owning the leased asset are listed, and if any

one of the criteria is met, the lease is considered a capital lease. Under IFRS these four criteria are not used. Rather, capital lease accounting is required if ownership has transferred. Capital leases are treated as installment purchases for financial reporting purposes, requiring that the lessee record both an asset and a liability in the amount of the present value of the future lease payments, discounted at the effective interest rate. The asset is subject to depreciation, and the liability is amortized using the effective interest method. Operating lease payments are simply accounted for as rental expense by the lessee. Companies can practice off-balance-sheet financing by structuring lease contracts so that none of the four criteria are met, which, in turn, allows them to account for leases as operating leases that may in economic substance be capital leases. Such treatment keeps the liability associated with the lease off the balance sheet.

KEY TERMS

Note: Definitions for these terms are provided in the glossary at the end of the text.

Bonds payable (p. 485)	Leasehold obligations (p. 485)
Call provision (p. 497)	Life (p. 495)
Capital leases (p. 507)	Maturity date (p. 485)
Certificates of deposit (p. 513)	Mortgage (p. 492)
Collateral (p. 489)	Non-interest-bearing obligations (p. 488)
Covenants (p. 496)	Notes payable (p. 485)
Debentures (p. 497)	Operating leases (p. 506)
Default (p. 489)	Prime interest rate (p. 513)
Discount on bonds payable (p. 500)	Proceeds (p. 496)
Discount rate (p. 513)	Redeemed (p. 504)
Effective interest method (p. 492)	Refinancing (p. 492)
Effective interest rate (p. 490)	Restrictive covenants (p. 489)
Face, principal, or maturity value (p. 488)	Risk-free (or riskless) return (p. 513)
Hedging (p. 516)	Risk premium (p. 513)
Installment obligation (p. 488)	Secured notes (p. 492)
Interest (p. 488)	Stated interest rate (p. 488)
Interest-bearing obligations (p. 488)	Treasury notes (p. 513)
Interest payment (p. 496)	Unsecured bonds (p. 497)
Interest rate swap (p. 516)	Unsecured notes (p. 492)
Lease (p. 506)	

ETHICS in the Real World

A review of the financial statements of Lowe's and Home Depot shows that both companies lease a large portion of their facilities. A closer examination of the lease arrangements reveals that, while the contractual terms of the leases held by the two companies are quite similar, Lowe's considers 10 percent of its leases as capital leases compared to 13 percent for Home Depot.

According to GAAP, "capital" leases must be represented as balance sheet liabilities, while "operating" leases do not. Although the FASB has provided criteria

that should be followed when making such a classification, applying these criteria requires much judgment, and many companies structure their lease contracts in ways that give them the flexibility to classify them as "operating." Such a strategy can be construed as a form of "off-balance-sheet financing," enabling a company to raise debt capital without having to include it on the balance sheet as a liability. In this way, the company can avoid violating debt covenants, protect its credit ratings, and generally encourage shareholders and others to believe that the company is carrying less debt than it really is.

ETHICAL ISSUE Is it ethical for a company to structure its leasing contracts in a manner that allows it to avoid reporting debt?

INTERNET RESEARCH EXERCISE

Access Ready Mix's current financial reports at www.readymixinc.com. Briefly explain how the company has managed the somewhat difficult situation introduced at the beginning of the chapter.

BRIEF EXERCISES

REAL DATA

BE11-1

Inferring debt transactions

The following table was taken from the 2009 annual report of RadioShack.

Long-term debt (in millions)

	2009	2008
Notes payable (interest 2.5%)	\$375.0	\$375.0
Notes payable (interest 7.375%)	306.8	350.0
Other	5.4	7.7
Unamortized discount	(59.4)	(73.2)

- Briefly explain the transactions entered into by RadioShack during 2009. Which financial statements were affected?
- Approximately how much interest expense was recognized in 2009 on the 2.5 percent notes?
- Assume that RadioShack paid \$300 million to retire the 7.375 percent notes in 2009. How much gain or loss would RadioShack have recognized on the transaction? Where in the financial statements would it be found?

REAL DATA

BE11-2

Bond issuance

In October 1997, Hewlett-Packard issued zero coupon (stated interest rate = zero) bonds with a face value of \$1.8 billion, due in 2017, for proceeds of \$968 million.

- What is the life of these bonds?
- What is the stated interest rate on these bonds?
- Estimate the effective rate of interest on these bonds.
- How many bonds did HP issue?

REAL DATA

BE11-3

Operating and capital leases

During fiscal 2007, the SUPERVALU grocery chain paid approximately \$569 million on its lease contracts—\$168 million on capital leases and \$401 million on operating leases.

- How did the operating lease payments affect the income statement, balance sheet, and statement of cash flows?
- How did the capital lease payments affect the income statement, balance sheet, and statement of cash flows?
- Discuss whether SUPERVALU is practicing off-balance-sheet financing.

EXERCISES

E11-1

Disclosing debt and debt covenants

The balance sheet as of December 31, 2011, for Melrose Enterprises follows:

Assets		Liabilities and Shareholders' Equity	
Current assets	\$200,000	Current liabilities	\$200,000
Noncurrent assets	<u>700,000</u>	Long-term liabilities	300,000
		Shareholders' equity	<u>400,000</u>
		Total liabilities and shareholders' equity	<u>\$900,000</u>
Total assets	<u>\$900,000</u>		

During 2011 Melrose entered into a loan agreement that required the company to maintain a debt/equity ratio of less than 2:1.

- How much additional debt can Melrose take on before it violates the terms of the loan agreement?
- Assume that during 2012 Melrose had revenues of \$950,000 and expenses of \$800,000. Assume that all revenues and expenses were in cash. How much additional debt can Melrose take on before it violates the terms of the loan agreement?
- Assume again that during 2012 Melrose has cash revenues of \$950,000 and cash expenses of \$800,000. If Melrose pays a cash dividend of \$100,000, how much additional debt can it take on before violating the terms of the loan agreement? If Melrose declares, but does not pay, the dividend during 2012, does it make a difference in the amount of additional debt the company can take on?

E11-2

Annual or semiannual interest payments?

Hathaway Manufacturing issued long-term debt on January 1, 2011. The debt has a face value of \$300,000 and an annual stated interest rate of 10 percent. The debt matures on January 1, 2016.

- Assume that the debt agreement requires Hathaway Manufacturing to make annual interest payments every January 1. Set up a timeline that indicates the timing and magnitude of the future cash outflows of this long-term debt.
- Assume that the debt agreement requires Hathaway Manufacturing to make semiannual interest payments every July 1 and January 1. Set up a timeline that indicates the timing and magnitude of the future cash outflows for this long-term debt.
- Under the conditions of (a) and (b), compute the present value of these two debt agreements, assuming that the effective rate of interest is equal to the stated rate of interest.

E11-3

The relationship among the stated rate, effective rate, and issuance price of a liability

The stated and effective interest rates for several notes and bonds follow:

Note/Bond	Stated Interest Rate	Effective Interest Rate
1	10%	10%
2	7	8
3	9	8
4	11.5	9

Indicate whether each note/bond would be issued at a discount, par value, or a premium.

E11-4

Computing the proceeds from various notes

Compute the proceeds from the following notes payable. Interest payments are made annually.

Proceeds	Stated Interest Rate	Effective Interest Rate	Face Value	Life
?	0%	8%	\$ 1,000	4 years
?	0	6	5,000	6 years
?	4	12	8,000	6 years
?	8	8	3,000	7 years
?	10	6	10,000	10 years

E11-5

Notes issued at a discount and the movement of interest expense

Tradewell Rentals purchased a piece of equipment with an FMV of \$11,348 in exchange for a five-year, non-interest-bearing note with a face value of \$20,000.

- Compute the effective interest rate on the note payable.
- Prepare the journal entry to record the purchase.
- How much interest expense should Tradewell recognize on the note payable during the first year?
- What is the balance sheet value of the note at the end of the first year?
- Will the interest expense recognized by Tradewell in the second year be greater than, equal to, or less than the interest expense recognized in the first year? Why?

- f. Will the interest expense recognized in the third year be greater than, equal to, or less than the interest expense recognized in the second year?

E11-6

Accounting for notes payable with various stated interest rates

Candleton borrowed cash, signing a two-year, interest-bearing note payable with a face value of \$8,000 and an effective interest rate of 8 percent. Interest payments on the note are made annually.

Provide the journal entries that would be recorded over the life of the note, assuming the following stated interest rates:

- a. 8 percent
- b. 0 percent
- c. 6 percent

E11-7

Determining the effective interest rate

On January 1, 2012, Wilmes Floral Supplies borrowed \$2,413 from Bower Financial Services. Wilmes Floral Supplies gave Bower a \$2,500 note with a maturity date of December 31, 2013. The note specified an annual stated interest rate of 8 percent.

- a. Compute the present value of the note's future cash flows at the following discount rates:
 - (1) 8 percent
 - (2) 10 percent
 - (3) 12 percent
- b. What is the effective interest rate of the note?
- c. Determine the effective interest rate on the note if Wilmes Floral Supplies originally borrowed \$2,500.

E11-8

Financing asset purchases with notes payable

Morrow Enterprises purchased a building on January 1, 2012, in exchange for a three-year, non-interest-bearing note with a face value of \$693,000. Independent appraisers valued the building at \$550,125.

- a. At what amount should this building be capitalized?
- b. Compute the present value of the note's future cash flows, using the following discount rates:
 - (1) 6 percent
 - (2) 8 percent
 - (3) 10 percent
- c. What is the effective interest rate of this note?
- d. Explain how one could more quickly compute the effective interest rate on the note.

E11-9

Inferring an effective interest rate from the financial statements

The following information was extracted from the financial records of Leong Cosmetics:

	2013	2012
Balance Sheet		
Notes payable	\$200,000	\$200,000
Less: Discount on notes payable	12,000	14,400
Income Statement		
Interest expense	\$ 16,400	\$ 16,200

- a. What is the effective interest rate on the notes payable?
- b. Prepare the journal entry to record interest expense during 2013.

REAL DATA**E11-10**

Bond discounts

At the beginning of 2002 Southwest Airlines issued ten-year notes with a face value of \$385 million. The stated interest rate on the notes was 6.5 percent, and proceeds from the issuance approximated \$380 million.

- a. Estimate the effective interest rate of the issuance.
- b. Compute the interest expense associated with this note recorded in 2002.
- c. Explain why the market paid less than \$385 million for these notes.

E11-11

Computing bond issuance proceeds and the movement of balance sheet value and interest expense over the bond's life

Three different bond issuances are listed here with interest payments made semiannually:

Bond Issuance	Face Value	Stated	Effective	Life
		Interest Rate	Interest Rate	
A	\$100,000	6%	6%	10 years
B	\$400,000	8	6	10 years
C	\$600,000	6	8	5 years

- Compute the proceeds of each bond issuance.
- For each bond issuance, indicate whether the balance sheet value of the bond liability will increase, decrease, or remain constant over the life of the bond.
- For each bond issuance, indicate whether the interest expense recognized each period will increase, decrease, or remain constant over the life of the bond.

E11-12

Accounting for bonds issued at face value

On January 1, 2011, Collins Copy Machine Company issued thirty \$1,000 face-value bonds with a stated annual rate of 10 percent that mature in ten years. Interest is paid semiannually on June 30 and December 31. The bonds were issued at face value.

- Prepare the entry to record the issuance of these bonds on January 1, 2011.
- Prepare all the entries associated with these bonds during 2011 (excluding the entry to record the issuance).
- Compute the balance sheet value of the bond liability as of December 31, 2011.
- Compute the present value of the bond's remaining cash flows as of December 31, 2011, using the effective rate at issuance.
- Repeat (c) and (d) as of December 31, 2012, and explain the relationship between the balance sheet value and the present value.

E11-13

Accounting for bonds issued at a discount

Tingham Village issued 500 five-year bonds on July 1, 2012. The interest payments are due semiannually (January 1 and July 1) at an annual rate of 6 percent. The effective interest rate on the bonds is 8 percent. The face value of each bond is \$1,000.

- Prepare the journal entry that would be recorded on July 1, 2012, when the bonds are issued.
- Prepare the journal entry that would be recorded on December 31, 2012.
- Compute the balance sheet value of the bond liability as of December 31, 2012.
- Compute the present value of the bond's remaining cash flows as of December 31, 2012, using an effective interest rate of 8 percent. Explain the relationship between the balance sheet value and the present value.

E11-14

Accounting for bonds issued at a premium

Coral Sands Marina issued 100 ten-year bonds on July 1, 2012. The interest payments are due semiannually (January 1 and July 1) at an annual rate of 8 percent. The effective rate on the bonds is 6 percent. The face value of each bond is \$1,000.

- Prepare the journal entry that would be recorded on July 1, 2012, when the bonds are issued.
- Prepare the journal entries that would be recorded on December 31, 2012.
- Compute the balance sheet value of the bond liability as of December 31, 2012.
- Compute the present value of the bond's remaining cash flows as of December 31, 2012, using the effective rate at the time the bonds were issued. Explain the relationship between the balance sheet value of the liability and the present value of the future cash payments.

E11-15

Changing market interest rates and economic gains and losses

Treadway Company issued bonds with a face value of \$20,000 on January 1, 2011. The bonds were due to mature in five years and had a stated annual interest rate of 8 percent. The bonds were issued at face value. Interest is paid semiannually.

- As of December 31, 2011, market interest rates had decreased by 2 percent, and the market price of Treadway bonds reflected the entire change. Compute the present value of Treadway's bond liability as of that date, using the new effective interest rate (6 percent), and determine the economic gain or loss experienced by the company.
- Assume instead that as of December 31, 2011, market interest rates had increased by 2 percent, and the market price of Treadway's bonds reflected the entire change. Compute the present value of Treadway's bond liability as of that date, using the new effective interest rate (10 percent), and determine the economic gain or loss experienced by the company.
- What is the intuition underlying such gains and losses, and why are they not reflected on the financial statements? If you were analyzing the financial statements of Treadway, what could you do to improve the reported numbers?

E11-16

Redeeming bonds not originally issued at par

On September 10, 2009, Mooney Plastic Products issued bonds with a face value of \$500,000 for a price of 96. During 2012, Mooney exercised a call provision and redeemed the bonds for 101. At the time of the redemption, the bonds had a balance sheet value of \$490,000.

- Prepare the journal entry to record the redemption.
- Assume that the bonds were issued in 2009 for 102, and at the time of redemption they had a balance sheet value of \$507,000. Prepare the journal entry to record the bond redemption.

REAL DATA**E11-17**

Refinancing debt

When Eli Lilly, a major pharmaceutical company, chose to refinance some of its outstanding bonds payable, the company paid off the outstanding debt and replaced it with a new bond issuance. At the time of the refinancing, the balance sheet value of the outstanding debt was approximately \$35 million. On the company's income statement a loss of \$7.2 million (net of \$4.8 million in tax benefits) was reported.

- Compute the payment made by Eli Lilly to retire the original debt.
- How did the company benefit from the \$4.8 million tax effect?
- Lilly uses the indirect method of presentation for the statement of cash flows. How was the loss treated on that statement?
- How was the loss disclosed on the income statement?

REAL DATA**E11-18**

Refinancing debt

During 2004, American Greetings Corporation, a large producer of greetings cards, repurchased some of its outstanding long-term debt. Shortly thereafter the company issued new debt. At the time of the refinancing, where old debt was replaced by new debt, the balance sheet value of the repurchased debt was \$142.2 million. The company's 2004 income statement contained a \$39.0 million loss related to the cost of the debt repurchase.

- How much cash did American Greetings pay to repurchase the outstanding debt?
- Explain why a loss was recognized on the transaction.
- Why would a company repurchase debt if it led to a loss being recognized on the income statement?

E11-19

Updating amortization and retiring a bond issuance

Marker Musical Products issued bonds with a face value of \$100,000 and an annual stated interest rate of 8 percent on January 1, 2009. The effective interest rate on the bonds was 10 percent. Interest is paid semiannually on July 1 and January 1. As of December 31, 2011, the company reported the following dollar amounts for these bonds:

Bonds payable	\$100,000	
Less: Discount on bonds payable	<u>3,546</u>	\$96,454

Marker Musical Products retired the bonds on July 2, 2012, by repurchasing them for \$91,700 in cash.

- Provide the journal entry recorded on July 1, 2012, when the interest payment is made.
- Prepare the journal entry to record the retirement of the bonds.

E11-20

Analyzing bond disclosures and market values

The following information was taken from the balance sheet of Beasley Brothers as of December 31, 2011:

Bond payable	\$100,000	
Less: Unamortized discount	<u>5,350</u>	\$94,650

The bonds have a stated interest rate of 5 percent paid annually and will mature on December 31, 2013. The market value of the bonds as of December 31, 2011, is \$98,167.

- Compute the effective interest rate when the bonds were issued.
- What effective rate would an investor be earning by purchasing the bonds on December 31, 2011, at the market price and holding the bonds until maturity?
- Assume that Beasley reported net income of \$27,000 for the period ending December 31, 2011. Adjust net income for the gain or loss experienced by the company on these outstanding bonds due to the change in market interest rates. Ignore income taxes. Do you believe that the gain or loss represents an increase or decrease in the wealth of the company? Why?
- Assume that Beasley retired the bonds by purchasing them on the open market. Record the journal entry, and compare the gain or loss recognized on the retirement with the gain or loss computed in (c) above. Discuss.

E11-21

Analyzing bond disclosures and market values

The information below was taken from the balance sheet of Cohort Enterprises as of December 31, 2012:

Bond payable	\$200,000	
Less: Unamortized discount	<u>6,941</u>	\$193,059

The bonds have a stated interest rate of 5 percent and will mature on December 31, 2014. The market value of the bonds as of December 31, 2012, is \$186,479.

- Compute the effective interest rate when the bonds were issued.
- What effective rate would an investor be earning by purchasing the bonds on December 31, 2012, at the market price and holding the bonds until maturity?
- Assume that Cohort reported net income of \$38,500 for the period ending December 31, 2012. Adjust net income for the gain or loss experienced by the company on these outstanding bonds due to the change in market interest rates. Ignore income taxes. Do you believe that the gain or loss represents an increase or a decrease in the wealth of the company? Why?
- Assume that Cohort retired the bonds by purchasing them on the open market. Record the journal entry, and compare the gain or loss recognized on the retirement with the gain or loss computed in (c) above. Discuss.

E11-22

Accounting for leases

On January 1, 2011, Q-Mart entered into a five-year lease agreement requiring annual payments of \$10,000 on December 31 of each year. The fair market value of the facility was estimated by appraisers to be \$39,927.

- Record the journal entries required over the five-year period, assuming that Q-Mart accounts for this arrangement as an operating lease.
- Compute the effective interest rate on the lease, and record the journal entries required over the five-year period if Q-Mart accounts for this arrangement as a capital lease. Assume that the capitalized asset is depreciated over a five-year period, using the straight-line method with no salvage value.
- Compare the effects of the two accounting methods on the financial statements. Discuss.

E11-23

Accounting for leases and the financial statements

Tradeall, Inc., leases automobiles for its sales force. On January 1, 2011, the company leased 100 automobiles and agreed to make lease payments of \$10,000 per automobile each year. The lease agreement expires on December 31, 2015, at which time the automobiles can be purchased by Tradeall for a nominal price. Assume an effective rate of 10 percent.

- Compute the annual rental expense if the lease is treated as an operating lease.
- Prepare the journal entry on January 1, 2011, if the lease is treated as a capital lease. What dollar amount represents an approximation of the fair market value of the automobiles?

- c. Assume that the automobiles are depreciated over a five-year life, using the straight-line method with no salvage value. Compute the total rental expense (interest and depreciation) associated with the lease during the first year if the lease is treated as a capital lease.
- d. Which of the two methods of treatment (operating or capital) would give rise to a higher net income in the first year? Which method would give rise to a lower debt/equity ratio?
- e. Define off-balance-sheet financing, and explain how leases can be arranged to practice it.

E11-24

Financing asset
purchases

Watts Motors plans to acquire a building and can either borrow cash from a bank to finance the purchase or lease the building from the current owner. The sales price of the building is \$149,388. If the company wishes to finance the purchase with a bank loan, it must sign a ten-year note with a face value of \$149,388 and a stated interest rate of 12 percent. If the company leases the building, it must make an annual lease payment of a constant-dollar amount for ten years, at which time the building can be purchased for a nominal fee.

- a. Compute the annual lease payment that would make the two alternatives equivalent. Ignore the nominal purchase fee at the end of Year 10.
- b. Describe how the timing of the cash flows would differ between the two alternatives.
- c. Provide the journal entries that would be recorded when the building is acquired if the company (1) finances the purchase with a bank loan, (2) leases the building and accounts for it as a capital lease, or (3) leases the building and accounts for it as an operating lease.
- d. If the company leases the building and accounts for it as a capital lease, compute the balance sheet value of the lease liability after the second lease payment.
- e. Compute the present value of the remaining lease payments as of the end of the second year.

E11-25

Inferring the
effective rate
of interest

Compute the effective rate of interest on the following long-term debts. Interest payments on the notes are made annually, and interest payments on the bonds are made semiannually.

Debt	Fair Market Value of Receipt	Face Value	Life	Stated Interest Rate
Note	\$10,000	\$ 10,000	6 years	8%
Note	35,056	100,000	8 years	0
Note	922	1,000	5 years	7
Bond	11,635	10,000	10 years	6
Bond	54,323	50,000	15 years	9

E11-26

Appendix 11A:
The decision to
purchase a bond

Dylander bonds are selling on the open market at 89.16. The bonds have a stated interest rate of 8 percent and mature in eight years. Interest payments are made semiannually.

- a. Assume that your required rate of return is 12 percent. Would you buy the bonds? Why or why not?
- b. At what required rate of return would you be indifferent to purchasing the bonds?

E11-27

Appendix 11C:
Managing interest
rate risk

On March 1, 2011, Bonneville Printers issued long-term debt with a fixed stated annual interest rate of 4 percent and a maturity date of February 28, 2021. The debt was issued at a discount. The company's financial managers are seeking ways to reduce the risk related to the value of the debt fluctuating over its life as market interest rates change.

- a. Explain how the value of Bonneville's debt would be affected if market interest rates fell in 2012.
- b. Advise Bonneville regarding how it could manage this risk, and explain how it would work.

PROBLEMS**P11-1**

Computing the face
value of a note payable

On December 31, 2011, East Race Kayak Club decided to borrow \$20,000 for two years. The Bend Bank currently is charging a 10 percent effective annual interest rate on similar loans.

REQUIRED:

- Assume that the club borrows \$20,000 and signs a two-year note with a 10 percent stated annual interest rate. What would be the face amount of the note payable?
- Assume that the club borrows \$20,000 and signs a two-year note with a stated annual interest rate of zero. What would be the face amount of the note payable?
- Prepare the journal entry to record the note payable, assuming that the club signs
 - the note in (a).
 - the note in (b).
- Prepare the entries necessary on December 31, 2013, assuming that the club signs
 - the note in (a) (interest payable on December 31).
 - the note in (b).

P11-2

Accounting for bonds with an effective rate greater than the stated rate

Hartl Enterprises issued ten \$1,000 bonds on September 30, 2011, with a stated annual interest rate of 8 percent. These bonds will mature on October 1, 2021, and have an effective rate of 10 percent. Interest is paid semiannually on October 1 and April 1. The first interest payment will be made on April 1, 2012.

REQUIRED:

- Without computing the present value of the bonds, will they be issued at par value, at a discount, or at a premium? Explain your answer.
- Prepare the entry to record the issuance of the bonds on September 30, 2011.
- Prepare any adjusting journal entries necessary on December 31, 2011.
- Prepare the entry to record the interest payment on April 1, 2012.

P11-3

The balance sheet value of debt and the long-term debt/equity ratio

The balance sheet as of December 31, 2011, for Manheim Corporation follows:

Assets		Liabilities and Shareholders' Equity	
Current assets	\$ 85,000	Current liabilities	\$ 70,000
Noncurrent assets	<u>125,000</u>	Long-term liabilities	40,000
		Shareholders' equity	<u>100,000</u>
		Total liabilities and	
		shareholders' equity	<u>\$210,000</u>
Total assets	<u>\$210,000</u>		

REQUIRED:

- Compute Manheim Corporation's long-term debt/equity ratio.
- Assume that Manheim Corporation is considering borrowing money and signing a five-year note with the following terms:

Face value	\$40,000
Stated interest rate	0%
Effective interest rate	11%

Compute the proceeds of the note, and compute the company's long-term debt/equity ratio if it decides to borrow the money.

- Assume that Manheim Corporation is considering issuing bonds that mature on December 31, 2031. The bonds have a face value of \$40,000, a stated interest rate of 10 percent, and an effective interest rate of 8 percent. Compute the proceeds from the bond issuance, and compute the company's long-term debt/equity ratio if it issues the bonds. The bonds pay interest semiannually.

P11-4

Accounting for notes issued at a discount and at face value

Patnon Plastics needs some cash to finance expansion. Patnon issued the following debt to acquire the cash:

- A five-year note with a stated interest rate of zero, a face value of \$20,000, and an effective interest rate of 10 percent.

2. An eight-year note with an annual stated rate of 8 percent and a face value of \$35,000. Interest is paid annually on December 31. The effective interest rate is 10 percent.
3. A ten-year note with an annual stated rate of 8 percent and a face value of \$50,000. Interest is paid semiannually on June 30 and December 31. The effective interest rate is 8 percent.

All three notes were issued on January 1, 2012.

REQUIRED:

- a. Compute the proceeds from each of the three notes.
- b. Prepare the entries to record the issuance of each note.
- c. Prepare the entry to record the interest paid on June 30, 2012, on the ten-year note.
- d. Prepare the entries to record the interest paid on December 31, 2012, on the eight-year note and the ten-year note.
- e. Prepare the adjusting entry required on December 31, 2012, to recognize accrued interest on the five-year note.

P11-5

The effects of various notes payable on the financial statements

The balance sheet as of December 31, 2012, for Boyton Sons follows:

Assets		Liabilities and Shareholders' Equity	
Current assets	\$ 40,000	Current liabilities	\$ 30,000
Noncurrent assets	<u>80,000</u>	Long-term liabilities	60,000
		Shareholders' equity	<u>30,000</u>
		Total liabilities and shareholders' equity	<u>\$120,000</u>
Total assets	<u>\$120,000</u>		

The company needs capital to finance operations and purchase new equipment. Boyton is not certain how much money it will need and is considering one of the following three-year notes payable. Each note would mature on January 1, 2016.

(A) Face value = \$50,000	Stated interest rate = 0%	Proceeds = \$37,566
(B) Face value = \$50,000	Stated interest rate = 10%*	Proceeds = \$50,000
(C) Face value = \$50,000	Stated interest rate = 6%*	Proceeds = \$45,027

*Interest paid annually.

REQUIRED:

- a. Determine the effective interest rate of each note.
- b. Compute the amounts that would complete the following table:

	Interest Expense (A)	Interest Expense (B)	Interest Expense (C)
Year 1			
Year 2			
Year 3			

- c. Assume that Boyton can earn a 12 percent return on the borrowed money and that it reinvests all interest that it earns. Compute the annual income (return – interest expense) generated from each of the three notes.
- d. Compute the amounts that would complete the following chart. (*Hint:* Consider the effect of annual income from (c) on shareholders' equity as well as the new debt.)

	Debt/Equity (A)	Debt/Equity (B)	Debt/Equity (C)
12/31/13			
12/31/14			
12/31/15			

- e. Discuss some of the trade-offs involved in choosing among the three notes.

P11-6

The difference between cash interest payments and interest expense

Earl Rix, president of Rix Driving Range and Health Club, has provided you with the following information:

	2013	2012
Balance Sheet		
Notes payable	\$800,000	\$800,000
Less: Discount on notes payable	55,000	70,000
Income Statement		
Interest expense	\$ 95,000	

The stated annual interest rate on the notes is 10 percent, and interest is paid annually on December 31. The \$95,000 in interest expense is due solely on these notes. While reviewing the company's 2013 financial statements, Mr. Rix is having difficulty understanding why the amount charged to interest expense does not equal the amount of cash actually disbursed during 2013 in payment of the interest on these notes.

REQUIRED:

- Assuming that Rix Driving Range and Health Club makes all of its interest payments on time, how much cash was actually disbursed during 2013 for interest payments on these notes?
- Explain to Mr. Rix why interest expense does not equal the amount of cash disbursed for interest. What does the difference between the cash disbursed and the amount charged as interest expense represent?
- What was the effective interest rate at the time the notes were issued?
- Provide the journal entry to record the payment of interest on December 31, 2013.

P11-7

The effective interest method, interest expense, and present value

Hartney Enterprises issued twenty \$1,000 bonds on June 30, 2012, with a stated annual interest rate of 6 percent. The bonds mature in six years. Interest is paid semiannually on December 31 and June 30. The effective interest rate as of June 30, 2012, the date of issuance, was 8 percent.

REQUIRED:

- Compute the present value of the cash flows associated with these bonds on June 30, 2012, using the following format:

Face value		XX
Present value of cash payments at maturity	XX	
Present value of cash interest payments	+XX	
Less: Total present value		<u>XX</u>
Discount (premium) on bonds		<u>XX</u>

- Compute the present value of the remaining cash flows associated with these bonds on December 31, 2012. What does the present value on December 31, 2012, represent?
- What does the difference between the present value of the remaining cash flows associated with these bonds on June 30, 2012, and December 31, 2012, represent?
- Prepare the entry to record the interest payment on December 31, 2012, using the effective interest method. Is the amount of discount on bonds payable amortized in this entry the same as the amount found in (c)? Why or why not?

P11-8

The effective interest method and the straight-line method: Effects on the financial statements

Ross Running Shoes issued ten \$1,000 bonds with a stated annual rate of 10 percent on June 30, 2012. These bonds mature on June 30, 2015. The bonds have an effective interest rate of 8 percent, and interest is paid semiannually on December 31 and June 30.

REQUIRED:

- How much must Ross Running Shoes invest in a bank on June 30, 2012, at an annual rate of 8 percent, compounded semiannually, to meet all the future cash flow requirements of these bonds and have no money left after repaying the principal on June 30, 2015?

- Prepare the entry to record the interest payment on December 31, 2012. Assume that the company uses the effective interest method.
- Prepare the entry to record the interest payment on December 31, 2012. Assume that the company amortizes an equal amount of premium each year (i.e., straight-line method).
- Which method (effective interest or straight-line) of amortizing the premium will allow Ross Running Shoes to recognize the higher amount of net income in 2012?
- Which method (effective interest or straight-line) of amortizing the premium will allow Ross Running Shoes to recognize the higher amount of net income in 2015?

P11-9

Why the effective interest method is preferred to the straight-line method

Consider the three notes payable listed here. Each was issued on January 1, 2012, and matures on December 31, 2014. Interest payments are made annually on December 31.

Note	Face Value	Stated Interest Rate	Effective Interest Rate
A	\$1,000	10%	6%
B	\$1,000	10	10
C	\$1,000	6	10

REQUIRED:

- Compute the present value of the remaining cash outflows for each note at each date:

Note	1/1/12	12/31/12	12/31/13
A			
B			
C			

- Compute the balance sheet values of each note payable at each of the above dates, using the effective interest method.
- Compute the balance sheet values of each note payable at each of the above dates, using the straight-line method (i.e., amortize an equal amount of the discount or premium each year).
- Why is the effective interest method preferred to the straight-line method for financial reporting purposes?

P11-10

Redemption and updating amortization

Ginny & Bill Eateries reported the following account balances in the December 31, 2011, financial report:

Bonds payable	\$500,000
Premium on bonds payable	12,600

The bonds have a stated annual interest rate of 8 percent and an effective interest rate of 6 percent. Interest is paid on June 30 and December 31.

REQUIRED:

- Compute the gain or loss recorded on January 1, 2012, if the bonds are called at 104.
- Compute the gain or loss recorded on January 1, 2012, if the bonds are called at 108.
- Compute the gain or loss recorded on July 1, 2012, if the bonds are called at 110.

P11-11

Call provisions and bond market prices

Ficus Tree Farm issued five \$1,000 bonds with a stated annual interest rate of 12 percent on January 1, 2012. The bonds mature on January 1, 2017. Interest is paid semiannually on June 30 and December 31. The bonds were sold at a price that resulted in an effective interest rate of 14 percent. The bonds can be called for 103.5 beginning June 30, 2014.

REQUIRED:

- Prepare the entry on January 1, 2012, to record the issuance of these bonds.
- Prepare the entry on June 30, 2012, to record the interest payment.

- c. Assume that Ficus wishes to retire the bonds on June 30, 2014. If the bonds are selling on the open market on that date at a price that would result in a return of 10 percent, should Ficus exercise the call provision or simply attempt to buy the bonds at the market price?
- d. Is it likely that Ficus would be able to buy back all outstanding bonds on the bond market at market price?
- e. Prepare the entries necessary on June 30, 2014, if Ficus chooses to exercise the call provision.

P11-12

Tax-deductible bond interest and the present value of cash outflows

Taylor Corporation is contemplating issuing bonds to raise cash to finance an expansion. Before issuing the debt, the controller of the company wants to prepare an analysis of the cash flows and the interest expense associated with the issuance. Taylor Corporation is considering issuing one hundred \$1,000 bonds on June 30, 2012, that mature on June 30, 2016. The bonds will have a stated annual interest rate of 6 percent, and interest is to be paid semiannually on December 31 and June 30. The bonds will have an effective interest rate of 10 percent.

REQUIRED:

- a. Compute the amounts that would complete the following table with respect to the bond issuance being considered by Taylor:

Date	Interest Expense	Cash Payment	Unamortized Discount	Balance Sheet Value
6/30/12				
12/31/12				
6/30/13				
12/31/13				
6/30/14				
12/31/14				
6/30/15				
12/31/15				
6/30/16				

- b. Find the difference between the total cash inflow from issuing the bonds and the total cash outflows from interest and principal payments.
- c. Recognizing that cash interest payments are tax deductible and assuming a tax rate of 34 percent, recompute the difference you found in (b).
- d. Repeat (c), but now consider the time value of money by using the effective rate of these bonds to compute the present value of the net future cash outflows due to interest and principal payments.

REAL DATA**P11-13**

Capital and operating leases

As of January 31, 2009, Wal-Mart reported balance sheet total assets and total liabilities of \$163 billion and \$98 billion, respectively. In the footnotes the company disclosed future operating lease payments of \$12.8 billion. Future capital lease payments of \$5.5 billion were discounted to \$3.5 billion and disclosed at that amount on the balance sheet.

REQUIRED:

- a. Describe the difference between a capital lease and an operating lease.
- b. Explain why a company might want to treat its leases as operating leases.
- c. Compute the effect on Wal-Mart's total liability/total assets ratio if the company treats all its leases as capital leases. Assume that future operating lease payments are discounted at the same rate as future capital lease payments.
- d. Explain how this kind of analysis may be useful to an analyst trying to compare the financial position and performance of two companies that rely heavily on leasing.

P11-14

Accounting for a capital lease

Mackey Company acquired equipment on January 1, 2011, through a leasing agreement that required an annual payment of \$30,000. Assume that the lease has a term of five years and that the life of the equipment is also five years. The lease is treated as a capital lease, and

the FMV of the equipment is \$119,781. Mackey uses the straight-line method to depreciate its fixed assets. The effective annual interest rate on the lease is 8 percent.

REQUIRED:

- a. Compute the amounts that would complete the table:

Date	Balance Sheet Value of Equipment	Leasehold Obligation	Interest Expense	Depreciation Expense	Total Expense
1/1/11					
12/31/11					
12/31/12					
12/31/13					
12/31/14					
12/31/15					

- b. Compute rent expense for 2011–2015 if the lease is treated as an operating lease.
- c. Compute total expense over the five-year period under the two methods and comment.

P11-15

Some economic effects of lease accounting

The balance sheet as of December 31, 2011, for Thompkins Laundry follows:

Assets		Liabilities and Shareholders' Equity	
Current assets	\$10,000	Current liabilities	\$10,000
Noncurrent assets	<u>60,000</u>	Long-term liabilities	20,000
		Shareholders' equity	<u>40,000</u>
		Total liabilities and shareholders' equity	<u>\$70,000</u>
Total assets	<u>\$70,000</u>		

The \$20,000 of long-term debt on the balance sheet represents a long-term note that requires Thompkins to maintain a debt/equity ratio of less than 1:1. If the covenant is violated, the company will be required to pay the entire principal of the note immediately. On January 1, 2012, Thompkins entered into a lease agreement. The agreement provides the company with laundry equipment for five years for an annual rental fee of \$5,000.

REQUIRED:

- a. Compute Thompkins's debt/equity ratio as of January 1, 2012, if the company treats the lease as an operating lease.
- b. Compute Thompkins's debt/equity ratio as of January 1, 2012, if the company treats the lease as a capital lease. Assume an effective interest rate of 12 percent.
- c. Compare the expenses recognized during 2012 if the lease is treated as operating to the expenses recognized during 2012 if the lease is treated as capital. Assume that the leased equipment has a five-year useful life and is depreciated using the straight-line method.
- d. Discuss some of the reasons why Thompkins would want to treat the lease as an operating lease. How might the company arrange the terms of the lease so that it will be considered an operating lease?

P11-16

Financing asset purchases with notes and inferring the effective rate of interest

Memminger Corporation purchased equipment on January 1, 2012. The terms of the purchase required that the company pay \$1,000 in interest at the end of each year for five years and \$20,000 at the end of the fifth year. The FMV of the equipment on January 1, 2012, was \$17,604.

REQUIRED:

- a. Prepare the journal entry that would be recorded on January 1, 2012.
- b. Compute the effective interest rate on the note payable.
- c. Prepare the journal entry that would be recorded when the first interest payment is made on December 31, 2012.
- d. Compute the net book value of the note payable as of December 31, 2012.

P11-17

Appendix 11A:
Determinants of
bond market prices

Hodge Sports bonds are selling on the open market at par value. The bonds have a stated interest rate of 9 percent and mature in five years. You have determined that the risk-free rate is 7 percent.

REQUIRED:

- What is the maximum risk premium you could attach to these bonds and still be willing to purchase them?
- Assume that Standard & Poor's lowers the credit rating of Hodge Sports bonds, and this action causes you to increase your risk premium to 5 percent. The bonds have a face value of \$1,000 and pay interest semiannually. What price would you be willing to pay for the bonds?
- Independent of (b), assume that you read in the *Wall Street Journal* that the prime rate has been cut by 1 percent. All other factors being equal, would this news tend to increase or decrease the market price of Hodge Sports bonds? Why? Assume that reducing the prime rate by 1 percent reflects a reduction in the risk-free rate of 1 percent, and estimate the magnitude of this effect on the price of Hodge Sports bonds.

P11-18

Appendix 11B:
Bond investments

On June 1, 2011, Mayberry Imports purchased bonds on the open market, paying \$92,994. The bonds had a face value of \$100,000, a stated annual interest rate of 4 percent, and a remaining time to maturity of two years. Interest was paid semiannually on November 30 and May 31, and Mayberry intended to hold the bonds until the maturity date.

REQUIRED:

- Compute the effective interest rate on the bonds.
- Record the entries made by Mayberry when it received the interest payments on November 30, 2011, and May 31, 2012.
- Compare the market value of the bond investment to its book (balance sheet) value on May 31, 2012, assuming that market interest rates as of that date were 6 percent.

ISSUES FOR DISCUSSION**REAL DATA****ID11-1**

Repurchasing
outstanding debt

Sun Company, an oil-refining concern, purchased all of its outstanding 8.5 percent (stated rate) debentures as part of a restructuring plan. The balance sheet value of each outstanding debenture at the time of the repurchase was \$875, and the company paid \$957.50 for each \$1,000 face value bond.

REQUIRED:

- What is a debenture? Would such bonds tend to be issued at higher or lower prices than secured bonds? Why?
- Briefly discuss why a company would repurchase its outstanding debt.
- Explain how this repurchase would affect (increase, decrease, or have no effect on) the components of the accounting equation: assets, liabilities, shareholders' equity. Would a gain or loss be recognized on the transaction?
- Would the gain or loss be recognized if Sun Company had not repurchased the bonds? Why or why not?

REAL DATA**ID11-2**

Bonds with a stated
interest rate of zero

Several years ago, JCPenney Company issued bonds for 33.24 (percent of face value), with a face value of \$200 million and a stated interest rate of zero, which matured eight years later. That same year, Martin Marietta, Northwest Industries, and Alcoa also issued bonds with stated interest rates of zero.

REQUIRED:

- Why would an investor purchase a bond with a stated interest rate of zero?
- Compute the effective interest rate on the bond issuance.

- c. In terms of its cash flows, explain why a company might wish to issue bonds with a stated interest rate of zero.
- d. At what price would the bonds have been issued if the stated interest rate had been 5 percent? 18 percent? Assume that interest payments would be made annually.

REAL DATA

ID11-3

Buy or lease:
Financial
statement effects

Assume that Southwest Airlines is planning to purchase a jet passenger plane with a price of \$45,636,480 from The Boeing Company. Southwest is considering structuring the transaction in one of two ways. In Alternative 1, Southwest would borrow the necessary cash from Federal City Bank and sign a note requiring payments of \$6 million at the end of each year for fifteen years. The proceeds from the loan would then be used to purchase the airplane. In Alternative 2, Southwest would lease the airplane from Boeing and make annual lease payments of \$6 million for fifteen years, at which time it could purchase the airplane from Boeing for a nominal sum. Southwest depreciates its aircraft over a useful life of fifteen years, using the straight-line method.

REQUIRED:

- a. Determine the effective interest rate on the note and the lease arrangement.
- b. Provide the journal entries that would be recorded under Alternative 1 to reflect the borrowing and the purchase of the airplane.
- c. Provide the journal entry that would be recorded under Alternative 2 when the lease agreement is signed if the lease is treated as a capital lease.
- d. Compare the effects on the financial statements caused by (b) and (c).
- e. Provide the journal entry that would be recorded under Alternative 2 when the lease agreement is signed if the lease is treated as an operating lease.
- f. Which of the three alternative treatments (borrowing, capital lease, operating lease) could be considered off-balance-sheet financing? Explain why Southwest might want to structure the transaction in this way.

REAL DATA

ID11-4

Long-term
debt disclosures

The following information was taken from the footnotes to Johnson & Johnson's 2008 financial statements (dollars in millions):

Zero coupon debentures due 2020	\$ 183	3.00
4.95% debentures due 2033	500	4.95
3.80% debentures due 2013	500	3.82
6.95% notes due 2029	294	7.14
6.73% debentures due 2023	250	6.73
6.625% notes due 2009	199	6.80
5.55% debentures due 2017	1,000	5.55
5.95% notes due 2037	995	5.99
5.50% notes due 2024	731	5.71
4.75% notes due 2019	1,390	5.35
5.15% debentures due 2012	599	5.18
5.86% debentures due 2038	700	5.86
5.15% debentures due 2018	898	5.15
Other	102	—
Total	\$ 8,341	
Less current portion	(221)	
	\$ 8,120	

REQUIRED:

- a. Which amounts appeared on Johnson & Johnson's balance sheet and where?
- b. What is a zero coupon debenture, and how does the effective interest rate affect the debenture? Explain.
- c. Which of the long-term debts above were issued at face value (i.e., sold at par)?
- d. Is the face value of the 6.95 percent notes due 2029 greater than, less than, or equal to the balance sheet value? Explain.

REAL DATA

ID11-5

Long-term
debt and
the fair market
value option

Johnson & Johnson reported long-term debt of \$8.3 billion and \$7.1 billion as of the end of 2008 and 2007, respectively. The company reported that “the excess of the fair value over the carrying value of the debt was \$1.4 billion in 2008 and \$0.3 billion in 2007.” The effective interest rate was similar for the long-term debt in both years.

REQUIRED:

- What must have happened during 2008 to cause the difference between the market value and the book value of the debt to be so much larger at the end of 2008?
- If Johnson & Johnson exercised the option to account for the long-term debt at fair market value, what entry would have been recorded at the end of 2008?
- Record the entry Johnson & Johnson would have made if it did not exercise the fair market value option, but chose to retire the debt at the end of 2008.
- Compare the entries you made in b and c above, and discuss.

REAL DATA

ID11-6

Holding debt in
times of recession

As the United States slid deeper into a recession, companies with high amounts of cash relative to their debt were coveted by the stock market, while companies with high levels of debt slashed dividends, payrolls, and capital expenditures to stay afloat. High debt, combined with slower sales and increasing energy and labor costs, proved to be a deadly combination for a number of companies. Standard & Poor's found that both dividend decreases and omissions were up. Defaults on corporate notes and bonds payable rose to a record level as companies missed debt payments. Moody's Investors Service noted that at the time an average of only 41 percent of the face value of defaulted debt was recovered by investors; secured bondholders recovered an average of 67 percent of the face value, while holders of debentures recovered an average of only 23 percent.

REQUIRED:

- U.S. corporations have dramatically increased their debt levels in recent years. Discuss how high levels of debt may influence the way in which a company is managed. That is, how might management concerns and decisions be different because a company is carrying a large amount of debt?
- Describe the financial statement effects of this borrowing activity, and explain how these effects could have helped investors and creditors to avoid the losses incurred during the recession. How and why might the reported levels of debt on the balance sheet be less than the actual levels of debt carried by the company?
- Define a debenture and explain why defaults on debentures would lead to a lower recovery rate for investors than defaults on secured bonds.

REAL DATA

ID11-7

Adjusting ratios for
lease accounting

Home Depot and Lowe's are the leading home improvement retail chains in the United States. In 2009, Home Depot reported \$41 billion in total assets and \$23 billion in total liabilities, while Lowe's reported \$33 billion in total assets and \$15 billion in total liabilities. Both companies, as is the case with most large retailers, lease most of their stores. At the time, Home Depot incurred about \$10.1 billion per year in lease payments, treating about 87 percent of its leases as operating leases for financial reporting purposes. Lowe's incurred about \$6.8 billion per year in lease payments and treated about 92 percent of its leases as operating leases. The approximate present values of the future cash flows associated with the operating leases of Home Depot and Lowe's were \$2.7 billion and \$3.6 billion, respectively.

REQUIRED:

- Compute the liabilities/total assets ratio for both companies.
- Assume that both companies accounted for all their leases as capital leases, and recompute their liabilities/total assets ratios.
- By how much did Lowe's adjusted ratio exceed that of Home Depot? Did the adjustment make much of a difference? Why or why not?
- Explain why an analyst may wish to make the adjustments required above.

REAL DATA

ID11-8

Subprime
mortgage problems

Most homeowners purchase their houses by borrowing the funds in what is called a mortgage loan. Banks and other financial institutions that make the mortgage loans often package the loans for resale to investors, pooling many mortgage loans together into a “mortgage-backed bond.” Investors purchase the bonds and earn interest to compensate for the risk of default by the homeowner on the mortgage loan. In the years leading up to 2007 a very active segment of the mortgage loan market was made up of “subprime” mortgages, loans made to individuals with less-than-stellar credit histories. The subprime mortgages were also pooled together and sold as bonds to investors.

The subprime bonds were graded by Moody’s and Standard & Poor’s, along with other ratings agencies. However, many of the subprime mortgage-backed bonds were highly rated by the agencies even as the housing market began to struggle and defaults by homeowners increased. Often, investors purchased the bonds in part based on the ratings provided by the agencies. Those investors began to lose money in 2007 as the underlying home mortgages defaulted when homeowners could not afford the payments.

REQUIRED:

- What is a ratings agency, and how does it grade debt securities?
- How does a rating affect the interest rate on a bond issue, and how does that interest rate affect the price of a bond issue?
- What risks would a ratings agency look for when reviewing a bond issue composed of loans to borrowers with “subprime” credit?

REAL DATA

ID11-9

Long-term debt
and covenants

The following excerpt was taken from the 2008 annual report of JCPenney:

The . . . Credit Agreement includes a requirement that the Company maintain, as of the last day of each fiscal quarter, a Leverage Ratio (a ratio of Funded Indebtedness to Consolidated EBITDA) . . . of no more than 3.0 to 1.0.

Assume that Funded Indebtedness approximates long-term debt on the balance sheet. As of year-end 2008, JCPenney had long-term debt of \$3,505 million and earnings before interest, taxes, depreciation, and amortization (EBITDA) of \$1,604 million.

REQUIRED:

- How much long-term debt can JCPenney add to its 2008 balance sheet and still remain in compliance with the financial covenant described above?
- Why would the creditors of JCPenney limit the company’s indebtedness relative to the cash flow of the company?
- Describe some possible actions if the company violates the financial covenant.

REAL DATA

ID11-10

Lease accounting
revolution

“It is time for a second overhaul of lease-accounting rules,” says Peter Holgate. In 1981, when the current lease rules were developed, there was a reasonably clear distinction between leases that were equivalent to purchasing an asset (capital leases) and others that were in the nature of short-term hire (operating leases). Though unpopular, the new rule was well accepted. Gradually, though, the leasing industry became more sophisticated: The capital/operating distinction became blurred through innovation as financial engineers sought to keep debt off the balance sheet. This was particularly prevalent in the United States. A result of this innovation is that it is now time for another lease-accounting revolution. The basic idea is to abolish the distinction between capital leases and operating leases and require lessees to show all leases on the balance sheet as a liability and an asset.

REQUIRED:

- What is the difference between a lease that is “equivalent to purchasing an asset” and “others that were in the nature of short-term hire”?
- Why was the lease-accounting rule passed in 1981 unpopular with industry?
- How have financial engineers sought to keep debt off the balance sheet?
- Do you agree with Mr. Holgate’s proposal? Why or why not?

REAL DATA

ID11-11

Appendix 11A:
Risk premiums
and bond prices
in a recession

The *Wall Street Journal* reported (8/21/2009) that many companies took advantage of the depressed market values of their own debt, and bought their own bonds at steep discounts to the debt's face value. Companies such as Beazer Homes, Harrah's Entertainment, and Tenet Healthcare saw that the 2008–2009 crisis in the financial markets had depressed the trading value of their own debt and purchased the debt “on the cheap” to save millions of dollars in principal and interest payments.

REQUIRED:

- Explain how the market values of these companies' long-term debts could decrease in an economic environment where interest rates were also decreasing.
- What advantages would a company experience by retiring its debt for less than face value?
- How would the financial statements be affected by such a transaction?

REAL DATA

ID11-12

Appendix 11B:
Interest rate swaps

The following excerpt was taken from the annual report of Bristol-Myers Squibb, a leader in pharmaceutical and health care products.

Derivative financial instruments are used principally in the management of its interest rate . . . exposures. . . . The Company has entered into fixed to floating interest rate swaps for \$3.9 billion of its long-term debt . . . in conjunction with the new issuance of \$1.25 billion 5.87% Notes . . . the Company executed several fixed to floating interest rate swaps to convert the fixed rate debt . . . to variable rate debt.

REQUIRED:

Explain the meaning of this footnote, and why a company would enter into an interest rate swap.

REAL DATA

ID11-13

The SEC Form
10-K of NIKE

The SEC Form 10-K of NIKE is reproduced in Appendix C.

REQUIRED:

Review the NIKE SEC Form 10-K, and answer the questions below.

- Compute NIKE's long-term debt (include deferred income taxes and other long-term liabilities) to total asset ratio for 2008 and 2009. Discuss the change.
- What interest rates are stated in the various long-term obligations of NIKE?
- What additional risk applies to the long-term debt of the subsidiary NIKE Logistics YK?
- Review the financing section of the statement of cash flows and comment on the change in the company's reliance on long-term debt over the last three years.
- Comment on the comparison between the market value of NIKE's long-term debt and its carrying value on NIKE's balance sheet.
- How does NIKE reduce the risk of interest rate fluctuations?