

14

OBJECTIVES

After reading this chapter, you will be able to:

- 1 Explain the reasons for issuing long-term liabilities.
- 2 Understand the characteristics of bonds payable.
- 3 Record the issuance of bonds.
- 4 Amortize discounts and premiums under the straight-line method.
- 5 Compute the selling price of bonds.
- 6 Amortize discounts and premiums under the effective interest method.
- 7 Explain extinguishment of liabilities.
- 8 Understand bonds with equity characteristics.
- 9 Account for long-term notes payable.
- 10 Understand the disclosure of long-term liabilities.
- 11 Account for long-term notes receivable, including impairment of a loan.
- 12 Understand troubled debt restructurings. (Appendix)
- 13 Account for serial bonds. (Appendix)

Long-Term Liabilities and Receivables

A Double-Edged Sword

A company's capital structure refers to the mix of debt and equity it uses to finance its operations. Because debt requires fixed interest and principal payments at specified times, debt financing is considered more risky than equity financing. Despite this increased risk, most companies consider the use of some debt to be beneficial. In fact, debt can be used to increase earnings, a concept known as financial leverage. If a company invests borrowed money in assets earning an amount greater than the after-tax cost of the debt, the excess return will increase the return on equity for the company's shareholders. For example, assume three companies each have income before taxes of \$120, a return on assets of 12%, and an effective tax rate of 40%, but differ in terms of financial leverage, as follows:

	Company A	Company B	Company C
Average Assets	\$1,000	\$1,000	\$1,000
Debt (10%)	0	500	800
Average Equity	1,000	500	200
Interest Expense (Debt × 10%)	0	50	80
Net Income	120	90*	72*
Return on Equity	12%	18%	36%

* Computed as net income less interest expense, net of taxes. For Company B = [\$120 - .6(\$50)]; For Company C = [\$120 - .6(\$80)].

Because Company A is not leveraged, its return on equity (net income divided by average equity) will be the same as its return

Credit: Daniel Acker/Bloomberg News/Landov



on assets. However, Companies B and C are using financial leverage to generate greater returns on equity. Results are not always so positive. Financial leverage also makes a company more risky. If times are bad and the company's return on assets is less than the after-tax cost of debt, shareholders' earnings are reduced and return on equity will deteriorate rapidly.

Companies such as **Maytag** and **General Motors** are considered highly leveraged while **Microsoft** is an extreme example of a company with virtually no debt. Because financial leverage magnifies the financial effects of both good and bad years, an understanding of the benefits and risks of financial leverage are critical to analyzing a company's return and risk.

FOR FURTHER INVESTIGATION

For a discussion of capital structure and financial leverage, consult the Business & Company Resource Center (BCRC):

- The Determination of Capital Structure: Is National Culture a Missing Piece to the Puzzle? Andy C.W. Chui, Alison E. Lloyd, Chuck C.Y. Kwok, *Journal of International Business Studies*, 0047-2506, Spring 2002, v33, i1, p99(29).
- Framework for Financial Statement Analysis Part 2: Financial Leverage and Return on Equity. George W. Gallinger, *Business Credit*, 0897-0181, March 2000, v102, i3, p33.

A company classifies an item as a long-term liability if it is *not* expected to be repaid within one year or the current operating cycle, whichever is longer. The most common examples of long-term liabilities are bonds payable, long-term notes payable, lease obligations, pension obligations, deferred income taxes and other long-term deferrals, and, occasionally, contingent liabilities. In this chapter we examine the recording and reporting requirements for bonds payable and long-term notes payable. We also discuss long-term notes receivable in this chapter, including accounting for an impairment in such notes. We discuss the other types of long-term liabilities listed above elsewhere in this book.

REASONS FOR ISSUANCE OF LONG-TERM LIABILITIES

1 Explain the reasons for issuing long-term liabilities.

Borrowing, which results in a long-term liability, is one of the choices available to companies seeking to obtain financial resources. There are five basic reasons why a company might issue long-term debt rather than offer other types of securities.

1. *Debt financing may be the only available source of funds.* Many small- and medium-sized companies may appear too risky to investors to attract equity (i.e., capital stock) investments. Debt securities issued by a company may be a less risky investment because by law interest is required to be paid on each interest payment date. Also, some types of debt are secured by a lien against specific company assets.
2. *Debt financing may have a lower cost.* Historically, since debt has a lesser investment risk than stock, it usually has offered a relatively lower rate of return. In general, investors in equity securities have earned a higher return. However, because market conditions change, the cost of debt financing varies, so this advantage depends on the particular market conditions.
3. *Debt financing offers an income tax advantage.* Interest payments to debt holders are deductible by a corporation as interest expense for income tax purposes, whereas dividend payments on equity securities are not.
4. *The voting privilege is not shared.* Corporate stockholders may not wish to share ownership. Thus, by issuing debt, which does not provide voting rights, ownership interests are not diluted.
5. *Debt financing offers the opportunity for leverage.* The term **leverage** (or **trading on the equity**) refers to a company's use of borrowed funds. By investing these funds, the company expects to **earn a return greater than the interest it will pay for their use** and thereby benefit the stockholders. Earnings in excess of interest charges (net of the applicable income tax reduction) increase earnings per share. However, if the return falls below the effective interest rate, earnings per share will decline. Expectations of current and future earnings, inflation, and the debt/equity relationship influence the rate of interest needed to issue debt.

BONDS PAYABLE

2 Understand the characteristics of bonds payable.

One common method for a company to incur long-term liabilities is by issuing bonds. There are several key terms you should know about bonds, as follows:

- **Bond:** A bond is a type of note in which a company agrees to pay the holder the face value at the maturity date and usually to pay interest periodically at a specified rate on the face value. Thus the company that issues the bonds (the *issuer*) is borrowing money from the holder of the bonds (the *lender*).
- **Face Value:** The face (or par) value is the amount of money that the issuer agrees to pay at maturity. It is the same concept as the principal of a note.
- **Maturity Date:** The maturity date is the date on which the issuer of the bond agrees to pay the face value to the holder. The issuer also agrees to pay interest.

- **Contract Rate:** The contract rate is the rate at which the issuer of the bond agrees to pay interest each period until maturity. The contract rate is also called the *stated*, *face*, or *nominal* rate. This information is printed on a bond certificate, which is the document that indicates ownership of the bond.
- **Bond Certificate:** A bond certificate is a legal document that specifies the face value, the annual interest rate, the maturity date, and other characteristics of the bond issue. Each bond usually has a bond indenture.
- **Bond Indenture:** A bond indenture is a document (contract) that defines the rights of the bondholders.

Since bonds usually are issued to borrow large amounts of money, corporations (and government entities) are the most common issuers of bonds. Corporate bonds usually are issued so that each bond has a face value of \$1,000. The entire bond issue may be sold to one purchaser or to numerous individual purchasers. Thus a \$1 million bond issue includes 1,000 bonds, each with a \$1,000 face value. In addition, interest usually is paid twice each year (semiannually) on dates stated on the bond certificate. Therefore, the stated annual interest rate must be halved to obtain the interest rate per semiannual period. For example, a 10%, \$1,000 bond will pay the annual interest of \$100 ($10\% \times \$1,000$) in two semiannual installments of \$50 ($10\% \times 1/2 \times \$1,000$).

Characteristics of Bonds

Companies issue bonds that may have different characteristics, as we summarize in Exhibit 14-1. While some of these characteristics are mutually exclusive, several can be combined for a bond issue. The characteristics of a particular bond issue are listed on the bond certificates for that issue and spelled out in detail in the bond indenture. A company may also include in the bond indenture certain restrictions on its financial operations to protect the bondholders and improve the marketability of a bond issue. These restrictions may include limitations on dividends, adherence to certain minimum working capital amounts, or the maintenance of a certain debt/equity relationship. In this chapter, we focus primarily on the accounting for debenture bonds. We also discuss the accounting principles that apply when a bond issue includes a callable, convertible, or serial (Appendix 2) feature.

Bond Selling Prices

When a company issues bonds, it may offer them to the public or privately to an institution, such as an insurance company or a pension fund. When the bonds are offered to the public, the company usually deals with an underwriter (a stockbrokerage firm or an investment banker). The underwriter agrees on a price for the bonds, pays the company for them and then sells the bonds to its clients. Because the issuing company avoids having to find the purchasers and being involved in cash transactions with each purchaser, it pays the underwriter a fee for this service.

There are certain steps a company must follow when it issues bonds. The company must:

1. Receive approval from regulatory authorities such as the Securities and Exchange Commission
2. Set the terms of the bond issue, such as the contract rate and the maturity date
3. Make a public announcement of its intent to sell the bonds on a particular date and print the bond certificates

At the time of the sale, the underwriter negotiates with the company to determine an appropriate selling price. The selling price is based on the terms of the bond issue and factors such as the general bond market conditions, the relative risk of the bonds, and the expected state of the economy. The underwriter determines the rate (yield) that it believes



EXHIBIT 14-1 Characteristics of Bonds

1. *Debenture Bonds.* Debenture bonds are bonds that are not secured by specific property. Their marketability is based on the general credit rating of the company. Generally, a company must have a long period of earnings and continued favorable predictions of future earnings and liquidity to sell debenture bonds. Debenture bondholders are considered to be general creditors, with the same rights as other creditors if the issuer fails to pay the interest or principal and declares bankruptcy.
2. *Mortgage Bonds.* Mortgage bonds are bonds that are secured by a lien against specific property of the company. If the company becomes bankrupt and is liquidated, the holders of these bonds have first claim against the proceeds of the sale of the assets that secured their debt. If the proceeds from the sale of pledged assets are not sufficient to repay the debt, mortgage bondholders become general creditors for the balance of the unpaid debt.
3. *Registered Bonds.* Registered bonds are bonds whose ownership is registered with the company. That is, the company maintains a record of the holder of each bond. Therefore, on each interest payment date, interest is paid to the individuals listed on the corporate records as owners of the bonds. When an owner sells registered bonds, the issuer or transfer agent must be notified so that interest will be paid to the proper person.
4. *Coupon Bonds.* Coupon bonds are unregistered bonds on which interest is claimed by the holder presenting a coupon to the company. These bonds can be transferred between individuals without the company or its agent being notified. Currently, coupon bonds are rarely issued because bonds issued after December 31, 1982 must be registered for the related interest expense to be deductible for income tax purposes.
5. *Zero-Coupon Bonds.* Zero-coupon bonds (also called *deep-discount bonds*) are bonds on which the interest is not paid until the maturity date. That is, the bonds are sold at a price considerably below their face value, interest accrues until maturity, and then the bondholders are paid the interest along with the principal at maturity.
6. *Callable Bonds.* Callable bonds are bonds that are callable by the company at a predetermined price for a specified period. That is, the company has the right to require the bondholders to return the bonds before the maturity date, with the company paying the predetermined price and interest to date.
7. *Convertible Bonds.* Convertible bonds are bonds that are convertible into a predetermined number of shares. That is, the owner of each bond has the right to exchange it for a predetermined number of shares of the company. Thus, upon conversion, the bondholder becomes a stockholder of the company.
8. *Serial Bonds.* Serial bonds are bonds issued at one time, but portions of the total face value mature in periodic installments at different future dates. For example, a serial bond issued in 2007 may have a face value of \$50,000, and bonds with a face value of \$10,000 mature each year for five years from 2013 through 2017.

best reflects the current market conditions for the particular bond issue. **The yield (effective rate) is the market rate at which the bonds are actually sold.**¹ The yield on the bonds may be different from the contract (stated) rate set by the company and printed on the bond certificates. This difference may result from a difference of opinion between the underwriter and the company about the correct yield. It may also result from a change of economic conditions between the date the company set the terms of the bond issue and the date it was issued.

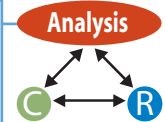
Once the company has set the terms of the bond issue, the selling price, and therefore the effective yield of the bonds, is determined. We show the calculation later in the chapter. Three alternatives are possible for a company selling bonds.

1. After a company has issued bonds, their yield will fluctuate in the bond market as changes occur in the risk premium and expected inflation rate. It is the yield at the time of *issuance*, however, that is relevant to the company in accounting for the bonds.

1. If the yield is *equal* to the contract rate, the purchasers of the bonds pay the face value of the bonds—the bonds are sold at *par*.
2. If the yield is *more* than the contract rate, the purchasers of the bonds pay *less* than the face value of the bonds—the bonds are sold at a *discount*.
3. If the yield is *less* than the contract rate, the purchasers of the bonds pay *more* than the face value of the bonds—the bonds are sold at a *premium*.

The issuance price of bonds sold at a premium or discount is often quoted as a percentage of the face value. For example, bonds with a face value of \$100,000 that are quoted at 103 (meaning 103% of the face value) are sold for \$103,000—that is, at a premium of \$3,000. Alternatively, bonds with a \$200,000 face value quoted at 98 are sold for \$196,000 ($\$200,000 \times 0.98$), a \$4,000 discount.

It is important to understand why bonds sell at a price different from the face value when the yield is different from the contract rate. The difference between the price paid and the face value enables the purchaser to earn a return on the bonds equal to the yield at the time the bonds are purchased. For instance, bonds are sold at a discount when the yield is higher than the contract rate. The “savings” (i.e., the discount) between the lower purchase price and the face value at maturity, along with the contract interest received by the purchaser each interest period, result in a return equal to the higher yield. Alternatively, bonds are sold at a premium when the yield is lower than the contract rate. The “excess” (i.e., the premium) between the higher selling price and the face value, along with the contract interest received by the purchaser each interest period, results in a return equal to the lower yield. These relationships may be summarized as follows:



Bonds Sold at	Yield Compared to Contract Rate	Interest Over the Life of the Bonds
Premium	Yield < Contract Rate	Interest Expense < Interest Paid
↑ Par	Yield = Contract Rate	Interest Expense = Interest Paid
↓ Discount	Yield > Contract Rate	Interest Expense > Interest Paid

When the bonds yield a rate either lower (for bonds sold at a premium) or higher (for bonds sold at a discount) than the contract rate, the interest *expense* recorded by the issuing company each period is different from the interest *paid*. When bonds are sold at a *premium*, the interest expense is *less* than the interest paid. When bonds are sold at a *discount*, the interest expense is *more* than the interest paid. The difference between the interest expense and the interest payment is the amount of the premium or discount amortized by the issuing company in the period (which we discuss later).

RECORDING THE ISSUANCE OF BONDS

At the time of sale, the issuing company records the face value of bonds in a Bonds Payable account, and it records any premium or discount in a separate account titled Premium on Bonds Payable or Discount on Bonds Payable. For example, assume the company sells bonds with a face value of \$400,000 on the authorization date at 102. It records the sale as follows:

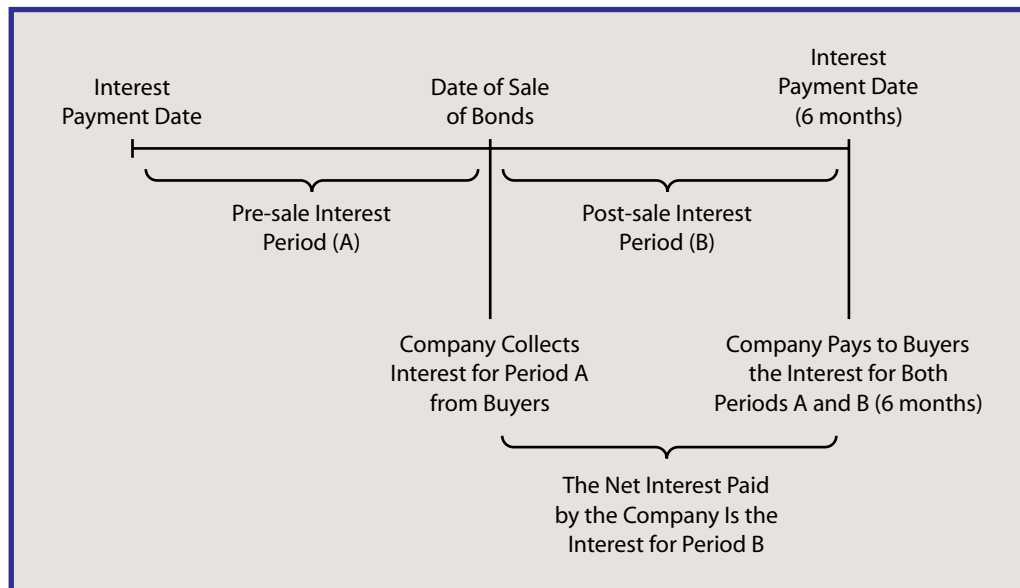
Cash ($\$400,000 \times 1.02$)	408,000	
Bonds Payable		400,000
Premium on Bonds Payable		8,000

3 Record the issuance of bonds.

A Premium account is an *adjunct* account and is added to the Bonds Payable account in the long-term liability section of the balance sheet. A Discount account is a *contra* account and is subtracted from the Bonds Payable account. **The book value (carrying value) of the bond issue at any time is the face value plus any unamortized premium or minus any unamortized discount.** In the preceding example, the book value on the issue date is \$408,000.

Bonds Issued Between Interest Payment Dates

Recall that the interest on bonds usually is paid semiannually on the dates indicated on the bond certificates. Bonds often are sold after their authorization date and between interest payment dates. In such cases, the issuing company must pay interest only for the period of time the bonds are outstanding—that is, from the sale date to the next interest payment date. When a company sells bonds between interest dates, the company normally will collect from the investors both the selling price and the interest accrued on the bonds from the interest payment date prior to the date of sale. This procedure reduces the record keeping for the first interest payment. This interest amount collected typically is *credited* to Interest Expense and is computed by multiplying the face value by the stated interest rate for the fraction of the year from the interest payment date prior to the sale date. On the next interest payment date, the company pays each bondholder six months of interest and records Interest Expense as usual. The following diagram illustrates this situation:



For example, assume that on March 1, 2007, Grimes Corporation issues \$800,000 of 10-year bonds dated January 1, 2007 at par. The bonds have a contract (stated) interest rate of 12% and pay interest semiannually on January 1 and July 1. On March 1, because two months have elapsed since the interest payment date prior to the sale, Grimes collects \$16,000 ($\$800,000 \times 0.12 \times 2/12$) accrued interest in addition to the face value. Grimes records the issue of the bonds on March 1, 2007 as follows:

Cash	816,000	
Interest Expense		16,000
Bonds Payable		800,000

On July 1, 2007, Grimes records the semiannual interest payment as follows:

Interest Expense ($\$800,000 \times 0.12 \times 6/12$)	48,000	
Cash		48,000

As a result of the preceding journal entries, on July 1, 2007 the Interest Expense account has a debit balance of \$32,000 ($\$48,000 - \$16,000$) representing the interest cost ($\$800,000 \times 0.12 \times 4/12$) since the bonds were issued.

Alternatively, it is possible to record the previous transaction by using a liability account because part of the proceeds (i.e., the accrued interest) will be repaid in the future. Using this approach, Grimes would record the original transaction as follows:

Cash	816,000	
Interest Payable		16,000
Bonds Payable		800,000

On July 1, 2007, Grimes would record the first interest payment as follows:

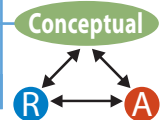
Interest Expense ($\$800,000 \times 0.12 \times 4/12$)	32,000	
Interest Payable	16,000	
Cash		48,000

Companies generally use the first method because it has less potential for errors in later transactions. Also, this method enables a company to develop a single routine in its computerized accounting system for recording and distributing all interest payments.

AMORTIZING DISCOUNTS AND PREMIUMS

Recall that when a company sells bonds at a discount or premium, it is incurring an effective interest (yield) rate that is more, or less, than the stated rate of interest. When a company pays the interest on the bonds, this *payment* is an amount based on the *stated* rate. However, to properly report the interest cost on the bonds, the *Interest Expense* on the company's income statement must show an amount based on the *effective* interest rate and the book value of the bonds. **The effective interest expense amount is computed by multiplying the effective interest rate (yield) times the book value of the bonds at the beginning of the period.** Consequently, a portion of the bond discount or premium is amortized, and **this amortization is the difference between the amount of interest expense and the cash payment.** This process is known as the *effective interest method* (sometimes called the *interest method*) of amortization. Another approach is the **straight-line method** of amortization. **APB Opinion No. 21** requires the use of the effective interest method unless the results produced by the straight-line method are *not materially different* from those obtained by using the effective interest method.² However, we discuss the straight-line method first because it is often used if the amounts are not materially different from the preferred effective interest method amounts.

4 Amortize discounts and premiums under the straight-line method.



Straight-Line Method

When using the straight-line method, the discount or premium is amortized to interest expense in *equal amounts* each period during the life of the bonds. Therefore, the straight-line method amortizes the bond discount or premium so that the interest expense is an average cost for the period. We will show an example of each.

Example: Bond Discount (Straight Line) Assume that the Jet Company sells bonds for \$92,976.39 on January 1, 2007. The bonds have a face value of \$100,000 and a 12% stated annual interest rate. Interest is paid semiannually on June 30 and December 31, and the

2. "Interest on Receivables and Payables," *APB Opinion No. 21* (New York: AICPA, 1971), par. 15.

bonds mature on December 31, 2011. Thus, the bonds have a five-year life, with 10 semi-annual interest periods. Jet records the sale on January 1, 2007 as follows:

Cash	92,976.39	
Discount on Bonds Payable	7,023.61	
Bonds Payable		100,000.00

On the first interest payment date, Jet records both the cash payment and discount amortization. It computes the discount amortization of \$702.36 per semiannual period by dividing the total discount (\$7,023.61) by the number of semiannual periods (10) *until maturity*³ (it may also use monthly or yearly amortization periods, whichever is more convenient). The interest expense is the sum of the cash payment and the discount amortization. Jet records the first interest payment on June 30, 2007 as follows:

Interest Expense (\$6,000 + \$702.36)	6,702.36	
Discount on Bonds Payable (\$7,023.61 ÷ 10)		702.36
Cash (\$100,000 × 0.12 × 1/2)		6,000.00

In this case, the interest expense is higher than the cash paid, indicating that the effective rate is higher than the stated rate. Jet makes a similar journal entry to record the second interest payment on December 31, 2007 and every six months after that. After this second entry, the long-term liabilities section of Jet's December 31, 2007 balance sheet includes the following:



Bonds Payable	\$100,000.00
Less: Discount on Bonds Payable	<u>(5,618.89)</u>
	\$ 94,381.11

Note that the \$5,618.89 (\$7,023.61 – \$702.36 – \$702.36) unamortized discount is subtracted from the \$100,000 face value of the bonds to determine the \$94,381.11 book value. ♦

Example: Bond Premium (Straight Line) The straight-line amortization of a bond premium follows the same principles. Suppose the Jet Company sold the bonds on January 1, 2007 for \$107,721.71. In this case, the premium amortization per semiannual period is \$772.17 (\$7,721.71 ÷ 10) and the interest expense is the cash payment less the premium amortization. Jet records the sale and first interest payment as follows:

January 1, 2007

Cash	107,721.71	
Bonds Payable		100,000.00
Premium on Bonds Payable		7,721.71

June 30, 2007

Interest Expense (\$6,000 – \$772.17)	5,227.83	
Premium on Bonds Payable (\$7,721.71 ÷ 10)	772.17	
Cash (\$100,000 × 0.12 × 1/2)		6,000.00

Here the interest expense is lower than the cash paid, indicating an effective rate lower than the stated rate. After a similar journal entry to record the second interest payment, Jet's December 31, 2007 balance sheet includes the following:



Bonds Payable	\$100,000.00
Add: Premium on Bonds Payable	<u>6,177.37</u>
	\$106,177.37

Note that the \$6,177.37 (\$7,721.71 – \$772.17 – \$772.17) unamortized premium is added to the \$100,000 face value of the bonds to determine the \$106,177.37 book value.

3. Note that the maturity date of bonds is established on the date they are authorized. When bonds are issued later than the authorization date, any discount or premium is amortized over the *remaining* life until the maturity date.

In both situations, the total discount or premium will be amortized by the maturity date, and the book value will equal the maturity value. ♦

Summary For both premiums and discounts, the straight-line method results in a constant amount of interest expense each semiannual period even though the book value of the liability changes each period. A schedule may be developed that summarizes the interest expense, discount or premium amortization, and book value of the bonds each period. Example 14-1 shows a partial schedule for the Jet Company bonds sold at a discount. Example 14-2 presents a partial schedule for the same bonds sold at a premium. Again, remember that the straight-line method is acceptable only when it results in amounts of interest expense and book value that are not materially different from those computed by using the effective interest method.

EXAMPLE 14-1 Bond Interest Expense and *Discount* Amortization
Schedule: *Straight-Line Method*

Date	Cash Credit ^a	Unamortized Discount Credit ^b	Interest Expense Debit ^c	Book Value of Bonds ^d
1/01/07				\$ 92,976.39
6/30/07	\$6,000.00	\$702.36	\$6,702.36	93,678.75
12/31/07	6,000.00	702.36	6,702.36	94,381.11
6/30/08	6,000.00	702.36	6,702.36	95,083.47
⋮	⋮	⋮	⋮	⋮
12/31/10	6,000.00	702.36	6,702.36	98,595.27
6/30/11	6,000.00	702.36	6,702.36	99,297.63
12/31/11	6,000.00	702.37 ^e	6,702.37	100,000.00

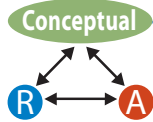
- a. $\$100,000$ (face value) \times 0.12 (stated annual interest rate) \times 1/2 (year).
 b. $[\$100,000 - \$92,976.39$ (issue price)] \div 10 (semiannual periods until maturity).
 c. $\$6,000.00 + \702.36 .
 d. Previous book value + amount from footnote b.
 e. Difference due to \$0.01 rounding error.

EXAMPLE 14-2 Bond Interest Expense and *Premium* Amortization
Schedule: *Straight-Line Method*

Date	Cash Credit ^a	Unamortized Premium Debit ^b	Interest Expense Debit ^c	Book Value of Bonds ^d
1/01/07				\$107,721.71
6/30/07	\$6,000.00	\$772.17	\$5,227.83	106,949.54
12/31/07	6,000.00	772.17	5,227.83	106,177.37
6/30/08	6,000.00	772.17	5,227.83	105,405.20
⋮	⋮	⋮	⋮	⋮
12/31/10	6,000.00	772.17	5,227.83	101,544.35
6/30/11	6,000.00	772.17	5,227.83	100,772.18
12/31/11	6,000.00	772.18 ^e	5,227.82	100,000.00

- a. $\$100,000$ (face value) \times 0.12 (stated annual interest rate) \times 1/2 (year).
 b. $[\$107,721.71$ (issue price) $- \$100,000$] \div 10 (semiannual periods until maturity).
 c. $\$6,000.00 - \772.17 .
 d. Previous book value $-$ amount from footnote b.
 e. Difference due to \$0.01 rounding error.

5 Compute the selling price of bonds.



Effective Interest Method

The basic assumption underlying the straight-line method that interest *expense* is the same every year is not realistic when a premium or discount is involved. Instead, the use of a stable interest *rate* per year (the *yield*) is appropriate. The yield is used to calculate the proceeds received when bonds are issued. The selling price of a bond issue is calculated by summing the present value of the principal and interest payments discounted at the effective interest (yield) rate. Recall the Jet Company discount example of \$100,000 of five-year bonds paying semiannual interest with a stated rate of 12%. Jet Company sold these bonds for \$92,976.39, a price that yields an effective interest rate of 14%. **To determine this selling price and the related discount, the effective rate is applied to both the future principal and periodic interest payments**, as we show in the following computations. As we point out in the Time Value of Money Module, in present value analyses when interest is paid semiannually, the effective rate (14%) is divided by the interest periods per year (two) to determine the effective rate (7%) per semiannual period. Similarly, the time to maturity is expressed in semiannual periods (10). The discount of \$7,023.61 is computed⁴ as follows:

Present value of principal: $\$100,000 \times 0.508349^a$	\$ 50,834.90
Present value of interest: $\$6,000^b \times 7.023582^c$	<u>42,141.49</u>
Selling price	<u>\$ 92,976.39</u>
Face value	\$100,000.00
Selling price	<u>(92,976.39)</u>
Discount	<u>\$ 7,023.61</u>

- a. From Present Value of 1 Table in Time Value of Money Module ($n=10$; $i=0.07$).
 b. $\$100,000 \times 0.12 \times 1/2$.
 c. From Present Value of an Ordinary Annuity of 1 Table in Time Value of Money Module ($n=10$; $i=0.07$).

Similarly, in the second example, in which the Jet Company sold the bonds at a premium, they yielded 10%. The premium of \$7,721.71 is computed as follows:

Present value of principal: $\$100,000 \times 0.613913^a$	\$ 61,391.30
Present value of interest: $\$6,000 \times 7.721735^b$	<u>46,330.41</u>
Selling price	<u>\$107,721.71</u>
Selling price	\$107,721.71
Face value	<u>(100,000.00)</u>
Premium	<u>\$ 7,721.71</u>

- a. From Present Value of 1 Table in Time Value of Money Module ($n=10$; $i=0.05$).
 b. From Present Value of an Ordinary Annuity of 1 Table in Time Value of Money Module ($n=10$; $i=0.05$).

4. The discount (or premium) and the selling price to yield a given interest rate can also be calculated by another method. The amount of the discount is the present value of the *deficiency* produced by the difference between the yield multiplied by the face value of the bonds and the stated rate multiplied by the face value of the bonds, discounted at the yield. The calculations of the discount and selling price for the Jet Company bonds are:

Face value	\$100,000.00
Less: Discount on bonds payable	
Yield amount: $7\% \times \$100,000$	\$7,000
Stated amount: $6\% \times \$100,000$	<u>(6,000)</u>
Deficiency	\$1,000
Discount [$\$1,000 \times 7.023582$ (Present Value of an Ordinary Annuity Table in Time Value of Money Module)]	<u>(7,023.58)*</u>
Selling Price	<u>\$ 92,976.42</u>

* The difference between the \$7,023.61 calculated in the text and the \$7,023.58 calculated by this alternative method is due to a rounding error.

Again, to compute the present value, the effective rate is expressed on a semiannual basis, and the time to maturity is expressed in semiannual periods.

As we noted earlier, the book (carrying) value of the bond issue at any time is its face value plus any unamortized premium or minus any unamortized discount. Thus, this book value changes with each successive premium or discount amortization and is equal to **the present value of the remaining cash payments**. (Under the straight-line method, the book value is *not* equal to the present value of the remaining cash payments.) Since the bonds were issued to yield a particular interest rate, interest expense over the life of the bond issue should be based on this interest rate (yield). Also, as we noted earlier, *APB Opinion No. 21* requires the use of the effective interest method, unless another method produces results that are *not materially* different. The effective interest method applies the semiannual yield to the book value of the bonds at the beginning of each successive semiannual period to determine the interest expense for that period. In this procedure, **the discount or premium amortization is the difference between the interest expense computed under the effective interest method and the cash payment**. This method is based on the compound interest techniques discussed in the Time Value of Money Module.

We show the relationship among the interest paid, interest expense, and the amortization in Exhibit 14-2.

6 Amortize discounts and premiums under the effective interest method.

EXHIBIT 14-2 Interest and Amortization		
Contractual Amount	—	Market Determined Amount
Bond Interest Paid	—	Bond Interest Expense
=	=	Amortization Amount
Face Value of Bonds × Contract Rate		Book Value of Bonds at Beginning of Period × Yield

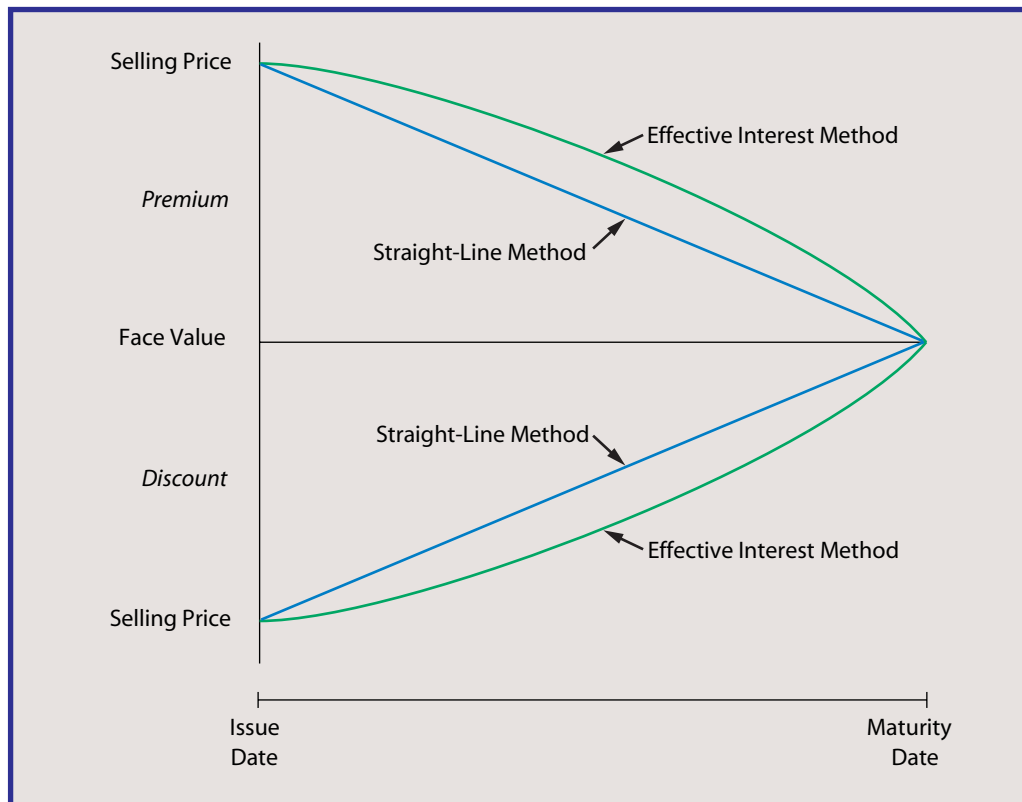
Example: Bond Discount (Effective Interest) To illustrate, after the Jet Company sold bonds for \$92,976.39 (yielding an effective annual interest rate of 14%), it records the first two interest payments under the effective interest method as follows:

<u>June 30, 2007</u>	
Interest Expense (\$92,976.39 × 0.14 × 1/2)	6,508.35
Discount on Bonds Payable	
(\$6,508.35 – \$6,000.00)	508.35
Cash (\$100,000 × 0.12 × 1/2)	6,000.00
<u>December 31, 2007</u>	
Interest Expense	
[(92,976.39 + 508.35) × 0.14 × 1/2]	6,543.93
Discount on Bonds Payable	
(\$6,543.93 – \$6,000.00)	543.93
Cash	6,000.00 ♦

Example: Bond Premium (Effective Interest) Alternatively, if the Jet Company sold the bonds for \$107,721.71 (equivalent to an annual yield rate of 10%), it records the first two interest payments under the effective interest method as follows:

<u>June 30, 2007</u>		
Interest Expense ($\$107,721.71 \times 0.10 \times 1/2$)	5,386.09	
Premium on Bonds Payable		
($\$6,000.00 - \$5,386.09$)	613.91	
Cash ($\$100,000 \times 0.12 \times 1/2$)		6,000.00
<u>December 31, 2007</u>		
Interest Expense		
$[(\$107,721.71 - \$613.91) \times 0.10 \times 1/2]$	5,355.39	
Premium on Bonds Payable		
($\$6,000.00 - \$5,355.39$)	644.61	
Cash		6,000.00 ♦

Summary Schedules may be developed to show the interest expense, amortization of discounts and premiums, and book values using the effective interest method. Example 14-3 illustrates a schedule for the Jet Company bonds issued at a discount. Example 14-4 illustrates a schedule for these bonds issued at a premium. Note that **the amount of interest expense using the effective interest method is based on a constant rate applied to the remaining book value of the bonds.** (In contrast, in Examples 14-1 and 14-2 for the straight-line method, the *amount* of interest expense was constant.) The following diagram shows how the book values of bonds are different between the straight-line and effective interest methods for both a premium and a discount:



EXAMPLE 14-3 Bond Interest Expense and *Discount* Amortization
Schedule: *Effective Interest Method***12% Bonds Sold to Yield 14%**

Date	Cash Credit ^a	Interest Expense Debit ^b	Unamortized Discount Credit ^c	Book Value of Bonds ^d
1/01/07				\$ 92,976.39
6/30/07	\$6,000.00	\$6,508.35	\$508.35	93,484.74
12/31/07	6,000.00	6,543.93	543.93	94,028.67
6/30/08	6,000.00	6,582.01	582.01	94,610.68
12/31/08	6,000.00	6,622.75	622.75	95,233.43
6/30/09	6,000.00	6,666.34	666.34	95,899.77
12/31/09	6,000.00	6,712.98	712.98	96,612.75
6/30/10	6,000.00	6,762.89	762.89	97,375.64
12/31/10	6,000.00	6,816.29	816.29	98,191.93
6/30/11	6,000.00	6,873.44	873.44	99,065.37
12/31/11	6,000.00	6,934.63 ^e	934.63	100,000.00

- a. $\$100,000$ (face value) \times 0.12 (stated annual interest rate) \times 1/2 (year).
 b. Previous book value \times 0.14 (effective interest rate) \times 1/2 (year).
 c. Amount from footnote b – \$6,000.00.
 d. Previous book value + amount from footnote c.
 e. Difference due to \$0.05 rounding error.

EXAMPLE 14-4 Bond Interest Expense and *Premium* Amortization
Schedule: *Effective Interest Method***12% Bonds Sold to Yield 10%**

Date	Cash Credit ^a	Interest Expense Debit ^b	Unamortized Premium Debit ^c	Book Value of Bonds ^d
1/01/07				\$107,721.71
6/30/07	\$6,000.00	\$5,386.09	\$613.91	107,107.80
12/31/07	6,000.00	5,355.39	644.61	106,463.19
6/30/08	6,000.00	5,323.16	676.84	105,786.35
12/31/08	6,000.00	5,289.32	710.68	105,075.67
6/30/09	6,000.00	5,253.78	746.22	104,329.45
12/31/09	6,000.00	5,216.47	783.53	103,545.92
6/30/10	6,000.00	5,177.30	822.70	102,723.22
12/31/10	6,000.00	5,136.16	863.84	101,859.38
6/30/11	6,000.00	5,092.97	907.03	100,952.35
12/31/11	6,000.00	5,047.65 ^e	952.35	100,000.00

- a. $\$100,000$ (face value) \times 0.12 (stated annual interest rate) \times 1/2 (year).
 b. Previous book value \times 0.10 (effective interest rate) \times 1/2 (year).
 c. \$6,000.00 – amount from footnote b.
 d. Previous book value – amount from footnote c.
 e. Difference due to \$0.03 rounding error.

Bond Issue Costs

APB Opinion No. 21 requires that a company defer any costs connected with a bond issue (such as legal and accounting fees, printing costs, or registration fees). Conceptually a

company with deferred bond issue costs should compute a new yield. However, because of a lack of materiality, these deferred bond issue costs are often amortized over the life of the bond issue by the *straight-line* method. For example, assume that on January 1, 2007 Bergen Company issues 10-year bonds with a face value of \$500,000 at 104, or \$520,000. Costs connected with the issue totaled \$8,000. Bergen records this issue as follows:

Cash (\$520,000 – \$8,000)	512,000	
Deferred Bond Issue Costs	8,000	
Premium on Bonds Payable (0.04 × \$500,000)		20,000
Bonds Payable		500,000

Bergen amortizes deferred bond issue costs of \$800 to bond interest expense (i.e., debit Bond Interest Expense and credit Deferred Bond Issue Costs) each year over the 10-year life of the bonds. The unamortized deferred bond issue costs typically are reported as other assets or deferred charges on the balance sheet. The FASB is considering changing GAAP so that all debt issue costs, including those for bonds, will be expensed as incurred.

Accruing Bond Interest

In the previous examples, the semiannual interest payments coincided with the company's fiscal year. However, frequently companies issue bonds with interest payment dates that differ from the fiscal year. In such cases, the matching principle requires that the company record an accrual of interest and a partial premium or discount amortization at the end of the fiscal year. For example, assume that McAdams Company issues \$200,000 of 10%, five-year bonds on October 1, 2007 for \$185,279.87. Interest on these bonds is payable each October 1 and April 1. McAdams records this issue as follows:

Cash	185,279.87	
Discount on Bonds Payable	14,720.13	
Bonds Payable		200,000.00

At the end of the fiscal year, December 31, 2007, the company must accrue interest and amortize the discount for the months of October, November, and December. Thus, it must compute and record the amount of interest expense in 2007 for these three months. It records this adjusting entry (assuming straight-line amortization) as follows:

Interest Expense	5,736.01	
Discount on Bonds Payable		
[($\$14,720.13 \div 5$) × 3/12]		736.01
Interest Payable ($\$200,000 \times 0.10 \times 3/12$)		5,000.00

Typically, the company will record a reversing entry on January 1, 2008 so that it can make the April 1, 2008 entry to record interest expense as usual. If the company does not make a reversing entry, when it records interest expense it eliminates the Interest Payable account and records the three months of interest expense incurred in 2008.

If a company uses the effective interest method to amortize a premium or discount, it determines the amount of interest expense it accrues on December 31, 2007 by computing the semiannual effective interest cost for the next interest and amortization period, and using the straight-line approach to allocate this amount over the number of months of interest accrual. For example, the effective annual interest rate on the McAdams bonds is 12%. Therefore, the amount of semiannual interest for the six-month period ending April 1, 2008 is \$11,116.79 ($\$185,279.87 \times 0.12 \times 1/2$). There are six months in the interest period and the elapsed time since the date of issue (October 1) is three months; therefore, the company expenses \$5,558.40, or 3/6 of the \$11,116.79 semiannual interest charge. It computes the amount of discount amortization as the difference between the effective interest expense, \$5,558.40, and the \$5,000.00 ($\$200,000 \times 0.10 \times 3/12$)

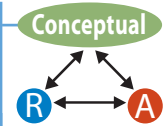
amount of interest owed, or \$558.40. Using the effective interest method of discount amortization, McAdams records the accrued interest on December 31, 2007, as follows:

Interest Expense	5,558.40	
Discount on Bonds Payable		558.40
Interest Payable		5,000.00

Zero-Coupon Bonds

Zero-coupon bonds are bonds sold at a “deep” discount. As the name implies, zero-coupon bonds *pay* no interest each period. The only cash outflow for the bonds is the payment of the face value on the maturity date. The calculation of the selling price follows the principles we discussed earlier; that is, it is the present value (based on the yield) of the face value. A company records the issuance of zero-coupon bonds in the usual way; that is, it debits the discount account for the difference between the selling price and the face value.

Even though the bonds *pay* no interest each period, the company must still recognize interest *expense* because it has incurred a cost each period on the amount borrowed. It computes the interest expense, as we discussed earlier, by multiplying the yield times the book value of the bonds at the beginning of the period. (Alternatively, the company may use the straight-line method.) Since the company makes no cash payment for interest each period, it recognizes the interest expense each period as a decrease (credit) in the discount account (and therefore increases the book value of the bonds). On page 662, we illustrate the accounting for a non-interest-bearing note. Accounting for a zero-coupon bond follows the same procedures.



SECURE YOUR KNOWLEDGE 14-1

- Bonds are notes that obligate a company to repay a stated amount (the face value) plus interest by a specified maturity date.
- The selling price of a bond is based on the relationship between the yield (effective rate) and the contract rate of interest.
 - If the yield is equal to the contract rate, the bonds sell at par and the periodic interest expense is equal to the interest paid.
 - If the yield is lower than the contract rate, the bonds sell at a premium and the periodic interest expense is less than the interest paid.
 - If the yield is greater than the contract rate, the bonds sell at a discount and the periodic interest expense is greater than the interest paid.
- The book value of a bond issue is the face value plus any unamortized premium or minus any unamortized discount.
- When a bond is sold between interest payment dates, the issuing company will normally collect the selling price plus any accrued interest since the last interest payment date.
- Because a company pays interest based on the contract rate but records interest expense based on the effective interest rate (yield), any premium or discount is amortized to account for this difference.
- Under the straight-line method, the premium or discount is amortized to interest expense in equal amounts, resulting in a constant amount of interest expense being recognized each period.
- Under the effective interest method, periodic interest expense is computed by multiplying the effective interest rate by the book value of the bonds and reflects a constant rate based on the book value of the bonds.



LINK TO INTERNATIONAL DIFFERENCES

International accounting standards for long-term liabilities are generally similar to U.S. principles. One exception is that any financial liability (or asset) *may* be measured at fair value, with the change in value included in net income.

7 Explain extinguishment of liabilities.

EXTINGUISHMENT OF LIABILITIES

The agreement between the bondholders and the issuing company always includes a specified maturity date. On this date the company agrees to repay the face value of the bonds to the bondholders. At this time any premium or discount will be completely amortized so that the book value of the bonds is equal to the face value. Occasionally, under certain circumstances, bonds may be retired (extinguished) prior to their scheduled maturity date.

Over the past three decades, both the APB and the FASB have considered the various circumstances under which liabilities should be considered to be extinguished and what, if any, gain or loss should be recognized on that extinguishment. Under **FASB Statement No. 140**, a liability is derecognized (extinguished) for financial reporting purposes if either of the following occurs:⁵

1. The debtor pays the creditor and is relieved of its obligation for the liability.
2. The debtor is released legally from being the primary obligor under the liability.

Bonds may be extinguished by retirement at maturity or prior to maturity. We discuss the accounting issues related to these retirements in the following sections.

Bonds Retired at Maturity

On the balance sheet issued immediately prior to the maturity date, a company reclassifies the face value (and any related premium or discount) of the bonds to be retired from a noncurrent (long-term) to a current liability if it will use current assets to repay the obligation. On the maturity date, after the last interest payment is recorded, any premium or discount on bonds payable is fully amortized. Therefore, the book value of the bonds is equal to the maturity value. The company records the retirement of bonds on the maturity date by a debit to Bonds Payable to eliminate the liability and a credit to Cash.

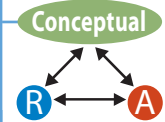
Bonds Retired Prior to Maturity

To reduce their level of debt, eliminate any restrictions on operations included in the bond contract, or protect themselves from the inability to take advantage of future favorable changes in market conditions, many companies will include a **call provision** on long-term debt. **This provision allows the company to recall the debt issue at a pre stated percentage of the face value prior to the maturity date.** Since the call price generally is above the issue price (if not, it is unlikely that the company would be able to sell the debt issue), a loss or, in unusual circumstances, a gain occurs when the company recalls the debt. An alternative method of retiring bonds prior to their maturity is for the company to purchase them on the open market. Then a gain or loss arises depending on the relationship between the book value and the market value of the bonds. The extinguishment of debt may take two forms: (1) the borrowed funds may no longer be needed, and the debt is not replaced (**debt retirement**), or (2) the existing debt may be replaced with another debt issue (**debt refunding**).

5. "Accounting for Transfers and Servicing of Financial Assets and Extinguishments of Liabilities," *FASB Statement of Financial Accounting Standards No. 140* (Norwalk, Conn.: FASB, 2000), par 16.

Conceptually, a company could recognize a gain or loss from a refunding:

- over the remaining life of the old issue,
- over the life of the new bond issue, or
- in the current period.



Recognizing the gain or loss over the remaining life of the old issue is favored by some because they view this as the period affected by the refunding. That is, a different interest cost would have been incurred if the old issue had been for a shorter period. Those who favor recognizing the gain or loss over the life of the new issue base their arguments on the matching principle. That is, the different interest cost obtained for the life of the new issue should be adjusted to reflect any refunding gain or loss. Finally, those who favor an immediate write-off argue that this method is the most logical because the value of the debt has changed in prior periods and paying the call (or purchase) price recognizes this change in value through a transaction of the current period.

When **APB Opinion No. 26** was issued, the Board took the position that all extinguishments of debt securities prior to maturity were basically alike (whether retirements or refundings) and should be accounted for in the same way. Since a company reports gains or losses on retirements of liabilities in the period of recall, *APB Opinion No. 26* concluded that current income should reflect any gains or losses from refunding.⁶ Thus, the gain or loss reported in a refunding transaction is computed in exactly the same way as a retirement and is included as a component of income from continuing operations.⁷ A company would only report the gain or loss as extraordinary if it is considered to be unusual and infrequent according to the criteria in *APB Opinion No. 30*.

In summary, whether a company recalls, retires, or refunds bonds prior to maturity, it reports any difference between the book value of the bonds (plus any unamortized bond issue costs) and the call price (or market price) as a gain or loss in income from continuing operations in the year the cancellation occurs.

Example: Retirement Prior to Maturity Assume that Channing Corporation originally issued \$100,000 of 12% bonds at 97 on January 1, 2002. The bonds have a 10-year life, pay interest on January 1 and July 1, and are callable at 105 plus accrued interest. Assume, for simplicity, that the company amortizes the discount by the straight-line method. On June 30, 2007 the company recalls the bonds. First, Channing records the current interest expense and liability, including the amortization of the discount that expired since the last interest payment, as follows:

Interest Expense	6,150	
Discount on Bonds Payable $[(\$3,000 \div 10) \times 1/2]$		150
Interest Payable $(\$100,000 \times 0.12 \times 1/2)$		6,000

Channing then records the reacquisition of the bonds as follows:

Bonds Payable	100,000	
Interest Payable	6,000	
Loss on Bond Redemption	6,350 ^b	
Discount on Bonds Payable		1,350 ^a
Cash $[(\$100,000 \times 1.05) + \$6,000]$		111,000

a. Original discount		\$ 3,000
Amortization on straight-line basis for 5 1/2 years = $5.5 \times \$300$		<u>(1,650)</u>
Unamortized discount 6/30/07		<u>\$ 1,350</u>
b. Call price (excluding interest)		\$105,000
Less: Face value	\$100,000	
Unamortized discount	<u>(1,350)</u>	<u>(98,650)</u>
Loss on bond redemption		<u>\$ 6,350</u>

6. "Early Extinguishment of Debt," *APB Opinion No. 26* (New York: AICPA, 1972).
 7. "Rescission of FASB Statements No. 4, 44, and 64, Amendment of FASB Statement No. 13, and Technical Corrections," *FASB Statement of Financial Accounting Standards No. 145* (Norwalk, Conn.: FASB, 2002), par. 6.

Channing reports the loss of \$6,350 in income from continuing operations on its 2007 income statement. ♦

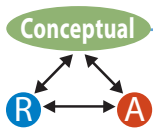
Earlier we noted that the FASB has concluded that, in addition to retirement at maturity or prior to maturity, a liability can be extinguished if the debtor is legally released from being the primary obligor of the liability. This is sometimes referred to as *defeasance*. It might arise when an affiliated company agrees to become the primary obligor for the liability. The parent company removes the liability (e.g., bonds payable) from its balance sheet and reports a gain (or perhaps a reduction in an investment in affiliate account). The parent company may still be required to disclose a contingent liability. This situation would arise if the parent has been released from being the primary obligor because a third party has assumed the debt, but the creditor requires the parent to be a guarantor of the third party's debt.

BONDS WITH EQUITY CHARACTERISTICS

8 Understand bonds with equity characteristics.

A company may issue bonds that allow creditors to ultimately become stockholders either by attaching **stock warrants** to the bonds or including a **conversion feature** in the bond indenture. In either case, the investor has acquired a dual set of rights:

- The right to receive interest on the bonds
- The right to acquire common stock and to participate in the potential appreciation of the market value of the company's common stock



Conceptually, it can be argued that the economic substance of issuing bonds with either detachable warrants or a conversion feature is similar. For consistency, therefore, a portion of the proceeds of a bond issue carrying either of these features could be assigned to stockholders' equity. However, GAAP differ in their treatment of these securities.

Bonds Issued with Detachable Stock Warrants

When a company issues bonds with detachable stock warrants, these **warrants represent rights that enable the security holder to acquire a specified number of common shares at a given price within a certain time period**. Stock warrants are attached to bonds to increase their marketability. They generally result in either a relatively lower interest rate or greater proceeds when compared with other bond issues with similar risk but without such rights. (The terms *stock warrants* and *stock rights* often are used interchangeably.) Because these warrants are detachable, they usually trade separately from the bonds on the open market.

APB Opinion No. 14 requires that a portion of the proceeds of bonds issued with detachable warrants is allocated to the stock warrants and accounted for as additional paid-in capital. This allocation is based on the relative fair values of the bonds and warrants as soon as both elements trade separately on the open market. The allocation is made as follows:

$$\text{Amount Assigned to Bonds} = \frac{\text{Market Value of Bonds Without Warrants}}{\text{Market Value of Bonds Without Warrants} + \text{Market Value of Warrants}} \times \text{Issuance Price}$$

$$\text{Amount Assigned to Warrants} = \frac{\text{Market Value of Warrants}}{\text{Market Value of Bonds Without Warrants} + \text{Market Value of Warrants}} \times \text{Issuance Price}$$

Example: Bonds Issued with Warrants Assume Paul Company sold \$800,000 of 12% bonds at 101, or \$808,000. Each \$1,000 bond carried 10 warrants, and each warrant allows the holder to acquire one share of \$5 par common stock for \$25 per share. After issuance, the bonds are quoted at 99 *ex rights* (without the rights attached), and the warrants (rights) are quoted at \$3 each. The company calculates the values assigned to each security as follows:

$$\begin{aligned} \text{Value Assigned to Bonds} &= \frac{\$990 \times 800}{(\$990 \times 800) + (\$3 \times 800 \times 10)} \times \$808,000 \\ &= \frac{\$792,000}{\$792,000 + \$24,000} \times \$808,000 = \underline{\underline{\$784,235.29}} \\ \text{Value Assigned to Warrants} &= \frac{\$3 \times 800 \times 10}{(\$990 \times 800) + (\$3 \times 800 \times 10)} \times \$808,000 \\ &= \frac{\$24,000}{\$792,000 + \$24,000} \times \$808,000 = \underline{\underline{\$ 23,764.71}} \end{aligned}$$

In the denominator of each equation, note that the \$792,000 fair value of the bonds without warrants is computed by multiplying the \$990 (99 *ex rights*) quoted price times the 800 bonds. The fair value of the warrants is determined by multiplying the \$3 quoted price times the 8,000 warrants (800 × 10). Paul records the transaction as follows:

Cash	808,000.00	
Discount on Bonds Payable		
(\$800,000 – \$784,235.29)	15,764.71	
Bonds Payable		800,000.00
Common Stock Warrants		23,764.71

Each warrant is assigned a value of \$2.971 (\$23,764.71 ÷ 8,000). If 500 of the warrants were later exercised at the \$25 per share exercise price, Paul records the following journal entry:

Cash (\$25 × 500)	12,500.00	
Common Stock Warrants (\$2.971 × 500)	1,485.50	
Common Stock (\$5 × 500)		2,500.00
Additional Paid-in Capital on Common Stock		11,485.50

If the remaining warrants expire, Paul would record the following journal entry:

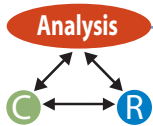
Common Stock Warrants		
(\$23,764.71 – \$1,485.50)	22,279.21	
Additional Paid-in Capital from Expired Warrants		22,279.21

This journal entry transfers the value assigned to the warrants to the existing stockholders. ♦

Convertible Bonds

A company may also issue bonds that are convertible into common stock. **At conversion, the bondholder (creditor) exchanges the bonds for a specified number of common shares (and becomes a stockholder).** Debt securities that are convertible into common stock often have played a role in corporate financing, and this role appears to be growing. The use of these financial instruments raises two questions. Why do companies issue such securities? Are the securities really bonds or are they a form of common stock?

Most financial analysts agree that a company sells convertible bonds for one of two primary reasons. One, the company wants to increase its equity capital at a later date and

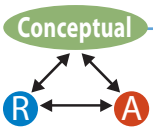


decides that the issuance of convertible bonds is the best way to do so. Two, it wants to increase its debt and finds the conversion feature necessary to make the security sufficiently marketable at a reasonable interest rate.

Several other factors have motivated companies to issue convertible bonds rather than common stock. For example, a company may wish to:

- Avoid the downward price pressures on its stock that placing a large new issue of common stock on the market would cause
- Avoid the direct sale of common stock when it believes its stock currently is undervalued in the market
- Penetrate that segment of the capital market that is unwilling or unable to participate in a direct common stock issue
- Minimize the costs associated with selling securities

For similar reasons, companies may issue convertible preferred stock (which we discuss in Chapter 17). In this chapter, we focus only on accounting for convertible bonds.



Recording the Issuance

When a company issues convertible debt, it must determine the value of these securities and their balance sheet presentation. Conceptually, there are two methods for recording the issuance of convertible debt. The company could either:

- attribute part of the proceeds from the sale of the security to the conversion privilege and allocate this to additional paid-in capital as part of stockholders' equity, or
- treat the issue solely as debt.

Both the conversion feature and the right to receive interest on the debt are valuable to an investor. Additionally, advocates of the first position argue that a lower interest rate or a higher selling price (or both) than might otherwise have been available usually accompanies the conversion feature. This indicates that investors are paying for the right to acquire common stock. Thus, an amount equal to the difference between the price at which the bonds might have been sold without the conversion privilege and the actual issue price should be allocated to additional paid-in capital. This position was taken in *APB Opinion No. 10* but soon was suspended in *APB Opinion No. 12*.⁸ Companies had opposed the convertible debt provisions of the earlier *Opinion*, and this viewpoint may have influenced the APB's suspension decision.

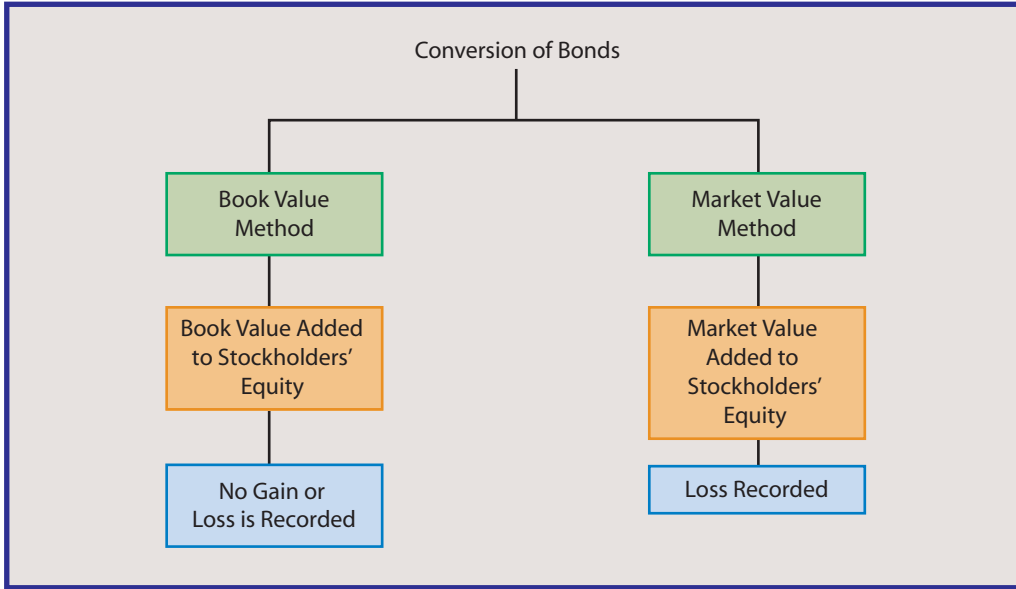
The decision was reversed in *APB Opinion No. 14*⁹ and **companies are required to treat the proceeds from the issuance of convertible debt solely as debt**. The APB argued that the debt and the conversion option are not separable, and that the values were not reliable. That is, the difficulty in assigning a *reliable* value to the conversion feature outweighed the arguments cited for the first method. Thus, treating the issue solely as debt is now the only generally accepted accounting principle. Thus, a company records the issuance of convertible debt in the same manner as the issuance of nonconvertible debt, without separately recording a value for the conversion feature. However, the FASB is considering a proposal to require that the equity component be separately valued, as we discuss later in the chapter.

Recording the Conversion

When bonds are converted into common stock, a company must determine the amount to record as stockholders' equity. If the conversion takes place between interest dates, the company first must record interest expense and any discount or premium amortization to bring the book value of the bonds up to date. There are two generally accepted methods for a company to record the conversion, as we show in the following diagram and summary.

8. "Omnibus Opinion—1966," *APB Opinion No. 10* (New York: AICPA, 1966), par. 8 and "Omnibus Opinion 1967," *APB Opinion No. 12* (New York: AICPA, 1967), par. 11.

9. "Accounting for Convertible Debt and Debt Issued with Stock Purchase Warrants," *APB Opinion No. 14* (New York: AICPA, 1969), par. 12.



1. *Book Value Method.* The stockholders' equity (common stock and additional paid-in capital) is recorded at the book value of the convertible bonds on the date of conversion, and no gain or loss is recorded upon conversion. (If the par value of the common stock is greater than the book value of the bonds, the difference is recorded as a reduction of retained earnings.)
2. *Market Value Method.* The stockholders' equity (common stock and additional paid-in capital) is recorded at the market value of the shares issued on the date of conversion, and a loss is recorded. The loss is computed by comparing the market value of the shares with the book value of the bonds at the time of conversion. (For a gain to be recognized, the market value of the shares would have to be less than the book value of the bonds—an unlikely event.) This loss is reported in income from continuing operations on the company's income statement.



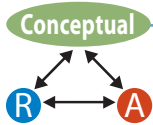
Example: Conversion of Bonds Assume that Shannon Corporation has outstanding convertible bonds with a face value of \$10,000, it has just paid interest on these bonds, and the bonds have a book value of \$10,500. Each \$1,000 bond is convertible into 40 shares of common stock (par value \$20 per share). If all the bonds are converted into common stock when the market value of Shannon's common stock is \$26.50 per share, it may record the following alternative journal entries:

Book Value Method

Bonds Payable	10,000	
Premium on Bonds Payable	500	
Common Stock (40 × 10 × \$20)		8,000
Additional Paid-in Capital from Bond Conversion (\$10,500 – \$8,000)		2,500

Market Value Method

Bonds Payable	10,000	
Premium on Bonds Payable	500	
Loss on Conversion (\$10,600 – \$10,500)	100	
Common Stock (40 × 10 × \$20)		8,000
Additional Paid-in Capital from Bond Conversion (40 × 10 × \$6.50)		2,600



Some users favor the market value method because they view the conversion as an economic event that should be recorded at fair value. Also, the company could have sold the stock at the market price and used the proceeds to retire the debt. Others criticize the market value method because it allows a company to manipulate its income by recording a loss (or gain) on transactions involving its own securities. They also argue that the book value method should be used because the conversion is not a new economic event, but rather a continuation of the contract terms established when the bonds were issued initially. For these reasons, most companies use the book value method, although both methods are acceptable under generally accepted accounting principles. ♦



Credit: Comstock Images

Induced Conversions

A company that has issued convertible bonds may want to induce conversion of these bonds to common stock to reduce interest costs, improve its debt/equity ratio, or for other reasons. To induce conversion, the company may add a “sweetener” to the convertible bond issue so that the conversion privileges are changed or additional consideration is paid to the bondholder.

FASB Statement No. 84 applies in situations where the conversion privileges are changed after the initial issuance, are effective for a limited period of time, involve additional consideration, and are made to induce conversion. The changed terms (privileges) may involve a reduction of the original conversion price resulting in the issuance of additional shares of common stock, the issuance of warrants or other securities not included in the original conversion terms, or the payment of cash to bondholders who convert during the specified time period.

When convertible bonds are converted to common stock in such a situation, the debtor company recognizes an expense equal to the excess of the fair value of the common stock (and any other consideration) transferred in the transaction over the fair value of the common stock issuable under the original conversion terms. The fair values are measured on the date the inducement offer is accepted by the convertible bondholders.¹⁰

For example, assume that the Harmon Company previously had issued convertible bonds with a face value of \$10,000 at par. At the time of issuance, the conversion terms allowed each \$1,000 bond to be converted into 40 shares of no-par common stock. To induce conversion, the company later changed the conversion terms so that each bond is convertible into 50 shares of no-par common stock if conversion is made in 60 days. All the bonds are converted within the time limit when the market price of the common stock is \$30 per share. The bond conversion expense is \$3,000 because the \$15,000 (10 × 50 × \$30) fair value of the no-par common stock issued in the transaction is in excess of the \$12,000 (10 × 40 × \$30) fair value of the shares that would have been issued under the original terms. Under the *book value method*, Harmon records the bond conversion expense at \$3,000, eliminates the \$10,000 par value of the bonds payable, and records the no-par common stock at \$13,000 as follows:

Bonds Payable	10,000	
Bond Conversion Expense	3,000	
Common Stock, no par		13,000



Harmon reports the bond conversion expense in its income from continuing operations.

10. “Induced Conversions of Convertible Debt,” *FASB Statement of Financial Accounting Standards No. 84* (Stamford, Conn.: FASB, 1985), par. 3 and 4.



SECURE YOUR KNOWLEDGE 14-2

- If bonds are extinguished prior to their maturity date, any difference between the book value of the bonds and the amount paid to retire the bonds is recognized as either a gain or loss in income from continuing operations.
- If bonds are issued with detachable stock warrants that give the bondholder the option to acquire shares of stock, the issue price is allocated between the bonds and the warrants based on their relative fair values.
- When convertible bonds contain both debt and equity components, current standards require that the issuance of such bonds is accounted for solely as debt due to the inseparability of the debt and conversion options and the lack of sufficiently reliable market valuations.
- Companies may record the conversion of bonds into stock using either the book value method (the equity is recorded at the book value of the debt) or the market value method (the equity is recorded at market value, which generally results in a loss).



LINK TO INTERNATIONAL DIFFERENCES

International accounting standards require a company that issues a compound financial instrument containing both liability and equity components to report each component separately on its balance sheet. While this is similar to U.S. GAAP with respect to bonds with detachable stock warrants, international standards require that companies with convertible debt value and report the debt instrument and the conversion option (an equity instrument) separately.

LONG-TERM NOTES PAYABLE

A long-term note is similar to a debenture bond because it represents a future obligation of the borrower to repay debt in more than a year. Also, in many cases no collateral backs the note. Similarly, a long-term note generally includes a provision for interest on the borrowed funds, and the rate of interest charged will depend on such factors as the credit standing of the borrower, the amount of current debt, and other issues.

The APB reviewed procedures used by various companies to account for notes receivable and payable and found that some note transactions did not have an interest charge (i.e., these transactions involved *non-interest-bearing notes*). These transactions apparently were used to maintain favorable customer or supplier relations or to ensure future services. *APB Opinion No. 21* was issued to provide guidelines for cases in which a note does not stipulate a rate of interest or the stated interest rate is clearly not appropriate. The basic principle is that, regardless of how a note is structured legally, **the note is recorded at its present value and the effective interest method is used to record the interest.**¹¹ In essence, accounting for a note is based on its economic substance and not its legal form. The variety of transactions discussed in the *Opinion* did not allow the use of the same interest rate in all situations. In some situations, the borrower knows the present value so that it calculates the interest rate implicit in the transaction and uses this rate to apply the effective interest method. In other situations, where the present value is not known, the

9 Account for long-term notes payable.

11. The straight-line method may be used if the results obtained are not materially different from the effective interest method.

borrower uses its incremental interest rate to determine the present value and to apply the effective interest method. **The incremental interest rate is the rate that the borrower would be required to pay to obtain similar financing in the credit market at the time the note is issued.** Three major categories of notes were addressed:

- Notes exchanged for cash
- Notes exchanged for cash and rights or privileges
- Notes exchanged for property, goods, or services

Although *APB Opinion No. 21* addressed the accounting for most notes receivable and payable, it specifically exempted normal trade transactions not exceeding one year, as we discussed in Chapter 7.¹²

Notes Payable Issued for Cash

When a company borrows cash and issues a long-term note payable bearing a stated (and fair) interest rate, it records the note initially at its face value (because it is equal to the present value). Subsequently, it records interest payments and accruals as debits to Interest Expense and credits to Cash or Interest Payable. Upon payment at maturity, it eliminates the Notes Payable account.

A more complex situation involves receiving cash in exchange for a long-term non-interest-bearing note (or a zero-coupon bond, as discussed earlier). **When a long-term non-interest-bearing note is exchanged solely for cash, the note is assumed to have a present value equal to the cash proceeds. The difference between the cash proceeds and the face value of the note is recorded as a discount and amortized over the life of the note by the effective interest method.** To apply the effective interest method, a company must determine the implicit (effective) interest rate of the note. Since the cash received is the present value of the note and the face value is the future value of the note at maturity, **the effective (implicit) interest rate is the rate that equates the future value on the maturity date to the present value.**

Example: Note Payable Issued for Cash Assume that on January 1 of the current year Johnson Company issues a three-year, non-interest-bearing note with a face value of \$8,000 and receives \$5,694.24 in exchange. Johnson records the issuance of the note as follows:

Cash	5,694.24	
Discount on Notes Payable	2,305.76	
Notes Payable		8,000.00

The discount account is a contra account and is subtracted from the Notes Payable account on the company's balance sheet to report the carrying (book) value of the note.¹³ From the Present Value of 1 Table (Time Value of Money Module), we find that the effective (implicit) interest rate that equates the present value of \$5,694.24 to \$8,000 at the end of three years is 12%.¹⁴ The company computes the interest expense each year by multiplying the 12% effective interest rate by the carrying value at the beginning of the year. This

12. *APB Opinion No. 21, op. cit.*, par. 1, 3, and 15.

13. An alternative method is to record the Notes Payable account at its present value without the use of a Discount account. In this case, the adjusting entries for interest involve a debit to Interest Expense and a credit directly to the Notes Payable account. When a company uses this method, it discloses the difference between the maturity value and the carrying value parenthetically on its balance sheet as the amount of the discount.

14. Present Value = Future Value × Factor
 $\$5,694.24 = \$8,000 \times \text{Factor}$
 $\text{Factor}_{n=3, i=?} = \$5,694.24 \div \$8,000 = 0.711780$
 $i = 12\%$

amount also increases the carrying value of the note by reducing the discount. The company computes the interest each year as follows:

	Year 1	Year 2	Year 3
Note payable	\$ 8,000.00	\$ 8,000.00	\$8,000.00
Less: Unamortized discount	(2,305.76)	(1,622.45) ^a	(857.14) ^b
Carrying value at beginning of year	\$ 5,694.24	\$ 6,377.55	\$7,142.86
× Effective interest rate	<u>0.12</u>	<u>0.12</u>	<u>0.12</u>
Interest expense and discount amortization	<u>\$ 683.31</u>	<u>\$ 765.31</u>	<u>\$ 857.14</u>

a. \$2,305.76 – \$683.31

b. \$1,622.45 – \$765.31

Johnson records the \$683.31 interest expense for the first year as follows:

Interest Expense (\$5,694.24 × 0.12)	683.31	
Discount on Notes Payable		683.31

The company records interest expense for the next two years in the same way so that the Discount account has a zero balance at the end of the third year. Therefore, the carrying value at the end of the third year is \$8,000 (the face value of the note), and the repayment involves a debit to Notes Payable and credit to Cash for the \$8,000 face value of the note. ♦

Notes Payable Exchanged for Cash and Rights or Privileges

Long-term notes exchanged for cash may include special rights or privileges. A company must consider these rights or privileges when accounting for such long-term notes. For instance, a company might sign a contract with a customer in which the company borrows cash from the customer on a non-interest-bearing basis, with the understanding that the customer has the right to purchase certain goods from the company at less than prevailing prices over the period of the contract. In this situation the consideration received from the customer for the note is, in essence, a prepayment for future purchases. In such a case, for the company issuing the note:

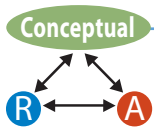
1. The note is recorded at its present value at the time of issuance by discounting the maturity value using the incremental interest rate of the borrower.
2. Interest expense is recorded each period over the life of the note using the effective interest method.
3. The difference between the cash proceeds and the present value of the note is recorded as unearned revenue, and revenue is recognized over the life of the contract using appropriate revenue recognition criteria.

For instance, revenue might be recognized on a per-unit basis as goods are sold, or evenly throughout the contract on a straight-line basis.

Example: Exchange for Cash and Rights or Privileges Assume that the Verna Company borrows \$100,000 by issuing a three-year, non-interest-bearing note to a customer. In addition, Verna Company agrees to sell inventory to the customer at reduced prices over a five-year period. Verna's incremental borrowing rate is 12%, so the present value of \$100,000 to be repaid at the end of three years is \$71,178 ($\$100,000 \times 0.711780$, from the Present Value of 1 Table in the TVM Module). The customer agrees to purchase an equal amount of inventory each year over the five-year period so that a straight-line

method of revenue recognition is appropriate. In this situation, Verna Company records the following journal entries during the first two years:

Issuing the Note			
Cash		100,000.00	
Discount on Notes Payable			
(\$100,000 – \$71,178)		28,822.00	
Notes Payable			100,000.00
Unearned Revenue			28,822.00
End of First Year			
Interest Expense (\$71,178 × 0.12)		8,541.36	
Discount on Notes Payable			8,541.36
Unearned Revenue (\$28,822 ÷ 5 years)		5,764.40	
Sales Revenue			5,764.40
End of Second Year			
Interest Expense [(\$71,178 + \$8,541.36) × 0.12]		9,566.32	
Discount on Notes Payable			9,566.32
Unearned Revenue		5,764.40	
Sales Revenue			5,764.40



Recording the transactions according to these procedures results in the proper recognition of both the revenue and expense components. The company recognizes revenue as it earns it and recognizes the expense over the life of the loan. ♦

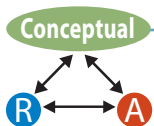
Notes Payable Exchanged for Property, Goods, or Services

When a note is exchanged solely for property, goods, or services in an external transaction, *APB Opinion No. 21* states that the stated rate of interest should be presumed fair. This presumption can be overcome only if:

- No interest is stated, or
- The stated rate of interest is clearly unreasonable, or
- The face value of the note is materially different from the cash sales price of the property, goods, or services, or the fair value of the note at the date of the transaction.¹⁵

In any of these cases, **the note is recorded at the fair value of the property, goods, or services, or the fair value of the note, whichever is more reliable.** The interest rate implicit in the transaction then is calculated and used to calculate the interest expense each period using the effective interest method. **If neither of these fair values is determinable, the note is recorded at its present value by discounting the future cash flow(s) using the incremental interest rate of the borrower.** The incremental interest rate then is used to apply the effective interest method to determine the interest expense.

In either situation, the carrying value of the note and the cost of the assets or services acquired are recorded at an amount that is less than the face value of the note. If the liability and asset had been erroneously recorded at the face value of the note, both would be overstated in the current period. Additionally, this would result in an overstatement of depreciation expense (or cost of goods sold) and an understatement of interest expense over the life of the asset and note, respectively. Recording the note at its fair (present) value results in correct asset and liability valuations and in the proper timing of expense recognition.



Example: Exchange for Property Assume that on January 1, 2007 the Marsden Company purchases used equipment from the Joyce Company, issuing a non-interest-bearing \$10,000, five-year note in exchange. Neither the fair value of the equipment nor that of the note is determinable, so Marsden uses its incremental interest rate to compute

15. *APB Opinion No. 21, op. cit.*, par. 12.

the present value. If Marsden’s incremental borrowing rate is 12%, the present value of \$10,000 to be repaid at the end of five years at 12% is \$5,674.27 ($\$10,000 \times 0.567427$, from Present Value of 1 Table in the TVM Module). Assume the remaining asset life is 10 years (no residual value). Marsden records the issuance of the note, the first two interest payments, and annual straight-line depreciation as follows:

<u>January 1, 2007</u>		
Equipment	5,674.27	
Discount on Notes Payable	4,325.73	
Notes Payable		10,000.00
<u>December 31, 2007</u>		
Interest Expense [$(\$10,000 - \$4,325.73) \times 0.12$]	680.91	
Discount on Notes Payable		680.91
Depreciation Expense	567.43	
Accumulated Depreciation ($\$5,674.27 \div 10$)		567.43
<u>December 31, 2008</u>		
Interest Expense		
{ $[\$10,000 - (\$4,325.73 - \$680.91)] \times 0.12$ }	762.62	
Discount on Notes Payable		762.62
Depreciation Expense	567.43	
Accumulated Depreciation		567.43

This example assumes that a 12% interest rate is appropriate for the transaction, but a borrower should attempt to determine the fair values of the property and of the note before applying its incremental interest rate. If either the fair value of the property or of the note is used, the note payable is recorded at the fair value, and the company must find the implicit interest rate that equates the recorded (fair) value to the face value over the term of the loan. For example, assume in the previous example that Marsden determines that the fair value of the equipment is \$6,209.21. From the Present Value of 1 Table (TVM Module), we find that the rate that equates \$6,209.21 to \$10,000 at the end of five years is 10%.¹⁶ Marsden would record the note payable initially at \$6,209.21, and then would record the interest expense of 10% on the carrying value of the note each year over the life of the note.

This example also assumes the issuance of a non-interest-bearing note. As discussed earlier, the same principles apply in the case where a note carries a stated interest rate that is unreasonable. For example, assume that on January 1, 2007 Fox Company issues a \$30,000, three-year note bearing interest of 2% for equipment when its incremental borrowing rate is 10%. If the fair value of the equipment or the note is not determinable, Fox records the transaction using the present value of the future cash flows with the 10% rate for the three-year life. In this case, it records the equipment and note at \$27,015.78 [$(\$30,000 \text{ face value} \times 0.751315) + (\$1,800 \text{ annual interest} \times 2.486852)$]. It then applies the effective interest method using the 10% rate at the end of each year to determine the interest expense. For instance, at the end of 2007, it debits Interest Expense for \$2,701.58 ($\$27,015.78 \times 0.10$), credits Cash for \$1,800 ($\$30,000 \times 0.06$), and increases the book value of the note by \$901.58. ♦

Disclosure of Long-Term Liabilities

We discussed how a company reports its long-term liabilities on its balance sheet in various sections earlier in the chapter. We also discussed how a company reports any gains or losses on the retirement of its long-term liabilities on its income statement. A company generally reports its long-term liability transactions involving cash in the financing section of its statement of cash flows. It reports the cash received from the issuance of notes

10 Understand the disclosure of long-term liabilities.

16. $\$6,209.21 \div \$10,000 = 0.620921$. In the $n = 5$ row, we find 0.620921 in the 10% column.



payable or bonds payable—whether issued at face value, at a premium, or at a discount—as a cash inflow from financing activities. It reports the cash paid to retire bonds payable or notes payable as a cash outflow for financing activities. It includes the cash paid for interest, however, in the operating activities section. Even though the interest paid is related to a financing activity, GAAP requires it to be included in operating activities because the related interest expense is included in the company's income statement. If a company has amortized a discount (premium) on bonds payable, under the indirect method, the company adds (subtracts) the discount (premium) to net income in the operating activities section of its statement of cash flows. It also includes any gains or losses on the retirement of its long-term liabilities as adjustments to net income in the operating activities section of its statement of cash flows. If a company converts bonds into common stock, it discloses this transaction as a non-cash financing activity.

A company also must disclose the various characteristics of its long-term debt. It normally does so in the notes to its financial statements. We show the disclosure by **IBM Corporation** of its long-term (and short-term) debt in Real Report 14-1 on page 668. Also included are disclosures about scheduled repayments of long-term debt, interest payments, capitalized interest, and lines of credit.



LINK TO RATIO ANALYSIS

Investors, creditors, and others are interested in a company's long-run solvency and stability. As companies acquire more debt, risk typically increases for equity owners. This risk arises from two sources. First, debt usually requires periodic interest payments, and failure to make these payments can lead to default and possibly bankruptcy. Second, in the event of bankruptcy, the creditors' claims are satisfied first. Two ratios that provide evidence of this risk that can affect a company's long-run solvency and stability are the debt ratio and the times interest earned ratio. Below are excerpts from the 2004 annual report of **Deere and Company**.

(in millions)	2004	2003
Total Assets	\$28,754.0	\$26,258.0
Total Liabilities	22,361.2	22,255.9
Interest Expense	592.1	628.5
Income before Income Taxes	2,113.7	971.3

Deere's debt ratio is:

$$2004: \frac{\text{Total Liabilities}}{\text{Total Assets}} = \frac{\$ 22,361.2}{\$ 28,754.0} = 0.78 \qquad 2003: \frac{\text{Total Liabilities}}{\text{Total Assets}} = \frac{\$ 22,255.9}{\$ 26,258.0} = 0.85$$

Subtracting this ratio from 100%, stockholders have contributed just 22% and 15% of the total assets for 2004 and 2003, respectively. The interest coverage ratio, a measure of the safety of creditors' investments in the company is:

$$2004: \frac{\text{Pretax Operating Income}}{\text{Interest Expense}} = \frac{\$ 2,113.7 + \$ 592.1}{\$ 592.1} = 4.57$$

$$2003: \frac{\text{Pretax Operating Income}}{\text{Interest Expense}} = \frac{\$ 971.3 + \$ 628.5}{\$ 628.5} = 2.55$$

These results show that Deere is a highly leveraged company, which is usually viewed as a more risky investment.



LINK TO ETHICAL DILEMMA

TLM, Inc., a struggling software development company, has been experiencing cash flow problems. To address working capital deficiencies, TLM entered into an agreement with one of its customers, MoneyTree, Inc. and issued a two-year, non-interest-bearing note with a face value of \$5,000,000 and received \$4,853,310 in exchange. This equates to an effective (implicit) interest rate of 1.5%. As the accountant for TLM, such a low interest rate (TLM's normal borrowing rate is 10%) has led you to question how this favorable rate was obtained. In your investigation, you discover that the CEO of TLM has an oral agreement with MoneyTree to provide free software support (e.g., installation, troubleshooting) over the next five years and it was the existence of this side agreement that resulted in the unreasonably low interest rate. You conclude that the note and future interest charges should be recorded at the market interest of 10%, resulting in larger yearly interest charges. Furthermore, the value of the software support should be recorded as unearned revenue and recognized over the next five years. Upper management disagrees with your conclusion and tells you that the interest expense that would be required under your assessment would turn the company's small positive net income into a net loss, as well as cause the company to be in technical violation of existing debt covenants. Furthermore, the CEO states that the verbal agreement is nonbinding and to record revenue in such a situation would be earnings management. The CEO instructs you to record the transaction as if the side agreement did not exist. What are your responsibilities?

LONG-TERM NOTES RECEIVABLE

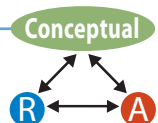
Although this is a chapter on long-term liabilities, we discuss accounting for long-term notes receivable here because the generally accepted accounting principles that apply to notes receivable are very similar to those for notes payable. Companies may acquire long-term notes receivable as a result of lending cash to another entity or in return for the extension of certain rights or privileges. However, except for financial institutions, long-term notes receivable are acquired primarily as a result of an exchange for property, goods, or services. We focus on this type of exchange in this section.

As we discussed in the previous section, when a company receives a note in exchange for property, goods, or services, it should presume that the stipulated interest rate is fair unless:

- No interest rate is stated
- The stated interest rate is clearly unreasonable
- The face value of the note is materially different from the cash sales price of the property, goods, or services, or from the fair value of the note on the transaction date

In any of these situations, **the note receivable is recorded at the fair value of the property, goods, or services or the fair value of the note, whichever is more reliable. If neither of these values is reliable, the note is recorded at its present value by using the borrower's incremental interest rate.** The effective interest method is used to record the periodic interest revenue. Recording the note at its fair value (present value) and using the effective interest method results in the correct asset valuation and in the proper timing of revenue recognition.

11 Account for long-term notes receivable, including impairment of a loan.





Real Report 14-1 Disclosure of Long-Term Liabilities

INTERNATIONAL BUSINESS MACHINES CORPORATION

k. Borrowings

SHORT-TERM DEBT

(Dollars in millions)

AT DECEMBER 31:	2004	2003
Commercial paper	\$3,151	\$2,349
Short-term loans	1,340	1,124
Long-term debt—current maturities	<u>3,608</u>	<u>3,173</u>
Total	<u>\$8,099</u>	<u>\$6,646</u>

The weighted-average interest rates for commercial paper at December 31, 2004 and 2003, were 2.2 percent and 1.0 percent, respectively. The weighted-average interest rates for short-term loans were 1.5 percent and 2.5 percent at December 31, 2004 and 2003, respectively.

LONG-TERM DEBT

Pre-Swap Activity

(Dollars in millions)

	Maturities	2004	2003
U.S. Dollars:			
Debentures:			
5.875%	2032	\$ 600	\$ 600
6.22%	2027	469	500
6.5%	2028	313	319
7.0%	2025	600	600
7.0%	2045	150	150
7.125%	2096	850	850
7.5%	2013	532	550
8.375%	2019	750	750
3.43% convertible notes*	2007	278	309
Notes: 5.9% average	2006–2013	2,724	3,034
Medium-term note program: 4.5% average	2005–2018	3,627	4,690
Other: 3.0% average**	2005–2010	<u>1,555</u>	<u>508</u>
		12,448	12,860
Other currencies (average interest rate at December 31, 2004, in parentheses):			
Euros (5.0%)	2005–2009	1,095	1,174
Japanese yen (1.2%)	2005–2015	3,435	4,363
Canadian dollars (7.8%)	2005–2011	9	201
Swiss francs (1.5%)	2008	220	—
Other (5.5%)	2005–2014	<u>513</u>	<u>770</u>
		17,720	19,368
Less: Net unamortized discount		49	15
Add: SFAS No. 133 fair value adjustment+		<u>765</u>	<u>806</u>
		18,436	20,159
Less: Current maturities		<u>3,608</u>	<u>3,173</u>
Total		<u>\$14,828</u>	<u>\$16,986</u>

*On October 1, 2002, as part of the purchase price consideration for the PwCC acquisition, ... the company issued convertible notes bearing interest at a stated rate of 3.43 percent with a face value of approximately \$328 million to certain of the acquired PwCC partners. The notes are convertible into 4,764,543 shares of IBM common stock at the option of the holders at any time after the first anniversary of their issuance based on a fixed conversion price of

Continued

\$68.81 per share of the company's common stock. As of December 31, 2004, a total of 720,034 shares had been issued under this provision.

**Includes \$249 million and \$153 million of debt collateralized by financing receivables at December 31, 2004 and 2003, respectively.

+In accordance with the requirements of SFAS No. 133, the portion of the company's fixed rate debt obligations that is hedged is reflected in the Consolidated Statement of Financial Position as an amount equal to the sum of the debt's carrying value plus an SFAS No.133 fair value adjustment representing changes recorded in the fair value of the hedged debt obligations attributable to movements in market interest rates and applicable foreign currency exchange rates.

Annual contractual maturities on long-term debt outstanding, including capital lease obligations, at December 31, 2004, are as follows:

(Dollars in millions)

2005	\$ 3,221
2006	3,104
2007	1,300
2008	499
2009	2,116
2010 and beyond	7,480

INTEREST ON DEBT

(Dollars in millions)

FOR THE YEAR ENDED DECEMBER 31:	2004	2003	2002
Cost of Global Financing	\$428	\$503	\$633
Interest expense	139	145	145
Interest expense—discontinued operations	—	—	2
Interest capitalized	<u>4</u>	<u>15</u>	<u>35</u>
Total interest paid and accrued	<u>\$571</u>	<u>\$663</u>	<u>\$815</u>

LINES OF CREDIT

On May 27, 2004, the company completed the renegotiation of a new \$10 billion 5-year Credit Agreement with JP Morgan Chase Bank, as Administrative Agent, and Citibank, N.A., as Syndication Agent, replacing credit agreements of \$8 billion (5 year) and \$2 billion (364 day). The total expense recorded by the company related to these facilities was \$8.9 million, \$7.8 million and \$9.1 million for the years ended December 31, 2004, 2003, and 2002, respectively. The new facility is irrevocable unless the company is in breach of covenants, including interest coverage ratios, or if it commits an event of default, such as failing to pay any amount due under this agreement. The company believes that circumstances that might give rise to a breach of these covenants or an event of default, as specified in these agreements, are remote. The company's other lines of credit, most of which are uncommitted, totaled \$9,041 million and \$8,202 million at December 31, 2004 and 2003, respectively. Interest rates and other terms of borrowing under these lines of credit vary from country to country, depending on local market conditions.

(Dollars in millions)

AT DECEMBER 31:	2004	2003
Unused lines:		
From the committed global credit facility	\$ 9,804	\$ 9,907
From other committed and uncommitted lines	<u>6,477</u>	<u>5,976</u>
Total unused lines of credit	<u>\$16,281</u>	<u>\$15,883</u>

Questions:

1. What is the remaining life of the debt with the longest maturity?
2. Why would financial statement users be concerned with the amount of long-term debt maturing in the next five years?
3. Did total interest paid and accrued increase or decrease in 2004?
4. Does IBM have financial flexibility?

Example: Exchange for Equipment To illustrate, consider the previous example in which the Joyce Company accepted a \$10,000, non-interest-bearing, five-year note on January 1, 2007 in exchange for used equipment it sold to Marsden Company. Since a reliable fair value for the equipment or the note was not available, Joyce uses Marsden's 12% incremental borrowing rate to determine a present value of \$5,674.27 for the note. Assume further that the equipment had originally cost the Joyce Company \$8,000 and had a book value of \$5,000 on the date of sale. The Joyce Company records the following journal entries for the exchange and the first two interest receipts:

<u>January 1, 2007</u>			
Notes Receivable		10,000.00	
Accumulated Depreciation		3,000.00	
Discount on Notes Receivable			
(\$10,000 – \$5,674.27)			4,325.73
Equipment			8,000.00
Gain on Sale of Equipment			674.27
<u>December 31, 2007</u>			
Discount on Notes Receivable		680.91	
Interest Revenue			
[(\$10,000 – \$4,325.73) × 0.12]			680.91
<u>December 31, 2008</u>			
Discount on Notes Receivable		762.62	
Interest Revenue			
{[\$10,000 – (\$4,325.7 – \$680.91)] × 0.12}			762.62



At the date of exchange, Joyce records the difference between the present value and face value of the note in a Discount on Notes Receivable account.¹⁷ This account is a contra account and is subtracted from the Notes Receivable account to report the carrying (book) value of the note on the company's balance sheet. Joyce computes the \$674.27 gain by comparing the book value (\$5,000) of the equipment with the present value (\$5,674.27) of the note. If the exchange takes place in the middle of the year, the company must make a depreciation adjusting entry to bring the book value of the equipment up to date. If the company receives cash in addition to the note, it computes the gain by comparing the book value of the equipment with the sum of the cash received plus the present value of the note.

At the end of each year the company records interest revenue using the effective interest method. By the maturity date, it will have amortized the entire discount to interest revenue, and the carrying value will equal the face value of the note. If a reliable value for the equipment or the note is available, the company records the note at this fair value and computes the implicit interest rate as we discussed in the previous section. The company then uses this interest rate to recognize periodic interest revenue under the effective interest method. ♦

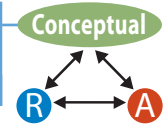
17. An alternative method is to record the Notes Receivable account at its present value without the use of a Discount account. The Notes Receivable account is then increased by each subsequent entry to record interest revenue and is equal to the maturity value on the due date.

Loan Fees

The proper matching of revenues and expenses for the lending activities of financial services companies is defined by **FASB Statement No. 91**. Lending activities precede the payment of funds and generally include efforts to identify and attract potential borrowers and to originate a loan or loan commitment. The nonrefundable fees charged to borrowers for these activities are called *loan origination fees* and *commitment fees*. Generally, any loan origination fees or commitment fees are deferred and recognized over the life of the loan as an increase in the interest revenue related to the note receivable. Likewise, the direct loan origination costs are deferred and recognized over the life of the loan as a decrease in the interest revenue. In either case, a new, effective interest rate (yield) is computed. In other words, the revenues and expenses for these lending activities are matched over the life of the loan rather than recognized in the period in which the loan is originated.¹⁸

Impairment of a Loan

Since loans typically are made by financial institutions such as banks, it is helpful to understand how they estimate bad debts as compared to retailers or manufacturers which make sales on credit. The retailer or manufacturer estimates bad debts in the period of the sales because it is probable that a portion of the asset (accounts receivable) has been impaired and the amount of the loss can be reasonably estimated based on historical information (as we discussed in Chapter 7). Thus, the bad debt expense is matched against revenues in the period of sale, and the receivables are reported at their net realizable value at the end of the period. In a later period, a specific account receivable is written off when it is determined that the amount is not collectible.

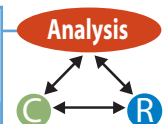


There are several differences between the receivables of a financial institution and those of a retailer or manufacturer. In the case of the financial institution:

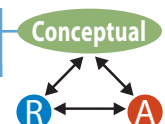
- The notes receivable result primarily from loans made to customers.
- The loans are made to more heterogeneous customers.
- The repayment periods for the loans are frequently longer (i.e., several years).
- There are fewer receivables because fewer loans are made.
- More thorough credit analyses are made before extending loans.

These differences affect when and how bad debt expense is recognized by a financial institution.

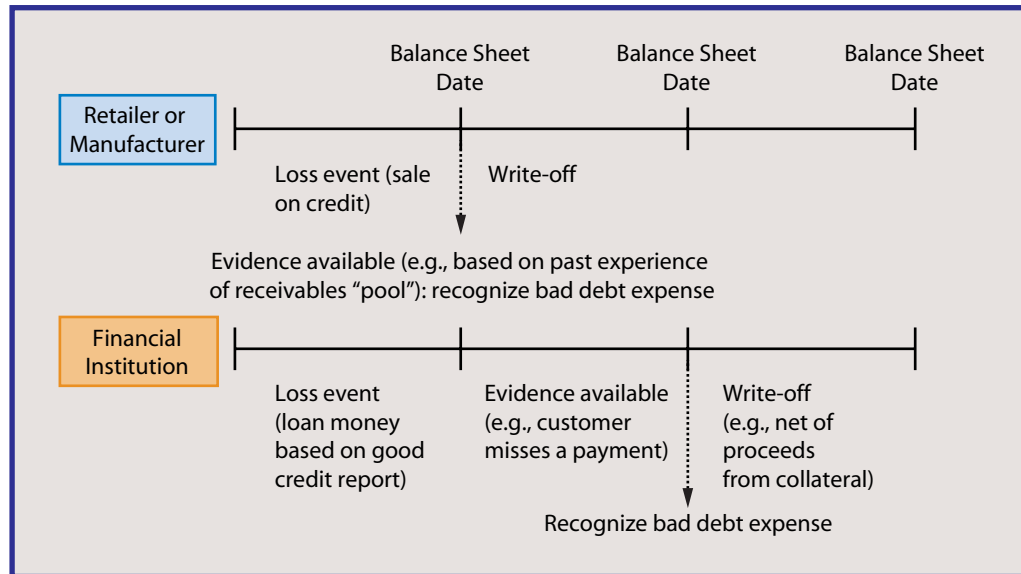
A financial institution is likely to make a more thorough credit analysis before granting a loan and to analyze the noncollectibility of each individual loan. Therefore, it is likely to recognize bad debts in a later period than a retailer or manufacturer. In a later period, however, a financial institution will recognize bad debt expense when, for instance, there is evidence that a loan may not be collectible (e.g., when the customer misses a payment on a loan). Then, in an even later period, a specific note receivable is written off when it is determined that the amount is not collectible, perhaps after taking possession of, and selling, the collateral provided by the borrower. We illustrate the difference between bad debt recognition for a retailer or manufacturer and a financial institution in the diagram on the next page of events occurring during several (perhaps nonconsecutive) accounting periods.



Note that because there is a delay in the recognition of bad debts by a financial institution, it does not recognize bad debt expense in the period in which the loan originates (and the financial institution does not recognize revenue from the loan origination), and it does not report its receivables at their net realizable value at the end of that period. However, *relevant* expense recognition and receivables valuation does occur when *reliable* information becomes available that a loan is impaired.



18. "Accounting for Nonrefundable Fees and Costs Associated with Originating or Acquiring Loans and Initial Direct Costs of Leases," *FASB Statement of Financial Accounting Standards No. 91* (Stamford, Conn.: FASB, 1986), par. 5-9.



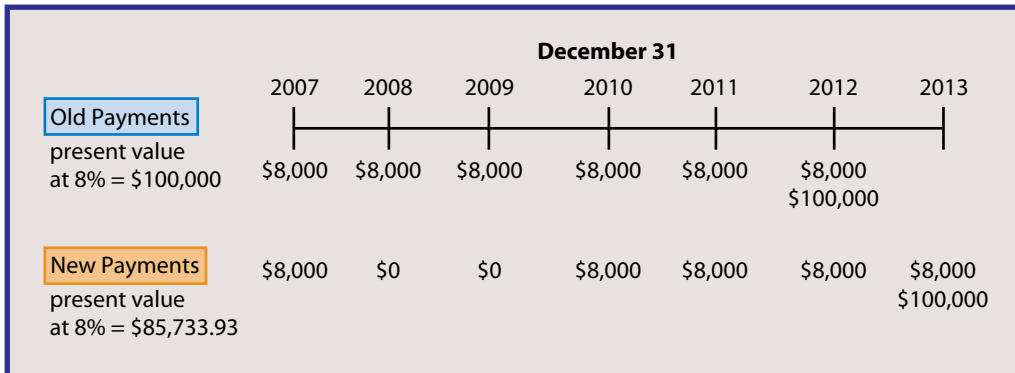
A loan (note receivable) is impaired if it is *probable* that the creditor will be unable to collect all amounts due according to the contractual terms of the loan agreement.¹⁹ Impairment occurs when there is a delay or reduction in the payment of the principal or interest. The creditor company, often a financial institution, applies its normal loan review procedures in making this determination. A loan is *not* impaired even if there is a delay in making interest or principal payments provided the creditor expects to collect all amounts due, including interest accrued during the period of delay. When a loan is found to be impaired, the creditor company computes the present value of the expected future cash flows of the impaired loan using the effective interest rate on the loan. The effective interest rate is the original (contractual) interest rate on the loan (adjusted for any loan fees, discount, or premium). The creditor recognizes the amount by which the present value is less than the recorded investment in the loan as Bad Debt Expense and Allowance for Doubtful Notes. Alternatively, the creditor may measure the impairment based on the loan's market price, or the fair value of the collateral if it expects repayment of the loan to be provided solely by the underlying collateral (net of the costs of selling the loan or the collateral).

Once the creditor has written down the loan, it computes the interest revenue each period by multiplying the carrying value of the loan by the effective interest rate. It recognizes the interest revenue as a reduction of the allowance account.²⁰ If there are additional changes in the amount or timing of an impaired loan's expected cash flows, or if actual cash flows are different than expected cash flows, the creditor recalculates the amount of the impairment. It recognizes the difference, whether an increase or decrease, as an adjustment to Bad Debt Expense and the Allowance account.

19. "Accounting by Creditors for Impairment of a Loan," *FASB Statement No. 114* (Norwalk, Conn.: FASB, 1993). This *Statement* also applies to the impairment of accounts receivable of more than one year (which we do not discuss here). It does *not* apply to investments in debt securities, as defined in *FASB Statement No. 115* (which we discuss in Chapter 15).

20. This method is the conceptually preferred method for recognizing income. Alternatively, *FASB Statement No. 114* allows for the entire change in the present value (the bad debt expense *and* the interest revenue) to be recognized as a single amount and reported as an increase or decrease in bad debt expense. However, because the two alternatives were inconsistent with the accounting for impaired loans required by bank and thrift regulators, *FASB Statement No. 118* was issued in 1994. This amendment allows the use of any method of income recognition, such as cash basis or cost recovery, even though the current value of the impaired loan may be less than the present value of the expected cash flows discounted at the loan's effective interest rate. Thus, the Board decided to allow for a reduction of *comparability* in order to reduce implementation *costs* for companies. It also increased disclosure by requiring that companies must report their policy for recognizing interest income. Since illustrations of all the methods are beyond the scope of the book, we use the conceptually preferred effective interest method.

Example: Impairment of Loan To illustrate the impairment of a loan using present value calculations, assume that the Snook Company has a \$100,000 note receivable from the Ullman Company that it is carrying at face value. The original loan agreement specifies that interest of 8% is payable each December 31 and the principal is to be paid on December 31, 2012. The Ullman Company paid the interest due on December 31, 2007, but informed the Snook Company at that time that it probably would miss the next two year's interest payments because of its financial difficulties.²¹ After that, it expects to resume the \$8,000 annual interest payments, but the principal payment would be made one year late with interest paid for that additional year. We show these different cash flows in the following diagram:



On December 31, 2007 the Snook Company computes the present value of the impaired loan as we show below. Note that the company discounts the principal for six years, the period from December 31, 2007 to December 31, 2013, but only discounts the interest for four years, deferred two years, because Ullman will not pay interest for two years.

$$\begin{aligned}
 \text{Present value of principal} &= \$100,000 \times \text{present value of a single sum for} \\
 &\quad \text{6 years at 8\% (from Time Value of Money Module)} \\
 &= \$100,000 \times 0.630170 \\
 &= \$63,017.00 \\
 \text{Present value of interest} &= \$8,000 \times \text{present value of an annuity for 4 years} \\
 &\quad \text{at 8\% deferred 2 years (from Time Value of Money} \\
 &\quad \text{Module)} \\
 &= \$8,000 \times 3.312127 \times 0.857339 \\
 &= \$22,716.93 \\
 \text{Value of the impaired loan} &= \$63,017.00 + \$22,716.93 \\
 &= \$85,733.93
 \end{aligned}$$

At December 31, 2007, the Snook Company recognizes the impairment of \$14,266.07 (\$100,000 carrying value – \$85,733.93 present value) as follows:

Bad Debt Expense	14,266.07	
Allowance for Doubtful Notes		14,266.07

At December 31, 2008, the Snook Company recognizes interest revenue of \$6,858.71 [8% × \$85,733.93 (\$100,000 – \$14,266.07)] as follows:

Allowance for Doubtful Notes	6,858.71	
Interest Revenue		6,858.71

At December 31, 2009 the Snook Company recognizes interest revenue of \$7,407.36 [8% × \$92,592.64 (\$100,000 – \$7,407.36), adjusted for \$0.04 rounding error]. This eliminates

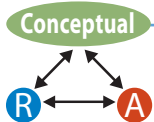
21. In a more complex situation, knowledge of the loan impairment would occur when a payment is missed. If the company has accrued interest revenue for the period, the bad debt expense would be the difference between the carrying value (including the accrued interest) and the present value of the expected cash flows (including any late interest payments).

the balance in the Allowance for Doubtful Notes account, and the carrying value of the receivable is now \$100,000. Snook will recognize interest revenue of \$8,000 each year for 2010 through 2013 as the cash payment is received. Snook will eliminate the \$100,000 carrying value on December 31, 2013 when it receives the principal payment. If Snook's expectations of future cash flows decrease (increase) before December 31, 2009, it would debit (credit) Bad Debt Expense and credit (debit) the Allowance account for the decrease (increase) in the present value. In either situation, the company would recognize interest revenue each year, as we discussed earlier. ♦



LINK TO INTERNATIONAL DIFFERENCES

When a loan (note receivable) is impaired, international accounting standards, similar to U.S. standards, require a company to compute the loss as the difference between the carrying value of the receivable and the present value of the future cash flows. However, international standards allow the company to record the loss by reducing the receivable directly or through the use of an allowance account. Also, if in a later period the impairment loss decreases, international standards allow the company to reverse the impairment loss with the reversal included in income.



Conceptual Evaluation

FASB Statement No. 114 was issued because companies were using a variety of practices when a loan was impaired. Some would make no adjustment to the value of the loan, some would value the loan based on undiscounted cash flows, and some would use discounted cash flows. Thus, one objective of issuing the *Statement* was to establish a consistent method for valuing impaired loans. Another objective was to require companies to measure the economic losses on impaired loans and to include them in their income.

Perhaps the only controversial issue in the required principles is the use of the original (contractual) interest rate rather than a current market rate that would reflect the risk involved in the loan (which is now higher than at the origination of the loan). The FASB concluded that the loan impairment measurement should reflect only the deterioration in the borrower's credit quality (which is evidenced by the reduced future cash inflows), and should not reflect changes in interest rates.

The *Statement* was adopted by a 5-to-2 vote, however, with the two dissenters arguing that the *fair value* of the loan should be recognized. Such a fair value would be the market value of the loan or the present value of the expected cash flows discounted at the *market* rate of interest. The market rate reflects current economic events and conditions, and is consistent with the risk involved. The dissenters argued that the fair value provides the most *relevant* information about the amount and riskiness of the expected future cash flows. The historical effective interest rate reflects the risk characteristics of the loan at the time it was originated or acquired, but not at the time it was impaired. Also they note that bad debt expense would be *overstated* if the historical rate is *higher* than the current market rate.

Initially, it may seem surprising that interest revenue (based on the new carrying value) is recognized even though a loan is impaired. For example, the Snook Company recognizes interest revenue in 2008 when it receives no cash. However, remember that in 2007, it recognizes the economic loss of \$14,266.07 associated with the receivable and values the loan at the present value of the future cash flows. It then recognizes interest revenue on that reduced value. As always, one of the major issues of income recognition is the period in which income (and losses) should be recognized. These principles for the impairment of a loan recognize the true economic situation appropriately because a loss is recognized in the period of impairment and interest revenue is recognized in later periods.

Guarantees

Sometimes a company may guarantee another company's debt. For example, suppose the Probst Company sells a product to the Metcalf Company for \$10 million. Since Metcalf does not have sufficient cash, it decides to take out a bank loan to finance the purchase. However, its financial status is such that the bank will not provide an unsecured loan. So the Probst Company agrees to guarantee Metcalf's loan from the bank so that it can make the sale. **FASB Interpretation No. 45** requires the Probst Company to determine the fair value of the guarantee and recognize it as a liability.²² The company has a liability because it has an obligation to "stand ready" to perform over the life of the guarantee if the specific triggering events or conditions occur. For the Probst Company, it would have to repay the bank loan if the Metcalf Company defaulted. In addition to recognizing a liability, Probst would reduce the profit it recognizes on the sale.

The *Interpretation* does not explicitly state how the guarantee is to be accounted for in future periods. However, it is presumed that the company would determine the fair value each period, and recognize the change in value in its income for the period. In most situations, the fair value would decrease each period and a gain would be recognized.

The *Interpretation* also requires the company to make certain disclosures including the nature of the guarantee, its approximate term, how it arose, and the events or circumstances that would require the company to perform under the guarantee. Other disclosures include the maximum potential future undiscounted payments that the company could be required to make and the current carrying value of the liability. The *Interpretation* does not apply to some guarantees, such as insurance and warranty contracts.



SECURE YOUR KNOWLEDGE 14-3

- Long-term notes are recorded at their present value with periodic interest determined using the effective interest method.
- When a note is exchanged for cash and special rights or privileges, these rights and privileges represent unearned revenue (measured as the difference between the cash proceeds and the present value of the note) which is recognized over the life of the contract.
- A note issued in exchange for property, goods, or services is recorded at the fair value of the property, goods, or services or the fair value of the note, whichever is more reliable.
- The accounting for long-term notes receivable is similar to that of long-term notes payable, with any loan fees being deferred and recognized over the life of the loan.
- If a loan (note receivable) becomes impaired, a company must write down the loan to the present value of the expected future cash flows by setting up an allowance account; it then records future interest revenue as a reduction to the allowance account.

Future Developments

At the time of writing this book, the FASB has issued an *Exposure Draft* that, if implemented, will have significant effects on how some companies account for liabilities. ***Exposure Draft No. 213-B***, "Accounting for Financial Instruments with Characteristics of Liabilities, Equity, or Both," will, if adopted, change the accounting for what the FASB has identified as **multiple-component instruments**. These financial instruments have characteristics of both liabilities and equity. This *Exposure Draft* would require a company that issues a multiple component instrument to separately classify the liability component and the equity component. In measuring the amount to classify as each component, it must allocate the proceeds received to its liabilities and its stockholders' equity using the relative-fair-value-method.

22. "Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Others," *FASB Interpretation No. 45* (FASB: Norwalk, Conn.: 2002).

This new GAAP would affect how a company accounts for the issuance of convertible bonds. When a company issues convertible bonds, it would allocate a portion of the proceeds to the conversion feature and account for this amount as additional paid-in capital. This allocation is based on the relative independent fair values of the liability (bonds) component and the equity (conversion rights) component.

When convertible bondholders exercise their rights to convert the bonds to common stock, the company must determine any gain or loss, as well as the amount to record as stockholders' equity. To determine these amounts, the company would complete a series of steps. It would:

1. Determine the total fair value of the convertible bonds on the conversion date
2. Determine the independent fair values of the liability (bonds) component and the stockholders' equity (conversion rights) component
3. Allocate the total fair value from step (1) to the liability component and the stockholders' equity component based on the relative independent fair values of each of these components
4. Subtract the fair value of the bonds component from the book value of the bonds to determine the gain or loss after conversion before
5. Assign the fair value of the bond component to the separate elements (i.e., common stock and additional paid-in capital) of the equity component

The company would then prepare a journal entry to eliminate the book value of the bonds, record the gain or loss on the conversion, and record the common stockholders' equity at the fair value of the bonds.

APPENDIX 1: TROUBLED DEBT RESTRUCTURINGS

12 Understand troubled debt restructurings.

Some companies that experience difficulty in repaying long-term debt obligations enter into financial arrangements with their creditors to allow them to avoid bankruptcy. **FASB Statement No. 15** states that a **troubled debt restructuring occurs when a creditor for economic or legal reasons related to a debtor's financial difficulties grants a concession to the debtor that it would not otherwise consider**. A troubled debt restructuring may include, but is not limited to, one or any combination of the following:

1. **Modification of terms** of a debt, such as one or a combination of:
 - a. Reduction of the stated interest rate for the remaining original life of the debt.
 - b. Extension of the maturity date at a stated interest rate lower than the current market rate for new debt with similar risk.
 - c. Reduction of the face amount or maturity amount of the debt.
 - d. Reduction of accrued interest.
2. **Issuance or other granting of an equity interest** to the creditor by the debtor to satisfy a debt unless the equity interest is granted under existing terms for converting the debt into an equity interest.
3. **Transfer of receivables, real estate, or other assets** from the debtor to the creditor to satisfy a debt.²³

ACCOUNTING BY THE DEBTOR

We first discuss the debtor's accounting for a troubled debt restructuring. Later we discuss the creditor's accounting.

23. "Accounting by Debtors and Creditors for Troubled Debt Restructurings," *FASB Statement of Financial Accounting Standards No. 15* (Stamford, Conn.: FASB, 1977), par. 2 and 5.

Modification of Terms

When a restructuring agreement involves only a modification of terms, the carrying value of the *liability* (face value of the debt plus any unpaid accrued interest) is compared to the *undiscounted* future cash payments (principal plus interest) specified by the new terms. Then, two different situations may arise:

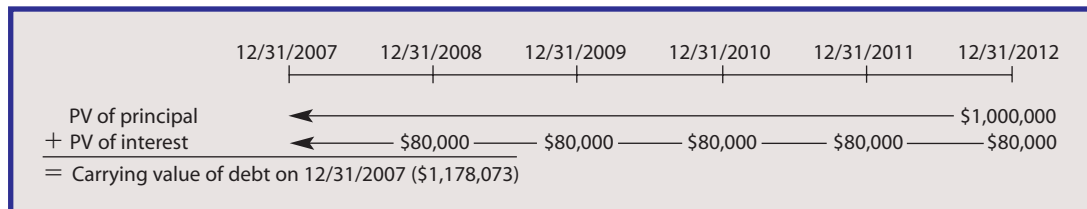
1. If the undiscounted total future cash payments are *greater* than (or equal to) the carrying value of the liability, the debtor does *not* recognize a gain, the carrying value of the liability is *not* reduced, and interest expense is recognized in future periods using an imputed interest rate.
2. If the future cash payments are *less* than the carrying value of the liability, the debtor recognizes a gain, the carrying value of the liability is reduced, and interest expense is *not* recognized in future periods.

Example: No Gain Recognized by the Debtor

When there is a modification of terms and the total cash to be repaid over the remaining life of the loan is greater than (or equal to) the carrying value of the liability, the debtor makes no adjustment to the carrying value. The debtor recognizes annual interest expense using the effective interest method. **The imputed interest rate used is the rate that equates the total amount of cash to be paid with the current carrying value of the debt.** In this situation, the debtor records a portion of each cash payment as interest expense and records the remainder as a reduction in the carrying value of the liability.

For example, assume that on December 31, 2007 Chapin Company restructures a \$1,178,073 debt with its bank (a note payable of \$1,100,000 plus accrued interest of \$78,073). The bank (1) forgives the \$78,073 of accrued interest and \$100,000 of principal, (2) extends the maturity date from December 31, 2007 to December 31, 2012, and (3) reduces the interest rate from 10% to 8%. The total future cash payments under the new terms are \$1,400,000 (principal of \$1,000,000 at the end of five years and interest of \$80,000 at the end of each year for five years). Since the *undiscounted* amount of the principal and interest to be paid (\$1,400,000) exceeds the carrying value of the liability (\$1,178,073), Chapin does not record a gain and therefore does not reduce the carrying value of the liability. It records the difference of \$221,927 as interest expense over the next five years by using the effective interest method. It determines the interest expense each period by multiplying the effective interest rate times the carrying value at the beginning of the period.

The effective interest rate is that rate which discounts the principal of \$1,000,000 and the interest payments of \$80,000 to the \$1,178,073 carrying value of the note. This discounting procedure involves two present value calculations, as we summarize in the following diagram:



This rate is found to be 4%, as proven below:

Present value of interest payments:

(Present Value of an Ordinary Annuity Table in
Time Value of Money Module, $n=5$, $i=0.04$) $\$80,000 \times 4.451822 = \$ 356,146$

Present Value of Principal:

(Present Value of 1 Table in Time Value
of Money Module, $n=5$, $i=0.04$) $\$1,000,000 \times 0.821927 = \underline{\underline{821,927}}$
Carrying Value of the Debt on 12/31/2007 $\underline{\underline{\$1,178,073}}$

On December 31, 2007 Chapin transfers the accrued Interest Payable balance to the Notes Payable account as follows:

Interest Payable	78,073	
Notes Payable		78,073

The Notes Payable account now contains the entire \$1,178,073 carrying value of the note. Chapin computes the interest expense to be recorded in each period by applying the effective interest rate of 4% to the carrying value of the note each year. Example 14-5 illustrates the computation of the interest expense and principal reduction for each year of the Chapin Company’s restructuring agreement.

EXAMPLE 14-5 Debt Restructuring Agreement: Schedule to Compute Interest Expense				
Date	Cash Credit ^a	Interest Expense Debit ^b	Notes Payable Debit ^c	Carrying Value of Note ^d
12/31/07				\$1,178,073.00
12/31/08	\$ 80,000	\$47,122.92	\$ 32,877.08	1,145,195.92
12/31/09	80,000	45,807.84	34,192.16	1,111,003.76
12/31/10	80,000	44,440.15	35,559.85	1,075,443.91
12/31/11	80,000	43,017.76	36,982.24	1,038,461.67
12/31/12	1,080,000	41,538.33 ^e	1,038,461.67	-0-

a. From terms of restructuring agreement.
 b. Previous carrying value × 0.04.
 c. Amount from footnote a – amount from footnote b.
 d. Previous carrying value – amount from footnote c.
 e. Difference due to \$0.14 rounding error.

In reviewing Example 14-5, note that each cash payment is separated into its principal and interest components by multiplying the carrying value of the note in each year by the imputed interest rate in the agreement (4% in this case). Chapin Company records the difference between the interest expense and each cash payment as a reduction in the carrying value of the note payable. For example, Chapin Company records the following journal entry on December 31, 2008:

Interest Expense	47,122.92	
Notes Payable		32,877.08
Cash		80,000.00 ♦

Example: Gain Recognized by the Debtor

An adjustment to the carrying value of the liability is required if the total cash to be repaid over the remaining life of the loan is less than that carrying value. In this case, the debtor recognizes a gain equal to the excess of the carrying value (face value plus accrued interest) over the sum of the future payments.

For example, assume that the Chapin Company was allowed the terms stated previously (reduction of principal by \$100,000, forgiving of \$78,073 of accrued interest, and extension of repayment period by five years), except that the stated interest rate was reduced to 3%. The aggregate future cash payments in this case total \$1,150,000 (\$1,000,000 principal and \$30,000 interest per year for five years). This amount is \$28,073 less than the carrying value of \$1,178,073 (\$1,100,000 face value + \$78,073 accrued interest). Chapin Company reports this amount as a gain in its income from continuing operations for 2007, eliminates the accrued interest, and credits the difference between the gain and the accrued interest to the Notes Payable account so that the balance is now \$1,150,000. Chapin records the restructuring on December 31, 2007 is as follows:

Interest Payable	78,073	
Notes Payable		50,000
Gain on Debt Restructure		28,073

Each future cash payment reduces the carrying value of the payable and Chapin does *not* recognize interest expense, since the effective interest rate is 0%. That is, since the amount to be repaid is less than the original carrying value of the liability, the creditor is, in effect, accepting repayment without an accompanying interest charge. Chapin records the first cash payment on December 31, 2008 as follows:

Notes Payable	30,000	
Cash		30,000

The reduction of the Notes Payable account by \$30,000 each year for five years will reduce this account to \$1,000,000. This amount will then be eliminated at the time of the lump-sum principal payment at the end of the fifth year. ♦

Equity or Asset Exchange

When a debtor satisfies a liability by exchanging an equity interest or an asset of lesser value, it records the transfer on the basis of the fair value of the equity interest or asset transferred and recognizes a gain on the debt restructuring. Also, when an *asset* is exchanged, if the fair value is greater or less than its carrying value, the debtor also records a gain or loss on the disposal of the asset.

Example: Equity Exchange

To illustrate an equity exchange, assume that on December 31, 2007 the Chapin Company repays the note payable and the accrued interest totaling \$1,178,073 by issuing 35,000 shares of its own common stock to the bank. The shares have a par value of \$10 per share and are selling currently for \$25 per share on the open market. Chapin records the stock at the fair value of \$875,000 ($35,000 \times \25), reduces the liability by \$1,178,073, and recognizes a gain of \$303,073. Chapin Company records the debt restructuring as follows:

Notes Payable	1,100,000	
Interest Payable	78,073	
Common Stock ($35,000 \times \$10$)		350,000
Additional Paid-in Capital on Common Stock		525,000
Gain on Debt Restructure		303,073 ♦

Example: Asset Exchange

To illustrate an asset exchange, assume the same information as the equity exchange except that the Chapin Company repays the liability by transferring land it owns to the bank. The land has a fair value of \$800,000 and had cost the Chapin Company \$600,000 five years ago. The Chapin Company recognizes a gain of \$378,073 ($\$1,178,073 - \$800,000$) on the restructuring and a gain of \$200,000 ($\$800,000 - \$600,000$) on the disposal of the land. Chapin Company records the debt restructuring as follows:

Notes Payable	1,100,000	
Interest Payable	78,073	
Gain on Debt Restructure		378,073
Gain on Disposal of Land		200,000
Land		600,000 ♦

Equity or Asset Exchange Combined with a Modification of Terms

In some situations, a troubled debt restructuring includes an equity or asset exchange as well as a modification of terms. In this case, the debtor records the equity or asset transfer first at the fair value as we discussed previously. It then compares the *remaining* carrying value of the liability, after deducting the fair value of the equity or assets transferred, to the total undiscounted future cash payments specified under the new terms. If the remaining carrying value is less than the total payments, the debtor does *not* recognize a gain, does *not* reduce the carrying value of the liability, and recognizes interest expense in future periods using an imputed interest rate. If the remaining carrying value is greater than the total payments, it recognizes a gain and reduces the carrying value of the liability, but does *not*

record interest expense in future periods. The accounting procedures to be followed in these two situations are the same as those we discussed earlier.



Disclosure of Restructuring Agreements

The following disclosures are required for debtors who have entered into restructuring agreements: (1) A description of the principal changes in terms and/or the major features of settlement for each restructuring agreement; (2) the aggregate gain on debt restructures and the related income tax effect; (3) the per share amount of the aggregate gain on restructuring, net of the related income tax effect; (4) the aggregate gain or loss recognized during the period on transfers of assets; and (5) information on any contingent payments.²⁴

The following is an example of the disclosure required for the Chapin Company's exchange of equity securities we discussed previously (ignoring income taxes):

During the year Chapin Company gave common stock with a fair value of \$875,000 to the bank in exchange for full settlement of a 10% note in the amount of \$1,100,000 and accrued interest of \$78,073. As a result of this exchange, the company recognized a gain of \$303,073 and increased earnings per share by \$0.11.

ACCOUNTING BY THE CREDITOR

The accounting principles for the creditor are defined by *FASB Statement No. 15* and *FASB Statement No. 114*. Some of the principles are “mirror images” of those for the debtor, while others are not.

Equity or Asset Exchange

The accounting by the creditor (e.g., the bank) for a troubled debt restructuring that involves an equity or asset exchange is a “mirror image” of the accounting by the debtor. These principles are defined by *FASB Statement No. 15*. Thus, when a creditor receives an equity interest or asset to satisfy the receivable, **the creditor records the equity or asset investment at fair value, eliminates the carrying value of the receivable, and recognizes a loss.**

Example 14-6 shows the journal entries used by Tenth National Bank to record the equity and asset exchanges for the troubled debt restructuring of the Chapin Company we discussed earlier. It is helpful to observe the mirror image by contrasting the bank's journal entries with those of the Chapin Company shown earlier.

EXAMPLE 14-6 Creditor Journal Entries for Troubled Debt Restructuring

<u>Equity Exchange</u>			
12/31/07	Investment in Chapin	875,000	
	Loss on Restructured Loan	303,073	
	Notes Receivable		1,100,000
	Interest Receivable		78,073
<u>Asset Exchange</u>			
12/31/07	Land	800,000	
	Loss on Restructured Loan	378,073	
	Notes Receivable		1,100,000
	Interest Receivable		78,073

24. *Ibid.*, par. 25 and 26.

Modification of Terms

The accounting principles for a modification of terms are *not* a mirror image because the creditor must recognize a new value for the loan. **The investment in the restructured loan is valued by discounting the total future cash flows specified by the new contractual terms to their present value.** A loss is recognized as the difference between the present value of the future cash flows and the carrying value of the receivable. **The effective interest rate used in the present value calculation is the original (contractual) interest rate on the loan** (i.e., the same interest rate used for a loan impairment), and *not* the rate specified in the restructuring agreement.²⁵

A loan whose terms are modified in a troubled debt restructuring usually will have been identified as impaired in a previous period. We discussed the accounting principles for an impaired loan earlier in the chapter.

Example: Modification of Terms To illustrate the accounting for a modification of terms in a troubled debt restructuring, consider the first Chapin Company example that we discussed earlier. Assume that the loan was from the Tenth National Bank and that the bank has *not* recognized a previous impairment. The bank's note receivable is \$1,100,000 and the accrued interest is \$78,073. On December 31, 2007, the bank restructures the note so that the new principal is \$1,000,000, payable in five years, with an interest rate of 8% (i.e., the annual interest payment is \$80,000). Since 10% is the original interest rate on the loan to the Chapin Company, the loan is valued as follows:

$$\begin{aligned}
 \text{Present value of principal} &= \$1,000,000 \times \text{present value of a single sum for} \\
 &\quad \text{5 years at 10\% (from Time Value of Money} \\
 &\quad \text{Module)} \\
 &= \$1,000,000 \times 0.620921 \\
 &= \$620,921.00 \\
 \text{Present value of interest} &= \$80,000 \times \text{present value of an annuity for} \\
 &\quad \text{5 years at 10\% (from Time Value of Money} \\
 &\quad \text{Module)} \\
 &= \$80,000 \times 3.790787 \\
 &= \$303,262.96 \\
 \text{Value of the restructured loan} &= \$620,921.00 + \$303,262.96 \\
 &= \$924,183.96
 \end{aligned}$$

On December 31, 2007, the bank records a loss of \$253,889.04 (\$1,178,073 – \$924,183.96) on the restructuring as follows:

Loss on Restructured Loan	253,889.04	
Interest Receivable		78,073.00
Notes Receivable		175,816.04

The carrying value of the Notes Receivable is now \$924,183.96 (\$1,100,000 – \$175,816.04).

In later periods, the bank earns interest at the original rate of 10% applied to the current carrying value. The bank recognizes interest revenue for 2008 of \$92,418.40 (10% × \$924,183.96) on December 31, 2008 as follows:

Cash	80,000.00	
Notes Receivable	12,418.40	
Interest Revenue		92,418.40

After five years of recording interest under the effective interest method, the Notes Receivable will grow to the principal amount of \$1,000,000.

For another illustration, consider the second Chapin Company example, where the stated interest rate is reduced to 3% (i.e., the annual interest payment is \$30,000) by the

25. "Accounting by Creditors for Impairment of a Loan," *FASB Statement No. 114, op. cit.*

Tenth National Bank. Since the original interest rate for the loan is 10%, the bank computes the value of the loan as follows:

$$\begin{aligned}
 \text{Present value of principal} &= \$1,000,000 \times \text{present value of a single sum for} \\
 &\quad 5 \text{ years at } 10\% \text{ (from Time Value of Money Module)} \\
 &= \$1,000,000 \times 0.620921 \\
 &= \$620,921.00 \\
 \\
 \text{Present value of interest} &= \$30,000 \times \text{present value of an annuity for} \\
 &\quad 5 \text{ years at } 10\% \text{ (from Time Value of Money Module)} \\
 &= \$30,000 \times 3.790787 \\
 &= \$113,723.61 \\
 \\
 \text{Value of the restructured loan} &= \$620,921.00 + \$113,723.61 \\
 &= \$734,644.61
 \end{aligned}$$

On December 31, 2007, the bank records a loss of \$443,428.39 (\$1,178,073 – \$734,644.61) on the restructuring as follows:

Loss on Restructured Loan	443,428.39	
Interest Receivable		78,073.00
Notes Receivable		365,355.39

The carrying value of the Notes Receivable is now \$734,644.61 (\$1,100,000 – \$365,355.39).

Since the bank earns interest at the original rate of 10%, it recognizes interest revenue for 2008 of \$73,464.46 (10% × \$734,644.61) on December 31, 2008 as follows:

Cash	30,000.00	
Notes Receivable	43,464.46	
Interest Revenue		73,464.46

After five years of recording interest under the effective interest method, Notes Receivable will grow to the principal amount of \$1,000,000. ♦

It is important to note the difference between the accounting by the debtor and creditor for a modification of terms. As we discussed earlier, the debtor does *not* record the liability at a present value and, therefore, either recognizes no interest expense at all or recognizes an interest expense that is based on a below-market rate that was never part of the contractual agreement. In contrast, the creditor records the receivable at a present value and, therefore, recognizes interest revenue at the original contractual rate. The FASB may eventually require that the debtor also use a present value.

Equity or Asset Exchange Combined with Modification of Terms

When an equity interest or asset is received and a modification of terms is made, the creditor records the equity or asset first at its fair value. It then discounts the future cash receipts to their present value at the effective (contractual) rate of interest. It records a loss as the difference between the carrying value of the receivable and the sum of the fair value of the equity interest or asset plus the present value of the future cash flows.

Following is a summary of the accounting principles we have discussed:

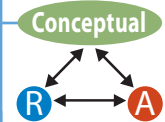
	Modification of Terms		Equity or Asset Exchange	
	Debtor	Creditor	Debtor	Creditor
(a) If undiscounted cash flows > carrying value, no gain and impute new interest rate		Compute present value using the original (contractual) interest rate	Record at fair value, recognize gain	Record at fair value, recognize loss
(b) If undiscounted cash flows < carrying value, recognize gain (no interest recognized)				

CONCEPTUAL EVALUATION OF ACCOUNTING FOR TROUBLED DEBT RESTRUCTURINGS

When *FASB Statement No. 15* was issued, many accountants and financial statement users criticized the accounting principles for the modification of terms for a troubled debt restructuring. With the issuance of *FASB Statement No. 114*, these criticisms apply only to the accounting by the debtor because there is no longer a mirror image between the debtor and creditor, as we discussed earlier. The critics argue that the procedures for the debtor (i.e., a limited or no gain) lead to inconsistencies in recording events that have similar economic substance (i.e., a modification of terms and an asset or equity exchange). They view a modification of terms as an economic event that should be recorded at a present value. In other words, they argue that the debtor should follow the procedures that are now required for the creditor. However, as we discussed earlier in the chapter for loan impairment, the *Statement* was adopted by a 5-to-2 vote with the two dissenters arguing that the fair value of the loan should be recognized.

At the time that *FASB Statement No. 15* was issued, it was widely believed that the rules to be followed by the creditor in a modification of terms were the result of lobbying by financial institutions. These institutions argued that the recognition of large losses under the fair value approach would undermine the public's confidence in the banking system and have an adverse effect on the economy. A counterargument was that the non-recognition of losses enabled banks to continue in business longer than they should have, resulting in larger payments by taxpayers to "bail out" failing banks.

Since these original rules for the creditor have now been superseded, it seems logical that the rules for the debtor should also be modified. However, some supporters of the original rules point out that the FASB was just being conservative in its approach so as to minimize the gain recognized by a financially distressed debtor in a restructuring. Therefore, the choice of the accounting principle for debtors is based on whether a person believes that conservatism or the recognition of fair value is more important to external decision makers.



APPENDIX 2: SERIAL BONDS

In the main part of this chapter, we focused on accounting for bonds in which the entire face value was due on one maturity date. Bonds also may contain provisions that require the issuer to **repay the face value in periodic installments over a number of years**; these bonds are termed **serial bonds**. Serial bonds may be especially attractive in cases where the bond issue is used to finance a particular project, because the issuer can use the yearly cash flow from that project to retire the bond issue.

RECORDING THE ISSUANCE AND INTEREST EXPENSE OF SERIAL BONDS

Serial bonds may sell at a premium or discount because of differences between the prevailing market rate and the stated rate of interest. Since the bonds mature over a number of periods and interest rates depend partly on the terms of the issue, some accountants have questioned the use of a single interest rate to record the initial issue of serial bonds. There are, however, no generally accepted principles for determining the different interest rates to assign to each individual installment. So it is assumed that they all yield the same rate of interest. Thus, a company records the initial issuance of serial bonds in the same manner as other bonds. That is, it records the entire face value in a Bonds Payable account and any discount or premium in a separate contra or adjunct account. After issuance, it computes interest expense and any premium or discount amortization on serial bonds by the **effective interest method**. Alternatively, it may use a method similar to the straight-line method, known as the **bonds outstanding method**. This method results in recording an amount of discount or premium amortization proportionate to the face value of the bonds outstanding. Under this method, if \$400,000 of 13% serial bonds are to be repaid

13 Account for serial bonds.

in four \$100,000 installments, a proportionate (fractional) share of any premium or discount is amortized over the number of periods each installment is outstanding. The denominator of this fraction is derived by summing the face values of the bonds outstanding at the *beginning* of each period over the life of the entire issue. The numerator of this fraction is the face value of bonds outstanding at the *beginning* of each period.

Example: Serial Bonds

To illustrate these two methods, assume that the Wallace Corporation issues \$400,000 of serial bonds with a 13% stated rate of interest for \$410,460.92 on January 1, 2005. The company is to repay the bonds in four semiannual \$100,000 installments beginning June 30, 2007 and to pay interest semiannually. The \$410,460.92 selling price of this serial bond issue reflects a yield of 12%, as we show in the following calculations using factors from the Time Value of Money Module:

<i>Present Value of Principal</i>		
Installment due 6/30/07		
Present value of \$100,000 ($n = 5, i = 0.06$) \times 0.747258	\$74,725.80	
Installment due 12/31/07		
Present value of \$100,000 ($n = 6, i = 0.06$) \times 0.704961	70,496.10	
Installment due 6/30/08		
Present value of \$100,000 ($n = 7, i = 0.06$) \times 0.665057	66,505.70	
Installment due 12/31/08		
Present value of \$100,000 ($n = 8, i = 0.06$) \times 0.627412	<u>62,741.20</u>	
Present Value of Principal		\$274,468.80
<i>Present Value of Interest Payments</i>		
Installment due 6/30/07		
Present Value of an annuity of \$6,500 ($n = 5, i = 0.06$) \times 4.212364	\$27,380.37	
Installment due 12/31/07		
Present value of an annuity of \$6,500 ($n = 6, i = 0.06$) \times 4.917324	31,962.61	
Installment due 6/30/08		
Present value of an annuity of \$6,500 ($n = 7, i = 0.06$) \times 5.582381	36,285.48	
Installment due 12/31/08		
Present value of an annuity of \$6,500 ($n = 8, i = 0.06$) \times 6.209794	<u>40,363.66</u>	
Present value of Interest		<u>135,992.12</u>
Selling Price of Serial Bonds		<u>\$410,460.92</u>

The company records the issuance as follows:

Cash	410,460.92	
Bonds Payable		400,000.00
Premium on Bonds Payable		10,460.92

Example 14-7 shows the use of the bonds outstanding (straight-line) method of amortization for these serial bonds. Example 14-8 shows the use of the effective interest method for the same bonds.

In both Examples 14-7 and 14-8, the interest expense debit column shows the interest that Wallace records for each period. The interest expense for the semiannual periods in 2007 and 2008 decreases because the company makes partial repayments during these periods. The cash credit column during these periods also reflects these repayments. For example, on December 31, 2007, the company records the interest expense and partial retirement of the bonds (using straight-line amortization) as follows:

Bonds Payable	100,000.00	
Premium on Bonds Payable		1,207.03
Interest Expense	18,292.97	
Cash		119,500.00 ♦

EXAMPLE 14-7 Interest Expense and Premium Amortization Schedule for Serial Bonds: *Straight-Line (Bonds Outstanding) Method*

Date	Fraction of Premium Amortized ^a	Cash Credit ^b	Premium Amortization Debit ^c	Interest Expense Debit ^d	Unamortized Premium ^e	Bonds Payable Debit ^f	Bonds Outstanding ^g	Book Value of Bonds ^h
1/01/05					\$10,460.92		\$ 400,000	\$410,460.92
6/30/05	4/26	\$ 26,000	\$1,609.37	\$24,390.63	8,851.55		400,000	408,851.55
12/31/05	4/26	26,000	1,609.37	24,390.63	7,242.18		400,000	407,242.18
6/30/06	4/26	26,000	1,609.37	24,390.63	5,632.81		400,000	405,632.81
12/31/06	4/26	26,000	1,609.37	24,390.63	4,023.44		400,000	404,023.44
6/30/07	4/26	126,000	1,609.37	24,390.63	2,414.07	\$100,000	300,000	302,414.07
12/31/07	3/26	119,500	1,207.03	18,292.97	1,207.04	100,000	200,000	201,207.04
6/30/08	2/26	113,000	804.69	12,195.31	402.35	100,000	100,000	100,402.35
12/31/08	1/26	106,500	402.35 ⁱ	6,097.65	-0-	100,000	-0-	-0-
	<u>26/26</u>						<u>\$2,600,000</u>	

- a. Bonds outstanding at beginning of each period ÷ sum of bonds outstanding, or \$400,000 ÷ \$2,600,000 in the first period.
- b. Bonds outstanding (\$400,000 in first period) × interest rate (0.13) × 6/12 + installment payment (amount from footnote *f*).
- c. \$10,460.92 × fraction from footnote *a*.
- d. Amount from footnote *b* – amount from footnote *c* – installment payment.
- e. Previous balance – amount from footnote *c*.
- f. Installment payment.
- g. Face value – amount from footnote *f*.
- h. Amount from footnote *e* + amount from footnote *g*.
- i. Difference due to \$0.01 rounding error.

**EXAMPLE 14-8 Interest Expense and Premium Amortization Schedule for Serial Bonds:
Effective Interest Method: 13% Bonds Sold to Yield 12%**

Date	Cash Credit ^a	Interest Expense Debit ^b	Premium Amortization Debit ^c	Unamortized Premium ^d	Bonds Payable Debit ^e	Book Value of Bonds ^f
1/01/05				\$10,460.92		\$410,460.92
6/30/05	\$ 26,000	\$24,627.66	\$1,372.34	9,088.58		409,088.58
12/31/05	26,000	24,545.31	1,454.69	7,633.89		407,633.89
6/30/06	26,000	24,458.03	1,541.97	6,091.92		406,091.92
12/31/06	26,000	24,365.52	1,634.48	4,457.44		404,457.44
6/30/07	126,000	24,267.45	1,732.55	2,724.89	\$100,000	302,724.89
12/31/07	119,500	18,163.49	1,336.51	1,388.38	100,000	201,388.38
6/30/08	113,000	12,083.30	916.70	471.68	100,000	100,471.68
12/31/08	106,500	6,028.32 ^g	471.68	-0-	100,000	-0-

- a. Bonds outstanding (\$400,000 in first period) \times interest rate (0.13) \times 6/12 + installment payment (amount from footnote e).
 b. Previous balance of footnote f \times 0.12 \times 6/12.
 c. Amount from footnote a – amount from footnote b – installment payment.
 d. Previous balance – amount from footnote c.
 e. Installment payment.
 f. Previous balance – amount from footnote c – amount from footnote e.
 g. Difference due to \$0.02 rounding error.

EARLY REDEMPTION OF SERIAL BONDS

If a company redeems bonds from any individual series prior to their maturity date, it eliminates the amount of unamortized discount or premium for these bonds. When the bonds outstanding method is used, this amount can be determined from the amortization table by applying the following formula:

$$\frac{\text{Number of Periods Before Maturity of Issue} \times \text{Par Value of Bonds Redeemed}}{\text{Total of Bonds Outstanding Column}} \times \text{Total Premium or Discount}$$

For example, assume that on January 1, 2007 the \$100,000 of the Wallace Corporation bonds due December 31, 2008 are redeemed. The unamortized premium associated with this redemption is calculated as:

$$\frac{4 \text{ periods} \times \$100,000}{\$2,600,000} \times \$10,460.92 = \$1,609.37$$

When the company records the redemption, it debits the Unamortized Premium account for \$1,609.37, and calculates a gain or loss on the transaction by comparing the book value of the bonds redeemed with the redemption price. In addition, it reduces the amount of premium amortization shown in Example 14-7 by \$402.34 ($\$1,609.37 \div 4$) for each semiannual period in 2007 and 2008.

When a company uses the effective interest method, the book value of the bonds being retired is the present value of the future cash payments required (principal and interest) on the bonds being retired at that time. The company calculates the book value by discounting the future principal and interest payments to the retirement date, using the effective interest rate. It computes and reports the gain or loss as we discussed in the preceding paragraph, and eliminates the book value of the retired bonds.

SUMMARY

At the beginning of the chapter, we identified several objectives you would accomplish after reading the chapter. The objectives are listed below, each followed by a brief summary of the key points in the chapter discussion.

1. **Explain the reasons for issuing long-term liabilities.** The five basic reasons why a company might issue long-term debt rather than offer other types of securities are as follows: (1) debt may be the only available source of funds, (2) debt financing may have a lower cost, (3) debt financing offers an income tax advantage, (4) the voting privilege is not shared, and (5) debt financing offers the opportunity for leverage.
2. **Understand the characteristics of bonds payable.** A bond is a type of note in which a company agrees to pay the holder the face value at the maturity date and usually to pay interest periodically at a specified rate on the face value. The face (or par) value is the amount of money that the issuer agrees to pay at maturity. The maturity date is the date on which the issuer of the bond agrees to pay the face value to the holder. The contract rate is the rate at which the issuer of the bonds agrees to pay interest each period until maturity.
3. **Record the issuance of bonds.** At the time of sale, the company records the face value of the bonds in a Bonds Payable account and it records any premium or discount in a separate account entitled Premium on Bonds Payable or Discount on Bonds Payable. A premium account is an adjunct account and a discount account is a contra account.
4. **Amortize discounts and premiums under the straight-line method.** Any discount or premium is amortized to interest expense in equal amounts each period during the life of the bonds. The interest expense is the sum of the cash payment plus the discount amortization or minus the premium amortization.
5. **Compute the selling price of bonds.** The selling price of a bond issue is calculated by summing the present value of the principal and interest payments discounted at the effective interest (yield) rate.
6. **Amortize discounts and premiums under the effective interest method.** The effective interest method applies the semi-annual yield to the book value of the bonds at the beginning of each successive semiannual period to determine the interest expense for that period. The discount or premium amortization is the difference between the interest expense and the cash payment.
7. **Explain extinguishment of liabilities.** A liability is extinguished for financial reporting purposes when either (1) the debtor pays the creditor and is relieved of its obligation for the liability, or (2) the debtor is released legally from being the primary obligor under the liability.
8. **Understand bonds with equity characteristics.** A company may issue bonds that allow creditors to ultimately become stockholders by attaching stock warrants to the bonds or including a conversion feature. In either case, the investor has acquired the right to receive interest on the bonds and the right to acquire common stock and to participate in the potential appreciation of the market value of the company's common stock.
9. **Account for long-term notes payable.** A note payable is recorded at its present value, and the effective interest method is used to record the subsequent interest. A note exchanged for property, goods, or services is recorded at the fair value of the property, goods, or services, or the fair value of the note, whichever is more reliable. If neither of these fair values is determinable, the note is recorded at its present value by discounting the future cash flow(s) using the incremental interest rate of the borrower.
10. **Understand the disclosure of long-term liabilities.** A company must disclose many characteristics of its long-term debt, including the book value, interest rates, maturity dates, scheduled repayments for each of the next five years, interest expense, interest paid, and capitalized interest. It normally makes these disclosures in the notes to its financial statements.
11. **Account for long-term notes receivable including impairment of a loan.** A note receivable is recorded at the fair value of the property, goods, or services or the fair value of the note, whichever is more reliable. If neither of these values is reliable, the note is recorded at its present value by using the borrower's incremental interest rate. A loan is impaired if it is probable that the creditor will be unable to collect all amounts due according to the contractual terms of the loan agreement. When a loan is impaired, the creditor company computes the present value of the expected future cash flows of the impaired loan using the effective interest rate, which is the original (contractual) interest rate on the loan. It records an expense for the difference between the carrying value and the present value, and recognizes future interest revenue based on the contractual rate applied to the new carrying (present) value.
12. **Understand troubled debt restructurings (Appendix).** A troubled debt restructuring occurs when a creditor for economic or legal reasons related to a debtor's financial difficulties grants a concession to the debtor that it would not otherwise consider. A troubled debt restructuring may include a modification of terms, the issuance or other granting of an equity interest, and the transfer of an asset.
13. **Account for serial bonds (Appendix).** Serial bonds require the issuer to repay the face value in periodic installments over a number of years. The initial issuance of the bonds is recorded in the same manner as other bonds. Subsequently, the company computes the interest expense and any premium or discount amortization by the effective interest method. Alternatively, it may use a method similar to the straight-line method known as the bonds outstanding method.

ANSWERS TO REAL REPORT QUESTIONS

Real Report 14-1 Answers

1. IBM has 7.125% debentures that mature in 2096. As of 2004, the remaining maturity is 92 years.
2. The scheduled maturities allow a financial statement user to assess the company's obligation to repay the principal amount of debt over the next five years. Coupled with interest payments, this schedule will allow the financial statement user insight as to the future cash flow needed to service the company's debt.
3. Total interest paid and accrued decreased by \$92 million (\$663 million less \$571 million) in 2004.
4. Financial flexibility allows a company to change the amounts and timing of its cash flows in response to unexpected needs and opportunities. With more than \$16 billion in unused lines of credit as of December 31, 2004, IBM would be considered to have financial flexibility.

QUESTIONS

- Q14-1** Why may a company that requires additional funds choose to issue long-term liabilities rather than equity securities?
- Q14-2** What is a *bond*? Define *face value*, *maturity date*, *contract rate*, *bond certificate*, and *bond indenture*.
- Q14-3** Distinguish between mortgage and debenture bonds.
- Q14-4** Distinguish between registered and coupon bonds.
- Q14-5** What are callable bonds? Convertible bonds?
- Q14-6** Why does the stated (contract) rate and the effective rate (yield) of interest on bonds frequently differ?
- Q14-7** Why do bond discounts and bond premiums arise at the time of sale?
- Q14-8** Distinguish between bond premiums or discounts and bond issue costs.
- Q14-9** Why does the recorded amount of interest expense for the first interest payment differ from the expense recorded for other interest payments when bonds are issued between interest payment dates?
- Q14-10** What two methods may a company use to allocate a premium or discount over the life of a bond issue? Briefly describe each method.
- Q14-11** How is the amount of interest expense a company records each period affected by the amortization of a bond discount using the straight-line method?
- Q14-12** How is the amount of interest expense a company records each period affected by the amortization of a bond premium using the straight-line method?
- Q14-13** How is the amount of proceeds from a bond issue determined once the market (yield) rate of interest is specified?
- Q14-14** What is a call provision? Why do companies often include call provisions on bond issues?
- Q14-15** Distinguish between bond retirements and bond refundings.
- Q14-16** What are the three alternatives that could be used to account for gains or losses on bond refundings? What reasons support each of these methods? Which method did the APB finally favor? Why?
- Q14-17** Why does a company issue a bond with detachable warrants (rights)? At what value is each of these securities recorded at the time of the bond issuance?
- Q14-18** What are convertible bonds? Why would a company issue convertible debt?
- Q14-19** What two alternative methods are available to account for the issuance of convertible debt? What method did the APB finally require? Why?
- Q14-20** When a company exchanges a long-term non-interest-bearing note for cash and no interest rate is stated, how does it determine the effective interest?
- Q14-21** Describe the steps necessary for a company to determine the value at which to record a non-interest-bearing note payable exchanged for property, goods, or services.
- Q14-22** What is the incremental interest rate of a borrower? When and for what calculations is this rate used if a company exchanges a note for property, goods, or services?
- Q14-23 (Appendix 1)** When does a troubled debt restructuring occur? What are three conditions a troubled debt restructuring may involve?

EXERCISES

E14-1 Recording Bond Issue and Interest Payments The Kurten Corporation is authorized to issue \$500,000 of 8% bonds. Interest on the bonds is payable semiannually; the bonds are dated January 1, 2007 and are due December 31, 2012.

Required

Prepare the journal entries to record the following:

April 1, 2007	Sold the bonds at par plus accrued interest
June 30, 2007	First interest payment
Dec. 31, 2007	Second interest payment

E14-2 Straight-Line Premium Amortization On April 30, 2007 Hackman Corporation issued \$1 million face value 12% bonds dated January 1, 2007, for \$1,023,000 plus accrued interest. The bonds pay interest semiannually on June 30 and December 31 and are due December 31, 2014. The company uses the straight-line amortization method.

Required

Record the issuance of the bonds and the first two interest payments.

E14-3 Straight-Line Discount Amortization The Bryan Company issued \$500,000 of 10% face value bonds on January 1, 2007 for \$486,000. The bonds are due December 31, 2009, and pay interest semiannually on June 30 and December 31. The company uses the straight-line amortization method.

Required

Prepare the journal entries to record the issuance of the bonds and the first two interest payments.

E14-4 Effective Interest Discount Amortization The Cotton Corporation issued \$100,000 of 10% bonds dated January 1, 2007 for \$97,158.54 on July 1, 2007. The bonds are due December 31, 2010, were issued to yield 11%, and pay interest semiannually on June 30 and December 31. The company uses the effective interest method of amortization.

Required

Record (1) the issuance of the bonds, and (2) the payment of interest and the discount amortization on December 31, 2007, June 30, 2008, and December 31, 2008.

E14-5 Effective Interest Premium Amortization Addison Incorporated issued \$200,000 of 13% bonds on July 1, 2007 for \$206,801.60. The bonds were dated January 1, 2007, pay interest on each June 30 and December 31, are due December 31, 2011, and were issued to yield 12%. The company uses the effective interest method of amortization.

Required

Prepare the journal entries to record the issue of the bonds on July 1, 2007, and the interest payments on December 31, 2007 and June 30, 2008.

E14-6 Determining the Proceeds from Bond Issues The Madison Corporation is authorized to issue \$800,000 of five-year bonds dated June 30, 2007, with a face rate of interest of 11%. Interest on the bonds is payable semiannually and the bonds are sold on June 30, 2007.

Required 

Determine the proceeds that the company will receive if it sells (1) the bonds to yield 12%, and (2) the bonds to yield 10%.

E14-7 Effective Interest Amortization of Premium or Discount The Taylor Company issued \$100,000 of 13% bonds on January 1, 2007. The bonds pay interest semiannually on June 30 and December 31 and are due December 31, 2009.

Required

- Assume the company sells the bonds for \$102,458.71 to yield 12%. Prepare the journal entries to record:
 - The sale of the bonds.
 - Each 2007 semiannual interest payment and premium amortization, using the effective interest method.
- Assume the company sells the bonds for \$97,616.71 to yield 14%. Prepare the journal entries to record:
 - The sale of the bonds.
 - Each 2007 semiannual interest payment and discount amortization, using the effective interest method.

E14-8 Bond Amortization Tables On January 1, 2007 the Calvert Company issues 12%, \$100,000 face value bonds for \$103,545.91, a price to yield 10%. The bonds mature on January 1, 2009. Interest is paid semiannually on June 30 and December 31.

Required 

1. Prepare a bond interest expense and premium amortization schedule using the straight-line method.
2. Prepare a bond interest expense and premium amortization schedule using the effective interest method.
3. Prepare the journal entries to record the interest payments on June 30, 2007 and December 31, 2007, using both methods.

E14-9 Premium Amortization and Partial Retirement Rockwood Company issued \$100,000 of 10% bonds on November 1, 2007 at 103. Interest on the bonds is payable on November 1 and May 1 of each year, and the maturity date is November 1, 2017. Rockwood Company retired bonds with a face value of \$20,000 on February 1, 2009, at 98 plus accrued interest. The company uses straight-line amortization and reverses any calendar year-end adjusting entries.

Required

1. Prepare the journal entry to record the issuance of the bonds on November 1, 2007.
2. Prepare all the journal entries to record the interest expense during 2008.
3. Prepare the journal entries to record the retirement of \$20,000 of the bonds on February 1, 2009.

E14-10 Effective Interest vs. Straight-Line Discount Amortization Burr Motor Company, a manufacturer of small- to medium-sized electric motors, needs additional funds to market a revolutionary new motor. Burr has arranged for private placement of a \$50,000, five-year, 11% bond issue. Interest on these bonds is paid annually each year on August 31. The issue was dated and sold on September 1, 2006, for proceeds of \$48,197.62 to yield 12%. The company reverses any year-end adjusting entries.

Required

1. Prepare a bond interest expense and discount amortization schedule showing interest expense for each year, using the effective interest method.
2. Prepare journal entries to record the issuance of the bonds and the interest payments for 2007 and 2008, using (a) the effective interest method, and (b) the straight-line method.

E14-11 Redemption of Bonds Prior to Maturity The Hill Corporation issued \$1,500,000 of 11% bonds at 98 on January 2, 2005. Interest is paid semiannually on June 30 and December 31. The bonds had a 10-year life from the date of issue, and the company uses the straight-line method of amortization. On March 31, 2008 the company recalls the bonds at the call price of 107 plus accrued interest.

Required

Prepare the journal entries to record the reacquisition (recall) of the Hill Corporation bonds.

E14-12 AICPA Adapted Extinguishment of Bonds Prior to Maturity On December 1, 2005 the Cone Company issued its 10%, \$2 million face value bonds for \$2.3 million, plus accrued interest. Interest is payable on November 1 and May 1. On December 31, 2007 the book value of the bonds, inclusive of the unamortized premium, was \$2.1 million. On July 1, 2008 Cone reacquired the bonds at 98, plus accrued interest. Cone appropriately uses the straight-line method for the amortization because the results do not materially differ from those of the interest method.

Required

Prepare a schedule to compute the gain or loss on this extinguishment of debt. Show supporting computations in good form.

E14-13 Convertible Bond Entries On July 2, 2006 the McGraw Corporation issued \$500,000 of convertible bonds. Each \$1,000 bond could be converted into 20 shares of the company's \$5 par value stock. On July 3, 2008, when the bonds had an unamortized discount of \$7,400, and the market value of the McGraw shares was \$52 per share, all the bonds were converted into common stock.

Required

1. Prepare the journal entry to record the conversion of the bonds under (a) the book value method, and (b) the market value method.
2. Compute the company's debt-to-equity ratio (total liabilities divided by total stockholders' equity, as mentioned in Chapter 6) under each alternative. Assume the company's other liabilities are \$2 million and stockholders' equity before the conversion is \$3 million.

E14-14 AICPA Adapted Convertible Bonds On January 1, 2006, when its \$30 par value common stock was selling for \$80 per share, a corporation issued \$10 million of 10% convertible debentures due in 10 years. The conversion option allowed the holder of each \$1,000 bond to convert it into six shares of the corporation's \$30 par value common stock. The debentures were issued for \$11 million. At the time of issuance the present value of the bond payments was \$8.5 million, and the corporation believes the difference between the present value and the amount paid is attributable to the conversion feature. On January 1, 2007 the corporation's \$30 par value common stock was split 3 for 1. On January 1, 2008, when the corporation's \$10 par value common stock was selling for \$90 per share, holders of 40% of the convertible debentures exercised their conversion options. The corporation uses the straight-line method for amortizing any bond discounts or premiums.

Required

1. Prepare the journal entry to record the original issuance of the convertible debentures.
2. Prepare the journal entry to record the exercise of the conversion option, using the book value method. Show supporting computations in good form.

E14-15 Induced Conversion On July 1, 2008 the Tuttle Company had bonds payable outstanding with a face value of \$200,000 and a book value of \$194,000. The interest on these bonds was paid on June 30. When these bonds were issued, each \$1,000 bond was convertible into 20 shares of \$10 par common stock. To induce conversion, on June 15, 2008 the terms were changed so that each bond was convertible into 22 shares of common stock if the conversion was made within 30 days. All the bonds were converted on July 1, 2008 when the market price of the common stock was \$50 per share.

Required

Using the book value method, record the conversion of the bonds on July 1, 2008.

E14-16 Detachable Stock Warrants Conroe Corporation sold \$500,000 of 13% bonds at 107. Each \$1,000 bond carried 20 warrants, and each warrant allowed the holder to acquire one share of \$10 par value common stock for \$20 per share. Subsequent to the issuance of the securities, the bonds were quoted at 102 ex rights, and the warrants were quoted at \$4 each.

Required

1. Determine the value to be assigned to the bonds and the warrants, and prepare the journal entry to record the issuance of the convertible bonds.
2. Assume that 4,000 warrants are subsequently exercised. Prepare the journal entry for the issuance of the common stock.

E14-17 AICPA Adapted Bonds with Detachable Warrants On July 1, 2007 Salem Corporation issued \$3 million of 12% bonds payable in 10 years. The bonds pay interest semiannually. The bonds include detachable warrants giving the bondholder the right to purchase for \$30, one share of \$1 par value common stock at any time during the next 10 years. The company sold the bonds for \$3 million. The value of the warrants at the time of issuance was \$200,000.

Required

Prepare in general journal format the entry to record the issuance of the bonds.

E14-18 Long-Term Notes Payable On January 1, 2007 the Johnson Corporation issued a two-year note due December 31, 2008, with a face value of \$10,000, receiving \$7,694.68 in exchange.

Required

Prepare the journal entries to account for the note:

1. On the date the note is issued
2. At the end of 2007
3. At the end of 2008

E14-19 Note Payable Exchanged for Cash and Rights The Spath Company borrows \$75,000 by issuing a four-year, non-interest-bearing note to a customer on January 1, 2007. In addition, Spath Company agrees to sell inventory to the customer at reduced prices over a five-year period. Spath's incremental borrowing rate is 12%. The customer agrees to purchase an equal amount of inventory each year over the five-year period so that a straight-line method of revenue recognition is appropriate.

Required

Prepare the journal entries on Spath Company's books for 2007 and 2008. (Round answers to two decimal places.)

E14-20 Exchange of a Note Payable for an Asset The Webb Corporation purchased an asset from the Shaw Corporation on January 1, 2007. Shaw accepted a three-year, non-interest-bearing note of \$18,000 due December 31, 2009 in exchange for the asset. Neither the fair value of the asset nor that of the note is available. Webb's incremental borrowing rate is 12%.

Required

Prepare the journal entries to record the issuance of the note, retirement, and any interest expense on the books of Webb on each of the following dates:

- | | |
|----------------------|----------------------|
| 1. January 1, 2007 | 3. December 31, 2008 |
| 2. December 31, 2007 | 4. December 31, 2009 |

E14-21 Note Payable Issued in Exchange for an Asset On January 1, 2007 the Sanders Corporation purchased equipment having a fair value of \$68,301.30 by issuing a non-interest-bearing, \$100,000, four-year note due December 31, 2010.

Required

Prepare the journal entries to record (1) the purchase of the equipment, (2) the annual interest charges over the life of the note, and (3) the repayment of the note.

E14-22 Note Payable in Installments On January 1, 2007 the Billips Corporation purchased equipment having a fair value of \$72,054.94 by issuing a \$90,000 note, payable in three \$30,000 annual installments beginning December 31, 2007.

Required

Prepare (1) the journal entry to record the purchase of the equipment, (2) a schedule to compute the annual interest expense, and (3) the journal entries to record yearly interest expense and note repayments over the life of the note.

E14-23 Notes Receivable On January 1, 2007 Crouser Company sold land to Chad Company, accepting a two-year, \$150,000 non-interest-bearing note due January 1, 2009. The fair value of the land was \$123,966.90 on the date of sale. The company purchased the land for \$120,000 on January 1, 2001.

Required

Prepare all the journal entries on Crouser Company's books for January 1, 2007 through January 1, 2009 in regard to the Chad Company note.

E14-24 Notes Receivable On January 1, 2007 Worthylake Company sold used machinery to Brown Company, accepting a \$25,000 non-interest-bearing note maturing on January 1, 2009. Worthylake Company carried the machinery on its books at a cost of \$22,000 and a current book value of \$15,000. Neither the fair value of the machinery nor the note was determinable at the time of sale; however, Brown's incremental borrowing rate was 12%.

Required

Prepare the journal entries on Worthylake Company's books to record:

1. The sale of the machinery
2. The related adjusting entries on December 31, 2007 and 2008
3. The payment of the note by Brown Company on January 1, 2009

E14-25 Note Receivable in Installments On January 1, 2007 Tabor Company sold land with a book value of \$50,000 to Wilson Company, accepting a \$60,000 note, payable in three \$20,000 annual installments beginning December 31, 2007. The note carried no stated interest rate and the fair values of the land and the note were not determinable. An appropriate interest rate for this note is 12%.

Required

Prepare the journal entries on Tabor Company's books to record:

1. The sale
2. The annual interest revenue and receipt of each \$20,000 installment

E14-26 Notes Receivable Discounted On January 1, 2007 Boiler Company received two notes for merchandise sold:

Note 1: A \$10,000, 10%, 60-day note from Wildcat, Inc.

Note 2: A \$20,000, 8%, three-year interest-bearing note from Gopher, Inc.

On January 1, 2007 the fair rate of interest was 10%. Needing cash to meet the upcoming payroll, Boiler Company discounted the Wildcat, Inc. note at the local bank at 14% on January 12, 2007. On March 2, 2007 Wildcat, Inc. remitted the full amount owed to the bank.

Required

Prepare journal entries on the books of Boiler Company to record the receipt of the two notes on January 1, 2007, the discounting of the Wildcat note on January 12, 2007, the payment by Wildcat to the bank on March 2, 2007, and the interest on the Gopher note on December 31, 2007. Round all calculations to the nearest dollar and use a 360-day year. (Contributed by Scott I. Jerris)

E14-27 AICPA Adapted Notes Receivable and Income On January 1, 2007 the Pitt Company sold a patent to Chatham, Inc., which had a carrying value on Pitt's books of \$10,000. Chatham gave Pitt a \$60,000 non-interest-bearing note payable in five equal annual installments of \$12,000, with the first payment due and paid on January 1, 2008. There was no established price for the patent, and the note has no ready market value. The prevailing rate of interest for a note of this type at January 1, 2007 is 12%. Information on present value and future amount factors is as follows:

	Period				
	1	2	3	4	5
Present value of \$1 at 12%	0.89	0.80	0.71	0.64	0.57
Present value of an annuity of \$1 at 12%	0.89	1.69	2.40	3.04	3.60
Future amount of \$1 at 12%	1.12	1.25	1.40	1.57	1.76
Future amount of an annuity of \$1 at 12%	1.00	2.12	3.37	4.78	6.35

Required

Prepare a schedule showing the income or loss before income taxes (rounded to the nearest dollar) that Pitt should record for the years ended December 31, 2007 and 2008 as a result of the preceding facts. Show supporting computations in good form.

E14-28 Loan Impairment The Perry National Bank has a note receivable of \$200,000 from the Mogren Company that it is carrying at face value and is due on December 31, 2011. Interest on the note is payable at 9% each December 31. The Mogren Company paid the interest due on December 31, 2007, but informed the bank that it would probably miss the next two years' interest payments because of its financial difficulties. After that, it expected to resume its annual interest payments, but it would make the principal payment one year late, with interest paid for that additional year at the time of the principal payment.

Required

1. Compute the value of the impaired loan on December 31, 2007.
2. Prepare the journal entries from 2007 to 2012 for the bank to record the above events.

E14-29 Loan Impairment The Oaks National Bank has a note receivable of \$500,000 from the Haldane Company that it is carrying at face value and is due on December 31, 2013. Interest on the note is payable at 6% each December 31. The Haldane Company paid the interest due on December 31, 2007, but informed the bank that it would probably miss the next three years' interest payments because of its financial difficulties. After that, it expected to resume its annual interest payments, but it would make the principal payment two years late, with interest paid for the additional years. On January 1, 2010 the bank received new information and now expected the Haldane Company to pay the interest for 2010 through 2015 on December 31 of each year.

Required

1. Compute the value of the impaired loan on December 31, 2007.
2. Prepare the journal entries from 2007 to 2015 for the bank to record the above loan impairment events.

E14-30 Troubled Debt Restructuring (Debtor)—Modification of Terms (Appendix 1) On January 1, 2007 Northfield Corporation becomes delinquent on a \$100,000, 14% note to the First National Bank, on which \$16,651 of interest has accrued. On January 2, 2007 the bank agrees to restructure the note. It forgives the accrued interest, extends the repayment date to December 31, 2009, and reduces the interest rate to 10%.

Required

Prepare a schedule for Northfield Corporation to compute the annual interest expense in regard to the preceding note for each year of the restructuring agreement.

E14-31 Troubled Debt Restructuring (Debtor)—Equity and Asset Exchange (Appendix 1) On January 1, 2007 the Boonville Corporation is delinquent on a \$300,000 note to the Great National Bank on which \$66,000 of interest has accrued. On January 2, 2007 Boonville enters into a debt restructuring agreement with the bank.

Required

Prepare the journal entries for Boonville to record the restructuring agreement assuming:

1. The bank accepts 10,000 shares of Boonville's \$10 par common stock that is currently selling for \$35 per share in full settlement of the debt.
2. The bank accepts land with a fair value of \$342,000 in full settlement of the debt. The land is being carried on Boonville's books at a cost of \$324,000.

E14-32 Troubled Debt Restructuring (Creditor)—Modification of Terms (Appendix 1) On December 31, 2007 Central Bank agrees to a restructuring of a 12% note with a \$200,000 face value and \$60,000 of accrued interest owed to the bank by Carter Company. The bank agrees to forgive the accrued interest, extend the maturity date to December 31, 2010, and reduce the annual interest rate to 6%. Carter Company paid the interest due on December 31, 2008.

Required

1. Prepare the journal entry for Central Bank to record the restructuring of the note on December 31, 2007.
2. Prepare the journal entry for Central Bank to record the receipt of the interest on December 31, 2008.

E14-33 Troubled Debt Restructuring (Creditor)—Equity and Asset Exchange (Appendix 1) Refer to the debt restructuring information in E14-31.

Required

Prepare the journal entries for Great National Bank to record the restructuring agreement assuming:

1. The bank accepts the 10,000 shares of Boonville's stock.
2. The bank accepts the land.

E14-34 Serial Bonds Entries (Appendix 2) On July 1, 2006 the Nichol森 Corporation issued \$300,000 of bonds, with a 13% face rate of interest, for \$318,000. The bonds pay interest semiannually on each January 1 and July 1 and are to be

repaid in three equal semiannual installments beginning July 1, 2008. Assume the company's fiscal year ends May 31 and it makes reversing entries for year-end accruals.

Required

Prepare the journal entries to account for this serial bond issue on each of the following dates, using the bonds outstanding method of amortization:

1. July 1, 2006
2. January 1, 2007
3. July 1, 2007
4. January 1, 2008
5. July 1, 2008
6. January 1, 2009
7. July 1, 2009

E14-35 Serial Bond Issue Using the Effective Interest Method (Appendix 2) The Lewis Company sells \$200,000 of 13% bonds dated January 1, 2006, on that date, for \$204,650.74 to yield 12%. The bonds pay interest *annually* on December 31, and bonds of \$40,000 mature on each December 31 for the next 5 years. The company uses the effective interest method of amortization.

Required

1. Prepare a serial bond premium amortization schedule for these bonds.
2. Prepare the journal entries necessary to record the yearly interest payments, premium amortization, and serial bond redemption.

E14-36 AICPA Adapted Serial Bonds (Appendix 2): On January 1, 2006 Mykoo Corporation issued \$1 million in five-year, 10% serial bonds to be repaid in the amount of \$200,000 on January 1, 2007, 2008, 2009, 2010, and 2011. Interest is payable at the end of each year. The bonds were sold to yield a rate of 12%. Information on present value and future amount factors is as follows:

	Present Value of an Ordinary Annuity of \$1 for 5 Years		Future Amount of an Ordinary Annuity of \$1 for 5 Years	
	10%	12%	10%	12%
	3.7908	3.6048	6.1051	6.3528
Number of Years	Present Value of \$1		Future Amount of \$1	
	10%	12%	10%	12%
1	.9091	.8929	1.1000	1.1200
2	.8264	.7972	1.2100	1.2544
3	.7513	.7118	1.3310	1.4049
4	.6830	.6355	1.4641	1.5735
5	.6209	.5674	1.6105	1.7623

Required

1. Prepare a schedule showing the computation of the total amount received from the issuance of the serial bonds. Show supporting computations in good form.
2. Assume the company originally sold the bonds at a discount of \$46,498. Prepare a schedule of amortization of the bond discount for the first two years after issuance, using the interest (effective rate) method. Show supporting computations in good form.

PROBLEMS

P14-1 Amortizing Bond Issue Costs and Bond Premiums On January 1, 2006 the Baker Corporation issued \$100,000 of five-year bonds due December 31, 2010 for \$103,604.79 less bond issue costs of \$3,000. The bonds carry a face rate of interest of 13% payable annually on December 31 and were issued to yield 12%. The company uses the effective interest method of amortization.

Required

Prepare the journal entries to record the issuance of the bonds, all the interest payments, premium amortizations, bond issue cost amortizations, and the repayment of the bonds.

P14-2 Computation of Effective Interest Rate On June 30, 2007 the Watson Corporation sold \$800,000 of 11% face value bonds for \$761,150.96. On December 31, 2007 the Watson Corporation sold \$700,000 of this same bond issue for \$734,645.28. The bonds were dated January 1, 2007, pay interest semiannually on each December 31 and June 30, and are due December 31, 2014.

Required

Compute the effective yield rate on each issuance of the Watson Corporation 11% bonds.

P14-3 Premium Amortization Schedule with Retirement Before Maturity The Dorsett Corporation issued \$600,000 of 13% bonds on January 1, 2006 for \$614,752.24. The bonds are due December 31, 2008, were issued to yield 12%, and pay interest semiannually on June 30 and December 31. The company uses the effective interest method.

Required

1. Prepare a bond interest expense and premium amortization schedule.
2. Assume the company retired the bonds on September 30, 2008 for \$630,000, which includes accrued interest. Prepare the journal entry to record the bond retirement.

P14-4 Comprehensive The Batson Corporation issued \$800,000 of 12% face value bonds for \$851,705.70. The bonds were dated and issued on April 1, 2007, are due March 31, 2011, and pay interest semiannually on September 30 and March 31. The company sold the bonds to yield 10%.

Required

1. Prepare a bond interest expense and premium amortization schedule using the straight-line method.
2. Prepare a bond interest expense and premium amortization schedule using the effective interest method.
3. Prepare any adjusting entries for the end of the fiscal year, December 31, 2007, using:
 - a. The straight-line method of amortization
 - b. The effective interest method of amortization
4. Assume the company retires the bonds on June 30, 2008, at 103 plus accrued interest. Prepare the journal entries to record the bond retirement using:
 - a. The straight-line method of amortization
 - b. The effective interest method of amortization

P14-5 Discount Amortization Schedule and Retirement Before Maturity Donaldson Incorporated sold \$500,000 of 12% bonds on January 1, 2006 for \$470,143.47, a price that yields a 14% interest rate. The bonds pay interest semiannually on June 30 and December 31 and are due December 31, 2009. The company uses the effective interest method.

Required

1. Prepare an interest expense and discount amortization schedule.
2. Assume the company reacquired the bonds on July 1, 2008 at 104. Prepare journal entries to record the bond retirement.

P14-6 Comprehensive The Wilkerson Corporation issued \$1 million of 13.5% bonds for \$985,071.68. The bonds are dated and issued October 1, 2007, are due September 30, 2011, and pay interest semiannually on March 31 and September 30. Assume an effective yield rate of 14%.

Required

1. Prepare a bond interest expense and discount amortization schedule using the straight-line method.
2. Prepare a bond interest expense and discount amortization schedule using the effective interest method.
3. Prepare adjusting entries for the end of the fiscal year December 31, 2007 using:
 - a. The straight-line method of amortization
 - b. The effective interest method of amortization
4. If income before interest and income taxes of 30% in 2008 is \$500,000, compute net income under each alternative.
5. Assume the company retired the bonds on June 30, 2008 at 98 plus accrued interest. Prepare the journal entries to record the bond retirement using:
 - a. The straight-line method of amortization
 - b. The effective interest method of amortization
6. Compute the company's times interest earned (pretax operating income divided by interest expense) under each alternative.

P14-7 Bond Refunding The Baxter Corporation issued \$400,000 of 11% bonds for \$385,279.91 on January 1, 2006. The bonds pay interest semiannually on June 30 and December 31, were issued to yield 12%, and are due on December 31, 2010. Interest is amortized using the effective interest method, and the bonds are callable at 105. In 2008 Baxter wishes to take advantage of more favorable market interest rate conditions and issues \$450,000 of 11%, 10-year bonds at 102 on June 1. Interest on these bonds is payable each May 31 and November 30. Sufficient proceeds from this issue are used to recall the original issue on July 1, 2008.

Required

1. Prepare the journal entries to record (a) the original issue, (b) the new issue, and (c) the recall of the old issue.
2. If the company were required to reflect the current yield each year, explain how it would account for the bonds. For simplicity, assume that the yield changes from 12% to 11% on January 1, 2008. No calculations are required.

P14-8 Convertible Bonds The Shank Corporation issued \$1,500,000 of 10% convertible bonds for \$1,620,000 on March 1, 2006. The bonds are dated March 1, 2006, pay interest semiannually on August 31 and February 28, and the premium is amortized using the straight-line method. The bonds are due on February 28, 2016, and each \$1,000 bond is convertible into 25 shares of Shank Corporation \$10 par common stock. On March 1, 2008, when the shares were selling for \$28 per share, \$300,000 of bonds were converted. On September 1, 2010, when the shares were selling for \$30 per share, the remainder of the bonds were converted.

Required

1. Prepare the journal entries to record each bond conversion using (a) the book value method, and (b) the market value method.
2. If the company were required under GAAP to assign a value to the conversion feature, explain how the valuation would be determined (no calculations are required).
3. Compute the company's debt-to-equity ratio (total liabilities divided by total stockholders' equity, as mentioned in Chapter 6) under each alternative. Assume the company's other liabilities are \$3 million, and that stockholders' equity before conversion is \$3.5 million.

P14-9 Bonds with Detachable Warrants On January 1, 2007 the London Corporation issued \$500,000 of 11.5% bonds due January 1, 2017 at 102. The bonds pay interest semiannually on June 30 and December 31. Each \$1,000 bond carried 20 warrants, and the exchange of two warrants allowed the holder to acquire one share of \$10 par common stock for \$50. Shortly after the time of issue, the bonds were quoted at 98 ex rights and each individual warrant was quoted at \$5. Subsequently, on March 31, 2007, 8,000 rights were exercised.

Required

1. Prepare the journal entry to record the bond issue.
2. Prepare the journal entries on March 31, 2007 to record the exchange of the warrants for common shares.

P14-10 Notes Payable The Houston Corporation acquires machinery from the South Company in exchange for a \$20,000 non-interest-bearing, five-year note on June 30, 2006. The note is due on June 30, 2011. The machinery has a fair value of \$11,348.54, is subject to straight-line depreciation, and has an estimated life of 10 years (no residual value). Houston's fiscal year ends June 30.

Required

Prepare the journal entries on each of the following dates to record the preceding information for Houston Corporation:

- | | |
|------------------|------------------|
| 1. June 30, 2006 | 4. June 30, 2009 |
| 2. June 30, 2007 | 5. June 30, 2010 |
| 3. June 30, 2008 | 6. June 30, 2011 |

P14-11 Notes Payable in Installments Hamlet Corporation purchases computer equipment at a price of \$100,000 on January 1, 2007, paying \$40,000 down and agreeing to pay the balance in three \$20,000 annual installments beginning December 31, 2007. It is not possible to value either the equipment or the \$60,000 note directly; however, Hamlet's incremental borrowing rate is 12%.

Required

1. Prepare a schedule to compute the interest expense and discount amortization on the note.
2. Prepare all the journal entries for Hamlet to record the issuance of the note, each annual interest expense, and the three annual installment payments.

P14-12 Notes Receivable On January 1, 2007 the Somerville Corporation sold a used truck to the Cornelius Company and accepted a \$28,000 non-interest-bearing note due January 1, 2010. Somerville carried the truck on its books at a cost of \$30,000 and a current book value of \$23,000. Neither the fair value of the truck nor the note was available at the time of the sale; however, Cornelius's incremental borrowing rate was 12%.

Required

1. Prepare the journal entries on Somerville's books to record:
 - a. The sale of the truck
 - b. The related adjusting entries on December 31, 2007, 2008, and 2009
 - c. The collection of the note on January 1, 2010
2. Prepare the notes receivable portion of Somerville's December 31, 2007, 2008, and 2009 balance sheets.

P14-13 Notes Receivable On January 1, 2007 Lisa Company sold machinery with a book value of \$118,000 to Mark Company. Mark Company signed a \$180,000 non-interest-bearing note, payable in three \$60,000 annual installments on December 31, 2007, 2008, and 2009. The fair value of the machinery was \$149,211.12 on the date of sale. The machinery had been purchased by Lisa Company at a cost of \$160,000.

Required

1. Prepare all the journal entries on Lisa Company's books for January 1, 2007 through December 31, 2009.
2. Prepare the notes receivable portion of the Lisa Company's balance sheet on December 31, 2007 and 2008.

P14-14 Comprehensive On January 1, 2007 Seaver Company sold land with a book value of \$23,000 to Bench Company. Bench Company paid \$15,000 down and signed a \$15,000 non-interest-bearing note, payable in two \$7,500 annual installments on December 31, 2007 and 2008. Neither the fair value of the land nor of the note is determinable. Bench Company's incremental borrowing rate is 12%. Later in the year, on July 1, 2007, Seaver Company sold a building to Hane Company, accepting a two-year, \$100,000 non-interest-bearing note due July 1, 2009. The fair value of the building was \$82,644.60 on the date of the sale. The building had been purchased at a cost of \$90,000 on January 1, 2002, and had a book value of \$67,500 on December 31, 2006. It was being depreciated on a straight-line basis (no residual value) over a 20-year life.

Required

1. Prepare all the journal entries on Seaver Company's books for January 1, 2007 through December 31, 2008 in regard to the Bench Company note.
2. Prepare all the journal entries on Seaver Company's books for July 1, 2007 through July 1, 2009 in regard to the Hane Company note.
3. Prepare the notes receivable portion of the Seaver Company's balance sheet on December 31, 2007 and 2008.

P14-15 AICPA Adapted Comprehensive Linden, Inc., had the following long-term receivable account balances at December 31, 2006:

Note receivable from sale of division	\$1,500,000
Note receivable from officer	400,000

Transactions during 2007 and other information relating to Linden's long-term receivables were as follows:

1. The \$1,500,000 note receivable is dated May 1, 2006, bears interest at 9%, and represents the balance of the consideration received from the sale of Linden's electronics division to Pitt Company. Principal payments of \$500,000 plus appropriate interest are due on May 1, 2007, 2008, and 2009. The first principal and interest payment was made on May 1, 2007. Collection of the note installments is reasonably assured.
2. The \$400,000 note receivable is dated December 31, 2004, bears interest at 8%, and is due on December 31, 2009. The note is due from Robert Finley, president of Linden, Inc., and is collateralized by 10,000 shares of Linden's common stock. Interest is payable annually on December 31, and all interest payments were paid on their due dates through December 31, 2007. The quoted market price of Linden's common stock was \$45 per share on December 31, 2007.
3. On April 1, 2007 Linden sold a patent to Bell Company in exchange for a \$100,000 non-interest-bearing note due on April 1, 2009. There was no established exchange price for the patent, and the note had no ready market. The prevailing rate of interest for a note of this type at April 1, 2007 was 15%. The present value of \$1 for two periods at 15% is 0.756. The patent had a carrying value of \$40,000 at January 1, 2007, and the amortization for the year ended December 31, 2007 would have been \$8,000. The collection of the note receivable from Bell is reasonably assured.
4. On July 1, 2007 Linden sold a parcel of land to Carr Company for \$200,000 under an installment sale contract. Carr made a \$60,000 cash down payment on July 1, 2007 and signed a four-year, 16% note for the \$140,000 balance. The equal annual payments of principal and interest on the note will be \$50,000, payable on July 1, 2008 through July 1, 2011. The land could have been sold at an established cash price of \$200,000. The cost of the land to Linden was \$150,000. Circumstances are such that the collection of the installments on the note is reasonably assured.

Required

1. Prepare the long-term receivables section of Linden's balance sheet at December 31, 2007.
2. Prepare a schedule showing the current portion of the long-term receivables and accrued interest receivable that would appear in Linden's balance sheet at December 31, 2007.
3. Prepare a schedule showing interest income from the long-term receivables and gains recognized on sale of assets that would appear on Linden's income statement for the year ended December 31, 2007.

P14-16 Comprehensive An examination of the accounting records of the Durham Corporation on January 1, 2008 (after reversing entries had been made for all accrued interest at the end of 2007) disclosed the following information regarding the company's long-term debt:

12.5% bonds, dated January 1, 2004, paying interest semiannually on June 30 and December 31, and due December 31, 2010.	\$1,300,000
11% convertible bonds, dated April 1, 2006, paying interest semiannually on March 31 and September 30, and due March 31, 2011.	\$ 500,000
Discount on convertible bonds payable	<u>(17,500)</u>
	\$ 482,500
9% bonds, dated March 1, 2007, paying interest annually on February 28, and due February 28, 2012.	\$ 100,000
Discount on bonds payable	<u>(3,960)</u>
	\$ 96,040
4-year, non-interest-bearing note issued January 1, 2007. (Durham's incremental borrowing rate on the date the note was issued was 10%.)	\$ 80,000
Discount on note payable	<u>(19,895)</u>
	\$ 60,105

Additional information disclosed in the notes to Durham Corporation's 2007 financial statements:

- The conversion option allows the holder of each \$1,000 bond to exchange it for 30 shares of \$10 par common stock. Durham uses the book value method to record conversions of bonds to common stock.
- Each \$1,000 bond of the 9% bonds dated March 1, 2007 carries 15 detachable warrants. The company had recorded the 1,500 warrants on the bonds at \$4,800 in a Common Stock Warrants account. The exchange of three warrants allows the holder to acquire one share of \$10 par common stock for \$27.
- The discount on the convertible bonds and the discount on the 9% bonds with detachable warrants are being amortized using the straight-line method.
- The discount on the note payable is being amortized annually using the effective interest method.

During 2008, the Durham Corporation engaged in the following long-term debt transactions:

- | | |
|----------|---|
| Jan. 1 | Issued 11%, \$800,000 face value bonds for \$820,302, a price to yield 10%. Interest on these bonds is payable semiannually on June 30 and December 31, and they are due December 31, 2010. The effective interest method is to be used to amortize the premium. The bonds are callable at 107. |
| May 1 | Six hundred warrants from the 9% bonds were exercised when the common stock was selling for \$42 per share. |
| Sept. 29 | Convertible bonds of \$100,000 were exchanged when the common stock was selling for \$45 per share. |
| Nov. 1 | Retired \$200,000 of the bonds issued on January 1, 2008, at the call price plus accrued interest. |

Required

- Prepare the journal entries for Durham Corporation to record all the transactions that occurred during 2008 relating to the preceding information.
- Prepare the long-term debt section of the Durham Corporation's balance sheet on December 31, 2008.

P14-17 Troubled Debt Restructuring (Debtor) (Appendix 1) The Oakwood Corporation is delinquent on a \$2,400,000, 10% note to the Second National Bank that was due January 1, 2007. At that time Oakwood owed the principal amount plus \$34,031.82 of accrued interest. Oakwood enters into a debt restructuring agreement with the bank on January 2, 2007.

Required

Prepare the journal entries for Oakwood to record the debt restructuring agreement and all subsequent interest payments assuming the following independent alternatives:

- The bank extends the repayment date to December 31, 2010, forgives the accrued interest owed, reduces the principal by \$200,000, and reduces the interest rate to 8%.
- The bank extends the repayment date to December 31, 2010, forgives the accrued interest owed, reduces the principal by \$200,000, and reduces the interest rate to 1%.
- The bank accepts 160,000 shares of Oakwood's \$5 par value common stock, which is currently selling for \$14.50 per share, in full settlement of the debt.
- The bank accepts land with a fair value of \$2,300,000 in full settlement of the debt. The land is being carried on Oakwood's books at a cost of \$2,200,000.

P14-18 Troubled Debt Restructuring (Creditor) (Appendix 1) Refer to the debt restructuring information listed in P14-17.

Required

For each of the independent alternatives listed in Requirements 1 through 4 of P14-17, prepare the journal entries for Second National Bank to record the debt restructuring agreement and all subsequent interest receipts.

P14-19 Comprehensive—Loan Impairment and Troubled Debt Restructuring The 10th National Bank has a \$200,000, 12% note receivable from the Priday Company that is due on December 31, 2010. On December 31, 2007 the company misses the interest payment due on that date. The bank expects that the company will also miss the next payment, but will pay the principal on the maturity date. On December 31, 2008 the company misses the interest payment due on that date. On December 31, 2009 the company pays half the interest payment due on that date and is not expected to pay the other half.

In early January 2010 the bank and the company agree to a loan restructuring because of the financial condition of the company. The bank forgives the unpaid interest, extends the loan to December 31, 2012, and reduces the interest rate to 6%. The market rate for the loan is estimated to be 10% at this time.

Required

1. Compute the value of the impaired loan on December 31, 2007.
2. Prepare the journal entries from 2007 to 2012 for the bank to record the above events.

P14-20 Serial Bond Amortization and Repayment Schedule (Appendix 2) On July 1, 2007 the Hubbard Corporation issued \$600,000 of bonds with an 8% face rate of interest. The bonds were issued for \$589,381.93, pay interest semiannually on June 30 and December 31, carry an effective yield rate of 9%, and are payable in three annual installments of \$200,000 each, beginning June 30, 2008.

Required

1. Prepare a serial bond discount amortization schedule using the bonds outstanding method.
2. Prepare a serial bond discount amortization schedule using the effective interest method.
3. Prepare the journal entries necessary to record the payment of interest and the bond retirements on June 30, 2008, June 30, 2009, and June 30, 2010 using (a) the bonds outstanding method, and (b) the effective interest method.

P14-21 Call Provision of Serial Bonds (Appendix 2) The Case Corporation issued \$600,000 of 13% bonds on January 1, 2006 for \$636,000. The bonds are payable in three annual \$200,000 installments beginning December 31, 2007, pay interest semiannually on June 30 and December 31, and are callable at 107. On January 1, 2008 the bonds due December 31, 2009 are recalled at the call price. The corporation uses the bonds outstanding method of amortization.

Required

Prepare a serial bond premium amortization schedule and the journal entries to record the bond issue, payment of interest, and bond retirement on each of the following dates:

1. January 1, 2006
2. December 31, 2006
3. December 31, 2007
4. January 1, 2008
5. December 31, 2008

CASES

COMMUNICATION

C14-1 Amortization of Bond Premium or Discount

AICPA Adapted The appropriate method of amortizing a premium or discount on issuance of bonds is the effective interest method.

Required

1. What is the effective interest method of amortization and how is it different from and similar to the straight-line method of amortization?

2. Explain how a company computes amortization using the effective interest method, and why and how do amounts obtained using the effective interest method differ from amounts computed under the straight-line method.

C14-2 Various Bond Characteristics

AICPA Adapted One way for a corporation to accomplish long-term financing is through the issuance of long-term debt instruments in the form of bonds.

Required

1. Explain how to account for the proceeds from bonds issued with detachable stock purchase warrants.
2. Contrast a serial bond with a term (straight) bond.
3. For a five-year term bond issued at a premium, why is the amortization in the first year of the life of the bond different using the interest method of amortization instead of the straight-line method? Include in your discussion whether the amount of amortization in the first year of the life of the bond is higher or lower using the interest method instead of the straight-line method.
4. When a company sells a bond issue between interest dates at a discount, what journal entry does it make and how is the subsequent amortization of bond discount affected? Include in your discussion an explanation of how the amounts of each debit and credit are determined.
5. Explain how to account for and classify the gain or loss from the reacquisition of a long-term bond prior to its maturity.

C14-3 Convertible and Nonconvertible Bonds

AICPA Adapted On February 1, 2004 Aubrey Company sold its five-year, \$1,000 par value, 9% bonds, which were convertible at the option of the investor into Aubrey Company common stock at a ratio of 10 shares of common stock for each bond. Aubrey Company sold the convertible bonds at a discount. Interest is payable annually each February 1. On February 1, 2007 Mel Company, an investor in the Aubrey Company convertible bonds, tendered 1,000 bonds for conversion into 10,000 shares of Aubrey Company common stock, which had a market value of \$110 per share at the date of the conversion.

On May 1, 2007 Aubrey Company sold its 10-year, \$1,000 par value, 10% nonconvertible term bonds dated April 1, 2007. Interest is payable semiannually, and the first interest payment date is October 1, 2007. Due to market conditions, the company sold the bonds at an effective interest rate (yield) of 12%.

Required

1. Explain how Aubrey Company accounts for the conversion of the convertible bonds into common stock under both the book value and market value methods. Discuss the rationale for each method.

2. Were the nonconvertible term bonds sold at par, at a discount, or at a premium? Discuss the rationale for your answer.
3. Identify and discuss the effects on Aubrey Company's 2007 income statement associated with the nonconvertible term bonds.

C14-4 Bond Refunding

AICPA Adapted A company's gains or losses from the early extinguishment of debt theoretically can be accounted for in three ways:

- a. Amortized over remaining life of old debt
- b. Amortized over the life of the new debt issue
- c. Recognized in the period of extinguishment

Required

1. Discuss the supporting arguments for each of the three theoretical methods of accounting for gains and losses from the early extinguishment of debt.
2. Which of the preceding methods is generally accepted?

C14-5 Serial Bonds (Appendix 2)

AICPA Adapted On November 1, 2007 Janine Company sold directly to underwriters at a lump-sum price, \$1,000 face value, 9% serial bonds dated November 1, 2007 at an effective annual interest rate (yield) of 11%. A total of 25% of these serial bonds are due on November 1, 2009, a total of 35% on November 1, 2010, and a total of 40% on November 1, 2011. Interest is payable semiannually and the first interest payment date is May 1, 2008. Janine uses the interest method of amortization and incurred bond issue costs in preparing and selling the bond issue.

Required

1. How does the company determine the market price of the serial bonds?
2. How does the company present all items related to the serial bonds, except for bond issue costs, in a balance sheet prepared immediately after it sold the serial bond issue?
3. How does the company determine the amount of interest expense for the serial bonds for 2007?

CREATIVE AND CRITICAL THINKING**C14-6 Recording Convertible Debt**

AICPA Adapted Zakin Co. recently issued \$1,000,000 face value, 10%, 30-year subordinated debentures at 97. The debentures are redeemable at 103 upon demand by the issuer at any date upon 30 days notice 10 years after the issue. The debentures are convertible into \$10 par value common stock of the Company at the conversion price of \$12.50 per share for each \$500 or multiple thereof of the principal amount of the debentures.

Required

1. Explain how the conversion feature of convertible debt has a value to the:
 - a. Issuer
 - b. Purchaser
2. Management of Zakin Co. has suggested that in recording the issuance of the debentures, it should assign a portion of the proceeds to the conversion feature.
 - a. What are the arguments for according separate accounting recognition to the conversion feature of the debentures?

- b. What are the arguments supporting accounting for the convertible debentures as a single element?
3. Assume that the company assigns no value to the conversion feature upon issue of the debentures. Assume further that five years after issue, debentures with a face value of \$100,000 and book value of \$97,500 are tendered for conversion on an interest payment date when the market price of the debentures is 104 and the common stock is selling at \$14 per share and that the Company records the conversion as follows:

Bonds Payable	100,000	
Bond Discount		2,500
Common Stock		80,000
Premium on Common Stock		17,500

Discuss the propriety of the preceding accounting treatment.

C14-7 Debt with Detachable Stock Warrants

AICPA Adapted Incurring long-term debt with an arrangement whereby lenders receive an option to buy common stock during all or a portion of the time the debt is outstanding is a frequently used corporate financing practice. In some situations, the result is achieved through the issuance of convertible bonds; in others, the debt instruments and the warrants to buy stock are separate.

Required

- Explain the differences that exist in current accounting for original proceeds of the issuance of convertible bonds, and of debt instruments with separate warrants to purchase common stock.
 - Explain the underlying rationale for the differences described in Requirement 1a.
 - Summarize the arguments that have been presented for the alternative accounting treatment.
- At the start of the year, AB Company issued \$6 million of 7% notes along with warrants to buy 400,000 shares of its \$10 par value common stock at \$18 per share. The notes mature over the next 10 years, starting one year from date of issuance, with annual maturities of \$600,000. At the time, AB had 3,200,000 shares of common stock outstanding and the market price was \$23 per share. The company received \$6,680,000 for the notes and the warrants. For AB Company, 7% was a relatively low borrowing rate. If offered alone, at this time, the notes would have been issued at a 20 to 24% discount. Prepare journal entries for the issuance of the notes and warrants for the cash consideration received.

C14-8 Long-Term Notes Payable

AICPA Adapted Business transactions often involve the exchange of property, goods, or services for notes or similar instruments that may stipulate no interest rate or an interest rate that varies from prevailing rates.

Required

- When a company exchanges a note for property, goods, or services, what value does it place on the note:
 - If it bears interest at a reasonable rate and is issued in a bargained transaction entered into at arm's length? Explain.
 - If it bears no interest and/or is not issued in a bargained transaction entered into at arm's length? Explain.
- If the recorded value of a note differs from the face value:
 - Explain how the company should account for the difference.
 - Explain how the company should present this difference in the financial statements.

C14-9 Bonds: Sale, Interest, and Recall

AICPA Adapted On March 2, 2007 Wesley Company sold its five-year, \$1,000 face value, 8% bonds dated March 2, 2007 at an effective annual interest rate (yield) of 10%. Interest is payable semiannually and the first interest payment date is September 2, 2007. Wesley uses the interest method of amortization and incurred bond issue costs in preparing and selling the bond issue. Wesley can call the bonds at 101 at any time on or after March 2, 2008.

Required

- How does the company determine the selling price of the bonds?
 - Specify how the company presents all items related to the bonds in a balance sheet prepared immediately after the bond issue is sold.
- What items related to the bond issue does Wesley include in its 2007 income statement, and how does it determine each?
- Will the amount of bond discount amortization using the interest method of amortization be lower in the second or third year of the life of the bond issue? Why?
- Assuming that the bonds are called in and retired on March 2, 2008, how does Wesley report the retirement of the bonds on the 2008 income statement?

C14-10 Bonds: Issuance, Expense, and Conversion

AICPA Adapted On January 1, 2006 Brewster Company issued 2,000 of its five-year, \$1,000 face value, 11% bonds dated January 1 at an effective annual interest rate (yield) of 9%. Brewster uses the effective interest method of amortization. On December 31, 2007 Brewster extinguished the 2,000 bonds early through acquisition in the open market for \$1,980,000.

On July 1, 2006 Brewster issued 5,000 of its six-year, \$1,000 face value, 10% convertible bonds dated July 1 at an effective annual interest rate (yield) of 12%. The bonds are convertible at the option of the investor into Brewster's common stock at a ratio of 10 shares of common stock for each bond. Brewster uses the effective interest method of amortization. On July 1, 2007 an investor in Brewster's convertible

bonds tendered 1,500 bonds for conversion into 15,000 shares of Brewster's common stock, which had a market value of \$105 per share at the date of the conversion.

Required

- Were the 11% bonds issued at par, at a discount, or at a premium? Why?
 - Is the amount of interest expense for the 11% bonds using the effective interest method of amortization higher in the first or second year of the life of the bond issue? Why?
- How is a gain or loss on early extinguishment of debt determined? Does the early extinguishment of the 11% bonds result in a gain or loss? Why?
 - How does Brewster report the early extinguishment of the 11% bonds on the 2007 income statement?
- Does recording the conversion of the 10% convertible bonds into common stock under the book value method affect net income? What is the rationale for the book value method?
 - Does recording the conversion of the 10% convertible bonds into common stock under the market value method affect net income? What is the rationale for the market value method?

C14-11 Analyzing Coca-Cola's Long-Term Debt Disclosures

Refer to the financial statements and related notes of the Coca-Cola Company in Appendix A of this book.

Required

- What was the difference between the interest expense and interest paid in 2004?
- How much long-term debt will mature in 2005?
- Assuming no long-term debt was issued or retired during 2004, which U.S. dollar notes were issued at par? At a premium? At a discount?
- Was the current yield at December 31, 2004 on the company's long-term debt the same as, greater, or less than the average yield at issuance? At December 31, 2003?



C14-12 Ethics and Long-Term Liabilities

You are an accountant for the Virden Company, which has two items of long-term convertible debt on its balance sheet. The president of the company calls you into his office and says, "We are too leveraged. So, you remember that convertible debt we issued at the beginning of the year? Let's figure out the value of the conversion feature and assign that to equity so that we can reduce the amount we report as debt. And I have also been thinking about that convertible debt we issued at par five years ago. If you remember, each \$1,000 bond is convertible into 25 shares. Now that our shares are trading at \$70, obviously that is no longer debt. So let's classify that debt as equity now."

Required

From financial reporting and ethical perspectives, discuss the issues raised by this situation.

RESEARCH SIMULATIONS

R14-1 Researching GAAP

Situation

You are auditing the York Company when you come across a note receivable signed by the president of a company that is a major supplier. The note has a face value of \$100,000, is payable to the York Company, is dated January 1, 2007, and is payable January 1, 2008. The interest rate on the note is 1%. You ask the president of the York Company about the note and she responds "That is fine. We lent him some money to help him through a difficult divorce. We wanted him to pay interest, but he couldn't afford the going rate of 8%. So how do you think we should account for the note?"

Directions

- Research the related generally accepted accounting principles and prepare a short memo to the president that answers her question. Cite your references and applicable paragraph numbers.
- How would your answer change if the interest rate on the note was 16%?
- Do these valuation issues also create ethical issues?

R14-2 Researching GAAP

Situation

The Wales Company has a \$90,000, non-interest-bearing four-year note receivable from the Spenser Company that was received on July 1, 2007 when Wales sold a used machine. The machine was custom made five years ago, cost the Wales Company \$100,000, and was being depreciated over a 10-year life by the straight-line method to a zero residual value. As the accountant for the Wales Company you know that *APB Opinion No. 21* requires that the note be discounted using the borrower's interest rate. You phone the accountant for the Spenser Company and ask her what that company's incremental borrowing rate is. She responds cheerfully, "Sorry, I have no idea. We never borrow money because the owner provides all the capital we need." The president asks you to resolve this issue.

Directions

Research the related generally accepted accounting principles and prepare a short memo to the president that answers her question. Cite your references and applicable paragraph numbers.