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.
10. Understand the disclosure of long-term liabilities.
11. Account for long-term notes receivable, including impairment of a loan.
SYNOPSIS

1. Issuing long-term liabilities is one of the choices available to corporations to obtain financial resources. Companies may prefer to issue debt rather than other types of securities for five basic reasons: (a) Debt financing may be the only available source of funds if the company is too risky to attract equity investments; (b) Debt financing may have a lower cost because of the lesser risk associated with debt investments; (c) Debt financing offers an income tax advantage because the interest payments to debt holders are a tax deductible expense for a corporation; (d) The voting privilege of stockholders is not shared with debt holders; and (e) Debt financing offers the opportunity for leverage.

Bonds Payable

2. Leverage (trading on the equity) refers to a company’s use of borrowed funds to increase the return to stockholders. When a company invests borrowed funds, it hopes to earn more on the investments than it pays in interest costs for the borrowed funds.

3. (a) A bond is a type of note in which a company (the issuer) agrees to pay the holder (the lender) the face value at the maturity date and usually to pay periodic interest at a specified rate on the face value.

(b) The face (par) value is the amount the issuer agrees to pay at maturity. The face value of a corporate bond is generally $1,000.

(c) The maturity date is the date on which the issuer agrees to pay the holder the face value of the bond.

(d) The contract rate (which is often called the stated, face, coupon or nominal rate) is the annual rate at which the issuer agrees to pay interest until maturity.

(e) 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.

(f) The bond indenture is the contract between the issuing company and the bondholders that defines the rights of the bondholders.

4. Companies may issue several types of bonds with different characteristics, such as: (a) debenture bonds, which are not secured by specific property; (b) mortgage bonds, which are secured by a lien against specific property of the company; (c) registered bonds, which require registration of ownership with the company and notification to the company in the event of transfer of ownership for interest to be paid; (d) coupon bonds, which are unregistered and pay interest to the holder presenting a coupon to the company; (e) zero-coupon bonds (deep discount bonds), which pay interest only at maturity; (f) callable bonds, which the bondholder can be required by the company to return before the maturity date for a predetermined price and interest to date; (g) convertible bonds, which can be exchanged by bondholders for a predetermined number of shares; and (h) serial bonds, which are issued at one time but mature in installments at future dates.
5. The annual amount of interest to be paid on a bond is calculated by multiplying the stated annual rate times the face value. However, when the bonds are sold, the actual rate of interest that must be paid in order to sell the bonds may be different from the contract (stated) rate because of changing market conditions. This actual rate is also called the market rate, effective rate, or yield. Rather than change the stated rate that is printed on the bond certificate, the selling price of the bonds is altered on the day it is sold. This is done to allow the purchaser to earn a return that is equal to return they would earn on similar bonds purchased today. If the market rate and the contract rate are the same, the bonds are sold at par (their face value). In other words, because the contract rate and yield are the same, the selling price is not adjusted. However, if the market rate is greater than the contract rate, the selling price is less than the face value. Bonds selling for less than their face value are selling at a discount. If the yield demanded is less than the contract rate, the selling price will be more than the face value, and these bonds will be sold at a premium.

6. The current market (selling) price is usually quoted as a percentage of the face value. For example, a $1,000 bond selling at 102 is selling for 102% of face value, or at $1,020—that is, at a premium of $20; and a bond quoted at 96 is selling at 96% of face value, or $960—that is, at a discount of $40.

**Recording the Issuance of the Bonds**

7. When bonds are sold, the company credits the face value of the bonds to a Bonds Payable account. If the company sells the bonds at a premium, it credits the premium to an account entitled Premium on Bonds Payable, an adjunct account that is shown as an addition to Bonds Payable on the balance sheet. If the company sells the bonds at a discount, it debits the discount to an account entitled Discount on Bonds Payable, a contra account that is shown as a deduction from Bonds Payable on the balance sheet. The book value (carrying value) of a bond issue is the face value plus any unamortized premium or minus any unamortized discount.

8. When the sale of bonds occurs between interest dates, the company usually collects from the investor the interest that has been earned (or accrued) from the last payment date to the date of sale, in addition to the selling price. The amount of accrued interest to be paid is calculated by multiplying the face value of the bond by the stated interest rate times the fraction of the year since the last payment date. The company usually credits this amount to Interest Expense on the issuance date. On the next interest payment date, the company pays the bondholders a full six months’ interest and debits the full amount to Interest Expense. The difference between these two entries is the interest expense that the company will report to date. By accounting for the interest expense and payment in this manner, the company reduces errors. Some companies account for the above transactions by crediting Interest Payable for the accrued interest paid at the time of issuance, and then debiting this account for the same amount on the interest payment date.

**Amortizing Discounts and Premiums**

9. To properly report interest cost, a company’s Interest Expense account must reflect an amount based on the effective interest rate, not the stated rate, and the book value of the bonds. In order to do this, the company must amortize any premium or discount over the life of the bonds.

10. There are two methods used for recording the amortization of bond discounts and premiums: (a) straight-line method and (b) effective interest method. (The actual use of each of these methods will be discussed in detail in the Problem-Solving Strategies section of this chapter.) APB Opinion No. 21 requires the use of the effective interest method for the recording of the amortization of bond discounts and premiums unless the results of using the straight-line method are not materially different from those obtained using the effective interest method.
11. GAAP requires that a company defer any bond issue costs, such as legal fees, printing costs, or registration fees. Such costs are recorded in a separate account entitled Deferred Bond Issue Costs and classified as deferred charges on the balance sheet. A company amortizes these bond issue costs to interest expense over the life of the bonds, generally using the straight-line method. To record the amortization each period, a company debits Bond Interest Expense and credits Deferred Bond Issue Costs.

12. When a company issues bonds with interest payment dates (e.g., October 1 and April 1) that differ from the fiscal year (e.g., December 31), it must accrue interest and amortize a partial premium or discount at the end of the fiscal year in order to appropriately match expenses with revenues.

13. Zero coupon bonds pay no interest each period. The selling price is the present value (based on the current market rate) of the face value. A company debits the difference between the selling price and the face value to the discount account at issuance. Then it periodically recognizes interest expense, the yield times the book value of the bond at the beginning of the period, as a decrease in the discount account.

**Extinguishment of Liabilities**

14. Under GAAP, a liability is derecognized (extinguished) for financial reporting purposes under either of two conditions: (a) the debtor pays the creditor and is relieved of its obligation, or (b) the debtor is released legally from the liability.

15. On the bond maturity date, the company repays the face value of the bonds to the bondholders. By this time, the book value equals the face value because any discount or premium has been completely amortized. When bonds are to be retired at maturity, the bonds are reclassified as a current liability on the balance sheet immediately before retirement. The entry to record the retirement includes a debit to Bonds Payable and a credit to Cash.

16. Bonds may be retired prior to the scheduled maturity date either as a result of a call provision, which allows the company to recall the debt issue at a prestated percentage of the face value, or by purchasing the bonds on the open market. If the debt is not replaced with another issue, the extinguishment is called a debt retirement; if the debt is replaced with another debt issue, it is called a refunding.

17. The retirement or refunding of bonds prior to maturity usually results in either a gain or loss. The amount of this gain or loss is determined by the difference between the current book value of the bonds (plus any unamortized bond issue costs) and the call price (or market price). Regardless of whether the extinguishment of debt is a retirement or a refunding, FASB Statement No. 145 requires that all debt extinguishments be accounted for in the same way. A company recognizes the gain or loss in the period of recall (the current period) and includes the gain or loss in its income from continuing operations for that period.

18. In addition to retirement at or prior to maturity, a liability can be extinguished if the debtor is legally released from being the primary obligor for the debt either by law or by the creditor. This is referred to as defeasance. The debtor removes the liability from its records and reports a gain on the defeasance.

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Bonds with Equity Characteristics

19. In order to increase the marketability of bonds, a company may issue bonds with detachable stock warrants (stock rights). The warrants (rights) represent the right of the investor to acquire a specified number of shares of common stock at a given price within a certain period of time. When the stock warrants are detached, the investor still retains the right to receive interest on the bonds. Because the warrants trade separately on the open market soon after issuance, a portion of the bond proceeds must be allocated to the stock warrants and accounted for as additional paid-in capital. The allocation is based on the relative fair value of the bonds and warrants.

20. Convertible bonds are another form of debt that a company may issue and allows creditors to ultimately become stockholders. The conversion feature, which usually allows the bonds to be sold at a lower interest rate and/or a higher price, enables the bondholder to exchange the bonds for a specified number of shares of common stock. APB Opinion No. 14 specifies that the proceeds from the issuance of convertible debt be accounted for in the same manner as the issuance of nonconvertible debt because the conversion feature lacks reliable (verifiable) valuation. The conversion of the bonds into common stock may be accounted for by either of two methods. The book value method accounts for conversion to stockholders’ equity (Common Stock and Additional Paid-in Capital) with no recognition of a gain or loss. The market value method records stockholders’ equity at the market value of the shares issued on the date of conversion. Any loss that arises from a difference between the market value of the shares issued and the book value of the bonds on the conversion date is included in the company’s income from continuing operations for the period.

Long-Term Notes Payable

21. A long-term note represents a future obligation to repay debt, and may or may not be backed by collateral. If the stated interest rate on a long-term note payable is equal to the fair interest rate at issuance, the issuing company records the note at its face value. It records subsequent payments of interest and accruals as debits to Interest Expense and credits to Cash or Interest Payable.

22. GAAP provides guidelines to be used in accounting for long-term notes payable that are issued without a stated (or fair) interest rate. According to the Opinion, a company records a note at its present value and uses the effective interest method to record subsequent interest, regardless of the note’s legal structure. The effective interest rate is the discount rate that equates the face value with the present value of the note. If a company issues a noninterest-bearing note for cash, the note is assumed to have a present value equal to the cash proceeds, and the appropriate interest rate is determined by comparing the cash proceeds with the face value. The company debits any difference between the proceeds and the face value to Discounts on Notes Payable, which is then amortized to Interest Expense over the life of the note by the effective interest method (as discussed earlier). Discount on Notes Payable is a contra account that is subtracted from the Notes Payable account on the company’s balance sheet to determine the carrying value of the note.

Long-Term Notes Receivable

23. A company usually acquires a noninterest-bearing long-term note receivable in an exchange for property, goods, or services. The same generally accepted accounting principles apply to notes receivable and notes payable. The note receivable should be 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 should be recorded at its present value using the borrower’s incremental interest rate. The effective interest method is used to record interest revenue.

24. A loan (note receivable) is impaired if it is probable that the creditor will not be able to collect all amounts due according to the contractual terms of the loan agreement.
25. GAAP requires companies to use a consistent method for valuing impaired loans and to measure the economic losses on such loans and include them in net income.

26. The FASB has issued an Exposure Draft that, if adopted, would have significant effects on how companies account for the issuance of convertible bonds. At issuance, the company would have to allocate a portion of the proceeds to the conversion feature and treat this as additional paid-in capital, with the remaining portion treated as bonds payable. Upon conversion, the company would have to calculate a gain or loss based on the difference between the fair value of the bond component and the book value of the bonds payable.

SELF-EVALUATION EXERCISES

True-False Questions

Determine whether each of the following statements is true or false.

1. Bonds are an attractive way for corporations to finance their operations because the interest payments to bondholders are a tax deductible expense.  
   **Answer: True**  
   Bond interest payments made by corporations are considered a normal expense of doing business and are allowed to be deducted for income tax purposes.

2. Financing with debt allows corporations the possibility of increasing the rate of return to stockholders.  
   **Answer: True**  
   Companies can invest the funds obtained by issuing bonds to potentially earn a greater return on the funds than the amount of interest they will be required to pay for the debt. This is called leverage.

3. Debenture bonds are secured by specific assets of the company.  
   **Answer: False**  
   A debenture bond is a bond that is not secured by specific assets of the company. Mortgage bonds, on the other hand, are bonds that are secured by a specific asset.

4. When coupon bonds are sold, the issuer of the bonds or the transfer agent must be notified of the change of ownership.  
   **Answer: False**  
   Coupons bonds are unregistered bonds whose interest is claimed by the person who presents a coupon to the company. There is no requirement for the holder to notify the issuer or their transfer agent when the bonds are sold or transferred. A registered bond though requires notification when transferred or sold.

5. A bond that has a contract rate of 10% and a market rate of 12% is sold at a premium.  
   **Answer: False**  
   If the contract rate of a bond is less than the market rate the bond will have to be discounted to entice a buyer to purchase the bond; therefore, if the contract rate is less than the market rate the bond will sell at a discount not a premium.
6. The amount of interest that a bondholder will receive in a year is calculated by multiplying the face value of the bond times the market rate.  

Answer: False 

The amount of interest that a bondholder will receive in a year is calculated by multiplying the face value of the bond times the contract rate, not the market rate. The contract rate is stated in the bond indenture and establishes the amount of periodic interest to be paid the bondholder.

7. When a bond with a face value of $1,000 is sold for $980, $1,000 is credited to Bonds Payable. 

Answer: True 

The face value of the bonds is always credited to the Bonds Payable account. Any discount (or premium) is then subtracted (or added) to the bonds payable to determine the carrying value of the bonds.

8. When a bond is sold between interest dates, the buyer must usually pay the issuing company the interest that has accrued from the last payment date to the date of purchase. 

Answer: True 

The common practice is for the buyer to pay the issuer any interest that has accrued from the last interest payment date when the buyer purchases the bond. The buyer will then receive a full payment of interest at the next interest date.

9. APB Opinion No. 21 allows the use of either the effective interest method or the straight-line method of premium or discount amortization because the differences that result are not material. 

Answer: False 

APB Opinion No. 21 allows the use of either method when the difference between the two methods is not material. However, when the difference is material, which is often the case, APB Opinion No. 21 requires the use of the effective interest method.

10. When the effective interest method is used, the amount of interest expense each period is determined by multiplying the stated interest rate times the face value of the bonds. 

Answer: False 

In the effective interest method, the amount of interest expense each period is determined by multiplying the book value of the bonds at the beginning of the period by the market rate of interest for each period.

11. The straight-line method of amortization results in a constant amount of interest expense each period. 

Answer: True 

Similar to the calculations for straight-line depreciation, the straight-line determination of amortization costs produces a constant amount of interest expense each period.

12. Legal fees, printing costs, or registration fees associated with a bond issue should be expensed in the period when the bonds are issued. 

Answer: False 

APB Opinion No. 21 requires that a company defer any bond issue costs, such as legal fees, printing costs, or registration fees. A company amortizes these bond issue costs to interest expense over the life of the bonds, generally using the straight-line method.
13. When bonds are retired at maturity, the face value equals the book value of the bonds on the retirement date. **Answer: True**

Premiums (or discounts) are amortized over the life of the bonds. At maturity, the premiums (or discount) have been fully amortized and the book value of the bonds is equal to the face value of the bonds.

14. A call provision allows a company to recall a bond issue at a prestated price before the scheduled maturity date. **Answer: True**

A call provision allows a company, at the company’s discretion, to recall a bond at a prestated price (usually a percentage of face value) before the scheduled maturity date.

15. Material gains and losses on the early extinguishment of debt are classified as extraordinary items. **Answer: False**

Prior to the issuance of FASB Statement No. 140, all early extinguishments of debt were classified as an extraordinary item on the income statement. In recent years the early extinguishment of debt has become more common and GAAP now requires that the extraordinary conditions of “unusual in nature” and “infrequent” are required before an early extinguishment of debt can be classified as extraordinary.

16. Because the economic substance of the issue of bonds with detachable warrants and bonds with a conversion provision is similar, the generally accepted accounting principles for recording the issuance of these types of securities are the same. **Answer: False**

In accordance with current GAAP, a bond issued with a conversion provision is treated as debt only and is accounted for in the same manner as bonds issued without conversion provisions. However, bonds issued with detachable warrants (rights) are accounted for by providing separate accounting for the warrants.

17. When bonds are converted into common stock, a company may record a gain or loss on the conversion, regardless of the method used to account for the conversion, if there is a difference between the market value of the bonds and the market value of the stock on the date of conversion. **Answer: False**

If a company uses the book value method to account for the conversion of bonds into common stock no gain or loss is recorded. In the market value method, a loss would be recorded if the market value of the shares converted exceeds the book value of the bonds converted.

18. To record the issuance of a noninterest-bearing note for cash, a company debits Cash for the value of the proceeds and credits Notes Payable for the same amount. **Answer: False**

When a long-term noninterest 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. The face value of the note is credited to Notes Payable.
Multiple Choice Questions

Select the one *best* answer for each of the following questions.

1. Which of the following statements is not a reason why companies might prefer to issue bonds rather than other types of securities?
   (a) Bonds may be the only source of funds because of the riskiness of the company.
   (b) Bonds may have a lower cost to the corporation because of the lower perceived risk.
   (c) The interest payments made to bondholders are a tax deductible expense.
   (d) Bondholders will dilute the vote of stockholders.

   **Answer:** (d) Bondholders will dilute the vote of stockholders.
   The issuance of debt to bondholders has no effect on the voting rights of stockholders; therefore, answer (d) is not a reason why companies might prefer to issue bonds.
   Answers (a), (b), and (c) are each reasons a company might prefer to issue bonds over other types of securities.

2. If the yield on a bond issue is greater than the contract rate, the bonds are sold at:
   (a) a discount.
   (b) a premium.
   (c) face value.
   (d) maturity value.

   **Answer:** (a) a discount.
   The yield represents the rate that a bondholder should be able to obtain for similar securities in the market. If the yield is greater than the contract rate that the bond will pay, the bondholder would obviously go elsewhere to purchase his bond and receive a higher return. To counteract this, a bond issuer must reduce his price by issuing the bonds at a discount.
   Answer (b) is incorrect because a premium is an amount above the face value that a bondholder must pay. If a bond's contract rate is less than the current market rate, a buyer of bonds would not be willing to pay more for a bond and receive less interest. Bonds would be sold at par (or face value) when the market rate and contract rate are equal; therefore answer (c) is incorrect. The maturity value is the same as face value (answer c) and is also incorrect.

3. The book value of a bond issue sold at a premium is:
   (a) the face value minus any unamortized premium.
   (b) the face value plus any unamortized premium.
   (c) the price minus any unamortized premium.
   (d) the price plus any unamortized premium.

   **Answer:** (b) the face value plus any unamortized premium.
   A premium is an amount above the face value of a bond paid because the market rate is less than the contract rate of the bond. Because the premium represents an amount paid above the face value, the book value of a bond is equal to the face value of a bond plus any unamortized premium.
   Answer (a) is incorrect because the face value minus the premium would mean that a buyer paid less than the face value, which is not true with regard to premiums. Answers (c) and (d) are incorrect because they use the term price. Price of the bonds already includes either the premium or discount on the bond.
4. A company uses the effective interest method of amortizing a bond discount or premium in order to:
   (a) disclose the interest charges imposed on the company by the bondholders.
   (b) report a constant amount of interest expense each semiannual period.
   (c) simplify the process of amortizing and recording any premium or discount.
   (d) amortize a constant amount of premium or discount each semiannual period.

   **Answer:** (a) disclose the interest charges imposed on the company by the bondholders.

   When a company sells a bond at a discount or premium, it is incurring an effective interest rate that is either more (in the case of a discount) or less (in the case of a premium) than the contract rate of interest. Amortization of the premium or discount allows disclosure of the actual interest expenses the company incurs related to the bonds.

   Answer (b) is incorrect because the effective interest method of amortization does not produce a constant amount of interest expense each period. Answer (c) is incorrect because the effective interest method does not simplify the amortization process. Answer (d) is incorrect because the amount of premium or discount amortized each period is not constant using the effective interest method.

5. Legal fees and registration fees associated with the issuance of bonds are:
   (a) expensed during the period in which the bonds are issued.
   (b) amortized to interest expense over the life of the bonds using the straight-line method.
   (c) amortized to interest expense over the life of the bonds using the effective interest method.
   (d) amortized over a period not to exceed five years.

   **Answer:** (b) amortized to interest expense over the life of the bonds using the straight-line method.

   *APB Opinion No. 21* requires that a company defer any costs associated with the issuance of bonds. Most companies amortize these issue costs over the life of the bonds on a straight-line basis.

   Answer (a) is incorrect because *APB Opinion No. 21* does not allow the direct expensing of these costs when bonds are issued. Conceptually the issue costs are used throughout the life of the bonds and should be allocated to the life of the bonds. Answer (c) is incorrect because the difference between the amortized issuance costs of the bonds using the straight-line method and the effective interest method is not material. Answer (d) is incorrect because there is no fixed time limit to amortize the bond issue costs.

6. Interest expense on zero coupon bonds is:
   (a) the market rate times the book value of the bonds at the end of the period.
   (b) the market rate times the book value of the bonds at the beginning of the period.
   (c) the stated rate times the face value of the bonds at the beginning of the period.
   (d) the stated rate times the book value of the bonds at the end of the period.

   **Answer:** (b) the market rate times the book value of the bonds at the beginning of the period.

   Interest expense on a zero coupon bond is calculated in the same manner that interest expense on other bonds is calculated if using the effective interest method: by multiplying the market rate of interest by the book value of the bonds at the beginning of the period.

   Answer (a) is incorrect because it uses the book value of the bonds at the end of the period, not the beginning. Answers (c) and (d) are incorrect because they use the stated rate of interest. Only the market rate is used to calculate interest expense.
7. On the bond retirement date, the book value of the bond originally sold at a premium or discount:
   (a) equals the face value of the bonds.
   (b) exceeds the face value of the bonds if the bonds were originally sold at a premium.
   (c) is less than the face value of the bonds if the bonds were originally sold at a discount.
   (d) is equal to the original selling price of the bonds.

Answer: (a) equals the face value of the bonds.

While bonds are outstanding, the book value of the bonds is usually above (if originally sold at a premium) or below the face value (if sold at a discount). The discount or premium is amortized each interest period until maturity when it has been completely amortized and the book value of the bonds equals the amount originally entered in the bonds payable account (face value).

Answers (b) and (c) are incorrect because all of the premium or discount has been amortized and there is no more remaining. Answer (d) is incorrect. The book value of the bonds on the date they were originally issued is equal to the original selling price.

8. When bonds are retired prior to maturity, a company recognizes a gain if the call price of the bonds is:
   (a) less than the current book value of the bonds plus any unamortized bond issue costs.
   (b) less than the current book value of the bonds less any unamortized bond issue costs.
   (c) more than the current book value of the bonds plus any unamortized bond issue costs.
   (d) more than the current book value of the bonds less any unamortized bond issue costs.

Answer: (a) less than the current book value of the bonds plus any unamortized bond issue costs.

If the price that a company must pay to call the bonds (the call price) is less than the amount of debt that the company will remove from its books (current book value of bonds plus any remaining unamortized issue costs) the company has a gain that is recognized.

There are two questions being asked here: First, do we add or subtract the unamortized bond issue costs to arrive at the correct answer? Because these are costs that have yet to be expensed, they must be added to the carrying value of the bonds in order to determine what the appropriate overall costs of the bonds are. Therefore, answers (b) and (d) are incorrect because they subtract these issue costs. The second question is whether the call price is more or less than the carrying value of the bonds to generate a gain on their early retirement? If the call price is more than the carrying value, the company will be paying more to remove the debt and a loss will be recognized; therefore, answer (c) is incorrect, leaving answer (a) as the correct answer.
9. A company issues $100,000 of 8% bonds at par. Each bond carries one warrant, each of which allows the holder to acquire one share of $5 par value common stock for $30 a share. After issuance, the bonds were quoted at 97.475 without the warrants, and the warrants were quoted at $7 each. The value assigned to the bonds at issuance (rounded to the nearest dollar)
   (a) $93,000.
   (b) $93,300.
   (c) $97,475.
   (d) $100,000.

Answer: (b) $93,300.

This question is asking what the bonds should be valued at when issued. The company received $100,000 for both the bonds and the warrants. The bonds represent a portion of this $100,000 and the warrants represent the other portion of the $100,000. The total value of the two items is $104,475. The bonds are worth $97,475 (quote at 97.475). The warrants are worth $7,000 (one warrant per bond at $7 each). The bonds represent 93.3% of the value ($97,475 ÷ $104,475) of the $100,000 received; therefore the bonds are assigned the value of $93,300 (rounded to the nearest dollar).

Answer (a) is incorrect because it uses the $100,000 received at issuance and then subtracts the value of the warrants after issue ($7,000). It does not reflect the value of the bonds after issuance. Answer (c) is incorrect because it just reflects the value of the bonds after issuance and does not consider the value of the warrants after issuance. Answer (d) is incorrect because this is the amount the company receives for both the warrants and the bonds. Each of these securities needs to be separately valued.

10. A corporation has convertible bonds with a face value of $100,000, and a current book value of $101,500. Each $1,000 bond may be converted into 20 shares of $5 par value common stock. If all of the bonds are converted into stock when the market value of the stock is $52 a share, the journal entry to record the conversion using the book value method would include:
   (a) a debit to Loss on Conversion of $2,500.
   (b) a credit to Gain on Conversion of $2,500.
   (c) a credit to Loss on Conversion of $2,500.
   (d) neither a gain nor a loss.

Answer: (d) neither a gain nor a loss.

When bonds are converted using the book value method, there is no recognition of a gain or loss. Answers (a), (b), and (c), are all incorrect because they recognize a gain or a loss, which is incorrect when the book value method is used. If the question would have asked about the market value method, then answer (a) would have been correct. Answer (c) is definitely wrong because a loss is never a credit entry.
11. Fairco Corporation issues a 4-year, noninterest-bearing note with a face value of $10,000 and receives $5,920.80 in exchange. The journal entry to record the issuance of the note is which of the following:

(a) Cash 5,920.80
   Notes Payable  5,920.80
(b) Cash 10,000
   Notes Payable 10,000
(c) Cash 5,920.80
   Discount on Notes Payable 4,079.20
   Notes Payable 10,000
(d) Cash 10,000
   Notes Payable  5,920.80
   Premium on Notes Payable 4,079.20

Answer: (c)

Cash 5,920.80
Discount on Notes Payable 4,079.20
Notes Payable 10,000

When a noninterest-bearing note is issued solely in exchange for cash, the note is assumed to have a present value equal to the cash received. The difference between the cash received and the face value of the note is considered to be a discount and is amortized over the life of the note. The note payable account is always listed at the face value of the note. Answer (c) meets all of the above criteria.

Answer (a) is incorrect because it does not reflect the discount on the notes payable. In addition to not reflecting the discount, answer (b) does not accurately reflect the amount of cash received in the transaction. Answer (d) is incorrect because it has the amounts for the cash and notes payable reversed. In addition, it reflects a premium instead of the appropriate discount.

12. A company exchanges a $42,000 note with a stated interest rate of 9% solely for a used mini-computer. The 9% interest rate would be presumed fair unless:

(a) the stated rate of interest is clearly unreasonable.
(b) the face value of the note is materially different from the cash price of the computer.
(c) the face value of the note is materially different from the fair value of the note.
(d) a, b, or c is true.

Answer: (d) a, b, or c is true.

Under APB Opinion No. 21, the stated rate of interest is presumed to be fair unless any of these conditions are met: a) an interest rate is not stated; b) the stated rate of interest is clearly unreasonable (Answer (a)); or c) the face value for the note is materially different from the cash sales price (answer (b)); or d) the face value of the note is materially different from the fair value of the note on the date of the transaction (answer (d)). Because any of these answers (a), (b), or (c) could be true, the best answer is (d).

Answers (a), (b) or (c) are individually incorrect because the best answer is answer (d) as described above.

Problem-Solving Strategies

Strategy: Many of the problems in this chapter depend on your understanding and utilizing the skills associated with the principles of time value of money. If you are not up to speed with these skills or need a refresher, review the Time Value of Money Module in your textbook located just after Chapter 6.
Valuation of Bonds

Strategy: The value of a bond consists of two separate components: 1) the present value of the amount that will be received when the bond matures (face value of the bond); and 2) the present value of all of the interest payments that will be received before the bond matures. Therefore, to calculate the value of the bond you must do two separate calculations; one involving a single sum (the face value) and the other involving a series of payments (periodic interest payments).

Most bonds are paid semiannually (twice per year). This means that there are usually twice as many periods as the length of the bond. For example, a 20-year bond that pays interest semiannually would have a total of 40 periods in which interest is paid (20 years × 2 periods per year).

Although bond interest is usually paid semiannually, the interest rates (contract and market) are stated on an annual basis. This means that when you are working with a semiannual bond, each period (6 months) gets half of the annual interest rate. For example, a bond that pays 12% interest semiannually would have two periods each year and each 6-month period would receive 6% interest.

Strategy: There are many terms used for the two interest rates used in bond calculations.

The amount of interest that a bond issuer will pay to the bondholder can be called the “contract rate,” “stated rate,” “legal rate,” “coupon rate,” “face rate,” or “nominal rate.”

Current market conditions also affect the value of bonds. This rate is often called the “yield,” “current rate,” “market rate,” or “effective rate.”

In these examples the terms contract rate and market rate will be used.

Now let’s put this information to use and determine the value of a bond. Assume that on January 1, 2011, Nite Corporation intends to issue bonds that have a face value of $100,000 and a contract interest rate of 10%. The bonds mature on January 1, 2019, and interest is paid semiannually on July 1 and January 1. The bonds also have a call provision that allows Nite to recall the bonds early at a price of 104. When the bonds are issued on January 1, 2011, the market rate of interest is 8%. What is the selling price of these bonds?

Remember, the value of the bonds consists of the value of the two components of the bonds: 1) present value of the face value ($100,000) of the bonds at maturity; and (2) the present value of the interest payments to be received. Therefore, we must break the problem into two separate problems:

1. Present value of the face amount of the bonds paid at maturity.

   We multiply the face value times the present value interest factor (PVIF). In order to find the PVIF, we need to know two pieces of information; first, we need to know the number of periods (n) that there will be before the bond reaches maturity; second, we need to know the interest rate per period (i). Note that we need the interest rate per period, not the annual interest rate.

   The bonds will be outstanding for a total of eight years and there are two periods per year; therefore, the number of periods in our example is 16 (n = 16).
The interest rate is a little tougher because we have two interest rates to choose from; the contract rate (10%) and the market rate (8%). We use the market rate when trying to determine the value of the bonds. We use the 8% per year, and there are two periods per year; therefore the rate we use is 4% (8% ÷ 2 = 4%) (i = 4%).

**Strategy:** The only time you use the stated rate in bond problems is to calculate the actual amount of cash to be paid to the bondholders. For all other calculations, you use the market rate of interest.

Present value of principal = Face Value × PVIF \( n=16; \ i=4\% \)

\[ \$53,390.80 = \$100,000 \times 0.533908 \]

The PVIF number was found in the Present Value of 1 Table \( n = 16; \ I = 0.04 \) in Time Value of Money Module on page M38 in the textbook.

2. Present value of the interest payments to be received.

We now need to calculate the present value of the interest payments that will be paid out over the life of the bonds. To do this calculation we need to determine how much cash will be paid each period. Remember, the contract rate is only used one time in bond calculations and that one time is to determine how much cash will actually be paid to the bondholder. If the bond has a semiannual payment, to determine the cash payment received every six months you would multiply the face value times the annual interest rate divided by two.

Interest payment = Face Value × (annual interest rate ÷ 2)

In this example that would be:

\[ \$5,000 = \$100,000 \times (10\% \div 2) \]

Once the periodic payment is determined, we multiply it by the present value interest factor for an ordinary annuity (PVIFOA) for the same period \( n = 16 \) and interest rate \( I = 4\% \) that we used to determine the present value of the bond at maturity in step 1 above.

Present value of interest payments = Interest payment × PVIFOA \( n=16; \ i=4\% \)

\[ \$58,261.48 = \$5,000 \times 11.652296 \]

The PVIFOA number was found in the Present Value of an Ordinary Annuity of 1 Table \( n = 16; \ i = 0.04 \) in Time Value of Money Module on page M39 in the textbook.

3. Total value of the bonds.

Now that we have found the two pieces to determine the value of the bond, all that is left is to add the two numbers to determine the total value of the bond.

Present value of the face amount of the bonds \( \$53,390.80 \)

Present value of the interest payments \( \$58,261.48 \)

Total value of the bonds \( \$111,652.28 \)
4. Check your answer.

The last step in determining the value of the bonds is to determine if the answer you calculated in step 3 above makes sense. To do this, you need to remember some important facts from the chapter:

- If the market rate > contract rate, the bonds will sell at a discount and their value will be less than the face value of the bonds.
- If the market rate < contract rate, the bonds will sell at a premium and their value will be more than the face value of the bonds.
- If the market rate = contract rate, the bonds will sell at a par and their value will be equal to the face value of the bonds.

**Strategy:** You must remember that when we are discussing bonds, the terms “discount” and “premium” do not have good or bad connotations associated with them. In other words, a discount is not bad and a premium is not good. Discounts and premiums have nothing to do with the quality of the bonds or the company that issues the bonds. The term only denotes the relationship between the contract interest rate of the bond and the current market rate of interest. When the contract rate is less than the market rate, the bonds will sell at a discount, and when the contract rate is greater than the market rate, the bonds will sell at a premium.

In the example above, the market rate was 8% and the contract rate was 10%. Therefore the market rate was less than the contract rate, so the bonds will sell at a premium and the value that was calculated ($111,652.28) is greater than the face value ($100,000) of the bonds.

**Recording Bond Issuance**

The value of the bonds that was calculated above is the amount that the company can expect to receive when the bonds are issued. The entry to record the bonds would be:

```
Cash 111,652.28
Bonds payable 100,000.00
Premium on bonds payable 11,652.28
```

**Strategy:** The entries for bond issuance are quite simple:
- Cash is the value of the bonds that is calculated.
- Bonds payable is always the face value of the bonds.
- The amount above face value would be the premium (a credit entry) and the amount below face value is the discount (a debit entry).

**Discount and Premium Amortization**

The actual interest expense that a bond issuer experiences is not the same as the interest payments that are made every six months. The interest expense takes into consideration the fact that bonds are usually sold at a discount or premium from the face value. The discount or premium are part of the overall interest expense that a company experiences and must be considered when calculating interest expense over the life of the bonds. The charging of the discount or premium to interest expense over the life of the bonds is called amortization.
There are two methods of amortization of discounts or premiums: 1) straight-line and 2) effective interest method. GAAP requires the use of the effective interest method of amortization but allows the use of the straight-line method when the interest expense that results is not materially different.

**Straight-Line Amortization**

When using the straight-line method, a company amortizes the premium or discount to interest expense in equal amounts each period by dividing the total discount or premium by the number of semiannual periods until maturity. If the bonds are sold at a discount, the recorded amount of interest expense (cash payment + discount amortization) will be higher than the cash paid; indicating that the effective interest rate is higher than the stated rate and therefore the company’s interest expense is higher than the cash actually paid to the bond holders. If the bonds are sold at a premium, the recorded amount of interest expense (cash payment − premium amortization) will be lower than the cash paid; indicating that the effective interest rate is lower than the stated rate and therefore the company’s interest expense is lower than the cash actually paid to the bond holders.

Returning to our example, assuming straight-line amortization, the amount of premium amortized with each semiannual interest payment would be:

\[
\text{Premium amortized each period} = \frac{\text{Premium}}{\# \text{ of periods}}
\]

\[
\$728.27 = \frac{\$11,652.28}{16}
\]

The journal entry to record the semiannual payment of interest on the Nite Corporation bonds sold at a premium for $111,652.28, with a stated interest rate of 10% and an effective yield of 8%, would be as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest expense</td>
<td>4,271.73</td>
</tr>
<tr>
<td>Premium on bonds payable ($11,652.28 ÷ 16)</td>
<td>728.27</td>
</tr>
<tr>
<td>Cash ($100,000 x 0.10 x ½)</td>
<td>5,000</td>
</tr>
</tbody>
</table>

The straight-line method results in a constant amount of interest expense per year.

**Effective Interest Amortization**

When the effective interest method of amortization is used, the amount of discount or premium to be amortized is the difference between the amount of interest expense and the actual cash payment, just like with the straight-line method. Where the two methods differ is how to calculate the amount of amortization each period. The amount of annual interest expense is calculated by multiplying the effective interest rate (market rate) times the book value of the bonds (if semiannual interest payments are made, which is usually the case, one-half the market rate is multiplied times the book value). Because the book value is the face value plus any unamortized premium or minus any unamortized discount, the book value changes every time the premium or discount is amortized; in other words, every period. The effective interest method reflects the yield over the life of the bonds and results in a constant rate of interest each payment date although the amount of interest expense varies.

**Accounting for Interest Payments**

When an interest payment is made there are several accounts that will be affected. Obviously cash will be affected because that is what is paid to the bondholders. In addition to cash, interest expense must be recorded and a reduction in the premium or discount is required.
Going back to our original example, assuming that Nite uses the effective interest rate method, the first two payments would be recorded as follows:

**July 1, 2011**

- Interest expense ($111,652.28 x 0.08 x ½) 4,466.09
- Premium on bonds payable ($5,000 – $4,466.09) 533.91
- Cash ($100,000 x 0.10 x ½) 5,000.00

**January 1, 2012**

- Interest expense [($111,652.28 – $533.91) x 0.08 x ½] 4,444.73
- Premium on bonds payable ($5,000 – $4,444.73) 555.27
- Cash ($100,000 x 0.10 x ½) 5,000.00

The easiest way to show what is happening and to keep track of what is going on is to use an amortization schedule. Below is the amortization schedule for the Nite Corporation’s bonds that we have been using as an example.

**NITE CORPORATION**

Bond Interest Expense and Premium Amortization Schedule

**Effective Interest Method**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Cash Payment</td>
<td>Interest Expense</td>
<td>Premium Amortized</td>
<td>Unamortized Premium of Bonds</td>
<td>Book Value of Bonds</td>
</tr>
<tr>
<td>1/01/11</td>
<td>5,000.00</td>
<td>4,466.09</td>
<td>533.91</td>
<td>11,652.28</td>
<td>111,652.28</td>
</tr>
<tr>
<td>7/01/11</td>
<td>5,000.00</td>
<td>4,444.73</td>
<td>555.27</td>
<td>10,563.11</td>
<td>110,563.11</td>
</tr>
<tr>
<td>1/01/12</td>
<td>5,000.00</td>
<td>4,422.52</td>
<td>577.48</td>
<td>9,985.63</td>
<td>109,985.63</td>
</tr>
<tr>
<td>7/01/12</td>
<td>5,000.00</td>
<td>4,399.43</td>
<td>600.57</td>
<td>9,385.06</td>
<td>109,385.06</td>
</tr>
<tr>
<td>1/01/13</td>
<td>5,000.00</td>
<td>4,375.40</td>
<td>624.60</td>
<td>8,760.46</td>
<td>108,760.46</td>
</tr>
<tr>
<td>7/01/13</td>
<td>5,000.00</td>
<td>4,350.42</td>
<td>649.58</td>
<td>8,110.88</td>
<td>108,110.88</td>
</tr>
<tr>
<td>1/01/14</td>
<td>5,000.00</td>
<td>4,324.44</td>
<td>675.56</td>
<td>7,435.31</td>
<td>107,435.31</td>
</tr>
<tr>
<td>7/01/14</td>
<td>5,000.00</td>
<td>4,297.41</td>
<td>702.59</td>
<td>6,732.72</td>
<td>106,732.72</td>
</tr>
<tr>
<td>1/01/15</td>
<td>5,000.00</td>
<td>4,269.31</td>
<td>730.69</td>
<td>6,002.03</td>
<td>106,002.03</td>
</tr>
<tr>
<td>7/01/15</td>
<td>5,000.00</td>
<td>4,240.08</td>
<td>759.92</td>
<td>5,242.11</td>
<td>105,242.11</td>
</tr>
<tr>
<td>1/01/16</td>
<td>5,000.00</td>
<td>4,209.68</td>
<td>790.32</td>
<td>4,451.80</td>
<td>104,451.80</td>
</tr>
<tr>
<td>7/01/16</td>
<td>5,000.00</td>
<td>4,178.07</td>
<td>821.93</td>
<td>3,629.87</td>
<td>103,629.87</td>
</tr>
<tr>
<td>1/01/17</td>
<td>5,000.00</td>
<td>4,145.19</td>
<td>854.81</td>
<td>2,775.07</td>
<td>102,775.07</td>
</tr>
<tr>
<td>7/01/17</td>
<td>5,000.00</td>
<td>4,111.00</td>
<td>889.00</td>
<td>1,886.07</td>
<td>101,886.07</td>
</tr>
<tr>
<td>1/01/18</td>
<td>5,000.00</td>
<td>4,075.44</td>
<td>924.56</td>
<td>961.51</td>
<td>100,961.51</td>
</tr>
<tr>
<td>7/01/18</td>
<td>5,000.00</td>
<td>4,038.49*</td>
<td>961.51</td>
<td>0.00</td>
<td>100,000.00</td>
</tr>
<tr>
<td>1/01/19</td>
<td>5,000.00</td>
<td>4,038.49*</td>
<td>961.51</td>
<td>0.00</td>
<td>100,000.00</td>
</tr>
</tbody>
</table>

* A rounding of $0.03 was made to arrive at this number.

An explanation of the table and where the numbers come from would probably be helpful.

The cash payment (Column B) is simple to explain. It is the amount that Nite must pay every six months. It is calculated by multiplying the face value of the bonds ($100,000) by the stated rate (10%) divided by the number of periods per year (2). Therefore, $100,000 × (10% ÷ 2) = $5,000.
The interest expense (Column C) is the previous book value of the bonds times the market rate divided by the number of periods per year. For example, the interest expense for the entry on 7/01/07 was calculated by taking the book value of the bonds on 1/01/07 ($111,652.28) times the market rate (8%) divided by the number of periods per year (2). Therefore, $111,652.28 \times (8\% \div 2) = $4,466.09.

The premium amortized (Column D) is the amount of the premium that has been amortized in the period. It is simply the difference between the cash payment and the interest expense. For example, the premium amortized for 7/01/11 was $533.91. This was calculated by taking the cash payment on 7/01/11 of $5,000 and subtracting the interest expense on 7/01/11 of $4,466.09.

The amount of unamortized premium (Column E) is equal to the previous amount of unamortized premium minus the premium amortized during this period. For example, the amount of unamortized premium in the 7/01/11 entry of $11,118.37 was calculated by taking the unamortized premium on 1/01/11 ($11,652.28) and subtracting the premium amortized on 07/01/11 ($533.91).

The book value of bonds (Column F) is calculated by adding the unamortized premium to the face value of the bonds. The 7/01/11 book value of the bonds ($111,118.37) was determined by adding the unamortized premium on 7/01/11 of $11,118.37 to the face value of the bonds ($100,000).

**Strategy:** There are several things about this table that should be noted:

- The cash payment is always the same. This is because the face value of the bonds and the stated interest rate do not change over the life of the bonds.
- The interest expense column changes every period. This is because the book value of the bonds changes as more of the premium is amortized each period.
- The book value of the bonds is constantly moving toward the face value of the bonds. This is because we are spreading the premium over the life of the bonds and when the bonds mature the entire premium will have been amortized.

**Strategy:** If the bonds would have been issued at a discount instead of a premium, the basic operation of the table would have changed very little. You would still calculate the cash payment and the interest expense in the same manner.

The biggest changes you would notice would be that the book value of the bonds would be less than the face value. (That is because a discount is subtracted from the face value to determine the book value, whereas a premium is added to the face value to determine the book value of the bonds.) Despite this difference, the book value of a discounted bond would still be moving toward the face value and would equal the face value at maturity.

- Another change you should notice is that the interest expense would be larger than the cash payments. This would be because the stated rate used to calculate the cash payments is smaller than the market rate used to calculate the interest payment when a bond is issued at a discount.

Going back to our journal entries to record the transaction for the first two interest payments using the effective interest method, it should be easy to see where the numbers came from on the chart to complete the journal entries.
 Bonds Issued Between Interest Payment Dates

Bonds are not usually issued on the exact date of an interest payment. This means that the first payment will involve some partial interest. A company could just pay the buyers only the amount of interest for the period in which they actually owned the bond. However, what happens is that any interest from the last payment date to the date of the sale is paid by the buyers along with the purchase price of the bonds. Then, on the next interest payment date the buyers receive interest payment for the entire period, not just the portion of the period they owned the bonds.

An example will probably help you to understand. Remember in our example that the bonds had an issue date of January 1, 2011, and paid interest on July 1 and January 1. Let’s assume that the bonds were issued on January 1, 2011, but were not actually sold until February 1, 2015. Would the buyers be entitled to the $833.33 of interest ($100,000 × 10% × 1/12) for the period January 1 to February 1? No, because they did not own the bonds during that period. The way this would be handled is that the buyers on February 1 would pay $111,652.28 for the bonds, plus $833.33 for the interest from January 1 to February 1. Then on the next interest payment date (July 1), the buyers would receive a full interest payment of $5,000 ($100,000 × 10% ÷ 2). In essence, the buyers would receive a refund of the $833.33 in accrued interest they paid, leaving them with total interest income of $4,166.67 ($5,000 received on July 1 less the $833.33 they paid when they purchased the bonds on February 1).

Theoretically, we should be using the effective interest method to calculate the amount of accrued interest; however, the difference between the amounts using the two different methods is not material and so the more simplified straight-line method is used.

The bond issuer (Nite Corporation) would account for the sale of the bonds on February 1 as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>112,485.61</td>
</tr>
<tr>
<td>Bonds payable</td>
<td>100,000.00</td>
</tr>
<tr>
<td>Premium on bonds payable</td>
<td>11,652.28</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>833.33</td>
</tr>
</tbody>
</table>

The cash paid to Nite represents the value of the bonds ($111,652.28) plus the interest accrued ($833.33) from January 1 (issue date) to February 1 (sale date).

Note that the entry for the issuance of the bonds has a credit to interest expense. Expense accounts normally have debit entries. This entry will allow Nite to account for the appropriate amount of interest expense when the regular interest payment is made on July 1. That July 1 entry would be the same one we used before:
Interest Expense (Column C) 4,466.09  
Premium on Bonds Payable (Column D) 533.91  
Cash (Column B) 5,000.00

The total amount of interest expense, in T-account form, for the first two entries is made would look like this:

<table>
<thead>
<tr>
<th>Description</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Expense</td>
<td>4,466.09</td>
<td>833.33</td>
</tr>
<tr>
<td>Bond Retirement at Maturity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When bonds are retired at maturity the entry is quite simple. The final amount of interest will be paid, as well as the return of the bondholder’s principal. We must also amortize the last remaining amount of premium or discount and then remove the bonds payable from the books. Nite Corporation’s entry to record the bonds on their maturity date of January 1, 2019, would be:

<table>
<thead>
<tr>
<th>Description</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Expense (Column C)</td>
<td>4,038.49</td>
<td></td>
</tr>
<tr>
<td>Premium on Bonds Payable (Column D)</td>
<td>961.51</td>
<td></td>
</tr>
<tr>
<td>Bonds Payable</td>
<td>100,000.00</td>
<td></td>
</tr>
<tr>
<td>Cash (Column B)</td>
<td>105,000.00</td>
<td></td>
</tr>
</tbody>
</table>

Retirement Prior to Maturity

Let’s assume that instead of paying interest on the bonds until maturity Nite decides to recall the bonds on 1/01/2014. Remember from our example that the call provision was set at 104. This means that in order to recall the bonds Nite must pay 104% of the face value to the bondholders. This would mean that Nite must pay the bondholders $104,000. Nite must also record the interest expense for the last period that where interest has not been paid (7/01/2013 to 1/01/2014). This entry would be similar to the standard interest payment entry for 1/01/2014:

<table>
<thead>
<tr>
<th>Description</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Expense (Column C)</td>
<td>4,350.42</td>
<td></td>
</tr>
<tr>
<td>Premium on Bonds Payable (Column D)</td>
<td>649.58</td>
<td></td>
</tr>
<tr>
<td>Interest Payable (Column B)</td>
<td>5,000.00</td>
<td></td>
</tr>
</tbody>
</table>

Notice that instead of crediting cash we credited interest payable instead. This is usually done because we will pay the bondholders the interest and the return of their face value in one transaction.

The entry to retire the debt would look like this:

<table>
<thead>
<tr>
<th>Description</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonds Payable</td>
<td>100,000.00</td>
<td></td>
</tr>
<tr>
<td>Unamortized Premium on Bonds Payable on 1/01/13</td>
<td>8,110.88</td>
<td></td>
</tr>
<tr>
<td>Interest payable (from 1/01/13 interest payment)</td>
<td>5,000.00</td>
<td></td>
</tr>
<tr>
<td>Gain on Bond Redemption (calculated below)</td>
<td>4,110.88</td>
<td></td>
</tr>
<tr>
<td>Cash [(100,000 × 1.04) + ($5,000)]</td>
<td>109,000.00</td>
<td></td>
</tr>
</tbody>
</table>
Gain calculation:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face value</td>
<td>$ 100,000.00</td>
</tr>
<tr>
<td>Plus Unamortized premium</td>
<td>$ 8,110.88</td>
</tr>
<tr>
<td>Book value of bonds</td>
<td>$ 108,110.88</td>
</tr>
<tr>
<td>Less: Call price</td>
<td>($ 104,000.00)</td>
</tr>
<tr>
<td>Gain on Bond Redemption</td>
<td>$ 4,110.88</td>
</tr>
</tbody>
</table>

**Strategy:** While it is always good to calculate the gain separately as shown above, the same result would be achieved by entering the known data into the journal entry and then “plugging” the gain entry to make the debits equal the credits.

You should note that if the call price paid for the bonds were greater than the book value of the bonds, a loss would result instead of a gain. This would also be apparent if you were “plugging” the answer because the plug would be required on the debit side of the equation.

**Bonds with Attached Warrants**

A bond issuer may include equity characteristics either to entice buyers or in an attempt to lower the interest they will have to pay. One of these characteristics is to attach warrants to the bonds. These warrants allow the holder to buy stock at a set price at some point in the future. When there are warrants attached, in essence the bond issuer is selling two securities for one price; the bonds and the warrants. Because two separate securities are being sold, a price needs to be determined for each security. To do this we just set up proportionality between the bonds and the warrants. In other words, what is the percentage of the selling price that is allocated to the bonds and what is the percentage of the selling price that is allocated to the warrants? To do this we use the following formulas:

\[
\text{Value assigned to bonds} = \frac{\text{Market value of bonds without the warrants}}{\text{Market value of bonds without the warrants} + \text{Market value of warrants}} \times \text{Issuance price}
\]

\[
\text{Value assigned to warrants} = \frac{\text{Market value of warrants}}{\text{Market value of bonds without the warrants} + \text{Market value of warrants}} \times \text{Issuance price}
\]

Assume that we issue $500,000 bonds at par. The bonds are issued with detachable warrants that allow the bondholder to purchase eight shares of $5 par value common stock at $20 for each share of common stock. After issuance, the bonds are quoted at 98 ex rights (without the warrants) and the warrants are quoted at $4 each. What would be the amount assigned to the bonds and the warrants?

For the bonds the amount would be calculated:

\[
\text{Value assigned to bonds} = \frac{\$490,000 (98\% \text{ of } \$500,000)}{\$490,000 + \$16,000 (1 \text{ warrant per bond } \times \$4 \times 500 \text{ bonds})} \times \$500,000
\]

\[
\text{Value assigned to bonds} = \frac{\$490,000}{\$506,000} \times \$500,000 = \$484,189.72
\]

For the warrants the amount would be calculated:
Value assigned to warrants = $16,000 (8 warrants per bond × $4 × 500 bonds) / $490,000 (98% of $500,000) + $16,000 × $500,000

$16,000 $15,810.28 = $506,000 × $500,000

To record the issuance, the company records the following journal entry:

<table>
<thead>
<tr>
<th>Account</th>
<th>Debit</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>500,000.00</td>
<td></td>
</tr>
<tr>
<td>Discount on Bonds Payable</td>
<td></td>
<td>15,810.28</td>
</tr>
<tr>
<td>Bonds Payable</td>
<td>500,000.00</td>
<td></td>
</tr>
<tr>
<td>Common Stock Warrants</td>
<td>15,810.28</td>
<td></td>
</tr>
</tbody>
</table>

Each warrant has a value of $3.93, which is $15,810.28 ÷ 4,000 warrants (8 per bond × 500 bonds). If 200 warrants are later exercised, the appropriate journal entry would be:

Cash ($20 × 200) 4,000.00
Common Stock Warrants 786.00
Common Stock ($5 × 200) 1,000.00
Additional Paid in Capital on Common Stock 3,786.00

If the remaining warrants are not exercised, the company records the following journal entry:

Common Stock Warrants
(15,810.28 (original value) − 786 (exercised)) 15,024.28
Additional Paid in Capital on Expired Warrants 15,024.28

**Bonds with Conversion Features**

Current GAAP does not require assigning a separate value to the conversion feature of bonds, although the FASB is considering a change to require this feature to be accounted for separately. Until this change is made, the issuance of bonds with a conversion feature would be accounted for in the same manner as if the bonds did not have a conversion feature. When the bonds are actually converted, they are accounted for under one of the following methods:

1. **Book Value Method.** In this method the stockholders’ equity is increased by the amount of the book value (face value + (-) and unamortized premium (discount). The current market value of the common stock is ignored and there is no gain or loss recognized.

2. **Market Value Method.** In this method, the current market value of the stock issued is used to increase stockholders’ equity. Any difference between the increase in stockholders’ equity and the book value of the bonds is recorded as a gain or loss.

Assume that we have issued bonds with a face value of $100,000. The bonds currently have an unamortized discount of $4,500. Each bond allows the conversion to 50 shares of $5 par value common stock. If all of the bonds are converted when the market price of the common stock is $19.50 per share, the journal entries to record this transaction would be as follows:
1. Book Value Method:

Bonds Payable 100,000.00
Discount on Bonds Payable 4,500.00
Common Stock ($5 × 50 shares per bond × 100 bonds) 25,000.00
Additional Paid in Capital on Common Stock 70,500.00

**Strategy:** The additional paid in capital on common stock in the book value method was determined by "plugging" the entry to make the debits equal the credits.

Also notice that there is no gain or loss in the book value method and that the current market price of the common stock was never taken into consideration.

2. Market Value Method:

Bonds Payable 100,000.00
Loss on conversion 2,000.00
Discount on Bonds Payable 4,500.00
Common Stock ($5 × 50 shares per bond × 100 bonds) 25,000.00
Additional Paid in Capital on Common Stock ($14.50 × 50 × 100) 72,500.00

**Strategy:** The additional paid in capital on common stock in the market value method was determined by using the current market value of the stock ($19.50 per share) and subtracting the par value of the common stock ($5.00 per share). In this manner, the stockholders' equity is increased by the full market value of the common stock.

The loss on conversion was determined by "plugging" the entry to make the debits equal the credits after all other entries were made. This is the easiest way to determine this value because all of the other values in the transaction are known.
Test Your Knowledge

1. On January 1, 2011, Wilson Corporation issued $200,000 of 10% bonds for $187,580.47. The bonds were issued to yield 12%, and pay interest semiannually on June 30 and December 31. The bonds are due on December 31, 2022.

   (a) Prepare the journal entry necessary to record the issuance of the bonds.

   (b) Prepare a bond interest expense and discount amortization schedule using the effective interest method.

   (c) Assume that the bonds were retired on September 30, 2013, at 101. Prepare the journal entries to record the early retirement.
2. On July 1, 2011, Lowe Corporation sold $100,000 of 10% bonds, due July 1, 2022, at 102. Each bond pays interest semiannually on December 31 and June 30, and carries 20 warrants. Each warrant allows the holder to acquire one share of $8 par common stock for $24 per share. Shortly after issuance the bonds were quoted at 98 ex rights and the warrants were quoted at $5 each.

(a) Prepare the journal entry to record the bond issue.

(b) Determine the value to be assigned to each warrant.

(c) Prepare the journal entry to record the exercise of 1,000 warrants.

(d) Prepare the journal entry to record the expiration of the remaining rights.
3. On January 1, 2011, Wisbey Company issued 10-year, 10% bonds with a face value of $200,000 at 105. The bonds pay interest semiannually on June 30 and December 31. The bonds contain a conversion provision that allows each bond to be converted into 25 shares of Wisbey’s $1 par value common stock. The bonds are all converted on January 1, 2011, when Wisbey’s common stock was selling for $42 per share. Assume that Wisbey uses the straight-line method of amortization.

Prepare the journal entries to record:

**a)** The issuance of the bonds.

**b)** The conversion of the bonds using:

(i) The book value method.

(ii) The market value method.
Answers to Test Your Knowledge

1. (a) Cash 187,580.47
   Discount on Bonds Payable 12,419.53
   Bonds Payable 200,000

(b) WILSON CORPORATION
Bond Interest Expense and Discount Amortization Schedule
Effective Interest Method
10% Bonds Sold to Yield 12%

<table>
<thead>
<tr>
<th>Date</th>
<th>Cash Credit</th>
<th>Interest Expense Debit</th>
<th>Unamortized Discount Credit</th>
<th>Book Value of Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/01/11</td>
<td>$10,000</td>
<td>$11,254.83</td>
<td>$1,254.83</td>
<td>$187,580.47</td>
</tr>
<tr>
<td>6/30/11</td>
<td>10,000</td>
<td>11,330.12</td>
<td>1,330.12</td>
<td>188,835.30</td>
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<tr>
<td>12/31/11</td>
<td>10,000</td>
<td>11,409.93</td>
<td>1,409.93</td>
<td>190,165.42</td>
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<tr>
<td>6/30/12</td>
<td>10,000</td>
<td>11,494.52</td>
<td>1,494.52</td>
<td>191,575.35</td>
</tr>
<tr>
<td>12/31/12</td>
<td>10,000</td>
<td>11,584.19</td>
<td>1,584.19</td>
<td>193,069.87</td>
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<tr>
<td>6/30/13</td>
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<td>11,679.24</td>
<td>1,679.24</td>
<td>194,654.06</td>
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<tr>
<td>12/31/13</td>
<td>10,000</td>
<td>11,866.70*</td>
<td>1,866.70</td>
<td>196,333.30</td>
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<tr>
<td>6/30/14</td>
<td>10,000</td>
<td>11,866.70</td>
<td>1,866.70</td>
<td>198,113.30</td>
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<tr>
<td>12/31/14</td>
<td>10,000</td>
<td>11,866.70</td>
<td>1,866.70</td>
<td>200,000.00</td>
</tr>
</tbody>
</table>

*Difference due to $0.10 rounding error.

(c) Interest Expense 5,839.62
   Discount on Bonds Payable 839.62
   Interest Payable 5,000.00

Interest Payable 5,000.00
Bonds Payable 200,000.00
Loss on Bond Redemption 6,506.32
Discount on Bonds Payable 4,506.32
Cash [(1.01 x $200,000) + $5,000] 207,000.00

2. (a)

For the bonds the value would be calculated:

\[
\text{Value assigned to bonds} = \frac{\$98,000 \text{ (98% of $100,000)}}{\$98,000} + \frac{\$10,000 \text{ (20 warrants per bond \times $5 \times 100 \text{ bonds})}}{\$10,000} \times \$102,000
\]

\[
\text{Value assigned to bonds} = \frac{\$92,555.56}{\$10,000} \times \$102,000
\]

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For the warrants the value would be calculated:

\[
\text{Value assigned to warrants} = \frac{\$10,000 \times 20 \text{ warrants per bond} \times \$5 \times 100 \text{ bonds}}{\$98,000 \times (98\% \text{ of } \$500,000)} + \frac{\$10,000}{\$102,000} \times \$102,000
\]

\[
\$9,444.44 = \frac{\$10,000}{\$108,000} \times \$102,000
\]

- Cash (100 x $1,000 x 1.02) 102,000.00
- Discount on Bonds Payable 7,444.44
- Bonds Payable 100,000.00
- Common Stock Warrants 9,444.44

\(b\) \quad \$9,444.44 \div 2,000 = \$4.722

\(c\) \quad \text{Cash} (24 \times 1,000) 24,000.00
\text{Common Stock Warrants} (4.722 \times 1,000) 4,722.22
- Common Stock, $8 par 8,000.00
- Additional Paid-in Capital on Common Stock 20,722.22

\(d\) \quad \text{Common Stock Warrants} (9,444.44 - 4,722.22) 4,722.22
- Additional Paid-in Capital from Expired Warrants 4,722.22

3. (a) The issuance of the bonds.

\text{Cash} (200,000 \times 105\%) 210,000.00
- Bonds payable 200,000.00
- Premium on Bonds Payable 10,000.00

(b) The conversion of the bonds using:

When the bonds are converted on January 1, 2015, four years have elapsed since their issuance. Therefore Wisbey has amortized, using the straight-line method, $4,000 of the original $10,000 of bond premium. This leaves $6,000 in unamortized bond premium that must be accounted for at conversion.

(i) The book value method.

- Bonds Payable 200,000.00
- Premium on Bonds Payable 6,000.00
- Common Stock ($1 \times 25 \text{ shares per bond} \times 200 \text{ bonds}) 5,000.00
- Additional Paid in Capital on Common Stock 201,000.00

(ii) The market value method.

- Bonds Payable 200,000.00
- Premium on Bonds Payable 6,000.00
- Loss on Conversion 4,000.00
- Common Stock ($1 \times 25 \text{ shares per bond} \times 200 \text{ bonds}) 5,000.00
- Additional Paid in Capital on Common Stock ($41 \times 5,000 \text{ shares}) 205,000.00