**FINANCIAL ACCOUNTING II**

**CHAPTER SIX**

 **LONG-TERM LIABILITIES**

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**Long-term debt** consists of probable future sacrifices of economic benefits arising from present obligations that are not payable within a year or the operating cycle of the company, whichever is longer. Bonds payable, long-term notes payable, mortgages payable, pension liabilities, and lease liabilities are examples of long-term liabilities.

A corporation, per its bylaws, usually requires approval by the board of directors and the stockholders before bonds or notes can be issued. The same holds true for other types of long-term debt arrangements.

Generally, long-term debt has various **covenants** or **restrictions** that protect both lenders and borrowers. The indenture or agreement often includes the amounts authorized to be issued, interest rate, due date(s), call provisions, property pledged as security, sinking fund requirements, working capital and dividend restrictions, and limitations concerning the assumption of additional debt. Companies should describe these features in the body of the financial statements or the notes if important for a complete understanding of the financial position and the results of operations.

Although it would seem that these covenants provide adequate protection to the long-term debt holder, many bondholders suffer considerable losses when companies add more debt to the capital structure.

**ISSUING BONDS**

A bond arises from a contract known as a **bond indenture**. A bond represents a promise to pay: (1) a sum of money at a designated maturity date, plus (2) periodic interest at a specified rate on the maturity amount (face value). Individual bonds are evidenced by a paper certificate and typically have a $1,000 face value. Companies usually make bond interest payments semiannually, although the interest rate is generally expressed as an annual rate. The main purpose of bonds is to borrow for the long term when the amount of capital needed is too large for one lender to supply. By issuing bonds in $100, $1,000, or $10,000 denominations, a company can divide a large amount of long term indebtedness into many small investing units, thus enabling more than one lender to participate in the loan.

A company may sell an entire bond issue to an investment bank which acts as a selling agent in the process of marketing the bonds. In such arrangements, investment banks may either underwrite the entire issue by guaranteeing a certain sum to the company, thus taking the risk of selling the bonds for whatever price they can get (firm underwriting).

Or they may sell the bond issue for a commission on the proceeds of the sale (best-efforts underwriting). Alternatively, the issuing company may sell the bonds directly to a large institution, financial or otherwise, without the aid of an underwriter (private placement).

**TYPES AND RATINGS OF BONDS**

Below we define some of the more common types of bonds found in practice.

**SECURED AND UNSECURED BONDS. Secured bonds** are backed by a pledge of some sort of collateral. Mortgage bonds are secured by a claim on real estate.

Collateral trust bonds are secured by stocks and bonds of other corporations.

Bonds not backed by collateral are **unsecured**. A **debenture bond** is unsecured.

A “junk bond” is unsecured and also very risky, and therefore pays a high interest rate. Companies often use these bonds to finance leveraged buyouts.

**TERM, SERIAL BONDS, AND CALLABLE BONDS.** Bond issues that mature on a single date are called **term bonds**; issues that mature in installments are called **serial bonds**. Serially maturing bonds are frequently used by school or sanitary districts, municipalities, or other local taxing bodies that receive money through a special levy. **Callable bonds** give the issuer the right to call and retire the bonds prior to maturity.

**CONVERTIBLE, COMMODITY-BACKED, AND DEEP-DISCOUNT BONDS.**

If bonds are convertible into other securities of the corporation for a specified time after issuance, they are **convertible bonds**.

Two types of bonds have been developed in an attempt to attract capital in a tight money market—commodity-backed bonds and deep-discount bonds.

**Commodity-backed bonds** (also called **asset-linked bonds**) are redeemable in measures of a commodity, such as barrels of oil, tons of coal, or ounces of rare metal.

The **deep-discount bonds**, also referred to as **zero-interest debenture bonds**, are sold at a discount that provides the buyer’s total interest payoff at maturity.

**REGISTERED AND BEARER (COUPON) BONDS.** Bonds issued in the name of the owner are **registered bonds** and require surrender of the certificate and issuance of a new certificate to complete a sale. A **bearer** or **coupon bond**, however, is not recorded in the name of the owner and may be transferred from one owner to another by mere delivery.

**INCOME AND REVENUE BONDS. Income bonds** pay no interest unless the issuing company is profitable. **Revenue bonds**, so called because the interest on them is paid from specified revenue sources, are most frequently issued by airports, school districts, counties, toll-road authorities, and governmental bodies.

**VALUATION OF BONDS PAYABLE—DISCOUNT AND PREMIUM**

The issuance and marketing of bonds to the public does not happen overnight. It usually takes weeks or even months. First, the issuing company must arrange for underwriters that will help market and sell the bonds. Then it must obtain authority’s approval of the bond issue, undergo audits, and issue a prospectus (a document which describes the features of the bond and related financial information). Finally, the company must generally have the bond certificates printed. Frequently the issuing company establishes the terms of a bond indenture well in advance of the sale of the bonds. Between the times the company sets these terms and the time it issues the bonds, the market conditions and the financial position of the issuing corporation may change significantly. Such changes affect the marketability of the bonds and thus their selling price.

The selling price of a bond issue is set by the supply and demand of buyers and sellers, relative risk, market conditions, and the state of the economy. The investment community values a bond at the **present value of its expected future cash flows**, which consist of (1) interest and (2) principal. The rate used to compute the present value of these cash flows is the interest rate that provides an acceptable return on an investment commensurate with the issuer’s risk characteristics.

The interest rate written in the terms of the bond indenture (and often printed on the bond certificate) is known as the **stated**, **coupon**, or **nominal rate**. The issuer of the bonds sets this rate. The stated rate is expressed as a percentage of the **face** **value** of the bonds (also called the **par value**, **principal amount**, or **maturity value**).

If the rate employed by the investment community (buyers) differs from the stated rate, the present value of the bonds computed by the buyers (and the current purchase price) will differ from the face value of the bonds. The difference between the face value and the present value of the bonds determines the actual price that buyers pay for the bonds. This difference is either a discount or premium.

* If the bonds sell for less than face value, they sell at a **discount**.
* If the bonds sell for more than face value, they sell at a **premium**.

The rate of interest actually earned by the bondholders is called the **effective yield** or **market rate**. If bonds sell at a discount, the effective yield exceeds the stated rate.

Conversely, if bonds sell at a premium, the effective yield is lower than the stated rate.

Several variables affect the bond’s price while it is outstanding, most notably the market rate of interest. There is an inverse relationship between the market interest rate and the price of the bond. Here we consider an example to illustrate the computation of the **present value of a bond issue**.

Assume that ServiceMaster issues $100,000 in bonds, due in five yearswith 9 percent interest payable annually at year-end. At the time of issue, the marketrate for such bonds is 11 percent. The time diagram in Illustration 6-1 below depicts both theinterest and the principal cash flows.



The actual principal and interest cash flows are discounted at an 11 percent rate for five periods as shown in below.



By paying $92,608.10 at the date of issue, investors realize an effective rate or yield of 11 percent over the five-year term of the bonds. These bonds would sell at a discount of $7,391.90 ($100,000 \_ $92,608.10). The price at which the bonds sell is typically stated as a percentage of the face or par value of the bonds. For example, the ServiceMaster bonds sold for 92.6 (92.6% of par). If ServiceMaster had received $102,000, then the bonds sold for 102 (102% of par).

When bonds sell at less than face value, it means that investors demand a rate of interest **higher** than the stated rate. Usually this occurs because the investors can earn a greater rate on alternative investments of equal risk. They cannot change the stated rate, so they refuse to pay face value for the bonds. Thus, by changing the amount invested, they alter the effective rate of return. The investors receive interest at the stated rate computed on the face value, but they actually earn at **an effective rate that exceeds the stated** **rate because they paid less than face value for the bonds**. (Later in the chapter, we show an illustration for a bond that sells at a premium.)

**Bonds Issued at Par on Interest Date**

When a company issues bonds on an interest payment date at par (face value), it accrues no interest. No premium or discount exists. The company simply records the cash proceeds and the face value of the bonds.

To illustrate, if Buchanan Company issues at par 10-year term bonds with a par value of $800,000, dated January 1, 2010, and bearing interest at an annual rate of 10 percent payable semiannually on January 1 and July 1, it records the following entry:

 Cash 800,000

 Bonds Payable 800,000

Buchanan records the first semiannual interest payment of $40,000 ($800,000 x .10 x 1/2) on July 1, 2010, as follows.

 Bond Interest Expense 40,000

 Cash 40,000

It records accrued interest expense at December 31, 2010 (year-end) as follows.

 Bond Interest Expense 40,000

 Bond Interest Payable 40,000

**Bonds Issued at Discount or Premium on Interest Date**

If Buchanan Company issues the $800,000 of bonds on January 1, 2010, at 97 (meaning

97 percent of par), it records the issuance as follows.

 Cash ($800,000 x .97) 776,000

 Discount on Bonds Payable 24,000

 Bonds Payable 800,000

Recall from our earlier discussion that because of its relation to interest, **companies amortize the discount and charge it to interest expense over the period of time that the bonds are outstanding**.

The **straight-line method** amortizes a constant amount each interest period (in this case 20 interest periods). For example, using the bond discount of $24,000, Buchanan amortizes $1,200 to interest expense each period for 20 periods ($24,000 / 20).

Buchanan records the first semiannual interest payment of $40,000 ($800,000 x 10% x 1/2) and the bond discount on July 1, 2010 as follows:

 Bond Interest Expense 41,200

 Discount on Bonds Payable 1,200

 Cash 40,000

At December 31, 2010, Buchanan makes the following adjusting entry

 Bond Interest Expense 41,200

 Discount on Bonds Payable 1,200

 Bond Interest Payable 40,000

At the end of the first year, 2010, the balance in the Discount on Bonds Payable account is $21,600 ($24,000 \_ $1,200 \_ $1,200). Over the term of the bonds, the balance in the

Discount on Bonds Payable will decrease by the same amount until it has zero balance at the maturity date of the bonds.

If instead of issuing the bonds on January 1, 2010, Buchanan dates and sells the bonds on October 1, 2010, and if the fiscal year of the corporation ends on December 31, the discount amortized during 2010 would be only 3/12 of 1/10 of $24,000, or $600. Buchanan must also record three months of accrued interest on December 31.

Premium on Bonds Payable is accounted for in a manner similar to that for Discount on Bonds Payable. If Buchanan dates and sells 10-year bonds with a par value of $800,000 on January 1, 2010, at 103, it records the issuance as follows.

 Cash ($800,000 x 1.03) 824,000

 Premium on Bonds Payable 24,000

 Bonds Payable 800,000

With the bond premium of $24,000, Buchanan amortizes $1,200 to interest expense each period for 20 periods ($24,000 / 20).

Buchanan records the first semiannual interest payment of $40,000 ($800,000 x 10% x 1/2) and the bond premium on July 1, 2010 as follows:

 Bond Interest Expense 38,800

 Premium on Bonds Payable 1,200

 Cash 40,000

At December 31, 2010, Buchanan makes the following adjusting entry:

 Bond Interest Expense 38,800

 Premium on Bonds Payable 1,200

 Bond Interest Payable 40,000

**Amortization of a discount increases bond interest expense. Amortization of a premium decreases bond interest expense.** Later in the chapter we discuss amortizationof a discount or premium under the effective-interest method.The issuer may call some bonds at a stated price after a certain date. This call feature gives the issuing corporation the opportunity to reduce its bonded indebtedness or take advantage of lower interest rates. **Whether callable or not, a company must** **amortize any premium or discount over the bond’s life to maturity because early redemption** **(call of the bond) is not a certainty.**

**Bonds Issued Between Interest Dates**

Companies usually make bond interest payments semiannually, on dates specified in the bond indenture. When companies issue bonds on other than the interest payment dates, **buyers of the bonds will pay the seller the interest accrued from the last interest** **payment date to the date of issue**. The purchasers of the bonds, in effect, pay the bond issuer in advance for that portion of the full six -months’ interest payment to which they are not entitled because they have not held the bonds for that period. **Then,** **on the next semiannual interest payment date, purchasers will receive the full six months’** **interest payment.**

To illustrate, assume that on March 1, 2010, Taft Corporation issues 10-year bonds, dated January 1, 2010, with a par value of $800,000. These bonds have an annual interest rate of 6 percent, payable semiannually on January 1 and July 1. Because Taft issues the bonds between interest dates, it records the bond issuance at **par plus accrued** **interest** as follows.

 Cash 808,000

 Bonds Payable 800,000

 Bond Interest Expense ($800,000 x .06 x 2/12) 8,000

(Interest Payable might be credited instead)

The purchaser advances two months’ interest. On July 1, 2010, four months after the date of purchase, Taft pays the purchaser six months’ interest. Taft makes the following entry on July 1, 2010.

 Bond Interest Expense 24,000

 Cash 24,000

The Bond Interest Expense account now contains a debit balance of $16,000, which represents the proper amount of interest expense—four months at 6 percent on $800,000.

The illustration above was simplified by having the January 1, 2010, bonds issued on March 1, 2010, **at par**. If, however, Taft issued the 6 percent bonds at 102, its March 1 entry would be:

 Cash [($800,000 x 1.02) + ($800,000 x .06 x 2/12)] 824,000

 Bonds Payable 800,000

 Premium on Bonds Payable ($800,000 x .02) 16,000

 Bond Interest Expense 8,000

Taft would amortize the premium **from the date of sale** (March 1, 2010), not from the date of the bonds (January 1, 2010).

**EFFECTIVE-INTEREST METHOD**

The preferred procedure for amortization of a discount or premium is the **effective interest method** (also called **present value amortization**). Under the effective-interestmethod, companies:

1. Compute bond interest expense first by multiplying the **carrying value** (book value) of the bonds at the beginning of the period by the effective interest rate.
2. Determine the bond discount or premium amortization next by comparing the bond interest expense with the interest (cash) to be paid. The following depicts graphically the computation of the amortization



The effective-interest method produces a periodic interest expense equal to **a constant percentage of the carrying value of the bonds**. Since the percentage is the effectiverate of interest incurred by the borrower at the time of issuance, the effective interestmethod matches expenses with revenues better than the straight-line method.

Both the effective-interest and straight-line methods result in the **same total amount of interest expense over the term of the bonds**. However, when the annual amountsare materially different, generally accepted accounting principles require use of theeffective-interest method.

**Bonds Issued at a Discount**

To illustrate amortization of a discount under the effective-interest method, ever master

Corporation issued $100,000 of 8 percent term bonds on January 1, 2010, due on January 1, 2015, with interest payable each July 1 and January 1. Because the investors required an effective-interest rate of 10 percent, they paid $92,278 for the $100,000 of bonds, creating a $7,722 discount



The five-year amortization schedule is done as follows.



Ever master records the issuance of its bonds at a discount on January 1, 2010, as follows:

 Cash 92,278

 Discount on Bonds Payable 7,722

 Bonds Payable 100,000

It records the first interest payment on July 1, 2010, and amortization of the discount as follows:

 Bond Interest Expense 4,614

 Discount on Bonds Payable 614

 Cash 4,000

Ever master records the interest expense accrued at December 31, 2010 (year-end) and amortization of the discount as follows:

 Bond Interest Expense 4,645

 Bond Interest Payable 4,000

 Discount on Bonds Payable 645

**Bonds Issued at a Premium**

Now assume that for the bond issue described above, investors are willing to accept an effective interest rate of 6 percent. In that case, they would pay $108,530 or a premium of $8,530, computed as follows.



The five-year amortization schedule appears as follows.



Ever master records the issuance of its bonds at a premium on January 1, 2010, as follows:

 Cash 108,530

 Premium on Bonds Payable 8,530

 Bonds Payable 100,000

Ever master records the first interest payment on July 1, 2010, and amortization of the premium as follows:

 Bond Interest Expense 3,256

 Premium on Bonds Payable 744

 Cash 4,000

Ever master should amortize the discount or premium as an adjustment to interest expense over the life of the bond in such a way as to result in a **constant rate of interest** when applied to the carrying amount of debt outstanding at the beginning of any given period.

**Accruing Interest**

In our previous examples, the interest payment dates and the date the financial statements were issued were the same. For example, when Ever master sold bonds at a premium, the two interest payment dates coincided with the financial reporting dates. However, what happens if ever master wishes to report financial statements at the end of February 2010?

In this case, the company **prorates** the premium by the appropriate number of months, to arrive at the proper interest expense, as follows.



Ever master records this accrual as follows.

 Bond Interest Expense 1,085.33

 Premium on Bonds Payable 248.00

 Bond Interest Payable 1,333.33

If the company prepares financial statements six months later, it follows the same procedure. That is, the premium amortized would be as follows.



The interest-accrual computation is much simpler if the company uses the straight line method. For example, the total premium is $8,530, which Ever master allocates evenly over the five-year period. Thus, premium amortization per month is $142.17 ($8,530 / 60 months).

**Classification of Discount and Premium**

Discount on bonds payable is **not an asset**. It does not provide any future economic benefit. In return for the use of borrowed funds, a company must pay interest. A bond discount means that the company borrowed less than the face or maturity value of the bond. It therefore faces an actual (effective) interest rate higher than the stated (nominal) rate. Conceptually, discount on bonds payable is a liability valuation account.

That is, it reduces the face or maturity amount of the related liability. This account is referred to as a **contra account**.

Similarly, premium on bonds payable has no existence apart from the related debt.

The lower interest cost results because the proceeds of borrowing exceed the face or maturity amount of the debt. Conceptually, premium on bonds payable is a *liability* valuation account. It adds to the face or maturity amount of the related liability. This account is referred to as an **adjunct account**. As a result, **companies report bond discounts** **and bond premiums as a direct deduction from or addition to the face amount** **of the bond**.

**COSTS OF ISSUING BONDS**

The issuance of bonds involves engraving and printing costs, legal and accounting fees, commissions, promotion costs, and other similar charges. Companies are required to charge these costs to an asset account, often referred to as Unamortized Bond Issue Costs. Companies then allocate these Unamortized Bond Issue Costs over the life of the debt, in a manner similar to that used for discount on bonds.

This approach doesn’t seem sound. Unamortized bond issue cost is rather an expense (or a reduction of the related liability).

Apparently the FASB also disagrees with the current GAAP treatment and notes in *Concepts Statement No. 6* that debt issue cost is not considered an asset because it provides no future economic benefit. The cost of issuing bonds, in effect, reduces the proceeds of the bonds issued and increases the effective interest rate. Companies may thus account for it the same as the unamortized discount.

There is an obvious difference between GAAP and *Concepts Statement No. 6*’s view of debt issue costs. However, until an issued standard supersedes existing GAAP*,* **unamortized** **bond issue costs are treated as a deferred charge and amortized over the** **life of the debt**.

To illustrate the accounting for costs of issuing bonds, assume that Microchip Corporation sold $20,000,000 of 10-year debenture bonds for $20,795,000 on January 1, 2010 (also the date of the bonds). Costs of issuing the bonds were $245,000. Microchip records the issuance of the bonds and amortization of the bond issue costs as follows.

**January 1, 2010**

 Cash 20,550,000

 Unamortized Bond Issue Costs 245,000

 Premium on Bonds Payable 795,000

 Bonds Payable 20,000,000

 (To record issuance of bonds)

**December 31, 2010**

 Bond Issue Expense 24,500

 Unamortized Bond Issue Costs 24,500

 (To amortize one year of bond issue costs—straight-line method)

Microchip continues to amortize the bond issue costs in the same way over the life of the bonds. Although the effective-interest method is preferred, in practice companies may use the straight-line method to amortize bond issue costs because it is easier and the results are not materially different.

**EXTINGUISHMENT OF DEBT**

How do companies record the payment of debt—often referred to as **extinguishment of debt**? If a company holds the bonds (or any other form of debt security)to maturity, the answer is straightforward: The Company does not compute anygains or losses. It will have fully amortized any premium or discount and anyissue costs at the date the bonds mature. As a result, the carrying amount willequal the maturity (face) value of the bond. As the maturity or face value will alsoequal the bond’s market value at that time, no gain or loss exists.

In some cases, a company extinguishes debt before its maturity date. The amount paid on extinguishment or redemption before maturity, including any call premium and expense of reacquisition, is called the **reacquisition price**. On any specified date, the **net carrying amount** of the bonds is the amount payable at maturity, adjusted for unamortized premium or discount, and cost of issuance. Any excess of the net carrying amount over the reacquisition price is a **gain from extinguishment**. The excess of the reacquisition price over the net carrying amount is a **loss from extinguishment**. At the time of reacquisition, **the unamortized premium or discount**, **and any costs of issue** **applicable to the bonds**, **must be amortized up to the reacquisition date**.

To illustrate, assume that on January 1, 2003, General Bell Corp. issued at 97 bonds with a par value of $800,000, due in 20 years. It incurred bond issue costs totaling $16,000. Eight years after the issue date, General Bell calls the entire issue at 101 and cancels it. At that time, the unamortized discount balance is $14,400, and the unamortized issue cost balance is $9,600. The following illustration indicates how General Bell computes the loss on redemption (extinguishment).



General Bell records the reacquisition and cancellation of the bonds as follows:

 Bonds Payable 800,000

 Loss on Redemption of Bonds 32,000

 Discount on Bonds Payable 14,400

 Unamortized Bond Issue Costs 9,600

 Cash 808,000

Note that it is often advantageous for the issuer to acquire the **entire** outstanding bond issue and replace it with a new bond issue bearing a lower rate of interest. The replacement of an existing issuance with a new one is called **refunding**. Whether the early redemption or other extinguishment of outstanding bonds is a none refunding or a refunding situation, a company should recognize the difference (gain or loss) between the reacquisition price and the net carrying amount of the redeemed bonds in income of the period of redemption.

**LONG-TERM NOTES PAYABLE**

The difference between current notes payable and **long-term notes payable** is the maturity date. As discussed in Chapter 5, short-term notes payable are those that companies expect to pay within a year or the operating cycle—whichever is longer.

Long-term notes are similar in substance to bonds in that both have fixed maturity dates and carry either a stated or implicit interest rate. However, notes do not trade as readily as bonds in the organized public securities markets. Non corporate and small corporate enterprises issue notes as their long-term instruments. Larger corporations issue both long-term notes and bonds.

Accounting for notes and bonds is quite similar. **Like a bond, a note is valued at the present value of its future interest and principal cash flows. The company amortizes any discount or premium over the life of the note**, just as it would the discountor premium on a bond. Companies compute the present value of an **interest-bearing note**, record its issuance, and amortize any discount or premium and accrual of interestin the same way that they do for bonds as shown above.

**NOTES ISSUED AT FACE VALUE**

In such situations, since the present value of the note and its face value are the same, companies would recognize no premium or discount. For example if a company issues a note with face value of $10,000, It records the issuance of the note as follows.

 Cash 10,000

 Notes Payable 10,000

But this type of transaction is not common.

**NOTES NOT ISSUED AT FACE VALUE**

**Zero-Interest-Bearing Notes**

If a company issues a zero-interest-bearing (non-interest-bearing) note11 solely for cash, it measures the note’s present value by the cash received. The implicit interest rate is the **rate that equates the cash received with the amounts to be paid in the future**. The issuing company records the difference between the face amount and the present value (cash received) as **a discount and amortizes that amount to interest expense over the** **life of the note**.

An example of such a transaction is Beneficial Corporation’s offering of $150 million of zero-coupon notes (deep-discount bonds) having an eight-year life. With a face value of $1,000 each, these notes sold for $327—a deep discount of $673 each. The present value of each note is the cash proceeds of $327. We can calculate the interest rate by determining the rate that equates the amount the investor currently pays with the amount to be received in the future. Thus, Beneficial amortizes the discount over the eight-year life of the notes using an effective interest rate of15 percent.

 

To illustrate the entries and the amortization schedule, assume that Turtle Cove Company issued the three-year, $10,000, zero-interest-bearing note to Jeremiah Company. The implicit rate that equated the total cash to be paid ($10,000 at maturity) to the present value of the future cash flows ($7,721.80 cash proceeds at date of issuance) was 9 percent. (The present value of $1 for 3 periods at 9 percent is $0.77218.) Illustration below shows the time diagram for the single cash flow.



Turtle Cove records issuance of the note as follows.

 Cash 7,721.80

 Discount on Notes Payable 2,278.20

 Notes Payable 10,000.00

Turtle Cove amortizes the discount and recognizes interest expense annually using the **effective-interest method**. The following table shows the three-year discount amortization and interest expense schedule.



Turtle Cove records interest expense at the end of the first year using the effective interest method as follows.

 Interest Expense ($7,721.80 x 9%) 694.96

 Discount on Notes Payable 694.96

The total amount of the discount, $2,278.20 in this case, represents the expense that

Turtle Cove Company will incur on the note over the three years.

**Interest-Bearing Notes**

The zero-interest-bearing note above is an example of the extreme difference between the stated rate and the effective rate. In many cases, the difference between these rates is not so great.

Consider for example that Marie Co. issued for cash a $10,000, three-year note bearing interest at 10 percent to Morgan Corp. The market rate of interest for a note of similar risk is 12 percent. In this case, because the effective rate of interest (12%) is greater than the stated rate (10%), the present value of the note is less than the face value. That is, the note is exchanged at a **discount**. Marie Co. records the issuance of the note as follows.

 Cash 9,520

 Discount on Notes Payable 480

 Notes Payable 10,000

Marie Co. then amortizes the discount and recognizes interest expense annually using the **effective-interest method**. The table below shows the three-year discount amortization and interest expense schedule.



Marie Co. records payment of the annual interest and amortization of the discount for the first year as follows (amounts per amortization schedule).

 Interest Expense 1,142

 Discount on Notes Payable 142

 Cash 1,000

When the present value exceeds the face value, Marie Co. exchanges the note at a premium. It does so by recording the premium as a credit and amortizing it using the effective-interest method over the life of the note as annual reductions in the amount of interest expense recognized.

**SPECIAL NOTES PAYABLE SITUATIONS**

**Notes Issued for Property, Goods, or Services**

Sometimes, companies may receive property, goods, or services in exchange for a note payable. When exchanging the debt instrument for property, goods, or services in a bargained transaction entered into at arm’s length, the stated interest rate is presumed to be fair unless:

1. No interest rate is stated, or
2. The stated interest rate is unreasonable, or
3. The stated face amount of the debt instrument is materially different from the current cash sales price for the same or similar items or from the current fair value of the debt instrument.

In these circumstances the company measures the present value of the debt instrument by the fair value of the property, goods, or services or by an amount that reasonably approximates the fair value of the note.

If there is **no stated rate of interest**, **the** **amount of interest is the difference between the face amount of the note and the fair** **value of the property**.

For example, assume that Scenic Development Company sells land having a cash sale price of $200,000 to Health Spa, Inc. In exchange for the land, Health Spa gives a five-year, $293,866, zero-interest-bearing note. The $200,000 cash sale price represents the present value of the $293,866 note discounted at 8 percent for five years. Should both parties record the transaction on the sale date at the face amount of the note, which is $293,866? No—if they did, Health Spa’s Land account and Scenic’s sales would be overstated by $93,866 (the interest for five years at an effective rate of 8 percent). Similarly, interest revenue to Scenic and interest expense to Health Spa for the five-year period would be understated by $93,866.

Because the difference between the cash sale price of $200,000 and the $293,866 face amount of the note represents interest at an effective rate of 8 percent, the companies’ transaction is recorded at the exchange date as follows.



During the five-year life of the note, Health Spa amortizes annually a portion of the discount of $93,866 as a charge to interest expense. Scenic Development records interest revenue totaling $93,866 over the five-year period by also amortizing the discount.

The effective-interest method is required, unless the results obtained from using another method are not materially different from those that result from the effective interest method.

**Choice of Interest Rate**

In note transactions, the effective or market interest rate is either evident or determinable by other factors involved in the exchange, such as the fair value of what is given or received. But, if a company cannot determine the fair value of the property, goods, services, or other rights, and if the note has no ready market, the problem of determining the present value of the note is more difficult. To estimate the present value of a note under such circumstances, a company must approximate an applicable interest rate that may differ from the stated interest rate. This process of interest-rate approximation is called **imputation**, and the resulting interest rate is called an **imputed** **interest rate**.

The prevailing rates for similar instruments of issuers with similar credit ratings affect the choice of a rate. Other factors such as restrictive covenants, collateral, payment schedule and the existing prime interest rate also play a part. Companies determine the imputed interest rate when they issue a note; any subsequent changes in prevailing interest rates are ignored.

To illustrate, assume that on December 31, 2010, Wunderlich Company issued a promissory note to Brown Interiors Company for architectural services. The note has a face value of $550,000, a due date of December 31, 2015, and bears a stated interest rate of 2 percent, payable at the end of each year. Wunderlich cannot readily determine the fair value of the architectural services, nor is the note readily marketable. On the basis of Wunderlich’s credit rating, the absence of collateral, the prime interest rate at that date, and the prevailing interest on Wunderlich’s other outstanding debt, the company imputes an 8 percent interest rate as appropriate in this circumstance. Illustration below shows the time diagram depicting both cash flows.

 

The present value of the note and the imputed fair value of the architectural services are determined as follows.



Wunderlich records issuance of the note in payment for the architectural services as follows.

**December 31, 2010**

 Building (or Construction in Process) 418,239

 Discount on Notes Payable 131,761

 Notes Payable 550,000

The five-year amortization schedule appears below



Wunderlich records payment of the first year’s interest and amortization of the discount as follows.

**December 31, 2011**

 Interest Expense 33,459

 Discount on Notes Payable 22,459

 Cash 11,000

**MORTGAGE NOTES PAYABLE**

The most common form of long-term notes payable is a mortgage note payable. A **mortgage note payable** is a promissory note secured by a document called a mortgage that pledges title to property as security for the loan. Individuals, proprietorships, and partnerships use mortgage notes payable more frequently than do corporations.

(Corporations usually find that bond issues offer advantages in obtaining large loans.)

The borrower usually receives cash for the face amount of the mortgage note. In that case, the face amount of the note is the true liability, and no discount or premium is involved. When the lender assesses “points,” however, the total amount received by the borrower is less than the face amount of the note. Points raises the effective interest rate above the rate specified in the note. A **point** is 1 percent of the face of the note.

For example, assume that Harrick Co. borrows $1,000,000, signing a 20-year mortgage note with a stated interest rate of 10.75 percent as part of the financing for a new plant. If Associated Savings demands 4 points to close the financing, Harrick will receive 4 percent less than $1,000,000—or $960,000—but it will be obligated to repay the entire $1,000,000 at the rate of $10,150 per month. Because Harrick received only $960,000, and must repay $1,000,000, its effective interest rate is increased to approximately 11.3 percent on the money actually borrowed.

On the balance sheet, Harrick should report the mortgage note payable as a liability using a title such as “Mortgage Notes Payable” or “Notes Payable—Secured,” with a brief disclosure of the property pledged in notes to the financial statements.

Mortgages may be payable in full at maturity or in installments over the life of the loan. If payable at maturity, Harrick classifies its mortgage payable as a long term liability on the balance sheet until such time as the approaching maturity date warrants showing it as a current liability. If it is payable in installments, Harrick shows the current installments due as current liabilities, with the remainder as a long-term liability.

Lenders have partially replaced the traditional **fixed-rate mortgage** with alternative mortgage arrangements. Most lenders offer **variable-rate mortgages** (also called *floating-rate* or *adjustable-rate* mortgages) featuring interest rates tied to changes in the fluctuating market rate. Generally the variable-rate lenders adjust the interest rate at either one- or three-year intervals, pegging the adjustments to changes in the prime rate or the government Treasury bond rate.

**Analysis of Long-Term Debt**

Long-term creditors and stockholders are interested in a company’s long-run solvency, particularly its ability to pay interest as it comes due and to repay the face value of the debt at maturity. Debt to total assets and times interest earned are two ratios that provide information about debt-paying ability and long-run solvency.

**Debt to Total Assets Ratio**

The **debt to total assets ratio** measures the percentage of the total assets provided by creditors. To compute it, divide total debt (both current and long-term liabilities) by total assets, as shown below.



The higher the percentage of debt to total assets, the greater the risk that the company may be unable to meet its maturing obligations.

**Times Interest Earned Ratio**

The **times interest earned ratio** indicates the company’s ability to meet interest payments as they come due. As shown below, it is computed by dividing income before interest expense and income taxes by interest expense.



To illustrate these ratios, we use data from **Best Buy**’s 2007 annual report. Best Buy has total liabilities of $7,369 million, total assets of $13,570 million, interest expense of $31 million, income taxes of $752 million, and net income of $1,377 million. We compute Best Buy’s debt to total assets and times interest earned ratios as follows.



Even though Best Buy has a relatively high debt to total assets percentage of 54.3 percent, its interest coverage of 70 times indicates it can easily meet its interest payments as they come due.