CHAPTER 10: REPORTING AND INTERPRETING BONDS

CHAPTER SUMMARY

This chapter discusses bonds payable, which represent a primary way for corporations to obtain funds to acquire long-term assets and to expand a business. An important advantage of bonds payable is that the cost of borrowing the funds – interest expense – is deductible on the income statement (and for income tax purposes), which reduces the interest cost to the business.

Bonds may be sold at par amount, a premium, or a discount, depending on the difference between the stated interest rate and the market interest rate. In each case, bonds are recorded at the present value of their future cash flows. The issue price of a bond varies based on the relationship between the market rate and stated rate of interest. If the stated rate is higher than the market rate, the bonds will sell at a premium. Conversely, if the stated rate is lower than the market rate, the bonds will sell at a discount. If the stated rate and the market rate are the same, the bonds will sell at par. Discounts and premiums on bonds payable are adjustments to interest expense for the issuing company during the term of the bonds. Therefore, the discount or premium on bonds payable is amortized over the period outstanding from issue date to maturity date.

CHAPTER OBJECTIVES

LO1 Describe the characteristics of bonds.
LO2 Report bonds payable and interest expense for bonds sold at par and analyze the times interest earned ratio.
LO3 Report bonds payable and interest expense for bonds sold at a discount.
LO4 Report bonds payable and interest expense for bonds sold at a premium.
LO5 Analyze the debt-to-equity ratio.
LO6 Report the early retirement of bonds.
LO7 Explain how financing activities are reported on the statement of cash flows.

CHAPTER OUTLINE

I. UNDERSTANDING BUSINESS

1. The capital structure of a company is a mixture of debt and equity.
2. Corporations frequently raise debt capital by borrowing money through the issuance of bonds.
   a. Bonds are securities issued by corporations as well as government entities.
   b. Because of established markets, a bondholder may sell the bond before its maturity date to another investor via the bond exchange. This provides the bondholder with liquidity since the investment can be sold for cash at any time.

II. LO1 DESCRIBE THE CHARACTERISTICS OF BONDS.

A. Advantages of debt financing

1. Issuing bonds does not dilute ownership and control. Dilution would take place if additional stock were issued instead. Bondholders are not owners in the company and, thus, cannot vote.
2. Interest is tax deductible whereas dividends are not. Net interest cost is interest cost less any income tax savings associated with interest expense.
3. The liquidity of bond investments typically permits corporations to reduce the cost of long-term borrowing. This can give rise to positive financial leverage (borrowing at low rate and investing at a higher rate).

B. Disadvantages of debt financing

1. Required interest payments must be made each interest period. If payments are not made, there is a risk of bankruptcy.
2. The principal (par) of the bond must be paid at the maturity date. This is so even if the corporation has no earnings. On the other hand, dividends to stockholders usually materialize only if the company has earnings (or retained earnings).

C. Characteristics of Bonds Payable

1. There are many different characteristics for various bond issues. Different types of creditors have different risk and return preferences. Companies try to design features of bond issues that are attractive to different groups of investors to make the bonds more marketable.
2. Some key types of bonds are shown below:

Bond Classification		Bond Characteristics	
On the basis of collateral (assets):			
a.	Unsecured bonds (called debentures).	a.	Bonds that do not include a mortgage or pledge of specific assets as a guarantee of repayment at maturity.
b.	Secured bonds (often designated on the basis of the type of asset pledged, such as a real estate mortgage).	b.	Bonds that include the pledge of specific assets as a guarantee of repayment at maturity.
On the basis of early retirement:			
a.	Callable bonds.	a.	Bonds that may be called for early retirement at the option of the issuer.
b.	Convertible bonds.	b.	Bonds that may be converted to other securities of the issuer (usually common stock) at the option of the bondholder.

3. The bond contract is called a bond indenture.
   a. This specifies the legal provisions of the bonds.
   b. May also contain covenants, which place restrictions on the issuing company. Covenants provide reduced risk for the creditors.
4. The investor in a bond receives a bond certificate, which specifies the maturity date, interest rate, interest dates, and other provisions.
5. Other terminology associated with bond issues:
   a. Bond principal (par value, face amount, maturity value) is the amount payable at the maturity date. This amount is used to compute periodic interest payments.
   b. Stated rate is the rate of interest that will be paid on the bond principal. This interest rate is "stated" in the bond. The interest periods are usually annual or semiannual.
   c. A prospectus is a legal document given to potential (prospective) bond investors. It describes the issuing company, the bonds, and how the proceeds of the bonds will be used.
   d. A trustee (an independent party) is often appointed to represent the bondholders. A trustee's duties include ascertaining whether the issuing company fulfills all of the provisions of the bond indenture.

D. Reporting Bond Transactions
1. Corporate bond issues typically provide for two types of cash payments.
   a. The payment (many times a single payment) required when the bond matures is the principal.
   b. Interest payments are usually required over the life of the bond issue annually or semiannually. These payments represent an annuity and are computed by applying the stated interest rate (contract rate or coupon rate) to the principal of the bond.

$$\text{Interest} = \text{Principal} \times \text{Rate} \times \text{Time}$$

2. Bonds may be sold at face value (par value) or at some amount above or below face value.
   a. When a bond's stated interest rate is less than the investors required rate of return (the market interest rate) they will be sold at a discount, an amount that is less than their face value.
   b. When a bond's stated interest rate is more than the investors required rate of return (the market interest rate), they will be sold at a premium, an amount that is more than their face value.
3. The market interest rate ("yield" interest rate or "effective" rate) is the rate creditors demand to compensate them for the risks related to the bond investment.
4. The market determines the price at which bonds will sell for. Using present value (PV) applications, two computations are required to determine the selling price of the bonds since two separate types of cash flows are usually associated with eventual bond payments.
   a. Each interest payment (an annuity) to be made in the future is multiplied by the appropriate PV factor (based on the market rate of interest) to determine the PV of future interest payments.
   b. The principal of the bond (often a single payment) will be paid at the maturity date. This amount is multiplied by the appropriate PV factor (based on the market rate of interest) to determine the PV of the future principal payment.
   c. The PV of future interest payments plus the PV of the principal payment equals the selling price of the bonds.
5. Bonds sell at par if the stated rate equals the market rate of interest. If they do not sell at par, one of two possibilities exist:
   a. Bonds will sell at a discount if the PV of the bonds is below par (that is, if the market rate exceeds the stated rate of interest).
   b. Bonds will sell at a premium if the PV of the bonds is above par (that is, if the stated rate exceeds the market rate of interest).
6. Corporations do not care if bonds sell at par, a discount, or a premium. That is, bonds are "worth" their future cash flows based on the market rate of interest when they are sold. Discounts are not "bad" and premiums are not "good". They are simply realities of basic economic events.

LO2 REPORT BONDS PAYABLE AND INTEREST EXPENSE FOR BONDS SOLD AT PAR AND ANALYZE THE TIMES INTEREST EARNED RATIO.

A. Bonds Issued at Par
  1. Bonds sell at their par value when the stated interest rate on the bonds is the same as the market rate required by investors.
    a. The reason is that the PV of the future cash flows associated with the bond is equal to the bond's par amount.
    b. The bonds are sold "at 100". This is 100% of the par value.
  2. To record bonds issued at par, cash is debited and bonds payable is credited for the principal amount.

Cash	xxx	
Bonds Payable		xxx

B. Reporting interest
  1. Interest Expense is reported on the Income Statement.
    a. Since interest relates to financing, the interest related to the bond is not normally included in Operating Expenses.
    b. Usually a deduction from "Income from Operations" – in the "Other Gains and Losses" section.
  2. Interest payments require a debit to bond interest expense and a credit to cash in the same amount. Under the matching principle, bond interest expense must be recorded when incurred. Therefore, if a company's year-end differs from the end of an interest period, an adjusting entry is required.
  3. When bonds are issued at par, the bond interest expense is the same amount as cash payments for interest since the effective (market) interest rate and the stated rate are the same.

C. Times interest earned ratio
  1. A measure of solvency.
  2. Helps to answer the question: Is the company generating sufficient resources from its profit-making activities to meet its current interest obligations?
  3. Generally, a high times interest earned ratio is viewed more favorably than a low one.

$$\text{Times Interest Earned} = \frac{\text{Net Income} + \text{Interest Expense} + \text{Income Tax Expense}}{\text{Interest Expense}}$$

III. LO3 REPORT BONDS PAYABLE AND INTEREST EXPENSE FOR BONDS SOLD AT A DISCOUNT.

A. Bonds sell at a discount (below par) when the stated interest rate on the bonds is less than the market rate required by investors.
  1. The reason is that the PV (based on the market rate) of the future cash flows associated with the bonds is less than the par amount.
  2. The bonds are sold at *less than* 100. That is, they are sold at *less than* 100% of par value. (For example, their price may be stated as 99 or 98.5, which is less than 100.)

B. Recording bonds issued at a discount:
  1. Cash is debited for the selling price (PV of future cash flows associated with the bond for principal and interest).
  2. Bonds payable is credited for the par value of the bonds (the amount to be paid at the maturity date).
  3. The discount is the difference of the debit to cash and the credit to bond payable. This difference is debited to the Discount on Bonds Payable account (a contra liability account).

Cash	xxx	
Discount on Bonds Payable	xxx	
Bonds Payable		xxx

  4. The balance sheet reports the bonds payable at the book value or carrying value (par value minus unamortized discount). At the maturity date, the carrying value will equal par (the payoff).
  5. The bond discount will be amortized over the life of the bond using one of two methods: straight-line or effective interest rate method of amortization.

C. Reporting Interest Expense on Bonds Issued at a Discount Using Straight-Line Amortization
  1. Interest payments require a debit to bond interest expense, which is *greater* than the cash payment for interest.

a. Using the straight-line amortization method, an equal amount (initial discount divided by the number of interest periods) of discount is credited to the Discount on Bonds Payable account.

Bond Interest Expense	xxx	
Discount on Bonds Payable		xxx
Cash		xxx

b. When the bonds mature, the Discount will be fully amortized.

c. The matching principle requires that interest expense be reported as incurred. Discount amortization is required to reflect the interest expense incurred.

2. Since bonds are recorded at their PV when issued, the accounting for the bond issue is unaffected by subsequent changes in the market rate of interest.

3. Although the straight-line method of amortizing is not accepted by GAAP, many companies use this method since the difference between the straight-line method and the effective interest rate method is frequently not material.

D. Reporting Interest Expense on Bonds Issued at a Discount Using Effective-Interest Amortization

1. The effective-interest method for amortizing bond discounts and premiums derives the "true" interest expense for each interest period.

a. This method is conceptually superior to the simpler straight-line method.

b. In fact, GAAP states that straight-line amortization may only be used if the results are not materially different from the effective-interest method.

2. The computation of interest expense under the effective-interest method considers the actual amount borrowed instead of the maturity value of the bond. It is computed as follows:

$$\text{Bond Interest Expense} = \text{Bond Carrying Value} \times \text{Market Interest Rate at Issue}$$

The amortization of the discount is the difference between the calculated bond interest expense and the cash interest payment (or accrual).

4. The journal entries for interest follow the same format as discussed for straight-line amortization.
5. For a bond discount, the amount of interest expense increases over the life of the bond issue. The carrying value increases to the par value by maturity.

E. Zero Coupon Bonds

1. Zero coupon bonds do not pay periodic interest to investors. The coupon rate is zero. Therefore, these bonds are issued substantially below their maturity value.

2. An example of these "deep" discount bonds is U.S. Savings Bonds.

3. The accounting for a zero coupon bond is no different than any bond sold at a discount. However, the discount is much larger than other bond issues.

IV. LO4 REPORT BONDS PAYABLE AND INTEREST EXPENSE FOR BONDS SOLD AT A PREMIUM.

A. Bonds sell at a premium (above par) when the stated interest rate on the bonds is more than the market rate required by investors.

1. The reason is that the PV (based on the market rate) of the future cash flows associated with the bond is greater than the bond par value.

2. The bonds are sold at *more than* 100. That is, they are sold at *more than* 100% of par value. (For example, their price may be stated as 102 or 102.5, which is more than 100.)

B. Recording bonds issued at a premium:

1. Cash is debited for the selling price (PV of future cash flows associated with the bond for principal and interest).

2. Bonds payable is credited for the par value (the maturity amount).

3. The premium is the difference of the debit to cash and the credit to bonds payable. This difference is credited to the Premium on Bonds Payable account.

Cash		xxx	
	Premium on Bonds Payable		xxx
	Bonds Payable		xxx

4. The balance sheet reports the bonds payable at the book value or carrying value (par value plus unamortized premium). At the maturity date, the carrying value will equal par (the payoff).

C. Reporting Interest Expense on Bonds Issued at a Premium Using Straight-Line Amortization

1. Interest payments require a debit to bond interest expense, which is less than the cash payment for interest.

a. Using straight-line amortization, an equal amount (initial premium divided by the number of interest periods) of premium is debited to the Premium on Bonds Payable account.

Bond Interest Expense		xxx	
Premium on Bonds Payable		xxx	
	Cash		xxx

b. When the bonds mature, the Premium will be fully amortized.

c. The matching principle requires that interest be reported as incurred. Premium amortization is required to reflect the true interest expense incurred.

2. Since bonds are recorded at their PV when issued, the accounting for the bond issue is unaffected by subsequent changes in the market rate of interest.

D. Reporting Interest Expense on Bonds Issued at a Premium Using Effective-Interest Amortization

1. The amortization of the premium is the difference between the cash interest payment and the calculated bond interest expense (i.e. the accrual).

2. The journal entries for interest follow the same format as discussed for straight-line amortization except that the amounts have changed due to using the effective interest rate method.

3. For a bond premium, the amount of interest expense decreases over the life of the bond issue. The carrying value decreases to the par value by maturity.

V. LO5 ANALYZE THE DEBT-TO-EQUITY RATIO.

1. The debt-to-equity ratio is another measure of solvency.

2. It shows the relationship between the proportions of capital provided by creditors versus the amount provided by owners.

$$\text{Debt - to - Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Owners Equity}}$$

3. A high ratio suggests that a company relies heavily on funds provided by creditors. This increases the risk that a company may not be able to meet its contractual financial obligations during a business downturn.

VI. LO6 REPORT THE EARLY RETIREMENT OF BONDS.

1. A company may decide to buy back its own bonds prior to the maturity date. A company's decision to buy back its bonds may be based on rising interest rates in the market price. Bond prices move in the opposite direction of interest rates.
2. There are two ways for a company to buy its bonds.
   a. If the bonds have a call feature, the issuer has the option to buy them back before they mature. Typically, a call premium is paid to the creditors upon early retirement (if it is specified in the bond indenture).
   b. The issuer might buy back the bonds on the open market to avoid paying a call premium.
3. After considering any accrued interest at the date of purchase, the price paid for the bonds is compared to the carrying value of the bonds on the issuing company's books.
   a. If the price paid exceeds the carrying value, a loss on early retirement results. If the price paid is less than the carrying value, the company will record a gain on early retirement.
   b. A loss or a gain on early retirement of debt is included in the income statement as an extraordinary item.
4. The loss or gain on early retirement of debt is also a taxable event in that year.

VII. LO7 EXPLAIN HOW FINANCING ACTIVITIES ARE REPORTED ON THE STATEMENT OF CASH FLOWS.

1. Cash receipts from the issuance of bonds are shown as an inflow of cash in the financing section of the Statement of Cash Flows.
2. Repayments of bonds are shown as an outflow of cash in the financing section of the Statement of Cash Flows.
3. Interest payments are included in the operating section.