

ACCOUNTING FOR BONDS

Key Terms and Concepts to Know

- Bonds are a medium to long-term financing alternative to issuing stock.
- Bonds are issued or sold face amount or par, at a discount if they pay less than the current market rate of interest or a premium if they pay more than the current market interest rate.
- Bonds typically pay interest twice a year, i.e., semi-annually.
- The price of a bond is stated as a percent of face value, although the percent sign is not used.
 - If a \$1,000 bond is selling at 101, it is selling at 101% of face value or \$1,010. The "extra" \$10 received when the bond is issued or sold represents the premium.
 - If a \$1,000 bond is selling at 99, it is selling at 99% of face value or \$990. The \$10 not received when the bond is issued or sold represents the discount.
- Required journal entries include
 - Issuing the bond at par, discount or premium
 - Calculating and recording the bond interest payments
 - Calculating and recording amortization of the discount or premium
 - Retiring the bonds at maturity
 - Retiring the bonds prior to maturity and calculating the gain or loss on retirement
- Calculate the interest expense for the year including the amortization of the premium or discount.

Leases:

- Leases are rental agreements.
- Operating leases provide use of the property to the lessee with the lessor retaining the risks and rewards of ownership during and after the lease. Lease payments are expense to the lessee.
- Capital leases transfer the risks and rewards of ownership to the lessee. These leases are less like a rental and more like a purchase agreement that provides for periodic payments over a specified time period. The lessee records the capital lease as debt and records the leased asset as a fixed asset as if it had been purchased.

Key Topics to Know

Basic Relationships for Premiums and Discounts

The relationship between the current market interest rate and the stated or contract interest rate for the bonds determines or influences the bond price, cash proceeds from issuance, carrying value and interest expense. The following three tables summarize these relationships:

If the current market interest rate is the same as the contract interest rate:

1. Bond sells at face value or par
2. Cash proceeds from issuance will be the same as the face value
3. Price of the bonds will be 100
4. Carrying value of the bonds will be the same as face value throughout the term of the bonds
5. Cash paid for interest will be equal to interest expense

If the current market interest rate is greater than the contract interest rate:

1. Bond sells at a discount
2. Cash proceeds from issuance will be less than the face value
3. Price of the bonds will be less than 100
4. Carrying value of the bonds will be less than face value throughout the term of the bonds
5. Cash paid for interest will be less than interest expense because of the amortization of the discount

If the current market interest rate is less than the contract interest rate:

1. Bond sells at a premium
2. Cash proceeds from issuance will be greater than the face value
3. Price of the bonds will be greater than 100
4. Carrying value of the bonds will be greater than face value throughout the term of the bonds
5. Cash paid for interest will be greater than interest expense because of the amortization of the premium

Selling Price of a Bond

Calculating the Selling Price of a Bond

- Companies usually pay interest to the bondholder semiannually and repay the face value of the bond at maturity.
- The series of interest payments represents an annuity.
- The repayment of face value at maturity represents a lump sum or single payment
- The selling price of a bond is calculated as:
The present value of the face value (lump sum) +
The present value of the interest payments
(annuity)
- Interest payments are calculated using the contract interest rate
- The present value of the future cash outflows is calculated using the current market interest rate
- The bond sells at a premium if the present value exceeds the face value.
- The bond sells at a discount if the present value is less than the face value.
- Selling price is frequently expressed as a percentage (without the % sign) of face value: $(\text{selling price} / \text{face value}) \times 100 = \text{price}$.

Selling Bonds at a Premium

When a bond sells at a premium – a price greater than face value – a credit is recorded in Premium on Bonds Payable for the amount of the premium. The carrying value of the bond is the face amount recorded in bonds payable plus the unamortized premium recorded in the premium on bonds payable account.

Example #1

B Company issued \$4,000,000 of 10-year, 11% bonds on January 4. The bonds pay interest semiannually on June 30 and December 31. The current market rate of interest is 10%. The bonds sold at 106.23.

Required: Calculate the selling price of the bond.

Solution#1

Interest payment	$\$4,000,000 \times 11\% \times \frac{1}{2} \text{ year} =$	\$220,000
Number of periods	$10 \text{ years} \times 2 =$	20
Interest rate per period	$10\% / 2 =$	5%
PV of face amount	$\$4,000,000 \times .37689$	\$1,507,560
PV of interest	$220,000 \times 12.46221$	<u>2,741,686</u>
Selling price of bond		\$4,249,246

This bond is selling at a premium – a price higher than its face value. The premium on this bond is \$249,246 ($\$4,000,000 - 4,249,246$).

The price of the bond is $106.23 \times 4,000,000 / 100 = \$4,249,200$.
The difference is due to rounding of the bond price.

Journal Entry for Issuance of Bonds:

Cash	4,249,246	
Bonds payable		4,000,000
Premium on bonds payable		249,246

Selling Bonds at a Discount

When a bond sells at a discount – a price less than face value – a debit is made to Discount on Bonds Payable for the amount of the discount. The carrying value of the bond is the face amount recorded in bonds payable less the unamortized discount recorded in the discount on bonds payable account.

Example #2

The next year, B Company issued \$4,000,000 of 10-year, 11% bonds on January 4. The Bonds pay interest semiannually on June 30 and December 31. The current market rate of interest is 12%.

Required: Calculate the selling price of the bond.

Solution#2

Interest payment	$\$4,000,000 \times 11\% \times \frac{1}{2} \text{ year} =$	\$220,000
Number of periods	$10 \text{ years} \times 2 =$	20
Interest rate per period	$12\% / 2 =$	6%
PV of face amount	$\$4,000,000 \times .31180$	\$1,247,200
PV of interest	$220,000 \times 11.46992$	<u>2,523,382</u>
Selling price of bond		\$3,770,582

This bond is selling at a discount – a price less than its face value.
The discount on this bond is \$229,418 ($\$4,000,000 - 3,770,582$).

The price of the bond is $4,000,000 \times 94.26 / 100 = 3,770,582$
The difference is due to rounding of the bond price.

Journal Entry for Issuance of Bonds:

Cash	3,770,582	
Discount on bonds payable	229,418	
Bonds payable		4,000,000

Amortizing Premiums and Discounts

Since the premium or discount is due to the difference in interest rates, it must be amortized over the life of the bonds to adjust the interest expense paid to the interest expense per the current market interest rate.

- A bond premium represents a reduction in interest expense
- A bond discount represents an increase in interest expense
- A portion of the premium or discount must be amortized to interest expense each period
- Amortization is recorded either at the end of the fiscal year or each time interest is paid.
- Amortization may be calculated using either the **straight-line method** or the **effective-interest method**. The choice of methods does not affect how the amortization is recorded; it only affects the amount of the amortization recorded each period.

Straight Line Method of Amortization

Example #3

From Example #1, since these were 10-year bonds, the amortization on each interest payment date, using the straight-line method, would be as follows:

$$\frac{\$249,246 \text{ premium}}{20 \text{ periods}} = \$12,462/\text{period}$$

Journal Entry for Amortization of Premium:

Premium on bonds payable	12,462	
Interest Expense		12,462

The debit to Premium on Bonds Payable reduces that account and reduces the carrying value of the bonds.

The credit to Interest Expense reduces interest expense.

Example #4

From Example #2, since these were 10-year bonds, the amortization on each interest payment date, using the straight-line method, would be as follows:

$$\frac{\$229,418 \text{ discount}}{20 \text{ periods}} = \$11,471/\text{period}$$

Journal Entry for Amortization of Discount:

Interest Expense	11,471	
Discount on Bonds		11,471

The credit to Discount on Bonds Payable reduces that account and increases the carrying value of the bonds.

The debit to Interest Expense increases interest expense.

Effective Interest Method of Amortization

The straight-line method of amortization has a constant amount of amortization and a constant amount of interest expense over the life of the bond. As a result, the interest expense as a percentage of the bond carrying value changes each period.

The effective-interest method of amortization uses a constant interest rate applied to the carrying value of the bond to calculate the amortization each period. As a result, the interest expense changes each period but remains constant as a percentage of the bond carrying value.

The effective interest rate is the interest rate that makes the present value of all interest payments and the bond principle repayment equal to the initial carrying value of the bond.

The easiest way to calculate the amortization is to construct a table as shown in the following examples.

Example #5

From Example #1, since these were 10-year bonds, the amortization on each interest payment date, using the effective interest rate of 5% per period, would be as follows. Note that the effective interest rate is less than the bond interest rate since the bond was sold at a premium.

<u>Period</u>	<u>Interest Paid</u>	<u>Interest Expense</u>	<u>Amortization of Premium</u>	<u>Unamortized Premium</u>	<u>Carrying Value</u>
0				\$249,246	\$4,249,246
1	\$220,000	\$212,462	\$7,538	241,708	4,241,708
2	220,000	212,085	7,915	233,793	4,233,793
3	220,000	211,690	8,310	225,483	4,225,483
4	220,000	211,274	8,726	216,757	4,216,757
5	220,000	210,383	9,162	207,595	4,207,595
6-19					
20	<u>220,000</u>	<u>200,952</u>	<u>19,048</u>	0	4,000,000
Total	\$4,400,000	\$4,150,754	\$249,246		

The calculations for period 1 are as follows:

Interest paid	$\$4,000,000 \times 11\% \times \frac{1}{2} \text{ year} =$	\$220,000
Interest expense	$\$4,429,246 \times 5\% =$	\$212,462
Amortization of premium	$\$220,000 - \$212,462 =$	\$7,538
Unamortized premium	$\$249,246 - \$7,538 =$	\$241,708
Carrying value	$\$4,000,000 + \$241,708 =$	\$4,241,708

Journal Entry for Amortization of Premium:

Premium on bonds payable	7,538	
Interest Expense		7,538

The debit to Premium on Bonds Payable reduces that account and reduces the carrying value of the bonds.

The credit to Interest Expense reduces interest expense.

Example #6

From Example #2, since these were 10-year bonds, the amortization on each interest payment date, using the effective interest rate of 6% per period, would be as follows. Note that the effective interest rate is greater than the bond interest rate since the bond was sold at a discount.

<u>Period</u>	<u>Interest Paid</u>	<u>Interest Expense</u>	<u>Amortization of Discount</u>	<u>Unamortized Discount</u>	<u>Carrying Value</u>
0				\$229,418	\$3,770,582
1	\$220,000	\$226,235	\$6,235	223,183	3,776,817
2	220,000	226,609	6,609	216,574	3,783,426
3	220,000	227,006	7,006	209,568	3,790,432
4	220,000	227,426	7,426	202,142	3,797,858
5	220,000	227,871	7,871	194,271	3,805,729
6-19					
20	<u>220,000</u>	<u>238,871</u>	<u>18,871</u>	0	4,000,000
Total	\$4,400,000	\$4,629,418	\$229,418		

The calculations for period 1 are as follows:

Interest paid	$\$4,000,000 \times 11\% \times \frac{1}{2} \text{ year} =$	\$220,000
Interest expense	$\$3,770,582 \times 6\% =$	\$226,235
Amortization of premium	$\$220,000 - \$226,235 =$	\$6,235
Unamortized premium	$\$229,418 - \$6,235 =$	\$223,183
Carrying value	$\$4,000,000 - \$223,183 =$	\$3,776,817

Journal Entry for Amortization of Discount:

Interest Expense	6,235	
Discount on Bonds		6,235

The credit to Discount on Bonds Payable reduces that account and increases the carrying value of the bonds.

The debit to Interest Expense increases interest expense.

Interest Expense

As shown in Examples #3 and #4, interest PAID is calculated as:

	Principal x Rate x Time	
Interest payment	$\$4,000,000 \times 11\% \times \frac{1}{2} \text{ year} =$	\$220,000

If the bonds are issued at par, that is, when the market and contract interest rates are the same, then the interest expense is equal to the interest paid.

Journal Entry for Each Interest Payment:

Interest Expense	220,000	
Discount on Bonds		220,000

However, if the bonds are issued at a premium or discount, the amortization of the premium or discount affects the amount of the interest expense. The interest paid remains the same. The reasons for this are:

- The discount represents the "extra" interest the company should have paid if the bonds had been issued at the market interest rate. It is the present value of the excess of the total interest expense at the market rate of interest over the total interest expense at the bond rate of interest.

- The premium represents the "extra" interest the company paid if the bonds had been issued at the market interest rate. It is the present value of the excess of the total interest expense at the bond rate of interest over the total interest expense at the market rate of interest.

Typically the entries for the interest paid and the amortization of the premium or discount are combined as shown below.

Example #7 and Solution #7

From Examples #1 and #3, combined entry for interest paid and amortization of the premium would be:

Premium on Bonds Payable	12,462	
Interest Expense	207,538	
Cash		220,000

Example #8 and Solution #8

From Examples #2 and #4, combined entry for interest paid and amortization of the discount would be:

Interest Expense	231,471	
Discount on Bonds Payable	11,471	
Cash		220,000

Example #9 and Solution #9

From Examples #1 and #5, combined entry for interest paid and amortization of the premium would be:

Premium on Bonds Payable	7,538	
Interest Expense	212,462	
Cash		220,000

Example #10 and Solution #10

From Examples #2 and #6, combined entry for interest paid and amortization of the discount would be:

Interest Expense	226,235	
Cash		220,000
Discount on Bonds Payable		6,235

As noted above:

- Amortization of a bond premium represents a reduction in interest expense compared to the interest paid.
- Amortization of a bond discount represents an increase in interest expense compared to the interest paid.

The total interest expense over the life of the bonds is the interest paid plus the discount or minus the premium is the same, regardless of the amortization method:

	<u>From Example #3:</u>	<u>From Example #4:</u>
Interest payment	\$220,000	\$220,000
Number of periods	20	20
Interest paid	\$4,400,000	\$4,400,000
Premium	(249,246)	
Discount		
Interest Expense	\$4,150,754	\$4,629,418
From Examples #5 and #6:		
Interest Expense	\$4,150,754	\$4,629,418

Bond Redemption

Bond redemptions or retirements may occur on the maturity date or on a date prior to the maturity date.

Using the bonds issued in Example #1, if the bonds are retired or redeemed at maturity the journal entry is:

Bonds Payable	4,000,000	
Cash		4,000,000

If all or some of the bonds are redeemed prior to maturity:

- The portion of the bond premium or discount related to the bonds redeemed must be amortized to redemption date.
- The bonds payable account will be debited for the face amount of the bonds redeemed.
- The premium account will be debited or the discount account will be credited for the premium or discount related to the bonds redeemed.
- A gain will be recorded if the redemption price is less than the carrying value of the bonds.
- A loss will be recorded if the redemption price is greater than the carrying value of the bonds
- Carrying Value = Bonds Payable + Premium on Bonds Payable OR
Bonds Payable – Discount on Bonds Payable

Example #9

From Example #3, at the end of the 6th year, the bonds were redeemed at 102.

Required: Prepare the journal entry to record the redemption.

Solution #9

Premium on Bonds Payable Balance:

Amortization:	$\$24,924.60 * 6 \text{ years} =$	$\$149,547.60$
Account balance:	$\$249,246 - 149,547.60 =$	$\$99,698.40$

Bonds Payable Balance	4,000,000	
Redemption Price	$4,000,000 * 102\% =$	$\$4,080,000.00$
Carrying Value	$4,000,000 + 99,698.40 =$	$\underline{4,099,698.40}$
Gain (Redemption < CV)		$\$19,698.40$

Premium on bonds payable	99,698.40	
Bonds payable	4,000,000.00	
Cash		4,080,000.00
Gain on redemption		19,698.40

Example #10

From Example #4, at the end of the 6th year, the bonds were redeemed at 99.

Required: Prepare the journal entry to record the redemption.

Solution #10

Premium on Bonds Payable Balance:

Amortization:	$\$22,941.80 * 6 \text{ years} =$	$\$137,650.80$
Account balance:	$\$229,418 - 137,650.80 =$	$\$91,767.20$

Bonds Payable Balance	4,000,000	
Redemption Price	$4,000,000 * 98\% =$	$\$3,920,000.00$
Carrying Value	$4,000,000 - 91,767.20 =$	$\underline{3,908,232.80}$
Loss (Redemption > CV)		$\$11,767.20$

Bonds payable	4,000,000.00	
Loss on redemption	11,767.20	
Discount on bonds payable		91,767.20
Cash		3,920,000.00

Practice Problems

Practice Problem #1

G Company issued \$8,000,000 of 7-year, 9% bonds on January 2. The bonds pay interest semiannually on June 30 and December 31. Market or effective rate of interest is 12%.

- Required:
- Calculate the selling price of the bonds, rounded to the nearest dollar, and journalize the entry to issue the bonds at that price.
 - Journalize the entry to pay interest and to amortize the discount or premium on June 30 using the straight-line method of amortization.
 - Journalize the entry to pay interest and to amortize the discount or premium on June 30 using the effective-interest method of amortization.

Practice Problem #2

The next year, G Company issued 8,000,000 of 7-year, 9% bonds on January 2. The bonds pay interest semiannually on June 30 and December 31. Market or effective rate of interest is 8%.

- Required:
- Calculate the selling price of the bonds, rounded to the nearest dollar, and journalize the entry to issue the bonds at that price.
 - Journalize the entry to pay interest and to amortize the discount or premium on June 30 using the straight-line method of amortization.
 - Journalize the entry to pay interest and to amortize the discount or premium on June 30 using the effective-interest method of amortization.

Practice Problem #3

H Company issued \$20,000,000 of 8-year 12% callable bonds dated July 1 at an effective interest rate of 14%, receiving cash of \$18,110,780. Interest is paid semiannually on December 31 and June 30. The bonds were redeemed one year later on July 1 at 95. All interest payments were made as required. Amortization is recorded semi-annually.

Required: Journalize the transactions for the life of the bonds, including closing the interest expense account.

Practice Problem #4

K Company issued \$5,000,000 of 10-year, 15% callable bonds at an effective interest rate of 14% receiving cash of \$5,529,704. Interest is payable semiannually on September 1 and March 1. On February 2 of year 3, K Company redeemed the bonds at 108. The balance in the Premium on Bonds account after amortizing to the date of sale is \$454,663. All interest payments were made as required. Amortization is recorded semi-annually.

Required: Journalize the transactions for the life of the bonds, including closing the interest expense account.

True / False Questions

1. As a company's level of debt increases, bankruptcy risk increases.
True False
2. The straight-line method of amortization computes the same interest expense as the effective interest method of amortization.
True False
3. The federal government backs secured bonds.
True False
4. A specific asset does not back an unsecured bond.
True False
5. A callable bond allows the borrower to repay the bonds before their scheduled maturity date at a specified call price.
True False
6. Convertible bonds allow the investor to convert each bond into a specified number of shares of common stock.
True False
7. The market interest rate does not change over time.
True False
8. If a bond is sold at a discount, the effective-interest method will record an increasing interest expense in every year.
True False
9. The amount reported on the balance sheet for bonds payable issued at par is equal to the carrying value at the balance sheet date.
True False
10. When bonds are issued at a discount (below face amount), the carrying value and the corresponding interest expense increase over time.
True False
11. When bonds are issued at a premium (above face amount), the carrying value and the corresponding interest expense increase over time.
True False

12. Interest expense is calculated as the carrying value times the market rate.
True False
13. The market value of bonds moves in the opposite direction of interest rates.
True False
14. At the maturity date, the carrying value will equal the face amount of the bond.
True False
15. Losses/gains on the early extinguishment of debt are reported as part of operating income in the income statement.
True False
16. A gain or loss is recorded on bonds retired at maturity.
True False
17. The stated interest rate is the rate quoted in the bond contract used to calculate the cash payments for interest.
True False
18. The same interest expense will be recorded every year when the straight-line amortization method is used.
True False
19. A gain or loss is always recorded on bonds retired prior to maturity.
True False
20. The straight-line method of amortization will amortize a discount in fewer periods compared to the effective interest method of amortization.
True False

Multiple Choice Questions

1. Number of times interest charges earned is computed
 - a) Income before income taxes less Interest Expense divided by Interest Expense.
 - b) Income before income taxes divided by Interest Expense.
 - c) Income before income taxes plus Interest Expense divided by Interest Revenue.
 - d) Income before income taxes plus Interest Expense divided by Interest Expense.

2. One potential advantage of financing corporations through the use of bonds rather than common stock is:
 - a) The interest on bonds must be paid when due
 - b) The interest expense is deductible for tax purposes by the corporation.
 - c) The corporation must pay the bonds at maturity.
 - d) A higher earnings per share is guaranteed for existing common shareholders.

3. When the contract rate of interest on bonds is higher than the market rate of interest, the bonds sell at:
 - a) their face value
 - b) their maturity value
 - c) a discount
 - d) a premium

4. Sinking Fund Cash would be classified on the balance sheet as:
 - a) a current asset
 - b) a plant asset
 - c) an investment
 - d) an intangible asset

5. Bonds Payable has a balance of \$2,000,000 and Discount on Bonds Payable has a balance of \$15,000. If the issuing corporation redeems the bonds at 99, what is the amount of gain or loss on redemption?
 - a) \$20,000 loss
 - b) \$20,000 gain
 - c) \$5,000 gain
 - d) \$5,000 loss

6. The effective interest amortization method:
 - a) Allocates bond interest expense over the bond's life using a changing interest rate.
 - b) Allocates bond interest expense over the bond's life using a constant interest rate.
 - c) Allocates a decreasing amount of interest over the life of a discounted bond.
 - d) Allocates bond interest expense using the current market rate for each interest period.

7. The balance in Discount on Bonds Payable:
 - a) Should be reported on the balance sheet as an asset because it has a debit balance
 - b) Would be subtracted from the related bonds payable on the balance sheet
 - c) Would be added to the related bonds payable to determine the carrying amount of the bonds.
 - d) Should be allocated to the remaining periods for the life of the bonds by the straight-line method, if the results obtained by that method materially differ from the results that would be obtained by the interest method.

8. The journal entry a company records for the payment of interest, interest expense, and amortization of bond discount is:
 - a) debit Interest Expense, credit Cash
 - b) debit Interest Expense and Discount on Bonds Payable, credit Cash
 - c) debit Interest Expense, credit Interest Payable and Discount on Bonds Payable
 - d) debit Interest Expense, credit Cash and Discount on Bonds Payable

9. The journal entry a company records for the payment of interest, interest expense, and amortization of bond premium is:
 - a) debit Interest Expense, credit Cash
 - b) debit Interest Expense and Premium on bonds Payable, credit Cash
 - c) debit Interest Expense, credit Interest Payable and Premium on Bonds Payable
 - d) debit Interest Expense, credit Cash and Premium on Bonds Payable

10. \$100,000, 10-year, 9% Bonds that pay interest semiannually were issued when the market interest rate was 10%. The annual amortization of the Bond Discount using the straight-line method will be (Hint: First calculate the selling price of the bond):
- \$450.00
 - \$498.49
 - \$500.00
 - \$621.30
11. When a bond is sold at a premium it is reported on the balance sheet at it's
- Face value
 - Maturity value
 - Carrying value
 - Market value
12. Amortizing a bond discount
- Decreases bond interest expense.
 - Increases the carrying value of the bond.
 - Has no effect on the bond interest expense.
 - Decreases the maturity value of the bond.
13. On January 1, \$5,000,000, 10-year, 8% bonds were issued at \$5,150,000. Interest is paid each semiannually. If the straight-line method is used to amortize the premium, the amortization for the first year is:
- \$7,500
 - \$15,000
 - \$150,000
 - \$250,000
14. A 10%, 5-year, \$100,000 bond that sells when the market rate of interest is 12% will sell at
- face value
 - a premium
 - a discount
 - par

15. Bonds with a face value of \$2,000,000 are sold at 97. The entry to record the issuance is
- Debit Cash \$2,000,000; Credit Discount on Bonds Payable \$60,000 and Bonds Payable \$1,940,000
 - Debit Cash \$1,940,000; Credit Bonds Payable \$1,940,000
 - Debit Cash \$2,060,000; Credit Discount on Bonds Payable \$60,000 and Bonds Payable \$2,000,000
 - Debit Cash \$1,940,000 and Discount on Bonds Payable \$60,000; Credit Bonds Payable \$2,000,000
16. A \$500,000 bond liability is retired at 97 when the carrying value of the bond is \$483,000. The entry to record the retirement would include a
- \$2,000 loss
 - \$15,000 gain
 - \$15,000 loss
 - \$2,000 gain
17. A company issued 7%, 5-year bonds with a par value of \$100,000. The market rate when the bonds were issued was 7.5%. The company received \$97,947 cash for the bonds. Using the effective interest method, the amount of interest expense for the first semiannual interest period is:
- \$3,500.00.
 - \$3,705.30.
 - \$3,705.30.
 - \$3,673.01.
18. When applied to a bond issued at a premium, the effective interest amortization method:
- Interest expense is greater than interest paid
 - Amortization of the premium increases interest expense
 - Interest expense is greater than interest paid
 - Increases the carrying value of the bond each period
19. S Company issued a ten-year, \$20 million bond with a 10% interest rate for \$19,500,000. The entry to record the bond issuance would have what effect on the financial statements?
- Increase assets
 - Increase liabilities
 - Increase equity
 - Both a) and b)

20. On January 1, a company issues bonds dated January 1 with a par value of \$400,000. The bonds mature in 5 years. The contract rate is 7%, and interest is paid semiannually on June 30 and December 31. The market rate is 8% and the bonds are sold for \$383,793. The journal entry to record the first interest payment using the effective interest method of amortization is:
- a) Debit Interest Expense \$12,648.28; debit Premium on Bonds Payable \$1,351.72; credit Cash \$14,000.00.
 - b) Debit Interest Payable \$14,000.00; credit Cash \$14,000.00.
 - c) Debit Interest Expense \$12,648.28; debit Discount on Bonds Payable \$1,351.72; credit Cash \$14,000.00.
 - d) Debit Interest Expense \$15,351.72; credit Discount on Bonds Payable \$1,351.72; credit Cash \$14,000.00.

Solutions to Practice Problems

Practice Problem #1

	Annuity Factor	
	14 periods at 6%	
\$360,000 x	9.29498 =	\$3,346,193
	Present Value of \$1	
	14 periods at 6%	
\$8,000,000 x	.44230 =	<u>\$3,538,400</u>
		\$6,884,593

Cash	6,884,593
Discount on Bonds Payable	1,115,407
Bonds Payable	8,000,000

Straight-line method amortization:

Interest Expense	439,672
Discount on Bonds Payable	79,672
Cash	360,000

Effective-interest method amortization:

Interest Expense	413,076
Discount on Bonds Payable	53,076
Cash	360,000

Interest expense = \$6,884,593 carrying value x 6% = \$413,076

Practice Problem #2

	Annuity Factor	
	14 periods at 4%	
\$360,000 x	10.56312 =	\$3,802,724
	Present Value of \$1	
	14 periods at 6%	
\$8,000,000 x	.57748 =	<u>\$4,619,804</u>
		\$8,422,528

Cash	8,422,564	
Premium on Bonds		422,564
Bonds Payable		8,000,000

Straight-line method amortization:

Interest Expense	329,817	
Premium on Bonds	30,183	
Payable Cash		360,000

Effective-interest method amortization:

Interest Expense	336,903	
Premium on Bonds Payable	23,097	
Cash		360,000

Interest expense = \$8,422,528 carrying value x 4% = \$336,903

Practice Problem #3Year 1

July 1	Cash	18,110,780	
	Discount on Bonds Payable	1,889,720	
	Bonds Payable		20,000,000
Dec 31	Interest expense	1,200,000	
	Cash		1,200,000
	<i>(20,000,000 * .12 * ½ year)</i>		
Dec 31	Interest expense	118,076	
	Discount on Bonds Payable		118,076
	<i>(1,889,220/8 years * ½ year = 118,076)</i>		
Dec 31	Income Summary	1,318,076	
	Interest expense		1,318,076

Year 2

Jun 30	Interest expense	1,200,000	
	Cash		1,200,000
	<i>(20,000,000 * .12 * ½ year)</i>		
Jun 30	Interest expense	118,076	
	Discount on Bonds Payable		118,076
	<i>(1,889,220/8 years * ½ year = 118,076)</i>		
July 1	Bonds payable	20,000,00	
	Discount on bonds payable		1,653,068
	Loss on redemption	653,068	
	Cash		653,068

Balance in the discount account on the date of redemption

is 1,889,220 - 118,076 - 118,076 = 1,653,068

*Redemption price: 20,000,000 * 95% = 19,000,000 cash paid*

Loss: 19,000,000 - 18,346,932 = 653,068

Practice Problem #4Year 1

9/2	Cash	5,529,704	
	Premium on Bonds Payable		529,704
	Bonds Payable		5,000,000
12/31	Interest Expense	250,000	
	Interest Payable		250,000
	Premium on Bonds Payable	17,657	
	Interest Expense		17,657
	Income Summary	232,343	
	Interest Expense		232,343

Year 2

3/1	Interest Expense	125,000	
	Interest Payable	250,000	
	Cash		375,000
	Premium on Bonds Payable	8,828	
	Interest Expense		8,828
9/1	Interest Expense	375,000	
	Cash		375,000
	Premium on Bonds Payable	26,485	
	Interest Expense		26,485
12/31	Interest Expense	250,000	
	Interest Payable		250,000
	Premium on Bonds Payable	17,657	
	Interest Expense		17,657
12/31	Income Summary	697,030	
	Interest Expense		697,030

Year 3

2/2	Bonds Payable	5,000,000	
	Premium on Bonds Payable	454,663	
	Cash		5,400,000
	Gain on Redemption		54,663

Solutions to True / False Problems

1. True
2. False – the interest expense computed by the two methods will be different as long and the effective interest rate does not equal the bond rate of interest.
3. False - Secured bonds are supported by specific assets the issuer has pledged as collateral.
4. True
5. True
6. True
7. False - Market rates change continuously. Announcements by the Federal Reserve regarding its intentions to increase the federal funds rate, political unrest, an increase in the price of oil, and fears of growing inflation can all cause an increase in market interest rates.
8. True
9. True
10. True
11. False - When bonds are issued at a premium (above face amount), the carrying value and the corresponding interest expense decrease over time.
12. True
13. True
14. True
15. False - Losses/gains on the early extinguishment of debt are reported as non-operating items in the income statement.
16. False - No gain or loss is recorded on bonds retired at maturity, as the carrying value at maturity is equal to the face amount of the bond.
17. True
18. True
19. False – A gain or loss is recorded only when the carrying value does not equal the cash paid at redemption.
20. False – the number of periods used in the amortization calculations is the same under both methods.

Solutions to Multiple Choice Questions

- | | |
|-----|---|
| 1. | D |
| 2. | B |
| 3. | D |
| 4. | C |
| 5. | C |
| 6. | B |
| 7. | B |
| 8. | D |
| 9. | B |
| 10. | D |
| 11. | C |
| 12. | B |
| 13. | B |
| 14. | C |
| 15. | D |
| 16. | A |
| 17. | D |
| 18. | C |
| 19. | D |
| 20. | D |