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Bonds Sample

**Management Accounting
and Reporting**

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Editorial Notes

Throughout these materials, we have chosen particular language, spellings, structures and grammar in order to be consistent and comprehensible for all readers. HOCK study materials are used by candidates from countries throughout the world, and for many, English is a second language. We are aware that our choices may not always adhere to “formal” standards, but our efforts are focused on making the study process easy for all of our candidates. Nonetheless, we continue to welcome your meaningful corrections and ideas for creating better materials.

This material is designed exclusively to assist people in their exam preparation. No information in the material should be construed as authoritative business, accounting or consulting advice. Appropriate professionals should be consulted for such advice and consulting.

Bonds

One of the main ways that companies raise cash for financing their operations and other business needs is through the issuance of bonds. Bonds are a primary source of debt financing by companies, while the other main source is equity financing through the issuance of shares.

Investors purchase bonds because the bonds pay some amount of interest to the purchaser, and additionally, the face amount of the bond will be paid to the owner of the bond at the bond's maturity in the future.

We will look at bonds from both standpoints (the issuer and the investor), but our focus will be largely on the issuer of the bonds and their accounting for the bonds. However, before discussing the accounting for bonds, it is important to make certain that we understand what is happening in respect to a bond, and in particular the cash flows associated with the bond.

The Bond Itself

A bond will have a **stated amount (face value)**, a **stated interest rate**, a **maturity date** and information about when interest is paid. The maturity date is the date on which the issuer will "retire" the bond by paying the face amount of the bond to the bondholder. Below is an example of basic bond information.

BOND	
Face Value – \$1,000	Interest Rate – 8%
Issue Date – January 1, 2001	
Maturity Date – December 31, 2011	
Interest is paid annually on December 31	

From this information, we can determine all of the amounts that the issuer will pay to the holder of the bond over the life of the bond. We have already mentioned that on the maturity date the issuer will pay the face amount (\$1,000 in this case) to the bondholder. The cash that will be paid as interest every December 31st is also determinable from this information. The cash paid as interest is calculated as the face value multiplied by the stated rate of interest.

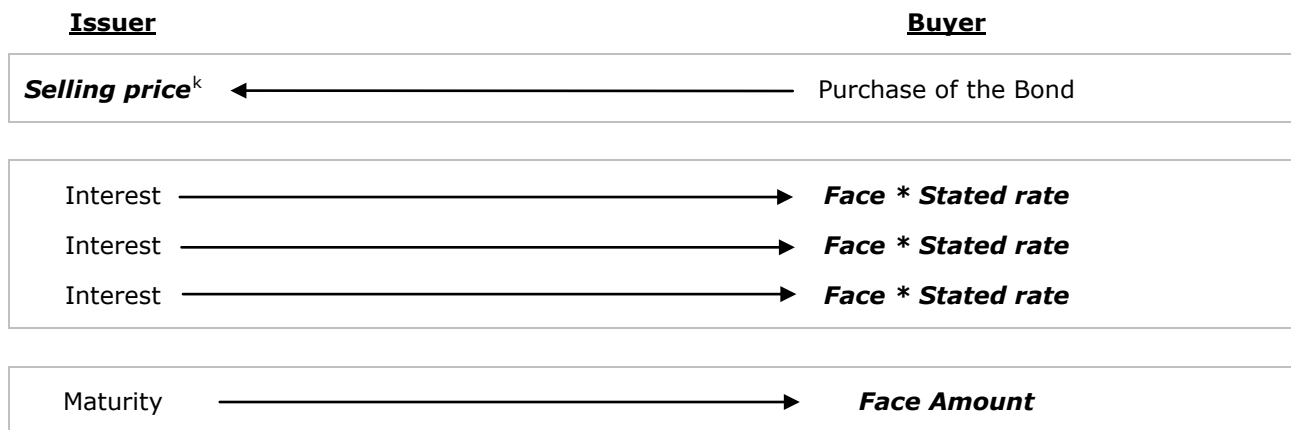
For interest in this bond example provided above, the issuer of the bond will pay \$80 in cash as interest to the purchaser of the bond every December 31st from December 31, 2001, until December 31, 2011.

On December 31, 2011 (the maturity date), not only will the owner of the bond receive the \$80 interest payment, but s/he will also receive \$1,000, which is the face value of the bond on that date.

The accounting for bonds is easier if we understand what happens over the life of the bond. When a company issues a bond it is simply borrowing money from someone else (the purchasers of the bonds), and this money will need to be repaid in the future. Since bonds represent a debt, they are called **debt securities**. Whenever a company borrows money, it must recognize a liability for the amount borrowed. Also, each period, it will need to recognize some amount of interest expense related to the amount that it has borrowed. The main issues with bonds relate to the calculation of the selling price (or issuance price) of the bond and the calculation of the amount of interest expense that needs to be recognized each period.

However, before looking at the accounting for the bonds, we will look again at the **cash flows** related to the bond itself. This will show us the accounting issues that we need to cover. The three main cash flows are the sale of the bond, interest payments and the payment of the face value at maturity.

The following illustrates the cash flows of the bond and how they are calculated (the calculations are in bold):



In the accounting for bonds, there are three main transactions that we need to account for. These three transactions correspond to the cash flows related to the bond. If you are familiar with the journal entries for these three events, you will be very well prepared for the standard bond questions on the Exam. These three events are:

- 1) The **initial sale** (the issuance) of the bonds.
- 2) The **payment of interest^l** (and associated recognition of interest expense).
- 3) The **repayment of the bond face** amount to the purchaser at the maturity date.

Issuance of the Bonds – Calculating the Selling Price

The first transaction that we need to look at is the issuance of the bonds. The main calculation here is the calculation of the selling price of the bonds.

Bonds are valued at (and sold at) the **present value (PV)** of all of the future cash payments that the company will need to make.

As shown on the previous page, there are two cash flows from the issuer to the purchaser of the bond. The two cash flows, and how they are calculated are:

- 1) The **repayment of the face amount** of the bond in X years' time.
This is simply the face amount that is stated on the bond itself.
- 2) The **payment of interest** that is made each interest period, which is called an **annuity**. This may be paid once a year or more frequently, such as semi-annually. (An annuity is the payment of a fixed amount of money issued a number of times at a fixed time interval.)

The amount of interest paid is calculated as:

*The face amount of the bond * the interest rate stated on the bond ÷ # of interest pmts. per year*

Both of these PV calculations are made using the **market (or yield) rate of interest**.

^k This will be calculated later in the material. However, at this point we will say that it is very unlikely that the issuance price will be equal to the face value of the bond.

^l Interest can be paid annually or every 1, 3, or 6 months or at any other time interval. However, for the purpose of the material, we will assume interest is paid annually, unless otherwise noted.

Note: The market rate is used because this is the rate at which the buyer of the bonds can invest his or her money elsewhere. The present value that is calculated is the amount of money that the purchaser would need to invest somewhere else at the market rate of interest today in order to receive the same cash flows that the bond would provide if the purchaser bought the bond. This makes sense because what the purchaser is buying are the future cash flows of the interest and the principal repayment. If someone were to value these cash flows, s/he would use the present value of these cash flows to make that valuation.

Therefore, the **selling price that is calculated is the amount at which the effective rate of the investment in the bond will be equal to the market rate of interest.**

Note: For the present value of the face amount, you use the table for the Present Value of \$1. For the interest you use the Present Value of a \$1 Annuity (ordinary annuity). You do not need the Future Value tables for anything during the Exam.

In some questions, they will give you the information from the table within the question itself. In this case, you simply need to remember to use the present value factors for the **market rate** of interest. This means that in Question 1 below you will need to use the present value factors from the 9% column because this is the market (or yield) rate of interest. In many questions, the table values for **both** the market rate of interest and the stated rate of interest will be provided. You need to remember to use the market rate of interest when discounting the cash flows to find the selling price of the bond. The **amount** of each interest payment is based on the face value of the bond and the **stated rate** of interest; but that interest payment amount, and the principal repayment at maturity, must be discounted using the **market rate**.

The factors from the factor table can be used as stated above only if interest is paid once a year (annually). If interest is paid twice a year (semi-annually), which is the way most bonds actually do pay interest, then the market interest rate used for discounting must be divided by 2 and the number of years multiplied by 2 to find the correct discount factor to use from the table. For example, the factor to use for a bond discounted at a market rate of 8% with interest payable semi-annually and maturing in 5 years would be found in the present value tables under the rate of 4% and across from 10 periods. This must be done when discounting both the annuity of the interest payments and the single repayment of principal at the maturity date. More will be said about this later.

Before looking at a problem, let us put this calculation of the selling price into a formula:

$$\begin{array}{r}
 \text{Present value of the face amount} \\
 + \quad \text{Present value of the interest **payments**} \\
 \hline
 = \quad \text{**Selling price of the bond**}
 \end{array}$$

Note: Remember that these two cash flow amounts are **obtained from the face of the bond itself**. The face amount is printed on the bond. An annual interest payment amount is equal to the face amount multiplied by the **stated rate** of interest. A semi-annual interest payment amount is equal to the face amount multiplied by the stated rate of interest **and divided by 2**. It is only to calculate the present values of these amounts that we need the market rate of interest.

Question 60: The following information pertains to Camp Corp.'s issuance of 800 (eight-hundred) \$1,000 bonds on July 1.

Face amount of the issue	\$800,000		
Term	10 years		
Stated interest rate	6%		
Interest payment dates	Annually on July 1		
Yield	9%		
		<u>At 6%</u>	<u>At 9%</u>
Present value of \$1 for 10 periods		0.558	0.422
PV of an ordinary annuity of \$1 for 10 periods		7.360	6.418

What is the issue price for each \$1,000 bond?

- a) \$1,000
- b) \$943
- c) \$864
- d) \$807

(CPA Adapted)

When examining the problem above, we see that the selling price of the bond is different from the face amount of the bond. This happens because the market rate of interest is different from the stated rate that the bond has. Because the bond is going to pay 6% interest and the market rate is 9%, nobody would buy the bond if they had to pay \$1,000 for the bond. Rather, they would invest that \$1,000 somewhere else where they could earn the market rate of 9% instead of the 6% that this bond would pay.

As a result of this, the sellers of the bond must reduce the price of the bond. If an investor buys the bond for \$807 and receives \$60 in interest each year and \$1,000 after 10 years, the effective rate of the bond becomes 9%. Remember that the interest paid each year is determined by the information stated on the bond. The cash paid for interest is not impacted by the selling price of the bond.

Note: The selling price is stated simply in terms of a number. If the selling price of a bond is 99, this means that the bond was sold at 99% of the par value (a discount). Similarly, 101 would mean 101% of par value (a premium).

Recording the Sale of the Bond in the Books

Now that we have calculated the selling price of the bond, we can turn our attention to the recording of this transaction in the books of the seller. The bond payable is recorded in the books as a **liability at its face value**, and the cash account is debited for the amount of cash received (as calculated above). If there is a difference between the two interest rates associated with the bond (the stated rate and the market rate), the face amount and the selling price will not be equal and the journal entry as we have it so far will not balance. This difference between the face amount and the selling price is put into an account that will be called a bond premium or bond discount.

This bond **premium is essentially a gain** and the bond **discount is essentially a loss**. This occurs (in the case of a premium) because we are selling a bond that has a \$1,000 face value for \$1,050. If you sell something "worth" \$1,000 and receive \$1,050 for it, that is a gain. However, in the case of bonds we will not recognize that gain or loss immediately, but will defer and amortize it over the life of the bond. We defer the gain or loss because it is a result of the entire bond itself, and in order to match our revenues and expenses, some of that "gain" or "loss" should be recognized in each period that the bond is outstanding.

This amortization of the premium or discount is done as part of interest expense, so it is done when the bond pays interest (or when a financial statement is prepared). This is covered in more detail later, but amortization of a bond premium will decrease the interest expense each period and amortization of a bond discount will increase interest expense each period. The premium or discount account is a valuation account which serves to either increase the amount of the bond payable liability on the books (if a premium) or to decrease the amount of the bond payable liability on the books (if a discount). As the premium or discount is amortized, the net amount of the bond payable liability approaches the face value of the bond, which is the amount that will be repaid at maturity.

How the Premium or Discount Is Created

As briefly described on the previous page, this premium or discount comes about because any debt instrument in the market must provide a return of at least the market rate of interest to the buyer of the bond. If the bond's **stated interest rate is less than the market rate**, nobody will buy the bonds if they are sold at face value. This is because an investment of a similar amount of money in another investment at the market rate would give a greater return. Therefore, the issuer of a bond must **lower the price of the bond** below its face value in order to have the effective rate of interest be equal to the market rate.

In a case where the bond's **stated rate is higher than the market rate**, the seller of the bond can **raise the price** because everyone will want to buy the bond as a result of the higher rate of interest compared to other investments.

Therefore, the issue price of the bond must be different from the face amount of the bond when the stated rate is different from the market rate so that the effective interest rate of the bond is equal to the market rate.

If **market rate > stated rate** there is a **DISCOUNT** (the selling price of the bond is less than the face amount).

If **market rate < stated rate** there is a **PREMIUM** (the selling price of the bond is greater than the face amount).

If **market rate = stated rate** the bond is **sold at par** and there is **no premium or discount** (the selling price of the bond is equal to the face amount).

The table below shows these difference scenarios with numbers.

Market (or Yield) Rate	Stated Rate	Bond Is Issued at
10%	8%	Discount (less than face value)
7%	11%	Premium (more than face value)
10%	10%	Face (or Par) Value

When a bond’s selling price has been calculated properly, the bond will provide the same effective interest rate to the investor that any other bond with the same maturity date and the same risk characteristics would, assuming both bonds are bought on the same date. There will be no difference in the yield between the two investment options, because both will yield the interest rate the market has set for investments with their characteristics.

Question 61: The market price of a bond issued at a discount is the present value of its principal amount at the market (effective) rate of interest:

- a) Minus the present value of all future interest payments at the market (effective) rate of interest.
- b) Minus the present value of all future interest payments at the rate of interest stated on the bond.
- c) Plus the present value of all future interest payments at the market (effective) rate of interest.
- d) Plus the present value of all future interest payments at the rate of interest stated on the bond.

(CPA Adapted)

The standard journal entry to record the issuance of a bond is shown below. Note that for each bond there can be either a premium or a discount, but not both. If the stated rate is equal to the market rate, there will be no premium or discount and the selling price (cash received) will equal the face amount (liability set up).

```

Dr   Cash .....selling price
Dr   Bond discount .....balance (loss)
Cr   Bond payable ..... face amount
Cr   Bond premium ..... balance (gain)
    
```

Note: The bond premium or bond discount accounts are **valuation accounts**. This means that they are not assets or liabilities themselves, but are used to adjust the carrying value of the bond itself on the balance sheet.

The **carrying amount of the bond** (the amount that is shown on the face of the balance sheet each period) is calculated as the face value adjusted for the unamortized premium or discount.

```

          Face value of the bond
+       Unamortized premium – or –
–       Unamortized discount
===== Carrying amount of the bond
    
```

Note: The **bond payable account is credited only for the face amount of the bond** at the date of issue, even though we know that we will need to pay the interest. This is because those interest payments do not meet the definition of a liability, since the company currently does not owe them. One of the elements of the definition of a liability is that it is something that a company currently owes. In the case of interest at the time of the issuance, there is no interest owed since no time has passed. The interest will be owed only as time passes.

Amortizing the Premium or Discount

The premium or discount on the bond must be amortized over the life of the bond. This is usually done using the **effective interest method**. However, this amortization can also be done using the **straight-line method**, if there is no significant difference between the two methods. You must completely understand how the effective interest method works since this is the most frequently tested method on the Exam. If you are comfortable with this process, the bonds questions will be very straightforward for you.

The basic premise of the effective interest method is that there are two calculations related to interest that are made each time interest is paid. One is the **cash paid** and the other is the **interest expense** that will be recognized on the income statement. The difference between these two amounts is the amount of the discount or premium that is amortized for the period. The ways each of these calculations are made are:

- 1) **Interest Expense** = carrying amount of the bond * market rate of interest ÷ # of interest payments per year, and
- 2) **Cash Interest Paid** = face value of the bond * stated rate of interest ÷ # of interest payments per year.

Note: The second of these two calculations is the equation that is used to calculate the amount of interest that is actually payable in cash. This is the amount that will be recorded as interest payable at the end of the year if interest is not actually paid on December 31. (This will be demonstrated later.)

The calculation of **interest expense** uses the current carrying value of the bond because when borrowing money from someone, you pay interest on the amount borrowed but not yet paid back. The carrying value of the bond is essentially the amount of the loan (the borrowing) that has not yet been repaid. Therefore, this is the amount that should be used to calculate the **interest expense**. Also, the interest that would have been required on an open market loan is the market rate of interest, so this is what is used to calculate interest expense.

These two numbers as calculated above make up the basis of our interest journal entry. Each year (or more accurately, each time interest is paid or at the end of the reporting period) we will make a journal entry that is as follows:

Dr	Interest expense	carrying value * market rate	
Dr	Bond premium (reduction of this account)	balance	
	Cr	Bond discount (reduction of this account)	balance
	Cr	Cash/interest payable	face amount * stated rate

Note: This calculation of the amortization of bond premium or discount is made **each time that interest is paid**, or at the end of the reporting period. This means that if interest is paid every quarter, this calculation must be made four times a year. If interest is paid semi-annually (two times per year), the interest expense is the carrying value * the market rate of interest divided by 2. If interest is paid quarterly (four times per year), interest expense each quarter is the carrying value * the market rate of interest divided by 4. Likewise, the cash interest payable is the face amount * the stated rate divided by 2 if interest is paid semi-annually or the face amount * the stated rate divided by 4 if interest is paid quarterly.

Below is an example of the process of selling a bond at a discount and then amortizing the discount on the sale. We will also look at the situation of a bond that is issued at a premium.

Amortization of a Bond Discount

Any bond discount recognized at the sale of the bond must be amortized over the life of the bond. The amortization of bond discount will **increase the interest expense** that is recognized on the income statement each year above the amount of cash actually paid. This is the recognition of the "loss" that arose from the lower selling price over the life of the bond.

Example

On January 2, 2009, Firm A issued 7% bonds, face value of \$1,000,000 due December 31, 2013, with interest paid annually. The bonds are issued to yield 8%. The PV of the principal and interest payments is calculated using the yield rate of 8%. The PV of the principal and the interest payments is \$960,070.

Journal Entry to Record Issuance of the Bond

Dr	Cash	960,070
Dr	Discount.....	39,930
Cr	Bond payable	1,000,000

The discount on the bond will be amortized over the life of the bond.

The table below shows the calculation of the interest expense each period and the amortization of the bond discount. If you are familiar and comfortable with this table, you will find bond questions much easier.

	Carrying Value * Market Rate	Face Value * Stated Rate	Difference	Face - Unamortized Discount
Dec. 31	Interest Expense	Interest Paid	Discount Amortization	Carrying Value
Issue				960,070
2009	76,806	70,000	6,806	966,876
2010	77,350	70,000	7,350	974,226
2011	77,938	70,000	7,938	982,164
2012	78,573	70,000	8,573	990,737
2013	79,263	70,000	9,263	1,000,000
Total	389,930	350,000	39,930	1,000,000

Journal Entry for December 31, 2009 Interest Payment

Dr	Interest Expense	76,806
Cr	Bond Discount (reduction of this account).....	6,806
Cr	Cash	70,000

Note: The answer to almost all of the basic bonds questions that are asked on the Exam will come from the table on the previous page. The common questions that you will need to answer are:

- What is the **carrying value** of the bond at a certain time period?
- What was the **interest expense** for a certain time period?
- How much **unamortized discount or premium remains** at a certain point in time?
- How much **discount or premium was amortized** during a time period?

In a bond question it is important for you to identify when and how often interest is paid as well as the time period that they are asking about. It is possible that you will be asked about the carrying value at the end of the second year. In this case you need to make the calculations of interest expense for the first year and then the second year.

The question may also be about a six-month time period, if interest is paid semi-annually. In this case, you need to divide the annual amounts by two.

So, in a bond question, read the question carefully to make sure you clearly understand what they are asking for and for what time period. Then, be prepared to make the calculations that are included in the bond table on the previous page.

Amortization of a Bond Premium

Any bond premium that is recognized at the sale of the bond must be amortized over the life of the bond. The amortization of bond premium will **decrease the interest expense** each year below the amount of cash that is actually paid. This is the recognition of the “gain” from the higher selling price over the life of the bond.

Example

On January 2, 2009, Firm A issued 7% bonds, face value \$1,000,000 due December 31, 2013, with interest paid annually. The bonds are issued to yield 6%. The PV of the principal and interest payments is calculated using the yield rate of 6%. The PV of the principal and the interest payments is \$1,042,125.

Journal Entry to Record Issuance

Dr	Cash.....	1,042,125
	Cr Premium	42,125
	Cr Bond payable.....	1,000,000

The premium on the bond will be amortized over the life of the bond.

	Carrying Value * Market Rate	Face Value * Stated Rate	Difference	Face + Unamor- tized Premium
Dec. 31	Interest Expense	Interest Paid	Premium Amortization	Carrying Value
Issue				1,042,125
2009	62,527	70,000	7,473	1,034,652
2010	62,079	70,000	7,921	1,026,731
2011	61,604	70,000	8,396	1,018,335
2012	61,100	70,000	8,900	1,009,435
2013	60,565	70,000	9,435	1,000,000
Total	307,875	350,000	42,125	1,000,000

Journal Entry for December 31, 2009

Dr	Interest expense	62,527
Dr	Bond premium (reduction of this account)	7,473
Cr	Cash	70,000

Financial Statements Issued on Dates Other Than Interest Payment Dates

The above examples of interest accrual and bond premium/discount amortization assume that financial statements are issued on the same dates as the dates when interest is actually paid. Therefore, we do not see the interest and amortization being accrued. However, what if the company issues a financial statement on a date other than an interest payment date? Such a statement might be an interim statement such as a quarterly or monthly statement.

When this occurs, the discount or premium amortization as well as the interest expense should be calculated and posted up to the financial statement date. The credit in the accrual transaction will be to Bond Interest Payable instead of to Cash.

For example, if a company pays interest on its bonds annually on January 2 of each year, and if it issues a financial statement on June 30 and then not again until its year end at December 31, one-half of the year’s cash interest to be paid will be accrued as of June 30 by debiting Interest Expense and crediting the liability Bond Interest Payable. The other half would be accrued from July 1 through December 31. Then, when the interest is actually paid on January 2 of the following year, the debit would be to Bond Interest Payable and the credit would be to Cash.

If the bonds had been issued at a premium, the June 30 and December 31 accruals would include amortization of the premium. The result would be a net credit to Bond Interest Payable that would be equal to the amount of cash interest to be paid.

Using the example above, which assumed that payment of interest would take place on the same date as the financial statement was issued and which was:

Example

On January 2, 2009, Firm A issued 7% bonds, face value \$1,000,000 due December 31, 2013, with interest paid annually. The bonds are issued to yield 6%. The PV of the principal and interest payments is calculated using the yield rate of 6%. The PV of the principal and the interest payments is \$1,042,125.

If instead, the company accrues interest and books the premium amortization on June 30 and December 31 because financial statements are being prepared as of those dates, the journal entries would be as follows:

Journal Entry for June 30, 2009

Dr	Interest expense	31,263.50
Dr	Bond premium (reduction of this account)	3,736.50
Cr	Bond Interest Payable.....	35,000

Journal Entry for December 31, 2009

Dr	Interest expense	31,263.50
Dr	Bond premium (reduction of this account)	3,736.50
Cr	Bond Interest Payable.....	35,000

Journal Entry for January 2, 2010

Dr	Bond Interest Payable.....	70,000
Cr	Cash.....	70,000

Note that this a straight line pro-ration of the annual amount (the amounts for each six-month period are the same), not taking into account the new balance of the bond premium account after the June 30 amortization entry is posted. Since the bond premium account is a valuation account, posting the June 30 amortization entry changes the carrying value of bonds outstanding. However, because interest is being paid only annually, not semi-annually, we must base our calculations on the cash flow, which requires the assumption that the principal changes due to the amortization occur only annually.

If interest were being paid *semi*-annually (which most bonds actually do), the present value of the future interest payments as well as the present value of the future principal repayment would have been different, and the beginning carrying value would have been different, so the total premium to be amortized would have been different. We would have calculated the amount of the premium amortization for each six-month interest period instead of for each annual interest period, and the amount of premium amortized each six months would have been different. These calculations are shown below.

A Bond Paying Interest *Semi*-Annually

On January 2, 2009, Firm A issued 7% bonds, face value \$1,000,000 due December 31, 2013, with interest payable semi-annually on June 30 and December 31. The bonds are issued to yield 6%. The PV of the principal and interest payments is calculated using the yield rate of 6%. The PV of the principal and the interest payments is \$1,042,647, calculated as follows:

Present Value of Principal:	
\$1,000,000 * .74409 (PV of \$1 factor at 3% for 10 periods)	\$ 744,090
Present Value of Interest Payments of \$35,000 semi-annually:	
\$35,000 * 8.5302 (PV of Ordinary Annuity factor at 3% for 10 periods)	<u>298,557</u>
Total Present Value of future payments and issue price of bonds	<u>\$1,042,647</u>

Note something very important about the above present value calculations: Because interest is to be paid **semi-annually**, the discount factors used are the factors for **½ of the annual market interest rate**, and the number of periods used are **twice the number of years**, i.e., the number of periods are equal to the number of interest payments to be made. The factor is adjusted in this manner for the present value **of the principal repayment** as well as for the present value of the interest payments. Even though the principal repayment is to be made in one lump sum at the maturity date, it is essential to adjust the factor used to calculate the present value of the principal repayment, the same as is done for the interest payments. Since interest will be paid semi-annually, the amortization will also be calculated and recorded on a semi-annual basis, and this amortization will change the principal amount each interest period.

Journal Entry to Record Issuance

Dr	Cash	1,042,647
	Cr Premium.....	42,647
	Cr Bond payable	1,000,000

The premium on the bond will be amortized over the life of the bond, as follows.

	Carrying Value * Market Rate/2	Face Value * Stated Rate/2	Difference	Face + Unamor- tized Premium
	Interest Expense	Interest Accrued	Premium Amortization	Carrying Value
Issue				1,042,647
Jun 30, 2009	31,279	35,000	3,721	1,038,926
Dec 31, 2009	31,168	35,000	3,832	1,035,094
Jun 30, 2010	31,053	35,000	3,947	1,031,147
Dec 31, 2010	30,934	35,000	4,066	1,027,081
Jun 30, 2011	30,812	35,000	4,188	1,022,893
Dec 31, 2011	30,687	35,000	4,313	1,018,580
Jun 30, 2012	30,557	35,000	4,443	1,014,137
Dec 31, 2012	30,424	35,000	4,576	1,009,561
June 30, 2013	30,287	35,000	4,713	1,004,848
Dec 31, 2013	30,152	35,000	4,848	1,000,000
Totals	307,353	350,000	42,647	1,000,000

The entries for June 30, 2009 and December 31, 2009, when interest is paid, are as follows:

Journal Entry for June 30, 2009

Dr	Interest expense	31,279
Dr	Bond premium (reduction of this account)	3,721
Cr	Cash	35,000

Journal Entry for December 31, 2009

Dr	Interest expense	31,168
Dr	Bond premium (reduction of this account)	3,832
Cr	Cash	35,000

Question 62: On January 2, 2009, West Co. issued 9% bonds in the amount of \$500,000, which mature on January 2, 2019. The bonds were issued for \$469,500 to yield 10%. Interest is payable annually on December 31. West uses the effective interest method of amortizing bond discount. In its June 30, 2009 balance sheet, what amount should West report as net bonds payable?

- a) \$469,500
- b) \$470,475
- c) \$471,025
- d) \$500,000

(CPA Adapted)

Question 63: On January 1, 2009, Celt Corp. issued 9% bonds in the face amount of \$1,000,000, which mature on January 1, 2019. The bonds were issued for \$939,000 to yield 10%, resulting in a discount of \$61,000. Celt uses the interest method of amortizing bond discount. Interest is payable annually on December 31. At December 30, 2010, Celt’s unamortized bond discount should be:

- a) \$51,000
- b) \$51,610
- c) \$52,810
- d) \$57,100

(CPA Adapted)

Question 64: Webb Co. has outstanding a 7%, 10-year bond with a \$100,000 face value. The bond was originally sold to yield 6% annual interest. Webb uses the effective interest method to amortize the premium. On June 30, 2009, the carrying amount of the bond was \$105,000. What amount of unamortized premium on the bond should Webb report in its June 30, 2010 balance sheet?

- a) \$1,050
- b) \$3,950
- c) \$4,300
- d) \$4,500

(CPA Adapted)

Question 65: On July 1, 2009, Cody Co. received \$1,198,000 for 10%, 20-year bonds with a face amount of \$1,000,000. Interest is paid on December 31 and June 30. The bonds were sold to yield 8%. Cody uses the effective interest rate method to recognize interest expense. What should be reported as the carrying amount of the bonds in Cody's December 31, 2009 balance sheet?

- a) \$1,207,900
- b) \$1,198,000
- c) \$1,195,920
- d) \$1,193,050

(CPA Adapted)

Straight-line Amortization of Bond Premium or Discount

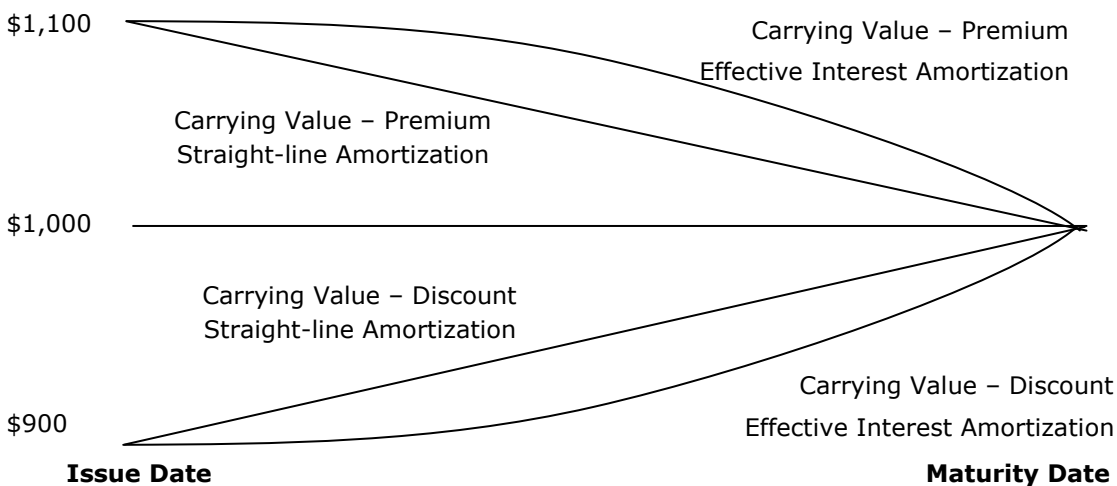
Under the straight-line method the total discount or premium is simply divided by the number of years until maturity, and this is the amount of premium or discount is amortized each year. This method provides a **constant interest expense** throughout the life of the bond.

Essentially, under the straight-line method we need to calculate the amount of the amortization of the premium or discount in order to calculate the amount of interest expense. On the other hand, under the effective interest method it is the calculation of interest expense that enables us to determine the amount of the premium or discount that should be amortized.

This method may only be used if the difference between this method and the effective interest method is immaterial. You should use this method in a question only if it is specifically stated that you should.

Under either method, however, the carrying value of the bond will be equal to the face value of the bond at the maturity date.

Drawn out below is how the carrying value of a \$1,000 bond changes over time for a premium and a discount for both the effective interest and the straight-line amortization methods. Notice that the effective interest method gives a more extreme carrying value over the life of the bond. You need to remember that effective interest should be used unless specifically stated otherwise.



Question 66: On January 2, 2009, Nast Co. issued 8% bonds with a face amount of \$1 million that mature on January 2, 2015. The bonds were issued to yield 12%, resulting in a discount of \$150,000. Nast incorrectly used the straight-line method to amortize the discount. How is the carrying amount of the bonds affected by the error?

	<u>At 12/31/2009</u>	<u>At 1/2/2015</u>
a)	Overstated	Understated
b)	Overstated	No effect
c)	Understated	Overstated
d)	Understated	No effect

(CPA Adapted)

We have now covered the basic bond transactions. All of the remaining topics are, in a sense, special bond situations. While it should be expected that some of these topics will be tested on your Exam, it is unlikely that all of them will be included. It is also unlikely that there will be a large number of questions about these special topics.

Investments in Bonds

There is a slightly different method of accounting for bonds when a discount or premium is to be amortized by the purchasing company than there is for the issuing company, but the calculations are the same. The bond investment is initially recorded at the **amount paid**, not the face amount of the bond. The amount of any premium or discount is reflected in the purchase price, and the purchase price is the amount that is recorded for the purchase of the bond.

As discussed in the section on Investments in Marketable Securities in this textbook, bonds held as investments must be classified as either "held-to-maturity," "available-for-sale," or as "trading securities." Premiums and discounts for bonds classified as held-to-maturity and available-for-sale are amortized. Premiums and discounts for bonds classified as trading securities are **not** amortized.

Bonds classified as held-to-maturity are **not** adjusted to fair value; but bonds classified as available-for-sale or trading securities **are** adjusted to fair value. Note, therefore, that a bond with a premium or discount that has been classified as available-for-sale will be adjusted by **both** amortization of the premium or discount **and** adjustments for changes in fair value. The calculations for the amortization of the premium or discount are independent from the adjustments for changes in fair value. That is, the amortization calculations are based on the bond's book value as if it were not being adjusted for fair value changes. The fair value adjustments are made to a separate valuation account called "Market Adjustment," so that the amortized book value of the bond is preserved in the Available-For-Sale Securities account.

When the bond is classified as held-to-maturity or available-for-sale and a discount or premium is being amortized over the life of the bond, the book value of the bond in the Held-To-Maturity or Available-For-Sale Securities account will be equal to its face value by its maturity date. However, the net book value of an available-for-sale bond (including the adjustment in the valuation account) will be equal to its fair value at all times.

A bond classified as held-to-maturity will be recorded and accounted for as follows. (A bond classified as available-for-sale is accounted for in a similar manner, with the additional step of adjusting its net book value to its fair value.)

Dr	Held-To-Maturity Securities.....	amount paid
	Cr Cash	amount paid

Since this bond is classified as held-to-maturity, the difference between what was paid and the face value (the bond premium or discount) must be amortized over the life of the bond.

This amortization takes place in much the same way as for the issuer. Each period, the buyer of the bonds receives cash as interest and also needs to recognize interest revenue. The interest revenue is calculated in the same manner as interest expense was calculated: book value not including any market adjustments made * annual market rate divided by 2 if interest is received semi-annually. Since the amount of cash interest received is based on the **face** value of the bond instead of its **book** value, the interest revenue to be recorded and the cash received will be different. This difference, which is the amortization amount, is recorded directly into the Held-To-Maturity Securities account.

The table below is the same as the table for the issuer for the bond at a discount, except that it is calculating interest revenue for the bond holder rather than interest expense for the bond issuer. Here is the example, again:

Example

On January 2, 2009, Firm A issued 7% bonds, face value of \$1,000,000 due December 31, 2013, with interest paid annually. The bonds are issued to yield 8%. The PV of the principal and interest payments is calculated using the yield rate of 8%. The PV of the principal and the interest payments is \$960,070.

	CV * Market	Face * Stated	Difference	Previous CV + Discount Amortization
Dec. 31	Interest Revenue	Interest Received	Discount Amortization	Carrying Value
Issue				960,070
2009	76,806	70,000	6,806	966,876
2010	77,350	70,000	7,350	974,226
2011	77,938	70,000	7,938	982,164
2012	78,573	70,000	8,573	990,737
2013	79,263	70,000	9,263	1,000,000
Total	389,930	350,000	39,930	1,000,000

Journal Entry for December 31, 2009

Dr Cash.....70,000
 Dr Held-To-Maturity Securities 6,806
 Cr Interest revenue76,806

Issuance of Bonds between Interest Payment Dates

Not all bonds are actually sold on the date that they become available for sale. As soon as they are available for sale, they also start earning and accruing interest. Because of this, when a bond is issued between dates of payment of interest, the purchaser must buy the interest that has accrued since the last date that interest was paid.

This payment made for interest (accrued since the last interest payment date) is not treated as part of the purchase price of the bond and is simply accounted for as an interest payable or receivable, depending on whether the person is the issuer or the buyer. This is shown in the examples below.

This is very easy if you remember that **whoever actually holds the bond on the interest payment date will receive the entire period's interest**, even if s/he just purchased the bond the day before. Therefore, whoever sells the bond is going to make the buyer "purchase" the interest that was accrued while the seller held the bond.

Example: Rick Company buys at par on September 1, 2009, a 10%, \$1,000 bond issued on June 1, 2009 by Parker Corporation. Interest payment dates are June 1 and December 1. Rick Company intends to hold the bond to maturity and has the ability to do so. Rick's journal entries for recording the purchase of the bond and the receipt of interest are as follows.

Because the bond is bought between interest dates, some of the interest that Rick will receive on December 1 was not earned by the bond while Rick owned the bond. Therefore, Rick should not really receive this interest and must buy this interest. The amount paid for this interest is in addition to the amount paid for the bond itself. Rick Company pays \$1,025 for the bond, including \$25 of purchased interest.

Dr	Held-To-Maturity Securities.....	1,000
Dr	Interest receivable.....	25
Cr	Cash	1,025

Since the bond was purchased at par, there is no discount or premium to be amortized and the cash interest received will be the same as the interest revenue booked. When the interest is actually received on December 1, 2009, the entry is:

Dr	Cash	50
Cr	Interest revenue.....	25
Cr	Interest receivable.....	25

For Parker, the issuer of the bonds, the entry is very similar with the issuer recognizing a liability that is the credit for the receipt of the extra cash.

Using the same example as above, the entry by Parker is:

Dr	Cash	1,025
Cr	Bond payable	1,000
Cr	Interest payable	25

When Parker makes the first interest payment on December 1, 2009, the amount of interest it will pay is a full six months of interest, even though the bond was not issued to its first holder until halfway through the interest period. Parker will actually pay \$50 of interest but will recognize only \$25 of interest expense. The other \$25 will be a debit to Interest Payable for Parker. Parker's entry is:

Dr	Interest expense	25
Dr	Interest payable	25
Cr	Cash	50

Note that for Rick Company, the amount of interest that was accrued at the time of the sale and was "purchased" by the Rick as the purchaser of the bond (\$25) is not recorded as interest revenue. It is simply debited to Interest Receivable when purchased and then when received, the receipt is credited to Interest Receivable. Similarly, for Parker Corporation, the amount of interest that was purchased by Rick Company is not recorded as interest expense. Parker credits it to Interest Payable when it is received (it is received along with the purchase price for the bond), and debits it to Interest Payable when it is paid out at the interest date.

When a bond is purchased on the secondary market after its issuance, it will probably be purchased between interest dates. When that occurs, the purchaser of the bond buys the interest that has accrued since the last interest date from the previous owner of the bond rather than from the issuer. For the purchaser of a bond, the purchased interest is accounted for the same way whether the bond was purchased from the issuer or whether it was purchased on the secondary market. The seller of a bond sold on the secondary market accounts for the interest sold as **interest revenue**, because it represents interest that accrued while the seller owned the bond. In this way, the seller does not lose the interest receivable for the period in which he owned the bond from the last interest payment until the sale date.

In a question it is essential that you determine if the cash paid figure provided in the problem includes or does not include accrued interest at the time of the sale.

Question 67: On July 1, 2009, York purchased as a long-term investment \$1,000,000 of Park Inc.'s 8% bonds for \$946,000, including accrued interest of \$40,000. The bonds were purchased to yield 10% interest. The bonds mature on January 1, 2016, and pay interest annually on January 1. York uses the effective interest method of amortization. In its December 31, 2009 balance sheet, what amount should York report as investment in bonds?

- a) \$911,300
- b) \$916,600
- c) \$953,300
- d) \$960,600

(CPA Adapted)

Question 68: A company issues 10-year bonds with a face value of \$1,000,000, dated January 1 and bearing interest at an annual rate of 12% payable semiannually on January 1 and July 1. The full interest amount will be paid each due date. The market rate of interest on bonds of similar risk and maturity, with the same schedule of interest payments, is also 12%. If the bonds are issued on February 1, the amount the issuing company receives from the buyers of the bonds on that date is:

- a) \$990,000
- b) \$1,000,000
- c) \$1,010,000
- d) \$1,020,000

(CIA Adapted)

Question 69: An investor purchased at a discount a bond between interest dates. On the date of purchase, the carrying amount of the bond is more than the:

	<u>Cash paid to seller</u>	<u>Face amount of bond</u>
a)	No	Yes
b)	No	No
c)	Yes	No
d)	Yes	Yes

(CPA Adapted)

Bond Issue Costs

Before discussing the accounting for bond issue costs, we need to know what they are. These are the costs that were incurred by the issuer just to be able to sell the bonds. Examples of bond issue costs are: underwriting costs (including commission), accounting fees, legal fees, promotion costs and other similar costs. There are three main issues related to issue costs:

- 1) Bond issue costs are **deferred and amortized** (generally using the **straight-line method**) over the remaining life of the bond from the time the bond is actually sold.
- 2) Bond issue costs are **not included** in the determination of the carrying amount of the bond.
- 3) Bond issue costs are a **reduction of net proceeds** received from the bond issuance, not a reduction of the liability.

This is best illustrated by the journal entries below.

Example: The journal entry for a sale of a \$1,000 bond (in which the stated rate is equal to the market rate so that there is no premium or discount) that has bond issue costs of \$100 would be as follows:

Dr	Cash.....	900
Dr	Deferred bond issue costs	100
	Cr Bond Payable.....	1,000

This is essentially the combination of the following two entries:

Dr	Cash.....	1,000
	Cr Bond payable.....	1,000
Dr	Deferred bond issue costs	100
	Cr Cash.....	100

This \$100 of deferred bond issue costs will be amortized as an expense on a straight-line basis over the life of the bond. It will not affect the carrying value of the bond.

Question 70: On June 30, 2009, Huff Corp. issued 1,000 of its 8%, \$1,000 bonds at 99. The bonds were issued through an underwriter to whom Huff paid bond issue costs of \$35,000. On June 30, 2009, Huff should report the bond liability at:

- a) \$955,000
- b) \$990,000
- c) \$1,000,000
- d) \$1,025,000

(CPA Adapted)

Question 71: Perk, Inc. issued \$500,000, 10% bonds to yield 8%. Bond issuance costs were \$10,000. How should Perk calculate the net proceeds to be received from the issuance?

- a) Discount the bonds at the stated rate of interest.
- b) Discount the bonds at the market rate of interest.
- c) Discount the bonds at the stated rate of interest and deduct bond issuance costs.
- d) Discount the bonds at the market rate of interest and deduct bond issuance costs.

(CPA Adapted)

Early Extinguishment of Debt (Bonds Payable)

The early extinguishment of a bond occurs when the company buys back the bond and retires it before its maturity date. A company may do this if interest rates in the market have fallen and they are now able to obtain financing at a rate of interest lower than is being paid on the bonds that were previously issued.

When a bond is retired, or extinguished early, all bond related accounts must be written off and a gain or loss will be recognized. This is very similar to the manner of accounting for the disposal of a fixed asset in which we write off all of the fixed asset accounts, write on the amount received, and recognize a gain or a loss. Since disposing of a fixed asset is not difficult from an accounting standpoint, neither is retiring bonds early.

The question will most likely ask you for the amount of gain or loss that should be recognized on the retirement of the bonds. In simple terms this is essentially the difference between the cost of retiring the bonds and the carrying value of the bonds^m. One item to remember is that in addition to writing off the bond premium or discount account, we also need to write off an unamortized bond issue costs.

At the time of reacquisition, the unamortized premium or discount and any unamortized issue costs applicable to the bonds must first be amortized **up to the reacquisition date**. After these final amortization entries have been recorded, the remaining unamortized premium or discount and unamortized issue costs, plus any call premium over par and the reacquisition price are used to calculate the gain or loss on redemption.

To calculate the amount of the gain or loss, we can set up a simple journal entry and fill in the values.

Dr	Bond payable	a	
Dr/Cr	Unamortized bond premium or discount	b	or ...b
Dr/Cr	Ordinary ⁿ loss or gain on early retirement of bond	d	or ...d
Cr	Unamortized issue costs	b	
Cr	Cash	c	

- Where
- a = the face value of the bond
 - b = the amount of unamortized bond premium, discount or issue costs
 - c = the cash paid to pay off the bond
 - d = the difference between the cash paid and the carrying amount of the bond, either a debit or a credit, as appropriate.

If the bond was **originally issued at a discount**, the journal entry will include a credit to discount on bonds payable. If the bond was issued at a discount, there will be a loss on the extinguishment (assuming it is paid off at face value or at a premium to face value).

If the bond was **originally issued at a premium**, the journal entry will include a debit to premium on bonds payable for the unamortized amount of the premium instead of a credit to discount on bonds payable. If the bond was issued at a premium, there could be **either a loss or a gain** on the extinguishment, depending on the size of the premium and all the other factors.

^m If the company has bond issue costs, the gain or loss is not equal to the difference between the retirement price and the carrying value because the bond issue costs are not included in the carrying value of the bonds.

ⁿ The gain or loss on the retirement of bonds is recorded as ordinary income, unless the situation is such that it qualifies as an extraordinary event. If it is to be treated as an extraordinary event, this will need to be stated in the Exam. Extraordinary events are reported on the income statement net of the effect of income taxes, but this is covered in more detail in the section on the income statement.

Note: According to SFAS 145, the early extinguishment of debt is considered an **ordinary gain or loss unless it is an unusual and infrequent occurrence**. Thus, gain or loss from an early extinguishment of debt **could** be an extraordinary gain or loss if it is an unusual and infrequent occurrence and therefore meets the definition of an extraordinary gain or loss.

However, SFAS 145 stated that in order to be classified as extraordinary, an extinguishment of debt must meet the criteria for classification as an extraordinary item as set forth in APB Opinion 30. APB 30 defines **unusual** as having a high degree of abnormality and clearly unrelated (or only incidentally related) to the ordinary and typical activities of the business. It defines **infrequent occurrence** as an event not reasonably expected to recur in the foreseeable future. Therefore, the Financial Accounting Standards Board members anticipated that the application of Opinion 30 to debt extinguishment transactions would *seldom, if ever, result in extraordinary item classification* of the resulting gains and losses.

Note: An **in-substance defeasance** occurs when it seems as if the debt has been retired, but it has not. It is done when a company takes all the cash that will be used to pay back the bond and sets it aside in an irrevocable trust. This is not a retirement and is not accounted for as a retirement. At one time, this could be accounted for as a retirement, but no longer. Now, the company must recognize both an asset and a liability on its books. The liability can be removed from the balance sheet only if the creditor is paid or if the debtor is legally released from the obligation either by the creditor or by a judge, such as in a bankruptcy case.

Example: On January 1, 2007, Smith-Jones Corp. issued \$400,000 of 4%, 10-year bonds at 99, with interest payable semi-annually. Issue costs of \$20,000 were incurred. Smith-Jones records amortization using the straight-line method. On December 31, 2009, when the fair market value of the bonds was 98, Smith-Jones repurchased \$200,000 of the bonds in the open market at a price of 98. Amortization of the discount and of the issue costs was recorded for 2009. Smith-Jones should record the transaction as follows:

Dr	Bond payable.....	200,000
Dr	Loss on retirement	4,400
Cr	Unamortized bond discount	1,400
Cr	Unamortized issue costs.....	7,000
Cr	Cash.....	196,000

The **bond payable** account needs to be written off for the face value of the bonds that were retired, even though that amount is greater than the amount paid in cash.

The amount of the **unamortized bond discount** that needs to be written off is calculated as follows: When the bonds were sold there was a discount of \$4,000 (because the bonds were sold at 99). This amount is being amortized using the straight-line method. \$4,000 divided by 20 interest periods = \$200 of the discount to be amortized semi-annually. The bonds are being retired after 3 years have passed, which means that \$200 * 6, or \$1,200 has been amortized, leaving \$2,800 unamortized. Since only half of the bonds were retired, only half of that amount needs to be written off.

The amount of unamortized issue costs is \$20,000 – (\$20,000 / 10 years * 3 years) = \$14,000. Again, half of that amount is written off.

The **cash** paid is calculated as 98% of the face value of the bonds.

The **loss on retirement** is the balancing figure for this journal entry.

Question 72: On July 31, 2009, Dome Co. issued \$1 million of 10%, 15-year bonds at par and used a portion of the proceeds to call 600 of its outstanding 11%, \$1,000 face value bonds, due on July 31, 2019, at 102. On that date, the unamortized premium relating to the 11% bonds was \$65,000. In its 2009 income statement, what amount should Dome report as gain or loss from retirement of bonds?

- a) \$53,000 gain
- b) \$0
- c) (65,000) loss
- d) (\$77,000) loss

(CPA Adapted)

Convertible Bonds

Convertible bonds are bonds that the owner can choose to convert into common shares. For accounting purposes, this conversion feature has no value at the time of issuance so the journal entry to record the issuance of convertible bonds is not different from what we have looked at as the journal entry for the issuance of bonds. Similarly, the recognition of interest and the journal entries related to interest are not different for convertible bonds, either.

The accounting issue related to convertible bonds arises when the convertible bonds are converted into common shares. At this time of conversion, we will need to eliminate the bond payable accounts and record the issuance of the shares of common stock. There are two methods that a company can use to record this conversion. Both methods are acceptable under GAAP, although the book value method is preferred. The company must also consistently use the same method. On the Exam, you should use the method requested in the question.

The two methods are the book value method and the market value method.

Book Value Method

Under the book value method the common shares that are issued as part of the conversion are recorded at the book value of the bonds converted. This means that **there is no gain or loss** on the conversion of the bonds.

All of the associated bond accounts will also need to be written off, but for the purpose of this journal entry we will assume that there is no bond premium or discount. The entry looks like this:

Dr	Bond payable.....	carrying amount of bond
	Cr	Common stock.....
		par value of shares issued ^o
	Cr	Additional-paid-in capital.....
		balancing amount

Example: Bonds with a face amount of \$10,000 and a carrying amount of \$10,400 are converted into 100 shares of \$50 par common stock with a fair value of \$90 per share.

Under the **book value method**, the conversion will be recorded as follows:

Dr	Bond Payable.....	10,000
Dr	Bond Premium	400
	Cr	Common Stock
		5,000
	Cr	Additional-Paid-in-Capital
		5,400

Market Value Method

Under the market value method the shares that are issued as part of the conversion are recorded at the fair market value of the shares. Since the bond accounts are written off at their book value, **a gain or loss is recognized** for the difference between the market value of the shares and the carrying amount .

Carrying value of the bonds	
-	Market value of the shares issued
=	<u>Gain or (Loss) on conversion</u>

^o The process of the allocation of the proceeds between the common stock account and the additional paid-in capital account is part of Owners' Equity. It is covered in more detail there.

Again, all of the associated bond accounts will need to be written off, but for the purpose of this journal entry we will assume that there is no premium or discount. The entry for the market value method of converting bonds looks like this:

Dr	Bond payable	a
Dr/Cr	Loss or gain on conversion.....	e.....e
Cr	Common stock	b
Cr	Additional-paid-in capital	d

Where a = the carrying amount of the bond
 b = the par value of the shares issued
 d = the difference between b and the market value of the shares issued
 e = the difference between the carrying amount of the bonds and the market value of the stock.

Example: Bonds with a face amount of \$10,000 and a carrying amount of \$10,400 are converted into 100 shares of \$50 par common stock with a fair value of \$90 per share.

Under the market value method, the conversion of the bonds in the example above will be recorded as:

Dr	Bond payable	10,000
Dr	Bond premium	400
Cr	Common stock	5,000
Cr	Additional-paid-in capital	4,000
Cr	Gain on conversion	1,400

Question 73: On July 1, 2009, after recording interest and amortization, York Co. converted \$1 million of its 12% convertible bonds into 50,000 shares of \$1 par value common stock. On the conversion date, the carrying amount of the bonds was \$1.3 million, the market value of the bonds was \$1.4 million, and York's common stock was publicly trading at \$30 per share. Using the book value method, what amount of additional paid-in capital should York record as a result of the conversion?

- a) \$950,000
- b) \$1,250,000
- c) \$1,350,000
- d) \$1,500,000

(CPA Adapted)

Question 74: On July 2, 2009, after recording interest and amortization, York Co. converted \$1 million of its 12% convertible bonds into 50,000 shares of \$1 par value common stock. On the conversion date, the carrying amount of the bonds was \$1.3 million, the market value of the bonds was \$1.5 million, and York's common stock was publicly trading at \$30 per share. Using the market value method, what amount of additional paid-in capital should York record as a result of the conversion?

- a) \$950,000
- b) \$1,250,000
- c) \$1,450,000
- d) \$1,500,000

(CPA Adapted)

Types of Bonds

There are various classifications of bonds that you need to be familiar with in order to answer a question regarding the total value of a classification of bonds.

Term Bonds vs. Serial Bonds

A bond is either a term bond or a serial bond, depending upon the maturity dates of the individual bonds.

- **Term bonds** are bonds that are all due at the same time.
- **Serial bonds** mature at different times.

Debenture Bonds vs. Guaranteed Bonds

A **debenture bond** does not have any specific asset supporting the bond as collateral. The bondholders of debenture bonds have a standing equal to general creditors in the case of bankruptcy of the bond issuer.

Other types of bonds are **guaranteed** in that they have some kind of secondary repayment source supporting the bonds. This way, if the issuer of the bonds fails to pay the bonds upon maturity, the holders of the bonds can call on the secondary repayment source in settlement of the amounts owed to them. Some of these types of bonds are:

- **Collateral bonds** have a specific asset set up as collateral. If the issuer defaults on the interest payment or the repayment of the principal, the bondholders can pursue legal action to obtain the collateral.
- **Guaranty bonds** are guaranteed by a third party. For example, a parent company guarantees the bonds that are issued by a subsidiary. In the case of the default by the subsidiary, the parent company has guaranteed performance of the bonds.
- **Collateral trust bonds** are bonds that are supported by specific securities of the company.
- **Mortgage bonds** are backed by a specific asset and this asset is usually a fixed asset.
- **Subordinated bonds (or junior bonds)** are bonds that are supported by collateral, but they have a secondary claim on the collateral. So, if the collateral is not large enough to pay those parties with a primary interest in the property, holders of subordinated bonds will not receive anything from the collateral and will become general creditors.

Registered Bonds vs. Coupon Bonds

Registered bonds are bonds where the owner of the bond is registered with the issuing company and the owner receives the interest each period directly from the issuer. Most corporate bonds are registered bonds.

If a bond is not a registered bond, it is a **coupon bond** (or bearer bond). In order to receive the interest from a coupon bond, the bond owner must send a coupon to the issuing company. In a coupon bond, the issuing company does not know who owns the bonds, but pays the interest to whomever submits the coupon.

Callable, Convertible and Other Bonds

Callable bonds are bonds that can be redeemed (called) by the issuing company before their scheduled maturity date. The price at which the bonds will be redeemed is specified and is usually higher than the face value of the bond. This feature is attractive to the issuing company because it enables them to retire the debt if market interest rates fall. They will then be able to replace these higher-interest bonds with other, lower interest sources of financing.

In some cases, the calling of a certain number of bonds at certain time periods is required. In this case, the company must establish a **sinking fund** in which money will be accumulated that will be used to call the bonds. If, at the required time, there are not enough bond holders who choose to have their bonds called and retired, the necessary number of bonds will be selected at random and called.

Note: If the company has a sinking fund, the bond payable and the sinking fund should be classified in the same manner in respect to current or noncurrent. If the sinking fund must be classified as noncurrent, the associated bonds will also need to be classified as noncurrent, even if the bonds are due within 12 months.

A **convertible** bond is a bond that can be converted into shares at the option of the shareholder. These bonds were discussed in detail earlier in the materials.

Income bonds will pay interest only if the company's profit is higher than a specified level.

Zero-coupon bonds are bonds that do not pay interest. Instead, they are sold at a greatly discounted price and the "interest" is earned as the difference between the deeply discounted sales price and the face value.

Classifications of Bonds

An individual bond issuance may have a number of the characteristics listed above. Every bond is either a term bond or a serial bond and either a registered bond or a coupon bond. But the other characteristics are determined by the bond indenture itself. The bond indenture is the document that sets out the characteristics of the bond and the rights of the bondholders.

For example, a bond can be a term-debenture bond, or a serial-debenture bond. Whether or not a bond is callable or convertible does not impact its classification as either a term or serial bond or as a debenture or guaranteed bond.

Question 75: Blue Corp.'s December 31, 2009 balance sheet contained the following items in the long-term liabilities section:

9¾% registered debentures, callable in 2020, due in 2025	\$700,000
9½% collateral trust bonds, convertible into common shares in 2018, due in 2028	600,000
10% subordinated ^p debentures (\$30,000 maturing annually beginning in 2010)	300,000

What is the total amount of Blue's term bonds?

- a) \$600,000
- b) \$700,000
- c) \$1,000,000
- d) \$1,300,000

(CPA Adapted)

^p Subordinated means that there are other forms of debt that have an earlier claim on the assets of the company. This information is irrelevant to this question.

Bond Disclosures for Issuer of Bonds

On the **balance sheet**, the bond may be reported at its **book value** either as a single amount (the face value net of any premium or discount) or it may be presented as two lines (one line for the face amount and one line for the discount or premium).

Any amount that is to come due in the next 12-months should be presented as a current liability and the remaining amount is presented as noncurrent.

In the **notes** to the financial statements, the **fair value** of the bonds must be disclosed, as well as the method that was used to estimate that fair value.

In addition to these above values, a company must disclose the following information in the financial statements in respect to any bonds that they have issued:

- Accounting policies for the bonds,
- Nature of the bonds,
- Maturity dates and interest rates,
- Methods of liquidation,
- Conversion privileges and sinking fund requirements (if either of these exist),
- Off-balance-sheet credit risk (such as bonds guaranteed for another entity) or market risk of the bonds and any concentrations of credit risk,
- Any assets pledged for the bonds, and
- Any other significant items related to the bonds.

Question 76: On January 2, 2009, North Co. issued bonds payable with a face value of \$480,000 at a discount. The bonds are due in 10 years and interest is payable semiannually every June 30 and December 31. On June 30, 2009, and December 31, 2009, North made the semiannual interest payments due and recorded interest expense and amortization of bond discount.

Items 1 thru 7, contained in the partially completed amortization table below, represent information needed to complete the table. For each item, determine the correct answer.

<u>Date</u>	<u>Cash</u>	<u>Interest Expense</u>	<u>Amortization</u>	<u>Discount</u>	<u>Carrying Amount</u>
1/2/09	--	--	--	--	(1)
6/30/09	(2)	18,000	3,600	(3)	363,600
12/31/09	\$14,400	(6)	(7)	--	--
Annual Stated Interest Rate		<u>(4)</u>			
Annual Effective Interest Rate		<u>(5)</u>			

(CPA Adapted)

Question 77: In 2009, Lee Co. acquired, at a premium, Enfield, Inc. 10-year bonds as a long-term investment. At December 31, 2010, Enfield's bonds were quoted at a small discount. Which of the following situations is the most likely cause of the decline in the bonds' market value?

- Enfield issued a stock dividend.
- Enfield is expected to call the bonds at a premium, which is less than Lee's carrying amount.
- Interest rates have declined since Lee purchased the bonds.
- Interest rates have increased since Lee purchased the bonds.

(CMA Adapted)

One-page Summary of Bonds

The **selling price** of the bond = the PV of the face amount + the PV of the interest payments. These present values are calculated using the **market rate** of interest.

When the bond is sold we record the bond itself in the **bond payable account at its face value**. The cash account is debited for the cash received and the balance will go into the discount account (a debit) or the premium account (a credit). The discount is essentially a deferred loss account and the premium a deferred gain account. The discount and premium accounts function as valuation accounts when combined with the bond payable account, and the carrying value of the bond is the combined amount. We **amortize the discount or premium over the life of the bond**.

The **amount of cash paid as interest** = face value of the bond * the stated rate of interest. The stated rate of interest must be divided by 2 if the bond pays interest semi-annually (twice a year).

The **interest expense** = carrying value of the bond * market rate of interest.

The **bond carrying amount** = face amount + unamortized premium **or** - unamortized discount.

At the end of each period the issuer must pay interest and recognize some amount of the deferred gain or loss. The journal entry is made up of a credit to cash, a debit to interest expense and a balancing figure — either a debit to amortization of premium or a credit to amortization of discount — that will be the amortization of the premium or discount, as follows:

Dr	Interest expense	carrying value * market rate
Dr	Amortization of premium.....	balancing amount
Cr	Cash	face amount * stated rate
Cr	Amortization of discount.....	balancing amount

The **purchaser of the bond** will account for the investment in the same manner as the issuer except for the fact that an investment in debt securities account (whichever account is appropriate given the way the bond is classified by the purchaser) is debited for the cash paid. If there is a discount or premium, it is not segregated from the bond's face value. If the bond is classified as held-to-maturity or available-for-sale, the amortization of the discount or premium is done directly in the investment account. If the bond is classified as a trading security or available-for-sale security, the purchaser of the bond will need to adjust the bond's net carrying value to fair value. If the bond is classified as a trading security, no amortization is done.

Bond issue costs are not included in calculating the carrying value of the bond. Rather, the amount of the bond issue costs will be used as a reduction of the cash received from the sale. These costs are set up as a deferred cost and amortized on the straight-line basis over the life of the bond.

If the **bonds are issued between interest dates**, the purchaser of the bond must buy the interest that has accrued since the last payment of interest. This amount of cash is not considered as payment for the bond, but is set up as interest receivable by the purchaser of the bonds and interest payable by the seller of the bond. When the interest is paid, the payable or receivable is removed from the books.

When a **bond is retired early**, all of the bond accounts are written off (bond payable, premium or discount and issuance costs) and cash is credited for the amount paid. The difference is equal to the gain or loss on the retirement of bonds, and it is usually reported individually as a part of income from continuing operations.

If a bond is **convertible into common shares**, this conversion must be accounted for under one of two methods. Under both methods, the bond accounts are written off and there is a credit entry made for common stock and APIC. Under the **book value method**, the common stock accounts are credited for the book value of the bonds converted and there is no gain or loss. Under the **fair value method**, the common stock accounts are credited for their own fair value and a gain or loss is recognized for the difference between the carrying value of the bonds converted and the fair value of the shares. Both methods are acceptable.

60 d – To calculate the selling price of a bond we need to determine the present value of the bond's cash flows using the market rate of interest. There are two cash flows that are related to the bond. The first is the payment of the face amount at the maturity of the bond (in this case \$1,000), and the second is the annual payment of interest. The amount of cash that is paid as interest on the bond is calculated by multiplying the face amount of the bond by the stated rate of interest. In this case the stated rate of interest is 6%, so the amount of interest paid every year is \$60. These two cash flows now need to be multiplied by the appropriate table value at the market rate of interest. In this question they give us the table values for both the market and the stated rates of interest. We can ignore the 6% column as this is the stated rate of interest and not needed after we have calculated the cash flow of interest. The face amount is multiplied by the factor for the present value of \$1 for 9% for 10 periods, or .422. This gives us the present value for the payment of the face amount of \$422. The interest of \$60 is multiplied by the present value factor of an ordinary annuity at 9% for 10 periods, since the interest is an annuity. The table value is 6.418, and this gives us a present value for all of the interest payments of \$385. Adding these two PVs together, we get the selling price of the bond, which is \$807.

61 c – This is a definition question and c is the answer because we use the market rate of interest in the calculation of the present value of the cash flows.

62 b – The amount that is reported as bonds payable on the balance sheet is the carrying value of the bond, which is calculated as the face value minus the unamortized discount. In this question we need to determine how much discount was amortized in the first 6 months of 2009 to determine the remaining unamortized amount. The amount due for interest for 6 months is \$22,500 ($\$500,000 \times 9\% \div 2$) and the interest expense for 6 months is \$23,475 ($\$469,500 \times 10\% \div 2$). The difference between these two amounts is the amount of discount that was amortized – \$975. This can simply be added to the carrying value at January 1 (\$469,500) to determine the carrying value at June 30: $\$469,500 + 975 = \$470,475$.

63 c – To answer this question, we need to calculate the amount of the discount that was amortized during the first and second years of the life of the bond. Because this is the second year, we need to determine the amortization of the discount in 2009 and also in 2010. In all years the amount of cash that was paid for interest was \$90,000. In 2009 the interest expense was \$93,900 ($\$939,000 \times 10\%$). This means that \$3,900 of the discount was amortized in year 1 and this will raise the carrying value of the bond to \$942,900. In 2010, the cash paid was again \$90,000 and the interest expense was \$94,290, leading to \$4,290 of the discount being amortized. In total in the first two years, \$8,190 of the discount has been amortized. This is subtracted from the original discount of \$61,000 ($\$1,000,000$ face amount - $\$939,000$ selling price) to get a remaining unamortized discount of \$52,810.

64 c – This question is the same in idea to the previous question, except that it is a bond with a premium, and they are asking about the unamortized premium after the first year. The interest paid in cash is \$7,000 and the interest expense is \$6,300 ($\$105,000 \times 6\%$). This means that \$700 of the premium is amortized leaving an unamortized premium of \$4,300.

65 c – This is another question where we need to solve for the carrying value of the bond, but this is a premium and also the bond pays interest every 6 months. This simply means that we will need to make the calculation of interest expense and the amortization of the premium every 6 months. The interest paid in cash each year is \$100,000 and therefore \$50,000 for 6 months. The interest expense for the first 6 months is \$47,920 ($\$1,198,000 \times .08 \div 2$). The amortized premium is \$2,080 and this is a reduction to the carrying value of the bond. So, after 6 months the carrying value of the bond is \$1,195,920.

66 b – This question addresses the differences between the straight-line and effective interest methods of amortizing bond discount. Specifically, we need to determine if the straight-line method is used, how the carrying value of the bond will be different from the effective interest method after one year and at the maturity of the bond. We will look at the second item first. At the maturity date of the bond the carrying value of the bond must be the face value of the bond, under any method of amortization. Therefore, there will be no difference at the maturity date. As for the end of the first year, our process is a little more involved. We know

that under the straight-line method the interest expense will be the same each year. We also know that since this bond was issued at a discount the carrying value of the bond will increase each year. Since the carrying value is increasing each year the interest expense that needs to be recognized under the effective interest method also increases each period. This means that in year one the effective interest method will have a small interest expense (lower than straight-line) and in the last year it will have a high interest expense (larger than straight-line). As such, in the first year the straight-line method will have a higher interest expense than the effective interest method. This will lead to the straight-line method amortizing more of the discount in the first year and having a higher carrying value. So, the straight-line method will overstate the carrying value in the first year compared to the effective interest method.

We also could have solved this problem by using the figures given in the problem, but the conceptual understanding of this is useful as well. Using the figures, we get an amortization of \$25,000 ($\$150,000 \div 6$) under the straight-line method and of \$22,000 ($\$850,000 * .12 = \$102,000$ of interest expense minus the \$80,000 in cash paid) under the effective interest method.

67 a – This is a standard carrying value question, although it is about a bond that is issued between interest dates. Since the bond was issued between interest dates, there is some interest included in the sales price. Of the price of \$946,000, \$40,000 of it was interest. This means that the price of the bond was only \$906,000, and this is what we will use to calculate interest revenue. The interest revenue is \$45,300 for the period from July 1, 2009 through December 31, 2009. ($\$906,000 * 10\% \div 2$). The cash interest earned for the same period is \$40,000 ($\$1,000,000 * 8\% \div 2$). This means that the difference, or \$5,300, is the amount of discount that is amortized for the six-month period, giving a carrying value of \$911,300. Notice that choice b is what you would get if you used 1 year instead of 6 months and choices c and d are what you would get if you used \$946,000 as the selling price of the bond.

68 c – Because the bond that was sold has the same interest rate as the market rate of interest, there is no premium or discount. This means that the selling price of the bond itself is its face value (\$1,000,000). However, because it is being sold between interest dates, the buyers need to “buy” the interest accrued since the date the interest began accruing. The bond is sold 1 month after the interest began accruing, so \$10,000 of interest has needs to be bought. Thus, the total cash amount of the transaction is \$1,010,000.

69 b – If the bond is purchased at a discount, this means that the purchaser’s carrying amount is less than the face value. Also, since it was purchased between interest dates, the amount of cash that was paid is more than the simple purchase price of the bond, because it includes the purchase of accrued interest. The purchase price of the bond, excluding purchased interest, is the carrying amount of the bond on the date of purchase. Therefore, the answer to both of these items is no.

70 b – The issue costs of the bond do not affect the carrying value of the bond. They do, however, reduce the amount of cash received from the issuance of the bonds; but this is not part of the question. The carrying value of the bond on the date of issuance will be equal to the amount that the buyer paid for the bond. In this question the buyer paid 99% of the face value of the bonds or \$990,000. This will be the carrying value.

71 d – As stated in the previous explanation, the bond issue costs reduce the amount of the proceeds from the issuance. Therefore, to calculate the bond issuance proceeds we take the discounted value of the future cash flows at the market rate of interest and subtract bond issue costs.

72 a – this question is a little bit more difficult than it needs to be because it includes quite a bit of information that we do not need in order to solve the question. What is happening is that Dome is issuing bonds and taking the cash received from these new bonds to pay the retirement of previously issued bonds. We do not care about the new bonds as the question is about the gain or loss on retirement.

The old bonds were retired by paying \$612,000. We know this because \$600,000 bonds were retired by paying 102, or 102% of the face value. We need to compare this to the carrying value of the bonds at the date of retirement. In this question they tell us that the unamortized premium was \$65,000 on the date of the retirement. Since there were no issue costs the carrying value of the bond was \$665,000 and Dome needed to pay \$612,000 to retire the bonds. This is a gain of \$53,000.

73 b – When bonds are converted under the book value method, the shares that are issued are recorded at the book value of the bonds that were converted. The bonds had a book value of \$1,300,000. This will be split between two share accounts – the common share account into which the par value of the shares will be placed, and the additional paid in capital (APIC) account for the remainder of the book value of the bonds. The par value of the shares is \$1 each and since 50,000 shares were issued, that is \$50,000. The remaining \$1,250,000 goes into the APIC account.

74 c – When bonds are converted under the market value method, the shares that are issued are recorded at their fair market value. The shares issued had a market value of \$1,500,000. This will be split between two share accounts – the common share account into which the par value of the shares will be placed, and the additional paid in capital (APIC) account into which the remainder of the market value of the bonds will be placed. The par value of the shares is \$1 each and since 50,000 shares were issued, that is \$50,000. The remaining \$1,450,000 goes into the APIC account.

75 d – Term bonds are bonds that all of the bonds in the issuance mature at the same time. So, in this question we are interested only in the maturity date. If all of the bonds mature at the same date then they are term bonds. Of these bonds listed the first two are term bonds by definition.

76 This is a very good question to test your understanding of the way in which bonds work and all of the calculations that are used in bonds.

- 1) \$360,000 – because \$3,600 was amortized in the first 6 months we know that the beginning carrying must have been \$360,000. This initial carrying value is also the sales price of the bond.
- 2) \$14,400 – given that the amount of discount that was amortized was \$3,600, the cash paid for interest must have been \$3,600 less than the interest expense. We could also get this answer by looking at the cash paid amount for the next 6 months. We can do this because we know that the cash paid for interest is the same each period.
- 3) \$116,400 – if the bonds were issued at a discount of \$120,000 (\$480,000 face value – \$360,000 selling price calculated in #1, above) and \$3,600 was amortized in the first 6 months, there is only \$116,400 remaining of unamortized discount.
- 4) 6% – if the cash paid for interest for 6 months were \$14,400, then \$28,800 would have been paid for 1 year. $\$28,800 \div \$480,000 \text{ face amount} = 6\%$.
- 5) 10% – if the interest expense was \$18,000 and the carrying amount of the bonds was \$360,000 this gives us a 5% interest rate. But remember that this was for only 6 months so we need to multiply this by 2 to get the annual rate.
- 6) \$18,180 – this is multiplying the new carrying amount \$363,600 by the interest rate for 6 months. $\$363,600 * 5\% = \$18,180$.
- 7) \$3,780 – this is simply the difference between the cash paid for interest (\$14,400) and the interest expense calculated in #6 above (\$18,180).

77 d – We know that if the market rate is higher than the stated rate of a bond then the price of the bond will be lower than the face amount so that people will be willing to buy the bond. Similarly, if the market rate of interest increases over time, the fair value of an existing bond will decrease.