CHAPTER 4

INTERCOMPANY TRANSACTIONS

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- Understand the different types of intercompany transactions that can occur.
- Understand why intercompany transactions are addressed when preparing consolidated financial statements.
- Prepare the worksheet eliminations necessary for intercompany transactions in the period of the transaction.
- Prepare the worksheet eliminations necessary for intercompany transactions in periods subsequent to the transaction.
- Differentiate between upstream and downstream intercompany transactions.

Most economic transactions involve two unrelated entities, although transactions may occur between units of one entity (intercompany transactions). Intercompany transactions may involve such items as the declaration and payment of dividends, the purchase and sale of assets such as inventory or plant assets, and borrowing and lending. Regardless of the type of transaction, the occurrence of an intercompany transaction, if not removed (eliminated) from the consolidated financial statements, will often result in a misrepresentation of the consolidated entity's financial position.

This chapter presents a framework for evaluating intercompany transactions. The next section presents a theoretical discussion of intercompany transactions. The subsequent section presents a framework for interpreting such transactions, including two-year examples of downstream (parent-to-subsidiary) transactions to assist in applying the framework to specific situations. The examples in this section are simplified in that each intercompany transaction occurs at, or near, year-end. This is followed by examples where the simplifying assumption is relaxed. The chapter then presents how upstream (subsidiary-to-parent) intercompany transactions differ from downstream transactions.

BASIC CONCEPTS

Intercompany transaction: a transaction that occurs between two units of the same entity

An **intercompany transaction** occurs when one unit of an entity is involved in a transaction with another unit of the same entity. While these transactions can occur for a variety of reasons, they often occur as a result of the normal business relationships that exist between the units of the entity. These units may be the parent and a subsidiary, two subsidiaries, two divisions, or two departments of one entity. It is common for vertically integrated organizations to transfer inventory among the units of the consolidated entity. On the other hand, a plant asset may be transferred between organizational units to take advantage of changes in demand across product lines.

An intercompany transaction is recognized in the financial records of both units of the entity as if it were an arm's-length transaction with an unrelated party. From the consolidated entity's perspective, the transaction is initially unrealized because unrelated parties are not involved; therefore, the intercompany transaction needs to be interpreted differently than it was by either of the participating units. The difference in interpretation generally results in the elimination of certain account balances from the consolidated financial statements.

Downstream transaction: an intercompany transaction flowing from the parent to the subsidiary

Upstream transaction: an intercompany transaction flowing from the subsidiary to theparent

Lateral transaction: an intercompany transaction flowing from one subsidiary to another subsidiary

Transactions between units of an entity can take several forms and can occur between any units of the entity. Figure 4-1 illustrates possible directions of intercompany transactions. Transactions flowing from the parent to the subsidiary are commonly called **downstream transactions**, transactions from the subsidiary to the parent are commonly called **upstream transactions**, and transactions between subsidiaries are commonly called **lateral transactions**.

The volume of intercompany transactions eliminated from the financial records of many large conglomerate organizations is significant. For example, Exxon Mobil Corporation reported the elimination of intercompany revenue of $98.1 billion, $113.4 billion, and $136.6 billion for 2000, 2001, and 2002, respectively.[1] These amounts represented 29.7 percent, 34.8 percent, and 40.0 percent of the entity's total sales and other revenue before eliminating intercompany transactions for the three years, respectively.

The views developed in ARB No. 51 have long served as the basic philosophy of the accounting profession toward consolidations and intercompany transactions. In stating the purpose of consolidated financial statements, ARB No. 51 provides a justification for the elimination of intercompany transactions. Regardless of the direction, the intercompany transaction must be removed when preparing the consolidated entity's financial statements because, as discussed in ARB No. 51:

> *The purpose of consolidated statements is to present, primarily for the benefit of the shareholders and creditors of the parent company, the results of operations and the financial position of a parent company and its subsidiaries essentially as if the group were a single company with one or more branches or divisions.*[2]

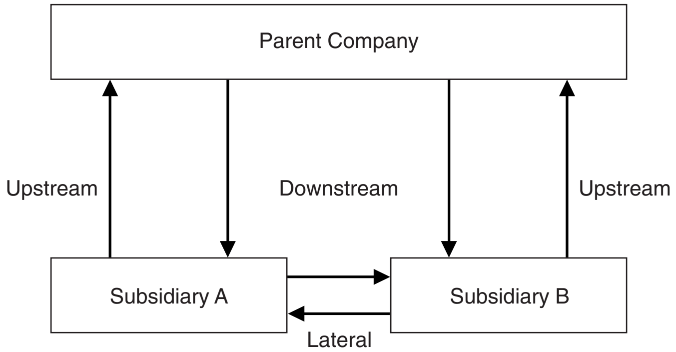

FIGURE 4-1 Directions of Intercompany Transaction

[1] Exxon Mobil Corporation, 2002 10-K.

[2] **Accounting Research Bulletin**, No. 51, "Consolidated Financial Statements" (New York: American Institute of Certified Public Accountants, 1959), par. 1.

In addition, ARB No. 51 also states that "… any intercompany profit or loss on assets remaining within the group should be eliminated; the concept usually applied for this purpose is gross profit or loss" (par. 6). Addressing profit or loss on assets transferred as a result of intercompany transactions is important because many organizations, such as Exxon Mobil, record intercompany inventory transactions (typically the largest dollar amount of intercompany transactions) on a market value basis. For example, failure to eliminate intercompany inventory transactions recorded at market value would result in an overstatement of *Sales, Cost of Goods Sold,* and *Inventory.* Even if the intercompany inventory transaction is recorded at cost, the *Sales* and *Cost of Goods Sold* accounts would be overstated if they are not eliminated when preparing the consolidated financial statements.

The percentage ownership interest by the parent in the subsidiary does not alter the requirement to eliminate intercompany transactions. ARB No. 51 states:

> *The amount of intercompany profit or loss to be eliminated in accordance with paragraph 6 is not affected by the existence of a minority interest. The complete elimination of the intercompany profit or loss is consistent with the underlying assumption that consolidated statements represent the financial position and operating results of a single business enterprise. The elimination of the intercompany profit or loss may be allocated proportionately between the majority and minority interests.*[3]

Paragraph 14 states that intercompany profit or loss *may* be allocated between majority (controlling interest) and minority (noncontrolling) interest. In a downstream transaction, all profit or loss accrues to the parent company because the parent company records the sale. None of the gain or loss is recognized on the subsidiary's books. As a result, the profit or loss is not shared between the parent company stockholders and the noncontrolling interest; that is, all the profit or loss accrues to the parent company stockholders.

This chapter takes the position that the allocation of profit or loss to parent company stockholders and the noncontrolling interest is theoretically preferable in upstream and lateral transactions. The gain or loss is divided between the parent stockholders and the noncontrolling interest in an upstream or a lateral transaction because the subsidiary records the sale and, therefore, records the gain or loss on the sale. Because the parent and noncontrolling stockholders share ownership interest in the subsidiary, the gain or loss is allocated proportionately to the two groups.

IMPACT OF INTERCOMPANY TRANSACTIONS ON FINANCIAL STATEMENTS

Interpreting the impact of intercompany transactions on the financial records of the units involved begins with understanding how the transactions are initially recognized on each unit's financial records. It is also important to understand how each intercompany transaction impacts the income statement and balance sheet of the units involved in the period of the intercompany transaction as well as in subsequent periods. From this understanding it is possible to determine how to adjust the consolidated financial statements for intercompany transactions using worksheet eliminations.

This section presents the journal entries that would be recorded by each entity when selected intercompany transactions occur. Accompanying the journal entries are the worksheet

[3] Ibid., par. 14.

eliminations that are necessary to prepare the consolidated financial statements. The remainder of the chapter examines intercompany transactions in the order outlined below:

- Downstream
  - Intercompany transactions initiated at year-end
    - Elimination in year of transaction
    - Second-year elimination
  - Intercompany transactions initiated during the year
    - Elimination in year of transaction
    - Second-year elimination
- Upstream intercompany transactions initiated during the year
  - Intercompany transactions initiated during the year
    - Elimination in year of transaction
    - Second-year elimination

Period of Intercompany Transaction—Downstream (at or near Year-End)

To adjust for the effects of intercompany transactions, additional worksheet eliminations, labeled (5), are required. The purpose of such worksheet eliminations is to adjust the financial information so that it is presented from the perspective of the consolidated entity rather than from the perspective of either the parent or the subsidiary. These adjustments restate the consolidated financial statements to recognize that the effect of intercompany transactions on the consolidated entity is different from the effect recognized on the financial records of either the parent or the subsidiary. The following examples (machine, inventory, and debt) analyze three downstream intercompany transactions. The presentation includes the journal entries recorded by both Pratt and Sterling as well as the worksheet eliminations necessary to prepare the consolidated financial statements.

Fixed Asset Transaction at the End of the Period The following data pertain to the sale of a machine from Pratt to Sterling.

EXAMPLE 4-1A
Downstream sale of a machine on December 31, 2006

Assume a machine was purchased by Pratt on January 1, 2001, for $9,000. The machine is being depreciated using the straight-line method assuming a 10-year life with no salvage value. The machine is sold to Sterling for $6,000 on December 31, 2006. Pratt records its 2006 depreciation expense prior to the sale. At the date of the sale, six years have passed since the purchase of the machine. Thus, the accumulated depreciation is $5,400 ($900 × 6). The remaining useful life of the asset to Sterling is four years.

At the date of the intercompany sale of the machine, Pratt and Sterling record the following entries:

Journal Entry—Pratt Corporation Books

Cash	6,000	
Accumulated Depreciation ($900 × 6)	5,400	
Gain on Sale of Machine		2,400
[$6,000 – ($9,000 – $5,400)]		
Machine		9,000
To record sale of machine to Sterling.		

Journal Entry—Sterling Products Books

Machine	6,000	
Cash		6,000
To record purchase of machine from Pratt.		

After completing this transaction, the recognized historical cost of the machine is $6,000 and the accumulated depreciation is $0. In addition, a gain of $2,400 has been recognized on Pratt's income statement. From the consolidated entity's perspective, this transaction never occurred because it did not involve an unrelated party. The December 31, 2006, worksheet elimination must return the *Machine* account to its original historical cost, $9,000, because this amount is the historical cost to the consolidated entity. The worksheet elimination must also reestablish the $5,400 balance in the *Accumulated Depreciation* account. In addition, the $2,400 gain on Pratt's financial records must be eliminated because the transaction is viewed as having not occurred.

The T-account format presented below is used throughout the remainder of the chapter to calculate the dollar amounts necessary for the worksheet eliminations. The T-account format does not specifically represent a ledger account on either company's accounting records. Rather, it is a tool used to calculate the adjustment necessary for the appropriate presentation of the consolidated financial statements. The first entry of each balance sheet T-account is the beginning of year balance (or date of original purchase) on the books where the account was recorded prior to the intercompany transaction. Income statement accounts are presumed to have a zero beginning balance; therefore, the beginning balance is not shown in the T-account. Entries made during the year, on both unit's books, are then displayed below the beginning balance. The consolidated balance for the account is shown as the required ending balance. The amount shaded is the dollar amount of the worksheet elimination needed to convert the existing balance to the correct consolidated balance.

Pratt's machine had a $9,000 historical cost on its financial records at January 1, 2001. The historical cost of the machine was removed from Pratt's financial records on December 31, 2006, and is presented as a $9,000 credit in the T-account. Sterling's recording of the machine purchase appears as a $6,000 debit in the T-account. Because the consolidated financial statements must disclose the original historical cost ($9,000), a debit worksheet elimination of $3,000 is required.

		Machine		
Pratt purchases machine	1/1/2001	9,000		
Sterling buys machine from Pratt	12/31/2006	6,000	9,000	12/31/2006 Pratt sells machine to Sterling
Worksheet elimination	12/31/2006	3,000		
Consolidated balance	12/31/2006	9,000		

The January 1, 2006, balance in *Accumulated Depreciation* was reported as $4,500 on Pratt's books. A $900 increase in *Accumulated Depreciation* was posted in 2006 to reflect the current year depreciation expense recorded by Pratt. The December 31 balance of $5,400 ($4,500 + $900) was debited by Pratt at the date of sale. Because the consolidated balance at December 31, 2006, should be $5,400, the worksheet elimination must include a $5,400 credit to restore the balance.

Accumulated Depreciation

			4,500	1/1/2006	Pratt's beginning balance
Pratt sells machine to Sterling	12/31/2006	5,400	900	12/31/2006	Pratt's 2006 depreciation expense
			5,400	12/31/2006	Worksheet elimination
			5,400	12/31/2006	Consolidated balance

Because there was no sale by the consolidated entity, the *Gain on Sale of Machine* must be eliminated.

Gain on Sale of Machine

Worksheet elimination	12/31/2006	2,400	2,400	12/31/2006	Pratt sells machine to Sterling
			-0-	12/31/2006	Consolidated balance

The T-account analysis indicates the amounts needed in the Example 4-1a worksheet elimination presented to remove the impact of the intercompany machine sale. Preparing this worksheet elimination will return the balances in the *Machine, Accumulated Depreciation,* and *Gain on Sale of Machine* accounts to the amounts that would have existed had the intercompany transaction never occurred (i.e., the amounts relevant for the consolidated financial statements).

Worksheet Elimination 4-1A—Journal Entry Form

December 31, 2006		
Machine	3,000	
Gain on Sale of Machine	2,400	
Accumulated Depreciation		5,400

Remember that in the previous two chapters, for efficiency purposes, the fixed asset account was presented net of accumulated depreciation in many of the examples. In this chapter, however, the fixed asset account and accumulated depreciation account are presented separately because tracking the historical cost and accumulated depreciation accounts individually makes it easier to follow the logic of the eliminations necessary in each period.

In Pratt's sale of machinery to Sterling, at the date of the intercompany sale, the accumulated depreciation is removed from the books of Pratt, the seller, and a revised historical cost is recorded on the books of Sterling, the buyer. At the date of sale, therefore, for consolidated reporting purposes the historical cost and accumulated depreciation balances must be restored because there has been no transaction with an unrelated party. In the subsection, Fixed Asset Transaction One Period Subsequent, later in the chapter, it will be shown that additional adjustments must be made to depreciation expense and accumulated depreciation in subsequent periods because Sterling's depreciation expense is based on the price paid rather than the historical cost of the asset to the consolidated entity. Reconstructing the specific effects of the intercompany machinery sale on the machinery account separate from the accumulated depreciation account simplifies the analysis because the restatement of the historical cost is removed from the adjustment due to depreciation expense recognition.

Inventory Transaction at the End of the Period The following data pertain to the sale of inventory from Pratt to Sterling.

EXAMPLE 4-1B
Downstream sale of inventory on December 30, 2006

Assume Pratt purchases 8,000 units of inventory on November 10, 2006, at a cost of $6 per unit. Pratt sells this inventory to Sterling on December 30, 2006, for $8 per unit. Assume that none of this inventory is sold by Sterling to an unrelated party prior to December 31.

At the date of the intercompany sale of inventory, Pratt and Sterling record the following entries:

Journal Entry—Pratt Corporation Books

Cash	64,000	
Sales (8,000 × $8)		64,000
To record sale of inventory to Sterling.		
Cost of Goods Sold (8,000 × $6)	48,000	
Inventory		48,000
To record cost of inventory sold to Sterling.		

Journal Entry—Sterling Products Books

Inventory	64,000	
Cash		64,000
To record purchase of inventory from Pratt.		

After completing this transaction, the recognized historical cost in Sterling's *Inventory* account is $64,000. In addition, *Sales* of $64,000 and *Cost of Goods Sold* of $48,000 have been recognized on Pratt's income statement. As in the machine example, from the consolidated entity's perspective, this transaction never occurred because it does not involve an unrelated party. The December 31, 2006, worksheet elimination must return the inventory to its original historical cost of $48,000. In addition, the $16,000 gross profit ($64,000 – $48,000) on Pratt's financial records must be eliminated by adjusting *Sales* and *Cost of Goods Sold.* The following T-accounts depict the worksheet eliminations necessary to accomplish this objective.

Sales

		Debit	Credit		
Worksheet elimination	12/31/2006	64,000	64,000	12/30/2006	Pratt sells inventory to Sterling
			-0-	12/31/2006	Consolidated balance

Cost of Goods Sold

		Debit	Credit		
Pratt sells inventory to Sterling	12/30/2006	48,000	48,000	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	-0-			

The *Inventory* T-account shows that Pratt purchases inventory on November 10 for $48,000. This inventory is sold to Sterling on December 30, resulting in a credit of $48,000 by Pratt and a debit of $64,000 by Sterling. The $64,000 also represents Sterling's

Inventory account balance at December 31 because none of the inventory is sold before year-end. The consolidated balance sheet must include inventory at its original historical cost ($48,000). Therefore, a credit worksheet elimination of $16,000 is required.

Inventory

		Debit	Credit		
Pratt buys inventory	11/10/2006	48,000			
Sterling purchases inventory from Pratt	12/30/2006	64,000	48,000	12/30/2006	Pratt sells inventory to Sterling
			16,000	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	48,000			

The T-accounts indicate the amounts needed in the worksheet elimination presented in Example 4-1b to eliminate the intercompany inventory sale. Preparing this worksheet elimination will return the balances in the *Sales, Cost of Goods Sold,* and *Inventory* accounts to the amounts that would have existed had the intercompany transaction never occurred (i.e., the amounts relevant for the consolidated financial statements).

Worksheet Elimination 4-1B—Journal Entry Form

December 31, 2006		
Sales	64,000	
Cost of Goods Sold		48,000
Inventory		16,000

Direct intercompany debt transaction: when one unit of an entity makes a loan directly to another unit of the same entity

Indirect intercompany debt transaction: when one unit of an entity acquires, from an unrelated party, debt previously issued by another unit of the same entity

Debt Transaction at the End of the Period Two types of intercompany debt transactions can exist: direct or indirect. **Direct intercompany debt transactions** exist when the two units of the consolidated entity enter into a transaction where one unit makes a loan directly to the other unit. This type of transaction results in an additional worksheet elimination that removes the notes payable and notes receivable, any accrued interest receivable or payable, and any accompanying interest expense or interest revenue. In all periods in which the note is outstanding, the amounts in the worksheet elimination for the notes payable and notes receivable will exactly offset, as will the interest expense and interest revenue, because the two units are recording the loan using the same dollar amount and interest rate at the date of the transaction. **Indirect intercompany debt transactions** occur when one unit of a consolidated entity borrows from an unrelated party and the other unit of the consolidated entity acquires the debt instrument from the unrelated party. If the two transactions occur at different points in time, they are viewed as a borrowing transaction by the debtor and as an investment by the creditor, but the two transactions create an early retirement of debt from the consolidated entity's perspective.

The following data pertain to Sterling's indirect purchase of bonds issued by Pratt.

EXAMPLE 4-1C
Downstream debt transaction on December 31, 2006

Assume Pratt had issued 4,000 20-year bonds payable, each in the amount of $1,000, on June 30, 1994, to finance the construction of a new manufacturing facility. The bonds had a stated interest rate of 7 percent, with interest paid quarterly (80 periods) on a calendar-year basis. Pratt received $3,600,000 on June 30, 1994 (present value of the cash flows discounted at approximately 8.25

percent). The discount is being amortized using the straight-line method.[4] Sterling (the subsidiary) acquires $300,000 of the bonds (7.5 percent) as an investment on December 31, 2006—30 quarters prior to maturity—for $327,000 (the present value of the cash flow discounted at approximately 5.6 percent). Sterling elects to amortize the premium using the straight-line method.

The intercompany debt transaction outlined in Example 4-1c is a downstream indirect purchase of bonds wherein the date Sterling purchases the bonds is not the date on which they are issued by Pratt. On the date the bonds are acquired, the following entry is recorded on Sterling's financial records:

Journal Entry—Sterling Products Books

Investment in Bonds	327,000	
Cash		327,000
To record purchase of Pratt Corporation bonds.		

No entry is recorded on Pratt's books at the date of Sterling's investment. From Pratt's perspective, the bonds payable is still outstanding, so no journal entry is required. On the other hand, the consolidated entity would view Sterling's investment in Pratt's bonds as an early retirement of debt, because the debt instrument is acquired by a member of the consolidated entity. As a result, the *Bonds Payable* acquired by Sterling must be eliminated from the consolidated balance sheet. The T-accounts below depict the consolidated entity's view of this transaction. Note that the T-accounts provide information on the intercompany bonds only. The accounting entries for the remainder of the bonds outstanding ($3,700,000) are not affected by the intercompany transaction.

Bonds Payable

		Debit	Credit		
			300,000	6/30/1994	Pratt issues bonds
Worksheet elimination	12/31/2006	300,000			
			-0-	12/31/2006	Consolidated balance

Discount on Bonds Payable

		Debit	Credit		
Pratt issues bonds: $400,000 × .075	6/30/1994	30,000			
			750	1994	July–Dec. amortization: ($30,000/80)(2)
			18,000	1995–2006	12 years amortization: ($30,000/80)(48)
			11,250	12/31/2006	Worksheet elimination (unamortized balance)
Consolidated balance	12/31/2006	-0-			

The beginning *Discount on Bonds Payable* balance ($30,000) is the discount on the 7.5 percent of the total bond issue acquired by Sterling. The original discount on the total bond issue was $400,000. The quarterly discount amortization ($375) is the straight-line amortization of the $30,000 discount relevant to the bonds acquired by Sterling. Because the bonds pay interest quarterly, the bond discount is amortized over 80 three-month periods.

[4] While the effective interest method is generally required, the straight-line method is permissible when the resulting difference in calculated interest expense or revenue is not material. The straight-line method is used in this chapter to simplify calculations.

Investment in Bonds (net)

Sterling's Investment in Pratt's bonds	12/31/2006	327,000			
			327,000	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	-0-			

Loss on Early Debt Retirement

Worksheet elimination	12/31/2006	38,250	
Consolidated balance	12/31/2006	38,250*	

* Purchase Price		$327,000
Face Value of Bond	$300,000	
Unamortized Discount	11,250	
Carrying Value		288,750
Loss on Early Debt Retirement		$38,250

The worksheet elimination presented in Example 4-1c removes $300,000 of *Bonds Payable* (the amount acquired by Sterling) and the entire *Investment in Bonds* account from the consolidated balance sheet. The elimination of the *Bonds Payable* is accompanied by the elimination of a proportionate share of the *Discount on Bonds Payable.* The difference between the carrying value of the bonds payable eliminated and the amount paid for the bonds by the investor is recognized as a *Loss on Early Debt Retirement* on the consolidated income statement.

Worksheet Elimination 4-1C—Journal Entry Form

December 31, 2006

Bonds Payable	300,000	
Loss on Early Debt Retirement	38,250	
Discount on Bonds Payable		11,250
Investment in Bonds		327,000

Comparison of Intercompany Asset Versus Indirect Intercompany Debt Transactions A major difference between Example 4-1c and Examples 4-1a (machine) and 4-1b (inventory) discussed previously is the creation of the loss on the consolidated income statement. Gains and losses were eliminated in Examples 4-1a and 4-1b, while a loss is created in Example 4-1c. This difference occurs because the consolidated entity views the Example 4-1c transaction differently from the previous examples. An intercompany sale of assets is viewed by the consolidated entity as being a transaction that has not occurred, although it has been recorded on the books of the buyer and seller. The gain or loss reported on the seller's books, therefore, must be removed when preparing the consolidated financial statements. An indirect intercompany effective retirement of debt is viewed by the consolidated entity as a transaction that has occurred because cash is paid to a party other than the parent or subsidiary. The worksheet elimination is prepared to record the loss because neither party recognized that an early debt retirement has occurred from the consolidated point of view.

Basic Worksheet Eliminations The Examples 4-1a, 4-1b, and 4-1c worksheet eliminations are prepared in addition to the required basic worksheet eliminations. With regard to the current examples (downstream), the basic worksheet eliminations are not altered by the occurrence of intercompany transactions in the current period.

First, consider worksheet elimination (1), which eliminates the parent's beginning investment account and the subsidiary's beginning stockholders' equity accounts while it establishes the beginning purchase differentials and the beginning noncontrolling interest. An intercompany transaction that occurs *during* the current period cannot impact any of these amounts because this worksheet elimination eliminates/establishes *beginning* of period balances.

Also, consider worksheet elimination (2), which removes the parent's *Investment Income* and subsidiary *Dividends* allocated to the parent from the consolidated financial statements. Recall that Pratt's adjusting entry to recognize *Investment Income* is based on Sterling's reported net income and Pratt's ownership percentage. The downstream intercompany transactions have no impact on Sterling's income statement and do not impact this worksheet elimination.

Next, recall that the amortization of purchase differentials, worksheet elimination (3), is based on the amounts established when the subsidiary is acquired. These amounts are not impacted by intercompany transactions even if subsidiary assets that are assigned purchase differentials are sold to the parent or to another subsidiary. In such a case the asset is adjusted to its original value on the subsidiary's financial records, and the cost allocation (e.g., *Depreciation Expense* or *Cost of Goods Sold*) and purchase differential amortization is recognized as if the asset had not been sold.

Finally, worksheet elimination (4) establishes the *Noncontrolling Interest in Net Income of Subsidiary* and adjusts the *Noncontrolling Interest* account. This basic worksheet elimination allocates the noncontrolling interest proportion of subsidiary net income to the noncontrolling stockholders. Again, because downstream intercompany transactions have no impact on the subsidiary's income statement, worksheet elimination (4) is not adjusted for the intercompany transactions presented thus far.

Period Subsequent to Intercompany Transaction—Downstream

Worksheet eliminations are required in periods subsequent to an intercompany transaction until the asset is sold or abandoned (or the liability matures) because the worksheet eliminations prepared in the year of the intercompany transaction are not posted to the books of either the parent or the subsidiary. The worksheet elimination in subsequent periods differs from the worksheet elimination prepared in the period of the intercompany transaction in that an adjustment to the beginning of year *Retained Earnings* is generally included in each subsequent-period worksheet elimination. Subsequent period worksheet eliminations are discussed next as a continuation of the examples developed earlier in the chapter.

Fixed Asset Transaction One Period Subsequent

EXAMPLE 4-2A
Downstream sale of a machine (4-1A continued)

Assume that in 2007 Sterling uses the machine acquired from Pratt on December 31, 2006, and records depreciation as appropriate.

The machine is recorded on Sterling's books at an amount different from the original value on Pratt's books. The worksheet elimination is used to return the machine to its original historical cost because, from the consolidated perspective, the intercompany transaction has not occurred. That is, the fixed asset still belongs to the consolidated entity. The adjustment to any long-term asset account, except intangible assets, will be the same in all periods until the asset is sold or abandoned. Intangible assets differ because periodic amortizations are posted directly to the asset account rather than to a contra account such as *Accumulated Depreciation.*

The adjustment to the *Machine* account will remain at $3,000 every period until the machine is sold or abandoned. Recall that this is the amount by which the cost basis changed when it was sold by Pratt to Sterling. From the consolidated entity's perspective, this change in cost basis has not occurred because the asset has not left the consolidated entity.

Recall that the sale of the machine by Pratt to Sterling occurred on December 31, 2006. During 2007, Sterling recognizes $1,500 ($6,000/4 years) depreciation expense on its income statement. The T-accounts below indicate the amounts recognized on the books of Pratt and Sterling with regard to the machine and the worksheet elimination necessary to prepare the consolidated financial statements at December 31, 2007.

Machine

Pratt purchases machine	1/1/2001	9,000			
Sterling buys machine from Pratt	12/31/2006	6,000	9,000	12/31/2006	Pratt sells machine to Sterling
Worksheet elimination	12/31/2007	3,000			
Consolidated balance	12/31/2007	9,000			

Depreciation Expense

Sterling's 2007 depreciation expense	12/31/2007	1,500	600	12/31/2007	Worksheet elimination
Consolidated balance ($9,000/10)	12/31/2007	900			

The cost allocation recognized by the purchaser will often differ from the amount that would have been recognized by the consolidated entity had the intercompany transaction not occurred. This is because any gain or loss on the sale causes a change in the cost basis. Keep in mind that the seller's historical cost is the basis for the consolidated entity's cost allocations because the change in the historical cost resulting from the intercompany transaction is not recognized. In Example 4-2a, Pratt's 2007 *Depreciation Expense* would have been $900 had the asset not been sold to Sterling. Sterling's *Depreciation Expense* is booked at $1,500 ($6,000/4 years). Therefore, an adjustment must be made to reduce *Depreciation Expense* by $600. The *Depreciation Expense* adjustment in subsequent periods will be the same dollar amount if straight-line depreciation is used. The amount will change from period to period if other depreciation methods are used.

Accumulated Depreciation

			4,500	1/1/2006	Pratt's beginning balance
Pratt sells machine to Sterling	12/31/2006	5,400	900	12/31/2006	Pratt's 2006 depreciation expense
			1,500	12/31/2007	Sterling's 2007 depreciation expense
			4,800	12/31/2007	Worksheet elimination
			6,300	12/31/2007	Consolidated balance: ($9,000/10)(7)

In conjunction with the adjustment to the *Depreciation Expense* account, the adjustment to *Accumulated Depreciation* also changes. Recall that the *Accumulated Depreciation* account ($5,400) was removed from Pratt's financial records at the date of the intercompany transaction. A worksheet elimination was necessary to restate the *Accumulated Depreciation* as of that date. Subsequent to the acquisition, the purchaser (Sterling) recognizes *Depreciation Expense* at a faster rate ($1,500 per year) than the consolidated entity recognizes *Depreciation Expense* ($900 per year). As a result, Sterling increases its *Accumulated Depreciation* balance faster than the consolidated entity, and the periodic adjustment to *Accumulated Depreciation* becomes smaller by $600 each year.

Retained Earnings

		Debit	Credit		
			-0-	1/1/2006	Beginning balance
Worksheet elimination	1/1/2007	2,400	2,400	12/31/2006	Pratt sells machine to Sterling
			-0-	1/1/2007	Consolidated balance

The amount disclosed as *Retained Earnings* on the consolidated balance sheet will also be adjusted in subsequent periods until the historical cost of the asset *to the purchaser* is allocated to the income statement. This adjustment occurs because of the impact of the original transaction and subsequent cost allocations on the buyer's and seller's income statements. At the intercompany transaction date, Pratt recognizes a $2,400 gain while Sterling's recognizes a book value ($6,000) that is $2,400 greater than the machine's book value on Pratt's accounting records ($9,000 – $5,400). The higher book value on Sterling's accounting records will result in $2,400 additional depreciation expense over the machine's remaining life being recorded by Sterling. Thus, over the machine's remaining life, Pratt's recognized gain is completely offset by the difference between Sterling's recognized *Depreciation Expense* and the *Depreciation Expense* reported on the consolidated income statement. The worksheet elimination to *Retained Earnings* in the current example is a $2,400 debit. This amount will be reduced in subsequent years by $600 per year and the adjustment to *Retained Earnings* will no longer be necessary the year after the machine's cost is fully allocated to Sterling's income statement.

Example 4-2a presents the 2007 worksheet elimination for the machine example.

Worksheet Elimination 4-2A—Journal Entry Form

December 31, 2007		
Machine	3,000	
Retained Earnings (January 1, 2007)	2,400	
Depreciation Expense		600
Accumulated Depreciation		4,800

To understand how the *Accumulated Depreciation* and *Retained Earnings* adjustments change in worksheet elimination (5) from year to year, it is important to examine the dollar amount of adjustments to worksheet elimination accounts over time. The following table presents a summary of selected information that impacts the worksheet elimination each year over the remaining life of the machine sold downstream to Sterling.

	Gain on Sale of Machine	*Depreciation Expense to Adjust Sterling to Consolidated ($1,500 – $900)*	*Accumulated Depreciation*	*Retained Earnings*
2006	$2,400		$5,400	
2007		$600	4,800	$2,400
2008		600	4,200	1,800
2009		600	3,600	1,200
2010		600	3,000	600
2011			3,000	0

Note that in the period of the intercompany sale (2006) there is an income statement adjustment *(Gain on Sale of Machine)* but no adjustment to *Retained Earnings.* The $2,400 adjustment to *Retained Earnings* resulting from the gain on sale is not part of the worksheet elimination until 2007 because the gain is not closed to *Retained Earnings* until the end of the accounting period during which the sale occurred. In subsequent years, 2008–2011, the worksheet elimination to *Retained Earnings* decreases by $600 ($1,500 – $900) per year due to the excess *Depreciation Expense* recorded on Sterling's financial records relative to the consolidated income statement. The *Accumulated Depreciation* worksheet elimination amount in 2006 returns Pratt's recognized *Accumulated Depreciation* to the consolidated balance sheet. In each subsequent period, Sterling recognizes *Depreciation Expense* ($1,500) greater than the consolidated *Depreciation Expense* ($900). As a result, the worksheet elimination to *Accumulated Depreciation* will decrease by $600 each year. Note that the worksheet elimination to *Accumulated Depreciation* does not cease to exist when the machine is fully depreciated. Rather, the dollar amount of the *Accumulated Depreciation* worksheet elimination will equal the worksheet elimination to the *Machine* account and both will be eliminated in equal dollar amounts until the machine is sold or abandoned.

Inventory Transaction One Period Subsequent

EXAMPLE 4-2B
Downstream sale of inventory (4-1B Continued)

Assume that during 2007 Sterling sold, to unrelated parties, all 8,000 units of inventory that had been acquired from Pratt on December 30, 2006. The selling price was $96,000. As a result of these sales, Sterling recognized $64,000 cost of goods sold (8,000 units × $8 cost per unit). In addition, assume that during 2007 Sterling purchased an additional 18,000 units from Pratt for $9 per unit. These goods also had cost Pratt $6 per unit. Note that the markup per unit on goods sold by Pratt to Sterling increased from $2 per unit in 2006 to $3 per unit in 2007. Of the 18,000 units of inventory purchased by Sterling in 2007, 14,000 units were sold to unrelated parties in the same year for a total of $168,000.

The T-accounts below indicate the amounts recognized on Pratt's and Sterling's books plus the worksheet elimination necessary (the shaded values) to prepare the consolidated financial statements at December 31, 2007.

Sales

		Debit	Credit		
			264,000	2007	Sterling sells to unrelated entity: $96,000 + $168,000
Worksheet elimination	12/31/2007	162,000	162,000	2007	Pratt sells 18,000 units to Sterling
			264,000	12/31/2007	Consolidated balance

The current period intercompany sale by Pratt must be removed from the consolidated income statement as in the previous inventory example. In this case, the *Sales* amount must be adjusted to eliminate the current period intercompany sale of $162,000. Note that Sterling's $264,000 of sales to unrelated parties are not eliminated because such sales are transactions with parties outside the consolidated entity.

Cost of Goods Sold

		Debit	Credit		
Sterling sells inventory to unrelated entity: (8,000 × $8) + (14,000 × $9)	2007	190,000			
Pratt sells inventory to Sterling: (18,000) ($6)	2007	108,000	166,000	12/31/2007	Worksheet elimination: (18,000) ($6) + 8,000 × ($2) + (14,000) × ($3)
Consolidated balance: (22,000) ($6)	12/31/2007	132,000			

The *Cost of Goods Sold* worksheet elimination ($166,000) is comprised of three parts in the current example:

1. *The Cost of Goods Sold reported by Pratt relating to its 2007 sales to Sterling*. The 2007 intercompany sales resulted in $108,000 (18,000 × $6) of *Cost of Goods Sold* to be eliminated.
2. *Sterling's markup in the beginning inventory sold to unrelated parties during 2007*. In conjunction with the higher historical cost basis of the inventory on Sterling's books from the 2006 intercompany inventory transaction, the *Cost of Goods Sold* recognized by Sterling will be higher than the amount that would have been recognized by Pratt had the intercompany inventory transaction not taken place. The per-unit beginning inventory cost on Sterling's books is $8 while the per-unit cost that had been on Pratt's books is $6. Therefore, *Cost of Goods Sold* must be reduced by the $2 per unit cost difference for each of the 8,000 beginning inventory units sold by Sterling to unrelated parties. The result is a $16,000 adjustment to *Cost of Goods Sold.*
3. *Sterling's markup in Cost of Goods Sold relating to current period purchases sold to unrelated parties. Cost of Goods Sold* must be reduced by $3 per unit for each of the 14,000 units purchased from Pratt in 2007 for $9 and resold to unrelated parties in the same year.

The three component parts ($108,000 + $16,000 + $42,000) total to the $166,000 *Cost of Goods Sold* elimination.

Inventory

		Debit	Credit		
Sterling's beginning inventory: 8,000 × $8	1/1/2007	64,000			
Pratt purchase of inventory: 18,000 × $6	2007	108,000	108,000	2007	Pratt sells 18,000 units to Sterling
Sterling purchases from Pratt: 18,000 × $9	2007	162,000	190,000	2007	Sterling sells inventory to unrelated entities: (8,000×$8) + (14,000×$9)
			12,000	12/31/2007	Worksheet elimination: 4,000 × $3
Consolidated balance: 4,000 × $6	12/31/2007	24,000			

The *Inventory* T-account reveals that Sterling's beginning 2007 inventory is valued at $64,000. During 2007 Pratt purchased 18,000 units of inventory for $108,000 and sold that inventory to Sterling, resulting in a debit and a credit entry to the T-account. Sterling recognized the 2007 intercompany purchase of inventory for $162,000. Sterling also sold inventory to unrelated entities during 2007. The *Cost of Goods Sold* recognized from all Sterling's sales to unrelated parties is $190,000 (8,000 × $8 + 14,000 × $9). As a result, the ending inventory on Sterling's books is $36,000 [(18,000 units purchased – 14,000 units sold) × $9 cost per unit]. The amount that would be recognized if the ending inventory was still on Pratt's books is $24,000 (4,000 units × $6 cost per unit). Therefore, the worksheet elimination must reduce the inventory's carrying value by $12,000.

Retained Earnings

		Debit	Credit		
			-0-	1/1/2006	Beginning balance
Worksheet elimination	1/1/2007	16,000	16,000	12/31/2006	Pratt's 2006 Net Income due to inventory sold to Sterling
			-0-	1/1/2007	Consolidated balance

During 2006 Pratt recognized $16,000 gross profit (*Sales – Cost of Goods Sold*) when inventory was sold to Sterling. At the end of 2006, this gross profit was transferred to Pratt's *Retained Earnings* when the financial records were closed. As a result, the gross profit from 2006 downstream intercompany sales is included in the beginning 2007 *Retained Earnings* account balance. The 2007 adjustment to beginning *Retained Earnings* removes this gross profit because the inventory was not sold to unrelated parties before the end of 2006, and therefore Pratt's January 1, 2007, *Retained Earnings* balance is overstated by the unrealized profit. The unrealized profit remains in *Retained Earnings* until the period after the intercompany inventory is sold to a party outside the consolidated entity.

Worksheet Elimination 4-2B—Journal Entry Form

December 31, 2007		
Sales	162,000	
Retained Earnings (January 1, 2007)	16,000	
Cost of Goods Sold		166,000
Inventory		12,000

The worksheet elimination related to the 2007 inventory transactions is presented in Example 4-2b. Notice that there is no structural difference between the worksheet elimination for the downstream sale of a machine (Example 4-2a) and the worksheet elimination for the downstream sale of inventory (Example 4-2b). Specifically, the adjustments to the asset account, the cost allocation, and the equity are accomplished similarly for both transactions. The asset account (*Machine* or *Inventory*) is returned to the value that would be disclosed on the original owner's financial records had the intercompany transaction not taken place. In accord with the change in the recognized historical cost, the cost allocation (*Depreciation Expense* or *Cost of Goods Sold*) is adjusted to reflect the allocation of the historical cost to the original owner. Finally, the *Retained Earnings* adjustment reflects the net consolidation worksheet eliminations made to the income statement accounts in previous periods due to the intercompany transaction.

The primary issue to consider when preparing the worksheet elimination for intercompany inventory transactions is the removal of the intercompany markup from the consolidated financial statements. The volume of inventory activity can sometimes require a very detailed analysis when using T-accounts to determine the dollar amount of markup in beginning inventory, current period activity, and ending inventory. A matrix of intercompany inventory activity can be a useful tool when analyzing the inventory markup and constructing the required worksheet elimination. Generally the worksheet elimination in Example 4-2b can be developed using the system illustrated below.

	Number of Units	*Cost to Seller*	*Markup*	*Price to Buyer*
Beginning Inventory (Buyer's Books)			①	
Current Period Intercompany Transfers (Seller's Books)		④		⑤
Less Ending Inventory (Buyer's Books)			③	
Sold (by Buyer to unrelated parties)			②	

	Debit	*Credit*
Sales	⑤	
Retained Earnings	①	
Cost of Good Sold		② + ④
Inventory		③

Notice that all of the dollar values in the markup column are eliminated in steps. First, the markup in the buyer's beginning inventory ① results in an adjustment to the seller's beginning *Retained Earnings* balance because this markup represents the, as yet, unrealized profit. Second, the markup in those goods sold by the buyer to unrelated parties in the current year results in an adjustment to the *Cost of Goods Sold* ② reported by the buyer. This adjustment is needed because the recognized *Cost of Goods Sold* includes the markup, so it is overstated from the consolidated entity's perspective. Third, markup on those intercompany goods still in the buyer's year-end *Inventory* ③ is the amount eliminated from the ending *Inventory* balance.

Finally, the markup on goods sold intercompany during the current period is eliminated. This part of the elimination is slightly more involved because the entire intercompany balances on the seller's books in *Sales* ⑤ and *Cost of Goods Sold* ④ must be eliminated because the sales are to a related party. By eliminating both balances, the equivalent of the amount in the markup column is removed. That is, the net of these two amounts, ⑤ minus ④, equals the markup on current period intercompany sales. Thus, the components of the inventory matrix markup column explain the entire flow of markup on intercompany goods and provide the basis for the line items of the inventory worksheet elimination.

To demonstrate the use of the matrix approach, the following information is taken from Example 4-2b.

	Number of Units	*Cost to Pratt*	*Markup*	*Pratt's Selling Price*
Beginning Inventory	8,000	$48,000	$16,000	$ 64,000
2007 Sales to Sterling	18,000	108,000	54,000	162,000
Less Ending Inventory*	(4,000)	(24,000)	(12,000)	(36,000)
Sold	22,000	$132,000	$58,000	$190,000

* Assumes a first-in, first-out cost flow.

The five values shaded in the table combine to make up the worksheet elimination presented in Example 4-2b. Two of the values ($108,000 and $58,000) combine to make up the *Cost of Goods Sold* adjustment, while the other three amounts are adjustments to individual accounts (*Sales,* \$162,000; *Retained Earnings*, \$16,000; *Inventory* \$12,000).

Debt Transaction One Period Subsequent

EXAMPLE 4-2C
Downstream debt transaction (4-1C Continued)

Assume that Sterling holds the investment in Pratt's bonds made in 2006 for the entire year and that Pratt and Sterling record the appropriate interest amounts in 2007.

During 2007, Pratt and Sterling record the following journal entries to recognize the payment and receipt of interest for each quarter.

Journal Entry—Pratt Corporation Books

Quarterly Entry	Interest Expense (\$300,000 .07) × (3/12) + (\$30,000/80)	5,625	
	Discount on Bonds Payable (\$30,000/80)		375
	Cash (\$300,000 .07) × (3/12)		5,250
	To record 2007 interest payment for three months.		

Journal Entry—Sterling Products Books

Quarterly Entry	Cash (\$300,000 .07) × (3/12)	5,250	
	Investment in Bonds (\$27,000/30)		900
	Interest revenue		4,350
	To record 2007 interest receipt for three months.		

The T-accounts below illustrate the worksheet elimination necessary to remove the relevant part of the *Bonds Payable* and all related accounts and the entire *Investment in Bonds* as well as adjust *Retained Earnings* due to income statement effects from the prior period.

Bonds Payable

		Debit	Credit		
			300,000	6/30/1994	Pratt issues bonds
Worksheet elimination	12/31/2007	300,000			
			-0-	12/31/2007	Consolidated balance

Discount on Bonds Payable

		Debit	Credit		
Pratt issues bonds: \$400,000 × .075	6/30/1994	30,000			
			750	1994	July–Dec. amortization: (\$30,000/80)(2)
			19,500	1995–2007	13 years amortization: (\$30,000/80)(52)
			9,750	12/31/2007	Worksheet elimination (unamortized balance)
Consolidated balance	12/31/2007	-0-			

Investment in Bonds

Sterling's investment in Pratt's bonds	12/31/2006	327,000			
			3,600	2007	Premium amortization: ($27,000/30)(4)
			323,400	12/31/2007	Worksheet elimination
Consolidated balance	12/31/2007	-0-			

As was the case at the end of 2006, the 7.5 percent of the *Bonds Payable* acquired by Sterling ($300,000) is eliminated in 2007 when preparing the consolidated financial statements because worksheet eliminations were not posted to any entity's financial records in 2006. The discount eliminated is reduced from $11,250 on December 31, 2006 (Example 4-1c) to $9,750 on December 31, 2007 (Example 4-2c). The decrease in the worksheet elimination to the *Discount on Bonds Payable* ($11,250 vs. $9,750) is equal to the discount amortized by Pratt during 2007 on the $300,000 of bonds purchased by Sterling. The worksheet elimination to the *Discount on Bonds Payable* will continue to decrease each period as the discount is amortized. Similarly, the change in the worksheet elimination to the *Investment in Bonds* account reflects the premium amortization recorded by Sterling. This amount will also continue to change throughout the remaining life of the bonds until the bonds mature, at which time the *Investment in Bonds* account will equal the face value of the bonds acquired ($300,000 in the current example).

Interest Revenue

Worksheet elimination	12/31/2007	17,400	17,400	2007	Sterling interest revenue: ($300,000 × .07) – ($27,000/30)(4)
			-0-	12/31/2007	Consolidated balance

Interest Expense

Pratt interest expense: $300,000 × .07 + ($30,000/80)(4)	2007	22,500	22,500	12/31/2007	Worksheet elimination
Consolidated balance	12/31/2007	-0-			

The entire amount of *Interest Revenue* recorded by Sterling is viewed by the consolidated entity as intercompany revenue because it was received from Pratt. Similarly, the portion of the *Interest Expense* recorded by Pratt and relating to the bonds purchased by Sterling is viewed by the consolidated entity as an intercompany expense. The *Interest Expense* recorded by Pratt and paid to unrelated parties (not shown here) is not an intercompany transaction. In summary, the entire *Interest Revenue* and *Interest Expense* balances relating to the $300,000 of bonds retired are intercompany, so they are fully eliminated.

Retained Earnings

Beginning balance	1/1/2006	-0-	
Worksheet elimination	1/1/2007	38,250	
Consolidated balance	1/1/2007	38,250	

The worksheet elimination prepared at December 31, 2007, to adjust the January 1, 2007, *Retained Earnings* balance reflects the *Loss on Early Debt Retirement* included in the 2006 worksheet elimination. Remember that the $38,250 *Loss on Early Debt Retirement* was not recognized on the books of either Pratt or Sterling in 2006; therefore, the *Retained Earnings* accounts were unaffected at that time. This amount was subtracted in calculating consolidated net income in 2006 and therefore reduced the consolidated *Retained Earnings* at December 31, 2006. It now must be subtracted from beginning *Retained Earnings* on the 2007 consolidated financial statements. The worksheet elimination to *Retained Earnings* will decrease in future periods as the intercompany *Interest Revenue* and *Interest Expense* are eliminated in subsequent worksheet eliminations. The difference between *Interest Revenue* and *Interest Expense* eliminated in a given year is the amount by which the next year's *Retained Earnings* worksheet elimination will decrease. For example, the 2008 *Retained Earnings* worksheet elimination will be $33,150 = $38,250 – ($22,500 – $17,400). Also, notice that the *Interest Expense* worksheet elimination (credit) is greater than the *Interest Revenue* worksheet elimination (debit). This will always occur when the worksheet elimination at the date of the intercompany debt transaction results in a *Loss on Early Debt Retirement.* The opposite will occur if an intercompany bond transaction results in a *Gain on Early Debt Retirement* (illustrated later in the chapter).

Worksheet Elimination 4-2C—Journal Entry Form

December 31, 2007		
Bonds Payable	300,000	
Interest Revenue	17,400	
Retained Earnings (January 1, 2007)	38,250	
Discount on Bonds Payable		9,750
Interest Expense		22,500
Investment in Bonds		323,400

Example 4-2c presents the worksheet elimination in journal entry form. The 2007 worksheet elimination differs from the 2006 worksheet presented in Example 4-1c in that the *Interest Revenue, Interest Expense,* and *Retained Earnings* must be adjusted, but the *Loss on Early Debt Retirement* is not recreated.

Periods Subsequent to Intercompany Transaction—Summary

Worksheet eliminations in subsequent periods are prepared to remove the impact of intercompany transactions initiated in a previous period from the consolidated income statement and balance sheet as long as balance sheet accounts are valued incorrectly and/or income, as measured by the buyer and seller, does not match the income that should be reported for the consolidated entity. The worksheet eliminations in the periods subsequent to intercompany transactions result in: (1) the removal of current period of income statement amounts related to intercompany transactions (e.g., *Depreciation Expense, Sales* and *Cost of Goods Sold,* and *Interest Expense* and *Interest Revenue* for the three examples presented above, respectively); (2) the restatement of balance sheet accounts to the historical values that would have existed on the financial records where initially recorded if the intercompany transaction had not occurred (e.g., *Machine* and *Accumulated Depreciation; Inventory;* and *Bonds Payable, Premium (Discount) on Bonds Payable,* and *Investment in Bonds,* respectively); and (3) the adjustment made to *Retained Earnings* (January 1) relating to all unrealized intercompany income statement effects existing at the end of the prior year. *Retained Earnings* (January 1) must be adjusted in subsequent years for all intercompany transactions because prior period income statement worksheet eliminations affect the beginning *Retained Earnings* in subsequent years.

The adjustments to cost allocations for intercompany asset transactions are necessary because the historical cost to the seller is the relevant basis for allocations on the consolidated income statement, not the historical cost to the buyer (buyer's cost includes seller's profit margin). The restatement of the asset to the seller's historical cost occurs because, from the consolidated perspective, an arm's-length transaction with an unrelated party has not occurred. Therefore, there is no justification for revaluing the asset.

The balances in the accounts relating to intercompany debt transactions are eliminated because the debt is viewed as retired from a consolidated entity perspective, so no liability or investment exists, and there is no interest to recognize. Once the maturity date is reached, no further adjustments are necessary because the debt and the investment are removed from the issuer's and investor's accounting records, respectively.

Period of Intercompany Transaction—Downstream (During the Year)

Few intercompany transactions actually occur at the end of a year. As a result, additional accounts are affected due to the passage of time between the date of the intercompany transaction and year-end. Complexities in the consolidation procedures arise because in the year of the intercompany transaction, for example, the plant asset will be depreciated by the new owner, inventory may be sold by the purchaser, or the investor purchasing the intercompany bonds will record interest revenue and amortization of a discount or premium. The following examples (machine, inventory, and debt) present three downstream intercompany transactions that occur during the year. The journal entries recorded by Pratt and Sterling as well as the worksheet eliminations necessary to prepare the consolidated financial statements are presented.

Fixed Asset Transaction During the Period with Change in Estimated Life The following example is based on the facts presented in Example 4-1a, with two exceptions. First, the date that Pratt sells the machine to Sterling is changed. Second, the estimated remaining life assigned to the asset by Sterling is different from the remaining life to Pratt.

EXAMPLE 4-3A
Downstream sale of a machine on May 1, 2006

Assume a machine was purchased by Pratt on January 1, 2001, for $9,000. The machine is being depreciated using the straight-line method assuming a 10-year life with no salvage value. The machine is sold to Sterling for $6,000 on May 1, 2006. Pratt recorded depreciation expense for the period from January 1 to April 30, 2006. At the date of the sale, 64 months have passed since Pratt purchased the machine. Thus, the accumulated depreciation is $4,800 [$9,000 (64/120)]. Sterling increases the machine's estimated remaining life to eight years.

The following journal entries are recorded on Pratt's and Sterling's accounting records at the date of the intercompany transaction:

Journal Entry—Pratt Corporation Books

Cash	6,000	
Accumulated Depreciation ($9,000) (64/120)	4,800	
Gain on sale of machine [$6,000 – ($9,000 – $4,800)]		1,800
Machine		9,000
To record sale of machine to Sterling.		

Journal Entry—Sterling Products Books

Machine	6,000	
Cash		6,000
To record purchase of machine from Pratt.		

The T-accounts that follow display the determination of the dollar amounts for the worksheet elimination in Example 4-3a. The *Machine* account has the same $3,000 worksheet elimination amount as in Example 4-1a. The purchase price by Sterling is $3,000 less than the original purchase price by Pratt. Therefore, the *Machine* account worksheet elimination will be a debit of $3,000 each year.

Machine

		Debit	Credit		
Pratt purchases machine	1/1/2001	9,000			
Sterling buys machine from Pratt	5/1/2006	6,000	9,000	5/1/2006	Pratt sells machine to Sterling
Worksheet elimination	12/31/2006	3,000			
Consolidated balance	12/31/2006	9,000			

When an intercompany sale of a plant asset occurs at any time other than the end of an accounting period, there are two income statement accounts that must be considered when preparing worksheet elimination (5) in the period of the intercompany transaction. First, gain or loss on sale of the plant asset must be eliminated as in Example 4-1a. The amount of gain to be eliminated in the current example differs from the amount eliminated in Example 4-1a because the date of sale was changed, so the book value at the date of sale differed. The elimination of the entire gain is still required as discussed previously.

Gain on Sale of Machine

		Debit	Credit		
Worksheet elimination	12/31/2006	1,800	1,800	5/1/2006	Pratt sells machine to Sterling
			-0-	12/31/2006	Consolidated balance

Second, the difference between the purchaser's depreciation expense and the required consolidated depreciation expense subsequent to the date of the intercompany transaction must be eliminated. The *Depreciation Expense* recognized by the original owner (Pratt in a downstream transaction) prior to the intercompany transaction date is always the relevant amount for the consolidated income statement with regard to the period prior to the intercompany transaction. Thus, it does not result in a worksheet elimination adjustment. The *Depreciation Expense* adjustment that must be made as part of worksheet elimination (5) pertains only to the difference between the *Depreciation Expense* recognized by the purchaser (Sterling in a downstream transaction) and the *Depreciation Expense* that should be on the consolidated income statement for the period from the date of the intercompany transaction until year-end.

The worksheet elimination (5) adjustment to depreciation expense is more involved when the estimated remaining life changes at the intercompany transaction date. Sterling's recognized *Depreciation Expense* is based on Sterling's historical cost ($6,000) and the eight-year estimated remaining life assigned to the machine. In Example 4-2a, Sterling's recognized *Depreciation Expense* was compared to the *Depreciation Expense* that would have been recorded by Pratt to determine the worksheet elimination (5) adjustment. When Sterling changes the machine's estimated remaining life, the revised estimated life must be used to calculate consolidated *Depreciation Expense.* Pratt's book value remains the basis for calculating consolidated *Depreciation Expense* because Pratt was the original owner and Pratt's book value is the unamortized amount of the expenditure. However, Sterling's assigned estimated life must be used to calculate consolidated *Depreciation Expense* because it now represents the revised remaining time over which the machine will be used by the consolidated entity. Thus, subsequent to the date Sterling acquires the machine, consolidated *Depreciation Expense* is calculated using Pratt's book value and Sterling's estimated remaining life. This is basically the same approach to recording depreciation expense on any asset when there is a change in estimated life. Pratt had already depreciated the asset for 5 years, 4 months out of an original estimated 10-year life at the date Sterling acquired the machine. The estimated remaining useful life became 8 years as compared to the 4 years, 8 months remaining to Pratt had the machine not been sold. The new estimated remaining life assigned by Sterling is a change in accounting estimate from the consolidated perspective.

The adjustment to depreciation expense impacts the worksheet elimination from the date of the intercompany transaction until the end of the asset's estimated remaining life. The amount of the *Depreciation Expense* adjustment for 2006 in Example 4-3a is based on the following information:

	Depreciation Expense			
	Pratt	*Sterling*	*Recognized*	*Consolidated*
Jan. 1–April 30, 2006				
[($9,000/10)4/12]	$300	N/A	$300	$300
May 1–Dec. 31, 2006				
[($9,000 – $4,800)/8](8/12)				$350
[($6,000/8)8/12]	N/A	$500	$500	
Totals			$800	$650

		Depreciation Expense			
Pratt's 2006 depreciation expense	5/1/2006	300			
Sterling's 2006 depreciation expense	12/31/2006	500	150	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	650			

In the year Pratt sells the machine to Sterling, *Depreciation Expense* is recognized on Pratt's accounting records for four months and on Sterling's accounting records for eight months. Pratt's recognized *Depreciation Expense* prior to the intercompany transaction ($300) is reflected on the consolidated income statement, and it does not impact the worksheet elimination because it is based on the seller's (Pratt's) historical cost and estimated remaining life. This amount is correct from the consolidated entity's point of view. The $150 ($500 – $350) of *Depreciation Expense* recognized by Sterling above what would have been recognized on the consolidated income statement from May 1 to December 31 results in an adjustment to worksheet elimination (5). This amount is subtracted from depreciation expense when removing the impact of the intercompany transaction from the consolidated financial statements. The *Depreciation Expense* T-account shows the amounts recorded by Pratt and Sterling as well as the worksheet elimination necessary to present the correct consolidated *Depreciation Expense.*

Accumulated Depreciation

			4,500	1/1/2006	Pratt's beginning balance
Pratt sells machine to Sterling	5/1/2006	4,800	300	5/1/2006	Pratt's 2006 depreciation expense
			500	12/31/2006	Sterling's 2006 depreciation expense
			4,650	12/31/2006	Worksheet elimination
			5,150*	12/31/2006	Consolidated balance

* Consolidated accumulated depreciation	
from 1/1/2001 to 4/30/2006 ($9,000/10) × 5 years 4 months	$4,800
from 5/1/2006 to 12/31/2006 [($9,000 – $4,800) / 8]8/12 year	350
Consolidated balance in accumulated depreciation 12/31/2006	$5,150

The worksheet adjustment to *Accumulated Deprecation* is a direct extension of the *Depreciation Expense* T-account. *Accumulated Depreciation* on Pratt's accounting records ($4,800) is completely removed at the date of the intercompany transaction. Sterling then starts to recognize *Depreciation Expense* ($500) based on its cost basis and remaining economic life. At the end of the accounting period, consolidated *Accumulated Depreciation* is the amount removed from Pratt's accounting records at the intercompany transaction date plus the consolidated *Depreciation Expense* ($350) for the period from the intercompany transaction date to the end of the year. Thus, the $500 recognized balance in the *Accumulated Depreciation* account must be increased by $4,650 to create the required consolidated balance ($5,150).

Worksheet Elimination 4-3A—Journal Entry Form

December 31, 2006		
Machine	3,000	
Gain on Sale of Machine	1,800	
Depreciation Expense		150
Accumulated Depreciation		4,650

The worksheet elimination presented in Example 4-3a presents the adjustments discussed above in journal entry form. As in previous examples, the values included in this worksheet elimination can be found by referring to the shaded amounts in the T-accounts.

Inventory Transaction During the Period An intercompany sale of inventory that occurs early enough in the year that some of the inventory is sold to unrelated parties before year-end results in a worksheet elimination that has the same accounts as an intercompany sale that occurs at the end of the year, but the dollar amounts change. The intercompany sale must always be completely eliminated from the consolidated financial statements (this was demonstrated in the 2006 worksheet elimination in Example 4-1b). In addition, the sale to the unrelated party has to be adjusted in a manner similar to the adjustment demonstrated in the 2007 worksheet elimination in Example 4-2b. The interpretation of the information results in a worksheet elimination that is basically a combination of the two years.

The following example is an extension of Example 4-1b where some of the inventory acquired by Sterling is sold to an unrelated party before the end of the period during which the intercompany transaction occurred.

EXAMPLE 4-3B
Downstream sale of inventory on December 30, 2006

Assume Pratt purchases 8,000 units of inventory on November 10, 2006, at a cost of $6 per unit. Pratt sells this inventory to Sterling on December 30, 2006, for $8 per unit. Assume that Sterling sells 1,500 units of inventory acquired from Pratt to unrelated parties for $18,000 on December 31, 2006. As a result of these sales, Sterling recognizes $12,000 cost of goods sold (1,500 units × $8 cost per unit).

The T-accounts below indicate the amounts recorded on Pratt's and Sterling's books plus the worksheet elimination necessary to prepare the consolidated financial statements at December 31, 2006.

Sales

		Debit	Credit		
			64,000	2006	Pratt sells 8,000 units to Sterling
Worksheet elimination	12/31/2006	64,000	18,000	2006	Sterling sells 1,500 units to an unrelated entity
			18,000	12/31/2006	Consolidated balance

The entire amount of the intercompany sale ($64,000) must be eliminated, while the entire amount of Sterling's sale to unrelated parties ($18,000) is included on the consolidated income statement.

Cost of Goods Sold

		Debit	Credit	
Pratt sells inventory to Sterling: 8,000 × $6	2006	48,000		
Sterling sells to unrelated entity: 1,500 × $8	2006	12,000	51,000	12/31/2006 Worksheet elimination: 8,000 × $6 + 1,500 × $2
Consolidated balance: 1,500 × $6	12/31/2006	9,000		

The *Cost of Goods Sold* worksheet elimination ($51,000) consists of two parts in the current example: (1) current period intercompany sale by Pratt and (2) Sterling sales of current period inventory purchases to unrelated parties. The current period intercompany sale by Pratt must always be removed from the consolidated income statement. The 2006 intercompany sales resulted in the elimination of $48,000 of *Cost of Goods Sold.* In conjunction with the higher historical cost basis of the inventory on Sterling's books from the intercompany inventory transaction, the *Cost of Goods Sold* recognized by Sterling will be higher than the amount that would have been recognized by Pratt had the intercompany inventory transaction not taken place. The per-unit inventory cost on Sterling's books is $8, while the per-unit cost that had been on Pratt's books is $6. As a result, *Cost of Goods Sold* must be reduced by the $2 per unit cost difference for each of the 1,500 units sold by Sterling to unrelated parties, resulting in an additional $3,000 adjustment to *Cost of Goods Sold.*

Inventory

		Debit	Credit		
Pratt purchases 8,000 units of inventory	2006	48,000	48,000	2006	Pratt sells 8,000 units to Sterling
Sterling purchases from Pratt 8,000 × $8	2006	64,000	12,000	2006	Sterling sells inventory inventory to unrelated entity 1,500 × $8
			13,000	12/31/2006	Worksheet elimination: 6,500 × $2
Consolidated balance: 12/31/2006 6,500 × $6		39,000			

The remaining intercompany inventory is carried on Sterling's books at $52,000 at the end of 2006. This amount is based on the $8 per unit purchase price by Sterling and the 6,500 units remaining in ending inventory. The consolidated balance sheet must disclose the inventory at its cost when acquired by the consolidated entity (when purchased by Pratt). As a result, the consolidated balance sheet will include *Inventory* at $39,000 (6,500 units × $6 per unit). The worksheet elimination ($13,000) restates the *Inventory* from its current carrying value ($52,000) to its required consolidated balance ($39,000).

The worksheet elimination related to the 2006 inventory transactions is presented in Example 4-3b.

Worksheet Elimination 4-3B—Journal Entry Form

December 31, 2006		
Sales	64,000	
Cost of Goods Sold		51,000
Inventory		13,000

Debt Transaction During the Period The intercompany debt transaction presented previously (Example 4-1c) resulted in a loss recognition in the period during which Sterling acquired some of Pratt's outstanding bonds. In the subsequent period, the intercompany *Interest Revenue* and *Interest Expense* were eliminated from the consolidated income statement. The loss recognition and the interest were included in worksheet eliminations in different years because the intercompany debt transaction occurred at the end of 2006. Therefore, there was no interest recognized subsequent to the intercompany transaction in 2006. In Example 4-3c presented here, the intercompany debt transaction occurs during the year, so the period of the intercompany transaction will include both loss or gain recognition and subsequent interest revenue and expense in 2006.

EXAMPLE 4-3C
Downstream debt transaction on March 31, 2006

Assume Pratt had issued 4,000 20-year bonds payable, each in the amount of $1,000, on June 30, 1994, to finance the construction of a new manufacturing facility. The bonds had a stated interest rate of 7 percent, with interest paid quarterly (80 periods) on a calendar-year basis. Pratt received $3,600,000 on June 30, 1994 (present value of the cash flows discounted at approximately 8.25 percent). The discount is being amortized using the straight-line method. Sterling (the subsidiary) acquires $300,000 of the bonds (7.5 percent) as an investment on March 31, 2006—33 quarters prior to maturity—for $328,215 (the present value of the cash flows discounted at approximately 5.7 percent). Sterling elects to amortize the premium using the straight-line method.

The following T-accounts illustrate the entries recognized on Pratt's and Sterling's books with respect to the bonds acquired by Sterling and the accompanying consolidated financial statement amounts and worksheet eliminations.

Bonds Payable

		Debit	Credit		
			300,000	1/1/1994	Pratt issues bonds
Worksheet elimination	12/31/2006	300,000			
			-0-	12/31/2006	Consolidated balance

The face value of the outstanding bond must always be removed from the consolidated balance sheet. From the consolidated entity's perspective, the bond has been retired.

Discount on Bonds Payable

		Debit	Credit		
Pratt issues bonds: $400,000 × .075	6/30/1994	30,000			
			750	1994	July–Dec. amortization: ($30,000/80)(2)
			16,500	1995–2005	11 years amortization: ($30,000/80)(44)
			375	3/31/2006	Jan. 1–Mar. 31 amortization (to date of retirement): ($30,000/80)
			1,125	2006	Apr. 1–Dec. 31 amortization: ($30,000/80)(3)
			11,250	12/31/2006	Worksheet elimination (unamortized balance)
Consolidated balance	12/31/2006	-0-			

The *Discount on Bonds Payable* worksheet elimination amount is exactly the same as in Example 4-1c when Sterling acquired Pratt's bond at December 31. The date of the investment by Sterling has no impact on Pratt's accounting records. The balance ($30,000) is the discount on the 7.5 percent of the total bond issue acquired by Sterling. The original issue discount was $400,000. The quarterly amortization ($375) is the straight-line amortization of the $30,000 discount relevant to the bonds acquired by Sterling. At December 31, 2006, these bonds have a remaining unamortized discount of $11,250 that must be eliminated. Thus, at December 31, 2006, the worksheet elimination to the *Discount on Bonds Payable* is the same regardless of the date when acquired by a related party.

Investment in Bonds

		Debit	Credit		
Sterling's investment in Pratt's bonds	3/31/2006	328,215			
			2,565	2006	Apr.–Dec. Sterling premium amortization: ($28,215/33)(3)
			325,650	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	-0-			

Sterling's *Investment in Bonds* account is created at the amount paid and reduced by the premium amortization on the investment. The total premium in this example ($28,215) is amortized straight-line over the remaining life (33 quarters) at a rate of $855 per quarter. Three quarters are amortized from March 31 to December 31, 2006, resulting in a remaining account balance of $325,650. The *Investment in Bonds* account must be completely eliminated because the investment is in a related party (Pratt).

Loss on Early Debt Retirement

		Debit	Credit
Worksheet elimination	12/31/2006	40,590	
Consolidated balance	12/31/2006	40,590*	

*Purchase Price		$328,215
Face Value of Bond	$300,000	
Unamortized Discount [$30,000 – ($750 + $16,500 + $375)]	12,375	
Carrying Value		287,625
Loss on Early Debt Retirement		$40,590

The consolidated entity will disclose a *Loss on Early Debt Retirement* because the amount paid by Sterling is more than the book value of the bond liability on Pratt's accounting records. Pratt's book value takes into consideration that the discount has been amortized from June 30, 1994, to March 31, 2006, a total of 47 quarters.

Interest Revenue

		Debit	Credit		
Worksheet elimination	12/31/2006	13,185	13,185	2006	Apr.–Dec. Sterling interest revenue: ($300,000 × .07 × 9/12) – ($855 × 3)
			-0-	12/31/2006	Consolidated balance

Interest Expense

		Debit	Credit		
July–Dec. Pratt interest expense: ($300,000 × .07 × 9/12) + ($375 × 3)	2006	16,875	16,875	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	-0-			

Interest Revenue and *Interest Expense* are both based on the cash flow from Pratt to Sterling adjusted for the relevant amortization. The amounts shown in the T-accounts represent only April 1 to December 31, 2006. The period from January 1 to March 31 is not relevant to the intercompany transaction.

Worksheet Elimination 4-3C—Journal Entry Form

December 31, 2006		
Bonds Payable	300,000	
Loss on Early Debt Retirement	40,590	
Interest Revenue	13,185	
Discount on Bonds Payable		11,250
Interest Expense		16,875
Investment in Bonds		325,650

Example 4-3c illustrates the worksheet elimination in journal entry form. Note that only two values are exactly the same as they were in Example 4-1c: *Bonds Payable* and *Discount on Bonds Payable.* These amounts are the same because they represent the balance sheet values on the debt issuer's (Pratt's) financial records, and these amounts are not altered by the timing of the intercompany transaction or the amount paid by the purchaser (Sterling). The *Investment in Bonds* and the intercompany *Interest Revenue* and *Interest Expense* are always fully eliminated, but the dollar amount of intercompany interest is a function of the date Sterling made the investment. Finally, the loss or gain recognized on the consolidated income statement is always determined by comparing the amount paid for the debt instrument (market value) with the book value on the bond issuer's records.

Period Subsequent to Intercompany Transaction—Downstream (During the Year)

Worksheet eliminations are required in periods subsequent to an intercompany transaction until the asset is sold or abandoned (or the liability matures) because the worksheet eliminations prepared in the year of the intercompany transaction are not posted to the books of either the parent or the subsidiary. The worksheet eliminations prepared in the period subsequent to an intercompany transaction are conceptually the same regardless of whether the intercompany transaction occurs at the end of the year or during the year. Subsequent-period worksheet eliminations following an intercompany transaction that occurs during a period are discussed next as a continuation of the examples developed in Example 4-3.

EXAMPLE 4-4A
Downstream sale of a machine (4-3A Continued)

Assume that in 2007 Sterling uses the machine acquired from Pratt on May 1, 2006, and records depreciation as appropriate in 2007.

EXAMPLE 4-4B
Downstream sale of inventory (4-3B Continued)

Assume that during 2007 Sterling sold to unrelated parties all the remaining 6,500 units of inventory that had been acquired from Pratt on December 30, 2006. The selling price was $78,000. As a result of these sales, Sterling recognized $52,000 cost of goods sold (6,500 units × $8 cost per unit). In addition, assume that during 2007 Sterling purchased an additional 18,000 units from Pratt for $9 per unit. These goods also had cost Pratt $6 per unit. Note that the markup per unit on goods sold by Pratt to Sterling increased from $2 per unit in 2006 to $3 per unit in 2007. Of the 18,000 units of inventory purchased by Sterling in 2007, 14,000 units were sold to unrelated parties in the same year for a total selling price of $168,000.

EXAMPLE 4-4C
Downstream debt transaction (4-3C Continued)

Assume that Sterling holds the investment in Pratt's bonds made in 2006 for the entire year and that Pratt and Sterling record the appropriate interest amounts in 2007.

Below are three sets of comparative worksheet eliminations, one for each type of intercompany transaction discussed above (machinery, inventory, and debt). The three examples present the period subsequent to intercompany transaction worksheet eliminations (in 2007). Subsequent year eliminations for the transactions that occur during the period (Examples 4-4a, 4-4b, and 4-4c) are compared to the previously presented subsequent year eliminations for transactions that occur at the end of the period (Examples 4-2a, 4-2b, and 4-2c).

EXAMPLE 4-4A
(Machine)

Worksheet Elimination 4-4A—Journal Entry Form

December 31, 2007

	From Example 4-2a		Example 4-4a	
Machine	3,000		3,000	
Retained Earnings (January 1, 2007)	2,400		1,650	
Depreciation Expense		600		225
Accumulated Depreciation		4,800		4,425

The *Machine* account adjustment is the same in both examples because the selling price ($6,000) and the historical cost to Pratt ($9,000) are the same in both cases. The *Retained Earnings* adjustment in the machine Example 4-4a column differs from the adjustment in the Example 4-2a column for two reasons. First, the gain recognized in the year of the machine sale was $1,800 in Example 4-3a while it was $2,400 in Example 4-1a. Second, the intercompany sale of the machine during the year (Example 4-3a) results in a $150 credit *Depreciation Expense* adjustment in the period of the transaction. As a result, the 2007 *Retained Earnings* adjustment in Example 4-4a is $1,650 ($1,800 – $150), whereas it was $2,400 ($2,400 – $0) in Example 4-2.

The differences pertaining to *Depreciation Expense* and *Accumulated Depreciation* are related. The difference in *Depreciation Expense* between Examples 4-2a and 4-4a pertains to the change in the cost basis being depreciated by Sterling and the length of time over which depreciation is being recognized. In Example 4-2a, the $2,400 gain on sale affects *Depreciation Expense* over a period of four years. On the other hand, in Example 4-4a, the $1,800 gain affects *Depreciation Expense* over eight years. The *Accumulated Depreciation* worksheet elimination decreases each year by the amount of the previous year's *Depreciation Expense* worksheet elimination. The *Accumulated Depreciation* will stop changing in value when the machine is fully depreciated.

EXAMPLE 4-4B
(Inventory)

Worksheet Elimination 4-4B—Journal Entry Form

December 31, 2007

	From Example 4-2b		Example 4-4b	
Sales	162,000		162,000	
Retained Earnings (January 1, 2007)	16,000		13,000	
Cost of Goods Sold		166,000		163,000
Inventory		12,000		12,000

Example 4-4b presents a comparison of the inventory worksheet elimination when there is no intercompany inventory sold to unrelated parties before year-end (Example 4-2b) and when there is partial sale of the intercompany inventory to unrelated parties before year-end (Example 4-4b). The worksheet elimination to *Sales* represents the inventory sold by Pratt to Sterling in 2007. Because this amount pertains only to 2007, the intercompany sale of inventory in 2006 is not relevant. Similarly, the *Inventory* worksheet elimination removes the gross profit from the inventory still in Sterling's possession at the end of 2007. The amount of the ending inventory in 2007 is not impacted by the sale of some inventory in 2006.

The *Retained Earnings* and *Cost of Goods Sold* worksheet elimination values differ between columns due to the sale of 1,500 units of inventory that Sterling purchased from

Pratt in Example 4-3b. The adjustment to *Retained Earnings* is smaller because the sale of 1,500 units of inventory to an unrelated party in 2006 makes part of the gross profit on the intercompany sale (1,500 units × $2 per unit) realized; therefore, *Retained Earnings* is reduced by a smaller amount. Because the inventory examples have the same amount of ending inventory at the end of 2007, the same amount of inventory must be sold in both examples over the two-year period. Example 4-4b has fewer units sold during 2007 than Example 4-2b (8,000 vs 6,500), resulting in a $3,000 smaller adjustment to *Cost of Goods Sold.*

To help organize the inventory intercompany transaction in 2007, the following table is prepared to summarize the intercompany transaction as well as Sterling's sales to unrelated parties.

	Number of Units	*Cost to Pratt*	*Markup*	*Pratt's Selling Price*
Beginning Inventory	6,500	$39,000	$13,000	$ 52,000
2007 Sales to Sterling	18,000	108,000	54,000	162,000
Less Ending Inventory*	(4,000)	(24,000)	(12,000)	(36,000)
Sold	20,500	$123,000	$55,000	$178,000

* Assumes a first-in, first-out cost flow.

The shaded values in the table represent the amounts that are considered when preparing the worksheet elimination. As discussed previously in this chapter, the markup on the intercompany inventory, both in the current year and from the previous year, is the basis for the inventory worksheet elimination.

EXAMPLE 4-4C
(Debt)

Worksheet Elimination 4-4C—Journal Entry Form

December 31, 2007

	From Example 4-2c		**Example 4-4c**	
Bonds Payable	300,000		300,000	
Interest Revenue	17,400		17,580	
Retained Earnings (January 1, 2007)	38,250		36,900	
Discount on Bonds Payable		9,750		9,750
Interest Expense		22,500		22,500
Investment in Bonds		323,400		322,230

The dollar amounts eliminated for *Bonds Payable, Discount on Bonds Payable,* and *Interest Expense* are the same in Examples 4-2c and 4-4c because the amounts represent ending balance sheet amounts (*Bonds Payable* and *Discount on Bonds Payable*) and the bonds were held by a related party for the entire year *(Interest Expense).* Three values in the worksheet elimination differ because of the change in the assumed investment price and Sterling's investment date in Pratt's bonds. Even though the dollar amounts of the adjustments to *Investment Revenue, Retained Earnings,* and *Investment in Bonds* differ, the procedures for determining the amounts are the same in both examples. *Interest Revenue* represents the cash paid by Pratt to Sterling, adjusted for the premium amortization on the amount invested. The *Retained Earnings* adjustment reflects the income statement account adjustments in 2006 [$40,590 – ($16,875 – $13,185)] (see Example 4-3c worksheet elimination). The *Investment in Bonds* adjustment eliminates the remaining book value of the investment on Pratt's accounting records.

Period of Intercompany Transaction—Upstream (During the Year)

The discussion thus far in the chapter has been based on downstream transactions. This section illustrates the differences between downstream and upstream intercompany transactions. The examples used are modified versions of the previous examples wherein the intercompany transactions were initiated during the period. The modification changes the direction of the intercompany transaction from downstream to upstream.

It is shown through these examples that the general difference between downstream and upstream transactions pertains to the recognition necessary with regard to the noncontrolling interest. The noncontrolling interest is allocated a share of the subsidiary's contribution to consolidated net income. The existence of unrealized profit in upstream intercompany transactions creates a need to adjust the subsidiary's reported net income because the profit cannot be included in consolidated net income until it is realized. The resulting adjustments to Sterling's recognized net income in the upstream examples impact the calculation of the noncontrolling interest's share of net income and the value allocated to the noncontrolling interest on the consolidated balance sheet. Below are the three examples to be used in this section. The facts in the examples are identical to those in Examples 4-3a, 4-3b, and 4-3c, with two exceptions. First, all three intercompany transactions are upstream, whereas they were downstream in previous examples. Second, the facts of the intercompany bond transaction are changed because Sterling's bonds have a different interest rate and maturity date than Pratt's bonds.

EXAMPLE 4-5A
Upstream sale of a machine on May 1, 2006

Assume a machine was purchased by Sterling on January 1, 2001, for $9,000. The machine is being depreciated using the straight-line method assuming a 10-year life with no salvage value. The machine is sold to Pratt for $6,000 on May 1, 2006. Sterling recorded depreciation expense for the period January 1–April 30, 2006. At the date of the sale, 64 months have passed since Sterling purchased the machine. Thus, the accumulated depreciation is $4,800 [$9,000 (64/120)]. Pratt increases the machine's estimated remaining life to 8 years.

EXAMPLE 4-5B
Upstream sale of inventory on December 30, 2006

Assume Sterling purchases 8,000 units of inventory on November 10, 2006 at a cost of $6 per unit. Sterling sells this inventory to Pratt on December 30, 2006, for $8 per unit. Assume that Pratt sells 1,500 units of inventory acquired from Sterling to unrelated parties for $18,000 on December 31, 2006. As a result of these sales, Pratt recognizes $12,000 cost of goods sold (1,500 units $\times$ $8 cost per unit).

EXAMPLE 4-5C
Upstream debt transaction on March 31, 2006

Assume Sterling had issued 1,500, 10-year bonds payable, each in the amount of $1,000, on January 1, 2002, to finance the construction of a new manufacturing facility. The bonds had a stated interest rate of 8 percent, with interest paid quarterly (40 periods) on a calendar-year basis. Sterling received $1,300,000 on January 1, 2002 (present value of the cash flows discounted at approximately 10.5 percent). The discount is being amortized using the straight-line method. Pratt (the parent) acquires $300,000 of the bonds (20 percent) as an investment on March 31, 2006—23 quarters prior to maturity—for $275,850 (the present value of the cash flows discounted at approximately 10.2 percent). Pratt elects to amortize the discount using the straight-line method.

The following T-accounts illustrate the entries recognized on Pratt's and Sterling's books with respect to the bonds acquired by Pratt and the accompanying consolidated financial statement amounts and worksheet eliminations.

Bonds Payable

			300,000	1/1/2002	Sterling issues bonds
Worksheet elimination	12/31/2006	300,000			
			-0-	12/31/2006	Consolidated balance

Discount on Bonds Payable

Sterling issues bonds: $200,000 × .2	1/1/2002	40,000			
			16,000	2002–2005	4 years amortization: ($40,000/40)(16)
			1,000	3/31/2006	Jan. 1–Mar. 31 amortization (to date of retirement): ($40,000/40)
			3,000	2006	Apr. 1–Dec. 31 amortization: ($40,000/40)(3)
			20,000	12/31/2006	Worksheet elimination (unamortized balance)
Consolidated balance	12/31/2006	-0-			

The *Discount on Bonds Payable* worksheet elimination amount removes the unamortized discount from the consolidated balance sheet with regard to the bonds acquired by Pratt. The balance ($40,000) is the discount on the portion of the bonds acquired by Pratt. The discount amortization ($1,000 quarterly) is the straight-line amortization of the $40,000 discount relevant to the bonds acquired by Pratt. At December 31, 2006, these bonds have a remaining unamortized discount of $20,000 that must be eliminated.

Investment in Bonds

Pratt's investment in Sterling's bonds	3/31/2006	275,850			
Apr.–Dec. Pratt discount amortization: ($24,150/23)(3)	2006	3,150	279,000	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	-0-			

Pratt's *Investment in Bonds* account is created at the amount paid and increased by the discount amortization on the investment. The total discount in this example ($24,150) is amortized straight-line over the remaining life (23 quarters) at a rate of $1,050 per quarter. Three quarters are amortized from March 31 to December 31, 2006, resulting in a remaining account balance of $279,000.

Gain on Early Debt Retirement

		1,150	12/31/2006	Worksheet elimination
		1,150*	12/31/2006	Consolidated balance

*Purchase Price		$275,850
Face Value of Bond	$300,000	
Unamortized Discount [$40,000 – ($16,000 + $1,000)]	23,000	
Carrying Value		277,000
Gain on Early Debt Retirement		$1,150

The consolidated entity will disclose a *Gain on Early Debt Retirement* because the amount paid by Pratt is less than the book value of the bond liability on Sterling's accounting records.

Interest Revenue

		Debit	Credit		
Worksheet elimination	12/31/2006	21,150	21,150	2006	Apr.–Dec. Sterling interest revenue: ($300,000 × .08 × 9/12) + $3,150
			-0-	12/31/2006	Consolidated balance

Interest Expense

		Debit	Credit		
Apr.–Dec. Sterling interest expense: [($300,000 × .08) (9/12)] + $3,000	2006	21,000	21,000	12/31/2006	Worksheet elimination
Consolidated balance	12/31/2006	-0-			

Interest Revenue and *Interest Expense* are both based on the cash flow from Sterling to Pratt adjusted for the relevant amortization. The amounts shown in the T-accounts represent only April 1 to December 31. The period from January 1 to March 31 is not relevant to the intercompany transaction. The following worksheet elimination presents the journal entry form of the worksheet elimination needed to prepare the consolidated financial statements.

Worksheet Elimination—Journal Entry Form

	Debit	Credit
Example 4-5a		
December 31, 2006		
Machine	3,000	
Gain on Sale of Machine	1,800	
Depreciation Expense		150
Accumulated Depreciation		4,650
Example 4-5b		
Sales	64,000	
Cost of Goods Sold		51,000
Inventory		13,000
Example 4-5c		
Bonds Payable	300,000	
Interest Revenue	21,150	
Discount on Bonds Payable		20,000
Gain on Early Debt Retirement		1,150
Interest Expense		21,000
Investment in Bonds		279,000

A comparison of the worksheet eliminations presented in Examples 4-5a and 4-5b with Examples 4-3a and 4-3b reveals that the downstream and upstream worksheet eliminations (5) are identical both in the accounts affected in the period of the intercompany transaction and in the dollar amounts. The worksheet elimination for Example 4-5c would be identical to the worksheet elimination for Example 4-3c had it been possible for the upstream transaction to be the same as the downstream transaction. The downstream and upstream intercompany bond transactions differ because the interest rates on Pratt's and Sterlilng's bonds payable differ.

Although the accounts and balances in the upstream machine and inventory examples are identical to the downstream examples, the company's account balances that are affected by each line of the worksheet eliminations are reversed. Now, for example, the elimination of *Gain on Sale of Machine* and the adjustment to *Depreciation Expense* in Example 4-5a are revising balances that affect Sterling's net income. These amounts, as well as the income statement accounts presented in Examples 4-5b (inventory) and 4-5c (debt), represent adjustments that must be made to Sterling's income statement, while in previous examples all the income statement impact was on Pratt's income statement. The importance of this distinction is revealed when considering basic worksheet elimination (4), where *Noncontrolling Interest in Net Income of Subsidiary* is recognized.

Below is a set of basic facts about Pratt and Sterling that will be used to demonstrate how the upstream intercompany transactions impact basic worksheet elimination (4).

BASIC INFORMATION 2006

Pratt Corporation owns 90 percent of Sterling Products' outstanding voting common stock. Assume that, including intercompany transactions, Sterling reported net income of $205,000 and paid dividends of $110,000 in 2006. Assume further that Pratt pays book value for Sterling.

Worksheet elimination (4) is used to establish the *Noncontrolling Interest in Net Income of Subsidiary.* To the extent that worksheet elimination (5) modifies the recognized contribution to consolidated net income provided by the subsidiary, the *Noncontrolling Interest in Net Income of Subsidiary* must also be adjusted. The following table summarizes the impact of the three intercompany transaction on Sterling's income statement in the period of the intercompany transaction.

Reported Sterling Net Income		$205,000
Upstream machine adjustments:		
Gain on sale	($1,800)	
Depreciation expense	150	(1,650)
Upstream inventory adjustments:		
Intercompany Gross profit ($64,000 Sales – $48,000 Cost of Goods Sold)	($16,000)	
Cost of Goods Sold (realized gross profit)	3,000	(13,000)
Upstream debt adjustments:		
Gain on Early Debt Retirement	$1,150	
Interest Revenue – Interest Expense ($21,150 – $21,000)	(150)	1,000
Adjusted Sterling income		$191,350

The *Gain on Sale of Machine* now reported by Sterling is subtracted from Sterling's reported net income because the gain must be removed from the consolidated income statement. The gain will gradually be allocated to Sterling (and therefore to the noncontrolling interest) via the reduced depreciation expense recognized annually on the consolidated income statement. The *Depreciation Expense* reduction is viewed as an adjustment to Sterling's income even though it is recorded on Pratt's income statement. Therefore, it is added back into the calculation of adjusted Sterling income. Thus, Sterling is allowed to recognize the additional income not at the point of the sale, but rather over the remaining life of the asset. That is, over the life of the machine, the reduction to *Depreciation*

Expense will exactly equal the amount of the *Gain on Sale of Machine* eliminated in the period of the intercompany sale of machine.

In a similar manner, the *Sales* and *Cost of Goods Sold* adjustments net to a $13,000 decrease in Sterling's reported net income. This amount represents both the gross profit of $16,000 in intercompany sale of inventory (*Sales* of $64,000 and *Cost of Goods Sold* of $48,000) in the current year and the $3,000 *Cost of Goods Sold* overstatement recorded by Pratt when it sells 1,500 units of inventory to an unrelated party. Over time, the overstatement in the inventory's cost basis on Pratt's books is added back to Sterling's reported income when the inventory is sold to unrelated parties; that is, Sterling will recapture the gross profit eliminated at the time of the intercompany sale of inventory when the inventory is sold to an unrelated party.

Finally, the *Gain on Early Debt Retirement* is added to Sterling's reported net income because Sterling is the bond issuer in the upstream debt transaction. This gain is credited because the *Gain on Early Debt Retirement* is being created (rather than eliminated) on the consolidated income statement. As a result, it increases Sterling's recognized contribution to consolidated net income. Subsequent to the indirect intercompany debt transaction, the recognized *Interest Revenue* and *Interest Expense* are adjusted, resulting in a gradual offset to the *Gain on Early Debt Retirement.* Thus, the *Gain on Early Debt Retirement* increases Sterling's reported net income by $1,150, while the difference between *Interest Revenue* ($21,150) and *Interest Expense* ($21,000) offsets the gain by $150. The net effect on Sterling's recognized net income is an increase of $1,000.

The net of the three intercompany transaction adjustments results in a contribution from Sterling to consolidated net income of $191,350. Thus, Sterling's $205,000 of reported net income is adjusted downward by $13,650. The basic information and the adjustments discussed above lead to worksheet elimination (4) as displayed in journal entry form below.

Worksheet Elimination 4-5—Journal Entry Form

(4)	Noncontrolling Interest in Net Income of Sterling ($205,000 – $1,650 – $13,000 + $1,000)(.10)	19,135	
	Noncontrolling Interest in Sterling Products		8,135
	Dividends ($110,000 × .10)		11,000
	To recognize the change in the Noncontrolling Interest in Sterling account during the period.		

Period Subsequent to Intercompany Transaction—Upstream (During the Year)

The previous examples (machine and inventory) demonstrated that worksheet elimination (5) in the year of an intercompany transaction is the same regardless of the transaction's direction (upstream, downstream, lateral). While the equality of worksheet elimination (5) in the period subsequent to the intercompany transaction is not absolute, there is only one difference between downstream transactions and upstream (lateral) transactions. This difference pertains to the allocation of the equity impact to only *Retained Earnings* in downstream transactions but to *Retained Earnings* and *Noncontrolling Interest* for upstream (lateral) transactions.

In addition to the equity adjustments from the 2006 upstream intercompany transactions, the impact of current period adjustments must be considered. The following brief summaries outline the information relevant to the intercompany machine, inventory, and debt transactions for 2007.

EXAMPLE 4-6A
Upstream sale of a machine (4-5A Continued)

Assume that in 2007 Pratt uses the machine acquired from Sterling at May 1, 2006, and records depreciation as appropriate in 2007.

EXAMPLE 4-6B
Upstream sale of inventory (4-5B Continued)

Assume that during 2007 Pratt sold to unrelated parties all the remaining 6,500 units of inventory that had been acquired from Sterling on December 30, 2006. The selling price was $78,000. As a result of these sales, Pratt recognized $52,000 cost of goods sold (6,500 units × $8 cost per unit). In addition, assume that during 2007 Pratt purchased an additional 18,000 units for $9 per unit from Sterling. These goods also had cost Sterling $6 per unit. Note that the markup per unit on goods sold by Sterling to Pratt increased from $2 per unit in 2006 to $3 per unit in 2007. Of the inventory (18,000 units) purchased by Pratt in 2007, 14,000 units were sold to unrelated parties in the same year for a total of $168,000.

EXAMPLE 4-6C
Upstream sale of bond (4-5C Continued)

Assume that Pratt holds the investment in Sterling's bonds made in 2006 for the entire year and that Pratt and Sterling record the appropriate interest amounts in 2007.

Below is the 2007 worksheet elimination (5) for each of the upstream transactions. Comparison of these 2007 worksheet eliminations to the downstream worksheet elimination (5) amounts illustrates that, for the machine and inventory transactions, the only difference is that the *Retained Earnings* adjustment in Examples 4-4a and 4-4b is divided proportionately between *Retained Earnings* and *Noncontrolling Interest* in Examples 4-6a and 4-6b. The allocation of the income statement amounts (e.g., *Gain on Sale of Machine* and *Cost of Goods Sold*) in periods subsequent to the upstream intercompany transaction to *Retained Earnings* and *Noncontrolling Interest* is necessary because the source of intercompany income is Sterling and the noncontrolling stockholders must be allocated a 10-percent interest in Sterling's income.

Worksheet Elimination—Journal Entry Form

Example 4-6a		
December 31, 2007		
Machine	3,000	
Retained Earnings (January 1, 2007) ($1,650)(.90)	1,485	
Noncontrolling Interest ($1,650)(.10)	165	
Depreciation Expense		225
Accumulated Depreciation		4,425
Example 4-6b		
Sales	162,000	
Retained Earnings (January 1, 2007) ($13,000)(.90)	11,700	
Noncontrolling Interest ($13,000)(.10)	1,300	
Cost of Goods Sold		163,000
Inventory		12,000
Example 4-6c		
Bonds Payable	300,000	
Interest Revenue ($14,100)(2)	28,200	
Discount on Bonds Payable [$20,000 – ($40,000/20)(2)]		16,000
Interest Expense ($14,000)(2)		28,000
Retained Earnings (January 1, 2007) ($1,000)(.90)		900
Noncontrolling Interest ($1,000)(.10)		100
Investment in Bonds [$279,000 + ($2,100)(2)]		283,200

When the intercompany transactions are upstream, the profit that is unrealized from the consolidated point of view (a net of $13,650 in 2006) is reported on Sterling's income statement. Ninety percent of the $13,650 ($12,285) is reported on Pratt's income statement via the *Investment Income* account. The *Investment Income* account is eliminated in 2006 worksheet elimination (2). However, the $12,285 is actually closed to Pratt's *Retained Earnings* account because worksheet eliminations are not posted. Therefore, Pratt's January 1, 2007, *Retained Earnings* balance includes 90 percent of the unrealized profit. The *Retained Earnings* adjustments in the worksheet eliminations illustrated in Examples 4-6a, 4-6b, and 4-6c ($1,485, $11,700, and $900, respectively) remove Sterling's income statement effect from Pratt's January 1, 2007, *Retained Earnings* balance.

The 2007 adjustments to *Noncontrolling Interest* in the worksheet eliminations illustrated in Examples 4-6a, 4-6b, and 4-6c are adjustments to worksheet elimination (1). Recall that worksheet elimination (1) in 2007 removes Sterling's reported stockholders' equity as of January 1, 2007 (*including the 2006 reported income now closed to Retained Earnings*) and establishes the beginning *Noncontrolling Interest.* To the extent that Sterling has unrealized intercompany profit included in its January 1, 2007, *Retained Earnings, Noncontrolling Interest* is misstated, when established in worksheet elimination (1), by its pro rata share in the unrealized profit. The amount of this misstatement is corrected by the adjustment to *Noncontrolling Interest* in Examples 4-6a, 4-6b, and 4-6c ($165, $1,300, and $100, respectively).

BASIC INFORMATION 2007

Assume Pratt continues its 90-percent ownership interest in Sterling during 2007. For 2007, Sterling reported net income of $222,775 and paid dividends of $140,000.

Beyond the worksheet elimination (5) amounts that must be included on the consolidation worksheet, an adjustment is required to worksheet elimination (4) as in the 2006 example. The following table shows the calculation of the adjusted Sterling net income.

Reported Sterling Net Income		$222,775
Upstream machine adjustments:		
Depreciation expense		225
Upstream inventory adjustments:		
Intercompany Gross Profit ($162,000 – $108,000)		
Cost of Goods Sold (realized gross profit)	($54,000)	
($13,000 + 14,000 × $3)	55,000	1,000
Upstream debt adjustments:		
Interest Revenue – Interest Expense ($28,200 – $28,000)		(200)
Adjusted Sterling income		$223,800

As in the 2006 example, the reduction in *Depreciation Expense* resulting from the intercompany machine sale is allocated to Sterling and adjusts reported income by $225. The $1,000 net inventory adjustment is again due to the gross profit on the intercompany sale (*Sales* of $162,000 and *Cost of Goods Sold* of $108,000) and the overstatement of *Cost of Goods Sold* when Pratt sells inventory to unrelated parties (6,500 units × $2 per unit + 14,000 units × $3 per unit). Finally, the difference between *Interest Revenue* ($28,200) and *Interest Expense* ($28,000) results in a $200 adjustment to Sterling's reported net income. The *Depreciation Expense* and the net of *Sales* and *Cost of Goods Sold* adjustments in the current example increase Sterling's contribution to consolidated net income, while the net of *Interest Revenue* and *Interest Expense* adjustment decreases Sterling's contribution to consolidated net income. The basic information and the adjustments discussed above lead to worksheet elimination (4) as displayed in journal entry form below.

Noncontrolling Interest in Subsidiary Net Income and Consolidated Net Income

Generally, the *Noncontrolling Interest in Net Income of Subsidiary* amount in worksheet elimination (4) is calculated by multiplying the noncontrolling interest percentage owned by the reported subsidiary net income modified by the worksheet elimination (5) adjustments to consolidated net income that result from upstream transactions. Recall that only the income effects from upstream transactions impact the calculation of *Noncontrolling Interest in Net Income of Subsidiary.* When both upstream and downstream intercompany transactions occur, the income effects of the downstream transactions do not cause adjustments to *Noncontrolling Interest in Net Income of Subsidiary.* The basic information and the adjustments discussed above lead to worksheet elimination (4) as displayed in journal entry form below.

Worksheet Elimination 4-6—Journal Entry Form

(4)	Noncontrolling Interest in Net Income of Sterling	22,380	
	($222,775 + $225 + $1,000 – $200)(.10)		
	Noncontrolling Interest in Sterling Products		8,380
	Dividends ($140,000 × .10)		14,000
	To recognize the change in the Noncontrolling Interest in Sterling account during the period.		

Consolidated net income is the income of the combined economic unit. In the simplest of circumstances (i.e., when there are no intercompany transactions), the income statements can be added together after eliminating the *Investment Income* account. When intercompany transactions exist, consolidated net income is affected by downstream and upstream intercompany transactions. All unrealized profits are eliminated regardless of whether it is the parent's (downstream) or the subsidiary's (upstream) reported income that is impacted by the intercompany transaction. Finally, if the parent has paid more than book value, the calculation of consolidated net income must also include purchase differential amortizations. When preparing a consolidating worksheet, the consolidated net income that results may verified by the following calculation:

Reported Net Incomes:	
Parent Company	$xxx
Subsidiary	xxx
	xxx
Adjustments: Investment Income	– xxx
All current period income effects relating to intercompany transactions	± xxx
All current period purchase differential amortizations	± xxx
Consolidated Net Income	xxx
Less: Noncontrolling Interest in Net Income of Subsidiary	– xxx
Net Income (to Consolidated Retained Earnings)	$xxx

Notice that *Consolidated Net Income* is not the amount that is transferred to *Consolidated Retained Earnings.* Applying the economic unit concept, the combined income of the entire entity is titled *Consolidated Net Income.* That amount is allocated, in part, to the noncontrolling interest, leaving the parent company's share, *Net Income,* to be transferred to *Retained Earnings* and reported to the parent company stockholders in the consolidated Statement of Retained Earnings and consolidated Balance Sheet.

SUMMARY OF IMPACT OF UPSTREAM INTERCOMPANY TRANSACTIONS

In summary, the upstream direction of the intercompany transaction impacts the worksheet eliminations only because of the requirement to distribute a percentage of subsidiary net income to the noncontrolling interest and the corresponding measurement of the *Noncontrolling Interest* disclosed on the consolidated balance sheet. The worksheet eliminations in Illustration 4-1 present the overall impact in the year of the upstream intercompany transactions and the related impact on the eliminations in the year subsequent to intercompany transactions using the three upstream examples presented. The unaffected accounts in basic worksheet eliminations (1–4) are shown with —.

Notice that the debit to *Retained Earnings* and the credit to *Noncontrolling Interest* in worksheet elimination (1) are not adjusted by the existence of the upstream transactions. Remember that elimination (1) removes the subsidiary's *Retained Earnings* balance that exists at the beginning of the year while it establishes the beginning balance in the *Noncontrolling Interest* account. Because the upstream transactions have created unrealized profit on the subsidiary's books, worksheet elimination (1) establishes an overstatement in the *Noncontrolling Interest* account.

The overstatement of the January 1 *Retained Earnings* (parent company) and *Noncontrolling Interest* [created in worksheet elimination (1)] are corrected in worksheet elimination (5). Any year-end net unrealized profit on upstream transactions carried forward to the next year will give rise to a pro rata adjustment to *Retained Earnings* and *Noncontrolling Interest* in elimination (5) in the subsequent year. The amount is divided between *Retained Earnings* and *Noncontrolling Interest* because the parent's portion has flowed through *Investment Income* to *Retained Earnings* while the *Noncontrolling Interest* portion was created in worksheet elimination (1) as discussed above. The arrows in the side- by-side eliminations illustrate how the unrealized profit (loss) at the end of the first year equals the total adjustment to the January 1 *Retained Earnings* and *Noncontrolling Interest* in the subsequent year for each of the three upstream intercompany transactions presented. In each subsequent year, *Retained Earnings* and *Noncontrolling Interest* worksheet elimination (5) amounts are reduced by the amount of adjustments recognized in the preceding year's income statement. For example, the 2008 worksheet elimination (5) *Retained Earnings* and *Noncontrolling Interest* adjustments will be based on the 2007 *Retained Earnings* and *Noncontrolling Interest* adjustment minus the 2007 income statement account adjustments.

Finally, in any given year the amount of adjustment to reported subsidiary net income in elimination (4) equals the net income statement effect in elimination (5) for the same year. In the 2006 and 2007 examples, the net effect of the three upstream intercompany transactions was ($13,650) and $1,025, respectively.

TEST YOUR KNOWLEDGE

Use the information from Examples 4-5 and 4-6 (a, b, and c) and assume Sterling continues to be Pratt's 90 percent–owned subsidiary. The following information is relevant to preparing the consolidation eliminations at December 31, 2008:

1. The machine purchased by Pratt from Sterling continues to be used throughout the year.
2. All of the intercompany inventory held by Pratt at the end of 2007 is sold to unrelated parties during 2008. Pratt makes no additional purchases of Sterling's inventory during 2008.

ILLUSTRATION 4-1
Overall Impact of Upstream Intercompany Transactions

		Year of Upstream Transaction		Year Subsequent to Upstream Transaction	
		Debit	**Credit**	**Debit**	**Credit**
(1)	Common Stock	—		—	
	Paid-In Capital	—		—	
	Retained Earnings (Jan. 1)	—		—	
	Purchase Differentials (adjust to market)	—		—	
	Investment in Subsidiary (balance Jan. 1)		—		—
	Noncontrolling Interest (value Jan. 1)		—		—
(2)	Investment Income	—		—	
	Investment in Subsidiary		—		—
	Dividends		—		—
(3)	Depreciation and Amortization Expenses	—		—	
	Purchase Differentials		—		—
(4)	Noncontrolling Interest in Net Income of Subsidiary				
	Year of upstream transaction ($205,000 – $13,650)(.10)	19,135			
	Year subsequent ($222,775 + $1,025)(.10)			22,380	
	Noncontrolling Interest		8,135		8,380
	Dividends		—		—
(5a)	Machine	3,000		3,000	
	Retained Earnings (balance Jan. 1)	0		1,485	
	Noncontrolling Interest (value Jan. 1)	0		165	
	Gain on Sale of Machine	1,800		0	
	Depreciation Expense		150		225
	Accumulated Depreciation		4,650		4,425
(5b)	Retained Earnings (balance Jan. 1)	0		11,700	
	Noncontrolling Interest (value Jan. 1)	0		1,300	
	Sales	64,000		162,000	
	Cost of Goods Sold		51,000		163,000
	Inventory		13,000		12,000
(5c)	Bonds Payable	300,000		300,000	
	Interest Revenue	21,150		28,200	
	Interest Expense		21,000		28,000
	Gain on Early Debt Retirement		1,150		0
	Discount on Bonds Payable		20,000		16,000
	Retained Earnings (balance Jan. 1)		0		900
	Noncontrolling Interest (value Jan. 1)		0		100
	Investment in Bonds		279,000		283,200

3. The intercompany bond investment continues to be held by Pratt throughout 2008.
4. Sterling's 2008 reported net income and dividends paid are $290,000 and $180,000, respectively.
5. Purchase differential amortization continues on schedule and no further goodwill impairment is identified or recorded. The 2008 amortization of purchase differentials and unamortized balances remaining at the beginning of 2008 are provided below and are based on extension of the amortization schedule in Illustration 3-4.

Account	*Remaining Unamortized Purchase Differential Balance at January 1, 2008*	*Increase (Decrease) to Investment Income Resulting from Annual Amortization for 2008*
Plant and Equipment	(850,000)	0
Accumulated Depreciation	1,121,250	(35,000)
Patent	(92,730)	33,720
Long-Term Notes Payable	(96,800)	17,600
Goodwill	191,000	0
Net Change in Investment Income		16,320

Using the information above, prepare the worksheet eliminations that would be necessary to consolidate Pratt and Sterling at December 31, 2008. (*Hint:* The investment account balance as of January 1, 2008, can be reconstructed by analyzing the changes that occur in the account during 2008.) Post the worksheet eliminations to the worksheet provided—Pratt and Sterling's financial statements provided in the worksheet can be used as the basis for worksheet eliminations (1)–(4). The solution follows the chapter summary.

Worksheet for Consolidation of Pratt Corporation and Subsidiary, Sterling Products
90 Percent Owned Subsidiary
Consolidation with Intercompany Transactions
December 31, 2008

	Separate Financial Statements		Adjustments and Eliminations		Consolidated Financial Statements
	Pratt	**Sterling**	**Debit**	**Credit**	
Income Statement					
Sales	10,100,000	1,450,000			
Non-operating Items (net)	120,000				
Investment Income, Sterling Products	275,688				
Cost of Goods Sold	6,000,000	880,000			
Selling Expenses	1,300,000	130,000			
General and Administrative Expenses	2,200,000	150,000			
Consolidated Net Income					
Noncontrolling Interest in Net Income of Sterling					
Net Income (to Statement of Retained Earnings)	995,688	290,000			

(Continued)

Worksheet *(Continued)*

	Separate Financial Statements		Adjustments and Eliminations		Consolidated Financial Statements
	Pratt	Sterling	Debit	Credit	
Retained Earnings Statement					
Retained Earnings (1/1/2008)	3,357,448	515,000			
Add: Net Income (from Income Statement)	995,688	290,000			
Subtotal	4,353,136	805,000			
Less: Dividends	(400,000)	(180,000)			
Retained Earnings (12/31/2008 to Balance sheet)	3,953,136	625,000			
Balance Sheet					
Cash	615,000	280,000			
Accounts Receivable (net)	1,800,000	380,000			
Inventory (FIFO)	5,700,000	550,000			
Other Current Assets	1,480,000				
Total Current Assets	9,595,000	1,210,000			
Plant and Equipment	31,000,000	3,135,000			
Accumulated Depreciation	(16,500,000)	(1,600,000)			
Patent		700,000			
Investment in Sterling Products	2,397,636				
Investment in Bonds	287,400				
Other Noncurrent Assets	1,803,100	2,025,000			
Goodwill					
Total Long-Term Assets	18,988,136	4,260,000			
Total Assets	28,583,136	5,470,000			
Current Liabilities	8,240,000	635,000			
Long-Term Notes Payable		1,000,000			
7% Bonds Payable (due 6/30/2013)	4,000,000				
Less: Discount on Bonds Payable	(110,000)				
8% Bonds Payable (due 12/31/2010)		1,500,000			
Less: Discount on Bonds Payable		(40,000)			
Total Liabilities	12,130,000	3,095,000			
Common Stock ($1 par):					
Pratt, 10,000,000 shares authorized, 6,000,000 shares issued and outstanding	6,000,000				
Sterling, 1,000,000 shares authorized, issued and outstanding		1,000,000			
Additional Paid-In Capital	6,500,000	750,000			
Retained Earnings (12/31/2008 from Statement of Retained Earnings)	3,953,136	625,000			
Noncontrolling Interest in Sterling					
Total Stockholders' Equity	16,453,136	2,375,000			
Total Liabilities and Stockholders' Equity	28,583,136	5,470,000			

SUMMARY

This chapter presented a format for evaluating intercompany transactions. These transactions may take many forms, and some of the more common were presented as examples. A number of assumptions were made in the examples. Some of these assumptions will generally be true while others may often not exist in practice. One assumption that may or may not exist is the parent and subsidiary preparing financial statements using the same fiscal period. Differences in fiscal periods increase the detail of the adjusting entries and worksheet eliminations, but they do not change the underlying theory applied to prepare consolidated financial statements. Other assumptions made relate to such items as straight-line depreciation and straight-line bond discount or premium amortization. Practice would often differ from the simplified approach taken in the examples, resulting in alternative numerical values, but the procedures and logic would not change.

The intercompany transactions presented do not represent all possible transactions. For example, another type of intercompany transaction that may exist is intercompany leases. This type of transaction would involve the transfer of an asset as well as a direct debt obligation between the two units of the consolidated entity. An intercompany lease would result in a large number of accounts in the worksheet elimination. The asset and liability could be separated for analysis, resulting in an intercompany sale of an asset and a direct intercompany loan transaction.

TEST YOUR KNOWLEDGE SOLUTION

Worksheet Elimination—Journal Entry Form

		Debit	Credit
December 31, 2008			
(1)	Common Stock	1,000,000	
	Additional Paid-In Capital	750,000	
	Retained Earnings (January 1, 2008)	515,000	
	Accumulated Depreciation	1,121,250	
	Goodwill	191,000	
	Plant Assets		850,000
	Patent		92,730
	Long-Term Notes Payable		96,800
	Investment in Sterling Products ($2,397,636 + $162,000 – $275,688)		2,283,948
	Noncontrolling Interest in Sterling [($2,283,948/.90) (.10)]		253,772
(2)	Investment Income [($290,000 + $16,320) (.90)]	275,688	
	Investment in Sterling Products		113,688
	Dividends ($180,000 × .9)		162,000
(3)	Depreciation Expense	35,000	
	Patent	33,720	
	Long-Term Notes Payable	17,600	
	Accumulated Depreciation		35,000
	Amortization Expense—Patent		33,720
	Interest Expense		17,600
(4)	Noncontrolling Interest in Net Income of Sterling [($290,000 + $16,320 + $225 + $12,000 + $28,000 – $28,200)(.10)]	31,835	
	Noncontrolling Interest in Sterling Products		13,835
	Dividends ($180,000 × .10)		18,000

(5a)	Machine	3,000	
	Retained Earnings (January 1, 2008) [($1,650 – $225)(.90)]	1,283	
	Noncontrolling Interest [($1,650 – $225)(.10)]	142	
	Depreciation Expense		225
	Accumulated Depreciation		4,200
(5b)	Retained Earnings (January 1, 2008) ($12,000 × .90)	10,800	
	Noncontrolling Interest ($12,000 × .10)	1,200	
	Cost of Goods Sold		12,000
(5c)	Bonds Payable	300,000	
	Interest Revenue ($14,100 × 2)	28,200	
	Discount on Bonds Payable [$16,000 – ($40,000/20)(2)]		12,000
	Interest Expense ($14,000 × 2)		28,000
	Retained Earnings (January 1, 2008) [$1,000 – ($28,200 – $28,000)](.90)		720
	Noncontrolling Interest [$1,000 – ($28,200 – $28,000)](.10)		80
	Investment in Bonds [$283,200 + ($2,100 × 2)]		287,400

QUESTIONS

4-1. You are the controller for a moderate-sized company. Several new board members have requested that you make a presentation on how consolidated financial statements are prepared. One board member asked why worksheet eliminations are needed for all intercompany transactions. How will you respond to this question?

4-2. A new division manager of your company is confused about the worksheet eliminations prepared for her division. She is particularly concerned with the letter sent explaining the worksheet eliminations. After a telephone conversation with the manager, it becomes apparent that her confusion centers around a lack of understanding of some terms used in the letter, such as *upstream, downstream,* and *lateral.* Prepare a brief memo to the manager explaining each term, with particular emphasis on differentiating among the terms.

4-3. Write a summary of the theoretical basis for the elimination of 100 percent of the profit or loss from an intercompany transaction even when the parent owns less than 100 percent of the subsidiary's outstanding voting common stock? (*Hint:* Research APB No. 51.)

4-4. Why are intercompany transaction worksheet eliminations required in periods subsequent to the intercompany transaction?

4-5. Why is the worksheet elimination to the historical cost of an equipment account resulting from an intercompany transaction the same each period?

4-6. When does the organization stop making worksheet eliminations to income statement accounts resulting from the intercompany sale of inventory?

4-7. When does the organization stop making worksheet eliminations to balance sheet accounts resulting from the intercompany sale of a tangible fixed asset?

4-8. Why does part of the worksheet elimination in periods subsequent to a downstream intercompany transaction affect retained earnings?

4-9. What is the difference between a direct intercompany debt transaction and an indirect intercompany debt transaction?

4-10. Jim, a new manager in the controller department, is not familiar with indirect intercompany bond transactions. He has asked for an explanation of why the consolidated entity is recognizing a loss on early debt retirement when the bond is still on the books of the issuer. Prepare a response to Jim's question.

4-11. Why is 100 percent of the interest revenue pertaining to an intercompany bond always eliminated while part of the interest expense may still be on the consolidated income statement?

4-12. Why are worksheet eliminations for an indirect intercompany debt transaction prepared in subsequent periods when the transaction occurs only once?

4-13. Why does the worksheet elimination for intercompany transactions differ if the transaction occurs during the year rather than at the end of the accounting period?

4-14. Why does the worksheet elimination in periods subsequent to a downstream intercompany transaction not affect noncontrolling interest?

Worksheet for Consolidation of Pratt Corporation and Subsidiary, Sterling Products
90 Percent Owned Subsidiary
Consolidation with Intercompany Transactions
December 31, 2008

	Separate Financial Statements		Adjustments and Eliminations		Consolidated Financial Statements
	Pratt	Sterling	Debit	Credit	
Income Statement					
Sales	10,100,000	1,450,000			11,550,000
Non-operating Items (net)	120,000				120,000
Investment Income, Sterling Products	275,688		(2) 275,688		0
Cost of Goods Sold	6,000,000	880,000		(5b) 12,000	6,868,000
Selling Expenses	1,300,000	130,000			1,430,000
General and Administrative Expenses	2,200,000	150,000	(3) 35,000	(3) 33,720	2,333,655
			(5c) 28,200	(3) 17,600	
				(5a) 225	
				(5c) 28,000	
Consolidated Net Income					1,038,345
Noncontrolling Interest in Net Income of Sterling			(4) 31,835		31,835
Net Income (to Statement of Retained Earnings)	995,688	290,000	370,723	91,545	1,006,510
Retained Earnings Statement					
Retained Earnings (1/1/2008)	3,357,448	515,000	(1) 515,000	(5c) 720	3,335,285
			(5a) 1,283		
			(5b) 10,800		
Add: Net Income (from Income Statement)	995,688	290,000	(X) 370,723	(X) 91,545	1,006,510
Subtotal	4,353,136	805,000			4,341,795
Less: Dividends	(400,000)	(180,000)		(2) 162,000	(400,000)
				(4) 18,000	
Retained Earnings (12/31/2008 to Balance sheet)	3,953,136	625,000	897,806	272,265	3,952,595
Balance Sheet					
Cash	615,000	280,000			895,000
Accounts Receivable (net)	1,800,000	380,000			2,180,000
Inventory (FIFO)	5,700,000	550,000			6,250,000
Other Current Assets	1,480,000				1,480,000
Total Current Assets	9,595,000	1,210,000			10,805,000
Plant and Equipment	31,000,000	3,135,000	(5a) 3,000	(1) 850,000	33,288,000
Accumulated Depreciation	(16,500,000)	(1,600,000)	(1) 1,121,250	(3) 35,000	(17,017,950)
				(5a) 4,200	

(Continued)

Patent		700,000	(3)	33,720	(1)	92,730	640,990
Investment in Sterling Products	2,397,636				(1)	2,283,948	0
					(2)	113,688	
Investment in Bonds	287,400				(5c)	287,400	0
Other Non-current Assets	1,803,100	2,025,000					3,828,100
Goodwill			(1)	191,000			191,000
Total Long-Term Assets	18,988,136	4,260,000					20,930,140
Total Assets	28,583,136	5,470,000					31,735,140
Current Liabilities	8,240,000	635,000					8,875,000
Long-Term Notes Payable		1,000,000	(3)	17,600	(1)	96,800	1,079,200
7% Bonds Payable (due 6/30/2013)	4,000,000						4,000,000
Less: Discount on Bonds Payable	(110,000)						(110,000)
8% Bonds Payable (due 12/31/2010)		1,500,000	(5c)	300,000			1,200,000
Less: Discount on Bonds Payable		(40,000)			(5c)	12,000	(28,000)
Total Liabilities	12,130,000	3,095,000					15,016,200
Common Stock ($1 par):							
Pratt, 10,000,000 shares authorized, 6,000,000 shares issued and outstanding	6,000,000						6,000,000
Sterling, 1,000,000 shares authorized, issued and outstanding		1,000,000	(1)	1,000,000			0
Additional Paid-In Capital	6,500,000	750,000	(1)	750,000			6,500,000
Retained Earnings (12/31/2008 from Statement of Retained Earnings)	3,953,136	625,000	(X)	897,806	(X)	272,265	3,952,595
Noncontrolling Interest in Sterling			(5a)	142	(1)	253,772	266,345
			(5b)	1,200	(4)	13,835	
					(5c)	80	
Total Stockholders' Equity	16,453,136	2,375,000					16,718,940
Total Liabilities and Stockholders' Equity	28,583,136	5,470,000					31,735,140
				4,315,718		4,315,718	

(1) To eliminate the subsidiary's beginning of current period stockholders' equity and the parent's beginning of period Investment in Sterling Products account, to establish the beginning of period purchase differentials, and to create the beginning of period Noncontrolling Interest in Sterling account.

(2) To eliminate the change in the Investment in Sterling Products account and the parent's Investment Income account.

(3) To amortize identifiable asset and liability purchase differentials for the current period and recognize goodwill impairment.

(4) To recognize the change in the Noncontrolling Interest in Sterling account during the period.

(5a) To eliminate impact of previous period upstream intercompany machine transaction and adjust beginning Retained Earnings and Noncontrolling Interest.

(5b) To eliminate impact of previous period upstream intercompany inventory transaction and adjust beginning Retained Earnings and Noncontrolling Interest.

(5c) To eliminate impact of previous period upstream intercompany bond transaction and adjust beginning Retained Earnings and Noncontrolling Interest.

4-15. Why does an upstream intercompany transaction not require an adjustment with regard to the worksheet elimination of Investment Income?

4-16. Why does part of the worksheet elimination in periods subsequent to an upstream intercompany transaction affect retained earnings?

4-17. Under what circumstances does part of the worksheet elimination in periods subsequent to an upstream intercompany transaction affect noncontrolling interest?

4-18. Why does an upstream or lateral intercompany transaction in the current period impact the basic worksheet eliminations while a downstream intercompany transaction does not?

4-19. Why is the additional worksheet elimination needed to remove the impact of an intercompany transaction (a) *not altered* by the direction of the transaction in the period of the intercompany transaction and (b) *altered* by the direction of the transaction in the period(s) subsequent to the intercompany transaction?

4-20. A member of management has just been promoted to a level where part of his compensation is based on the company's overall performance. As a result of this change in compensation, this manager has become more interested in how the consolidated financial statements are prepared. He recently asked why upstream intercompany transactions in prior periods do not have to be considered when eliminating the stockholders' equity of the subsidiary, even though the transaction impacts the subsidiary's prior period net income such that it would impact this period's retained earnings. Prepare a response to this manager.

MULTIPLE CHOICE

4-1. Southern Materials owns 75 percent of Western Furniture's common stock. On December 31, 2005, Southern sells a machine costing $65,000 with $15,000 accumulated depreciation at the date of sale to Western for $36,000. What amount will be debited in the December 31, 2005, worksheet elimination for the machine account as a result of this transaction?

a. $15,000
b. $29,000
c. $14,000
d. $44,000

4-2. Pete's Farm Equipment owns 60 percent of Donovan's Agricultural Supply. Pete's has $1,000,000 of bonds payable outstanding with an unamortized discount of $38,000. Donovan's buys $400,000 of the bonds from an unrelated party for $360,000. What is the amount of worksheet elimination at the end of the year of the investment with regard to the Loss or Gain on Early Retirement of Debt?

a. $24,800 loss
b. $2,000 gain
c. $24,800 gain
d. $2,000 loss

4-3. Reading Retailers owns 80 percent of Miller Manufacturing. Reading sells a machine to Miller for $50,000 on December 31, 2005. The machine had a cost and accumulated depreciation of $80,000 and $32,000, respectively, at the date of sale. In the preparation of the 2006 consolidated financial statements, what is the adjustment to Retained Earnings with regard to this transaction?

a. $2,000 debit
b. $2,000 credit
c. $1,600 debit
d. $1,600 credit

4-4. Division Corporation owns 85 percent of Regional Operations Company. During 2005, Division sells inventory costing $30,000 to Regional for $40,000. Regional does not sell any of this inventory to unrelated parties before the end of 2005. During 2006, Division sells inventory costing $50,000 to Regional for $65,000. Also during 2006, Regional sells all the inventory purchased in 2005 and 70 percent of the inventory purchased in 2006 to unrelated entities. What is the adjustment to Cost of Goods Sold in the 2006 worksheet elimination?

a. $70,500 credit
b. $70,500 debit
c. $20,500 credit
d. $20,500 debit

4-5. Becker Corporation owns 60 percent of Conviser Company. During 2006, Becker sells inventory costing $10,000 to Conviser for $14,000. Conviser sells 75 percent of this inventory to unrelated parties before the end of 2006. What is the adjustment to Sales in the 2006 worksheet elimination?

a. $4,000 debit
b. $4,000 credit
c. $14,000 debit
d. $14,000 credit

4-6. Ace owns 75 percent of Baker. On June 1, 2006, Baker purchases $100,000 of Ace's 9 percent outstanding bonds payable for $106,000. The bonds have a maturity date of June 1, 2011. With regard to this bond, how much interest revenue is reported on the consolidated income statement in 2006?

a. $9,000

b. $0

c. $5,250

d. $4,550

4-7. Ma Tel owns 80 percent of Baby Tel. On March 1, 2006, Baby Tel sells a building to Ma Tel for $350,000. The building's cost and accumulated depreciation at the date of the sale are $450,000 and $260,000, respectively. What is the dollar amount of the worksheet elimination to the loss or gain on sale of building in 2006?

a. $100,000 debit

b. $90,000 debit

c. $160,000 debit

d. $540,000 credit

4-8. Cummings owns 90 percent of Richardson. On October 1, 2005, Cummings purchases $400,000 of Richardson's 8-percent outstanding bonds payable for $379,840. The bonds have an unamortized premium of $3,240 on October 1, 2005, and they mature on September 30, 2011. What is the dollar amount of the worksheet elimination to interest expense at December 31, 2005?

a. $0

b. $31,352

c. $7,460

d. $7,865

4-9. Little Company, a 70 percent–owned subsidiary of Giant Corporation, sold a building to Giant on May 1, 2005, for $480,000. The building had a cost of $850,000 and accumulated depreciation of $430,000 at the date of sale. The building is depreciated using the straight-line method and an estimated remaining life of 10 years. In the preparation of the 2006 consolidated financial statements, what is the dollar amount of the worksheet elimination to 2006 Retained Earnings with respect to this transaction?

a. $39,200

b. $4,000

c. $56,000

d. $60,000

4-10. Nashville Enterprises owns 90 percent of Frankfurt Corporation's stock. During 2005, Frankfurt sold inventory costing $140,000 to Nashville for $190,000. Before year-end, Nashville sold 70 percent of this inventory to unrelated parties for $127,000. In the preparation of the 2006 consolidated financial statements, what is the dollar amount of the adjustment to noncontrolling interest as it relates to this transaction?

a. $15,000

b. $50,000

c. $1,500

d. $3,500

EXERCISES

Number	*Intercompany Transaction Direction*	*Percent Owned*	*Intercompany Transaction Type*	*Years of Worksheet Eliminations*	*Calculation of Consolidated Net Income*	*Description of Other Factors*
4-1	Downstream	80	Inventory	2 years	2 years	0%/60% sold, compare with 20% sold in year 1
4-2	Downstream	90	Inventory	2 years	1 year	30%/45% sold
4-3	Downstream	70	Inventory	2 years		Intercompany sales in both years
4-4	Upstream	60	Inventory	2 years	2 years	15%/80% sold, noncontrolling interest adjustment in year 2
4-5	Upstream	90	Inventory	1 year		60% sold, consolidated sales and cost of goods sold
4-6	Upstream	75	Inventory	2 years		Intercompany sales in both years, intercompany inventory at beginning of first year
4-7	Lateral	80/60	Inventory	2 years	1 year	0%/70% sold, compare with sale of 40% in year 1
4-8	Lateral	70/90	Inventory	2 years		65%/35%, consolidated sales and cost of goods sold Income to noncontrolling interest in year 1

(*Continued*)

Number	Intercompany Transaction Direction	Percent Owned	Intercompany Transaction Type	Years of Worksheet Eliminations	Calculation of Consolidated Net Income	Description of Other Factors
4-9	Downstream	100	Plant Assets	1 year	1 year	End-of-year and beginning-of-year comparison, consolidated depreciation expense year
4-10	Downstream	80	Plant Assets	3 years	2 years	Consolidated depreciation expense 2 years
4-11	Upstream	80	Plant Assets	2 years	1 year	Prepare discussion of worksheet elimination
4-12	Upstream	90	Plant Assets	1 year		Income to noncontrolling interest year 1, noncontrolling interest adjustment year 2
4-13	Lateral	80/75	Plant Assets	1 year		Income to noncontrolling interest 1 year, compare to solution if direction of transaction changed
4-14	Lateral	60/90	Plant Assets	2 years	2 years	Consolidated depreciation expense 2 years, worksheet elimination if asset sold to unrelated party in year 2
4-15	Downstream	75	Debt	2 years		Income to noncontrolling interest and consolidated interest expense 1 year
4-16	Downstream	80	Debt	2 years		Determine original bond issue date, consolidated interest revenue and expense 2 years
4-17	Upstream	75	Debt	2 years		Income to noncontrolling interest and consolidated interest expense 1 year
4-18	Upstream	80	Debt	2 years	1 year	Adjustment to noncontrolling interest in year 3, consolidated interest revenue and expense 2 years
4-19	Lateral	75/90	Debt	2 years	1 year	Adjustment to noncontrolling interest in year 3
4-20	Lateral	70/80	Debt	2 years		Income to noncontrolling interest and consolidated interest expense 1 year

EXERCISE 4-1 Montana Enterprises sold $25,000 of inventory to Idaho Industries for $40,000 during 2005. Idaho was still in possession of all the inventory at year-end. Montana owns 80 percent of Idaho's stock.

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements on December 31, 2005.

B. Assuming Idaho sold 60 percent of the inventory purchased from Montana during 2006, prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements on December 31, 2006.

C. Montana had operating income of $80,000 in 2005 and $105,000 in 2006, while Idaho had operating income of $36,000 in 2005 and $40,000 in 2006. Determine consolidated net income in 2005 and 2006.

D. How would the solution to part A change if Idaho had sold 20 percent of the inventory purchased from Montana in 2005?

EXERCISE 4-2 Sunfish Company purchased inventory from Carp Corporation, its parent, for $64,000 in 2005. The inventory was carried on the books of Carp at $48,000 at the time of the sale. Before the end of 2005, Sunfish sold 30 percent of the inventory purchased from Carp to unrelated parties for $24,500. Carp owns 90 percent of Sunfish's stock.

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements on December 31, 2005.

B. Carp and Sunfish had operating income of $250,000 and $90,000, respectively, in 2005. Determine consolidated net income for 2005.

C. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements on December 31, 2006, assuming that Sunfish sold an additional 45 percent of the inventory purchased from Carp to unrelated parties for $32,000.

D. How would the solution to part C change if the sales price to the unrelated parties is $35,000.

EXERCISE 4-3 Bear Manufacturing sells 4,000 units of inventory to Cub Enterprises, its subsidiary, for $7 each in 2005. The inventory had a cost basis to Bear of $5 each at the time of the sale. Cub sells 1,500 units of the inventory purchased from Bear to unrelated parties for $11 each before year-end. Bear owns 70 percent of Cub's stock.

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements on December 31, 2005.

B. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements on December 31, 2006, assuming that Bear sold an additional 5,000 units of inventory (cost $6 each) to Cub for $9 each during 2006. Also assume that Cub sells 5,500 units to unrelated parties for $14 each before year-end and that a FIFO flow is used for inventory transactions.

EXERCISE 4-4 Pokers Unlimited, a 60 percent–owned subsidiary, sold inventory costing $150,000 to its parent, Fireplace Fixtures, for $200,000 in 2005. Fireplace sold 15 percent of this inventory to unrelated parties in 2005 for $35,000. Fireplace sold an additional 80 percent of the inventory to unrelated parties in 2006 for $180,000.

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements on December 31, 2005, and December 31, 2006.

B. Fireplace had operating income of $480,000 and $525,000 in 2005 and 2006, respectively. Pokers had operating income of $90,000 and $110,000 in 2005 and 2006, respectively. Determine consolidated net income for 2005 and 2006.

C. Assuming there are no other intercompany transactions, what is the amount of adjustment to noncontrolling interest in the 2007 worksheet elimination for intercompany inventory transactions?

EXERCISE 4-5 Broadcasting Enterprises purchased $100,000 of inventory from its subsidiary, Cable Company, when the inventory was carried on the financial records of Cable for $75,000. Broadcasting sold 60 percent of this inventory to unrelated parties during the same period for $70,000. During the period, Broadcasting recorded sales and cost of goods sold of $2,500,000 and $1,500,000, respectively. Also, Cable recorded sales and cost of goods sold of $850,000 and $400,000, respectively. Broadcasting owns 90 percent of Cable's stock.

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements.

B. Determine the amounts that would be presented on the consolidated income statement as Sales and Cost of Goods Sold.

C. What are the worksheet elimination adjustments to Retained Earnings and Noncontrolling Interest (if applicable) in the next period regarding the above intercompany inventory transaction?

EXERCISE 4-6 Sanderson Company is a 75 percent–owned subsidiary of Flip, Incorporated. Sanderson regularly supplies Flip with one of the main raw materials for Flip's manufacturing process. The information below summarizes recent intercompany sales activity between the two companies.

	Units Sold to Flip	*Intercompany Units on Hand at Flip*	*Cost per Unit*	*Intercompany Markup per Unit*
January 1, 2005	—	0	—	—
2005 activity	70,000	—	$11.00	$6.00
December 31, 2005	—	22,000	$11.00	$6.00
2006 activity	80,000	—	$12.00	$6.50
December 31, 2006	—	15,000	$12.00	$6.50

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements at December 31, 2005.

B. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements at December 31, 2006.

C. Assume that Flip holds some inventory acquired from Sanderson at January 1, 2005. Rework parts A and B to reflect the information set above with the change in information outlined below.

	Units Sold to Flip	*Intercompany Units on Hand at Flip*	*Cost per Unit*	*Intercompany Markup per Unit*
January 1, 2005	—	10,000	$10.00	$4.00

D. Explain your answers for 2005 and 2006 in part C regarding where and why the answers change and do not change.

EXERCISE 4-7

Furniture Enterprises owns 80 percent of Cushion Company's stock and 60 percent of Pillow Corporation's stock. Cushion sold inventory costing $60,000 to Pillow for $75,000 in 2005. Pillow did not sell any of this inventory to unrelated parties during 2005.

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements in 2005.

B. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements in 2006 assuming that Pillow sold 70 percent of the inventory purchased from Cushion to unrelated parties for $58,000.

C. Assume that Furniture had operating income of $380,000 in 2005 and $415,000 in 2006; Cushion had operating income of $67,000 in 2005 and $80,000 in 2006; and Pillow had operating income of $93,000 in 2005 and $85,000 in 2006. Determine consolidated net income in 2005 and 2006.

D. How would part A change if Pillow had sold 40 percent of the inventory purchased from Cushion in 2005?

EXERCISE 4-8

Apex Monitors purchased inventory from Delta Keyboards for $179,200 in 2005. The inventory had a carrying value on Delta's books of $140,000 at the time of the sale. Apex sold 65 percent of this inventory to unrelated parties in 2005 for $135,000. The remainder of this inventory was sold to unrelated parties in 2006 for $67,000. Computer Unlimited owns 70 percent of Apex's stock and 90 percent of Delta's stock. Apex, Delta, and Computer had sales and cost of goods sold in 2005 and 2006 as follows.

	Sales		*Cost of Goods Sold*	
	2005	*2006*	*2005*	*2006*
Apex	$1,000,000	$1,130,000	$470,000	$510,000
Delta	3,365,000	2,840,000	1,346,000	1,280,000
Computer	4,200,000	6,300,000	2,700,000	3,100,000

Required:

A. Prepare the intercompany inventory worksheet elimination needed to present consolidated financial statements in 2005 and 2006.

B. Determine the amounts that would be presented on the consolidated income statement as Sales and Cost of Goods Sold for 2005 and 2006.

C. Assuming Apex and Delta had operating income in 2005 of $95,000 and $210,000, respectively, and there are no other intercompany transactions, what is the income to noncontrolling interest for each company in 2005?

EXERCISE 4-9

National Corporation sold equipment to Local Company on December 31, 2005, for $24,000. The equipment was carried on the financial records of National at a cost of $66,000, and accumulated depreciation was $44,000 at the time of the sale. The equipment had an estimated remaining life of two years on the records of National and was assigned an estimated remaining life of four years when purchased by Local. Straight-line depreciation is used by National and Local. National owns 100 percent of Local's stock.

Required:

A. Prepared the intercompany asset transaction worksheet elimination needed to present the consolidated financial statements in 2005.

B. What would be presented on National's income statement, Local's income statement, and the consolidated income statement for depreciation expense for 2005?

C. Prepare the intercompany asset transaction worksheet elimination needed to present the consolidated financial statements in 2005, assuming all the values in the problem exist at January 1, 2005.

D. How would the use of a different depreciation method impact the worksheet elimination prepared in parts A and C above?

EXERCISE 4-10

Small Change Corporation, an 80 percent–owned subsidiary, purchased a building from its parent, Big Bucks Enterprises, for $264,000 on January 1, 2005. The building had a historical cost and accumulated depreciation on Big Bucks' books at the time of the sale of $500,000 and $300,320, respectively. The building had an estimated remaining life of 8 years on the financial records of Big Bucks and was assigned a new estimated life of 20 years when purchased by Small Change. Big Bucks and Small Change both calculate depreciation using the straight-line method.

Required:

A. Prepare the intercompany asset transaction worksheet elimination needed to present the consolidated financial statements in 2005, 2006, and 2007.

B. Assume that Big Bucks has operating income of $675,000 in 2005 and $729,000 in 2006, while Small Change has operating income of $290,000 in 2005 and $326,000 in 2006. Determine consolidated net income assuming that there are no other intercompany transactions in 2005 and 2006.

C. What would be recognized as consolidated depreciation expense in 2005 and 2006 if the sale had occurred on May 1, 2005, assuming all the values in the problem exist at May 1, 2005?

EXERCISE 4-11

Engine Manufacturing Corporation acquired a machine from Piston-Ring Company, its 80 percent–owned subsidiary, for $120,000 on January 1, 2005. The machine had a historical cost of $675,000 and accumulated depreciation of $525,000 in Piston-Ring's financial records at the date of the sale. Piston-Ring was depreciating the machine at a rate of $75,000 per year. Engine assigns the machine a three-year estimated life at the date of purchase.

Required:

A. Prepare the intercompany asset transaction worksheet elimination needed to present the consolidated financial statements in 2005 and 2006.

B. Write a brief explanation of the 2006 worksheet elimination prepared in part a.

C. Assume that Engine has operating income of $1,740,000 and Piston-Ring has operating income of $580,000 in 2005. Determine consolidated net income for 2005.

EXERCISE 4-12 Little Exposure Insurance sells a building with a historical cost of $1,180,000 and accumulated depreciation of $388,000 to Mega Insurance Company on January 1, 2005 for $1,008,000. Little Exposure had assigned the building a 15-year estimated life at the date it was originally purchased. Mega assigns the building an estimated remaining life of 12 years when it is acquired from Little Exposure. Mega owns 90 percent of Little Exposure's stock.

Required:

A. Prepare the intercompany asset transaction worksheet elimination needed to present the consolidated financial statements in 2005.

B. What amount of income would be allocated to noncontrolling interest if Little Exposure has operating income of $750,000 and there are no other intercompany transactions?

C. Assuming there are no other intercompany transactions, what would be the adjustment to noncontrolling interest in the 2006 intercompany asset transaction worksheet elimination?

EXERCISE 4-13 Baseball Company sells a machine to Bowling Shoe Enterprises on March 31, 2006, for $120,000. The machine has a historical cost and accumulated depreciation of $160,000 and $46,000, respectively, on Baseball's books at the date of the sale. The machine had a remaining life of 40 months on Baseball's books at the date of sale and was assigned an estimated remaining life of 60 months when purchased by Bowling Shoe. Ultimate owns 80 percent of Baseball's stock and 75 percent of Bowling Shoe's stock.

Required:

A. Prepare the intercompany asset transaction worksheet elimination needed to present the consolidated financial statements in 2006.

B. How would the solution to part A be different if the buyer had been Ultimate rather than Bowling Shoe?

C. How would the solution to part A be different if the seller had been Ultimate rather than Baseball?

D. Assume that Baseball has operating income of $360,000 and Bowling Shoe has operating income of $285,000. What is the amount of income allocated to the noncontrolling interest of Baseball and Bowling Shoe on the consolidated income statement if there are no other intercompany transactions?

EXERCISE 4-14 Oil Rig Enterprise (a 60 percent–owned subsidiary of Huge Oil Company) buys a building from Pipeline Pumps Company (a 90 percent–owned subsidiary of Huge Oil Company) for $6,300,000 on June 1, 2006. The building is assigned an estimated life of 21 years when purchased. The building has a historical cost and accumulated depreciation of $8,400,000 and $1,596,000, respectively, on Pipeline Pumps' books when the building is sold. Annual depreciation on the books of Pipeline Pumps for years before the sale was $285,000.

Required:

A. Prepare the intercompany asset transaction worksheet elimination needed to present the consolidated financial statements in 2006 and 2007.

B. Assume that Huge Oil had operating income of $8,150,000 in 2006 and $9,200,000 in 2007, Oil Rig had operating income of $1,550,000 in 2006 and $1,700,000 in 2007, and Pipeline Pumps had operating income of $955,000 in 2006 and $875,000 in 2007. Determine consolidated net income in 2006 and 2007.

C. Determine consolidated depreciation expense in 2006 and 2007.

D. Assume that Oil Rig sells the building to an unrelated party on October 1, 2007, for $6,000,000. Prepare the worksheet elimination needed to present the consolidated financial statements in 2007.

EXERCISE 4-15 Eagle Corporation issues a 20-year, $500,000, 12-percent bond payable on January 1, 2001, for $423,200. The discount on bonds is amortized using the straight-line method. Sparrow Enterprises, a 75 percent–owned subsidiary of Eagle, purchased $50,000 of the bond as an investment from an unrelated party on June 1, 2006, for $43,000.

Required:

A. Prepare the indirect intercompany debt transaction worksheet elimination needed to present the consolidated financial statements in 2006 and 2007.

B. Assuming that Sparrow has operating income of $145,000 for 2006 and no other intercompany transactions have occurred, what is the amount of income allocated to noncontrolling interest?

C. Determine consolidated interest expense for 2006.

EXERCISE 4-16 Commuter Airways purchases Big Plane Airline's bond from an unrelated party as an investment for $66,000 on December 1, 2006. The bond has a face value of $60,000, a stated interest rate of 12 percent, and a remaining life of five years. The bond was originally issued for $87,000 and has a carrying value on the issuer's books of $64,500 at the date purchased by Computer. Big Plane owns 80 percent of Commuter's stock. The straight-line method is used to amortize premiums.

Required:

A. Prepare the indirect intercompany debt transaction worksheet elimination needed to present the consolidated financial statements in 2006 and 2007.

B. Determine the date of the original bond issuance.

C. Determine the amount of interest revenue and interest expense to be recognized on the consolidated income statements in 2006 and 2007.

EXERCISE 4-17 Porpoise Products issued, for $281,800, a 10-year, $250,000, 12 percent bond payable on May 1, 2003. On September 1, 2005, Orka Enterprises acquired $150,000 of this bond from an unrelated party for $181,280. The premium is amortized using the straight-line method. Orka owns 75 percent of Porpoise's stock.

Required:

A. Prepare the indirect intercompany debt transaction worksheet elimination needed to present the consolidated financial statements in 2005 and 2006.

B. Determine the amount of interest expense to be recognized on the 2005 consolidated income statement.

C. Assume that Orka has operating income of $650,000 and pays dividends of $150,000 in 2005 while Porpoise has operating income of $400,000 and pays dividends of $90,000. Determine the income allocated to noncontrolling interest.

D. How would the income to noncontrolling interest change if the dividends paid by Porpoise were $120,000 rather than $90,000?

EXERCISE 4-18 Little Magazine Enterprises is an 80 percent owned subsidiary of Big Book Company. Big Book Company purchased $1,000,000 of Little Magazine's outstanding bonds payable from an unrelated party for $1,070,215 on March 31, 2006. The bonds were initially issued by Little Magazine on November 1, 1998, for $1,044,400. At the date of issuance the bonds had a 10 percent stated interest rate. The premium is being amortized straight-line on Little Magazine's books at a rate of $185 per month.

Required:

A. Prepare the indirect intercompany debt transaction worksheet elimination needed to present the consolidated financial statements in 2006 and 2007.

B. What is the amount of the adjustment to noncontrolling interest that would appear in the 2008 worksheet elimination for the indirect intercompany debt transaction?

C. Determine the amount of interest revenue and interest expense recognized on the 2006 and 2007 consolidated income statements.

D. Determine 2006 consolidated net income based on the assumption that Big Book has operating income of $2,650,000, Little Magazine has operating income of $1,100,000, and there are no other intercompany transactions.

E. How would the existence of a $10,000 increase in depreciation expense resulting from a purchase differential on equipment impact the worksheet elimination for this indirect intercompany debt transaction?

EXERCISE 4-19 Syracuse Company, a 75 percent–owned subsidiary of Phoenix Enterprises, issued $500,000, 10-year, 9 percent bonds payable to unrelated parties on January 1, 2006, for $516,800. Toledo

Corporation, a 90 percent–owned subsidiary of Phoenix, acquires $200,000 of these bonds from an unrelated party on August 31, 2006, for $213,104. Syracuse and Toledo both amortize premiums using the straight-line method.

Required:

A. Prepare the indirect intercompany debt transaction worksheet elimination needed to present the consolidated financial statements in 2006 and 2007.

B. Determine the 2007 consolidated net income if Phoenix has operating income of $750,000, Syracuse has operating income of $300,000, and Toledo has operating income of $220,000.

C. Determine the adjustment to noncontrolling interest in the 2008 worksheet elimination for the indirect intercompany debt transaction.

EXERCISE 4-20 Basket Company purchased $300,000 of the bonds payable of Nylon Rope Enterprises from an unrelated party on October 1, 2005, for $263,600. These bonds had originally been issued by Nylon Rope for $246,000 on February 1, 2000. The bonds have a stated interest rate of 12 percent and an original life of 15 years. The discount on the bonds is amortized using the straight-line method. Basket is a 70 percent–owned subsidiary of Hot Air Balloon Corporation, while Nylon Rope is an 80 percent–owned subsidiary of Hot Air Balloon.

Required:

A. Prepare the indirect intercompany debt transaction worksheet elimination needed to present the consolidated financial statements in 2010 and 2011.

B. Determine the interest expense recognized on the 2010 consolidated income statement related to these bonds.

C. Determine the 2010 income allocated to noncontrolling interest assuming that there are no other intercompany transaction and that Basket has operating income of $170,000 and Nylon Rope has operating income of $225,000.

PROBLEMS

Number	*Intercompany Transaction Direction*	*Percent Owned*	*Transaction Type*	*Year of Consolidation*	*Description of Other Factors*
4-1	Both	75	Inventory	First	
4-2	Both	75	Inventory	Second	Continuation of Problem 4-1
4-3	Both	75	Inventory	Third	Continuation of Problem 4-2
4-4	Both	60	Inventory	First	Mid-year acquisition
4-5	Both	60	Inventory	Second	Continuation of Problem 4-4
4-6	Both	60	Inventory	Third	Continuation of Problem 4-5
4-7	Down	80	Plant Assets	First	Mid-year sale of asset, negative goodwill, separate accumulated depreciation accounts
4-8	Both	80	Plant Assets	Second	Continuation of Problem 4-7, end-of-year upstream sale of plant asset
4-9	Both	80	Plant Assets	Third	Continuation of Problem 4-8, sale to unrelated party of downstream asset in Problem 4-7
4-10	Down	100	Plant Assets	First	Mid-year acquisition, separate accumulated depreciation accounts, mid-year sale of asset
4-11	Both	100	Plant Assets	Second	Continuation of Problem 4-10, sale to unrelated party of downstream asset in Problem 4-10, mid-year upstream and end-of-year downstream downstream sale of plant asset

Number	*Intercompany Transaction Direction*	*Percent Owned*	*Transaction Type*	*Year of Consolidation*	*Description of Other Factors*
4-12	Both	100	Plant Assets	Third	Continuation of Problem 4-11, mid-year upstream sale of plant asset, sale to unrelated party of upstream asset in Problem 4-11
4-13	Down	100	Debt	First	Mid-year acquisition
4-14	Down	100	Debt	Second	Continuation of Problem 4-13
4-15	Down	100	Debt	Third	Continuation of Problem 4-14, additional downstream intercompany debt purchased
4-16	Both	80	Debt	First	Beginning-of-year acquisition
4-17	Both	80	Debt	Second	Continuation of Problem 4-16, additional downstream and upstream intercompany debt purchased
4-18	Both	80	Debt	Third	Continuation of Problem 4-17, retirement of upstream intercompany debt purchased in Problem 4-16
4-19	Both	80	Inventory, Plant Asset, and Debt	First and Second	Beginning-of-year acquisition, separate accumulated depreciation account, upstream inventory, downstream plant assets, down stream debt in year 1, additional upstream inventory in year 2
4-20	Both	100	Inventory	First, second, and third	Beginning-of-year acquisition, upstream and downstream inventory in each year
4-21	Both	60	Plant Asset	First, second, and third	Mid-year acquisition, separate accumulated depreciation accounts, upstream and down stream plant asset in each year, downstream sale in year 1 is sold to unrelated party in year 3 and upstream sale in year 2 is sold to unrelated party in year 3
4-22	Up	60	Debt	First, second, and third	Beginning-of-year acquisition, upstream debt in each year, debt acquired in year 1 is retired retired by subsidiary in year 2

PROBLEM 4-1

Penman Corporation acquired 75 percent of Shedd Industries' stock on January 1, 2005, for $1,647,750. The balance sheets for Penman and Shedd and market value information at the date of acquisition are presented below.

	Penman Corporation		*Shedd Industries*	
	Book Value	*Market Value*	*Book Value*	*Market Value*
Cash	$ 250,000	$ 250,000	$ 82,000	$ 82,000
Receivables	350,000	350,000	140,000	140,000
Inventory	800,000	875,000	260,000	300,000
Investment in Shedd	1,650,000	1,650,000		
Land	1,100,000	1,600,000	431,000	481,000
Buildings (net)	3,750,000	3,850,000	900,000	872,000
Equipment (net)	1,660,000	2,400,000	387,000	450,000
Patents	165,000	320,000		
Total Assets	$9,725,000		$2,200,000	

Current Liabilities	$ 650,000	600,000	$ 200,000	200,000
Bonds Payable	2,000,000	2,100,000		
Premium on Bonds Payable	50,000			
Common Stock	1,450,000		600,000	
Additional Paid-In Capital	3,050,000		850,000	
Retained Earnings	2,525,000		550,000	
Total Liabilities and Equity	$9,725,000		$2,200,000	

The estimated remaining life (in years) of each item with a purchase differential is listed below.

	Penman	*Shedd*
Inventory	1	1
Land	Indefinite	Indefinite
Buildings	15	7
Equipment	5	9
Patents	8	
Current Liabilities	1	
Bonds Payable	10	

Throughout the year Shedd sold inventory to Penman for a total of $96,000. The inventory sold to Penman was carried on Shedd's books at $80,000 at the time of the sale. Seventy percent of this inventory was sold by Penman to unrelated parties during 2005 for $76,000. Near the end of 2005, Penman sold inventory costing $40,000 to Shedd for $46,000. Shedd did not sell any of this inventory to unrelated parties during 2005.

Abbreviated income statements for Penman and Shedd for 2005 are provided below.

	Penman Corporation	*Shedd Industries*
Sales	$3,500,000	$700,000
Cost of Goods Sold	2,275,000	285,000
Gross Profit	1,225,000	415,000
Depreciation Expense	425,000	86,000
Other Expenses	200,000	109,000
Income Before Taxes	600,000	220,000
Income Taxes	180,000	60,000
Net Income	$420,000	$160,000

Dividends in 2005 for Penman and Shedd were $230,000 and $90,000, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2005.

PROBLEM 4-2

(Refer to the information in Problem 4-1.) During 2006, Shedd sold additional inventory to Penman for $130,000. Shedd originally paid $105,000 for this inventory. Penman sold all the remaining inventory purchased from Shedd during 2005 to unrelated parties and 80 percent of the inventory purchased during 2006 for $150,000.

Penman sold $82,000 of additional inventory to Shedd during 2006. This inventory was carried on Penman's books for $68,000 at the time of sale. Shedd sold 90 percent of the inventory purchased from Penman during 2005 and 30 percent of the inventory purchased during 2006 for $73,000.

Penman's net income and dividends paid during 2006 are $550,000 and $260,000, respectively, while Shedd's net income and dividends paid are $210,000 and $100,000, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2006.

PROBLEM 4-3 (Refer to the information in Problems 4-1 and 4-2.) Penman recorded net income of $675,000 and paid $300,000 of dividends during 2007, while Shedd recorded net income of $250,000 and paid $110,000 of dividends. Shedd sold $160,000 (cost) of inventory to Penman for $225,000 during 2007, while Penman sold $92,000 (cost) of inventory to Shedd for $115,000. During 2007, Penman sold an additional 10 percent of the inventory purchased from Shedd in 2006 to unrelated parties for $16,000. In addition, Penman sold 60 percent of the inventory purchased from Shedd in 2007 to unrelated parties for $147,000. Shedd sold all the remaining inventory purchased from Penman in 2005 to unrelated parties during 2007. Shedd also sold, to unrelated parties, an additional 40 percent of the inventory purchased from Penman during 2006 and 70 percent of the inventory purchased during 2007. Total sales by Shedd to unrelated parties are $131,000.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2007.

PROBLEM 4-4 Cardinal Corporation purchased 60 percent of Bishop Company March 31, 2005, for $15,078,000. The balance sheet of Bishop Company on that date follows.

Cash	$2,600,000	Accounts Payable	$1,500,000
Marketable Securities	1,200,000	Notes Payable (short-term)	3,300,000
Accounts Receivable	5,750,000	Notes Payable (long-term)	1,400,000
Inventory	8,260,000	Bonds Payable	10,000,000
Land	750,000	Discount on Bonds Payable	(65,000)
Buildings (net)	6,300,000	Common Stock	350,000
Equipment (net)	850,000	Additional Paid-In Capital	4,150,000
Copyrights	200,000	Retained Earnings	5,275,000
Total Assets	$25,910,000	Total Liabilities and Equity	$25,910,000

Purchase differentials exist for three identifiable assets: land, buildings, and copyrights. The amounts of the purchase differentials applicable to Cardinal's ownership percentage are $648,000, $1,800,000, and $2,565,000, respectively. The remaining estimated life of the buildings is 10 years and the copyrights have an estimated remaining life of 25 years.

Bishop Company records net income of $3,000,000 for the last nine months of 2005 and pays $600,000 in dividends quarterly (three dividend payments were made after the acquisition). In addition, Cardinal records $4,500,000 net income and pays $1,000,000 of dividends in 2005.

Cardinal sold $2,400,000 of inventory to Bishop in 2005 for $2,850,000. Bishop sold 75 percent of this inventory to unrelated parties during 2005. Also in 2005, Bishop sold inventory costing $780,000 to Cardinal for $875,000. Cardinal resells 40 percent of this inventory to unrelated parties before the end of 2005.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2005.

PROBLEM 4-5 (Refer to the information in Problem 4-4.) Bishop Company had net income of $4,200,000 and paid dividends of $2,700,000 in 2006.

During 2006, Cardinal sold inventory to Bishop for $2,900,000. The inventory cost Cardinal $2,100,000. Bishop sold all the remaining inventory purchased from Cardinal in 2005 to unrelated parties and 30 percent of the inventory purchased in 2006. Bishop sold inventory costing $950,000 to Cardinal for $1,350,000. Cardinal sold an additional 45 percent of the inventory purchased in 2005 and 20 percent of the inventory purchased in 2006.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2006.

PROBLEM 4-6 (Refer to the information in Problems 4-4 and 4-5.) Net income and dividends paid by Bishop Company are $5,200,000 and $3,450,000, respectively.

Cardinal sold inventory costing $3,100,000 to Bishop in 2007 for $3,900,000, while Bishop sold inventory costing $1,300,000 to Cardinal for $1,550,000. Bishop sold an additional 60 percent of the inventory purchased from Cardinal in 2006 to unrelated parties in 2007. In addition, Bishop also sold 90 percent of the inventory purchased from Cardinal in 2007 to unrelated parties. In 2007 Cardinal sold the remaining inventory that had been purchased from Bishop in 2005 and 2006 to unrelated parties. Cardinal also sold 70 percent of the inventory purchased from Bishop in 2007.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2007.

PROBLEM 4-7 Micro Techniques Corporation purchased 80 percent of Spreadsheet Development Company for $830,000 on January 1, 2005. The balance sheets for Micro Techniques and Spreadsheet Development and market value information at the date of acquisition are presented below.

	Micro Techniques		*Spreadsheet*	
	Book Value	*Market Value*	*Book Value*	*Market Value*
Cash	$ 210,000	$ 210,000	$ 110,000	$110,000
Receivables	550,000	550,000	165,000	165,000
Inventory	600,000	725,000	340,000	370,000
Investment in Spreadsheet	850,000	850,000		
Land	675,000	780,000	300,000	350,000
Buildings	2,050,000	2,150,000	800,000	680,000
Accumulated Depreciation—Buildings	(450,000)		(175,000)	
Equipment	1,400,000	1,250,000	300,000	220,000
Accumulated Depreciation—Equipment	(300,000)		(90,000)	
Patents	110,000	140,000		
Total Assets	$5,695,000		$1,750,000	
Current Liabilities	$ 625,000	$ 625,000	$ 275,000	$275,000
Bonds Payable	1,000,000	980,000	500,000	500,000
Discount on Bonds Payable	(35,000)			
Common Stock	750,000		225,000	
Additional Paid-In Capital	1,660,000		325,000	
Retained Earnings	1,695,000		425,000	
Total Liabilities and Equity	$5,695,000		$1,750,000	

The estimated remaining life (in years) of each of the items with a purchase differential is listed below.

	Micro	*Spreadsheet*
Inventory	1	1
Land	Indefinite	Indefinite
Buildings	12	8
Equipment	10	4
Patents	5	
Bonds Payable	5	

On April 1, 2005, Micro sells equipment to Spreadsheet for $15,000. The equipment has a historical cost of $24,000 and accumulated depreciation of $9,500 after recording the April 1 adjusting entry.

The equipment has an estimated remaining life of 7¼ years when sold by Micro and an estimated remaining life of 5 years by Spreadsheet. Straight-line depreciation is recorded on a monthly basis.

Abbreviated income statements for Micro Techniques and Spreadsheet for 2005 are provided below.

	Micro	*Spreadsheet*
Sales	$4,125,000	$950,000
Cost of Goods Sold	2,475,000	370,000
Gross Profit	1,650,000	580,000
Depreciation Expenses	300,000	105,000
Other Expenses	250,000	175,000
Income Before Taxes	1,100,000	300,000
Income Taxes	180,000	90,000
Net Income	$920,000	$210,000

Dividends in 2005 were $190,000 and $60,000 for Micro Techniques and Spreadsheet Development, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2005.

PROBLEM 4-8 (Refer to the information in Problem 4-7.) On December 31, 2006, Spreadsheet sells equipment to Micro Techniques for $20,000. This piece of equipment had an original cost of $32,000 and accumulated depreciation of $9,600 at the date of sale (the adjusting entry has been made). The equipment has an eight-year remaining life on December 31, 2006.
Micro Techniques' net income and dividends paid during 2006 are $975,000 and $225,000, respectively, while Spreadsheet's net income and dividends paid are $300,000 and $100,000, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2006.

PROBLEM 4-9 (Refer to the information in Problems 4-7 and 4-8.) On September 30, 2007, Spreadsheet sells the equipment acquired from Micro Techniques in 2005 to an unrelated party for $13,000. Net income and dividends for Spreadsheet in 2007 are $375,000 and $115,000, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2007.

PROBLEM 4-10 Big Boat Manufacturing Corporation purchased 100 percent of LifeLine Incorporated on September 30, 2005, for $2,870,000. The balance sheet of LifeLine Inc. on that date follows.

Cash	$ 195,000	Accounts Payable	$ 300,000
Accounts Receivable	430,000	Notes Payable (short-term)	450,000
Inventory	720,000	Notes Payable (long-term)	2,100,000
Land	275,000	Common Stock	100,000
Buildings	3,000,000	Additional Paid-In Capital	1,000,000
Accumulated Depreciation—Buildings	(600,000)	Retained Earnings	970,000
Equipment	1,300,000	Total Liabilities and Equity	$4,920,000
Accumulated Depreciation—Equipment	(400,000)		
Total Assets	$4,920,000		

Purchase differentials exist for two identifiable assets: inventory and buildings. The amounts of the purchase differentials are $180,000 and $316,800, respectively. The remaining estimated life of the inventory is four months and the buildings have an estimated remaining life of eight years.

LifeLine Inc. records net income of $125,000 for the last three months of 2005, and LifeLine pays $25,000 of dividends quarterly (one dividend payment is declared and paid in 2005 after the acquisition).

Big Boat sold precision machining equipment to LifeLine on December 1, 2005, for $12,240. This equipment had a historical cost and accumulated depreciation, on the financial records of Big Boat, of $15,000 and $4,200, respectively, after the adjusting entry at the time of sale. The machine had a remaining estimated life of 10 years on Big Boat's records at the time of the sale. The machine was assigned an estimated life of 15 years when place on LifeLine's financial records.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2005.

PROBLEM 4-11

(Refer to the information in Problem 4-10.) LifeLine Inc. reports net income of $550,000 and pay dividends of $120,000 in 2006.

On December 31, 2006, Big Boat sold additional equipment to LifeLine for $62,400. This equipment had a historical cost of $90,000 and accumulated depreciation of $25,200 on Big Boat's books at the date of the sale. In addition, Big Boat recorded depreciation expense of $13,000 in the year of the sale. The machine had a remaining life of five years on Big Boat's books and was assigned a life of eight years by LifeLine.

LifeLine sold a storage building to Big Boat on March 1, 2006, for $408,000. The building had a historical cost, accumulated depreciation, and estimated remaining life on LifeLine's books of $750,000, $301,200, and 17 years, respectively, at the time of the sale. Big Boat assigned the building a life of 20 years.

LifeLine sold the equipment purchased from Big Boat on December 1, 2005, to an unrelated party for $14,000 on October 31, 2006.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2006.

PROBLEM 4-12

(Refer to the information in Problems 4-10 and 4-11.) Net income and dividends paid by LifeLine Inc. are $430,000 and $150,000, respectively.

LifeLine sold a machine to Big Boat on February 1, 2007. The machine had a remaining life, historical cost, and accumulated depreciation on LifeLine's financial records of six years, $45,000, and $19,800, respectively, at the time of the sale. Big Boat placed the machine on its financial records for $22,320 and assigned a five-year life to the machine.

On June 1, 2007, Big Boat sold the storage building purchased from LifeLine in 2006 for $500,000.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2007.

PROBLEM 4-13

Eastbrook Products acquired 100 percent of Westcott Enterprises' stock on June 1, 2005, for $59,384,000. Relevant balance sheet and market value information for Eastbrook and Westcott at the date of acquisition are presented below.

	Eastbook Products		*Westcott Enterprises*	
	Book Value	*Market Value*	*Book Value*	*Market Value*
Cash	$22,750,000	$22,750,000	$ 8,285,000	$ 8,285,000
Receivables	73,500,000	73,500,000	5,450,000	5,450,000
Inventory	151,600,000	180,250,000	9,260,000	11,600,000
Investment in Westcott	50,000,000	50,000,000		
Land	46,300,000	49,600,000	6,275,000	6,350,000

Buildings (net)	123,600,000	124,800,000	16,900,000	19,300,000
Equipment (net)	42,900,000	50,640,000	8,125,000	10,375,000
Patents				3,264,000
Total Assets	$510,650,000		$54,295,000	
Current Liabilities	$140,000,000	140,000,000	$11,000,000	$11,000,000
Bonds Payable	200,000,000	201,200,000		
Premium on Bonds Payable	3,600,000			
Common Stock	11,500,000		6,000,000	
Additional Paid-In Capital	46,150,000		30,850,000	
Retained Earnings	109,400,000		6,445,000	
Total Liabilities and Equity	$510,650,000		$54,295,000	

The estimated remaining life (in months) at the date of acquisition for each of the items with a purchase differential is listed below.

	Eastbook	*Westcott*
Inventory	2	5
Land	Indefinite	Indefinite
Buildings	144	120
Equipment	180	150
Patents		204
Bonds Payable	240	

On September 30, 2005 (four months after the acquisition date), Westcott purchased $5,000,000 of Eastbrook's outstanding Bonds Payable for $5,031,860. The carrying value (adjusted to September 30, 2005) of these bonds on Eastbrook's financial records is $5,088,500. The premium on bonds is amortized straight-line on the books of both companies. The stated interest rate on the bonds is 8 percent. Interest Revenue and Interest Expense recognized for October1–December 31 on the bonds acquired by were $99,595 and $98,875, respectively.

Abbreviated income statements for Eastbrook and Westcott for June1–December 31, 2005 are provided below.

	Eastbook	*Westcott*
Sales	$280,000,000	$38,000,000
Cost of Goods Sold	161,950,000	26,700,000
Gross Profit	118,050,000	11,300,000
Depreciation Expenses	12,530,000	2,400,000
Interest Expense	15,820,000	650,000
Interest Revenue		99,595
Other Expenses	37,200,000	3,250,000
Income Before Taxes	52,500,000	5,099,595
Income Taxes	21,000,000	2,099,595
Net Income	$31,500,000	$3,000,000

Eastbrook and Westcott distributed $8,250,000 and $600,000, respectively, for dividends during 2005. Dividends are paid in equal amounts at the end of each quarter.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2005.

PROBLEM 4-14 (Refer to the information in Problem 4-13.) No additional intercompany bond transactions occurred during 2006.

Eastbrook's net income and dividends paid during 2006 are $35,075,000 and $9,100,000, respectively, while Westcott's net income and dividends paid are $5,6000,000 and $3,360,000, respectively.

Eastbrook had interest expense of $395,500 and Westcott had interest revenue of $398,380 related to the bonds purchased by Westcott on its 2006 income statements.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2006.

PROBLEM 4-15

(Refer to the information in Problems 4-13 and 4-14.) Westcott purchased another $12,000,000 of Eastbrook's outstanding bonds payable on April 30, 2007 for $12,299,460. The carrying value of the bonds on that date would have been $12,195,300 if an adjusting entry had been recorded.

Eastbrook recognized net income (including interest expense of $395,500 for bonds purchased by Westcott in 2005 and $632,800 for bonds purchased by Westcott in 2007) and paid dividends of $28,000,000 and $9,750,000, respectively, for 2007. Westcott recognized $5,800,000 of net income (including interest revenue of $398,380 for 2005 bonds and $628,960 for 2007 bonds). Westcott paid dividends of $4,100,000 in 2007.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2007.

PROBLEM 4-16

Office Equipment Company purchased 80 percent of Home Copying Equipment, Incorporated on January 1, 2005, for $25,997,160. The balance sheet of Home Copying Equipment on that date follows.

Cash	$ 3,390,000	Accounts Payable	$ 1,674,000
Marketable Securities	1,050,000	Notes Payable (short-term)	2,100,000
Accounts Receivable	1,375,000	Notes Payable (long-term)	3,800,000
Inventory	2,650,000	Bonds Payable (12 percent)	15,000,000
Land	3,150,000	Premium on Bonds Payable	205,800
Buildings (net)	15,600,000	Common Stock	3,000,000
Equipment (net)	8,750,000	Additional Paid-in Capital	10,340,200
Patents	6,880,000	Retained Earnings	6,725,000
Total Assets	$42,845,000	Total Liabilities and Equity	$42,845,000

Purchase differentials exist for three identifiable assets: land, buildings, and patents. The amounts of the purchase differentials applicable to Office Equipment's ownership percentage are $675,000, $2,150,000, and $4,540,000, respectively. The remaining estimated life of the buildings is 20 years and the patents have an estimated remaining life of 8 years.

Home Copying Equipment records net income of $5,000,000 for 2005 and pays $400,000 of dividends quarterly. Discounts and premiums are amortized using the straight-line method by both organizations.

The treasurer of each company is responsible for keeping the cash resources of that organization invested. Beginning in 2005, each organization began investing in the debt securities of the other organization. On March 1, 2005, Office Equipment Company purchased $1,500,000 of the outstanding Home Copying Equipment bonds payable for $1,548,000. The bonds have a remaining life of eight years and a $1,520,160 carrying value on the books of Home Copying Equipment at the time of the investment by Office Equipment. Home Copying recorded $147,900 interest expense on the bonds purchased by Office Equipment for the remainder of the year and Office Equipment recorded $145,000 interest revenue.

On September 30, 2005, Home Copying Equipment purchased $600,000 of the outstanding 10-percent bonds payable of Office Equipment for $639,000. The bonds had a remaining life of five years and a carrying value of $645,000 at the time of the investment. Home Copying Equipment recognized $13,050 of interest revenue for these bonds in 2005 while Office Equipment recognized $12,750 interest expense for the remainder of the year.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2005.

PROBLEM 4-17 (Refer to the information in Problem 4-16.) Home Copying Equipment reports net income of $4,000,000 and pay dividends of $1,600,000 in 2006.

On June 1, 2006, Office Equipment purchased an additional $3,000,000 of Home Copying's bonds payable for $3,060,750. The bonds had a carrying value of $3,034,020 at the acquisition date. Home Copying recorded $177,480 of interest expense related to the bonds purchased by Office Equipment in 2005 and $207,060 (for June 1–December 31) related to the 2006 purchase. Office Equipment recorded interest revenue of $174,000 and $204,750 for the 2005 and 2006 bond purchases, respectively.

On October 31, 2006, Home Copying purchased an additional $960,000 of Office Equipment's outstanding bonds payable for $1,008,504. The bonds had a carrying value of $1,016,400 at the date of the acquisition. Home Copying recognized interest revenue of $52,200 and $13,936 on the bonds purchased in 2005 and 2006 (partial year), respectively. Office Equipment recognized interest expense on these same bonds in the amounts of $51,000 and $13,600 for 2005 and 2006, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2006.

PROBLEM 4-18 (Refer to the information in Problems 4-16 and 4-17.) Net income and dividends paid by Home Copying are $5,750,000 and $1,800,000, respectively.

On March 1, 2007, Office Equipment sold (to Home Copying) the $1,500,000 face value bonds purchased in 2005 to provide cash for expanding plant facilities. The sales price on the bonds was $1,490,000. Home Copying recognized interest expense for the 2005 and 2006 bond purchased during the period held by Office Equipment in the following amounts: 2005, $29,580; 2006, $354,960. Office Equipment's financial records disclosed interest revenue in the amounts of $29,000 and $351,000 for the 2005 and 2006 bond investments, respectively.

Home Copying did not have any additional bond investments during 2007. Interest expense recognized by Office Equipment on the bonds held by Home Copying during 2007 were $51,000 for the 2005 investment and $81,600 for the 2006 investment. Home Copying recognized interest revenue for $52,200 and $83,616 for the 2005 and 2006 investments, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations needed to present the consolidated financial statements at December 31, 2007.

PROBLEM 4-19 Pleasure Company acquired 80 percent of the outstanding no par stock of Sorrow Company on January 1, 2005, by issuing new shares of its common stock having a par value of $24,000 and market value of $260,000. The premium over book value paid for the interest in Sorrow was due to certain fixed assets that were undervalued plus unrecognized goodwill in Sorrow. Sorrow's balance sheet information at the date of the acquisition is provided below.

	Book Value	*Market Value*
Cash and Receivables	$ 40,000	$40,000
Inventory (FIFO)	90,000	90,000
Plant and Equipment (net)	270,000	175,000
Accumulated Depreciation	(145,000)	
Patents	75,000	75,000
Total Assets	$330,000	
Current Liabilities	$ 30,000	30,000
Bonds Payable	50,000	50,000
Common Stock (no par)	130,000	
Retained Earnings	120,000	
Total Liabilities and Equities	$330,000	

Additional information:

1. The remaining useful life of the equipment having the market value in excess of book value is five years.
2. During 2005 Sorrow reports $75,000 of net income and declares $45,000 of dividends.
3. Pleasure uses the equity method to account for the investment in Sorrow's stock.
4. Intercompany transactions began immediately after the combination. The 2005 activities are described here:

   - On January 2, 2005, Pleasure sold equipment having a cost of $32,000 and accumulated depreciation of $21,000 to Sorrow for $15,000 cash. The remaining useful life of that equipment was four years at the date of sale. Schedules of depreciation over the remaining life of the equipment are provided.
   - Sorrow began selling inventory to Pleasure during 2005. Goods costing $28,000 were sold to Pleasure for $42,000 in 2005. Pleasure resold 45 percent of those units to outside parties for a total of $31,000 before December 31, 2005. A schedule of the intercompany inventory activity is provided.
   - Pleasure has 10 percent, 10-year bonds payable outstanding. Those bonds pay interest semiannually on June 30 and December 31. The bonds were sold to yield 8 percent on January 1, 1998. On July 1, 2005, Sorrow buys 20 percent of the bond issue in the open market for $37,767. Sorrow was able to buy the bonds at a discount because market interest rates had risen to 12 percent. The amortization schedules that result from the original price and the buyback price are provided.

Required:

A. Prepare, in journal entry form, all worksheet eliminations necessary to consolidate Pleasure and Sorrow at December 31, 2005. Then post them to the worksheet provided at the end of this problem (additional accounts will need to be added to complete the worksheet).

B. In 2006 Sorrow sold additional inventory to Pleasure. The cost of these items was $60,000 and they were sold to Pleasure for $85,000. By the end of 2006, all the beginning intercompany inventory and 75 percent of the new items acquired in 2006 from Sorrow had been sold to unrelated entities. Prepare the worksheet eliminations that relate to the intercompany transactions for Property, Plant, and Equipment; Inventory; and Bonds that would be necessary as part of the December 31, 2006, consolidation of Pleasure and Sorrow.

Pleasure Company Bonds Payable amortization schedule:

Date	*Cash Interest*	*Interest Expense*	*Premium Amortized*	*Carrying Value*
Issue date 1/1/1998				$227,181
6/30/1998	$10,000	$9,087	$913	$226,268
12/31/1998	$10,000	$9,051	$949	$225,319
6/30/1999	$10,000	$9,013	$987	$224,332
12/31/1999	$10,000	$8,973	$1,027	$223,305
6/30/2000	$10,000	$8,932	$1,068	$222,237
12/31/2000	$10,000	$8,889	$1,111	$221,127
6/30/2001	$10,000	$8,845	$1,155	$219,972
12/31/2001	$10,000	$8,799	$1,201	$218,771
6/30/2002	$10,000	$8,751	$1,249	$217,521
12/31/2002	$10,000	$8,701	$1,299	$216,222
6/30/2003	$10,000	$8,649	$1,351	$214,871
12/31/2003	$10,000	$8,595	$1,405	$213,466
6/30/2004	$10,000	$8,539	$1,461	$212,005
12/31/2004	$10,000	$8,480	$1,520	$210,485
6/30/2005	$10,000	$8,419	$1,581	$208,904
12/31/2005	$10,000	$8,356	$1,644	$207,260
6/30/2006	$10,000	$8,290	$1,710	$205,551
12/31/2006	$10,000	$8,222	$1,778	$203,773

(Continued)

Date	*Cash Interest*	*Interest Expense*	*Premium Amortized*	*Carrying Value*
6/30/2007	$10,000	$8,151	$1,849	$201,924
12/31/2007	$10,000	$8,077	$1,923	$200,001

Sorrow Company Investment in Bonds amortization schedule:

Date	*Cash Interest*	*Interest Revenue*	*Discount Amortized*	*Carrying Value*
Investment date				$37,767
12/31/2005	$2,000	$2,266	$266	$38,033
6/30/2006	$2,000	$2,282	$282	$38,315
12/31/2006	$2,000	$2,299	$299	$38,614
6/30/2007	$2,000	$2,317	$317	$38,931
12/31/2007	$2,000	$2,336	$336	$39,267
6/30/2008	$2,000	$2,356	$356	$39,623
12/31/2008	$2,000	$2,377	$377	$40,000

Schedule of inventory transferred from Sorrow to Pleasure:

2005 Transactions	*Cost Basis*	*Marlup on Transfers*	*Retail Price to Pleasure*
Beginning Inventory—at Pleasure	$0	$0	$0
2005—Sold to Pleasure	$30,000	$14,000	$44,000
Ending Inventory—at Pleasure	$16,500	$7,700	$24,200
Sold by Pleasure to third parties	$13,500	$6,300	$19,800

Schedule of depreciation and book values for intercompany fixed assets transferred:

	Pleasure's Expected Depreciation Schedule Prior to Sale		*Sorrow's Depreciation Schedule Subsequent to Sale*	
	Depreciation Expense	*Accumulated Depreciation*	*Depreciation Expense*	*Accumulated Depreciation*
1/2/2005		$21,000		$0
12/31/2005	$2,750	$23,750	$3,750	$3,750
12/31/2006	$2,750	$26,500	$3,750	$7,500
12/31/2007	$2,750	$29,250	$3,750	$11,250
12/31/2008	$2,750	$32,000	$3,750	$15,000

	Separate Financial Statements		*Adjustments and Eliminations*		*Consolidated Financial Statements*
	Pleasure	*Sorrow*	*Debit*	*Credit*	
Income Statement					
Sales	601,000	322,000			
Interest Revenue		2,266			
Gain on Sale of Equipment	4,000				
Investment Income	52,000				
Cost of Goods Sold	300,000	167,000			
Depreciation Expense	88,000	41,000			
Operating Expenses	102,981	38,266			
Patent Amortization Expense		3,000			
Bond Interest Expense	17,019				
Net Income (to Statement of Retained Earnings)	149,000	75,000			

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Retained Earnings Statement					
Retained Earnings	280,000	120,000			
Add: Net Income (from Income Statement)	149,000	75,000			
Subtotal	429,000	195,000			
Less: Dividends	(100,000)	(45,000)			
Retained Earnings (to Balance Sheet)	329,000	150,000			
Balance Sheet					
Cash and Receivables	127,000	24,967			
Inventory	210,000	133,000			
Total Current Assets	337,000	157,967			
Plant and Equipment	600,000	280,000			
Accumulated Depreciation	(347,000)	(180,000)			
Patents		72,000			
Investment in Sorrow Stock	276,000				
Investment in Pleasure Bonds		38,033			
Total Long-Term Assets	529,000	210,033			
Total Assets	866,000	368,000			
Current Liabilities	76,516	38,000			
Bonds Payable	200,000	50,000			
Premium on Bonds Payable	10,484				
Total Liabilities	287,000	88,000			
Common Stock	100,000	130,000			
Additional Paid-In Capital	150,000				
Retained Earnings	329,000	150,000			
Total Stockholders' Equity	579,000	280,000			
Total Liabilities and Stockholders' Equity	866,000	368,000			

PROBLEM 4-20 Richmond Enterprises purchased 100 percent of the stock of Atlanta Products on January 1, 2005. The acquisition price was $1,250,000. Book values, market values, and estimated remaining lives for Atlanta on that date follow.

	Book Value	*Market Value*	*Estimated Life (in Years)*
Cash and Receivables	$275,000	$275,000	
Inventory	490,000	550,000	1
Land	300,000	325,000	n/a
Buildings (net)	650,000	800,000	15
Equipment (net)	200,000	248,000	8
Total Assets	$1,915,000		
Current Liabilities	$370,000	$370,000	
Mortgage Payable	850,000	920,000	14
Common Stock	100,000		
Additional Paid-In Capital	265,000		
Retained Earnings	330,000		
Total Liabilities and Equity	$1,915,000		

Richmond and Atlanta are involved in intercompany inventory transactions. The tables below presents the volume of intercompany transactions and the periods in which this inventory is sold to an unrelated party for 2005, 2006, and 2007.

Intercompany Sales of Inventory

	2005		2006		2007	
Sales by:	*Market Value*	*Book Value*	*Market Value*	*Book Value*	*Market Value*	*Book Value*
Richmond	$95,000	$90,000	125,000	$100,000	$175,000	$160,000
Atlanta	$60,000	$56,000	$50,000	$45,000	$75,000	$68,000

Sales of Intercompany Inventory to Unrelated Parties

		Percent Sold/Sales Price				
	Unrelated Party Sales:	*2005*	*2006*		*2007*	
Sold by:	*Intercompany Transfer:*	*2005*	*2005*	*2006*	*2006*	*2007*
Richmond		100%	N/A	60%	40%	80%
		$69,000		$33,000	$24,000	$66,000
Atlanta		70%	30%	100%	N/A	75%
		$73,000	$31,000	$137,000		$142,000

Atlanta had net income of $150,000, $180,000, and $140,000 for 2005, 2006, and 2007, respectively. In addition, Atlanta paid dividends of $40,000, $45,000, and $48,000 in 2005, 2006, and 2007, respectively.

Required:
Prepare, in journal entry form, the worksheet eliminations necessary to prepare the consolidated financial statements in each of the three years.

PROBLEM 4-21

Argon Industries purchased 60 percent of the stock of Oxygen Gas Products, Incorporated on March 1, 2005, for $1,446,780. Book values, market values, and estimated remaining lives for Oxygen Gas Product's on that date follow.

	Book Value	*Market Value*	*Estimated Life (in Months)*
Cash and Receivables	$ 50,000	$ 50,000	
Inventory	250,000	250,000	
Land	175,000	225,000	n/a
Buildings	800,000	550,000	180
Accumulated Depreciation—Buildings	(475,000)		
Equipment	400,000	180,000	96
Accumulated Depreciation—Equipment	(280,000)		
Total Assets	$920,000		
Current Liabilities	$ 35,000	$ 35,000	
Mortgage Payable	315,000	308,700	140
Common Stock	20,000		
Additional Paid-In Capital	160,000		
Retained Earnings	390,000		
Total Liabilities and Equity	$920,000		

Argon Industries and Oxygen Gas Products are involved in many transactions with each other. Below is a table indicating sales of equipment between the two companies during 2005, 2006, and 2007. Assume straight-line depreciation is recorded on a monthly basis with no salvage values for all plant assets.

	2005		*2006*		*2007*	
Buyer / *Seller*	*Oxygen* / *Argon*	*Argon* / *Oxygen*	*Oxygen* / *Argon*	*Argon* / *Oxygen*	*Oxygen* / *Argon*	*Argon* / *Oxygen*
Date of Sale	April 1	Dec. 31	Dec. 31	Oct. 1	May 1	Oct. 1
Sales Price	$27,000	$16,800	$4,900	$16,000	$32,760	$10,080
Year of sale depreciation by seller	$500	$2,000	$420	$1,500	$1,120	$540
Cost and Accumulated Depreciation (seller)	$30,000 $8,220	$15,500 $3,500	$5,000 $1,220	$24,000 $4,000	$40,000 $5,056	$10,000 $1,360
Estimated Life (seller)	11	6	9	10	13	12
Estimated Life (buyer)	15	4	7	8	14	20
Date sold to unrelated party and sales price	April 1, 2007 $23,900			Oct. 1, 2007 $13,000		

Oxygen Gas Products had net income of $105,000, $130,000, and $152,000 for 2005 (March 1–December 31), 2006, and 2007, respectively. In addition, Oxygen paid dividends of $25,000, $25,000, and $35,000 in 2005, 2006, and 2007, respectively.

Required:

A. Prepare, in journal entry form, the worksheet eliminations necessary to prepare the consolidated financial statements in each of the three years.

B. Why are the equipment transactions that took place prior to the acquisition of Oxygen by Argon not viewed as intercompany transactions?

PROBLEM 4-22 Baker Company purchased 60 percent of Muffin Mania, Incorporated on January 1, 2005, for $948,000. Book values, market values, and estimated remaining lives for Muffin Mania on that date follow.

	Book Value	*Market Value*	*Estimated Life (in years)*
Cash and Receivables	$103,720	$103,720	
Inventory	210,000	230,000	1
Land	250,000	300,000	n/a
Buildings (net)	550,000	680,000	13
Equipment (net)	315,000	355,000	8
	$1,428,720		
Current Liabilities	$147,440	147,440	
Bonds Payable	300,000	281,280	10
Discount on Bonds Payable	(18,720)		
Common Stock	150,000		
Additional Paid-In Capital	275,000		
Retained Earnings	575,000		
	$1,428,720		

Muffin Mania had net income of $175,000, $215,000, and $250,000 for 2005, 2006, and 2007, respectively. In addition, Muffin Mania paid dividends of $60,000, $70,000, and $80,000 in 2005, 2006, and 2007, respectively.

Baker Company began purchasing the bonds of Muffin Mania as an investment soon after the acquisition. The stated interest rate on Muffin Mania's bonds is 9 percent and the discount on bonds payable is amortized using the straight-line method. The table below presents the indirect intercompany debt purchases by Baker Company in 2005, 2006, and 2007 and the sale of debt instruments to Muffin Mania in 2006.

	2005	*2006*	*2007*
Date of purchase	May 1, 2005	Oct. 1, 2006	Mar. 1, 2007
Purchase price	$44,780	$96,337	$69,924
Face value of bonds purchased	$50,000	$100,000	$75,000
Book value of bonds purchased	$46,984	$94,852	$71,334
Intercompany interest expense*	$3,208[A]	$4,411[B]	$15,639[C]
Intercompany interest revenue*	$3,360[D]	$4,461[E]	$15,609[F]
Date sold to Muffin Mania	June 1, 2006		
Sales price	$48,500		

* Supplemental supporting interest expense and interest revenue calculations.

Interest Expense = [(face value of debt × stated interest rate) + (discount amortization)] (fraction of year intercompany) (fraction of total bond intercompany).

2005:		[($300,000 × .09) + ($18,720/10)] (8/12) (1/6)		$3,208[A]
2006:	On bonds purchased by Baker in 2005	[($300,000 × .09) + ($18,720/10)] (5/12) (1/6)	2,005	
	On bonds purchased by Baker in 2006	[($300,000 × .09) + ($18,720/10)] (3/12) (1/3)	2,406	$4,411[B]
2007:	On bonds purchased by Baker in 2006	[($300,000 × .09) + ($18,720/10)] (12/12) (1/3)	9,624	
	On bonds purchased by Baker in 2007	[($300,000 × .09) + ($18,720/10)] (10/12) (1/4)	6,015	$15,639[C]

Interest Revenue = [(face value of debt x stated interest rate)/12 + (monthly discount amortization)] (number of months held)

2005:		[($50,000 × .09)/12 + ($5,220/116)] (8)		$3,360[D]
2006:	On bonds purchased by Baker in 2005	[($50,000 × .09)/12 + ($5,220/116)] (5)	2,100	
	On bonds purchased by Baker in 2006	[($100,000 × .09)/12 + ($3,663/99)] (3)	2,361	$4,461[E]

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2007:	On bonds purchased by Baker in 2006	[($100,000 × .09)/12 + ($3,663/99)] (12)	9,444	
	On bonds purchased by Baker in 2007	[($75,000 × .09)/12 + ($5,076/94)] (10)	6,165	$15,609[F]

Required:
Prepare, in journal entry form, the worksheet eliminations necessary to prepare the consolidated financial statements in each of the three years.