chapter 7

Reporting and Interpreting Cost of Goods Sold and Inventory

The Harley-Davidson eagle trademark was once known best as a popular request in tattoo parlors. Now, Harley-Davidson dominates the heavyweight motorcycle market in North America with a 55.7 percent market share. Harley is also the market leader in Canada, Japan, and Australia and is a growing presence in Europe.

But the heavyweight king took a major hit from the worldwide economic downturn that started in 2008. Harley responded with an aggressive plan to enhance profitability through continuous improvement in manufacturing, product development, and business operations. These plans are aimed at shortening product development lead times and implementing flexible manufacturing at its Wisconsin, Missouri, and Pennsylvania facilities, which will reduce costs and allow the company to better respond to the needs of the dealer network.

Controlling inventory quality, quantities, and cost are key to maintaining gross profit margin. Introducing new products to stay ahead of major competitors Honda and BMW and providing a premium dealer experience to all of Harley's customers will also increase gross margin. Finally, selecting appropriate accounting methods for inventory can have a dramatic effect on the amount Harley-Davidson pays in income taxes. Harley produced strong financial results in 2011, but continuous improvement in all of these areas will be necessary for the Harley-Davidson eagle to continue its rise.

Learning Objectives

After studying this chapter, you should be able to:

7-1 Apply the cost principle to identify the amounts that should be included in inventory and the expense matching principle to determine cost of goods sold for typical retailers, wholesalers, and manufacturers. p. 329

7-2 Report inventory and cost of goods sold using the four inventory costing methods. p. 334

7-3

Decide when the use of different inventory costing methods is beneficial to a company. p. 339

7-4 Report inventory at the lower of cost or market (LCM). p. 342

7-5 Evaluate inventory management using the inventory turnover ratio. p. 343

7-6 Compare companies that use different inventory costing methods. p. 344

7-7 Understand methods for controlling inventory, analyze the effects of inventory errors on financial statements, and analyze the effects of inventory on cash flows. p. 347

FOCUS COMPANY:

Harley-Davidson, Inc.

BUILDING A LEGEND INTO A WORLD-CLASS MANUFACTURER

www.harley-davidson.com

UNDERSTANDING THE BUSINESS

The cost and quality of inventory are concerns faced by all modern manufacturers and merchandisers and so we turn our attention to **cost of goods sold** (cost of sales, cost of products sold) on the income

statement and **inventory** on the balance sheet. Exhibit 7.1 presents the relevant excerpts from Harley-Davidson's financial statements that include these accounts. Note that Cost of Goods Sold is subtracted from Net Sales to produce Gross Profit on its income statement. On the balance sheet, Inventory is a current asset; it is reported below Cash, Marketable Securities, and Accounts and Finance Receivables because it is less liquid than those assets.

The primary goals of inventory management are to have sufficient quantities of high-quality inventory available to serve customers' needs while minimizing the costs of carrying inventory (production, storage, obsolescence, and financing). Low quality leads to customer dissatisfaction, returns, and a decline in future sales. Also, purchasing or producing too few units of a hot-selling item causes stock-outs that mean lost sales revenue and decreases in customer satisfaction. Conversely, purchasing too many units of a slow-selling item increases storage costs as well as interest costs on short-term borrowings that finance the purchases. It may even lead to losses if the merchandise cannot be sold at normal prices.

EXHIBIT 7.1

Income Statement and Balance Sheet Excerpts

HARLEY-DAVIDSON, INC.

REAL WORLD EXCERPT
Annual Report

HARLEY-DAVIDSON, INC.
Consolidated Statements of Income
(dollars in thousands, except per share amounts)

Years Ended December 31,	2011	2010	2009
Net Sales	$4,662,264	$4,176,627	$4,287,130
Cost of Goods Sold	3,106,288	2,749,224	2,900,934
Gross Profit	$1,555,976	$1,427,403	$1,386,196

HARLEY-DAVIDSON, INC.
Consolidated Balance Sheets
(dollars in thousands, except share amounts)

	2011	2010
Assets		
Current Assets		
Cash and cash equivalents	$1,526,950	$1,021,933
Marketable securities	153,380	140,118
Accounts receivable, net	219,039	262,382
Finance receivables, net	1,760,467	1,779,458
Inventories	418,006	326,446
Deferred income taxes	132,331	146,411
Other current assets	332,033	389,878
Total current assets	$4,542,206	$4,066,626

The accounting system plays three roles in the inventory management process. First, the system must provide accurate information for preparation of periodic financial statements and tax returns. Second, it must provide up-to-date information on inventory quantities and costs to facilitate ordering and manufacturing decisions. Third, since inventories are subject to theft and other forms of misuse, the system must also provide the information needed to help protect these important assets.

Harley's mix of product lines makes it a particularly good example for this chapter. Although best known as a **manufacturer** of motorcycles, Harley also purchases and resells completed products such as its popular line of Motorclothes apparel. In the second case, it acts as a **wholesaler.** Both the motorcycle and Motorclothes product lines are sold to the company's network of independent dealers. From an accounting standpoint, these independent dealers are Harley-Davidson's customers. The independent dealers are the **retailers** who sell the products to the public.

We begin this chapter with a discussion of the makeup of inventory, the important choices management must make in the financial and tax reporting process, and how these choices

affect the financial statements and taxes paid. Then we discuss how managers and analysts evaluate the efficiency of inventory management. Finally, we briefly discuss how accounting systems are organized to keep track of inventory quantities and costs for decision making and control. This topic will be the principal subject matter of your managerial accounting course.

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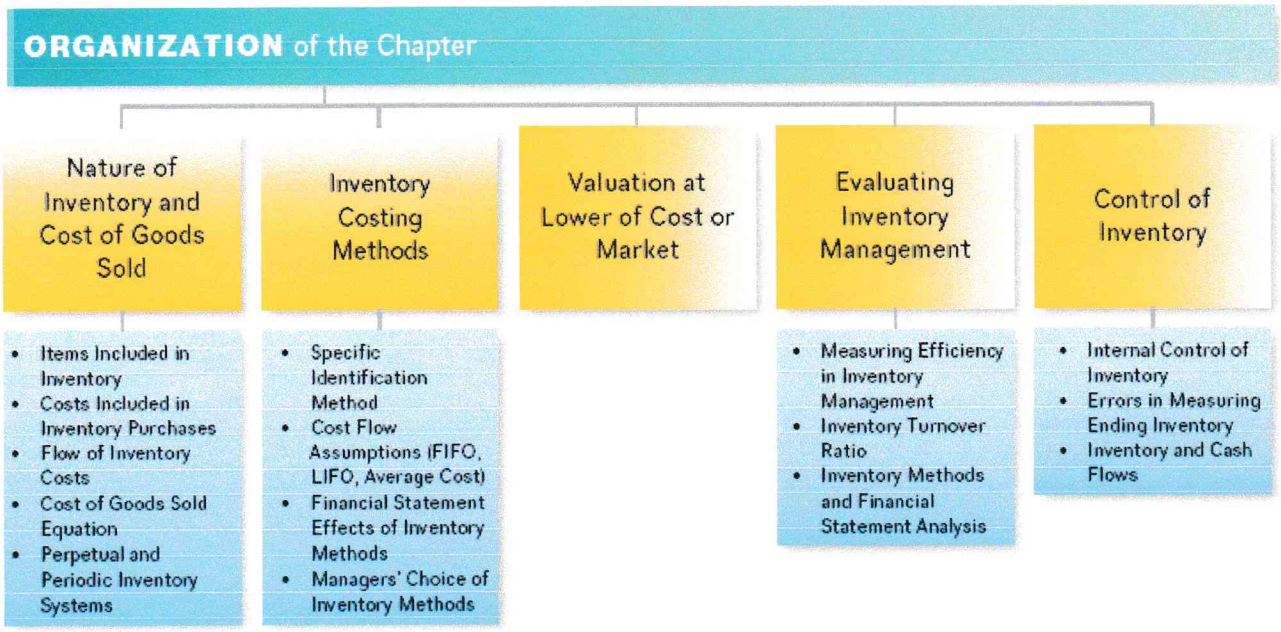


NATURE OF INVENTORY AND COST OF GOODS SOLD

Items Included in Inventory

LEARNING OBJECTIVE 7-1

Apply the cost principle to identify the amounts that should be included in inventory and the expense matching principle to determine cost of goods sold for typical retailers, wholesalers, and manufacturers.

INVENTORY is tangible property held for sale in the normal course of business or used in producing goods or services for sale.

Inventory is tangible property that is (1) held for sale in the normal course of business or (2) used to produce goods or services for sale. Inventory is reported on the balance sheet as a current asset because it normally is used or converted into cash within one year or the next operating cycle. The types of inventory normally held depend on the characteristics of the business.

Merchandisers (wholesale or retail businesses) hold the following:

MERCHANDISE INVENTORY
includes goods held for resale in the ordinary course of business.

Merchandise inventory Goods (or merchandise) held for resale in the normal course of business. The goods usually are acquired in a finished condition and are ready for sale without further processing.

For Harley-Davidson, merchandise inventory includes the Motorclothes line and the parts and accessories it purchases for sale to its independent dealers.

Manufacturing businesses hold three types of inventory:

RAW MATERIALS INVENTORY
includes items acquired for the purpose of processing into finished goods.

Raw materials inventory Items acquired for processing into finished goods. These items are included in raw materials inventory until they are used, at which point they become part of work in process inventory.

Work in process inventory Goods in the process of being manufactured but not yet complete. When completed, work in process inventory becomes finished goods inventory.

Finished goods inventory Manufactured goods that are complete and ready for sale.

Inventories related to Harley-Davidson's motorcycle manufacturing operations are recorded in these accounts.

WORK IN PROCESS INVENTORY includes goods in the process of being manufactured.

FINISHED GOODS INVENTORY includes manufactured goods that are complete and ready for sale.

Harley-Davidson's recent inventory note reports the following:

HARLEY-DAVIDSON, INC.

REAL WORLD EXCERPT
Annual Report

HARLEY-DAVIDSON, INC.
Notes to Consolidated Financial Statements

2. ADDITIONAL BALANCE SHEET AND CASH FLOWS INFORMATION
(dollars in thousands)

	December 31,	
	2011	2010
Inventories:		
Components at the lower of FIFO cost or market:		
Raw materials and work in process	$113,932	$100,082
Motorcycle finished goods	226,261	158,425
Parts and accessories and general merchandise	121,340	101,975

Note that Harley-Davidson combines the raw materials and work in process into one number. Other companies separate the two components. The parts and accessories and general merchandise category includes purchased parts and Motorclothes and other accessories that make up merchandise inventory.[1]

Costs Included in Inventory Purchases

Goods in inventory are initially recorded at cost. Inventory cost includes the sum of the costs incurred in bringing an article to usable or salable condition and location. When Harley-Davidson purchases raw materials and merchandise inventory, the amount recorded should include the invoice price to be paid plus other expenditures related to the purchase, such as freight charges to deliver the items to its warehouses (**Freight-in**) and inspection and preparation costs. Any **purchase returns and allowances** or **purchase discounts** taken are subtracted. In general, the company should cease accumulating purchase costs when the raw materials are **ready for use** or when the merchandise inventory is **ready for shipment.** Any additional costs related to selling the inventory to the dealers, such as marketing department salaries and dealer training sessions, are incurred after the inventory is ready for use. So they should be included in selling, general, and administrative expenses in the period in which they are incurred.

FINANCIAL ANALYSIS  Applying the Materiality Constraint in Practice

Incidental costs such as inspection and preparation costs often are not material in amount (see the discussion of the materiality constraint in Chapter 5) and do not have to be assigned to the inventory cost. Thus, for practical reasons, many companies use the invoice price, less returns and discounts, to assign a unit cost to raw materials or merchandise and record other indirect expenditures as a separate cost that is reported as an expense.

Flow of Inventory Costs

The flow of inventory costs for merchandisers (wholesalers and retailers) is relatively simple, as Exhibit 7.2A shows. When merchandise is purchased, the merchandise inventory account is increased. When the goods are sold, cost of goods sold is increased and merchandise inventory is decreased.

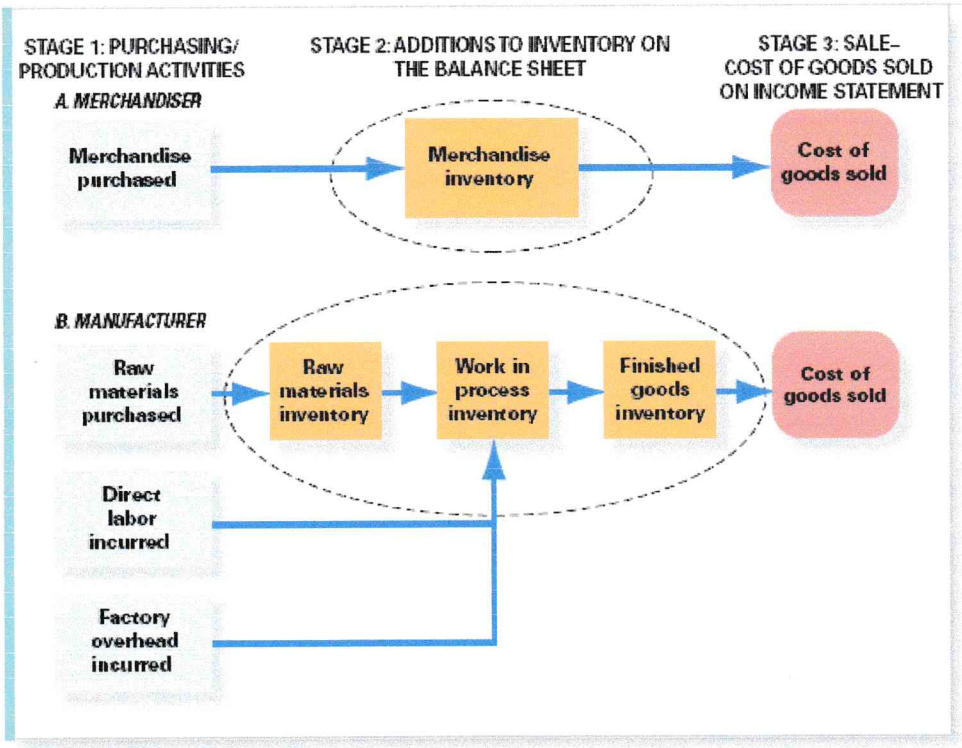


EXHIBIT 7.2

Flow of Inventory Costs

The flow of inventory costs in a manufacturing environment is more complex, as diagrammed in Exhibit 7.2B. First, **raw materials** (also called **direct materials**) must be purchased. For Harley-Davidson, these raw materials include steel and aluminum castings, forgings, sheet, and bars, as well as certain motorcycle component parts produced by its small network of suppliers, including carburetors, batteries, and tires. When they are used, the cost of these materials is removed from the raw materials inventory and added to the work in process inventory.

DIRECT LABOR refers to the earnings of employees who work directly on the products being manufactured.

FACTORY OVERHEAD are manufacturing costs that are not raw material or direct labor costs.

Two other components of manufacturing cost, direct labor and factory overhead, are also added to the work in process inventory when they are used. **Direct labor** cost represents the earnings of employees who work directly on the products being manufactured. **Factory overhead** costs include all other manufacturing costs. For example, the factory supervisor's salary and the cost of heat, light, and power to operate the factory are included in factory overhead. When the motorcycles are completed and ready for sale, the related amounts in work in process inventory are transferred to finished goods inventory. When the finished goods are sold, cost of goods sold increases, and finished goods inventory decreases.

As Exhibit 7.2 indicates, there are three stages to inventory cost flows for both merchandisers and manufacturers. The first involves purchasing and/or production activities. In the second stage, these activities result in additions to inventory accounts on the balance sheet. In the third stage, the inventory items are sold and the amounts become cost of goods sold expense on the income statement. Since the flow of inventory costs from merchandise inventory and finished goods to cost of goods sold are very similar, we will focus the rest of our discussion on merchandise inventory.

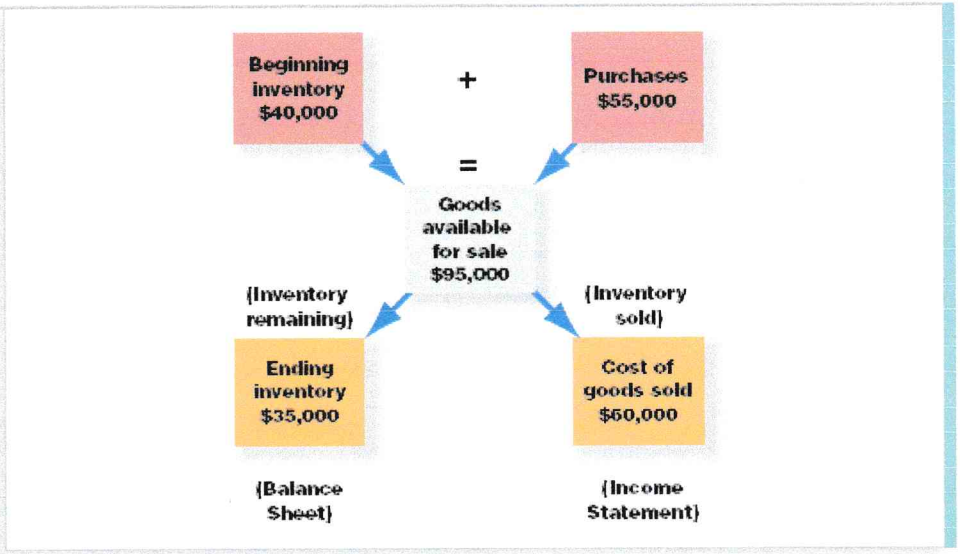
Cost of Goods Sold Equation

Cost of goods sold (CGS) expense is directly related to sales revenue. Sales revenue during an accounting period is the number of units sold multiplied by the sales price. Cost of goods sold is the same number of units multiplied by their unit costs.

EXHIBIT 7.3

Cost of Goods Sold for Merchandise Inventory

Beginning inventory
+ Purchases of merchandise during the year
Goods available for sale
− Ending inventory
Cost of goods sold



GOODS AVAILABLE FOR SALE refers to the sum of beginning inventory and purchases (or transfers to finished goods) for the period.

COST OF GOODS SOLD EQUATION: BI + P − EI = CGS

Let's examine the relationship between cost of goods sold on the income statement and inventory on the balance sheet. Harley-Davidson starts each accounting period with a stock of inventory called **beginning inventory** (BI). During the accounting period, new **purchases** (P) are added to inventory. The sum of the two amounts is the **goods available for sale** during that period. What remains unsold at the end of the period becomes **ending inventory** (EI) on the balance sheet. The portion of goods available for sale that is sold becomes **cost of goods sold** on the income statement. The ending inventory for one accounting period then becomes the beginning inventory for the next period. The relationships between these various inventory amounts are brought together in the **cost of goods sold equation:**

$$BI + P - EI = CGS$$

To illustrate, assume that Harley-Davidson began the period with $40,000 worth of Motorclothes in beginning inventory, purchased additional merchandise during the period for $55,000, and had $35,000 left in inventory at the end of the period. These amounts are combined as follows to compute cost of goods sold of $60,000:

Beginning inventory	$40,000
+ Purchases of merchandise during the year	55,000
Goods available for sale	95,000
− Ending inventory	35,000
Cost of goods sold	$60,000

These same relationships are illustrated in Exhibit 7.3 and can be represented in the merchandise inventory T-account as follows:

Merchandise Inventory (A)			
Beginning inventory	40,000		
Add: Purchases of inventory	55,000	Deduct: Cost of goods sold	60,000
Ending inventory	35,000		

If three of these four values are known, either the cost of goods sold equation or the inventory T-account can be used to solve for the fourth value.

PAUSE FOR **FEEDBACK**

Inventory should include all items owned that are held for resale. Costs flow into inventory when goods are purchased or manufactured. They flow out (as an expense) when they are sold or disposed of. The cost of goods sold equation describes these flows.

SELF-STUDY **QUIZ**

1. Assume the following facts for Harley-Davidson's Motorclothes leather baseball jacket product line for the year 2013.

Beginning inventory:	400 units at unit cost of $75.
Purchases:	600 units at unit cost of $75.
Sales:	700 units at a sales price of $100 (cost per unit $75).

Using the cost of goods sold equation, compute the dollar amount of **goods available for sale, ending inventory,** and **cost of goods sold** of leather baseball jackets for the period.

Beginning inventory
+ Purchases of merchandise during the year
Goods available for sale
− Ending inventory
Cost of goods sold

2. Assume the following facts for Harley-Davidson's Motorclothes leather baseball jacket product line for the year 2014.

Beginning inventory:	300 units at unit cost of $75.
Ending inventory:	600 units at unit cost of $75.
Sales:	1,100 units at a sales price of $100 (cost per unit $75).

Using the cost of goods sold equation, compute the dollar amount of **purchases** of leather baseball jackets for the period. Remember that if three of these four values are known, the cost of goods sold equation can be used to solve for the fourth value.

Beginning inventory
+ Purchases of merchandise during the year
− Ending inventory
Cost of goods sold

After you have completed your answers, check them with the solutions at the bottom of this page.

GUIDED **HELP**

www.mhhe.com/libby8e

For additional step-by-step video instruction on using the cost of goods sold equation to compute relevant income statement amounts, go to the URL or scan the QR code in the margin with your smartphone or iPad.

Solutions to SELF-STUDY QUIZ

1.

Beginning inventory (400 × $75)	$30,000
+ Purchases of merchandise during the year (600 × $75)	45,000
Goods available for sale (1,000 × $75)	75,000
− Ending inventory (300 × $75)	22,500
Cost of goods sold (700 × $75)	$52,500

2.

BI = 300 × $75 = $22,500	BI + P − EI = CGS
EI = 600 × $75 = $45,000	22,500 + P − 45,000 = 82,500
CGS = 1,100 × $75 = $82,500	P = 105,000

The amount of purchases for the period is always accumulated in the accounting system. The amount of cost of goods sold and ending inventory can be determined by using one of two different inventory systems: perpetual or periodic.

Perpetual Inventory System

In a PERPETUAL INVENTORY SYSTEM, a detailed inventory record is maintained, recording each purchase and sale during the accounting period.

To this point in the text, all journal entries for purchase and sale transactions have been recorded using a perpetual inventory system. In a **perpetual inventory system,** purchase transactions are recorded directly in an inventory account. When each sale is recorded, a companion cost of goods sold entry is made, decreasing inventory and recording cost of goods sold. You have already experienced the starting point for that process when your purchases are scanned at the checkout counter at Walmart or Target. Not only does that process determine how much you must pay the cashier, it also removes the sold items from the store inventory records. As a result, information on cost of goods sold and ending inventory is available on a continuous (perpetual) basis.

In a perpetual inventory system, a detailed record is maintained for each type of merchandise stocked, showing (1) units and cost of the beginning inventory, (2) units and cost of each purchase, (3) units and cost of the goods for each sale, and (4) units and cost of the goods on hand at any point in time. This up-to-date record is maintained on a transaction-by-transaction basis. Most modern companies could not survive without this information. As noted at the beginning of the chapter, cost and quality pressures brought on by increasing competition, combined with dramatic declines in the cost of computers, have made sophisticated perpetual inventory systems a requirement at all but the smallest companies. As a consequence, we will continue to focus on perpetual inventory systems throughout the book.

Periodic Inventory System

In a PERIODIC INVENTORY SYSTEM, ending inventory and cost of goods sold are determined at the end of the accounting period based on a physical count.

Under the **periodic inventory system,** no up-to-date record of inventory is maintained during the year. An actual physical count of the goods remaining on hand is required at the **end of each period.** The number of units of each type of merchandise on hand is multiplied by unit cost to compute the dollar amount of the ending inventory. Cost of goods sold is calculated using the cost of goods sold equation.

Because the amount of inventory is not known until the end of the period when the inventory count is taken, the amount of cost of goods sold cannot be reliably determined until the inventory count is

complete. The primary disadvantage of a periodic inventory system is the lack of inventory information. Managers are not informed about low or excess stock situations.

INVENTORY COSTING METHODS

LEARNING OBJECTIVE 7-2

Report inventory and cost of goods sold using the four inventory costing methods.

In the Motorclothes example presented in the Self-Study Quiz, the cost of all units of the leather baseball jackets was the same—$75. If inventory costs normally did not change, this would be the end of our discussion. As we are all aware, however, the prices of most goods do change. In recent years, the costs of many manufactured items such as automobiles and motorcycles have risen gradually. In some industries such as computers, costs of production have dropped dramatically along with retail prices.

When inventory costs have changed, which inventory items are treated as sold or remaining in inventory can turn profits into losses and cause companies to pay or save millions in taxes. A simple example will illustrate these dramatic effects. Do not let the simplicity of our example mislead you. It applies broadly to actual company practices.

Assume that a Harley-Davidson dealer made the following purchases:

Jan. 1 Had beginning inventory of two units of a Model A leather jacket at $70 each.

Jan. 12 Purchased four units of the Model A leather jacket at $80 each.

Jan. 14 Purchased one unit of the Model A leather jacket at $100.

Jan. 15 Sold four units for $120 each.

Note that the **cost of the leather jacket rose** rapidly during January. On January 15, four units are sold for $120 each and revenues of $480 are recorded. What amount is recorded as cost of goods sold? The answer depends on which specific goods we assume are sold. Four generally accepted inventory costing methods are available for determining cost of goods sold:

1. Specific identification.
2. First-in, first-out (FIFO).
3. Last-in, first-out (LIFO).
4. Average cost.

The four inventory costing methods are alternative ways to assign the total dollar amount of goods available for sale between (1) ending inventory and (2) cost of goods sold. The first method identifies individual items that remain in inventory or are sold. The remaining three methods assume that the inventory costs follow a certain flow.

Specific Identification Method

The SPECIFIC IDENTIFICATION METHOD identifies the cost of the specific item that was sold.

When the **specific identification method** is used, the cost of each item sold is individually identified and recorded as cost of goods sold. This method requires keeping track of the purchase cost of each item. In the leather jacket example, any four of the items could have been sold. If we assume that one of the $70 items, two of the $80 items, and the one $100 item have been sold, the cost of those items ($70 + $80 + $80 + $100) would become cost of goods sold ($330). The cost of the remaining items would be ending inventory.

The specific identification method is impractical when large quantities of similar items are stocked. On the other hand, when dealing with expensive unique items such as houses or fine jewelry, this method is appropriate. As a consequence, most inventory items are accounted for using one of three cost flow assumptions.

Cost Flow Assumptions

The **choice of an inventory costing method is NOT based on the physical flow of goods** on and off the shelves. That is why they are called **cost flow assumptions.** A useful tool for representing inventory cost flow assumptions is a bin, or container. Try visualizing these inventory costing methods as flows of inventory in and out of the bin.

First-In, First-Out Method

The FIRST-IN, FIRST-OUT (FIFO) METHOD assumes that the first

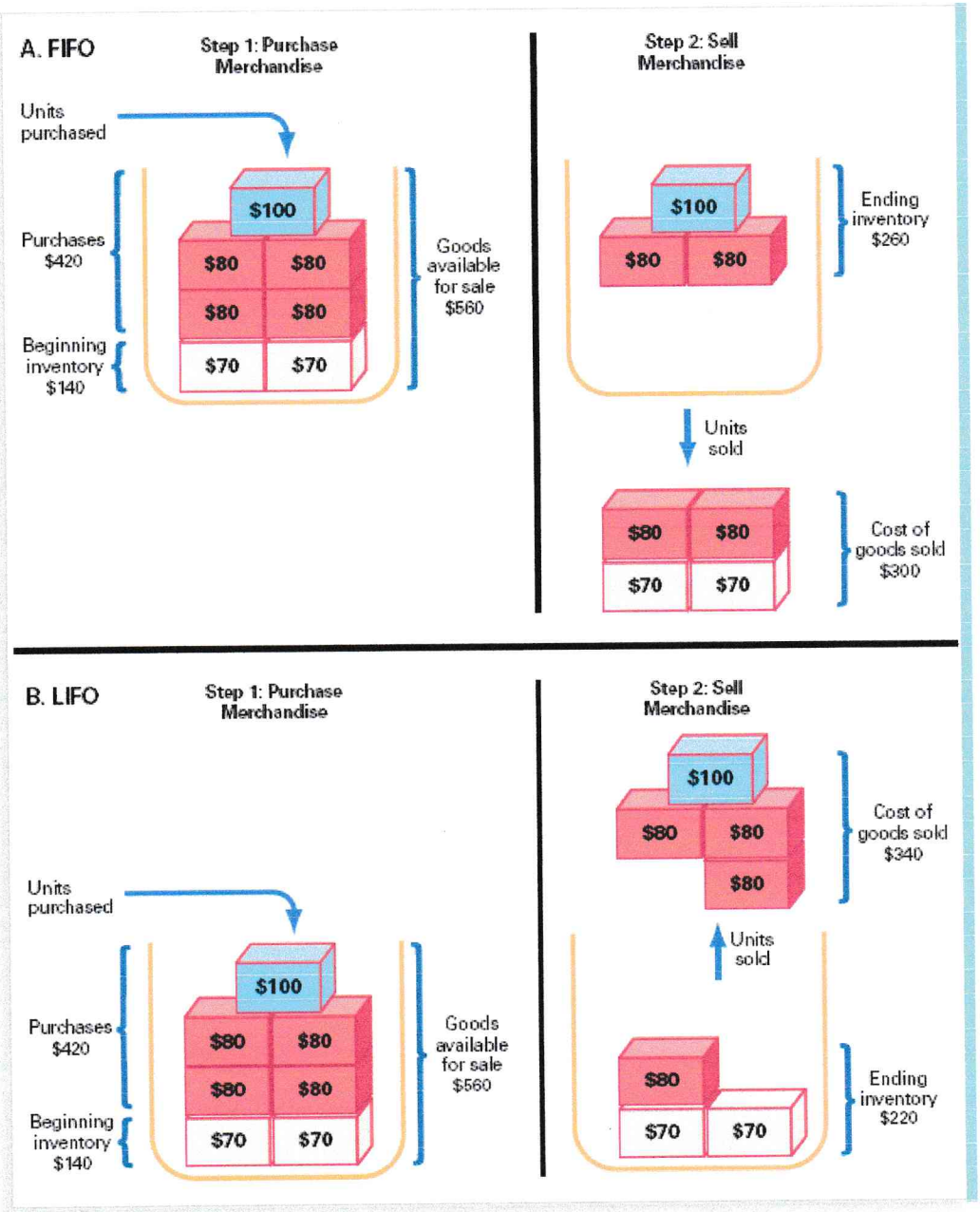
goods purchased (the first in) are the first goods sold (the first out).

The **first-in, first-out method,** frequently called **FIFO,** assumes that the earliest goods purchased (the first ones in) are the first goods sold, and the last goods purchased are left in ending inventory. Under FIFO, cost of goods sold and ending inventory are computed as if the flows in and out of the FIFO inventory bin in Exhibit 7.4A had taken place. First, each purchase is treated as if it were deposited in the bin from the top in sequence (two units of beginning inventory at $70 followed by purchases of four units at $80 and one unit at $100) producing goods available for sale of $560. Each good sold is then removed from the *bottom* in sequence (two units at $70 and two at $80); **first in is first out.** These goods totaling $300 become cost of goods sold (CGS). The remaining units (two units at $80 and one unit at $100 = $260) become ending inventory. FIFO allocates the **oldest** unit costs **to cost of goods sold** and the **newest** unit costs **to ending inventory.**

Cost of Goods Sold Calculation (FIFO)		
Beginning inventory	(2 units at $70 each)	$140
+ Purchases	(4 units at $80 each)	320
	(1 unit at $100 each)	100
Goods available for sale		560
− Ending inventory	(2 units at $80 each and 1 unit at $100)	260
Cost of goods sold	(2 units at $70 each and 2 units at $80 each)	$300

EXHIBIT 7.4

FIFO and LIFO Inventory Flows



Last-In, First-Out Method

The LAST-IN, FIRST-OUT (LIFO) METHOD assumes that the most recently purchased units (the last in) are sold first (the first out).

The **last-in, first-out method,** often called **LIFO,** assumes that the most recently purchased goods (the last ones in) are sold first and the oldest units are left in ending inventory. It is illustrated by the LIFO inventory bin in Exhibit 7.4B. As in FIFO, each purchase is treated as if it were deposited in the bin from the top (two units of beginning inventory at $70 followed by purchases of four units at $80 and one unit at $100), resulting in the goods available for sale of $560. Unlike FIFO, however, each good sold is treated as if it were removed from the *top* in

sequence (one unit at $100 followed by three units at $80). These goods totaling $340 become cost of goods sold (CGS). The remaining units (one at $80 and two at $70 = $220) become ending inventory. LIFO allocates the **newest** unit costs **to cost of goods sold** and the **oldest** unit costs to ending inventory.

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Cost of Goods Sold Calculation (LIFO)		
Beginning inventory	(2 units at $70 each)	$140
+ Purchases	(4 units at $80 each)	320
	(1 unit at $100)	100
Goods available for sale		560
− Ending inventory	(2 units at $70 each and 1 unit at $80)	220
Cost of goods sold	(3 units at $80 each and 1 unit at $100)	$340

The LIFO cost flow assumption is the exact opposite of the FIFO cost flow assumption:

	FIFO	LIFO
Cost of goods sold on income statement	Oldest unit costs	Newest unit costs
Inventory on balance sheet	Newest unit costs	Oldest unit costs

Average Cost Method

The AVERAGE COST METHOD uses the weighted average unit cost of the goods available for sale for both cost of goods sold and ending inventory.

The **average cost method** (weighted average cost method) uses the weighted average unit cost of the goods available for sale for both cost of goods sold and ending inventory. The weighted average unit cost of the goods available for sale is computed as follows.

Number of Units	×	Unit Cost	=	Total Cost
2	×	$ 70	=	$140
4	×	$ 80	=	320
1	×	$100	=	100
7				$560

$$\text{Average cost} = \frac{\text{Cost of Goods Available for Sale}}{\text{Number of Units Available for Sale}}$$

$$\text{Average Cost} = \frac{\$560}{7 \text{ Units}} = \$80 \text{ per Unit}$$

Cost of goods sold and ending inventory are assigned the same weighted average cost per unit of $80.

Cost of Goods Sold Calculation (Average Cost)		
Beginning inventory	(2 units at $70 each)	$140
+ Purchases	(4 units at $80 each)	320
	(1 unit at $100)	100
Goods available for sale	(7 units at $80 average cost each)	560
− Ending inventory	(3 units at $80 average cost each)	240
Cost of goods sold	(4 units at $80 average cost each)	$320

EXHIBIT 7.5

Financial Statement Effects of Inventory Costing Methods

	FIFO	LIFO	Average Cost
Effect on the Income Statement			
Sales	$480	$480	$480
Cost of goods sold	300	340	320
Gross profit	180	140	160
Other expenses	80	80	80
Income before income taxes	100	60	80
Income tax expense (25%)	25	15	20
Net income	$ 75	$ 45	$ 60
Effect on the Balance Sheet			
Inventory	$260	$220	$240

Perpetual Inventory Systems and Cost Flow Assumptions in Practice

You should have noted that, in our example, all inventory units were purchased before a sale was made and cost of goods sold recorded. In reality, most companies make numerous purchases and sales of the same inventory item throughout the accounting period. How can we apply our simple example to these circumstances given that companies normally employ perpetual inventory systems?

First, it is important to know that FIFO inventory and cost of goods sold are the same whether computed on a perpetual or periodic basis. Second, accounting systems that keep track of the costs of individual items normally do so on a FIFO or average cost basis, regardless of the cost flow assumption used for financial reporting. As a consequence, companies that wish to report under LIFO convert the outputs of their perpetual inventory system to LIFO with an adjusting entry at the end of each period. By waiting until the end of the period to calculate this LIFO adjustment, LIFO ending inventory and cost of goods sold are calculated *as if* all purchases during the period were recorded before cost of goods sold is calculated and recorded. In other words, our simple example of how to calculate cost of goods sold applies even though a company actually tracks the number of units bought and sold on a perpetual basis.[2]

INTERNATIONAL PERSPECTIVE  LIFO and International Comparisons

While U.S. GAAP allows companies to choose between FIFO, LIFO, and average cost inventory accounting methods, International Financial Reporting Standards (IFRS) currently prohibit the use of LIFO. U.S. GAAP also allows different inventory accounting methods to be used for different types of inventory items and even for the same item in different locations. IFRS requires that the same method be used for all inventory items that have a similar nature and use. These differences can create comparability

problems when one attempts to compare companies across international borders. For example, Ford uses LIFO to value U.S. inventories and average cost or FIFO for non–U.S. inventories, while Honda (of Japan) uses FIFO for all inventories. Each individual country's tax laws determine the acceptability of different inventory methods for tax purposes.

Financial Statement Effects of Inventory Methods

Each of the four alternative inventory costing methods is in conformity with GAAP and the tax law. To understand why managers choose different methods in different circumstances, we must first understand their effects on the income statement and balance sheet. Exhibit 7.5 summarizes the financial statement effects of the FIFO, LIFO, and average cost inventory methods in our example. Remember that the methods differ only in the dollar amount of goods available for sale allocated to cost of goods sold versus ending inventory. For that reason, the method that gives the highest ending inventory amount also gives the lowest cost of goods sold and the highest gross profit, income tax expense, and income amounts, and vice versa. The weighted average cost method generally gives income and inventory amounts that are between the FIFO and LIFO extremes.

In our example, recall that unit costs were increasing. **When unit costs are rising, LIFO produces lower income and a lower inventory valuation than FIFO.** Even in inflationary times, some companies' costs decline. **When unit costs are declining, LIFO produces higher income and higher inventory valuation than FIFO.** These effects, which hold as long as inventory quantities are constant or rising,[3] are summarized in the following table:

Increasing Costs: Normal Financial Statement Effects

	FIFO	LIFO
Cost of goods sold on income statement	Lower	Higher
Net income	Higher	Lower
Income taxes	Higher	Lower
Inventory on balance sheet	Higher	Lower

Decreasing Costs: Normal Financial Statement Effects

	FIFO	LIFO
Cost of goods sold on income statement	Higher	Lower
Net income	Lower	Higher
Income taxes	Lower	Higher
Inventory on balance sheet	Lower	Higher

Managers' Choice of Inventory Methods

LEARNING OBJECTIVE 7-3

Decide when the use of different inventory costing methods is beneficial to a company.

What motivates companies to choose different inventory costing methods? Most managers choose accounting methods based on two factors:

1. Net income effects (managers prefer to report higher earnings for their companies).

2. Income tax effects (managers prefer to pay the least amount of taxes allowed by law as late as possible—the **least–latest rule of thumb**).

Any conflict between the two motives is normally resolved by choosing one accounting method for external financial statements and a different method for preparing its tax return. The choice of inventory costing methods is a special case, however, because of what is called the **LIFO conformity rule:** If LIFO is used on the U.S. income tax return, it must also be used to calculate inventory and cost of goods sold for the financial statements.

Increasing Cost Inventories

- **For inventory with increasing costs, LIFO is used on the tax return because it normally results in lower income taxes.**

This is illustrated in Exhibit 7.5, where income before income taxes was lowered from $100 under FIFO to $60 under LIFO. On the income tax expense line, this lowers income taxes from $25 under FIFO to $15 under LIFO, generating cash tax savings of $10 under LIFO.[4] The LIFO conformity rule leads companies to adopt LIFO for **both** tax and financial reporting purposes for increasing cost inventories located in the United States. Harley-Davidson is a fairly typical company facing increasing costs. It has saved approximately $15 million in taxes from the date it adopted the LIFO method through 2011.

For inventory located in countries that do not allow LIFO for tax purposes or that do not have a LIFO conformity rule, companies with increasing costs most often use FIFO or average cost to report higher income on the income statement.

Decreasing Cost Inventories

- **For inventory with decreasing costs, FIFO is most often used for both the tax return and financial statements.**

Using this method (along with lower of cost or market valuation, discussed later) produces the lowest tax payments for companies with decreasing cost inventories. Many high-technology companies are facing declining costs. In such circumstances, the FIFO method, in which the oldest, most expensive goods become cost of goods sold, produces the highest cost of goods sold, the lowest pretax earnings, and thus the lowest income tax liability. For example, Apple Inc. and Dell Inc. account for inventories using the FIFO method.

Since most companies in the same industry face similar cost structures, clusters of companies in the same industries often choose the same accounting method.

Consistency in Use of Inventory Methods

It is important to remember that regardless of the physical flow of goods, a company can use any of the inventory costing methods. Also, a company is not required to use the same inventory costing method for all inventory items, and no particular justification is needed for the selection of one or more of the acceptable methods. Harley-Davidson, and most large companies, use different inventory methods for different inventory items. However, accounting rules require companies to apply their accounting methods on a consistent basis over time. A company is not permitted to use LIFO one period, FIFO the next, and then go back to LIFO. A change in method is allowed only if the change will improve the measurement of financial results and financial position.

A QUESTION OF ETHICS  LIFO and Conflicts between Managers' and Owners' Interests

We have seen that the selection of an inventory method can have significant effects on the financial statements. Company managers may have an incentive to select a method that is not consistent with the owners' objectives. For example, during a period of rising prices, using

LIFO may be in the best interests of the owners, because LIFO often reduces a company's tax liability. However, if managers' compensation is tied to reported profits, they may prefer FIFO, which typically results in higher profits.

While a well-designed compensation plan should reward managers for acting in the best interests of the owners, that is not always the case. Clearly, a manager who selects an accounting method that is not optimal for the company solely to increase his or her compensation is engaging in questionable ethical behavior.

PAUSE FOR **FEEDBACK**

Four different inventory costing methods may be used to allocate costs between the units remaining in inventory and the units sold, depending on economic circumstances. The methods include specific identification, FIFO, LIFO, and average cost. Each of the inventory costing methods conforms to GAAP. Remember that the cost flow assumption need not match the physical flow of inventory. The following questions test your understanding of the FIFO and LIFO methods.

SELF-STUDY **QUIZ**

1. Compute cost of goods sold and pretax income for **2012** under the FIFO and LIFO accounting methods. Assume that a company's beginning inventory and purchases for 2012 included:

Beginning inventory	10 units @ $ 6 each
Purchases January	5 units @ $10 each
Purchases May	5 units @ $12 each

   During 2012, 15 units were sold for $20 each, and other operating expenses totaled $100.
2. Compute cost of goods sold and pretax income for **2013** under the FIFO and LIFO accounting methods. (**Hint:** The 2012 ending inventory amount from Part 1 becomes the 2013 beginning inventory amount.) Assume that the company's purchases for 2013 included:

Purchases March	6 units @ $13 each
Purchases November	5 units @ $14 each

   During 2013, 10 units were sold for $24 each, and other operating expenses totaled $70.
3. Which method would you recommend that the company adopt? Why?

After you have completed your answers, check them with the solutions at the bottom of the page.

GUIDED **HELP**

www.mhhe.com/libby8e

For additional step-by-step video instruction on computing ending inventory and cost of goods sold using different cost flow assumptions, go to the URL or scan the QR code in the margin with your smartphone or iPad.

Solutions to SELF-STUDY QUIZ

1.

2012	FIFO	LIFO		FIFO	LIFO
Beginning inventory	$ 60	$ 60	Sales revenue (15 × $20)	$300	$300
Purchases (5 × $10) + (5 × $12)	110	110	Cost of goods sold	110	140
Goods available for sale	170	170	Gross profit	190	160
Ending inventory*	60	30	Other expenses	100	100
Cost of goods sold	$110	$140	Pretax income	$ 90	$ 60

*FIFO ending inventory = (5 × $12) = $60

Cost of goods sold = (10 × $6) + (5 × $10) = $110

LIFO ending inventory = (5 × $6) = $30

Cost of goods sold = (5 × $12) + (5 × $10) + (5 × $6) = $140

2.

2013	FIFO	LIFO		FIFO	LIFO
Beginning inventory	$ 60	$ 30	Sales revenue (10 × $24)	$240	$240
Purchases (6 × $13) + (5 × $14)	148	148	Cost of goods sold	125	135
Goods available for sale	208	178	Gross profit	115	105
Ending inventory*	83	43	Other expenses	70	70
Cost of goods sold	$125	$135	Pretax income	$ 45	$ 35

*FIFO ending inventory = (5 × $14) + (1 × $13) = $83

Cost of goods sold = (5 × $12) + (5 × $13) = $125

LIFO ending inventory = (5 × $6) + (1 × $13) = $43

Cost of goods sold = (5 × $14) + (5 × $13) = $135

3. LIFO would be recommended because it produces lower pretax income and lower taxes when inventory costs are rising.

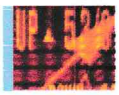
Combining the two effects, net income would be increased by the change in cost of goods sold of $9,491 and decreased by the change in income tax expense of $3,322, resulting in an overall increase in net income of $6,169.

Decrease in Cost of Goods Sold Expense (*Income increases*)	$ 9,491
Increase in Income Tax Expense (*Income decreases*)	(3,322)
Increase in Net Income	$ 6,169

These Harley-Davidson computations are for 2011. It is important to note that even companies that usually face increasing costs occasionally face decreasing costs. For example, during 2000, Harley-Davidson's costs of new inventory declined due to manufacturing efficiencies. As a result, even though LIFO usually **saves** the company taxes, Harley paid **extra** taxes in 2000.

Converting Inventory on the Balance Sheet to FIFO

You can adjust the inventory amounts on the balance sheet to FIFO by substituting the FIFO values in the note ($461,533 and $360,482 for 2011 and 2010, respectively) for the LIFO values (see Exhibit 7.6). Alternatively, you can add the LIFO reserve to the LIFO value on the balance sheet to arrive at the same numbers.

FINANCIAL ANALYSIS  LIFO and Inventory Turnover Ratio

For many LIFO companies, the inventory turnover ratio can be deceptive. Remember that, for these companies, the beginning and ending inventory numbers that make up the denominator of the ratio will be artificially small because they reflect old lower costs. Consider Deere & Co., manufacturer of John Deere farm, lawn, and construction equipment. Its inventory note lists the following values:

DEERE & COMPANY
Notes to Consolidated Financial Statements
(dollars in millions)

	2011	2010
Inventories:		
Total FIFO value	$5,857	$4,461
Adjustment to LIFO basis	1,486	1,398
Inventories	$4,371	$3,063

John Deere's cost of goods sold for 2011 was $21,919.4 million. If the ratio is computed using the reported LIFO inventory values for the ratio, it would be

$$\text{Inventory Turnover Ratio} = \frac{\$21,919.4}{(\$4,371 + \$3,063)/2} = 5.9$$

Converting cost of goods sold (the numerator) to a FIFO basis and using the more current FIFO inventory values in the denominator, it would be

$$\text{Inventory Turnover Ratio} = \frac{\$21{,}919.4 - 88}{(\$5{,}857 + \$4{,}461)/2} = 4.2$$

Note that the major difference between the two ratios is in the denominator. FIFO inventory values are nearly 34 percent higher than the LIFO values. The LIFO beginning and ending inventory numbers are artificially small because they reflect older lower costs.

REAL WORLD EXCERPT

Deere & Company

Annual Report

PAUSE FOR **FEEDBACK**

Caterpillar

The selection of an inventory costing method is important because it will affect reported income, income tax expense (and hence cash flow), and the inventory valuation reported on the balance sheet. In a period of rising prices, FIFO normally results in a higher income and higher taxes than LIFO; in a period of falling prices, the opposite occurs. The choice of methods is normally made to minimize taxes. Answer the following question to practice converting cost of goods sold and pretax income from the LIFO to the FIFO method for a company facing increasing prices.

SELF-STUDY **QUIZ**

In a recent year, Caterpillar Inc., a major manufacturer of farm and construction equipment, reported pretax earnings of $6,725 million. Its inventory note indicated "if the FIFO (first-in, first-out) method had been in use, inventories would have been $2,422 and $2,575 higher than reported at the end of the current and prior year, respectively." (The amounts noted are for the LIFO reserve.) Convert pretax earnings for the current year from a LIFO to a FIFO basis.

Beginning LIFO Reserve (Excess of FIFO over LIFO)	_____
Less: Ending LIFO Reserve (Excess of FIFO over LIFO)	_____
Difference in cost of goods sold under FIFO	_____
Pretax income (LIFO)	_____
Difference in pretax income under FIFO	_____
Pretax income (FIFO)	_____

After you have completed your answers, check them with the solutions at the bottom of the page.

CONTROL OF INVENTORY

Internal Control of Inventory

LEARNING OBJECTIVE 7-7

Understand methods for controlling inventory, analyze the effects of inventory errors on financial statements, and analyze the effects of inventory on cash flows.

After cash, inventory is the asset second most vulnerable to theft. Efficient management of inventory to avoid the cost of stock-outs and overstock situations is also crucial to the profitability of most

companies. As a consequence, a number of control features focus on safeguarding inventories and providing up-to-date information for management decisions. Key among these are:

1. Separation of responsibilities for inventory accounting and physical handling of inventory.
2. Storage of inventory in a manner that protects it from theft and damage.
3. Limiting access to inventory to authorized employees.
4. Maintaining perpetual inventory records (described earlier in this chapter).
5. Comparing perpetual records to periodic physical counts of inventory.

Errors in Measuring Ending Inventory

As the cost of goods sold equation indicates, a direct relationship exists between ending inventory and cost of goods sold because items not in the ending inventory are assumed to have been sold. Thus, the measurement of ending inventory quantities and costs affects both the balance sheet (assets) and the income statement (cost of goods sold, gross profit, and net income). The measurement of ending inventory affects not only the net income for that period but also the net income for the next accounting period. This two-period effect occurs because the ending inventory for one period is the beginning inventory for the next accounting period.

Greeting card maker Gibson Greetings overstated its net income by 20 percent because one division overstated ending inventory for the year. You can compute the effects of the error on both the current year's and the next year's income before taxes using the cost of goods sold

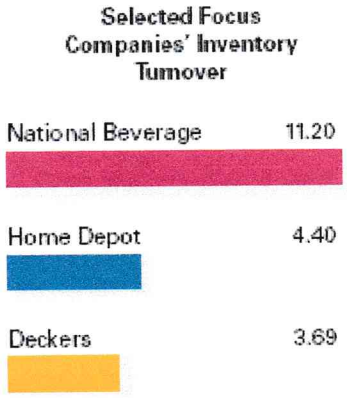
up in inventory, the excess can be invested to earn interest income or reduce borrowing, which reduces interest expense. More efficient purchasing and production techniques, such as just-in-time inventory, as well as high product demand cause this ratio to be high. Analysts and creditors also watch the inventory turnover ratio because a sudden decline may mean that a company is facing an unexpected drop in demand for its products or is becoming sloppy in its production management. Many managers and analysts compute the related number average days to sell inventory, which, for Harley-Davidson, is equal to:

$$\text{Average Days to Sell Inventory} = \frac{365}{\text{Inventory Turnover}} = \frac{365}{8.3} = 44.0 \text{ days}$$

It indicates the average time it takes the company to produce and deliver inventory to customers.

Focus Company Analysis Harley-Davidson's inventory turnover was generally stable from 2009 to 2011, fluctuating around a ratio of 8.3 during those three years. Harley's ratio is higher than that of related company Polaris and also higher than that of giant Japanese auto and motorcycle manufacturer Honda.

A Few Cautions Differences across industries in purchasing, production, and sales processes cause dramatic differences in this ratio. For example, restaurants such as Papa John's, which must turn over their perishable inventory very quickly, tend to have much higher inventory turnover. A particular firm's ratio should be compared only with its figures from prior years or with figures for other firms in the same industry.



PAUSE FOR **FEEDBACK**

The inventory turnover ratio measures the efficiency of inventory management. It reflects how many times average inventory was produced and sold during the period. Analysts and creditors watch this ratio because a sudden decline may mean that a company is facing an unexpected drop in demand for its products or is becoming sloppy in its production management. When a net **decrease in inventory** for the period occurs, sales are more than purchases; thus, the decrease must be **added** in computing cash flows from operations. When a net **increase in inventory** for the period occurs, the opposite is true. Before you move on, complete the following questions to test your understanding of these concepts.

SELF-STUDY **QUIZ**

1. Refer to the Key Ratio Analysis for Harley-Davidson's inventory turnover. Based on the computations for 2011, answer the following question. If Harley-Davidson had been able to manage its inventory more efficiently and decrease purchases and ending inventory by $10,000 for 2011, would its inventory turnover ratio have increased or decreased? Explain.

After you have completed your answer, check them with the solution at the bottom of the page.

Inventory Methods and Financial Statement Analysis

LEARNING OBJECTIVE 7-6

Compare companies that use different inventory costing methods.

What would analysts do if they wanted to compare two companies that prepared their statements using different inventory accounting methods? Before meaningful comparisons could be made, one company's statements would have to be converted to a comparable basis. Making such a conversion is eased by the requirement that U.S. public companies using LIFO also report beginning and ending inventory on a FIFO basis in the notes if the FIFO values are materially different. We can use this information along with the cost of goods sold equation to convert the balance sheet and income statement to the FIFO basis.

Solutions to SELF-STUDY QUIZ

1. Inventory turnover would have increased because the denominator of the ratio (average inventory) would have decreased by $5,000.

$$\frac{\$3,106,288}{(\$326,446 + \$408,006)/2} = 8.5$$

HARLEY-DAVIDSON, INC.
Notes to Consolidated Financial Statements
2. ADDITIONAL BALANCE SHEET AND CASH FLOWS INFORMATION
(in thousands)

	December 31,	
	2011	2010
Inventories:		
. . .		
Inventory at FIFO	$461,533	$360,482
Excess of FIFO over LIFO cost	43,527	34,036 ← *LIFO Reserve*
Inventory at LIFO	$418,006	$326,446 ← *Inventory reported on the balance sheet*

EXHIBIT 7.6

Financial Statement Effects of Inventory Costing Methods

HARLEY-DAVIDSON, INC.

REAL WORLD EXCERPT
Annual Report

Converting the Income Statement to FIFO

Recall that the choice of a cost flow assumption affects how goods available for sale are allocated to ending inventory and cost of goods sold. It does not affect the recording of purchases. Ending inventory will be different under the alternative methods, and, since last year's ending inventory is this year's beginning inventory, beginning inventory will also be different:

Beginning inventory	**Different**
+ Purchases of merchandise during the year	**Same**
− Ending inventory	**Different**
− Cost of goods sold	**Different**

The LIFO RESERVE is a contra-asset for the excess of FIFO over LIFO inventory.

This equation suggests that if we know the differences between a company's inventory valued at LIFO and FIFO for both beginning and ending inventory, we can compute the difference in cost of goods sold. Exhibit 7.6 shows Harley-Davidson's 2011 disclosure of the differences between LIFO and FIFO values for beginning and ending inventory. These amounts, referred to as the **LIFO reserve** or "Excess of FIFO over LIFO," are disclosed by LIFO users in their inventory footnotes.

Using Harley-Davidson's LIFO reserve values reported in the footnote presented in Exhibit 7.6, we see that cost of goods sold would have been $9,491 **lower** had it used FIFO.

Beginning LIFO Reserve (Excess of FIFO over LIFO)	$34,036
− Less: Ending LIFO Reserve (Excess of FIFO over LIFO)	−43,527
Difference in Cost of Goods Sold under FIFO	($9,491)

Since FIFO cost of goods sold expense is **lower,** income before income taxes would have been $9,491 **higher.** Income taxes would be that amount times its tax rate of 35 percent **higher** had it used FIFO.

Difference in pretax income under FIFO	$9,491
Tax rate	× .35
Difference in taxes under FIFO	$3,322

LEARNING OBJECTIVE 7-4

Report inventory at the lower of cost or market (LCM).

REPLACEMENT COST is the current purchase price for identical goods.

NET REALIZABLE VALUE is the expected sales price less selling costs (e.g., repair and disposal costs).

LOWER OF COST OR MARKET (LCM) is a valuation method departing from the cost principle; it serves to recognize a loss when replacement cost or net realizable value drops below cost.

Inventories should be measured initially at their purchase cost in conformity with the cost principle. When the goods remaining in ending inventory can be replaced with identical goods at a lower cost, however, the lower **replacement cost** should be used as the inventory valuation. Damaged, obsolete, and deteriorated items in inventory should also be assigned a unit cost that represents their current estimated **net realizable value** (sales price less costs to sell) if that is below cost. This rule is known as measuring inventories at the **lower of cost or market** (LCM).

This departure from the cost principle is based on the **conservatism** constraint, which requires special care to avoid overstating assets and income. It is particularly important for two types of companies: (1) high-technology companies such as Dell Inc. that manufacture goods for which costs of production and selling price are declining and (2) companies such as American Eagle Outfitters that sell seasonal goods such as clothing, the value of which drops dramatically at the end of each selling season (fall or spring).

Under LCM, companies recognize a "holding" loss in the period in which the replacement cost of an item drops, rather than in the period the item is sold. The holding loss is the difference between the purchase cost and the lower replacement cost. It is added to the cost of goods sold for the period. To illustrate, assume that Dell Inc. had the following in the current period ending inventory:

Item	Quantity	Cost per Item	Replacement Cost (Market) per Item	Lower of Cost or Market per Item	Total Lower of Cost or Market
Intel chips	1,000	$250	$200	$200	1,000 × $200 = $200,000
Disk drives	400	100	110	100	400 × $100 = 40,000

The 1,000 Intel chips should be recorded in the ending inventory at the current market value ($200) because it is **lower** than the cost ($250). Dell makes the following journal entry to record the write-down:

Cost of goods sold (+E, −SE) (1,000 × $50)	50,000	
Inventory (−A)		50,000

Assets		= Liabilities	+ Stockholders' Equity	
Inventory	−50,000		Cost of Goods Sold (+E)	−50,000

Since the market price of the disk drives ($110) is higher than the original cost ($100), no write-down is necessary. The drives remain on the books at their cost of $100 per unit ($40,000 in total). Recognition of holding gains on inventory is not permitted by GAAP.

The write-down of the Intel chips to market produces the following effects on the income statement and balance sheet:

Effects of LCM Write-Down	Current Period	Next Period (if sold)
Cost of goods sold	Increase $50,000	Decrease $50,000
Pretax income	Decrease $50,000	Increase $50,000
Ending inventory on balance sheet	Decrease $50,000	Unaffected

Note that the effects in the period of sale are the opposite of those in the period of the write-down. Lower of cost or market changes only the timing of cost of goods sold. It transfers cost of goods sold from the period of sale to the period of write-down.

Note that in the two examples that follow, both Harley-Davidson, which is a mixed LIFO company, and Dell Inc., which is a FIFO company, report the use of lower of cost or market for financial statement purposes.[5]

HARLEY-DAVIDSON, INC.
Notes to Consolidated Financial Statements
1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Inventories—Inventories are valued at the lower of cost or market. Substantially all inventories located in the United States are valued using the last-in, first-out (LIFO) method. Other inventories totaling $215.2 million at December 31, 2011, and $153.4 million at December 31, 2010, are valued at the lower of cost or market using the first-in, first-out (FIFO) method.

HARLEY-DAVIDSON, INC.

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Annual Report

DELL INC.
Notes to Consolidated Financial Statements
NOTE 1—Description of Business and Summary of Significant Accounting Policies

Inventories—Inventories are stated at the lower of cost or market with cost being determined on a first-in, first-out basis.

Dell

REAL WORLD EXCERPT
Annual Report

EVALUATING INVENTORY MANAGEMENT

Measuring Efficiency in Inventory Management

LEARNING OBJECTIVE 7-5

Evaluate inventory management using the inventory turnover ratio.

As noted at the beginning of the chapter, the primary goals of inventory management are to have sufficient quantities of high-quality inventory available to serve customers' needs while minimizing the costs of carrying inventory (production, storage, obsolescence, and financing). The inventory turnover ratio is an important measure of the company's success in balancing these conflicting goals.

KEY RATIO ANALYSIS  Inventory Turnover

? ANALYTICAL QUESTION

How efficient are inventory management activities?

% RATIO AND COMPARISONS

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

The 2011 ratio for Harley-Davidson (see Exhibit 7.1 for the inputs to the equation):

$$\frac{\$3,106,288}{(\$326,446 + 418,006)/2} = 8.3$$

COMPARISONS OVER TIME			COMPARISONS WITH COMPETITORS	
Harley-Davidson			Polaris	Honda Motor
2009	2010	2011	2011	2011
8.3	8.5	8.3	7.2	7.1

INTERPRETATIONS

In General The inventory turnover ratio reflects how many times average inventory was produced and sold during the period. A higher ratio indicates that inventory moves more quickly through the production process to the ultimate customer, reducing storage and obsolescence costs. Because less money is tied

CHAPTER **TAKE-AWAYS**

7-1. Apply the cost principle to identify the amounts that should be included in inventory and the expense matching principle to determine cost of goods sold for typical retailers, wholesalers, and manufacturers. p. 329

Inventory should include all items owned that are held for resale. Costs flow into inventory when goods are purchased or manufactured. They flow out (as an expense) when they are sold or disposed of. In conformity with the expense matching principle, the total cost of the goods sold during the period must be matched with the sales revenue earned during the period. A company can keep track of the ending inventory and cost of goods sold for the period using (1) the perpetual inventory system, which is based on the maintenance of detailed and continuous inventory records, and (2) the periodic inventory system, which is based on a physical count of ending inventory and use of the cost of goods sold equation to determine cost of goods sold.

7-2. Report inventory and cost of goods sold using the four inventory costing methods. p. 334

The chapter discussed four different inventory costing methods used to allocate costs between the units remaining in inventory and the units sold and their applications in different economic circumstances. The methods discussed were specific identification, FIFO, LIFO, and average cost. Each of the inventory costing methods conforms to GAAP. Public companies using LIFO must provide note disclosures that allow conversion of inventory and cost of goods sold to FIFO amounts. Remember that the cost flow assumption need not match the physical flow of inventory.

7-3. Decide when the use of different inventory costing methods is beneficial to a company. p. 339

The selection of an inventory costing method is important because it will affect reported income, income tax expense (and hence cash flow), and the inventory valuation reported on the balance sheet. In a period of rising prices, FIFO normally results in a higher income and higher taxes than LIFO; in a period of falling prices, the opposite occurs. The choice of methods is normally made to minimize taxes.

7-4. Report inventory at the lower of cost or market (LCM). p. 342

Ending inventory should be measured based on the lower of actual cost or replacement cost (LCM basis). This practice can have a major effect on the statements of companies facing declining costs. Damaged, obsolete, and out-of-season inventory should also be written down to their current estimated net realizable value if below cost. The LCM adjustment increases cost of goods sold, decreases income, and decreases reported inventory in the year of the write-down.

7-5. Evaluate inventory management using the inventory turnover ratio. p. 343

The inventory turnover ratio measures the efficiency of inventory management. It reflects how many times average inventory was produced and sold during the period. Analysts and creditors watch this ratio because a sudden decline may mean that a company is facing an unexpected drop in demand for its products or is becoming sloppy in its production management.

7-6. Compare companies that use different inventory costing methods. p. 344