INVENTORIES, COST CALCULATIONS, AND INTERNAL CONTROLS

THE NAVIGATOR

• Understand Concepts for Review	
• Read Feature Story	
• Scan Study Objectives	
• Read Preview	
• Read text and answer <i>Before You Go</i> <i>p.</i> 304 <i>p.</i> 310 <i>p.</i> 319 <i>p.</i> <i>p.</i> 328 <i>p.</i> 333 <i>p.</i> 341 <i>p.</i>	On p. 322 🗖
• Work Demonstration Problem	
• Review Summary of Study Objectives	
• Complete Assignments	

CONCEPTS FOR REVIEW

Before studying this chapter, you should know or, if necessary, review:

- a. The cost principle (Ch. 1, p. 9) and matching principle of accounting. (Ch. 4, p. 114)
- **b.** How to record purchases, sales, and cost of goods sold under a perpetual inventory system. (Ch. 7, pp. 200–210)
- c. How to prepare multiple-step income statements. (Ch. 7, pp. 226–229)
- **d.** How to prepare a classified balance sheet. (Ch. 5, pp. 161–169)
- e. The role ethics plays in proper financial reporting. (Ch. 1, p. 8)



TURE STORY

Minding the Money in Moose Jaw

If you're ever looking for a cappuccino in Moose Jaw, Saskatchewan, stop by **Stephanie's Gourmet Coffee and More**, located on Main Street. Staff there serve, on average, 646 cups of coffee a day—including both regular and specialty coffees—not to mention soups, Italian sandwiches, and a wide assortment of gourmet cheesecakes.

"We've got high school students who come here, and students from the community college," says owner/manager Stephanie Mintenko, who has run the place since opening it in 1995. "We have customers who are retired, and others who are working people and have only 30 minutes for lunch. We have to be pretty quick."

That means that the cashiers have to be efficient. Like most businesses where purchases are lowcost and high-volume, cash control has to be simple.

"We have an electronic cash register, but it's not the fancy new

kind where you just punch in the item," explains Ms. Mintenko. "You have to punch in the prices." The machine does keep track of sales in several categories, however. Cashiers punch a button to indicate whether each item is a beverage, a meal, or a charge for the cafe's Internet connections. All transactions are recorded on an internal tape in the machine; the customer receives a receipt only upon request.

There is only one cash register. "Up to three of us might operate it on any given shift, including myself," says Ms. Mintenko.

She and her staff do two "cashouts" each day—one with the shift change at 5:00, and one when the shop closes at 10:00. The cash in the register drawer is counted. That amount, minus the cash change carried forward (the float), should match the shift total on the register tape. If there's a discrepancy, they do another count. Then, if necessary, "we go through the whole tape to find the mistake," she explains. "It usually turns out to be someone who punched in \$18 instead of \$1.80, or something like that."

Ms. Mintenko sends all the cash tapes and float totals to a bookkeeper, who double-checks everything and provides regular reports. "We try to keep the accounting simple, so we can concentrate on making great coffee and food."

OBJECTIVES

After studying this chapter, you should be able to

- 1. Describe the steps in determining inventory quantities.
- 2. Prepare the entries for purchases and sales of inventory under a periodic inventory system.
- 3. Determine cost of goods sold under a periodic inventory system.
- Identify the unique features of the income statement for a merchandiser using a periodic inventory system.
- 5. Explain the basis of accounting for inventories, and describe the inventory cost flow methods.
- 6. Explain the financial statement and tax effects of each of the inventory cost flow methods.

Continued

PREVIEW OF CHAPTER 10

As the story about recording cash sales at **Stephanie's Gourmet Coffee and More** indicates, control of cash is important. Equally important is the control of inventories. Controls are needed to safeguard all types of assets. For example, Stephanie's undoubtedly has controls to prevent the theft of its food and supplies inventories, and controls to prevent the theft of silverware and dishes from its kitchen.

In this chapter, we will first explain the methods used in determining the cost of inventory on hand at the balance sheet date. Then, we will discuss the differences in perpetual and periodic inventory systems, and the effects of inventory errors on a company's financial statements. We will also explain the essential features of an internal control system and describe how those controls apply to cash. The applications include some controls with which you may already be familiar. Toward the end of the chapter, we describe the use of a bank and explain how cash is reported on the balance sheet.

The content and organization of Chapter 10 are as follows.





- 7. Indicate the effects of inventory errors on financial statements.
- 8. Compute and interpret inventory turnover.
- 9. Define internal control.
- 10. Identify the principles of internal control.
- 11. Explain the applications of internal control principles to cash receipts.
- 12. Explain the applications of internal control principles to cash disbursements.
- 13. Indicate the control features of a bank account.
- 14. Prepare a bank reconciliation.



NVENTORY BASICS

In our economy, inventories are an important barometer of business activity. The U.S. Commerce Department publishes monthly inventory data for retailers, wholesalers, and manufacturers. The amount of inventories and the time required to sell the goods on hand are two closely watched indicators. During downturns in the economy, there is an initial buildup of inventories, as it takes longer to sell existing quantities. Inventories generally decrease with an upturn in business activity. A delicate balance must be maintained between too little inventory and too much. A company with too little inventory to meet demand will have dissatisfied customers and sales personnel. One with too much inventory will be burdened with unnecessary carrying costs.

Inventories affect both the balance sheet and the income statement. In the **balance sheet** of merchandising companies, inventory is frequently the most significant current asset. Of course, its amount and relative importance can vary, even for companies in the same industry. For example, **Marriott** reported inventory of \$96 million, representing 4.51 percent of total current assets. For the same period, **Starwood Hotels and Resorts Worldwide, Inc.**, reported \$219 million of inventory, representing 24.4 percent of total current assets. In the **income statement**, inventory is vital in determining the results of operations for a particular period. Also, gross profit (net sales less cost of goods sold) is closely watched by management, owners, and other interested parties (as explained in Chapter 8).

CLASSIFYING INVENTORY

How a company classifies its inventory depends on whether the firm is a merchandiser or a manufacturer. A *merchandiser's* inventory consists of many different items. For example, in a grocery store, canned goods, dairy products, meats, and produce are just a few of the inventory items on hand. These items have two common characteristics: (1) They are owned by the company, and (2) they are in a form ready for sale in the ordinary course of business. Only one inventory classification, **merchandise inventory**, is needed to describe the many different items that make up the total inventory.

A *manufacturer's* inventories are also owned by the company, but some goods may not yet be ready for sale. As a result, inventory is usually classified into three categories: finished goods, work in process, and raw materials. For example, **General Motors** classifies vehicles completed and ready for sale as **finished goods**. The vehicles in various stages of production are classified as **work in process**. The steel, glass, upholstery, and other components that are on hand waiting to be used in production are **raw materials**.

DETERMINING INVENTORY QUANTITIES

Many businesses take a physical inventory count on the last day of the year. Businesses using the periodic inventory system must make such a count to determine the inventory on hand at the balance sheet date and to compute cost of goods sold. Even businesses using a perpetual inventory system must take a physical inventory at some time during the year.

Determining inventory quantities consists of two steps: (1) taking a physical inventory of goods on hand, and (2) determining the ownership of goods.

Taking a Physical Inventory

Taking a physical inventory involves actually counting, weighing, or measuring each kind of inventory on hand. In many companies, taking an inventory is a for-

HELPFUL HINT Regardless of the classification, all inventories are reported under current assets on the balance sheet.



Describe the steps in determining inventory quantities.

midable task. An inventory count is generally more accurate when goods are not being sold or received during the counting. So, companies often "take inventory" when the business is closed or when business is slow. This, however, is difficult in the hospitality business as most are open 365 days a year.

To minimize errors in taking the inventory, a company should adhere to **internal control principles** and practices that safeguard inventory:

- **1.** The counting should be done by employees who do not have custodial responsibility for the inventory.
- 2. Each counter should establish the authenticity of each inventory item. For example, does each box contain four sheetcakes? Is each bottle of liquor a full or a partial?
- 3. There should be a second count by another employee.
- **4.** Prenumbered inventory tags should be used. All inventory tags should be accounted for.
- 5. At the end of the count, a designated supervisor should check that all inventory items are tagged and that no items have more than one tag.

After the physical inventory is taken, the quantity of each kind of inventory is listed on **inventory summary sheets**. To ensure accuracy, the listing should be verified by a second employee. Later, unit costs will be applied to the quantities in order to determine a total cost of the inventory—which is the topic of later sections.¹



ACCOUNTING IN ACTION Business Insight

Failure to observe the foregoing internal control procedures contributed to the Great Salad Oil Swindle. In this case, management intentionally overstated its salad oil inventory, which was stored in large holding tanks. Three procedures contributed to overstating the oil inventory: (1) Water added to the bottom of the holding tanks caused the oil to float to the top. Inventory-taking crews who viewed the holding tanks from the top observed only salad oil. In fact, as much as 37 out of 40 feet of many of the holding tanks contained water. (2) The company's inventory records listed more holding tanks than it actually had. The company repainted numbers on the tanks after inventory crews examined them, so the crews counted the same tanks twice. (3) Underground pipes pumped oil from one holding tank to another during the inventory taking. Therefore, the same salad oil was counted more than once. Although the salad oil swindle was unusual, it demonstrates the complexities involved in assuring that inventory is properly counted.

Determining Ownership of Goods

Before we can begin to calculate the cost of inventory, we need to consider the ownership of goods. Specifically, we need to be sure that we have not included in the inventory any goods that do not belong to the company.

GOODS IN TRANSIT. Goods are considered *in transit* when they are in the hands of a public carrier (such as a railroad, trucking, or airline company) at the statement date. Goods in transit should be included in the inventory of the party

¹To estimate the cost of inventory when a physical inventory cannot be taken (the inventory is destroyed) or when it is inconvenient (during interim periods), estimating methods are applied.

that has legal title to the goods. Legal title is determined by the terms of sale, as shown in Illustration 10-1 and described below.

- **1. FOB (free on board) shipping point:** Ownership of the goods passes to the buyer when the public carrier accepts the goods from the seller.
- 2. FOB destination: Legal title to the goods remains with the seller until the goods reach the buyer.







Inventory quantities may be seriously miscounted if goods in transit at the statement date are ignored. Assume that Hargrove Meat Company has 20,000 units of inventory on hand on December 31. It also has the following goods in transit: (1) sales of 1,500 units shipped December 31 FOB destination, and (2) purchases of 2,500 units shipped FOB shipping point by the seller on December 31. Hargrove has legal title to both the units sold and the units purchased. If units in transit are ignored, inventory quantities would be understated by 4,000 units (1,500 + 2,500).

LECHNOLOGY IN ACTION

Many companies have invested large amounts of time and money in automated inventory systems. One of the most sophisticated is **Federal Express's** Digitally Assisted Dispatch System (DADS). It uses handheld "Super-Trackers" to transmit data about the packages and documents to the firm's computer system. Based on bar codes, the system allows the firm to know where any package is at any time to prevent losses and to fulfill the firm's delivery commitments. More recently, FedEx's software enables customers to track shipments on their own PCs.

INVENTORY ACCOUNTING SYSTEMS

One of two basic systems of accounting for inventories may be used: (1) the perpetual inventory system, or (2) the periodic inventory system. Chapter 6 discussed and illustrated the perpetual inventory system. This chapter discusses and illustrates the **periodic inventory system** and compares the periodic inventory system with the perpetual inventory system. The chapter then continues coverage of the perpetual inventory system.

Some businesses find it either unnecessary or uneconomical to invest in a computerized perpetual inventory system. As illustrated in Chapter 6, a perpetual inventory system keeps track of inventory in number of units *and* in dollar costs per unit. Many small merchandising business managers still feel that a perpetual inventory system costs more than it is worth. These managers can control merchandise and manage day-to-day operations either without detailed inventory records or with a perpetual **units only** inventory system.

BEFORE YOU GO ON...

REVIEW IT

- 1. What steps are involved in determining inventory quantities?
- 2. How is ownership determined for goods in transit at the balance sheet date?

🕨 DO IT

Hasbeen Company completed its inventory count. It arrived at a total inventory value of \$200,000. You have been informed of the information listed below. Discuss how this information affects the reported cost of inventory.

- **1.** Purchased goods of \$10,000 which were in transit (terms: FOB shipping point) were not included in the count.
- **2.** Sold inventory with a cost of \$12,000 which was in transit (terms: FOB shipping point) was not included in the count.

ACTION PLAN

- Apply the rules of ownership to goods held on consignment.
- Apply the rules of ownership to goods in transit FOB shipping point.

SOLUTION

The goods of \$10,000 purchased FOB shipping point should be added to the inventory count. Sold goods of \$12,000 which were in transit FOB shipping point should not be included in the ending inventory. Thus, inventory should be carried at \$195,000.

🗹 THE

Related exercise material: 10-1.



In a periodic inventory system, revenues from the sale of merchandise are recorded when sales are made, in the same way as in a perpetual system. But, no attempt is made on the date of sale to record the cost of the merchandise sold. Instead, a physical inventory count is taken at the end of the period. This count determines (1) the cost of the merchandise on hand and (2) the cost of the goods sold during the period. There is another key difference: Under a periodic system, purchases of merchandise are recorded in a Purchases account rather than a Merchandise Inventory account. Also, under a periodic system, it is customary to record the following in separate accounts: purchase returns and allowances, purchase discounts, and freight-in on purchases. That way, accumulated amounts for each are known.

RECORDING TRANSACTIONS

To illustrate the recording of merchandise transactions under a periodic inventory system, we will use the purchase/sale transactions between Sellers T-Shirts and Beyer Theme Park discussed in Chapter 7.

RECORDING PURCHASES OF MERCHANDISE

On the basis of the sales invoice (Illustration 7-4 shown on page 204) and receipt of the merchandise ordered from Sellers T-Shirts, Beyer Theme Park records the \$8,000 purchase as follows.

STUDY OBJECTIVE 2

Prepare the entries for purchases and sales of inventory under a periodic inventory system.

HELPFUL HINT

Be careful not to fall into the trap of debiting purchases of equipment or supplies to Purchases.

May 4	Purchases	8,000			 т		ст.
	Accounts Payable		8,000	A	 L ⊢8.000	Ŧ	SE -8.000
	(To record goods purchased on account,				0,000		0,000
	terms 2/10, n/30)						

Purchases is a temporary account whose normal balance is a debit.

Purchase Returns and Allowances

Some of the merchandise received from Sellers T-Shirts is defective. Beyer Theme Park returns \$3,000 worth of the goods and prepares the following entry to recognize the purchase return.

May 8	Accounts Payable	3,000						
	Purchase Returns and Allowances		3,000	A	=	L 2.000	+	SE 1.2.000
	(To record return of defective goods					-3,000		+3,000
	purchased from Sellers T-Shirts)							

Purchase Returns and Allowances is a temporary account whose normal balance is a credit.

Freight Costs

When the purchaser directly incurs the freight costs, the account Freight-in is debited. For example, upon delivery of the goods on May 6, Beyer pays Acme Freight Company \$150 for freight charges on its purchase from Sellers. The entry on Beyer's books looks like this:

May 6	Freight-in Cash (To record payment of freight terms FOB	150	150	$\begin{array}{rcl} \mathbf{A} &= & \mathbf{L} \\ -150 \end{array}$	+
	shipping point)		·		

Like Purchases, Freight-in is a temporary account whose normal balance is a debit. Freight-in is part of cost of goods purchased. In accordance with the cost principle, cost of goods purchased should include any freight charges necessary to bring the goods to the purchaser. Freight costs are not subject to a purchase discount. Purchase discounts apply only on the invoice cost of the merchandise.

Purchase Discounts

On May 14 Beyer Theme Park pays the balance due on account to Sellers. Beyer takes the 2 percent cash discount allowed by Sellers for payment within 10 days. The payment and discount are recorded by Beyer as follows.

May 14	Accounts Payable	5,000	
	Purchase Discounts		100
	Cash		4,900
	(To record payment to Sellers T-Shirts within the discount period)		

Purchase Discounts is a temporary account whose normal balance is a credit.

ALTERNATIVE TERMINOLOGY Freight-in is frequently called transportation-in.

> A = L +-5,000

-4,900

SE -150

SE

+100

RECORDING SALES OF MERCHANDISE

The sale of \$8,000 of merchandise to Beyer on May 4 (sales invoice No. 731, Illustration 7-4 on page 204) is recorded by Sellers T-Shirts as follows.

A =	L	+ SE
+8,000		+8,000

May 4 Accounts Receivable Sales (To record credit sales per invoice #731 to Beyer Theme Park)

8,000

8.000

Sales Returns and Allowances

Based on the receipt of returned goods from Beyer on May 8, Sellers records the \$3,000 sales return as follows.

А	=	L	$^+$	SE
-3,00	0			-3,000

May 8	Sales Returns and Allowances	3,000	
	Accounts Receivable		3,000
	(To record return of goods from Beyer		
	Theme Park)		

Sales Discounts

On May 15, Sellers receives payment of \$5,000 on account from Beyer. Sellers honors the 2 percent cash discount and records the payment of Beyer's account receivable in full as follows.

A =	L	+	SE	
+5,000			-100	
-5,000				

May 15	Cash	5,000	
-	Sales Discounts	100	
	Accounts Receivable		5,000
	(To record collection from Beyer Theme		
	Park within 2/10, n/30 discount period)		

COST OF GOODS SOLD

As the entries above indicate, under a periodic inventory system a running account of the changes in inventory is not recorded as either purchases or sales transactions occur. Neither the daily amount of merchandise on hand is known, nor is the cost of goods sold. To determine the cost of goods sold under a periodic inventory system, three steps are required: (1) Record purchases of merchandise (as shown above). (2) Determine the cost of goods purchased. (3) Determine the cost of goods on hand at the beginning and end of the accounting period. The cost of goods on hand must be determined by a physical inventory count and application of the cost to the items counted in the inventory. In this section, we look in more detail at this process.

DETERMINING COST OF GOODS PURCHASED

Earlier in this chapter we used four accounts to record the purchase of inventory under a periodic inventory system. These accounts are illustrated in Illustration 10-2.

Account	Normal Balance
Purchases	Debit
Purchase Returns and Allowances	Credit
Purchase Discounts	Credit
Freight-in	Debit

STUDY OBJECTIVE 3

Determine cost of goods sold under a periodic inventory system.

Illustration 10-2

Normal balances: cost of goods purchased accounts

All of these accounts are **temporary accounts**. They are used to determine the cost of goods sold, which is an expense disclosed on the income statement. Therefore, the balances in these accounts must be reduced to zero at the end of each accounting period. Information about cost of goods sold can then be accumulated for the next accounting period.

The procedure for determining the cost of goods purchased is as follows.

- 1. The accounts with credit balances (Purchase Returns and Allowances, Purchase Discounts) are subtracted from Purchases. The result is **net purchases**.
- 2. Freight-in is then added to net purchases. The result is cost of goods purchased.

To illustrate, assume that Sellers T-Shirts shows the following balances for the accounts above: Purchases \$325,000; Purchase Returns and Allowances \$10,400; Purchase Discounts \$6,800; and Freight-in \$12,200. Net purchases is \$307,800, and cost of goods purchased is \$320,000, as computed in Illustration 10-3.

	Purchases		\$325,000
(1)	Less: Purchase returns and allowances	\$10,400	
	Purchase discounts	6,800	17,200
	Net purchases		307,800
(2)	Add: Freight-in		12,200
	Cost of goods purchased		\$320,000

Determining Cost of Goods on Hand

To determine the cost of inventory on hand, Sellers T-Shirts must take a **physical inventory**. Taking a physical inventory involves three steps:

- 1. Counting the units on hand for each item of inventory.
- 2. Applying unit costs to the total units on hand for each item.
- **3.** Totaling the costs for each item of inventory, to determine the total cost of goods on hand.

A physical inventory should be taken at or near the balance sheet date. In the hospitality industry, due to the perishable nature of our inventory, taking inventory on a weekly or monthly basis is quite common and often necessary.

The account Merchandise Inventory is used to record the cost of inventory on hand at the balance sheet date. This amount becomes the beginning inventory for the next accounting period. For Sellers T-Shirts, the balance in Merchandise Inventory at December 31, 2003, is \$36,000. This amount is also the January 1, 2004, balance in Merchandise Inventory. During the year, *no entries are made to Merchandise Inventory*. At the end of the year, entries are made to eliminate the beginning inventory and to record the ending inventory. We will assume that Sellers' ending inventory on December 31, 2004, is \$40,000.

Computing Cost of Goods Sold

We have now reached the point where we can compute cost of goods sold. Doing so involves two steps:

- 1. Add the cost of goods purchased to the cost of goods on hand at the beginning of the period (beginning inventory). The result is the **cost of goods available for sale**.
- 2. Subtract the cost of goods on hand at the end of the period (ending inventory) from the cost of goods available for sale. The result is the cost of goods sold.

ALTERNATIVE TERMINOLOGY Some use the term *cost of sales* instead of *cost of goods sold.*

Illustration 10-3

Computation of net purchases and cost of goods purchased For Sellers T-Shirts the cost of goods available for sale is \$356,000, and the cost of goods sold is \$316,000, as shown in Illustration 10-4.

Illustration 10-4

Computation of cost of goods available for sale and cost of goods sold

Beginning inventory	\$ 36,000	
(1) Add: Cost of goods purchased	320,000	
Cost of goods available for sale	356,000	
(2) Less: Ending inventory	40,000	
Cost of goods sold	\$316,000	

Gross profit, operating expenses, and net income are computed and reported in a periodic inventory system in the same manner as under a perpetual inventory system, as shown in Illustration 10-5.

SELLERS T-SHIRTS Income Statement For the Year Ended December 31, 2004								
Sales revenue				* 400 000				
Sales			¢ 12.000	\$480,000				
Sales discounts			\$ 12,000 8 000	20.000				
Not color			0,000	460,000				
Cost of goods sold				400,000				
Inventory, January 1			36.000					
Purchases		\$325,000						
Less: Purchase returns and allowances	\$10,400							
Purchase discounts	6,800	17,200						
Net purchases		307,800						
Add: Freight-in		12,200						
Cost of goods purchased			320,000					
Cost of goods available for sale			356,000					
Inventory, December 31			40,000					
Cost of goods sold				316,000				
Gross profit				144,000				
Operating expenses								
Store salaries expense			45,000					
Salaries expense			19,000					
Utilities expense			17,000					
Advertising expense			16,000					
Depreciation expense—store equipment			8,000					
Insurance expense			2,000					
				114.000				
Iotal operating expenses				114,000				
Net income				\$ 30,000				

TRANSFERS IN AND OUT

As suggested by the Helpful Hint sidebar, you can simply add beginning inventory to cost of goods purchased, then deduct from this total the ending inventory amount to get to cost of goods sold. The same formula can be slightly modified for food or for beverage in the hospitality industry. In such cases, changing the word *goods* to *food* or to *beverage* will provide you with the result. Yet, due to the complexity of the hospitality industry (e.g., a hospitality operation can be departmentalized, and it is customary that a meal be provided to its employees dur-

Illustration 10-5

Income statement for a merchandiser using a periodic inventory system

HELPFUL HINT

The far right column identifies the major subdivisions of the income statement. The next column identifies the primary items comprising cost of goods sold of \$316,000 and operating expenses of \$114,000; in addition, contra revenue items of \$20,000 are reported. The third column explains cost of goods purchased of \$320,000. The fourth column reports contra purchase items of \$17,200.



ing a shift), the formula to compute the true and accurate cost of food sold needs to be modified a bit more.

A hotel may be divided into banquet and room service operations, or banquet, restaurant, lounge, and room service operations, or any different venues of food and beverage operations. As such, although each operation may order its food supplies from the central storage area, there are times that things may run out and an employee may need to "borrow" items from another outlet so as to be able to fill the order of the guests. Take, for example, an example where a bartender at a lounge forgets to order lemons for the evening shift. The storeroom is now closed and he cannot make another requisition. He therefore asks the restaurant chef to give him ten lemons to carry him over to finish his shift. This transfer of food is known as a *transfer out* from the restaurant and a *transfer in* for the lounge. Although these two operations are in the same hotel, it is important to do a separate cost calculation for each food and beverage outlet so that managers can better assess the efficiency and profitability of each operation. It should also be expected that if everything is performed correctly, such transfers in and out should be minimal or zero.

In this case, a more complete formula for the calculation of cost of food sold would be as shown below.

Beginning inventory	\$ 4,000
(1) Add: Cost of food purchased	12,500
(2) Add: Transfers in	50
Cost of food available for sale	16,550
(3) Less: Transfer out	73
(4) Less: Ending inventory	3,540
Cost of food consumed	\$12,937

Notice that the ending number is only known as cost of food *consumed* and not cost of food *sold*. As mentioned, it is customary in the hospitality business, especially any establishment that serves food, that the employees are provided a meal during their shift. Of course, there is a cost of food involved. However, the cost of employee meals is part of employee benefits and should not be added to the cost of the food sold to the guests. Thus, an extra step needs to be added:

Cost of food consumed	\$12,937
(5) Less: Employee meals	854
Cost of food sold	\$12,083

This final amount, \$12,083 can now be used by management to calculate food cost percentages and other meaningful tracking and assessment data.

FOOD COST CALCULATIONS

Besides figuring out cost of inventories, it is also useful in the hospitality industry to be able to calculate and track food cost, beverage cost, and labor cost. These costs are often known as the prime costs of a food and beverage operation. The calculation for food cost is very similar to that of regular inventory cost.

However, in a hospitality business, if you are a manager of a restaurant and somebody asks you about the food cost of your operation, you will not quote them a dollar amount. Rather, you will give them a percentage, such as 30 or 35 percent. Why? Percentages are better for comparison and tracking purposes. The more food you are able to sell, the higher will be the sales dollar amount, and so is the cost. Thus, the cost varies with sales, and therefore food cost is called a *variable cost*.

So, how is food cost percentage calculated? Simply, it is the cost of food sold divided by total sales. For example, if your food cost is \$4,146.50 and the total sales amount generated by that cost is \$11,847, then the food cost percentage would be

35 percent. Most fast-food restaurants are able to maintain a food cost percentage in the 15 percent to 25 percent range, depending on the menu items; most freestanding restaurants or those in hotels will run 30 percent to 40 percent. The food cost percentage is highest in clubs, as high as 50 percent. This is because club members pay a membership fee every month already. Some clubs even require members to pay a food and beverage minimum. Thus, menu prices at clubs are normally lower to offset the other revenues collected from members. With lower sales figures but the same cost to produce food items, the food cost percentage is higher.

BEVERAGE COST CALCULATIONS

The calculation of beverage cost and beverage cost percentage is exactly the same as that of food cost. First, you need to compute the inventory amounts, calculate the cost of beverage sold, and then divide the cost by the total sales dollars to obtain the percentage. However, what should be included in beverage cost? Should all soft drinks and coffee be included since they are beverages? What about liquor, beer, and wine?

There are good reasons why food and beverage are separated. Beverage costs only include alcoholic beverages, such as liquor, beer, and wine since taxes need to be paid by the establishments to the government. In Texas, for instance, the tax is 14 percent. Iced tea, soft drinks, milk, and coffee, although they are beverages, are considered food items and they are not taxable. The markup and pricing of beverages are always higher than food. Beverage cost percentages run in the 15 percent to 25 percent range. They might be higher if a restaurant is running a special at a lower price or trying to sell inventory.

INCOME STATEMENT PRESENTATION

The income statement for merchandisers under a periodic inventory system contains three features not found in the income statement of a service enterprise. These features are: (1) a sales revenue section, (2) a cost of goods sold section, and (3) gross profit. These same three features appear for a merchandiser under a perpetual inventory system. But under a periodic inventory system, the cost of goods sold section generally will contain more detail. Using assumed data for specific operating expenses, the income statement for Sellers T-Shirts using a periodic inventory system is shown in Illustration 10-5. Whether the periodic or the perpetual inventory system is used, merchandise inventory is reported at the same amount in the current assets section.

BEFORE YOU GO ON...

REVIEW IT

- 1. Name two basic systems of accounting for inventory.
- 2. Identify the three steps in determining cost of goods sold.
- 3. What accounts are used in determining the cost of goods purchased?
- 4. What is included in cost of goods available for sale?

🕨 DO IT

Aerosmith Company's accounting records show the following at year-end: Purchase discounts, \$3,400; Freight-in, \$6,100; Sales, \$240,000; Purchases, \$162,500; Beginning inventory, \$18,000; Ending inventory, \$20,000; Sales discounts, \$10,000; Purchase returns, \$5,200; and Operating expenses, \$57,000. Compute the following amounts for Aerosmith Company: net sales, cost of goods purchased, cost of goods sold, gross profit, and net income.

ACTION PLAN

- Understand the relationships of the cost components in measuring net income for a merchandising company.
- Compute net sales.

STUDY OBJECTIVE 4

Identify the unique features of the income statement for a merchandiser using a periodic inventory system.

ALTERNATIVE TERMINOLOGY

Gross profit is sometimes referred to as *merchandising profit* or *gross margin*.

- Compute cost of goods purchased.
- Compute cost of goods sold.
- Compute gross profit.
- Compute net income.

SOLUTION

Net sales: \$240,000 - \$10,000 = \$230,000. Cost of goods purchased: \$162,500 - \$5,200 - \$3,400 + \$6,100 = \$160,000. Cost of goods sold: \$18,000 + \$160,000 - \$20,000 = \$158,000. Gross profit: \$230,000 - \$158,000 = \$72,000. Net income: \$72,000 - \$57,000 = \$15,000.



INVENTORY COSTING UNDER A PERIODIC INVENTORY SYSTEM

All expenditures needed to acquire goods and to make them ready for sale are included as inventoriable costs. **Inventoriable costs** may be regarded as a pool of costs that consists of two elements: (1) the cost of the beginning inventory and (2) the cost of goods purchased during the year. The sum of these two equals the cost of goods available for sale.

Conceptually, the costs of the purchasing, receiving, and warehousing departments (whose efforts make the goods available for sale) should also be included in inventoriable costs. But, there are practical difficulties in allocating these costs to inventory. So these costs are generally accounted for as **operating expenses** in the period in which they are incurred.

Inventoriable costs are allocated either to ending inventory or to cost of goods sold. Under a periodic inventory system, the allocation is made at the end of the accounting period. First, the costs for the ending inventory are determined. Next, the cost of the ending inventory is subtracted from the cost of goods available for sale, to determine the cost of goods sold.

To illustrate, assume that General Suppliers has a cost of goods available for sale of \$120,000. This amount is based on a beginning inventory of \$20,000 and cost of goods purchased of \$100,000. The physical inventory indicates that 5,000 units are on hand. The costs applicable to the units are \$3.00 per unit. The allocation of the pool of costs is shown in Illustration 10-6. As shown, the \$120,000 of goods available for sale are allocated \$15,000 to ending inventory (5,000 × \$3.00) and \$105,000 to cost of goods sold.

STUDY O	OBJECTIVE	5
---------	-----------	---

Explain the basis of accounting for inventories, and describe the inventory cost flow methods.

HELPFUL HINT

Under a perpetual inventory system, described in Chapter 7, the allocation of costs is recognized continuously as purchases and sales are made.

		Cost of (Pool of Costs	
	B C C	eginning inve ost of goods j	ntory \$ 20,000 purchased 100,000 available for sale \$120,000	
E.	Step 2			
<u>Units</u> 5 000	Unit Cost \$3.00	Total Cost \$15,000	Cost of goods available for sale Less: Ending inventory	\$120,000 15,000 \$105,000

Illustration 10-6

Allocation (matching) of pool of costs

USING ACTUAL PHYSICAL FLOW COSTING-SPECIFIC IDENTIFICATION

Costing of the inventory is complicated because specific items of inventory on hand may have been purchased at different prices. For example, a company may experience several increases in the cost of identical goods within a given year. Or, unit costs may decline. Under such circumstances, how should different unit costs be allocated between the ending inventory and cost of goods sold?

One answer is to use the **specific identification method** of the units purchased. This method tracks the *actual physical flow* of the goods. **Each item of inventory is marked, tagged, or coded with its "specific" unit cost.** At the end of the year the specific costs of items still in inventory make up the total cost of the ending inventory. This method is most accurate because it looks at the exact cost of every single item. At any point in time, as long as you count the inventory and add up all the tags, you will get the exact cost of inventory. However, for the hospitality industry, this method is not the most practical. Imagine tagging every can of tomato juice at a restaurant. Imagine putting a price on each bar of soap a hotel puts in guest rooms. Imagine having to put a tag on each bottle of beer at a piano lounge in a casino. These items are often indistinguishable from one another. In such cases (as the next section will show), we must make assumptions about which units were sold.



Illustration 10-7

Specific identification method

HELPFUL HINT

A major disadvantage of the specific identification method is that management may be able to manipulate net income through specific identification of items sold.

INTERNATIONAL NOTE

A survey of accounting standards in 21 major industrial countries found that all three methods were permissible. In Ireland and the U.K., LIFO is permitted only in extreme circumstances. The general rule is this: When feasible, specific identification is the ideal method of allocating cost of goods available for sale. It reports ending inventory at actual cost and matches the actual cost of goods sold against sales revenue.

USING ASSUMED COST FLOW METHODS — FIFO, LIFO, AND AVERAGE COST

Because specific identification is often impractical, other cost flow methods are allowed. These assume flows of costs that may be unrelated to the physical flow of goods. For this reason we call them **assumed cost flow methods** or **cost flow as-sumptions**:

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

To illustrate these three inventory cost flow methods, we will assume that Bow Foods uses a *periodic inventory system*. The information shown in Illustration 10-8 relates to one of its products, cheddar cheese.

BOW FOODS Cheddar Cheese Blocks						
Date	Explanation	Units	Unit Cost	Total Cost		
1/1	Beginning inventory	100	\$10	\$ 1,000		
4/15	Purchase	200	11	2,200		
8/24	Purchase	300	12	3,600		
11/27	Purchase	400	13	5,200		
	Total	1,000		\$12,000		

Illustration 10-8

Inventoriable units and costs for Bow Foods

There is no accounting requirement that the cost flow assumption be consistent with the physical movement of the goods. Management selects the appropriate cost flow method. Even in the same industry, different companies may reach different conclusions as to the most appropriate method.

First-in, First-out (FIFO)

The first-in, first-out (FIFO) method assumes that the *earliest goods* purchased are the first to be sold. FIFO often parallels the actual physical flow of merchandise because it generally is good business practice to sell the earliest units first. Under the FIFO method, the *costs* of the earliest goods purchased are the first to be recognized as cost of goods sold. (Note that this does not necessarily mean that the earliest units are sold first, but that the costs of the earliest units are recognized first. In a bin of sunglasses at a theme park souvenir shop, for example, no one really knows, nor would it matter, which sunglasses are sold first.) The allocation of the cost of goods available for sale at Bow Foods under FIFO is shown in Illustrations 10-9 and 10-10.

Note that the ending inventory is based on the latest units purchased. That is, under FIFO, the cost of the ending inventory is found by taking the unit cost of the most recent purchase and working backward until all units of inventory are costed.

			Poo	Lof Costs				Illustration 10
		Со	st of Good	s Available	for Sale			Allocation of c method
D	ate	Explanat	ion	Units	Unit Cost	Total Cost	t	
1/ 4/ 8/ 11	1 F 15 F 24 F 1/27 F	Beginning inv Purchase Purchase Purchase Total	ventory	$ \begin{array}{r} 100 \\ 200 \\ 300 \\ 400 \\ 1,000 \\ \end{array} $	\$10 11 12 13	\$ 1,000 2,200 3,600 5,200 \$12,000	-	
	St Ending	ep 1 Inventory			Stej Cost of Go	p 2 pods Sold		HELPEU
Date 11/27 8/24 Total	$ \frac{\text{Units}}{400} \\ \frac{50}{450} $	Unit Cost \$13 12	Total Cost \$5,200 600 \$5,800	Cost o Less: E Cost o	f goods available Ending inventory f goods sold	e for sale	\$12,000 5,800 \$ 6,200	Note the sequen cation: (1) Comp ventory. (2) Dete goods sold.

.9

costs—FIFO

L HINT

cing of the allooute ending inermine cost of

CHAPTER 10 Inventories, Cost Calculations, and Internal Controls 314

Illustration 10-10

FIFO—First costs in are first costs out in computing cost of goods sold



We can verify the accuracy of the cost of goods sold by recognizing that the first units acquired are the first units sold. The computations for the 550 units sold are shown in Illustration 10-11.

Illustration 10-11	Date	Units		Unit Cost		Total Cost
Proof of cost of goods sold	1/1	100	×	\$10	=	\$1,000
	4/15	200	Х	11	=	2,200
	8/24	250	Х	12	=	3,000
	Total	550				\$6,200

Last-in, First-out (LIFO)

The last-in, first-out (LIFO) method assumes that the latest goods purchased are the first to be sold. LIFO seldom coincides with the actual physical flow of inventory. Only for goods in piles, such as hay, coal, or produce at the grocery store would LIFO match the physical flow of inventory. Under the LIFO method, the costs of the latest goods purchased are the first to be assigned to cost of goods sold. The allocation of the cost of goods available for sale at Bow Foods under LIFO is shown in Illustration 10-12.

-LIFO		Pool of Costs Cost of Goods Available for Sale									
		Date	Explanat	tion	Units	Unit Cost	Total Cos	t			
		1/1 B 4/15 P 8/24 P 11/27 P	eginning in urchase urchase urchase Total	ventory	$ \begin{array}{r} 100 \\ 200 \\ 300 \\ 400 \\ \hline 1,000 \\ \hline \end{array} $	\$10 11 12 13	\$ 1,000 2,200 3,600 5,200 \$12,000				
		Ste Ending	ep <u>1</u> Inventory			<u>Step</u> Cost of Go	o 2 oods Sold				
IT nding the costs 0) must	Date 1/1 4/15 8/24 Total		Unit Cost \$10 11 12	Total Cost \$1,000 2,200 1,800 \$5,000	Cost of Less: E Cost of	f goods available Ending inventory f goods sold	e for sale	\$12,000 5,000 \$ 7,000			

Illustration 10-12

Allocation of costsmethod

HELPFUL HINT
The costs allocated to ending
inventory (\$5,000) plus the co

allocated to CGS (\$7,00 equal CGAS (\$12,000).

Illustration 10-13 graphically displays the LIFO cost flow.



Illustration 10-13

LIFO—Last costs in are first costs out in computing cost of goods sold

Under the LIFO method, the cost of the ending inventory is found by taking the unit cost of the oldest goods and working forward until all units of inventory are costed. As a result, the first costs assigned to ending inventory are the costs of the beginning inventory. Proof of the costs allocated to cost of goods sold is shown in Illustration 10-14.

Date	Units		Unit Cost		Total Cost	Illustration 10-14
11/27	400	\times	\$13	=	\$5,200	Proof of cost of goods sold
8/24	150	\times	12	=	1,800	
Total	550				\$7,000	

Under a periodic inventory system, all goods purchased during the period are assumed to be available for the first sale, regardless of the date of purchase.

Average Cost

The **average cost method** assumes that the goods available for sale have the same (average) cost per unit. Generally such goods are identical. Under this method, the cost of goods available for sale is allocated on the basis of the **weighted-average unit cost**. Illustration 10-15 shows the formula and a sample computation of the weighted-average unit cost.



Illustration 10-15

Formula for weighted-average unit cost

The weighted-average unit cost is then applied to the units on hand. This computation determines the cost of the ending inventory. The allocation of the cost of goods available for sale at Bow Foods using average cost is shown in Illustrations 10-16 and 10-17.

	llu	JS	tr	a	ti	0	n	1	0-	1	6	
--	-----	----	----	---	----	---	---	---	----	---	---	--

Allocation of costs-average cost method

	<u>P</u>	ool of Costs		
	Cost of Go	ods Available	for Sale	
Date	Explanation	Units	Unit Cost	Total Cost
1/1	Beginning inventory	100	\$10	\$ 1,000
4/15	Purchase	200	11	2,200
8/24	Purchase	300	12	3,600
11/27	Purchase	400	13	5,200
	Total	1,000		\$12,000
	Step 1		Step 2	
Endi	ing Inventory		Cost of Goods	Sold
\$12,000 ÷	1,000 = \$12.00 Unit Total	Cost of goo Less: Endin	ds available for s g inventory	ale \$12,000 5,400
$\frac{\text{Units}}{450} \times$	$\frac{\text{Cost}}{\$12.00} = \frac{\text{Cost}}{\$5,400}$	Cost of goo	ds sold	\$ 6,600

Illustration 10-17

Average cost—the average cost of the goods available for sale during the period is the cost used to compute cost of goods sold



To verify the cost of goods sold data in Illustration 10-16, multiply the units sold by the weighted-average unit cost ($550 \times \$12 = \$6,600$). Note that this method does not use the average of the unit costs. That average is \$11.50 (\$10 + \$11 + \$12 + \$13 = \$46; $\$46 \div 4$). Instead, the average cost method uses the average *weighted* by the quantities purchased at each unit cost.

FINANCIAL STATEMENT EFFECTS OF COST FLOW METHODS

Each of the three cost flow methods is acceptable. For example, **Wendy's International** currently uses the FIFO method. **Campbell Soup Company** uses LIFO, while **Isle of Capri Casinos** uses the average cost method. A company may also use more than one cost flow method at the same time. **Del Monte Corporation** uses LIFO for domestic inventories and FIFO for foreign inventories. Companies adopt different inventory cost flow methods for various reasons. Usually, one of the following factors is involved:

- 1. Income statement effects
- 2. Balance sheet effects
- 3. Tax effects

Income Statement Effects

To understand why companies might choose a particular cost flow method, let's compare their effects on the financial statements of Bow Foods. The condensed income statements in Illustration 10-18 assume that Bow Foods sold its 550 units for \$11,500, and its operating expenses were \$2,000. Its income tax rate is 30 percent.

Bow Foods Condensed Income Statements					
FIFO LIFO Average Cost					
Sales	\$11,500	\$11,500	\$11,500		
Beginning inventory Purchases	1,000 11,000	1,000 11,000	1,000 11,000		
Cost of goods available for sale Ending inventory	12,000 5,800	12,000 5,000	12,000 5,400		
Cost of goods sold	6,200	7,000	6,600		
Gross profit Operating expenses	5,300 2,000	4,500 2,000	4,900 2,000		
Income before income taxes ² Income tax expense (30%)	3,300 990	2,500 750	2,900 870		
Net income	\$ 2,310	\$ 1,750	\$ 2,030		

STUDY OBJECTIVE 6

Explain the financial statement and tax effects of each of the inventory cost flow methods.

Illustration 10-18

Comparative effects of cost flow methods

The cost of goods available for sale (\$12,000) is the same under each of the three inventory cost flow methods. But the ending inventory is different in each method, and this difference affects cost of goods sold. Each dollar of difference in ending inventory therefore results in a corresponding dollar difference in income before income taxes. For Bow Foods, there is an \$800 difference between FIFO and LIFO.

In a period of rising prices, FIFO produces a higher net income. This happens because the expenses matched against revenues are the lower unit costs of the first units purchased. In a period of rising prices (as is the case here), FIFO reports the highest net income (\$2,310) and LIFO the lowest (\$1,750); average cost falls in the middle (\$2,030). To management, higher net income is an advantage: It causes external users to view the company more favorably. Also, if management bonuses are based on net income, FIFO will provide the basis for higher bonuses.

Some argue that the use of LIFO in a period of rising prices enables the company to avoid reporting **paper** or **phantom profit** as economic gain. To illustrate, assume that Kralik Resorts buys golf shirts to be sold to its guests at \$20 per unit on January 10. It buys 200 more on December 31 at \$24 each. During the year, it sells 200 units at \$30 each. The results under FIFO and LIFO are shown in Illustration 10-19.

	FIFO	LIFO
Sales $(200 \times \$30)$ Cost of goods sold	\$6,000 4,000 (200 × \$20)	\$6,000 4,800 (200 × \$24)
Gross profit	\$2,000	\$1,200

HELPFUL HINT

If prices are falling, the results from the use of FIFO and LIFO are reversed: FIFO will report the lowest net income and LIFO the highest.

Illustration 10-19

Income statement effects compared

 2 It is assumed that Bow Foods is a corporation, and corporations are required to pay income taxes.

Under LIFO, the company has recovered the current replacement cost (\$4,800) of the units sold. The gross profit in economic terms under LIFO is real. Under FIFO, the company has recovered only the January 10 cost (\$4,000). To replace the units sold, it must reinvest $$800 (200 \times $4)$ of the gross profit. Thus, \$800 of the gross profit under FIFO is phantom, or illusory. As a result, reported net income under FIFO is also overstated in real terms.

Balance Sheet Effects

A major advantage of FIFO is that in a period of rising prices, the costs allocated to ending inventory will be close to their current cost. For Bow Foods, for example, 400 of the 450 units in the ending inventory are costed at the November 27 unit cost of \$13.

A major shortcoming of LIFO is that in a period of rising prices, the costs allocated to ending inventory may be understated in terms of current cost. This is true for Bow Foods: The cost of the ending inventory includes the \$10 unit cost of the beginning inventory. The understatement becomes even greater if the inventory includes goods purchased in one or more prior accounting periods.

Tax Effects

We have seen that both inventory on the balance sheet and net income on the income statement are higher when FIFO is used in a period of rising prices. Why, then, would a company use LIFO? The reason is that LIFO results in the lowest income taxes during times of rising prices. The lower net income reported by LIFO translates to a lower tax liability. For example, at Bow Foods, income taxes are \$750 under LIFO, compared to \$990 under FIFO. The tax saving of \$240 makes more cash available for use in the business.

USING INVENTORY COST FLOW METHODS CONSISTENTLY

Whatever cost flow method a company chooses, it should be used consistently from one period to another. Consistent application makes financial statements more comparable over successive time periods. In contrast, using FIFO in one year and LIFO in the next would make it difficult to compare the net incomes of the two years.

Although consistent application is preferred, a company *may* change its method of inventory costing. Such a change and its effects on net income should be disclosed in the financial statements. A typical disclosure is shown in Illustration 10-20, using information from recent financial statements of **Quaker Oats Company**.



QUAKER OATS COMPANY Notes to the Financial Statements

Note 1 Effective July 1, the Company adopted the LIFO cost flow assumption for valuing the majority of U.S. Grocery Products inventories. The Company believes that the use of the LIFO method better matches current costs with current revenues. The effect of this change on the current year was to decrease net income by \$16.0 million.

Illustration 10-20

Disclosure of change in cost flow method

BEFORE YOU GO ON...

REVIEW IT

- 1. How do the cost and matching principles apply to inventoriable costs?
- 2. How are the three assumed cost flow methods applied in allocating inventoriable costs?
- 3. What factors should be considered by management in selecting an inventory cost flow method?
- 4. Which inventory cost flow method produces (a) the highest net income in a period of rising prices, and (b) the lowest income taxes?

🕨 DO IT

The accounting records of Shumway Eggrolls show the following data.

Beginning inventory	4,000 units at \$3
Purchases	6,000 units at \$4
Sales	5,000 units at \$12

Determine the cost of goods sold during the period under a periodic inventory system using (a) the FIFO method, (b) the LIFO method, and (c) the average cost method.

ACTION PLAN

- Understand the periodic inventory system.
- Compute the cost of goods sold under the periodic inventory system using the FIFO cost flow method.
- Compute the cost of goods sold under the periodic inventory system using the LIFO cost flow method.
- Compute the cost of goods sold under the periodic inventory system using the average cost method.

SOLUTION

- (a) FIFO: $(4,000 \otimes \$3) + (1,000 \otimes \$4) = \$12,000 + \$4,000 = \$16,000.$
- (b) LIFO: 5,000 @ \$4 = \$20,000.
- (c) Average cost: $[(4,000 @ \$3) + (6,000 @ \$4)] \div 10,000 = (\$12,000 + \$24,000) \div 10,000 =$ \$3.60 per unit; 5,000 @ \$3.60 = \$18,000.

Related exercise material: 10-2.

INVENTORY ERRORS

Unfortunately, errors occasionally occur in taking or costing inventory. Some errors are caused by counting or pricing the inventory incorrectly. Others occur because of improper recognition of the transfer of legal title to goods in transit. When errors occur, they affect both the income statement and the balance sheet.

INCOME STATEMENT EFFECTS

Remember that both the beginning and ending inventories are used to determine cost of goods sold in a periodic system. The ending inventory of one period automatically becomes the beginning inventory of the next period. Inventory errors thus affect the determination of cost of goods sold and net income.

The effects on cost of goods sold can be determined by using the formula in Illustration 10-21. First enter the incorrect data in the formula. Then substitute the correct data, and find the difference between the two CGS amounts.

If beginning inventory is understated, cost of goods sold will be understated. If ending inventory is understated, cost of goods sold will be overstated. The ef-



Indicate the effects of inventory errors on the financial statements.

fects of inventory errors on the current year's income statement are shown in Illustration 10-22.



Formula for cost of goods sold

Illustration 10-22

Effects of inventory errors on current year's income statement

ETHICS NOTE

Inventory fraud includes pricing inventory at amounts in excess of their actual value, or claiming to have inventory when no inventory exists. Inventory fraud is usually done to overstate ending inventory, which understates cost of goods sold and creates higher income.

Illustration 10-23

Effects of inventory errors on two years' income statements

Beginning Inventory	÷	Cost of Goods Purchased	Ending Inventory	=	Cost of Goods Sold
	Invento	ry Error	Cost of Goods Sold	Net	Income
Beginn	ing inven	tory understated	Understated	Ove	erstated
Beginn	ing inven	tory overstated	Overstated	Unc	lerstated
Ending	inventor	y understated	Overstated	Unc	lerstated
Endino	inventor	voverstated	Understated	Ove	rstated

An error in ending inventory in the current period will have a *reverse effect* on net income of the next period. This is shown in Illustration 10-23 below. Note that understating ending inventory in 2004 understates beginning inventory in 2005 and overstates net income in 2005.

Over the two years, total net income is correct. The errors offset one another. Notice that for 2004 and 2005 total income using incorrect data is 35,000 (22,000 + 13,000). This is the same as the total income of 35,000 (25,000 + 10,000) using correct data. Also note in this example that an error in the beginning inventory does not result in a corresponding error in the ending inventory. The correctness of the ending inventory depends entirely on the accuracy of taking and costing the inventory at the balance sheet date.

Condensed Income Statement								
	2004 2005							
	Inco	rrect	Cor	rect	Inco	rrect	Cor	rect
Sales Beginning inventory Cost of goods purchased Cost of goods available for sale Ending inventory Cost of goods sold Gross profit Operating expenses Net income	\$20,000 <u>40,000</u> <u>60,000</u> <u>12,000</u>	\$80,000 <u>48,000</u> <u>32,000</u> <u>10,000</u> \$22,000	\$20,000 40,000 60,000 15,000	\$80,000 <u>45,000</u> <u>35,000</u> <u>10,000</u> \$25,000	\$12,000 68,000 80,000 23,000	\$90,000 57,000 33,000 20,000 \$13,000	\$15,000 68,000 83,000 23,000	\$90,000 <u>60,000</u> <u>30,000</u> <u>20,000</u> \$10,000
		(\$3. Net in under	,000) ncome rstated	Total inc 2 years	ome for correct	\$3 Net i over	,000 ncome stated	

BALANCE SHEET EFFECTS

The effect of ending-inventory errors on the balance sheet can be determined by the basic accounting equation: Assets = Liabilities + Stockholders' Equity. Errors in the ending inventory have the following effects on these components.

Ending Inventory Error	Assets	Liabilities	Stockholders' Equity
Overstated	Overstated	None	Overstated
Understated	Understated	None	Understated

The effect of an error in ending inventory on the next period was shown in Illustration 10-23. If the error is not corrected, total net income for the two periods would be correct. Thus, total stockholders' equity reported on the balance sheet at the end of the next period will also be correct.

Statement presentation and analysis

PRESENTATION

As indicated in Chapter 6, inventory is classified as a current asset after receivables in the balance sheet. In a multiple-step income statement, cost of goods sold is subtracted from sales. There also should be disclosure of (1) the major inventory classifications, (2) the basis of accounting (cost, or lower of cost or market), and (3) the costing method (FIFO, LIFO, or average).

Disney, for example, in its September 30, 2000, consolidated balance sheet, reported inventory of \$702 million under current assets. The accompanying notes to the financial statements, as shown in Illustration 10-25, disclosed the following information.

THE WALT DISNEY COMPANY AND SUBSIDIARIES Notes to the Financial Statements

Note 1. Description of the Business and Summary of Significant Accounting Policies Inventories

Carrying amounts of merchandise, materials and supplies inventories are generally determined on a moving average cost basis and area stated at the lower of cost or market.

ANALYSIS

The amount of inventory carried by a company has significant economic consequences. And inventory management is a double-edged sword that requires constant attention. On the one hand, management wants to have a great variety and quantity on hand so that customers have a wide selection and items are always in stock. But such a policy may incur high carrying costs (e.g., investment, storage, insurance, obsolescence, and damage). On the other hand, low inventory levels lead to stockouts and lost sales.

Common ratios used to manage and evaluate inventory levels are inventory turnover and a related measure, average days to sell the inventory.

Inventory turnover measures the number of times on average the inventory is sold during the period. Its purpose is to measure the liquidity of the inventory. The inventory turnover is computed by dividing cost of goods sold by the aver-

Illustration 10-24

Ending inventory error balance sheet effects

Illustration 10-25

Inventory disclosures by **The Walt Disney Company.** Information from Disney Worldwide Industries.



Compute and interpret inventory turnover.

age inventory during the period. Unless seasonal factors are significant, average inventory can be computed from the beginning and ending inventory balances. For example, **Darden Restaurants** reported in its 2002 Annual Report a beginning inventory of \$148,429,000 and an ending inventory of \$172,413,000, and cost of goods sold for the year ended May 26, 2002, of \$1,384,481,000. The inventory turnover formula and computation for Darden are shown in Illustration 10-26.

Illustration 10-26

Inventory turnover formula and computation for **Darden Restaurants**



A variant of the inventory turnover ratio is the **average days to sell inventory**. For example, the inventory turnover for Darden of 8.63 times divided into 365 is approximately 42 days. This is the approximate age of the inventory.

There are typical levels of inventory in every industry. Companies that are able to keep their inventory at lower levels and higher turnovers and still satisfy customer needs are the most successful.

BEFORE YOU GO ON...

REVIEW IT

- 1. Why is it appropriate to report inventories at the lower of cost or market?
- 2. How do inventory errors affect financial statements?
- 3. What does inventory turnover reveal?



INTERNAL CONTROL

STUDY OBJECTIVE 9

Define internal control.

Could there be dishonest employees where you work? Unfortunately, the answer sometimes is yes. For example, the press recently reported the following:

- A restaurateur in New York was arrested along with his bookkeeper and charged with stealing \$185,000 by adding thousands of dollars in tips to credit card charges.
- A new manager, taking over a fast-food restaurant, took inventory of the food items in the freezer and found that the previous manager had filled four hamburger-patty boxes with rocks.
- A bar manager, after receiving complaints from guests about the diluted drinks, found that bottles of clear liquor were mostly water.
- A controller found "faked" invoices submitted for payment by a company that only exists at a post office box address.³

These situations emphasize the need for a good system of internal control.

Internal control consists of the plan of organization and all the related methods and measures adopted within a business to do the following:

³Sources: Milford Prewitt, "In the Soup: Ruggerio Charged in Tip Fraud," *Nation's Restaurant News*, *32*(46) (1998), 1, 2.

- 1. Safeguard its assets from employee theft, robbery, and unauthorized use.
- 2. Enhance the accuracy and reliability of its accounting records. This is done by reducing the risk of errors (unintentional mistakes) and irregularities (intentional mistakes and misrepresentations) in the accounting process.

The Foreign Corrupt Practices Act of 1977 requires all major U.S. corporations to maintain an adequate system of internal control. Companies that fail to comply are subject to fines, and company officers may be imprisoned. Also, the National Commission on Fraudulent Financial Reporting concluded that all companies whose stock is publicly traded should maintain internal controls that can provide reasonable assurance that fraudulent financial reporting will be prevented or subject to early detection.⁴

INTERNATIONAL NOTE

U.S. companies also adopt model business codes that guide their international operations to provide for a safe and healthy workplace, avoid child and forced labor, abstain from bribes, and follow sound environmental practices.

TECHNOLOGY IN ACTION

Good internal control must be designed into computerized systems. The starting point is usually flowcharts that graphically depict each component of a firm's operations. The assembled flow charts serve as the basis for writing detailed programs. An example of flowcharting is given in this chapter (see Illustration 10-32). When attempts to automate or improve accounting systems fail, it is often due to the absence of such well-documented procedures.

PRINCIPLES OF INTERNAL CONTROL

To safeguard its assets and enhance the accuracy and reliability of its accounting records, a company follows specific control principles. Of course, internal control measures vary with the size and nature of the business and with management's control philosophy. The six principles listed in Illustration 10-27 apply to most enterprises. Each principle is explained in the following sections.



STUDY OBJECTIVE 10

Identify the principles of internal control.

 Establishment
 Physical, mechanical, and electronic controls

 Officience
 Segregation of duties
 Independent internal verification

 Occumentation procedures
 Other controls

Illustration 10-27

Principles of internal control

```
<sup>4</sup>Report of the National Commission on Fraudulent Financial Reporting, October 1987, p. 11.
```



Transfer of cash drawers

Accounting Employee A Maintains cash balances per books





Assistant Cashier B Maintains custody of cash on hand

Establishment of Responsibility

An essential characteristic of internal control is the assignment of responsibility to specific employees. **Control is most effective when only one person is responsible for a given task.** To illustrate, assume that the cash on hand at the end of the day in a breakfast restaurant is \$10 short of the cash rung up on the cash register. If only one person has operated the register, responsibility for the shortage can be assessed quickly. If two or more individuals have worked the register, it may be impossible to determine who is responsible for the error unless each person is assigned a separate cash drawer and register key. The principle of establishing responsibility does not appear to be strictly applied by **Stephanie's** (in the Feature Story) since three people operate the cash register on any given shift. To identify any shortages quickly at Stephanie's, two cashouts are performed each day.

Establishing responsibility includes the authorization and approval of transactions. For example, the vice president of sales should have the authority to establish policies for making credit sales. The policies ordinarily will require written credit department approval of credit sales.

Segregation of Duties

Segregation of duties (also called *separation of functions* or *division of work*) is indispensable in a system of internal control. There are two common applications of this principle:

- 1. Related activities should be assigned to different individuals.
- **2.** Establishing the accountability (keeping the records) for an asset should be separate from the physical custody of that asset.

The rationale for segregation of duties is this: The work of one employee should, without a duplication of effort, provide a reliable basis for evaluating the work of another employee.

RELATED ACTIVITIES. Related activities that should be assigned to different individuals arise in both purchasing and selling. When one individual is responsible for all of the related activities, the potential for errors and irregularities is increased. Related purchasing activities include ordering merchandise, receiving the goods, and paying (or authorizing payment) for the merchandise. In purchasing, for example, orders could be placed with friends or with suppliers who give kickbacks. Or, only a cursory count and inspection could be made upon receiving the goods, which could lead to errors and poor-quality merchandise. Payment might be authorized without a careful review of the invoice. Even worse, fictitious invoices might be approved for payment. When the ordering, receiving, and paying are assigned to different individuals, the risk of such abuses is minimized.

Similarly, related sales activities should be assigned to different individuals. Related selling activities include making a sale, shipping (or delivering) the goods to the customer, billing the customer, and receiving payment. When one person handles related sales transactions, a salesperson could make sales at unauthorized prices to increase sales commissions; a shipping clerk could ship goods to himself; a billing clerk could understate the amount billed for sales made to friends and relatives. These abuses are reduced by dividing the sales tasks: the salespersons make the sale; the shipping department ships the goods on the basis of the sales order; and the billing department prepares the sales invoice after comparing the sales order with the report of goods shipped.

ACCOUNTABILITY FOR ASSETS. To provide a valid basis of accountability for an asset, the accountant should have neither physical custody of the asset nor access to it. Likewise, the custodian of the asset should not maintain or have access

to the accounting records. When one employee maintains the record of the asset that should be on hand, and a different employee has physical custody of the asset, the custodian of the asset is not likely to convert the asset to personal use. The separation of accounting responsibility from the custody of assets is especially important for cash and inventories because these assets are vulnerable to unauthorized use or misappropriation.

TECHNOLOGY IN ACTION

Saving Cash through Controls

If control is so important in the hospitality business and if technology is supposed to make things better, is technology used in helping operators and businesses control their costs? Chevys, a restaurant chain that owns 131 Chevys Fresh Mex restaurant, 33 Rio Bravos, and 9 Fuzio Universal Pasta restaurants has the answer. They installed a system that has resulted in at least a 1 percent saving in food costs. With average sales at a Chevys Fresh Mex of over \$2.5 million a year, 1 percent of sales translates to \$25,000 and thus close to \$3.3 million just for the Fresh Mex brand. The system allows management to do correct pricing with updated information from the vendor.

There are many technology systems available for restaurateurs, big or small, to take advantage of and to better operate their businesses. They can track menu additions, product mix, takeout orders, complimentary meals, voids, specialty requests, and perform many more functions, so that management and owners can stay competitive.

SOURCE: E. Rubenstein. "The menu is served," *Hospitality Technology, 19–21*, (April, 2003); and D. Kelley. "Analyze this," *Hospitality Technology, 32–32*, (April 2003).

Documentation Procedures

Documents provide evidence that transactions and events have occurred. At **Stephanie's Gourmet Coffee and More**, the cash register tape was the restaurant's documentation for the sale and the amount of cash received. Similarly, the shipping document indicates that the goods have been shipped, and the sales invoice indicates that the customer has been billed for the goods. By adding signatures (or initials) to the documents, the individual(s) responsible for the transaction or event can be identified. Documentation of transactions should be made when the transaction occurs. Documentation of events, such as those leading to adjusting entries, is generally developed when the adjustments are made.

Two procedures should be established for documents.

- 1. Whenever possible, documents should be prenumbered, and all documents should be accounted for. Prenumbering helps to prevent a transaction from being recorded more than once. It also helps to prevent the transactions from not being recorded.
- 2. Documents that are source documents for accounting entries should be promptly forwarded to the accounting department. This control measure helps to ensure timely recording of the transaction and contributes directly to the accuracy and reliability of the accounting records.

Physical, Mechanical, and Electronic Controls

Use of physical, mechanical, and electronic controls is essential. Physical controls relate primarily to the safeguarding of assets. Mechanical and electronic controls also safeguard assets; some enhance the accuracy and reliability of the accounting records. Examples of these controls are shown in Illustration 10-28.





An important corollary to prenumbering is that voided documents be kept until all documents are accounted for. Illustration 10-28

Physical, mechanical, and electronic controls



Safes, vaults, and safety deposit boxes for cash and business papers



Alarms to prevent break-ins

Physical Controls



Locked warehouses and storage cabinets for inventories and records

Mechanical and Electronic Controls



Television monitors to deter theft



Computer facilities with pass key access



Time clocks for recording time worked



ACCOUNTING IN ACTION Business Insight

John Patterson, a young Ohio merchant, couldn't understand why his retail business didn't show a profit. There were lots of customers, but the money just seemed to disappear. Patterson suspected pilferage and sloppy bookkeeping by store clerks. Frustrated, he placed an order with a Dayton, Ohio, company for two rudimentary cash registers. A year later, Patterson's store was in the black.

"What is a good thing for this little store is a good thing for every retail store in the world," he observed. A few months later, in 1884, John Patterson and his brother, Frank, bought the tiny cash register maker for \$6,500. The word around Dayton was that the Patterson boys got stung.

In the following 37 years, John Patterson built **National Cash Register Co.** into a corporate giant. Patterson died in 1922, the year in which NCR sold its two millionth cash register.

SOURCE: Wall Street Journal (January 28, 1989).

Independent Internal Verification

Most internal control systems provide for **independent internal verification**. This principle involves the review, comparison, and reconciliation of data prepared by other employees. To obtain maximum benefit from independent internal verification, three features must be present:

- 1. The verification should be made periodically or on a surprise basis.
- 2. The verification should be done by someone who is independent of the employee responsible for the information.
- **3.** Discrepancies and exceptions should be reported to a management level that can take appropriate corrective action.

Independent internal verification is especially useful in comparing recorded accountability with existing assets. The reconciliation of the cash register tape with the cash in the register at **Stephanie's Gourmet Coffee and More** is an example of this internal control principle. Another common example is the reconciliation by an independent person of the cash balance per books with the cash balance per bank. The relationship between this principle and the segregation of duties principle is shown graphically in Illustration 10-29.



Illustration 10-29

Comparison of segregation of duties principle with independent internal verification principle

In large companies, independent internal verification is often assigned to internal auditors. **Internal auditors** are company employees who evaluate on a continuous basis the effectiveness of the company's system of internal control. They periodically review the activities of departments and individuals to determine whether prescribed internal controls are being followed. They also recommend improvements when needed. The importance of this function is illustrated by the number of internal auditors employed by companies.

Other Controls

Other control measures include the following:

- 1. Bonding of employees who handle cash. Bonding involves obtaining insurance protection against misappropriation of assets by dishonest employees. This measure contributes to the safeguarding of cash in two ways: First, the insurance company carefully screens all individuals before adding them to the policy and may reject risky applicants. Second, bonded employees know that the insurance company will vigorously prosecute all offenders.
- 2. Rotating employees' duties and requiring employees to take vacations. These measures are designed to deter employees from attempting any thefts because they will not be able to permanently conceal their improper actions. Many bank embezzlements, for example, have been discovered when the perpetrator was on vacation or assigned to a new position.

LIMITATIONS OF INTERNAL CONTROL

A company's system of internal control is generally designed to provide *reasonable* assurance that assets are properly safeguarded and that the accounting records





level of the activity. For example, management may consider cash to be high risk and maintaining inventories in the stock room as low risk. Thus management would have stricter controls for cash. are reliable. The concept of reasonable assurance rests on the premise that the costs of establishing control procedures should not exceed their expected benefit. To illustrate, consider shoplifting losses in retail stores. Such losses could be eliminated by having a security guard stop and search customers as they leave the store. But, store managers have concluded that the negative effects of adopting such a procedure cannot be justified. Instead, stores have attempted to "control" shoplifting losses by less costly procedures such as: (1) posting signs saying, "We reserve the right to inspect all packages," and "All shoplifters will be prosecuted," (2) using hidden TV cameras and store detectives to monitor customer activity, and (3) using sensoring equipment at exits.

The **human element** is an important factor in every system of internal control. A good system can become ineffective as a result of employee fatigue, carelessness, or indifference. For example, a receiving clerk might not bother to count goods received or might just "fudge" the counts. Occasionally, two or more individuals may work together to get around prescribed controls. Such collusion can significantly impair the effectiveness of a system, eliminating the protection offered by segregation of duties. If a supervisor and a cashier collaborate to understate cash receipts, the system of internal control may be negated (at least in the short run). No system of internal control is perfect.

In addition, the size of the business may impose limitations on internal control. In a small company, for example, it may be difficult to segregate duties or to provide for independent internal verification.

BEFORE YOU GO ON...

REVIEW IT

- 1. What are the two primary objectives of internal control?
- 2. Identify and describe the principles of internal control.
- 3. What are the limitations of internal control?

🕨 DO IT

Li Song owns a small restaurant. Li wants to establish good internal control procedures but is confused about the difference between segregation of duties and independent internal verification. Explain the differences to Li.

ACTION PLAN

• Understand and explain the differences between (1) segregation of duties and (2) independent internal verification.

SOLUTION: Segregation of duties involves assigning responsibility so that the work of one employee evaluates the work of another employee. Segregation of duties occurs daily in executing and recording transactions. In contrast, independent internal verification involves reviewing, comparing, and reconciling data prepared by one or several employees. Independent internal verification occurs after the fact, as in the case of reconciling cash register totals at the end of the day with cash on hand.

Related exercise material: 10-5.



INTERNATIONAL NOTE

Other countries also have control problems. For example, a judge in France has issued a 36-page "book" detailing many of the scams that are widespread, such as kickbacks in public-works contracts, the skimming of development aid money to Africa, and bribes on arms sales.

CASH CONTROLS

Just as cash is the beginning of a company's operating cycle, it is also usually the starting point for a company's system of internal control. Cash is the one asset that is readily convertible into any other type of asset. It is easily concealed and transported, and it is highly desired. Because of these characteristics, **cash is the asset**

most susceptible to improper diversion and use. Moreover, because of the large volume of cash transactions, numerous errors may occur in executing and recording them. To safeguard cash and to ensure the accuracy of the accounting records for cash, effective internal control over cash is imperative.

Cash consists of coins, currency (paper money), checks, money orders, and money on hand or on deposit in a bank or similar depository. The general rule is that if the bank will accept it for deposit, it is cash. Items such as postage stamps and postdated checks (checks payable in the future) are not cash. Stamps are a prepaid expense; the postdated checks are accounts receivable. In the following sections we explain the application of internal control principles to cash receipts and cash disbursements.

INTERNAL CONTROL OVER CASH RECEIPTS

Cash receipts come from a variety of sources: cash sales; collections on account from customers; the receipt of interest, rent, and dividends; investments by owners; bank loans; and proceeds from the sale of noncurrent assets. Illustration 10-30 shows how the internal control principles explained earlier apply to cash receipts transactions.



Explain the applications of internal control principles to cash receipts.

Illustration 10-30

Application of internal control principles to cash receipts



As might be expected, companies vary considerably in how they apply these principles. To illustrate internal control over cash receipts, we will examine control measures for a retail store with both over-the-counter and mail receipts.

Over-the-Counter Receipts

Control of over-the-counter receipts in retail businesses is centered on cash registers that are visible to customers. In supermarkets and in variety stores, cash registers are placed in checkout lines near the exit. In hotels such as **Hilton** and **Marriott**, each department has its own cash register. A cash sale is "rung up" on a cash register *with the amount clearly visible to the customer*. This measure prevents the cashier from ringing up a lower amount and pocketing the difference. The customer receives an itemized cash register receipt slip and is expected to count the change received. A cash register tape is locked into the register until removed by a supervisor or manager. This tape accumulates the daily transactions and totals. When the tape is removed, the supervisor compares the total with the amount of cash in the register. The tape should show all registered receipts accounted for. The supervisor's findings are reported on a cash count sheet which is signed by both the cashier and supervisor. The cash count sheet used by Alrite Food is shown in Illustration 10-31.

Illustration	10-31
--------------	-------

Cash count sheet

Store No. <u>8</u>	Date March 8, 2004
1. Opening cash balance	\$ 50.00
2. Cash sales per tape (attached)	6,956.20
3. Total cash to be accounted for	7,006.20
4. Cash on hand (see list)	6,996.10
5. Cash (short) or over	\$ (10.10)
6. Ending cash balance	\$ 50.00
7. Cash for deposit (Line 4 – Line 6)	\$6,946.10
Cashier <u>J. Cruse</u>	Supervisor <u>Tr. Braun</u>

The count sheets, register tapes, and cash are then given to the head cashier. This individual prepares a daily cash summary showing the total cash received and the amount from each source, such as cash sales and collections on account. The head cashier sends one copy of the summary to the accounting department for entry into the cash receipts journal. The other copy goes to the treasurer's office for later comparison with the daily bank deposit.

Next, the head cashier prepares a deposit slip (see Illustration 10-34 on page 335) and makes the bank deposit. The total amount deposited should be equal to the total receipts on the daily cash summary. This will ensure that all receipts have been placed in the custody of the bank. In accepting the bank deposit, the bank stamps (authenticates) the duplicate deposit slip and sends it to the company treasurer, who makes the comparison with the daily cash summary.

These measures for cash sales are graphically presented in Illustration 10-32. The activities of the sales department are shown separately from those of the cashier's department to indicate the segregation of duties in handling cash.



Mail Receipts

As an individual customer, you may be more familiar with over-the-counter receipts than with mail receipts. However, mail receipts resulting from billings and credit sales are by far the most common way cash is received by businesses. Think, for example, of the number of checks received through the mail daily by an international company such as **Disney**, **Marriott**, **Hilton**, or **Six Continents**.

All mail receipts should be opened in the presence of two mail clerks. These receipts are generally in the form of checks or money orders. They frequently are accompanied by a remittance advice stating the purpose of the check (sometimes attached to the check, but often a part of the bill that the customer tears off and returns). Each check should be promptly endorsed "For Deposit Only" by use of a company stamp. This **restrictive endorsement** reduces the likelihood that the check will be diverted to personal use. Banks will not give an individual any cash under this type of endorsement.

A list of the checks received each day should be prepared in duplicate. This list shows the name of the issuer of the check, the purpose of the payment, and the amount of the check. Each mail clerk should sign the list to establish responsibility for the data. The original copy of the list, along with the checks and remittance advices, are then sent to the cashier's department. There they are added to over-the-counter receipts (if any) in preparing the daily cash summary and in making the daily bank deposit. Also, a copy of the list is sent to the treasurer's office for comparison with the total mail receipts shown on the daily cash summary. This copy ensures that all mail receipts have been included.

INTERNAL CONTROL OVER CASH DISBURSEMENTS

STUDY OBJECTIVE 12

Explain the applications of internal control principles to cash disbursements.

Illustration 10-33

Application of internal control principles to cash disbursements Cash may be disbursed for a variety of reasons, such as to pay expenses and liabilities, or to purchase assets. **Generally, internal control over cash disbursements is more effective when payments are made by check, rather than by cash.** One exception is for incidental amounts that are paid out of *petty cash*. Payment by check generally occurs only after specified control procedures have been followed. In addition, the "paid" check provides proof of payment. Illustration 10-33 shows how principles of internal control apply to cash disbursements.



Voucher System

Most medium and large companies use vouchers as part of their internal control over cash disbursements. A **voucher system** is a network of approvals by authorized individuals acting independently to ensure that all disbursements by check are proper.

The system begins with the authorization to incur a cost or expense. It ends with the issuance of a check for the liability incurred. A **voucher** is an authorization form prepared for each expenditure. Vouchers are required for all types of cash disbursements except those from petty cash. The voucher generally is prepared in the accounts payable department.

The starting point in preparing a voucher is to fill in the appropriate information about the liability on the face of the voucher. The vendor's invoice provides most of the needed information. Then, the voucher must be recorded (in the journal called a **voucher register**) and filed according to the date on which it is to be paid. A check is sent on that date, the voucher is stamped "paid," and the paid voucher is sent to the accounting department for recording (in a journal called the **check register**). A voucher system involves two journal entries, similar to any accounts payable transaction, one to issue the voucher and a second to pay the voucher.

Electronic Funds Transfer (EFT) System

To account for and control cash is an expensive and time-consuming process. It was estimated recently that the cost to process a check through a bank system ranges from \$0.55 to \$1.00 and is increasing. It is not surprising that new approaches are being developed to transfer funds among parties without the use of paper (deposit tickets, checks, etc.). Such a procedure is called **electronic funds transfer (EFT)**. This disbursement system uses wire, telephone, telegraph, or computer to transfer cash from one location to another. Use of EFT is quite common. For example, the authors receive no formal payroll checks from their universities, which instead send magnetic tapes to the appropriate banks for deposit. Regular payments such as those for house, car, and utilities are frequently made by EFT.

TECHNOLOGY IN ACTION

The development of EFT will continue. Already it is estimated that more than 80 percent of the total volume of bank transactions in the United States is performed using EFT. The computer technology is available to create a "checkless" society. The only major barriers appear to be the individual's concern for privacy and protection and certain legislative constraints. Numerous safeguards have been built into EFT systems and are continuing to improve. However, the possibility of errors and fraud still exists because only a limited number of individuals are involved in the transfers, which may prevent appropriate segregation of duties.

BEFORE YOU GO ON...

REVIEW IT

- 1. How do the principles of internal control apply to cash receipts?
- 2. How do the principles of internal control apply to cash disbursements?

DO IT

L. R. Cortez is concerned about the control over cash receipts in his fast-food restaurant, Big Cheese. The restaurant has two cash registers. At no time do more than two employees take customer orders and ring up sales. Work shifts for employees range from four to eight hours. Cortez asks your help in installing a good system of internal control over cash receipts.

ACTION PLAN

- Differentiate among the internal control principles of (1) establishing responsibility, (2) using electronic controls, and (3) independent internal verification.
- Design an effective system of internal control over cash receipts.
- Design an effective system of internal control over cash receipts.

SOLUTION: Cortez should assign a cash register to each employee at the start of each work shift, with register totals set at zero. Each employee should be instructed to use only the assigned register and to ring up all sales. At the end of each work shift, Cortez or a supervisor/manager should total the register and make a cash count to see whether all cash is accounted for.

Related exercise material: 10-6 and 10-7.



USE OF A BANK

STUDY OBJECTIVE 13

Indicate the control features of a bank account.

The use of a bank contributes significantly to good internal control over cash. A company can safeguard its cash by using a bank as a depository and as a clearing house for checks received and checks written. Use of a bank minimizes the amount of currency that must be kept on hand. Also, the use of a bank facilitates the control of cash because it creates a double record of all bank transactions—one by the business and the other by the bank. The asset account Cash maintained by the depositor is the reciprocal of the bank's liability account for each depositor. It should be possible to *reconcile these accounts* (make them agree) at any time.

Opening a bank checking account is a relatively simple procedure. Typically, the bank makes a credit check on the new customer and the depositor is required to sign a **signature card**. The card contains the signatures of each person authorized to sign checks on the account. The signature card is used by bank employees to validate signatures on the checks.

Soon after an account is opened, the bank provides the depositor with serially numbered checks and deposit slips imprinted with the depositor's name and address. Each check and deposit slip is imprinted with both a bank and a depositor identification number. This number, printed in magnetic ink, permits computer processing of transactions.

Many companies have more than one bank account. For efficiency of operations and better control, national hospitality companies may have regional bank accounts. A company such as **Starwood** with more than 115,000 employees may have a payroll bank account, as well as one or more general bank accounts. Also, a company may maintain several bank accounts in order to have more than one source for short-term loans when needed.

MAKING BANK DEPOSITS

Bank deposits should be made by an authorized employee, such as the head cashier. Each deposit must be documented by a deposit slip (ticket), as shown in Illustration 10-34.

Deposit slips are prepared in duplicate. The original is retained by the bank; the duplicate, machine-stamped by the bank to establish its authenticity, is retained by the depositor.

WRITING CHECKS

A **check** is a written order signed by the depositor directing the bank to pay a specified sum of money to a designated recipient. There are three parties to a check: (1) the **maker** (or drawer) who issues the check; (2) the **bank** (or payer) on which the check is drawn; and (3) the **payee** to whom the check is payable. A



Illustration 10-34

Deposit slip

check is a **negotiable instrument** that can be transferred to another party by endorsement. Each check should be accompanied by an explanation of its purposes. In many businesses, this is done by a remittance advice attached to the check, as shown in Illustration 10-35.



Illustration 10-35

Check with remittance advice

It is important to know the balance in the checking account at all times. To keep the balance current, each deposit and check should be entered on running balance memorandum forms provided by the bank or on the check stubs contained in the checkbook.

ACCOUNTING IN ACTION Susiness Insight

Cash is virtually obsolete. We use debit cards and credit cards to pay for most of our purchases. But debit cards are usable only at specified locations, and credit cards are cumbersome for small transactions. They are no good for transferring cash between individuals or to small companies that don't want to pay credit card fees. Digital cash is the next online wave.

There are many digital-cash companies. One of the most flexible appears to be **PayPal.com.** PayPal has become popular with users of the auction site **eBay**, because it allows them to transfer funds to each other as easily as sending e-mail.

SOURCE: Mathew Ingram, "Will Digital Cash Work This Time?" The Globe and Mail (March 18, 2000), p. N4.

BANK STATEMENTS

HELPFUL HINT

Essentially, the bank statement is a copy of the bank's records sent to the customer for periodic review. Each month, the depositor receives a bank statement from the bank. A **bank statement** shows the depositor's bank transactions and balances. A typical statement is presented in Illustration 10-36. It shows (1) checks paid and other debits that reduce the balance in the depositor's account, (2) deposits and other credits that

Illustration 10-36

Bank statement

National Bank & Trust Midland, Michigan 48654 Member FDIC ACCOUNT W. A. LAIRD COMPANY Statement Date/Credit Line Closing Date 77 WEST CENTRAL AVENUE STATEMENT MIDLAND, MICHIGAN 48654 April 30, 2004 457923 ACCOUNT NUMBER Balance Deposits and Credits Checks and Debits Balance Last Statement This Statement No. Total Amount No. Total Amount 13,256.90 15,907.45 20 34.805.10 26 32.154.55 CHECKS AND DEBITS DEPOSITS AND CREDITS DAILY BALANCE Date No. Amount Date Amount Date Amount 4-2 435 644 95 4-2 4 276 85 4-2 16 888 80 4–5 4–4 436 3.260.00 4 - 32.137.50 4-3 18,249,65 437 1,185.79 4–5 1.350.47 4–4 17.063.86 4–3 438 776.65 4-7 982.46 4–5 15,154.33 4-8 439 1.781.70 4-8 1.320.28 4-7 14,648.89 4-7 4-9 CM 4–8 440 1.487.90 1.035.00 11.767.47 4–8 2,420.00 4-11 2,720.00 4–9 12,802.47 441 4 - 11442 1.585.60 4-12 757.41 4-11 13.936.87 4-12 1.226.00 1.218.56 13.468.28 443 4 - 134-12 4-29 NSF 425.60 4-27 1.545.57 4-27 13 005 45 4 - 29459 1,080.30 4 - 292.929.45 4-29 14.429.00 4-30 30.00 15,907.45 DM 4–30 2,128.60 4-30 4-30 461 620.15 Symbols: CM Credit Memo **EC** Error Correction **NSF** Not Sufficient Funds **Reconcile Your** Account Promptly DM Debit Memo **INT** Interest Earned SC Service Charge

HELPFUL HINT

Every deposit received by the bank is *credited* to the customer's account. The reverse occurs when the bank "pays" a check issued by a company on its checking account balance: Payment reduces the bank's liability. Thus it is *debited* to the customer's account with the bank. increase the balance in the depositor's account, and (3) the account balance after each day's transactions.

All "paid" checks are listed in numerical sequence on the bank statement along with the date the check was paid and its amount. Upon paying a check, the bank stamps the check "paid"; a paid check is sometimes referred to as a **canceled** check. Most banks offer depositors the option of receiving "paid" checks with their bank statements. For those who decline, the bank keeps a record of each check on microfilm.

The bank also includes on the bank statement memoranda explaining other debits and credits made by the bank to the depositor's account.

Debit Memorandum

Banks charge a monthly fee for their services. Often the fee is charged only when the average monthly balance in a checking account falls below a specified amount. The fee, called a **bank service charge**, is identified on the bank statement by a code symbol such as SC. A debit memorandum explaining the charge is included with the bank statement and noted on the statement. Separate debit memoranda may also be issued for other bank services such as the cost of printing checks, issuing traveler's checks, and wiring funds to other locations. The symbol DM is often used for such charges.

A debit memorandum is also used by the bank when a deposited check from a customer "bounces" because of insufficient funds. In such a case, the check is marked NSF (not sufficient funds) by the customer's bank and is returned to the depositor's bank. The bank then debits the depositor's account, as shown by the symbol NSF on the bank statement in Illustration 10-36 (on page 336). The bank sends the **NSF check** and debit memorandum to the depositor as notification of the charge. The NSF check creates an account receivable for the depositor and reduces cash in the bank account.

Credit Memorandum

A depositor may ask the bank to collect its notes receivable. In such a case, the bank will credit the depositor's account for the cash proceeds of the note. This is illustrated on the W. A. Laird Company bank statement by the symbol CM. The bank will issue a credit memorandum, which is sent with the statement to explain the entry. Many banks also offer interest on checking accounts. The interest earned may be indicated on the bank statement by the symbol CM or INT.

RECONCILING THE BANK ACCOUNT

The bank and the depositor maintain independent records of the depositor's checking account. If you've never had a checking account, you might assume that the respective balances will always agree. In fact, the two balances are seldom the same at any given time. It is therefore necessary to make the balance per books agree with the balance per bank—a process called *reconciling the bank account*. The lack of agreement between the two balances is due to:

- 1. **Time lags** that prevent one of the parties from recording the transaction in the same period.
- 2. Errors by either party in recording transactions.

Time lags occur frequently. For example, several days may elapse between the time a check is mailed to a payee and the date the check is paid by the bank.

STUDY OBJECTIVE 14

Prepare a bank reconciliation.



During a class lecture, Mr. Alan E. Gallo, chief financial officer of The Houstonian Hotel, Club & Spa, shared some controls incidents with the students. He mentioned that a hotel received a complaint letter and a laundry bill from a guest. This guest claimed that food was spilled on his wife's dress, and he would like the hotel to pay for the laundry bill of an amount less than \$10. To make the case more convincing, the guest also mentioned that he was a friend of another frequent guest of this establishment. When investigating the matter, the controller called the number on the laundry bill, trying to confirm the incident with the cleaner, and found that the cleaner did not exist. Most people will pay the small bill to take care of the complaint and move on to the next issue. The moral of the story: It is not the amount that matters, it is the principle. Follow set procedures and catch those crooks.

Similarly, when the depositor uses the bank's night depository to make its deposits, there will be a difference of at least one day between the time the receipts are recorded by the depositor and the time they are recorded by the bank. A time lag also occurs whenever the bank mails a debit or credit memorandum to the depositor.

Also, errors sometimes occur. The incidence of errors depends on the effectiveness of the internal controls of the depositor and the bank. Bank errors are infrequent. However, either party could inadvertently record a \$450 check as \$45 or \$540. In addition, the bank might mistakenly charge a check drawn by C. D. Berg to the account of C. D. Burg.

Reconciliation Procedure

To obtain maximum benefit from a bank reconciliation, the reconciliation should be prepared by an employee who has no other responsibilities pertaining to cash. When the internal control principle of independent internal verification is not followed in preparing the reconciliation, cash embezzlements may go unnoticed. For example, a cashier who prepares the reconciliation can embezzle cash and conceal the embezzlement by misstating the reconciliation. Thus, the bank accounts would reconcile, and the embezzlement would not be detected.

In reconciling the bank account, it is customary to reconcile the balance per books and balance per bank to their adjusted (correct or true) cash balances. The reconciliation schedule is divided into two sections. The starting point in preparing the reconciliation is to enter the balance per bank statement and balance per books on the schedule. Adjustments are then made to each section, as shown in Illustration 10-37. Four steps should reveal all the reconciling items that cause the difference between the two balances:

- 1. **Deposits in transit.** Compare the individual deposits on the bank statement with deposits in transit from the preceding bank reconciliation and with the deposits per company records or duplicate deposit slips. Deposits recorded by the depositor that have not been recorded by the bank represent **deposits in transit**. They are added to the balance per bank.
- 2. Outstanding checks. Compare the paid checks shown on the bank statement or the paid checks returned with the bank statement with (a) checks outstanding from the preceding bank reconciliation, and (b) checks issued by the company as recorded in the cash payments journal. Issued checks recorded by the company that have not been paid by the bank represent outstanding checks. They are deducted from the balance per the bank.





- **3.** Errors. Note any errors discovered in the foregoing steps. List them in the appropriate section of the reconciliation schedule. For example, if a paid check correctly written by the company for \$195 was mistakenly recorded by the company for \$159, the error of \$36 is deducted from the balance per books. All errors made by the depositor are reconciling items in determining the adjusted cash balance per books. In contrast, all errors made by the bank are reconciling items in determining the adjusted cash balance per the bank.
- 4. **Bank memoranda.** Trace bank memoranda to the depositor's records. Any unrecorded memoranda should be listed in the appropriate section of the reconciliation schedule. For example, a \$5 debit memorandum for bank service charges is deducted from the balance per books, and \$32 of interest earned is added to the balance per books.

Bank Reconciliation Illustrated

The bank statement for Laird Company was shown in Illustration 10-36. It shows a balance per bank of \$15,907.45 on April 30, 2004. On this date the balance of cash per books is \$11,589.45. From the foregoing steps, the following reconciling items are determined.

 Deposits in transit: April 30 deposit (received by bank on May 1).
 \$2,2 Illustration 10-37

Bank reconciliation procedures

2.	Outstanding checks: No. 453, \$3,000.00; no. 457, \$1,401.30; no. 460, \$1,502.70.	5,904.00
3.	Errors: Check no. 443 was correctly written by Laird for	
	\$1,226.00 and was correctly paid by the bank. However, it was	
	recorded for \$1,262.00 by Laird Company.	36.00
4.	Bank memoranda:	
	a. Debit—NSF check from J. R. Baron for \$425.60	425.60
	b. Debit—Printing company checks charge \$30.00	30.00
	c. Credit—Collection of note receivable for \$1,000 plus interest	
	earned \$50, less bank collection fee \$15.00	1,035.00

The bank reconciliation is shown in Illustration 10-38.

W. A. LAIRD COMPANY Bank Reconciliation April 30, 2004		
Cash balance per bank statement		\$15,907.45
Add: Deposits in transit		2,201.40
		18,108.85
Less: Outstanding checks		
No. 453	\$3,000.00	
No. 457	1,401.30	
No. 460	1,502.70	5,904.00
Adjusted cash balance per bank		\$12,204.85 ←
Cash balance per books		\$11,589.45
Add: Collection of note receivable \$1,000, plus interest		
earned \$50, less collection fee \$15	\$1,035.00	
Error in recording check no. 443	36.00	1,071.00
		12,660.45
Less: NSF check	425.60	
Bank service charge	30.00	455.60
Adjusted cash balance per books		\$12,204.85

Entries from Bank Reconciliation

Each reconciling item in determining the **adjusted cash balance per books** should be recorded by the depositor. If these items are not journalized and posted, the Cash account will not show the correct balance. The entries for W. A. Laird Company on April 30 are as follows.

COLLECTION OF NOTE RECEIVABLE. This entry involves four accounts. Assuming that the interest of \$50 has not been accrued and the collection fee is charged to Miscellaneous Expense, the entry looks like this:

Apr. 30	Cash	1,035.00	
-	Miscellaneous Expense	15.00	
	Notes Receivable		1,000.00
	Interest Revenue		50.00
	(To record collection of notes receivable		
	by bank)		

Illustration 10-38 Bank reconciliation

payments records.

ALTERNATIVE TERMINOLOGY

HELPFUL HINT Note in the bank statement that checks no. 459 and 461 have been paid but check no. 460 is not listed. Thus, this check is outstanding. If a complete bank statement were provided, checks no. 453 and 457 would also not be listed. The amounts for these three checks are obtained from the company's cash

The terms *adjusted balance, true cash balance,* and *correct cash balance* may be used interchangeably.

HELPFUL HINT

The entries that follow are adjusting entries. In prior chapters, Cash was an account that did not require adjustment. That was a simplifying assumption for learning purposes, because a bank reconciliation had not been explained.

A =	L	+	SE
+1,035			-15
-1,000			+50

L + SE

BOOK ERROR. The cash disbursements journal shows that check no. 443 was a payment on account to Andrea Company, a supplier. Now there is a correcting entry:

Apr. 30	Cash Accounts Payable—Andrea Company (To correct error in recording check	36.00	36.00	A +36	=	L +36	+	SE
	no. 443)							

NSF CHECK. As indicated earlier, an NSF check becomes an account receivable to the depositor:

Apr. 30	Accounts Receivable—J. R. Baron	425.60	
	Cash		425.60
	(To record NSF check)		

BANK SERVICE CHARGES. Check printing charges (DM) and other bank service charges (SC) are debited to Miscellaneous Expense. They are usually nominal in amount. The entry looks like this:

Apr. 30	Miscellaneous Expense Cash (To record charge for printing company	30.00	30.00	A = -30	L	+	SE -30
	checks)						

The foregoing four entries could also be combined into one compound entry.

After the entries are posted, the cash account will look like Illustration 10-39.

	С	ash	
Apr. 30 Bal.	11,589.45	Apr. 30	425.60
30	1,035.00	30	30.00
30	36.00		
Apr. 30 Bal.	12,204.85		

Illustration 10-39

A +425.60 -425.60

Adjusted balance in cash account

The adjusted cash balance in the ledger should agree with the adjusted cash balance per books in the bank reconciliation in Illustration 10-38.

What entries does the bank make? If any bank errors are discovered in preparing the reconciliation, the bank should be notified. It then can make the necessary corrections on its records. The bank does not make any entries for deposits in transit or outstanding checks. Only when these items reach the bank will the bank record these items.

BEFORE YOU GO ON...

🕨 REVIEW IT

- **1.** Why is it necessary to reconcile a bank account?
- 2. What steps are involved in the reconciliation procedure?
- 3. What information is included in a bank reconciliation?

🕨 DO IT

Sally Kist owns Linen Kist Fabrics, which supplies fabrics for table linen in hotel and restaurants. Sally asks you to explain how the following reconciling items should be treated in reconciling the bank account: (1) a debit memorandum for an NSF check, (2) a credit memorandum for a note collected by the bank, (3) outstanding checks, and (4) a deposit in transit.

ACTION PLAN

- Understand the purpose of a bank reconciliation.
- Identify time lags and explain how they cause reconciling items.

SOLUTION: In reconciling the bank account, the reconciling items are treated as follows. NSF check: Deducted from balance per books. Collection of note: Added to balance per books.

Outstanding checks: Deducted from balance per bank.

Deposit in transit: Added to balance per bank.

Related exercise material: 10-8 and 10-9.



A LOOK BACK AT OUR FEATURE STORY

Refer back to the Feature Story about **Stephanie's Gourmet Coffee and More** at the beginning of the chapter, and answer the following questions.

- **1.** Does Stephanie Mintenko have a valid basis for establishing responsibility for overages or shortages? Why or why not?
- 2. What internal control principles are applicable to reconciling the cash register tape and the amount of cash in the cash drawer at the end of each shift?
- **3.** What internal control principle is violated by not printing a receipt for each customer who purchases beverages, a meal, or uses the café's computers?
- 4. Do you think cashiers are, or should be, bonded (insured against misappropriation of assets)?
- 5. What adjusting entry would the bookkeeper likely make to record a cash shortage of \$5?

SOLUTION

- 1. Establishing responsibility for overages or shortages occurs twice a day: at the end of the 5:00 P.M. shift, and at closing. This procedure provides a valid basis for evaluation only if one person worked an assigned register since the last reconciliation. Since up to three people work a single register during a shift, there is no valid basis for establishing who is responsible for any overage or shortage.
- 2. Internal control principles are: (a) Authorization—not applicable since cashiers are not assigned to a specific cash register for their shift. (b) Segregation of duties— cashiers (other than the owner/manager) are not involved in performing the reconciliation. (c) Documentation—the cash register tape provides the documentation for total receipts for the shift. (d) Safeguard assets—an electronic cash register is used with an internal tape whose access presumably is restricted. (e) Independent verification—a bookkeeper, in addition to Stephanie Mintenko, performs the reconciliation regularly.
- 3. The principle of documentation procedures is involved. If a customer making a purchase sees that a sale isn't rung up or if the customer doesn't request a receipt, there is a possibility that the transaction has not been recorded. But the internal control does not reside in the receipt itself. The control is forcing the cashier to ring up each sale so that a receipt is produced. Each receipt is recorded on an internal cash register tape. At the end of the day, the tape is used in determining overages or shortages.
- 4. It is doubtful that Stephanie's café would bond part-time employees. From the employer's standpoint, bonding is protection against major embezzlements by dishonest employees. The risk of this occurring in a small café, with the active participation of the owner/manager, is relatively low.
- Cash Over and Short (miscellaneous expense account) Cash

5 THE NAVIGATOR

5



Gerald D. Englehart Steakhouse has the following inventory, purchases, and sales data on its premium individually packaged beef for the month of March.

March 1	200 lbs @ \$4.00	\$ 800
March 10	500 lbs @ \$4.50	2,250
March 20	400 lbs @ \$4.75	1,900
March 30	300 lbs @ \$5.00	1,500
March 15	500 lbs	
March 25	400 lbs	
	March 1 March 10 March 20 March 30 March 15 March 25	March 1200 lbs @ \$4.00March 10500 lbs @ \$4.50March 20400 lbs @ \$4.75March 30300 lbs @ \$5.00March 15500 lbsMarch 25400 lbs

The physical inventory count on March 31 shows 500 pounds on hand.

Instructions

Under a *periodic inventory system*, determine the cost of inventory on hand at March 31 and the cost of goods sold for March under the (a) first-in, first-out (FIFO) method, (b) last-in, first-out (LIFO) method, and (c) average cost method.

SOLUTION TO DEMONSTRATION PROBLEM 1

The cost of goods available for sale is \$6,450, as follows.

Inventory:		200 lbs @	\$4.00	\$ 800
Purchases:				
	March 10	500 lbs @	\$4.50	2,250
	March 20	400 lbs @	\$4.75	1,900
	March 30	300 lbs @	\$5.00	1,500
Total cost	of goods availal	ole for sale		\$6,450

Under a *periodic inventory system*, the cost of goods sold under each cost flow method is as follows.

FIFO Method

Ending inventory:

		Unit	Total	
Date	Units	Cost	Cost	
March 30	300	\$5.00	\$1,500	
March 20	200	4.75	950	\$2,450
	Cost of good	ls sold: \$6,4	50 - \$2,450	= \$4,000

LIFO Method

Ending inventory:

Date	Units	Unit Cost	Total Cost	
March 1	200	\$4.00	\$ 800	
March 10	300	4.50	1,350	\$2,150

Cost of goods sold: \$6,450 - \$2,150 = \$4,300

Weighted-Average Cost Method

 Weighted-average unit cost: $$6,450 \div 1,400 = 4.607

 Ending inventory: $500 \times $4.607 =$

 \$2,303.50

Cost of goods sold: \$6,450 - \$2,303.50 = \$4,146.50

ACTION PLAN

- Compute the cost of inventory under the periodic FIFO method by allocating to the units on hand the *latest costs*.
- Compute the cost of inventory under the periodic LIFO method by allocating to the units on hand the *earliest costs*.
- Compute the cost of inventory under the periodic average cost method by allocating to the units on hand a *weighted-average cost*.



DEMONSTRATION PROBLEM 2

Trillo Beds and Mattresses sells beddings to resort and lodging operations. Its bank statement for May 2004 shows the following data.

Balance 5/1	\$12,650	Balance 5/31	\$14,280
Debit memorandum:		Credit memorandum:	
NSF check	\$175	Collection of note receivable	\$505

The cash balance per books at May 31 is \$13,319. Your review of the data reveals the following.

- 1. The NSF check was from Hup Hotel Co., a customer.
- **2.** The note collected by the bank was a \$500, three-month, 12 percent note. The bank charged a \$10 collection fee. No interest has been accrued.
- 3. Outstanding checks at May 31 total \$2,410.
- 4. Deposits in transit at May 31 total \$1,752.
- **5.** A Trillo check for \$352 dated May 10 cleared the bank on May 25. This check, which was a payment on account, was journalized for \$325.

TRILLO BEDS AND MATTRESSES

Bank Reconciliation May 31, 2004

\$14,280

Instructions

(a)

(a) Prepare a bank reconciliation at May 31.

Cash balance per bank statement

(b) Journalize the entries required by the reconciliation.

SOLUTION TO DEMONSTRATION PROBLEM 2

(To correct error in recording check)

• Follow the four steps in	
the reconciliation proce-	
dure. (p. 338).	

ACTION PLAN

- Work carefully to minimize mathematical errors in the reconciliation.
- Prepare adjusting entries from reconciling items per books.
- Make sure the cash ledger balance after posting the reconciling entries agrees with the adjusted cash balance per books.



Add: De	posits in transit		1,752
			16,032
Less: Ou	tstanding checks		2,410
Adjusted	cash balance per bank		\$13,622
Cash bal	ance per books		\$13,319
Add: Co	llection of note receivable \$500, plus \$15 interest, less		
С	ollection fee \$10		505
			13,824
Less: NS	F check	\$175	,
Err	or in recording check	27	202
Adjusted	cash balance per books		\$13,622
(b)		I I	
May 31	Cash	505	
·	Miscellaneous Expense	10	
	Notes Receivable		500
	Interest Revenue		15
	(To record collection of note by bank)		
31	Accounts Receivable—Hup Hotel Co.	175	
	Cash		175
	(To record NSF check from Hup Hotel Co.)		
31	Accounts Payable	27	
	Cash		27

SUMMARY OF STUDY OBJECTIVES

1. *Describe the steps in determining inventory quantities.* The steps in determining inventory quantities are (1) taking a physical inventory of goods on hand and (2) determining the ownership of goods in transit.

2. Prepare the entries for purchases and sales of inventory under a periodic inventory system. In recording purchases, entries are required for (a) cash and credit purchases, (b) purchase returns and allowances, (c) purchase discounts, and (d) freight costs. In recording sales, entries are required for (a) cash and credit sales, (b) sales returns and allowances, and (c) sales discounts.

3. Determine cost of goods sold under a periodic inventory system. The steps in determining cost of goods sold are (a) record the purchases of merchandise, (b) determine the cost of goods purchased, and (c) determine the cost of goods on hand at the beginning and end of the accounting period.

4. *Identify the unique features of the income statement for a merchandiser using a periodic inventory system.* The income statement for a merchandiser contains three sections: sales revenue, cost of goods sold, and operating expenses. The cost of goods sold section under a periodic inventory system generally reports beginning and ending inventory, cost of goods purchased, and cost of goods available for sale.

5. *Explain the basis of accounting for inventories, and describe the inventory cost flow methods.* The primary basis of accounting for inventories is cost. Cost includes all expenditures necessary to acquire goods and to make them ready for sale. Inventoriable costs include (1) the cost of beginning inventory and (2) the cost of goods purchased. The inventory cost flow methods are: specific identification, FIFO, LIFO, and average cost.

6. Explain the financial statement and tax effects of each of the inventory cost flow methods. The cost of goods available for sale may be allocated to cost of goods sold and ending inventory by specific identification or by a method based on an assumed cost flow. These methods have different effects on financial statements during periods of changing prices. When prices are rising, FIFO results in lower cost of goods sold and higher net income than the average cost and the LIFO methods. LIFO results in the lowest income taxes (because of lower net income). In the balance sheet, FIFO results in an ending inventory that is closest to current value. The inventory under LIFO is the farthest from current value.

7. Indicate the effects of inventory errors on the financial statements. In the income statement of the current year: (a) An error in beginning inventory will have a reverse effect on net income (overstatement of inventory results in understatement of net income); and (b) an error in ending inventory will have a similar effect on net income (overstatement of inventory results in overstatement of net income). If ending inventory errors are not corrected in the next period, their effect on net income for that period is reversed, and total net income for the two years will be correct. In the balance sheet, ending inventory errors will have the same effect on total assets and total stockholders' equity and no effect on liabilities.

8. Compute and interpret inventory turnover. Inventory turnover is calculated as cost of goods sold divided by average inventory. It can be converted to average days in inventory by dividing 365 days by the inventory turnover ratio. A higher turnover or lower average days in inventory suggests that management is trying to keep inventory levels low relative to sales.

9. *Define internal control.* Internal control is the plan of organization and related methods and procedures adopted within a business to safeguard its assets and to enhance the accuracy and reliability of its accounting records.

10. *Identify the principles of internal control.* The principles of internal control are: establishment of responsibility; segregation of duties; documentation procedures; physical, mechanical, and electronic controls; independent internal verification; and other controls.

11. *Explain the applications of internal control principles to cash receipts.* Internal controls over cash receipts include: (a) designating only personnel such as cashiers to handle cash; (b) assigning the duties of receiving cash, recording cash, and custody of cash to different individuals; (c) obtaining remittance advices for mail receipts, cash register tapes for over-the-counter receipts, and deposit slips for bank deposits; (d) using company safes and bank vaults to store cash with access limited to authorized personnel, and using cash registers in executing over-the-counter receipts; (e) making independent daily counts of register receipts and daily comparisons of to-tal receipts with total deposits; and (f) bonding personnel that handle cash and requiring them to take vacations.

12. Explain the applications of internal control principles to cash disbursements. Internal controls over cash disbursements include: (a) having only specified individuals such as the treasurer authorized to sign checks; (b) assigning the duties of approving items for payment, paying the items, and recording the payment to different individuals; (c) using prenumbered checks and accounting for all checks, with each check supported by an approved invoice; (d) storing blank checks in a safe or vault with access restricted to authorized personnel, and using a checkwriter to imprint amounts on checks; (e) comparing each check with the approved invoice before issuing the check, and making monthly reconciliations of bank and book balances; and (f) after payment, stamping each approved invoice "paid."

13. *Indicate the control features of a bank account.* A bank account contributes to good internal control by providing physical controls for the storage of cash. It minimizes the amount of currency that must be kept on hand, and it creates a double record of a depositor's bank transactions.

14. *Prepare a bank reconciliation.* It is customary to reconcile the balance per books and balance per bank to their adjusted balances. The steps in determining the reconciling items are to ascertain deposits in transit, outstanding checks, errors

by the depositor or the bank, and unrecorded bank memoranda.



GLOSSARY

- **Average cost method** Inventory costing method that assumes that the goods available for sale have the same (average) cost per unit; generally the goods are identical (p. 315).
- **Bank service charge** A fee charged by a bank for the use of its services (p. 337).
- **Bank statement** A statement received monthly from the bank that shows the depositor's bank transactions and balances (p. 336).
- **Cash** Resources that consist of coins, currency, checks, money orders, and money on hand or on deposit in a bank or similar depository (p. 329).
- **Check** A written order signed by the depositor directing the bank to pay a specified sum of money to a designated recipient (p. 334).
- **Cost of goods available for sale** The sum of the beginning merchandise inventory plus the cost of goods purchased (p. 307).
- **Cost of goods purchased** The sum of net purchases plus freight-in (p. 307).
- **Cost of goods sold** The total cost of merchandise sold during the period, determined by subtracting ending inventory from the cost of goods available for sale (p. 307).
- **Deposits in transit** Deposits recorded by the depositor that have not been recorded by the bank (p. 338).
- **Electronic funds transfer (EFT)** A disbursement system that uses wire, telephone, telegraph, or computer to transfer cash from one location to another (p. 333).
- **First-in, first-out (FIFO) method** Inventory costing method that assumes that the costs of the earliest goods acquired are the first to be recognized as cost of goods sold (p. 313).
- **Internal auditors** Company employees who evaluate on a continuous basis the effectiveness of the company's system of internal control. (p. 327).
- **Internal control** The plan of organization and all the related methods and measures adopted within a business to safeguard its assets and enhance the accuracy and reliability of its accounting records (p. 322).

- **Inventoriable costs** All expenditures needed to acquire goods and to make them ready for sale. The pool of costs that consists of two elements: (1) the cost of the beginning inventory and (2) the cost of goods purchased during the period (p. 311).
- **Inventory turnover** A measure of the number of times on average the inventory is sold during the period; computed by dividing cost of goods sold by the average inventory during the period (p. 321).
- **Last-in, first-out (LIFO) method** Inventory costing method that assumes that the costs of the latest units purchased are the first to be allocated to cost of goods sold (p. 314).
- **Net purchases** Purchases less purchase returns and allowances and purchase discounts (p. 307).
- **NSF check** A check that is not paid by a bank because of insufficient funds in a customer's bank account (p. 337).
- **Outstanding checks** Checks issued and recorded by a company that have not been paid by the bank (p. 338).
- **Periodic inventory system** An inventory system in which inventoriable costs are allocated to ending inventory and cost of goods sold at the end of the period. Cost of goods sold is computed at the end of the period by subtracting the ending inventory (costs are assigned based on a physical count of items on hand) from the cost of goods available for sale (p. 304).
- **Segregation of duties** A separation of functions or division of work so as to provide a reliable basis of evaluating the work of each employee (p. 324).
- **Specific identification method** An actual, physical flow inventory costing method in which items still in inventory are specifically costed to arrive at the total cost of the ending inventory (p. 312).
- **Voucher** An authorization form prepared for each payment by check in a voucher system (p. 333).
- **Voucher system** A network of approvals by authorized individuals acting independently to ensure that all disbursements by check are proper (p. 332).

Exercises

Identify items to be included in taking a physical inventory. (SO 1)

10-1 Fantasia Souvenir Company identifies the following items for possible inclusion in the taking of a physical inventory. Indicate whether each item should be included or excluded from the inventory taking.

- (a) Goods in transit from a supplier shipped FOB destination.
- (b) Goods sold but being held for customer pickup.

Compute ending inventory us-
ing FIFO, LIFO, and average10-2
in the
sumin
FIFO(SO 5)FIFO

10-2 In its first month of operations, Manion Candies made three purchases of merchandise in the following sequence: (1) 300 units at \$6, (2) 400 units at \$7, and (3) 300 units at \$8. Assuming there are 450 units on hand, compute the cost of the ending inventory under the (a) FIFO method, (b) LIFO method. Manion uses a periodic inventory system, (c) compute the cost of the ending inventory under the average cost method, assuming there are 450 units on hand.

Exercises 347

10-3 At December 31, 2004, the following information was available for Sherrick Hotel: ending inventory \$80,000, beginning inventory \$60,000, cost of goods sold \$280,000, and sales revenue \$380,000. Calculate inventory turnover and days in inventory for B. Sherrick Company.

10-4 Rome Restaurants, Inc. reports net income of \$90,000 in 2004. However, ending inventory was understated \$5,000. What is the correct net income for 2004? What effect, if any, will this error have on total assets as reported in the balance sheet at December 31, 2004?

10-5 Jackie Bennett is the owner of Bennett's Pizza. Bennett's is operated strictly on a carryout basis. Customers pick up their orders at a counter where a clerk exchanges the pizza for cash. While at the counter, the customer can see other employees making the pizzas and the large ovens in which the pizzas are baked.

Instructions

Identify the six principles of internal control and give an example of each principle that you might observe when picking up your pizza. (*Note:* It may not be possible to observe all the principles.)

10-6 The following internal control procedures are used at Sheridan Bakery for over-the-counter cash receipts.

- **1.** To minimize the risk of robbery, cash in excess of \$100 is stored in an unlocked attaché case in the stock room until it is deposited in the bank.
- 2. All over-the-counter receipts are registered by three clerks who use a cash register with a single cash drawer.
- 3. The company accountant makes the bank deposit and then records the day's receipts.
- **4.** At the end of each day, the total receipts are counted by the cashier on duty and reconciled to the cash register total.
- 5. Cashiers are experienced; they are not bonded.

Instructions

- (a) For each procedure, explain the weakness in internal control, and identify the internal control principle that is violated.
- (b) For each weakness, suggest a change in procedure that will result in good internal control.

10-7 The following internal control procedures are used in Erin's Coffee House for cash disbursements.

- **1.** The company accountant prepares the bank reconciliation and reports any discrepancies to the owner.
- 2. The store manager personally approves all payments before signing and issuing checks.
- **3.** Each week, Erin leaves 100 company checks in an unmarked envelope on a shelf behind the cash register.
- 4. After payment, bills are filed in a paid invoice folder.
- 5. The company checks are unnumbered.

Instructions

- (a) For each procedure, explain the weakness in internal control, and identify the internal control principle that is violated.
- (b) For each weakness, suggest a change in the procedure that will result in good internal control.

10-8 Cindy, a new owner of a Chinese restaurant, is unable to reconcile the bank balance at January 31. Cindy's reconciliation is as follows.

Cash balance per bank	\$3,660.20
Add: NSF check	630.00
Less: Bank service charge	25.00
Adjusted balance per bank	\$4,265.20
Cash balance per books	\$3,875.20
Less: Deposits in transit	490.00
Add: Outstanding checks	930.00
Adjusted balance per books	\$4,315.20

Compute inventory turnover and days in inventory. (SO 9)

Determine correct income statement amounts. (SO 8)

Identify the principles of internal control. (SO 10)

Identify internal control weaknesses over cash receipts and suggest improvements. (SO 10, 11)

Identify internal control weaknesses over cash disbursements and suggest improvements. (SO 10, 12)

Prepare bank reconciliation and adjusting entries. (SO 14)

Instructions

(a) Prepare a correct bank reconciliation.

(b) Journalize the entries required by the reconciliation.

Determine outstanding checks. (SO 14)

10-9 On April 30, the bank reconciliation of Hinckley Resorts shows three outstanding checks: no. 254, \$650, no. 255, \$720, and no. 257, \$410. The May bank statement and the May cash payments journal show the following.

Bank Statement			Cash Payments Journal		
Checks Paid			Checks Issued		
Date	Check No.	Amount	Date	Check No.	Amount
5/4	254	650	5/2	258	159
5/2	257	410	5/5	259	275
5/17	258	159	5/10	260	925
5/12	259	275	5/15	261	500
5/20	261	500	5/22	262	750
5/29	263	480	5/24	263	480
5/30	262	750	5/29	264	560

Instructions

Using step 2 in the reconciliation procedure, list the outstanding checks at May 31.

10-10 Mexican Fare, a 50-year-old Mexican restaurant, recently changed its system of internal control over cash disbursements. The system includes the following features.

Instead of being unnumbered and manually prepared, all checks must now be prenumbered and written by using the new checkwriter purchased by the company. Before a check can be issued, each invoice must have the approval of Norma Hanson, the purchasing agent, and John Countryman, the controller department supervisor. Checks must be signed by either Linda Anderson, the treasurer, or Bob Skabo, the assistant controller. Before signing a check, the signer is expected to compare the amount of the check with the amount on the invoice.

After signing a check, the signer stamps the invoice PAID and inserts within the stamp, the date, check number, and amount of the check. The "paid" invoice is then sent to the accounting department for recording.

Blank checks are stored in a safe in the treasurer's office. The combination to the safe is known only by the treasurer and assistant treasurer. Each month, the bank statement is reconciled with the cash balance per books by the assistant chief accountant.

Instructions

Identify the internal control principles and their application to cash disbursements of Mexican Fare.

EXPLORING THE WEB

10-11 All organizations should have systems of internal control. Universities are no exception. This site discusses the basics of internal control in a university setting.

Address: www.bc.edu/bc_org/fvp/ia/ic/intro.html

Steps: Go the site shown above.

Instructions

The front page of this site provides links to pages that answer six critical questions. Use these links to answer the following questions.

- (a) In a university setting who has responsibility for evaluating the adequacy of the system of internal control?
- (b) What do reconciliations ensure in the university setting? Who should review the reconciliation?
- (c) What are some examples of physical controls?
- (d) What are two ways to accomplish inventory counts?

Identify internal control principles over cash disbursements. (SO 10, 12) **10-12** A company's annual report usually will identify the inventory method used. Knowing that, you can analyze the effects of the inventory method on the income statement and balance sheet.

Address: www.darden.com

Steps

- 1. From Darden Restaurants' homepage, choose the Numbers.
- 2. Choose Financial Information.
- 3. Choose Annual Report & Financials.
- 4. Choose Annual Report 2002—HTML version.
- 5. Click on Financial Highlights under the Table of Contents.

Instructions

Answer the following questions based on the 2002 Annual Report.

- (a) At Darden's fiscal year-end, what was the net inventory on the balance sheet?
- (b) How has this changed from the previous fiscal year-end?
- (c) What inventory method does Darden use?

ETHICS CASE

10-13 J.K. Leask Wholesale Corp. uses the LIFO method of inventory costing. In the current year, profit at J.K. Leask is running unusually high. The corporate tax rate is also high this year, but it is scheduled to decline significantly next year. In an effort to lower the current year's net income and to take advantage of the changing income tax rate, the president of J.K. Leask Wholesale instructs the accountant to recommend to the purchasing department a large purchase of inventory for delivery three days before the end of the year. The price of the inventory to be purchased has doubled during the year, and the purchase will represent a major portion of the ending inventory value.

Instructions

- (a) What is the effect of this transaction on this year's and next year's income statement and income tax expense? Why?
- (b) If J.K. Leask Wholesale had been using the FIFO method of inventory costing, would the president give the same directive?
- (c) Should the plant accountant order the inventory purchase to lower income? What are the ethical implications of this order?