

CHAPTER 1

Management Accounting and Corporate Governance

LEARNING OBJECTIVES

After you have mastered the material in this chapter, you will be able to:

- 1 Distinguish between managerial and financial accounting.
- 2 Identify the cost components of a product made by a manufacturing company: the cost of materials, labor, and overhead.
- 3 Explain the effects on financial statements of product costs versus general, selling, and administrative costs.
- 4 Distinguish product costs from upstream and downstream costs.
- 5 Explain how product costing differs in service, merchandising, and manufacturing companies.
- 6 Show how just-in-time inventory can increase profitability.
- 7 Identify the key components of corporate governance.
- 8 Identify emerging trends in accounting (Appendix A).

CHAPTER OPENING

Andy Grove, Senior Advisor to Executive Management of **Intel Corporation**, is credited with the motto “Only the paranoid survive.” Mr. Grove describes a wide variety of concerns that make him paranoid. Specifically, he declares:

I worry about products getting screwed up, and I worry about products getting introduced prematurely. I worry about factories not performing well, and I worry about having too many factories. I worry about hiring the right people, and I worry about morale slacking off. And, of course, I worry about competitors. I worry about other people figuring out how to do what we do better or cheaper, and displacing us with our customers.

Do Intel’s historically-based financial statements contain the information Mr. Grove needs? No. **Financial accounting** is not designed to satisfy all the information needs of business managers. Its scope is limited to the needs of external users such as investors and creditors. The field of accounting designed to meet the needs of internal users is called **managerial accounting**.

The Curious Accountant

In the first course of accounting, you learned how retailers, such as **Sears**, account for the cost of equipment that lasts more than one year. Recall that the equipment was recorded as an asset when purchased, and then it was depreciated over its expected useful life. The depreciation charge reduced the company's assets and increased its expenses. This approach was justified under the matching principle, which seeks to recognize costs as expenses in the same period that the cost (resource) is used to generate revenue.

Is depreciation always shown as an expense on the income statement? The answer may surprise you. Consider the following scenario. **Schwinn** manufactures the bicycles that it sells to Sears. In order to produce the bicycles, Schwinn had to purchase a robotic machine that it expects can be used to produce 50,000 bicycles.

Do you think Schwinn should account for depreciation on its manufacturing equipment the same way Sears accounts for depreciation on its registers at the checkout counters? If not, how should Schwinn account for its depreciation? Remember the matching principle when thinking of your answer. (Answer on page 12.)



DIFFERENCES BETWEEN MANAGERIAL AND FINANCIAL ACCOUNTING

LO 1

Distinguish between managerial and financial accounting.

While the information needs of internal and external users overlap, the needs of managers generally differ from those of investors or creditors. Some distinguishing characteristics are discussed in the following section.

Users and Types of Information

Financial accounting provides information used primarily by investors, creditors, and others *outside* a business. In contrast, managerial accounting focuses on information used by executives, managers, and employees who work *inside* the business. These two user groups need different types of information.

Internal users need information to *plan, direct, and control* business operations. The nature of information needed is related to an employee's job level. Lower level employees use nonfinancial information such as work schedules, store hours, and customer service policies. Moving up the organizational ladder, financial information becomes increasingly important. Middle managers use a blend of financial and nonfinancial information, while senior executives concentrate on financial data. To a lesser degree, senior executives also use general economic data and nonfinancial operating information. For example, an executive may consider the growth rate of the economy before deciding to expand the company's workforce.

External users (investors and creditors) have greater needs for general economic information than do internal users. For example, an investor debating whether to purchase stock versus bond securities might be more interested in government tax policy than financial statement data. Exhibit 1.1 summarizes the information needs of different user groups.

Level of Aggregation

External users generally desire *global information* that reflects the performance of a company as a whole. For example, an investor is not so much interested in the performance of a particular Sears store as she is in the performance of **Sears Roebuck Company** versus that of **JC Penney Company**. In contrast, internal users focus on detailed information about specific subunits of the company. To meet the needs of the different user groups, financial accounting data are more aggregated than managerial accounting data.

EXHIBIT 1.1

Relationship Between Type of User and Type of Information

	Economic data	Financial data	Nonfinancial data
Outsiders	Investors and creditors		
Insiders		Senior executives	
			Middle managers
			Operating employees

Regulation

Financial accounting is designed to generate information for the general public. In an effort to protect the public interest, Congress established the **Securities and Exchange Commission (SEC)** and gave it authority to regulate public financial reporting practices. The SEC has delegated much of its authority for developing accounting rules to the private sector **Financial Accounting Standards Board (FASB)**, thereby allowing the accounting profession considerable influence over financial accounting reports. The FASB supports a broad base of pronouncements and practices known as **generally accepted accounting principles (GAAP)**. GAAP severely restricts the accounting procedures and practices permitted in published financial statements.



Beyond financial statement data, much of the information generated by management accounting systems is proprietary information not available to the public. Since this information is not distributed to the public, it need not be regulated to protect the public interest. Management accounting is restricted only by the **value-added principle**. Management accountants are free to engage in any information gathering and reporting activity so long as the activity adds value in excess of its cost. For example, management accountants are free to provide forecasted information to internal users. In contrast, financial accounting as prescribed by GAAP does not permit forecasting.

Information Characteristics

While financial accounting is characterized by its objectivity, reliability, consistency, and historical nature, managerial accounting is more concerned with relevance and timeliness. Managerial accounting uses more estimates and fewer facts than financial accounting. Financial accounting reports what happened yesterday; managerial accounting reports what is expected to happen tomorrow.

Time Horizon and Reporting Frequency

Financial accounting information is reported periodically, normally at the end of a year. Management cannot wait until the end of the year to discover problems. Planning, controlling, and directing require immediate attention. Managerial accounting information is delivered on a continuous basis.

Exhibit 1.2 summarizes significant differences between financial and managerial accounting.

PRODUCT COSTING IN MANUFACTURING COMPANIES

A major focus for managerial accountants is determining **product cost**.¹ Managers need to know the cost of their products for a variety of reasons. For example, **cost-plus pricing** is a common business practice.² **Product costing** is also used to control business operations. It is useful in answering questions such as: Are costs higher or lower than expected? Who is responsible for the variances between expected and actual costs? What actions can be taken to control the variances?

LO 2

Identify the cost components of a product made by a manufacturing company: the cost of materials, labor, and overhead.

Components of Product Cost

A company normally incurs three types of costs when making products. Specifically, the company must pay for (1) the **materials** used to make the products, (2) the **labor**

¹This text uses the term *product* in a generic sense to mean both goods and services.

²Other pricing strategies will be introduced in subsequent chapters.

EXHIBIT 1.2**Comparative Features of Managerial versus Financial Accounting Information**

Features	Managerial Accounting	Financial Accounting
Users	Insiders including executives, managers, and operators	Outsiders including investors, creditors, government agencies, analysts, and reporters
Information type	Economic and physical data as well as financial data	Financial data
Level of aggregation	Local information on subunits of the organization	Global information on the company as a whole
Regulation	No regulation, limited only by the value-added principle	Regulation by SEC, FASB, and other determiners of GAAP
Information characteristics	Estimates that promote relevance and enable timeliness	Factual information that is characterized by objectivity, reliability, consistency, and accuracy
Time horizon	Past, present, and future	Past only, historically based
Reporting frequency	Continuous reporting	Delayed with emphasis on annual reports

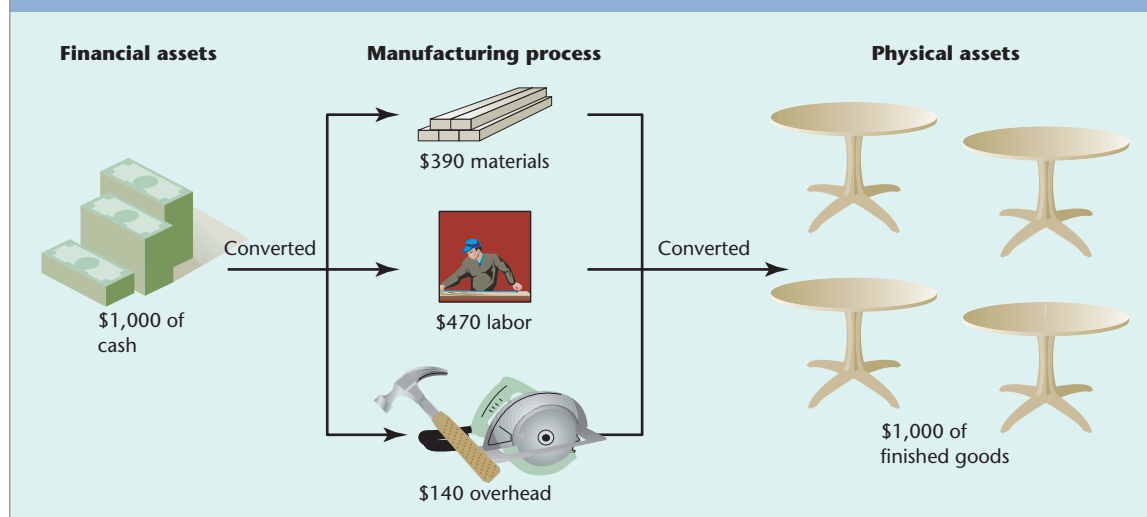
expended by the employees who transform the materials into products, and (3) the *overhead* (other resources such as utilities and equipment consumed in the process of making the products). If the company stores its products, the costs of the materials, labor, and overhead used in making the products are maintained in an inventory account until the products are sold. For a detailed explanation of how product costs flow through the financial statements, refer to the following example of Tabor Manufacturing Company.

Tabor Manufacturing Company

Tabor Manufacturing Company makes wooden tables. The company spent \$1,000 cash to build four tables: \$390 for materials, \$470 for a carpenter's labor, and \$140 for tools used in making the tables. How much is Tabor's expense? The answer is zero. The \$1,000 cash has been converted into products (four tables). The cash payments for materials, labor, and tools (overhead) were *asset exchange* transactions. One asset (cash) decreased while another asset (tables) increased. Tabor will not recognize any expense until the tables are sold; in the meantime, the cost of the tables is held in an asset account called **Finished Goods Inventory**. Exhibit 1.3 illustrates how cash is transformed into inventory.

Average Cost per Unit

How much did each table made by Tabor cost? The *actual* cost of each of the four tables likely differs. The carpenter probably spent a little more time on some of the tables than others. Material and tool usage probably varied from table to table. Determining the exact cost of each table is virtually impossible. Minute details such as a second of labor time cannot be effectively measured. Even if Tabor could determine the exact cost of each table, the information would be of little use. Minor differences in the cost per table would make no difference in pricing or other decisions management needs to make. Accountants therefore normally calculate cost per unit as an *average*. In the case of Tabor Manufacturing, the **average cost** per table is \$250 ($\$1,000 \div 4$ units). Unless otherwise stated, assume *cost per unit* means *average cost per unit*.

EXHIBIT 1.3**Transforming the Asset Cash Into the Asset Finished Goods Inventory****CHECK YOURSELF 1.1**

All boxes of **General Mills** Total Raisin Bran cereal are priced at exactly the same amount in your local grocery store. Does this mean that the actual cost of making each box of cereal was exactly the same?

Answer No, making each box would not cost exactly the same amount. For example, some boxes contain slightly more or less cereal than other boxes. Accordingly, some boxes cost slightly more or less to make than others do. General Mills uses average cost rather than actual cost to develop its pricing strategy.

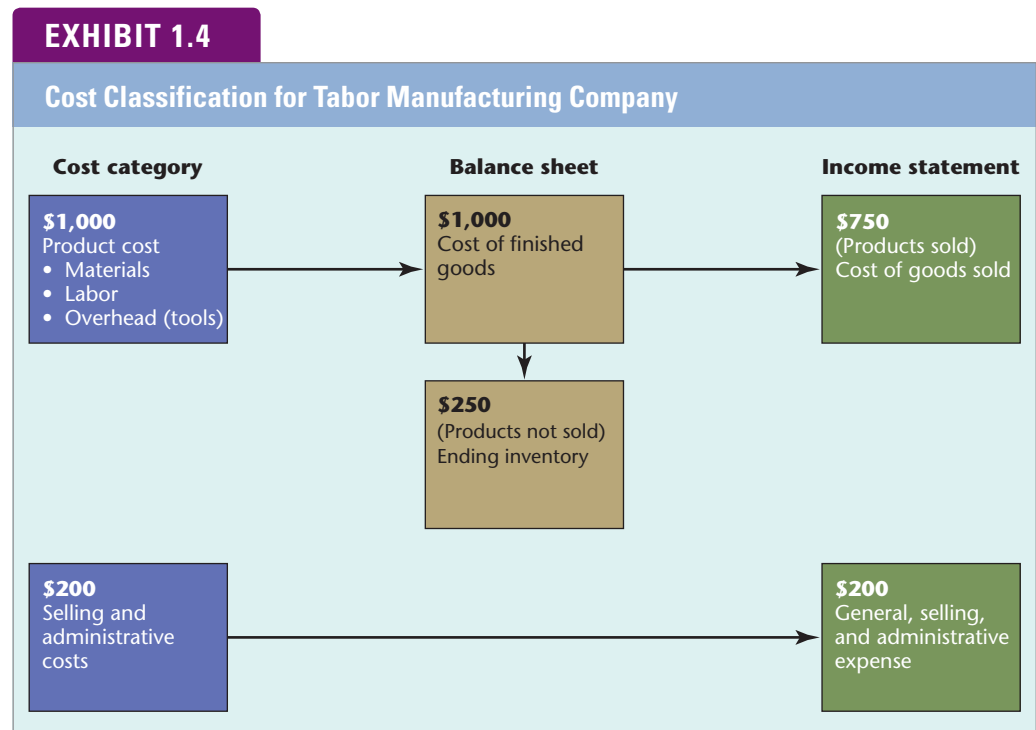
Costs Can Be Assets or Expenses

It might seem odd that wages paid to production workers are recorded as inventory instead of being expensed. Remember, however, that expenses are assets used in the process of *earning revenue*. The cash paid to production workers is not used to produce revenue. Instead, the cash is used to produce inventory. Revenue will be earned when the inventory is used (sold). So long as the inventory remains on hand, all product costs (materials, labor, and overhead) remain in an inventory account.

When a table is sold, the average cost of the table is transferred from the Inventory account to the Cost of Goods Sold (expense) account. If some tables remain unsold at the end of the accounting period, part of the *product costs* is reported as an asset (inventory) on the balance sheet while the other part is reported as an expense (cost of goods sold) on the income statement.

Costs that are not classified as product costs are normally expensed in the period in which they are incurred. These costs include *general operating costs*, *selling and administrative costs*, *interest costs*, and the *cost of income taxes*.

To illustrate, return to the Tabor Manufacturing example. Recall that Tabor made four tables at an average cost per unit of \$250. Assume Tabor pays an employee who sells three of the tables a \$200 sales commission. The sales commission is expensed immediately. The total product cost for the three tables (3 tables \times \$250 each = \$750) is expensed on the income statement as cost of goods sold. The portion of the total



product cost remaining in inventory is \$250 (1 table \times \$250). Exhibit 1.4 shows the relationship between the costs incurred and the expenses recognized for Tabor Manufacturing Company.

LO 3

Explain the effects on financial statements of product costs versus general, selling, and administrative costs.



Effect of Product Costs on Financial Statements

We illustrate accounting for product costs in manufacturing companies with Patillo Manufacturing Company, a producer of ceramic pottery. Patillo, started on January 1, 2013, experienced the following accounting events during its first year of operations.³ Assume that all transactions except 6, 8, and 10 are cash transactions.

1. Acquired \$15,000 cash by issuing common stock.
2. Paid \$2,000 for materials that were used to make products. All products started were completed during the period.
3. Paid \$1,200 for salaries of selling and administrative employees.
4. Paid \$3,000 for wages of production workers.
5. Paid \$2,800 for furniture used in selling and administrative offices.
6. Recognized depreciation on the office furniture purchased in Event 5. The furniture was acquired on January 1, had a \$400 estimated salvage value, and a four-year useful life. The annual depreciation charge is \$600 $[(\$2,800 - \$400) \div 4]$.
7. Paid \$4,500 for manufacturing equipment.
8. Recognized depreciation on the equipment purchased in Event 7. The equipment was acquired on January 1, had a \$1,500 estimated salvage value, and a three-year useful life. The annual depreciation charge is \$1,000 $[(\$4,500 - \$1,500) \div 3]$.
9. Sold inventory to customers for \$7,500 cash.
10. The inventory sold in Event 9 cost \$4,000 to make.

³This illustration assumes that all inventory started during the period was completed during the period. Patillo therefore uses only one inventory account, Finished Goods Inventory. Many manufacturing companies normally have three categories of inventory on hand at the end of an accounting period: Raw Materials Inventory, Work in Process Inventory (inventory of partially completed units), and Finished Goods Inventory. Chapter 11 discusses these inventories in greater detail.

EXHIBIT 1.5**Effect of Product versus Selling and Administrative Costs on Financial Statements**

Event No.	Assets						Equity		Rev.	-	Exp.	=	Net Inc.
	Cash	+	Inventory	+	Office Furn.*	+	Manuf. Equip.*	=					
1	15,000						=	15,000					
2	(2,000)	+	2,000										
3	(1,200)						=			(1,200)		-	1,200 = (1,200)
4	(3,000)	+	3,000										
5	(2,800)	+			2,800								
6					(600)		=			(600)		-	600 = (600)
7	(4,500)	+				4,500							
8			1,000	+		(1,000)							
9	7,500						=			7,500			7,500 = 7,500
10			(4,000)				=			(4,000)		-	4,000 = (4,000)
Totals	9,000	+	2,000	+	2,200	+	3,500	=	15,000	+	1,700		7,500 - 5,800 = 1,700

*Negative amounts in these columns represent accumulated depreciation.

The effects of these transactions on the balance sheet and income statement are shown in Exhibit 1.5. Study each row in this exhibit, paying particular attention to how similar costs such as salaries for selling and administrative personnel and wages for production workers have radically different effects on the financial statements. The example illustrates the three elements of product costs, materials (Event 2), labor (Event 4), and overhead (Event 8). These events are discussed in more detail below.

Materials Costs (Event 2)

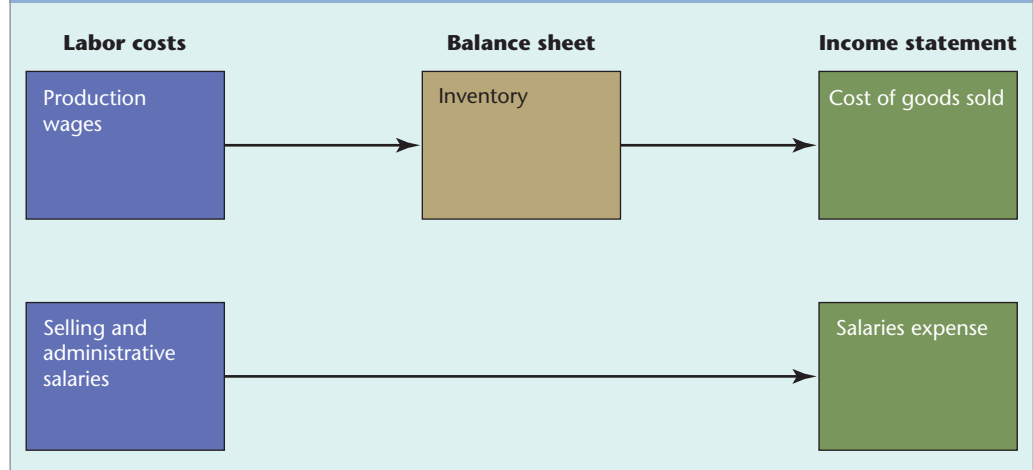
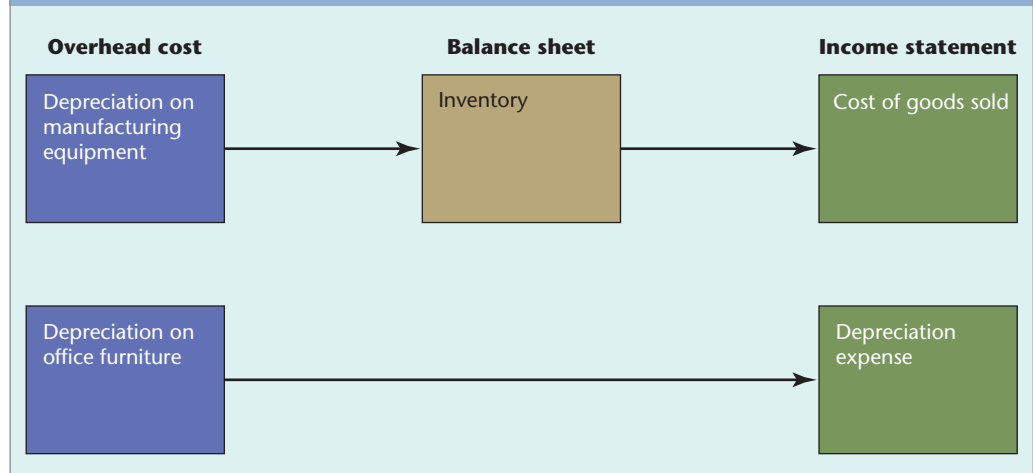
Materials used to make products are usually called **raw materials**. The cost of raw materials is first recorded in an asset account (Inventory). The cost is then transferred from the Inventory account to the Cost of Goods Sold account at the time the goods are sold. Remember that materials cost is only one component of total manufacturing costs. When inventory is sold, the combined cost of materials, labor, and overhead is expensed as *cost of goods sold*. The costs of materials that can be easily and conveniently traced to products are called **direct raw materials** costs.

Labor Costs (Event 4)

The salaries paid to selling and administrative employees (Event 3) and the wages paid to production workers (Event 4) are accounted for differently. Salaries paid to selling and administrative employees are expensed immediately, but the cost of production wages is added to inventory. Production wages are expensed as part of cost of goods sold at the time the inventory is sold. Labor costs that can be easily and conveniently traced to products are called **direct labor** costs. The cost flow of wages for production employees versus salaries for selling and administrative personnel is shown in Exhibit 1.6.

Overhead Costs (Event 8)

Although depreciation cost totaled \$1,600 (\$600 on office furniture and \$1,000 on manufacturing equipment), only the \$600 of depreciation on the office furniture is expensed directly on the income statement. The depreciation on the manufacturing equipment is split between the income statement (cost of goods sold) and the balance sheet (inventory). The depreciation cost flow for the manufacturing equipment versus the office furniture is shown in Exhibit 1.7.

EXHIBIT 1.6**Flow of Labor Costs****EXHIBIT 1.7****Flow of Depreciation Costs**

Total Product Cost. A summary of Patillo Manufacturing's total product cost is shown in Exhibit 1.8.

Financial Statements

The income statement and balance sheet for Patillo Manufacturing are displayed in Exhibit 1.9.

Product Costs. The \$4,000 cost of goods sold reported on the income statement includes a portion of the materials, labor, and overhead costs incurred by Patillo during the year. Similarly, the \$2,000 of finished goods inventory on the balance sheet includes materials, labor, and overhead costs. These product costs will be recognized as expense in the next accounting period when the goods are sold. Initially classifying a cost as a product cost delays, but does not eliminate, its recognition as an expense. All product costs are ultimately recognized as expense (cost of goods sold).

Selling, General, and Administrative Costs. **Selling, general, and administrative costs (SG&A)** are normally expensed *in the period* in which they are incurred. Because of this recognition pattern, nonproduct expenses are sometimes called **period costs**. In Patillo's

EXHIBIT 1.8**Schedule of Inventory Costs**

Materials	\$2,000
Labor	3,000
Manufacturing overhead*	<u>1,000</u>
Total product costs	6,000
Less: Cost of goods sold	<u>(4,000)</u>
Ending inventory balance	<u>\$2,000</u>

*Depreciation $[(\$4,500 - \$1,500) \div 3]$

case, the salaries expense for selling and administrative employees and the depreciation on office furniture are period costs reported directly on the income statement.

Overhead Costs: A Closer Look

Costs such as depreciation on manufacturing equipment cannot be easily traced to products. Suppose that Patillo Manufacturing makes both tables and chairs. What part of the depreciation is caused by manufacturing tables versus manufacturing chairs? Similarly, suppose a production supervisor oversees employees who work on both tables and chairs. How much of the supervisor's salary relates to tables and how much to chairs? Likewise, the cost of glue used in the production department would be difficult to trace to tables versus chairs. You could count the drops of glue used on each product, but the information would not be useful enough to merit the time and money spent collecting the data.

Costs that cannot be traced to products and services in a *cost-effective* manner are called **indirect costs**. The indirect costs incurred to make products are called **manufacturing overhead**. Some of the items commonly included in manufacturing overhead are indirect materials, indirect labor, factory utilities, rent of manufacturing facilities, and depreciation on manufacturing assets.

EXHIBIT 1.9**PATILLO MANUFACTURING COMPANY**

Financial Statements

Income Statement for 2013

Sales revenue	\$ 7,500
Cost of goods sold	<u>(4,000)</u>
Gross margin	3,500
SG&A expenses	
Salaries expense	(1,200)
Depreciation expense—office furniture	<u>(600)</u>
Net income	<u>\$ 1,700</u>

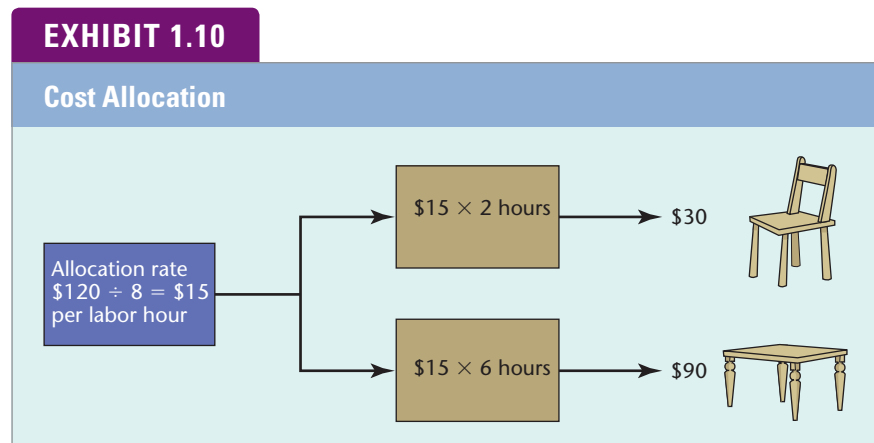
Balance Sheet as of December 31, 2013

Cash		\$ 9,000
Finished goods inventory		2,000
Office furniture	\$2,800	
Accumulated depreciation	<u>(600)</u>	
Book value		2,200
Manufacturing equipment	4,500	
Accumulated depreciation	<u>(1,000)</u>	
Book value		<u>3,500</u>
Total assets		<u>\$16,700</u>
Stockholders' equity		
Common stock		\$15,000
Retained earnings		<u>1,700</u>
Total stockholders' equity		<u>\$16,700</u>

**CHECK YOURSELF 1.2**

Lawson Manufacturing Company paid production workers wages of \$100,000. It incurred materials costs of \$120,000 and manufacturing overhead costs of \$160,000. Selling and administrative salaries were \$80,000. Lawson started and completed 1,000 units of product and sold 800 of these units. The company sets sales prices at \$220 above the average per unit production cost. Based on this information alone, determine the amount of gross margin and net income. What is Lawson's pricing strategy called?

Answer Total product cost is \$380,000 (\$100,000 labor + \$120,000 materials + \$160,000 overhead). Cost per unit is \$380 (\$380,000 ÷ 1,000 units). The sales price per unit is \$600 (\$380 + \$220). Cost of goods sold is \$304,000 (\$380 × 800 units). Sales revenue is \$480,000 (\$600 × 800 units). Gross margin is \$176,000 (\$480,000 revenue – \$304,000 cost of goods sold). Net income is \$96,000 (\$176,000 gross margin – \$80,000 selling and administrative salaries). Lawson's pricing strategy is called *cost-plus* pricing.



Since indirect costs cannot be effectively traced to products, they are normally assigned to products using **cost allocation**, a process of dividing a total cost into parts and assigning the parts to relevant cost objects. To illustrate, suppose that production workers spend an eight-hour day making a chair and a table. The chair requires two hours to complete and the table requires six hours. Now suppose that \$120 of utilities cost is consumed during the day. How much of the \$120 should be assigned to each piece of furniture? The utility cost cannot be directly traced to each specific piece of furniture, but the piece of furniture that required more labor also likely consumed more of the utility cost. Using this line of reasoning, it is rational to allocate the utility cost to the two pieces of furniture based on *direct labor hours* at a rate of \$15 per hour ($\$120 \div 8 \text{ hours}$). The chair would be assigned \$30 ($\$15 \text{ per hour} \times 2 \text{ hours}$) of the utility cost and the table would be assigned the remaining \$90 ($\$15 \times 6 \text{ hours}$) of utility cost. The allocation of the utility cost is shown in Exhibit 1.10.

We discuss the details of cost allocation in a later chapter. For now, recognize that overhead costs are normally allocated to products rather than traced directly to them.

Manufacturing Product Cost Summary

As explained, the cost of a product made by a manufacturing company is normally composed of three categories: direct materials, direct labor, and manufacturing overhead. Relevant information about these three cost components is summarized in Exhibit 1.11.

Answers to The Curious Accountant

As you have seen, accounting for depreciation related to manufacturing assets is different from accounting for depreciation for nonmanufacturing assets. Depreciation on the checkout equipment at **Sears** is recorded as depreciation expense. Depreciation on manufacturing equipment at **Schwinn** is considered a product cost. It is included first as a part of the cost of inventory and eventually as a part of the expense, cost of goods sold. Recording depreciation on manufacturing equipment as an inventory cost is simply another example of the matching principle, because the cost does not become an expense until revenue from the product sale is recognized.

EXHIBIT 1.11**Components of Manufacturing Product Cost****Component 1—Direct Raw Materials**

Sometimes called *raw materials*. In addition to basic resources such as wood or metals, it can include manufactured parts. For example, engines, glass, and car tires can be considered as raw materials for an automotive manufacturer. If the amount of a material in a product is known, it can usually be classified as a direct material. The cost of direct materials can be easily traced to specific products.

Component 2—Direct Labor

The cost of wages paid to factory workers involved in hands-on contact with the products being manufactured. If the amount of time employees worked on a product can be determined, this cost can usually be classified as direct labor. Like direct materials, labor costs must be easily traced to a specific product in order to be classified as a direct cost.

Component 3—Manufacturing Overhead

Costs that cannot be easily traced to specific products. Accordingly, these costs are called indirect costs. They can include but are not limited to the following:

1. Indirect materials such as glue, nails, paper, and oil. Indeed, note that indirect materials used in the production process may not appear in the finished product. An example is a chemical solvent used to clean products during the production process but not a component material found in the final product.
2. Indirect labor such as the cost of salaries paid to production supervisors, inspectors, and maintenance personnel.
3. Rental cost for manufacturing facilities and equipment.
4. Utility costs.
5. Depreciation.
6. Security.
7. The cost of preparing equipment for the manufacturing process (i.e., setup costs).
8. Maintenance cost for the manufacturing facility and equipment.

UPSTREAM AND DOWNSTREAM COSTS

Most companies incur product-related costs before and after, as well as during, the manufacturing process. For example, **Ford Motor Company** incurs significant research and development costs prior to mass producing a new car model. These **upstream costs** occur before the manufacturing process begins. Similarly, companies normally incur significant costs after the manufacturing process is complete. Examples of **downstream costs** include transportation, advertising, sales commissions, and bad debts. While upstream and downstream costs are not considered to be product costs for financial reporting purposes, profitability analysis requires that they be considered in cost-plus pricing decisions. To be profitable, a company must recover the total cost of developing, producing, and delivering its products to customers.

LO 4

Distinguish product costs from upstream and downstream costs.

PRODUCT COSTING IN SERVICE AND MERCHANDISING COMPANIES

Companies are frequently classified as being service, merchandising, or manufacturing businesses. As the name implies, service organizations provide services, rather than physical products, to consumers. For example, **St. Jude Children's Hospital** provides treatment programs aimed at healing patient diseases. Other common service providers include public accountants, lawyers, restaurants, dry cleaning establishments, and lawn care companies. Merchandising businesses are sometimes called retail or wholesale companies; they sell goods other companies make. **The Home Depot, Inc.**, **Costco Wholesale Corporation**,

LO 5

Explain how product costing differs in service, merchandising, and manufacturing companies.

and **Best Buy Co., Inc.**, are merchandising companies. Manufacturing companies make the goods they sell to their customers. **Toyota Motor Corporation**, **Texaco, Inc.**, and **American Standard Companies, Inc.**, are manufacturing businesses.

How do manufacturing companies differ from service and merchandising businesses? Do service and merchandising companies incur materials, labor, and overhead costs? Yes. For example, **Ernst & Young**, a large accounting firm, must pay employees (labor costs), use office supplies (material costs), and incur utilities, depreciation, and so on (overhead costs) in the process of conducting audits. *The primary difference between manufacturing entities and service companies is that the products provided by service companies are consumed immediately.* In contrast, products made by manufacturing companies can be held in the form of inventory until they are sold to consumers. Similarly, most labor and overhead costs incurred by merchandising companies result from providing assistance to customers. These costs are normally treated as selling, general, and administrative expenses rather than accumulated in inventory accounts. Indeed, merchandising companies are often viewed as service companies rather than considered a separate business category.

The important point to remember is that all business managers are expected to control costs, improve quality, and increase productivity. Like managers of manufacturing companies, managers of service and merchandising businesses can benefit from the analysis of the cost of satisfying their customers. For example, **Wendy's**, a service company, can benefit from knowing how much a hamburger costs in the same manner that **Bayer Corporation**, a manufacturing company, benefits from knowing the cost of a bottle of aspirin.



CHECK YOURSELF 1.3

The cost of making a **Burger King** hamburger includes the cost of materials, labor, and overhead. Does this mean that Burger King is a manufacturing company?

Answer No, Burger King is not a manufacturing company. It is a service company because its products are consumed immediately. In contrast, there may be a considerable delay between the time the product of a manufacturing company is made and the time it is consumed. For example, it could be several months between the time **Ford Motor Company** makes an Explorer and the time the Explorer is ultimately sold to a customer. The primary difference between service and manufacturing companies is that manufacturing companies have inventories of products and service companies do not.

LO 6

Show how just-in-time inventory can increase profitability.

JUST-IN-TIME INVENTORY

Companies attempt to minimize the amount of inventory they maintain because of the high cost of holding it. Many **inventory holding costs** are obvious: financing, warehouse space, supervision, theft, damage, and obsolescence. Other costs are hidden: diminished motivation, sloppy work, inattentive attitudes, and increased production time.

Many businesses have been able to simultaneously reduce their inventory holding costs and increase customer satisfaction by making products available **just in time (JIT)** for customer consumption. For example, hamburgers that are cooked to order are fresher and more individualized than those that are prepared in advance and stored until a customer orders one. Many fast-food restaurants have discovered that JIT systems lead not only to greater customer satisfaction but also to lower costs through reduced waste.

Just-in-Time Illustration

To illustrate the benefits of a JIT system, consider Paula Elliot, a student at a large urban university. She helps support herself by selling flowers. Three days each week,

Paula drives to a florist, purchases 25 single-stem roses, returns to the school, and sells the flowers to individuals from a location on a local street corner. She pays \$2 per rose and sells each one for \$3. Some days she does not have enough flowers to meet customer demand. Other days, she must discard one or two unsold flowers; she believes quality is important and refuses to sell flowers that are not fresh. During May, she purchased 300 roses and sold 280. She calculated her driving cost to be \$45. Exhibit 1.12 displays Paula's May income statement.

After studying just-in-time inventory systems in her managerial accounting class, Paula decided to apply the concepts to her small business. She *reengineered* her distribution system by purchasing her flowers from a florist within walking distance of her sales location. She had considered purchasing from this florist earlier but had rejected the idea because the florist's regular selling price of \$2.25 per rose was too high. After learning about *most-favored customer status*, she developed a strategy to get a price reduction. By guaranteeing that she would buy at least 30 roses per week, she was able to convince the local florist to match her current cost of \$2.00 per rose. The local florist agreed that she could make purchases in batches of any size so long as the total amounted to at least 30 per week. Under this arrangement, Paula was able to buy roses *just in time* to meet customer demand. Each day she purchased a small number of flowers. When she ran out, she simply returned to the florist for additional ones.

The JIT system also enabled Paula to eliminate the cost of the *nonvalue-added activity* of driving to her former florist. Customer satisfaction actually improved because no one was ever turned away because of the lack of inventory. In June, Paula was able to buy and sell 310 roses with no waste and no driving expense. The June income statement is shown in Exhibit 1.13.

Paula was ecstatic about her \$115 increase in profitability (\$310 in June – \$195 in May = \$115 increase), but she was puzzled about the exact reasons for the change. She had saved \$40 (20 flowers × \$2 each) by avoiding waste and eliminated \$45 of driving expenses. These two factors explained only \$85 (\$40 waste + \$45 driving expense) of the \$115 increase. What had caused the remaining \$30 (\$115 – \$85) increase in profitability? Paula asked her accounting professor to help her identify the remaining \$30 difference.

The professor explained that May sales had suffered from *lost opportunities*. Recall that under the earlier inventory system, Paula had to turn away some prospective customers because she sold out of flowers before all customers were served. Sales increased from 280 roses in May to 310 roses in June. A likely explanation for the 30 unit difference (310 – 280) is that customers who would have purchased flowers in May were unable to do so because of a lack of availability. May's sales suffered from the lost opportunity to earn a gross margin of \$1 per flower on 30 roses, a \$30 **opportunity cost**. This opportunity cost is the missing link in explaining the profitability difference between May and June. The total \$115 difference consists of (1) \$40 savings from waste elimination, (2) \$45 savings from eliminating driving expense, and (3) opportunity cost of \$30. The subject of opportunity cost has widespread application and is discussed in more depth in subsequent chapters of the text.



At **Ford Motor Company's** plant in Valencia, Spain, suppliers feed parts such as these bumpers just in time and in the right order directly to the assembly line.

EXHIBIT 1.12

Income Statement for May

Sales revenue (280 units × \$3 per unit)	\$840
Cost of goods sold (280 units × \$2 per unit)	<u>(560)</u>
Gross margin	280
Driving expense	(45)
Excess inventory waste (20 units × 2)	<u>(40)</u>
Net income	<u>\$195</u>

EXHIBIT 1.13

Income Statement for June

Sales revenue (310 units × \$3 per unit)	\$930
Cost of goods sold (310 units × \$2 per unit)	<u>(620)</u>
Gross margin	310
Driving expense	<u>0</u>
Net income	<u>\$310</u>

CHECK YOURSELF 1.4

A strike at a **General Motors** brake plant caused an almost immediate shutdown of many of the company's assembly plants. What could have caused such a rapid and widespread shutdown?

Answer A rapid and widespread shutdown could have occurred because General Motors uses a just-in-time inventory system. With a just-in-time inventory system, there is no stockpile of inventory to draw on when strikes or other forces disrupt inventory deliveries. This illustrates a potential negative effect of using a just-in-time inventory system.

CORPORATE GOVERNANCE

LO 7

Identify the key components of corporate governance.



Corporate governance is the set of relationships between the board of directors, management, shareholders, auditors, and other stakeholders that determine how a company is operated. Until recently, corporations were generally free to govern themselves. However, several high-profile scandals have motivated governmental authorities to enact legislation designed to influence corporate governance. This section of the chapter examines the factors affecting corporate governance. We examine the motives and means of management corruption. Further, we introduce the mechanisms for self control including codes of ethics and internal controls. Finally, we discuss recent legislation designed to influence managerial responsibility for financial reporting.

Management accountants are at the forefront of corporate governance. They are the guardians of the information used to report on the financial condition of their companies. The information they prepare and analyze is used by the board of directors and company executives to formulate the company's operating strategy. Indeed, management accountants constitute the intelligence function of corporate governance. Scandals usually begin with schemes to manipulate a company's financial reports and end when the falsification is so great it becomes obvious the reports no longer represent reality. The appropriate management of the information function is a highly effective force against corrupt governance. It is little wonder why recent legislation requires the chief financial officer along with the chief executive officer to personally certify that the company's annual report does not contain false statements nor omit significant facts.

The Motive to Manipulate

Many managers are judged on their company's financial statements or the company's stock price which is determined, in part, by the financial statements. Managers are rewarded for strong financial statements with promotions, pay raises, bonuses, and stock options. Weak financials can result in a manager being passed over for promotions, demoted, or even fired. It is little wonder that some executives are tempted to manipulate financial statements.

To illustrate implications of statement manipulation, consider the events experienced by Marion Manufacturing Company (MMC) during its first year of operations. All transactions are cash transactions.

1. MMC was started when it acquired \$12,000 from issuing common stock.
2. MMC incurred \$4,000 of costs to design its product and plan the manufacturing process.
3. MMC incurred specifically identifiable product costs (materials, labor, and overhead) of \$8,000 to make 1,000 units of product, resulting in a cost per unit of \$8 ($\$8,000 \div 1,000$ units).
4. MMC sold 700 units of inventory for \$18 each.

EXHIBIT 1.14**Financial Statements Under Alternative Cost Classification Scenarios**

Income Statements	Scenario 1	Scenario 2
Sales revenue (700 × \$18)	\$12,600	\$12,600
Cost of goods sold	<u>(5,600)¹</u>	<u>(8,400)³</u>
Gross margin	7,000	4,200
Selling and administrative expense	<u>(4,000)</u>	<u>0</u>
Net income	<u>\$ 3,000</u>	<u>\$ 4,200</u>

Balance Sheets		
Assets		
Cash	\$12,600	\$12,600
Inventory	<u>2,400²</u>	<u>3,600⁴</u>
Total assets	<u>\$15,000</u>	<u>\$16,200</u>
Stockholders' equity		
Common stock	\$12,000	\$12,000
Retained earnings	<u>3,000</u>	<u>4,200</u>
Total stockholders' equity	<u>\$15,000</u>	<u>\$16,200</u>

¹700 units × \$8 per unit = \$5,600

²300 units × \$8 per unit = \$2,400

³[\$5,600 + (\$4,000 × .70)] = \$8,400

⁴[\$2,400 + (\$4,000 × .30)] = \$3,600

Exhibit 1.14 displays a balance sheet and income statement prepared under the following two scenarios.

Scenario 1: The \$4,000 of design and planning costs are classified as selling and administrative expenses.

Scenario 2: The \$4,000 of design and planning costs are classified as product costs, meaning they are first accumulated in the Inventory account and then expensed when the goods are sold. Given that MMC made 1,000 units and sold 700 units of inventory, 70% (700 ÷ 1,000) of the design cost has passed through the Inventory account into the Cost of Goods Sold account, leaving 30% (300 ÷ 1,000) remaining in the Inventory account.

Statement Differences

Comparing the financial statements prepared under Scenario 1 with those prepared under Scenario 2 reveals the following.

1. There are no selling and administrative expenses under Scenario 2. The design cost was treated as a product cost and placed into the Inventory account rather than being expensed.
2. Cost of goods sold is \$2,800 (\$4,000 design cost × .70) higher under Scenario 2.
3. Net income is \$1,200 higher under Scenario 2 (\$4,000 understated expense – \$2,800 overstated cost of goods sold).
4. Ending inventory is \$1,200 (\$4,000 design cost × .30) higher under Scenario 2.

Practical Implications

The financial statement differences shown in Exhibit 1.14 are *timing differences*. When MMC sells the remaining 300 units of inventory, the \$1,200 of design and planning costs included in inventory under Scenario 2 will be expensed through cost of goods sold. In other words, once the entire inventory is sold, total expenses and retained

earnings will be the same under both scenarios. Initially recording cost in an inventory account only delays eventual expense recognition. However, the temporary effects on the financial statements can influence the (1) availability of financing, (2) motivations of management, and (3) timing of income tax payments.

Availability of Financing. The willingness of creditors and investors to provide capital to a business is influenced by their expectations of the business's future financial performance. In general, more favorable financial statements enhance a company's ability to obtain financing from creditors or investors.

Management Motivation. Financial statement results might affect executive compensation. For example, assume that Marion Manufacturing adopted a management incentive plan that provides a bonus pool equal to 10 percent of net income. In Scenario 1, managers would receive \$300 ($\$3,000 \times 0.10$). In Scenario 2, however, managers would receive \$420 ($\$4,200 \times 0.10$). Do not be deceived by the small numbers used for convenience in the example. We could illustrate with millions of dollars just as well as with hundreds of dollars. Managers would clearly favor Scenario 2. In fact, managers might be tempted to misclassify costs to manipulate the content of financial statements.

Income Tax Considerations. Since income tax expense is calculated as a designated percentage of taxable income, managers seek to minimize taxes by reporting the minimum amount of taxable income. Scenario 1 in Exhibit 1.14 depicts the most favorable tax condition. In other words, with respect to taxes, managers prefer to classify costs as expenses rather than assets. The Internal Revenue Service is responsible for enforcing the proper classification of costs. Disagreements between the Internal Revenue Service and taxpayers are ultimately settled in federal courts.

Statement of Ethical Professional Practice

The preceding discussion provides some insight into conflicts of interest management accountants might face. It is tempting to misclassify a cost if doing so will significantly increase a manager's bonus. Management accountants must be prepared not only to make difficult choices between legitimate alternatives but also to face conflicts of a more troubling nature, such as pressure to:

1. Undertake duties they have not been trained to perform competently.
2. Disclose confidential information.
3. Compromise their integrity through falsification, embezzlement, bribery, and so on.
4. Issue biased, misleading, or incomplete reports.

To provide management accountants with guidance for ethical conduct the Institute of Management Accountants (IMA) issued a *Statement of Ethical Professional Practice*, which is shown in Exhibit 1.15. Management accountants are also frequently required to abide by organizational codes of ethics. Failure to adhere to professional and organizational ethical standards can lead to personal disgrace, loss of employment, or imprisonment.

The Fraud Triangle

Unfortunately, it takes more than a code of conduct to stop fraud. People frequently engage in activities that they know are unethical or even criminal. The auditing profession has determined that the following three elements are typically present when fraud occurs:

1. The availability of an *opportunity*.
2. The existence of some form of *pressure* leading to an incentive.
3. The capacity to *rationalize*.

EXHIBIT 1.15**Statement of Ethical Professional Practice**

Members of IMA shall behave ethically. A commitment to ethical professional practice includes overarching principles that express our values, and standards that guide our conduct. IMA's overarching ethical principles include: Honesty, Fairness, Objectivity, and Responsibility. Members shall act in accordance with these principles and shall encourage others within their organizations to adhere to them. A member's failure to comply with the following standards may result in disciplinary action.

Competence Each member has a responsibility to

- Maintain an appropriate level of professional expertise by continually developing knowledge and skills.
- Perform professional duties in accordance with relevant laws, regulations, and technical standards.
- Provide decision support information and recommendations that are accurate, clear, concise, and timely.
- Recognize and communicate professional limitations or other constraints that would preclude responsible judgment or successful performance of an activity.

Confidentiality Each member has a responsibility to

- Keep information confidential except when disclosure is authorized or legally required.
- Inform all relevant parties regarding appropriate use of confidential information. Monitor subordinates' activities to ensure compliance.
- Refrain from using confidential information for unethical or illegal advantage.

Integrity Each member has a responsibility to

- Mitigate actual conflicts of interest and avoid apparent conflicts of interest. Advise all parties of any potential conflicts.
- Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
- Abstain from engaging in or supporting any activity that might discredit the profession.

Credibility Each member has a responsibility to

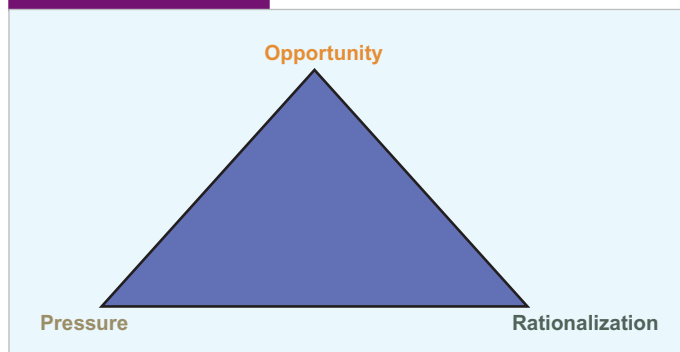
- Communicate information fairly and objectively.
- Disclose all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.
- Disclose delays or deficiencies in information, timeliness, processing, or internal controls in conformance with organization policy and/or applicable law.

Resolution of Ethical Conflict In applying these standards, you may encounter problems identifying unethical behavior or resolving an ethical conflict. When faced with ethical issues, follow your organization's established policies on the resolution of such conflict. If these policies do not resolve the ethical conflict, consider the following courses of action:

- Discuss the issue with your immediate supervisor except when it appears that the supervisor is involved. In that case, present the issue to the next level. If you cannot achieve a satisfactory resolution, submit the issue to the next management level. Communication of such problems to authorities or individuals not employed or engaged by the organization is not considered appropriate, unless you believe there is a clear violation of the law.
- Clarify relevant ethical issues by initiating a confidential discussion with an IMA Ethics Counselor or other impartial advisor to obtain a better understanding of possible courses of action.
- Consult your own attorney as to legal obligations and rights concerning the ethical conflict.

The three elements are frequently arranged in the shape of a triangle as shown in Exhibit 1.16.

Opportunity is shown at the head of the triangle because without opportunity fraud could not exist. The most effective way to reduce opportunities for ethical or criminal misconduct is to implement an effective set of internal controls. *Internal controls* are policies and procedures that a business implements to reduce opportunities for fraud and to ensure that its objectives will be accomplished. Specific controls are tailored to meet the individual needs of particular businesses. For example, banks use elaborate vaults to protect cash and safety deposit boxes, but universities have little use for this type of equipment. Even so, many of the same procedures are used by a wide variety of businesses.

EXHIBIT 1.16

REALITY BYTES

Unethical behavior occurs in all types of organizations. In its **2007 National Government Ethics Survey**, the Ethics Resource Center reported its findings on the occurrences and reporting of unethical behavior in local, state, and federal governments.

Fifty-seven percent of those surveyed reported having observed unethical conduct during the past year. Unethical conduct was reported most often by those in local governments (63%) and least often at the federal level (52%). The definition of ethical misconduct used in the study was quite broad, ranging from behavior such as an individual putting his or her personal interest ahead of the interest of the organization, to sexual harassment, to taking bribes. The more egregious offences, such as discrimination or taking bribes, were reported much less often than activities such as lying to customers, vendors, or the public.

Once observed, unethical behavior often was not reported. For example, only 25 percent of observed incidents of the alteration of financial records were reported to supervisors or whistleblower hotlines, and only 54 percent of observed bribes were reported.

The survey also found that only 18 percent of government entities have ethics and compliance programs in place that could be considered well-implemented. However, where well-implemented programs do exist, observed unethical misconduct is less likely to occur and more likely to be reported. In these entities only 36 percent of respondents said they had observed misconduct (compared to 57 percent overall), and when they did observe misconduct, 75 percent said they reported it.

For the complete *2007 National Government Ethics Survey*, go to www.ethics.org.



Exhibit 1.17 contains a summary of many of the internal control policies and procedures that have gained widespread acceptance.

Only a few employees turn to the dark side even when internal control is weak and opportunities abound. So, what causes one person to commit fraud and another to remain honest? The second element of the fraud triangle recognizes *pressure* as a key ingredient of misconduct. A manager who is told to either make the numbers or be fired is more likely to cheat than one who is told to tell it like it is. Pressure can come from a variety of sources, including:

- Personal vices such as drug addiction, gambling, and promiscuity.
- Intimidation from superiors.
- Personal debt from credit cards, consumer loans, mortgage loans or, poor investments.
- Family expectations to provide a standard of living that is beyond one's capabilities.
- Business failure caused by poor decision making or temporary factors such as a poor economy.
- Loyalty or trying to be agreeable.

The third and final element of the fraud triangle is *rationalization*. Few individuals think of themselves as evil. They develop rationalizations to justify their misconduct. Common rationalizations include the following:

- Everybody does it.
- They are not paying me enough. I'm only taking what I deserve.
- I'm only borrowing the money. I'll pay it back.
- The company can afford it. Look what they are paying the officers.
- I'm taking what my family needs to live like everyone else.

EXHIBIT 1.17**Common Internal Control Practices**

Internal Control Practice	Explanation
Separating duties	Separating the duties necessary to complete a task and assigning the separated duties to two or more employees reduces the opportunity for either employee to defraud the company. It would require collusion between the two employees in order to make payment for a fabricated expense.
Hiring competent personnel	Cheap labor is not a bargain if the employees are incompetent. Employees should be properly trained and have a record that attests to personal integrity.
Bonding employees	Employees in positions of trust should be bonded through insurance policies that protect a company from losses caused by employee dishonesty.
Requiring extended absences	Forcing extended absences (such as vacations) creates an opportunity for the temporary replacement employee to check the work of the absent employees. Fraud is difficult to cover up if you are not present to do so.
Establishing clear lines of authority and responsibility	Employees tend to be more zealous in supporting company policies when they have clear authority to exercise enforcement. Further, they take their work more seriously when they realize that they cannot shirk responsibility.
Using prenumbered documents	Missing documents become apparent when there are gaps in a recorded sequence of numbers. For example, a stolen check would become apparent if a check register omits a check number.
Establishing physical controls	Keeping money in a safe; holding inventory in locked warehouses; and bolting computers to a desk are examples of using physical controls designed to protect assets.
Performing evaluations at regular intervals	Knowing that inventory will be counted on a regular basis encourages the inventory control manager to maintain documents that support the actual balance of inventory on hand. Similarly verifying the mileage on a car will encourage employees to use company-owned vehicles for legitimate business purposes. Regular evaluations and examinations are strong deterrents to the inappropriate utilization of company-owned assets.

Most people are able to resist pressure and the tendency to rationalize ethical or legal misconduct. However, some people will yield to temptation. What can companies do to protect themselves from unscrupulous characters? The answer lies in personal integrity. The best indicator of personal integrity is past performance. Accordingly companies must exercise due care in performing appropriate background investigations before hiring people to fill positions of trust.

Sarbanes-Oxley Act of 2002

In spite of ethics training and accounting controls, fraud and its devastating consequences persist. **Enron**, **WorldCom**, and **HealthSouth** are examples of massive scandals that destroyed or crippled major U.S. corporations in recent years. These high-profile cases led government officials to conclude that the force of law would be necessary to restore and maintain confidence in the capital markets. The **Sarbanes-Oxley (SOX) Act**, which became effective July 30, 2002, provides the muscle that Congress hopes will deter future fiascos. SOX affects four groups including: management, boards of directors, external auditors, and the Public Company Accounting Oversight Board (PCAOB). In

FOCUS ON INTERNATIONAL ISSUES

FINANCIAL ACCOUNTING VERSUS MANAGERIAL ACCOUNTING—AN INTERNATIONAL PERSPECTIVE

This chapter has already explained some of the conceptual differences between financial and managerial accounting, but these differences have implications for international businesses as well. With respect to financial accounting, publicly traded companies in most countries must follow the generally accepted accounting principles (GAAP) for their country, but these rules can vary from country to country. Generally, companies that are audited under the auditing standards of the United States follow the standards established by the Financial Accounting Standards Board. Most companies located outside of the United States follow the standards established by the International Accounting Standards Board. For example, the United States is one of very few countries whose GAAP allow the use of the LIFO inventory cost flow assumption.

Conversely, most of the managerial accounting concepts introduced in this course can be used by businesses in any country. For example, *activity-based costing (ABC)* is a topic addressed in Chapter 6 and is used by many companies in the United States. Meanwhile, a study published in *Accountancy Ireland** found that approximately one-third of the companies surveyed in Ireland, the United Kingdom, and New Zealand were also either using ABC, or were considering adopting it.

*Bernard Pierce, "Activity-Based Costing; the Irish Experience: True Innovation or Passing Fad?" *Accountancy Ireland*, October 2004, pp. 28–31.



this text, we focus on how SOX affects corporate management. While extensive coverage of SOX is beyond the scope of this text, all management accountants should be aware of the following:

- SOX holds the chief executive officer (CEO) and the chief financial officer (CFO) responsible for the establishment and enforcement of a strong set of internal controls. Along with its annual report, companies are required to report on the effectiveness of their internal controls. Also, the company's external auditors are required to attest to the accuracy of the internal controls report.
- SOX charges the CEO and the CFO with the ultimate responsibility for the accuracy of the company's financial statements and the accompanying notes. Even though lower-level managers will likely prepare the annual report, the CEO and CFO are required to certify that they have reviewed the report and that, to their knowledge, the report does not contain false statements or significant omissions. An intentional misrepresentation is punishable by a fine of up to \$5 million and imprisonment of up to 20 years.
- SOX requires management to establish a code of ethics and to file reports on the code in the company's annual 10K report filed with the Securities and Exchange Commission.
- SOX demands that management establish a hotline and other mechanisms for the anonymous reporting of fraudulent activities. Further, SOX prohibits companies from punishing whistleblowers, employees who legally report corporate misconduct.

The accounting profession and government authorities are becoming increasingly intolerant of unethical conduct and illegal activity. A single mistake can jeopardize an accountant's career. A person guilty of white-collar crime loses the opportunity for white-collar employment. Second chances are rarely granted.

A Look Back <<

Managerial accounting focuses on the information needs of *internal* users, while *financial accounting* focuses on the information needs of *external* users. Managerial accounting uses economic, operating, and nonfinancial, as well as financial, data. Managerial accounting information is local (pertains to the company's subunits), is limited by cost/benefit considerations, is more concerned with relevance and timeliness, and is future oriented. Financial accounting information, on the other hand, is more global than managerial accounting information. It supplies information that applies to the whole company. Financial accounting is regulated by numerous authorities, is characterized by objectivity, is focused on reliability and accuracy, and is historical in nature.

Both managerial and financial accounting are concerned with product costing. Financial accountants need product cost information to determine the amount of inventory reported on the balance sheet and the amount of cost of goods sold reported on the income statement. Managerial accountants need to know the cost of products for pricing decisions and for control and evaluation purposes. When determining unit product costs, managers use the average cost per unit. Determining the actual cost of each product requires an unreasonable amount of time and record keeping and it makes no difference in product pricing and product cost control decisions.

Product costs are the costs incurred to make products: the costs of direct materials, direct labor, and overhead. *Overhead costs* are product costs that cannot be cost effectively traced to a product; therefore, they are assigned to products using *cost allocation*. Overhead costs include indirect materials, indirect labor, depreciation, rent, and utilities for manufacturing facilities. Product costs are first accumulated in an asset account (Inventory). They are expensed as cost of goods sold in the period the inventory is sold. The difference between sales revenue and cost of goods sold is called *gross margin*.

Selling, general, and administrative costs are classified separately from product costs. They are subtracted from gross margin to determine net income. Selling, general, and administrative costs can be divided into two categories. Costs incurred before the manufacturing process begins (research and development costs) are *upstream costs*. Costs incurred after manufacturing is complete (transportation) are *downstream costs*.

Service companies, like manufacturing companies, incur materials, labor, and overhead costs, but the products provided by service companies are consumed immediately. Therefore, service company product costs are not accumulated in an Inventory account.

A *code of ethical conduct* is needed in the accounting profession because accountants hold positions of trust and face conflicts of interest. In recognition of the temptations that accountants face, the IMA has issued a *Statement of Ethical Professional Practice*, which provides accountants guidance in resisting temptations and in making difficult decisions.

Emerging trends such as *just-in-time inventory* and *activity-based management* are methods that many companies have used to reengineer their production and delivery systems to eliminate waste, reduce errors, and minimize costs. Activity-based management seeks to eliminate or reduce *nonvalue-added activities* and to create new *value-added activities*. Just-in-time inventory seeks to reduce inventory holding costs and to lower prices for customers by making inventory available just in time for customer consumption.

A Look Forward >>

In addition to distinguishing costs by product versus SG&A classification, other classifications can be used to facilitate managerial decision making. In the next chapter, costs are classified according to the *behavior* they exhibit when the number of units of product increases or decreases (volume of activity changes). You will learn to distinguish between costs that vary with activity volume changes versus costs that remain fixed with activity volume changes. You will learn not only to recognize *cost behavior* but also how to use such recognition to evaluate business risk and opportunity.

APPENDIX A

Emerging Trends in Managerial Accounting

LO 8

Identify emerging trends in accounting.

Global competition has forced many companies to reengineer their production and delivery systems to eliminate waste, reduce errors, and minimize costs. A key ingredient of successful **reengineering** is benchmarking. **Benchmarking** involves identifying the **best practices** used by world-class competitors. By studying and mimicking these practices, a company uses benchmarking to implement highly effective and efficient operating methods. Best practices employed by world-class companies include total quality management (TQM), activity-based management (ABM), and value-added assessment.

Total Quality Management

To promote effective and efficient operations, many companies practice **total quality management (TQM)**. TQM is a two-dimensional management philosophy using (1) a systematic problem-solving philosophy that encourages frontline workers to achieve *zero defects* and (2) an organizational commitment to achieving *customer satisfaction*. A key component of TQM is **continuous improvement**, an ongoing process through which employees strive to eliminate waste, reduce response time, minimize defects, and simplify the design and delivery of products and services to customers.

Activity-Based Management

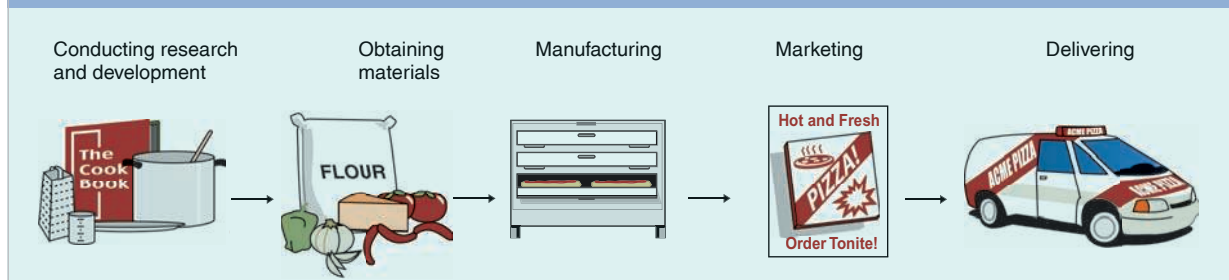
Simple changes in perspective can have dramatic results. For example, imagine how realizing the world is round instead of flat changed the nature of travel. A recent change in perspective developing in management accounting is the realization that an organization cannot manage *costs*. Instead, it manages the *activities* that cause costs to be incurred. **Activities** represent the measures an organization takes to accomplish its goals.

The primary goal of all organizations is to provide products (goods and services) their customers *value*. The sequence of activities used to provide products is called a **value chain**. **Activity-based management** assesses the value chain to create new or refine existing **value-added activities** and to eliminate or reduce *nonvalue-added activities*. A value-added activity is any unit of work that contributes to a product's ability to satisfy customer needs. For example, cooking is an activity that adds value to food served to a hungry customer. **Nonvalue-added activities** are tasks undertaken that do not contribute to a product's ability to satisfy customer needs. Waiting for the oven to preheat so that food can be cooked does not add value. Most customers value cooked food, but they do not value waiting for it.

To illustrate, consider the value-added activities undertaken by a pizza restaurant. Begin with a customer who is hungry for pizza; certain activities must occur to satisfy that hunger. These activities are pictured in Exhibit 1.18. At a minimum, the restaurant must conduct research and development (devise a recipe), obtain raw materials (acquire the ingredients), manufacture the product (combine and bake the ingredients), market the product (advertise its availability), and deliver the product (transfer the pizza to the customer).

EXHIBIT 1.18

Value Chain



Businesses gain competitive advantages by adding activities that satisfy customer needs. For example, **Domino's Pizza** grew briskly by recognizing the value customers placed on the convenience of home pizza delivery. Alternatively, **Little Caesar's** has been highly successful by satisfying customers who value low prices. Other restaurants capitalize on customer values pertaining to taste, ambience, or location. Businesses can also gain competitive advantages by identifying and eliminating nonvalue-added activities, providing products of comparable quality at lower cost than competitors.

Value Chain Analysis Across Companies

Comprehensive value chain analysis extends from obtaining raw materials to the ultimate disposition of finished products. It encompasses the activities performed not only by a particular organization but also by that organization's suppliers and those who service its finished products. For example, **PepsiCo** must be concerned with the activities of the company that supplies the containers for its soft drinks as well as the retail companies that sell its products. If cans of Pepsi fail to open properly, the customer is more likely to blame PepsiCo than the supplier of the cans. Comprehensive value chain analysis can lead to identifying and eliminating nonvalue-added activities that occur between companies. For example, container producers could be encouraged to build manufacturing facilities near Pepsi's bottling factories, eliminating the nonvalue-added activity of transporting empty containers from the manufacturer to the bottling facility. The resulting cost savings benefits customers by reducing costs without affecting quality.

A step-by-step audio-narrated series of slides is provided on the text website at www.mhhe.com/edmonds2011.



SELF-STUDY REVIEW PROBLEM



Tuscan Manufacturing Company makes a unique headset for use with mobile phones. During 2012, its first year of operations, Tuscan experienced the following accounting events. Other than the adjusting entries for depreciation, assume that all transactions are cash transactions.

1. Acquired \$850,000 cash from the issue of common stock.
2. Paid \$50,000 of research and development costs to develop the headset.
3. Paid \$140,000 for the materials used to make headsets, all of which were started and completed during the year.
4. Paid salaries of \$82,200 to selling and administrative employees.
5. Paid wages of \$224,000 to production workers.
6. Paid \$48,000 to purchase furniture used in selling and administrative offices.
7. Recognized depreciation on the office furniture. The furniture, acquired January 1, had an \$8,000 estimated salvage value and a four-year useful life. The amount of depreciation is computed as $[(\text{cost} - \text{salvage}) \div \text{useful life}]$. Specifically, $[(\$48,000 - \$8,000) \div 4 = \$10,000]$.
8. Paid \$65,000 to purchase manufacturing equipment.
9. Recognized depreciation on the manufacturing equipment. The equipment, acquired January 1, had a \$5,000 estimated salvage value and a three-year useful life. The amount of depreciation is computed as $[(\text{cost} - \text{salvage}) \div \text{useful life}]$. Specifically, $[(\$65,000 - \$5,000) \div 3 = \$20,000]$.
10. Paid \$136,000 for rent and utility costs on the manufacturing facility.
11. Paid \$41,000 for inventory holding expenses for completed headsets (rental of warehouse space, salaries of warehouse personnel, and other general storage costs).
12. Tuscan started and completed 20,000 headset units during 2012. The company sold 18,400 headsets at a price of \$38 per unit.
13. Compute the average product cost per unit and recognize the appropriate amount of cost of goods sold.

Required

- Show how these events affect the balance sheet and income statement by recording them in a horizontal financial statements model.
- Prepare a formal income statement for the year.
- Distinguish between the product costs and the upstream and downstream costs that Tuscan incurred.
- The company president believes that Tuscan could save money by buying the inventory that it currently makes. The warehouse supervisor said that would not be possible because the purchase price of \$27 per unit was above the \$26 average cost per unit of making the product. Assuming that the purchased inventory would be available on demand, explain how the company president could be correct and why the warehouse supervisor could be biased in his assessment of the option to buy the inventory.

Solution to Requirement a

Event No.	Assets					=	Equity			Rev.	-	Exp.	=	Net Inc.			
	Cash	Inventory	+	Office Furn.*	+	Manuf. Equip.*	=	Com. Stk.	+						Ret. Earn.		
1	850,000						850,000										
2	(50,000)								(50,000)					(50,000)			
3	(140,000)	140,000															
4	(82,200)								(82,200)					(82,200)			
5	(224,000)	224,000															
6	(48,000)			48,000													
7				(10,000)					(10,000)					(10,000)			
8	(65,000)				65,000												
9		20,000			(20,000)												
10	(136,000)	136,000															
11	(41,000)								(41,000)					(41,000)			
12	699,200								699,200				699,200	699,200			
13		(478,400)							(478,400)					(478,400)			
Totals	763,000	+	41,600	+	38,000	+	45,000	=	850,000	+	37,600		699,200	-	661,600	=	37,600

*Negative amounts in these columns represent accumulated depreciation.

The average cost per unit of product is determined by dividing the total product cost by the number of headsets produced. Specifically, $(\$140,000 + \$224,000 + \$20,000 + \$136,000) \div 20,000 = \$26$. Cost of goods sold is \$478,400 ($\$26 \times 18,400$).

Solution to Requirement b

TUSCAN MANUFACTURING COMPANY	
Income Statement	
For the Year Ended December 31, 2012	
Sales revenue (18,400 units \times \$38)	\$699,200
Cost of goods sold (18,400 \times \$26)	(478,400)
Gross margin	220,800
R&D expenses	(50,000)
Selling and admin. salaries expense	(82,200)
Admin. depreciation expense	(10,000)
Inventory holding expense	(41,000)
Net income	<u>\$ 37,600</u>

Solution to Requirement c

Inventory product costs for manufacturing companies focus on the costs necessary to make the product. The cost of research and development (Event 2) occurs before the inventory is made and is therefore an upstream cost, not an inventory (product) cost. The inventory holding costs (Event 11) are incurred after the inventory has been made and are therefore downstream costs, not product costs. Selling costs (included in Events 4 and 7) are normally incurred after products have been made and are therefore usually classified as downstream costs. Administrative costs (also included in Events 4 and 7) are not related to making products and are therefore not classified as product costs. Administrative costs may be incurred before, during, or after products are made, so they may be classified as either upstream or downstream costs. Only the costs of materials, labor, and overhead that are actually incurred for the purpose of making goods (Events 3, 5, 9, and 10) are classified as product costs.

Solution to Requirement d

Since the merchandise would be available on demand, Tuscan could operate a just-in-time inventory system thereby eliminating the inventory holding expense. Since the additional cost to purchase is \$1 per unit (\$27 – \$26), it would cost Tuscan an additional \$20,000 (\$1 × 20,000 units) to purchase its product. However, the company would save \$41,000 of inventory holding expense. The warehouse supervisor could be biased by the fact that his job would be lost if the company purchased its products and thereby could eliminate the need for warehousing inventory. If Tuscan does not maintain inventory, it would not need a warehouse supervisor.

KEY TERMS

Activities 24	Finished Goods Inventory 6	Raw materials 9
Activity-based management (ABM) 23	Generally accepted accounting principles (GAAP) 5	Reengineering 24
Average cost 26	Indirect costs 11	Sarbanes-Oxley Act of 2002 21
Benchmarking 24	Inventory holding costs 14	Securities and Exchange Commission (SEC) 5
Best practices 24	Just in time (JIT) 14	Selling, general, and administrative costs (SG&A) 10
Continuous improvement 24	Managerial accounting 2	Total quality management (TQM) 24
Cost allocation 12	Manufacturing overhead 11	Upstream costs 13
Cost-plus pricing 5	Nonvalue-added activities 15	Value-added activity 24
Direct labor 9	Opportunity cost 15	Value-added principle 5
Direct raw materials 9	Overhead 6	Value chain 24
Downstream costs 14	Period costs 10	
Financial accounting 2	Product costs 5	
Financial Accounting Standards Board (FASB) 5	Product costing 5	

QUESTIONS

1. What are some differences between financial and managerial accounting?
2. What does the value-added principle mean as it applies to managerial accounting information? Give an example of value-added information that may be included in managerial accounting reports but is not shown in publicly reported financial statements.
3. What are the two dimensions of a total quality management (TQM) program? Why is TQM being used in business practice? (Appendix A)
4. How does product costing used in financial accounting differ from product costing used in managerial accounting?
5. What does the statement “costs can be assets or expenses” mean?
6. Why are the salaries of production workers accumulated in an inventory account instead of being expensed on the income statement?
7. How do product costs affect the financial statements? How does the classification of product cost (as an asset vs. an expense) affect net income?

8. What is an indirect cost? Provide examples of product costs that would be classified as indirect.
9. How does a product cost differ from a selling, general, and administrative cost? Give examples of each.
10. Why is cost classification important to managers?
11. What is cost allocation? Give an example of a cost that needs to be allocated.
12. How has the Institute of Management Accountants responded to the need for high standards of ethical conduct in the accounting profession?
13. What are some of the common ethical conflicts that accountants encounter?
14. What costs should be considered in determining the sales price of a product?
15. What is a just-in-time (JIT) inventory system? Name some inventory costs that can be eliminated or reduced by its use.
16. What does the term *reengineering* mean? Name some reengineering practices. (Appendix A)
17. What does the term *activity-based management* mean? (Appendix A)
18. What is a value chain? (Appendix A)
19. What do the terms *value-added activity* and *nonvalue-added activity* mean? Provide an example of each type of activity. (Appendix A)



MULTIPLE-CHOICE QUESTIONS

Multiple-choice questions are provided on the text website at www.mhhe.com/edmonds2011.



EXERCISES—SERIES A

All applicable Exercises in Series A are available with McGraw-Hill's *Connect Accounting*.

LO 1

Exercise 1-1A Identifying financial versus managerial accounting items

Required

Indicate whether each of the following items is representative of managerial or of financial accounting.

- a. Information is provided to outsiders including investors, creditors, government agencies, analysts, and reporters.
- b. Information is regulated by the SEC, FASB, and other sources of GAAP.
- c. Information is based on estimates that are bounded by relevance and timeliness.
- d. Information is historically based and usually reported annually.
- e. Information is local and pertains to subunits of the organization.
- f. Information includes economic and nonfinancial data as well as financial data.
- g. Information is global and pertains to the company as a whole.
- h. Information is provided to insiders including executives, managers, and employees.
- i. Information is factual and is characterized by objectivity, reliability, consistency, and accuracy.
- j. Information is reported continuously and has a current or future orientation.

LO 2, 3

Exercise 1-2A Identifying product versus general, selling, and administrative costs

Required

Indicate whether each of the following costs should be classified as a product cost or as a selling, general, and administrative cost.

- a. Salaries of employees working in the accounting department.
- b. Commissions paid to sales staff.
- c. Interest on the mortgage for the company's corporate headquarters.
- d. Indirect labor used to manufacture inventory.
- e. Attorney's fees paid to protect the company from frivolous lawsuits.

- f. Research and development costs incurred to create new drugs for a pharmaceutical company.
- g. The cost of secretarial supplies used in a doctor's office.
- h. Depreciation on the office furniture of the company president.
- i. Direct materials used in a manufacturing company.
- j. Indirect materials used in a manufacturing company.

Exercise 1-3A *Classifying Costs: Product or SG&A/Asset or Expense*

LO 2, 3

Required

Use the following format to classify each cost as a product cost or a selling, general, and administrative (SG&A) cost. Also indicate whether the cost would be recorded as an asset or an expense. The first item is shown as an example.

Cost Category	Product/SG&A	Asset/Expense
Research and development costs	SG&A	Expense
Cost to set up manufacturing equipment		
Utilities used in manufacturing facility		
Cars for sales staff		
Distributions to stockholders		
General office supplies		
Raw materials used in the manufacturing process		
Cost to rent office equipment		
Wages of production workers		
Advertising costs		
Promotion costs		
Production supplies		
Depreciation on administration building		
Depreciation on manufacturing equipment		

Exercise 1-4A *Identifying effect of product versus selling, general, and administrative costs on financial statements*

LO 3

Required

Nairy Corporation recognized accrued compensation cost. Use the following model to show how this event would affect the company's financial statement under the following two assumptions: (1) the compensation is for office personnel and (2) the compensation is for production workers. Use pluses or minuses to show the effect on each element. If an element is not affected, indicate so by placing the letters NA under the appropriate heading.

	Assets	=	Liab.	+	Equity	Rev.	-	Exp.	=	Net Inc.
1.										
2.										

Exercise 1-5A *Identify effect of product versus selling, general, and administrative costs on financial statements*

LO 3

Required

Engle Industries recognized the annual cost of depreciation on its December 31, 2012, financial statements. Using the following horizontal financial statements model, indicate how this event affected the company's financial statements under the following two assumptions: (1) the depreciation was on office furniture and (2) the depreciation was on manufacturing equipment. Indicate whether the event increases (I), decreases (D), or has no affect (NA) on each element of

the financial statements. (Note: Show accumulated depreciation as a decrease in the book value of the appropriate asset account.)

Event No.	Assets					Equity		Rev. — Exp. = Net Inc.
	Cash	+ Inventory	+ Manuf. Equip.	+ Office Furn.	=	Com. Stk.	+ Ret. Ear.	
1.								
2.								

LO 2**Exercise 1-6A** *Identifying product costs in a manufacturing company*

Tiffany Crissler was talking to another accounting student, Bill Tyrone. Upon discovering that the accounting department offered an upper-level course in cost measurement, Tiffany remarked to Bill, “How difficult can it be? My parents own a toy store. All you have to do to figure out how much something costs is look at the invoice. Surely you don’t need an entire course to teach you how to read an invoice.”

Required

- Identify the three main components of product cost for a manufacturing entity.
- Explain why measuring product cost for a manufacturing entity is more complex than measuring product cost for a retail toy store.
- Assume that Tiffany’s parents rent a store for \$7,500 per month. Different types of toys use different amounts of store space. For example, displaying a bicycle requires more store space than displaying a deck of cards. Also, some toys remain on the shelf longer than others. Fad toys sell rapidly, but traditional toys sell more slowly. Under these circumstances, how would you determine the amount of rental cost required to display each type of toy? Identify two other costs incurred by a toy store that may be difficult to allocate to individual toys.

LO 3**Exercise 1-7A** *Identifying product versus selling, general, and administrative costs*

A review of the accounting records of Rayford Manufacturing indicated that the company incurred the following payroll costs during the month of September.

- Salary of the company president—\$32,000.
- Salary of the vice president of manufacturing—\$16,000.
- Salary of the chief financial officer—\$18,800.
- Salary of the vice president of marketing—\$15,600.
- Salaries of middle managers (department heads, production supervisors) in manufacturing plant—\$196,000.
- Wages of production workers—\$938,000.
- Salaries of administrative secretaries—\$112,000.
- Salaries of engineers and other personnel responsible for maintaining production equipment—\$178,000.
- Commissions paid to sales staff—\$252,000.

Required

- What amount of payroll cost would be classified as selling, general, and administrative expense?
- Assuming that Rayford made 4,000 units of product and sold 3,600 of them during the month of September, determine the amount of payroll cost that would be included in cost of goods sold.

LO 2, 3**Exercise 1-8A** *Recording product versus selling, general, and administrative costs in a financial statements model*

Pappas Manufacturing experienced the following events during its first accounting period.

- Recognized depreciation on manufacturing equipment.
- Recognized depreciation on office furniture.

3. Recognized revenue from cash sale of products.
4. Recognized cost of goods sold from sale referenced in Event 3.
5. Acquired cash by issuing common stock.
6. Paid cash to purchase raw materials that were used to make products.
7. Paid wages to production workers.
8. Paid salaries to administrative staff.

Required

Use the following horizontal financial statements model to show how each event affects the balance sheet and income statement. Indicate whether the event increases (I), decreases (D), or has no effect (NA) on each element of the financial statements. The first transaction has been recorded as an example. (*Note:* Show accumulated depreciation as a decrease in the book value of the appropriate asset account.)

Event No.	Assets				Equity		Rev.	- Exp.	= Net Inc.
	Cash	+ Inventory	+ Manuf. Equip.	+ Office Furn.	= Com. Stk.	+ Ret. Ear.			
1.	NA	I	D	NA	NA	NA	NA	NA	NA

Exercise 1-9A *Allocating product costs between ending inventory and cost of goods sold*

LO 2

Howle Manufacturing Company began operations on January 1. During the year, it started and completed 1,700 units of product. The company incurred the following costs.

1. Raw materials purchased and used—\$3,150.
2. Wages of production workers—\$3,530.
3. Salaries of administrative and sales personnel—\$1,995.
4. Depreciation on manufacturing equipment—\$4,370.
5. Depreciation on administrative equipment—\$1,835.

Howle sold 1,020 units of product.

Required

- a. Determine the total product cost for the year.
- b. Determine the total cost of the ending inventory.
- c. Determine the total of cost of goods sold.

Exercise 1-10A *Financial statement effects for manufacturing versus service organizations*

LO 3

The following financial statements model shows the effects of recognizing depreciation in two different circumstances. One circumstance represents recognizing depreciation on a machine used in a factory. The other circumstance recognizes depreciation on computers used in a consulting firm. The effects of each event have been recorded using the letter (I) to represent increase, (D) for decrease, and (NA) for no effect.

Event No.	Assets				Equity		Rev.	- Exp.	= Net Inc.
	Cash	+ Inventory	+ Equip.	= Com. Stk.	+ Ret. Ear.				
1.	NA	NA	D	NA	D	NA	I	D	
2.	NA	I	D	NA	NA	NA	NA	NA	

Required

- Identify the event that represents depreciation on the computers.
- Explain why recognizing depreciation on equipment used in a manufacturing company affects financial statements differently from recognizing depreciation on equipment used in a service organization.

LO 3**Exercise 1-11A** *Identifying the effect of product versus selling, general, and administrative cost on the income statement*

Each of the following events describes acquiring an asset that requires a year-end adjusting entry.

- Paid \$14,000 cash on January 1 to purchase computer equipment to be used for administrative purposes. The equipment had an estimated expected useful life of four years and a \$2,000 salvage value.
- Paid \$14,000 cash on January 1 to purchase manufacturing equipment. The equipment had an estimated expected useful life of four years and a \$2,000 salvage value.
- Paid \$12,000 cash in advance on May 1 for a one-year rental contract on administrative offices.
- Paid \$12,000 cash in advance on May 1 for a one-year rental contract on manufacturing facilities.
- Paid \$2,000 cash to purchase supplies to be used by the marketing department. At the end of the year, \$400 of supplies was still on hand.
- Paid \$2,000 cash to purchase supplies to be used in the manufacturing process. At the end of the year, \$400 of supplies was still on hand.

Required

Explain how the adjusting entry affects the amount of net income shown on the year-end financial statements. Assume a December 31 annual closing date. The first event has been recorded as an example. Assume that any products that have been made have not been sold.

Event No.	Net Income
	Amount of Change
1. Adjusting entry	\$(3,000)

LO 4**Exercise 1-12A** *Upstream and downstream costs*

During 2011, Gallo Manufacturing Company incurred \$90,000,000 of research and development (R&D) costs to create a long-life battery to use in computers. In accordance with FASB standards, the entire R&D cost was recognized as an expense in 2011. Manufacturing costs (direct materials, direct labor, and overhead) are expected to be \$260 per unit. Packaging, shipping, and sales commissions are expected to be \$50 per unit. Gallo expects to sell 2,000,000 batteries before new research renders the battery design technologically obsolete. During 2011, Gallo made 440,000 batteries and sold 400,000 of them.

Required

- Identify the upstream and downstream costs.
- Determine the 2011 amount of cost of goods sold and the ending inventory balance.
- Determine the sales price assuming that Gallo desires to earn a profit margin that is equal to 25 percent of the *total cost* of developing, making, and distributing the batteries.
- Prepare an income statement for 2011. Use the sales price developed in Requirement *c*.
- Why would Gallo price the batteries at a level that would generate a loss for the 2011 accounting period?

LO 6**Exercise 1-13A** *Identify the effect of a just-in-time inventory system on financial statements*

After reviewing the financial statements of Bearden Company, Todd Howard concluded that the company was a service company. Mr. Howard based his conclusion on the fact that Bearden's financial statements displayed no inventory accounts.

Required

Explain how Bearden's implementation of a 100 percent effective just-in-time inventory system could have led Mr. Howard to a false conclusion regarding the nature of Bearden's business.

Exercise 1-14A *Using JIT to minimize waste and lost opportunity***LO 6**

Anne Kyser, a teacher at Hewitt Middle School, is in charge of ordering the T-shirts to be sold for the school's annual fund-raising project. The T-shirts are printed with a special Hewitt School logo. In some years, the supply of T-shirts has been insufficient to satisfy the number of sales orders. In other years, T-shirts have been left over. Excess T-shirts are normally donated to some charitable organization. T-shirts cost the school \$8 each and are normally sold for \$14 each. Ms. Kyser has decided to order 800 shirts.

Required

- If the school receives actual sales orders for 725 shirts, what amount of profit will the school earn? What is the cost of waste due to excess inventory?
- If the school receives actual sales orders for 825 shirts, what amount of profit will the school earn? What amount of opportunity cost will the school incur?
- Explain how a JIT inventory system could maximize profitability by eliminating waste and opportunity cost.

Exercise 1-15A *Using JIT to minimize holding costs***LO 6**

Lee Pet Supplies purchases its inventory from a variety of suppliers, some of which require a six-week lead time before delivering the goods. To ensure that she has a sufficient supply of goods on hand, Ms. Polk, the owner, must maintain a large supply of inventory. The cost of this inventory averages \$21,000. She usually finances the purchase of inventory and pays a 9 percent annual finance charge. Ms. Polk's accountant has suggested that she establish a relationship with a single large distributor who can satisfy all of her orders within a two-week time period. Given this quick turnaround time, she will be able to reduce her average inventory balance to \$4,000. Ms. Polk also believes that she could save \$2,500 per year by reducing phone bills, insurance, and warehousing rental space costs associated with ordering and maintaining the larger level of inventory.

Required

- Is the new inventory system available to Ms. Polk a pure or approximate just-in-time system?
- Based on the information provided, how much of Ms. Polk's inventory holding cost could be eliminated by taking the accountant's advice?

Exercise 1-16A *Applications of the Sarbanes-Oxley Act***LO 7**

The CFO of the Rigney Microscope Corporation intentionally misclassified a downstream transportation expense in the amount of \$67,500,000 as a product cost in an accounting period when the company made 12,000 microscopes and sold 7,000 microscopes. Rigney rewards its officers with bonuses that are based on net earnings.

Required

- Indicate whether the elements on the financial statements (i.e., assets, liabilities, equity, revenue, expense, and net income) would be overstated or understated as a result of the misclassification of the upstream research and development expense. Determine the amount of the overstatement or understatement for each element.
- Based on the provisions of the Sarbanes-Oxley Act, what is the maximum penalty that the CFO could face for deliberately misrepresenting the financial statements?

Exercise 1-17A *Professional conduct and code of ethics***LO 7**

In February 2006 former senator Warren Rudman of New Hampshire completed a 17-month investigation of an \$11 billion accounting scandal at Fannie Mae (a major enterprise involved in home mortgage financing). The Rudman investigation concluded that Fannie Mae's CFO and controller used an accounting gimmick to manipulate financial statements in order to meet earnings-per-share (EPS) targets. Meeting the EPS targets triggered bonus payments for the executives. Fannie Mae's problems continued after 2006, and on September 8, 2008, it went into conservatorship under the

control of the Federal Housing Financing Agency. The primary executives at the time of the Rudman investigation were replaced, and the enterprise reported a \$59.8 billion loss in 2008.

Required

Review the principles of ethical professional practice shown in Exhibit 1.15. Identify and comment on which of the ethical principles the CFO and controller violated.

LO 8



Exercise 1-18A Value chain analysis (Appendix)

Sonic Company manufactures and sells high-quality audio speakers. The speakers are encased in solid walnut cabinets supplied by Moore Cabinet, Inc. Moore packages the speakers in durable moisture-proof boxes and ships them by truck to Sonic manufacturing facility, which is located 50 miles from the cabinet factory.

Required

Identify the nonvalue-added activities that occur between the companies described in the preceding scenario. Provide a logical explanation as to how these nonvalue-added activities could be eliminated.

PROBLEMS—SERIES A



All applicable Problems in Series A are available with McGraw-Hill's *Connect Accounting*.

LO 2, 3

Problem 1-19A Product versus selling, general, and administrative costs

Jolly Manufacturing Company was started on January 1, 2011, when it acquired \$90,000 cash by issuing common stock. Jolly immediately purchased office furniture and manufacturing equipment costing \$10,000 and \$28,000, respectively. The office furniture had a five-year useful life and a zero salvage value. The manufacturing equipment had a \$4,000 salvage value and an expected useful life of three years. The company paid \$12,000 for salaries of administrative personnel and \$16,000 for wages to production personnel. Finally, the company paid \$18,000 for raw materials that were used to make inventory. All inventory was started and completed during the year. Jolly completed production on 5,000 units of product and sold 4,000 units at a price of \$15 each in 2011. (Assume that all transactions are cash transactions.)

Required

- Determine the total product cost and the average cost per unit of the inventory produced in 2011.
- Determine the amount of cost of goods sold that would appear on the 2011 income statement.
- Determine the amount of the ending inventory balance that would appear on the December 31, 2011, balance sheet.
- Determine the amount of net income that would appear on the 2011 income statement.
- Determine the amount of retained earnings that would appear on the December 31, 2011, balance sheet.
- Determine the amount of total assets that would appear on the December 31, 2011, balance sheet.

LO 3



Problem 1-20A Effect of product versus period costs on financial statements

Hoehn Manufacturing Company experienced the following accounting events during its first year of operation. With the exception of the adjusting entries for depreciation, assume that all transactions are cash transactions.

- Acquired \$50,000 cash by issuing common stock.
- Paid \$8,000 for the materials used to make its products, all of which were started and completed during the year.
- Paid salaries of \$4,400 to selling and administrative employees.
- Paid wages of \$7,000 to production workers.
- Paid \$9,600 for furniture used in selling and administrative offices. The furniture was acquired on January 1. It had a \$1,600 estimated salvage value and a four-year useful life.

CHECK FIGURES

- Average Cost per Unit: \$8.40
- \$90,400

CHECK FIGURES

- Cash balance: \$33,000
Net income: \$4,600

6. Paid \$13,000 for manufacturing equipment. The equipment was acquired on January 1. It had a \$1,000 estimated salvage value and a three-year useful life.
7. Sold inventory to customers for \$25,000 that had cost \$14,000 to make.

Required

Explain how these events would affect the balance sheet and income statement by recording them in a horizontal financial statements model as indicated here. The first event is recorded as an example.

Financial Statements Model							
Event No.	Assets				Equity		Rev. - Exp. = Net Inc.
	Cash	+ Inventory	+ Manuf. Equip.*	+ Office Furn.*	= Com. Stk.	+ Ret. Ear.	
1.	50,000				50,000		

*Record accumulated depreciation as negative amounts in these columns.

Problem 1-21A *Product versus selling, general, and administrative costs*

LO 2, 3

The following transactions pertain to 2012, the first-year operations of Hall Company. All inventory was started and completed during 2012. Assume that all transactions are cash transactions.

CHECK FIGURES

Net income: \$36
Total assets: \$4,036

1. Acquired \$4,000 cash by issuing common stock.
2. Paid \$720 for materials used to produce inventory.
3. Paid \$1,800 to production workers.
4. Paid \$540 rental fee for production equipment.
5. Paid \$180 to administrative employees.
6. Paid \$144 rental fee for administrative office equipment.
7. Produced 300 units of inventory of which 200 units were sold at a price of \$12 each.

Required

Prepare an income statement and a balance sheet.

Problem 1-22A *Service versus manufacturing companies*

LO 2, 3, 5

Goree Company began operations on January 1, 2011, by issuing common stock for \$30,000 cash. During 2011, Goree received \$40,000 cash from revenue and incurred costs that required \$60,000 of cash payments.



Required

Prepare an income statement and a balance sheet for Goree Company for 2011, under each of the following independent scenarios.

CHECK FIGURES

- a. Goree is a promoter of rock concerts. The \$60,000 was paid to provide a rock concert that produced the revenue.
- b. Goree is in the car rental business. The \$60,000 was paid to purchase automobiles. The automobiles were purchased on January 1, 2011, have four-year useful lives, with no expected salvage value. Goree uses straight-line depreciation. The revenue was generated by leasing the automobiles.
- c. Goree is a manufacturing company. The \$60,000 was paid to purchase the following items:
 - (1) Paid \$8,000 cash to purchase materials that were used to make products during the year.
 - (2) Paid \$20,000 cash for wages of factory workers who made products during the year.
 - (3) Paid \$2,000 cash for salaries of sales and administrative employees.
 - (4) Paid \$30,000 cash to purchase manufacturing equipment. The equipment was used solely to make products. It had a three-year life and a \$6,000 salvage value. The company uses straightline depreciation.
 - (5) During 2011, Goree started and completed 2,000 units of product. The revenue was earned when Goree sold 1,500 units of product to its customers.

a. Net loss: \$20,000
b. Total assets: \$55,500
c. Net income: \$11,000

- d. Refer to Requirement *c*. Could Goree determine the actual cost of making the 907th unit of product? How likely is it that the actual cost of the 907th unit of product was exactly the same as the cost of producing the 908th unit of product? Explain why management may be more interested in average cost than in actual cost.

LO 3, 7**CHECK FIGURES**

- a. Option 1: NI = \$38,000
 Option 2: Total
 Assets = \$82,000

Problem 1-23A Importance of cost classification

Cooke Manufacturing Company (CMC) was started when it acquired \$40,000 by issuing common stock. During the first year of operations, the company incurred specifically identifiable product costs (materials, labor, and overhead) amounting to \$24,000. CMC also incurred \$16,000 of engineering design and planning costs. There was a debate regarding how the design and planning costs should be classified. Advocates of Option 1 believe that the costs should be classified as general, selling, and administrative costs. Advocates of Option 2 believe it is more appropriate to classify the design and planning costs as product costs. During the year, CMC made 4,000 units of product and sold 3,000 units at a price of \$24 each. All transactions were cash transactions.

Required

- Prepare an income statement and a balance sheet under each of the two options.
- Identify the option that results in financial statements that are more likely to leave a favorable impression on investors and creditors.
- Assume that CMC provides an incentive bonus to the company president equal to 13 percent of net income. Compute the amount of the bonus under each of the two options. Identify the option that provides the president with the higher bonus.
- Assume a 35 percent income tax rate. Determine the amount of income tax expense under each of the two options. Identify the option that minimizes the amount of the company's income tax expense.
- Comment on the conflict of interest between the company president as determined in Requirement *c* and the owners of the company as indicated in Requirement *d*. Describe an incentive compensation plan that would avoid a conflict of interest between the president and the owners.

LO 6**Problem 1-24A Using JIT to reduce inventory holding costs**

Burt Manufacturing Company obtains its raw materials from a variety of suppliers. Burt's strategy is to obtain the best price by letting the suppliers know that it buys from the lowest bidder. Approximately four years ago, unexpected increased demand resulted in materials shortages. Burt was unable to find the materials it needed even though it was willing to pay premium prices. Because of the lack of raw materials, Burt was forced to close its manufacturing facility for two weeks. Its president vowed that her company would never again be at the mercy of its suppliers. She immediately ordered her purchasing agent to perpetually maintain a one-month supply of raw materials. Compliance with the president's orders resulted in a raw materials inventory amounting to approximately \$1,600,000. Warehouse rental and personnel costs to maintain the inventory amounted to \$8,000 per month. Burt has a line of credit with a local bank that calls for a 12 percent annual rate of interest. Assume that Burt finances the raw materials inventory with the line of credit.

Required

- Based on the information provided, determine the annual holding cost of the raw materials inventory.
- Explain how a JIT system could reduce Burt's inventory holding cost.
- Explain how most-favored customer status could enable Burt to establish a JIT inventory system without risking the raw materials shortages experienced in the past.

LO 6**Problem 1-25A Using JIT to minimize waste and lost opportunity**

CMA Review, Inc., provides review courses twice each year for students studying to take the CMA exam. The cost of textbooks is included in the registration fee. Text material requires constant updating and is useful for only one course. To minimize printing costs and ensure availability of books on the first day of class, CMA Review has books printed and delivered to its offices two

weeks in advance of the first class. To ensure that enough books are available, CMA Review normally orders 10 percent more than expected enrollment. Usually there is an oversupply and books are thrown away. However, demand occasionally exceeds expectations by more than 10 percent and there are too few books available for student use. CMA Review has been forced to turn away students because of a lack of textbooks. CMA Review expects to enroll approximately 100 students per course. The tuition fee is \$800 per student. The cost of teachers is \$25,000 per course, textbooks cost \$60 each, and other operating expenses are estimated to be \$35,000 per course.

CHECK FIGURES

- a. \$900
- b. \$3,700

Required

- a. Prepare an income statement, assuming that 95 students enroll in a course. Determine the cost of waste associated with unused books.
- b. Prepare an income statement, assuming that 115 students attempt to enroll in the course. Note that five students are turned away because of too few textbooks. Determine the amount of lost profit resulting from the inability to serve the five additional students.
- c. Suppose that textbooks can be produced through a high-speed copying process that permits delivery *just in time* for class to start. The cost of books made using this process, however, is \$65 each. Assume that all books must be made using the same production process. In other words, CMA Review cannot order some of the books using the regular copy process and the rest using the high-speed process. Prepare an income statement under the JIT system assuming that 95 students enroll in a course. Compare the income statement under JIT with the income statement prepared in Requirement *a*. Comment on how the JIT system would affect profitability.
- d. Assume the same facts as in Requirement *c* with respect to a JIT system that enables immediate delivery of books at a cost of \$65 each. Prepare an income statement under the JIT system, assuming that 115 students enroll in a course. Compare the income statement under JIT with the income statement prepared in Requirement *b*. Comment on how the JIT system would affect profitability.
- e. Discuss the possible effect of the JIT system on the level of customer satisfaction.

Problem 1-26A Internal control procedures

Adam Kimble is a model employee. He has not missed a day of work in the last five years. He even forfeits his vacation time to make sure that things run smoothly. Adam literally does the work of two people. He started out working as the purchasing agent in charge of buying raw materials for a small manufacturing company. Approximately five years ago the inventory control agent in the receiving department resigned. Adam agreed to assume the duties of the control agent until a replacement could be hired. After all, Adam said that he knew what was supposed to be delivered to the company because as the purchasing agent he had been the person who placed orders for the inventory purchases. Adam did such a good job that the company never got around to hiring a replacement. Adam received the employee of the year award five out of the last six years. Adam is also very active in his community. He works with underprivileged children. His weekends are always filled with community service. Indeed, his commitment to social consciousness is described by some people as bordering on fanatical.

Adam recently had a serious heart attack. People said that he had overworked himself. His hospital room was filled with flowers and a steady stream of friends visited him. So, people were in shock when Adam was charged with embezzlement. Ultimately, it was revealed that while Adam was in the hospital his replacement discovered that Adam had been purchasing excess quantities of raw materials. He then sold the extra materials and kept the money for himself. This became apparent when the companies to whom Adam had been selling the excess materials called to place new orders. It was difficult to determine the extent of the embezzlement. After the accounting department paid for Adam's excess purchases, he would remove the paid voucher forms from the accounting files and destroy them. Since the forms were not numbered, it was impossible to determine how many of the paid forms were missing. At his trial, Adam's only explanation was: "I did it for the children. They needed the money far more than the company needed it."

Required

- a. If the internal control procedures shown in Exhibit 1.17 had been followed, this embezzlement could have been avoided. Name the internal control procedures that were violated in this case.
- b. Identify the specific components of the fraud triangle that were present in this case.

LO 7

LO 8**Problem 1-27A** *Value chain analysis (Appendix)*

Jensen Company invented a new process for manufacturing ice cream. The ingredients are mixed in high-tech machinery that forms the product into small round beads. Like a bag of balls, the ice cream beads are surrounded by air pockets in packages. This design has numerous advantages. First, each bite of ice cream melts rapidly when placed in a person's mouth, creating a more flavorful sensation when compared to ordinary ice cream. Also, the air pockets mean that a typical serving includes a smaller amount of ice cream. This not only reduces materials cost but also provides the consumer with a low-calorie snack. A cup appears full of ice cream, but it is really half full of air. The consumer eats only half the ingredients that are contained in a typical cup of blended ice cream. Finally, the texture of the ice cream makes scooping it out of a large container a very easy task. The frustration of trying to get a spoon into a rock-solid package of blended ice cream has been eliminated. Jensen Company named the new product Sonic Cream.

Like many other ice cream producers, Jensen Company purchases its raw materials from a food wholesaler. The ingredients are mixed in Jensen's manufacturing plant. The packages of finished product are distributed to privately owned franchise ice cream shops that sell Sonic Cream directly to the public.

Jensen provides national advertising and is responsible for all research and development costs associated with making new flavors of Sonic Cream.

Required

- Based on the information provided, draw a comprehensive value chain for Jensen Company that includes its suppliers and customers.
- Identify the place in the chain where Jensen Company is exercising its opportunity to create added value beyond that currently being provided by its competitors.

EXERCISES—SERIES B**LO 1****Exercise 1-1B** *Financial versus managerial accounting items***Required**

Indicate whether each of the following items is representative of financial or managerial accounting.

- Condensed financial information sent to current investors at the end of each quarter.
- Audited financial statements submitted to bankers when applying for a line of credit.
- A weekly cash budget used by the treasurer to determine whether cash on hand is excessive.
- Monthly sales reports used by the vice president of marketing to help allocate funds.
- Divisional profit reports used by the company president to determine bonuses for divisional vice presidents.
- Financial results used by stockbrokers to evaluate a company's profitability.
- Quarterly budgets used by management to determine future borrowing needs.
- Financial statements prepared in accordance with generally accepted accounting principles.
- Annual financial reports submitted to the SEC in compliance with federal securities laws.
- Projected budget information used to make logistical decisions.

LO 2, 3**Exercise 1-2B** *Identifying product versus selling, general, and administrative costs***Required**

Indicate whether each of the following costs should be classified as a product cost or as a general, selling, and administrative cost.

- The salary of the cell phone manufacturing plant manager.
- The depreciation on administrative buildings.
- The depreciation on the company treasurer's computer.
- The fabric used in making a customized sofa for a customer.
- The salary of an engineer who maintains all manufacturing plant equipment.
- Wages paid to workers in a manufacturing plant.

- g. The salary of the receptionist working in the sales department.
- h. Supplies used in the sales department.
- i. Wages of janitors who clean the factory floor.
- j. The salary of the company president.

Exercise 1-3B *Classifying costs: product or period / asset or expense*

LO 2, 3

Required

Use the following format to classify each cost as a product cost or a selling, general, and administrative (SG&A) cost. Also indicate whether the cost would be recorded as an asset or an expense. The first cost item is shown as an example.

Cost Category	Product/ SG&A	Asset/ Expense
Supplies used in the plant manager's office	Product	Asset
Purchase of computers for the accounting department		
Depreciation on computers used in factory		
Natural gas used in the factory		
Cost of television commercials		
Wages of factory workers		
Paper and ink cartridges used in the cashier's office		
Raw material used to make products		
Lubricant used to maintain factory equipment		
Cost of a delivery truck		
Cash dividend to stockholders		
Cost of merchandise shipped to customers		
Depreciation on vehicles used by salespeople		
Wages of administrative building security guards		

Exercise 1-4B *Effect of product versus selling, general, and administrative costs on financial statements*

LO 3

Required

Pedigo Plastics Company accrued a tax liability for \$4,000. Use the following horizontal financial statements model to show the effect of this accrual under the following two assumptions: (1) the tax is on administrative buildings, or (2) the tax is on production equipment. Use plus signs and/or minus signs to show the effect on each element. If an element is not affected, indicate so by placing the letters NA under the appropriate heading.

	Assets	=	Liab.	+	Equity	Rev.	-	Exp.	=	Net Inc.
1.										
2.										

Exercise 1-5B *Effect of product versus selling, general, and administrative cost on financial statements*

LO 3

Required

Stanley Corporation recognized the annual expiration of insurance on December 31, 2012. Using the following horizontal financial statements model shown, indicate how this event affected the company's financial statements under the following two assumptions: (1) the insurance was for office equipment, or (2) the insurance was for manufacturing equipment. Indicate whether the event increases (I), decreases (D), or does not affect (NA) each element of the financial statements.

Event No.	Assets			Equity		Rev.	-	Exp.	=	Net Inc.
	Cash	Prepaid Insurance	Inventory	Com. Stk.	Ret. Ear.					
1.										
2.										

LO 2**Exercise 1-6B** *Product costs in a manufacturing company*

Because friends and neighbors frequently praise her baking skills, Martha Plott plans to start a new business baking cakes for customers. She wonders how to determine the cost of her cakes.

Required

- Identify and give examples of the three components of product cost incurred in producing cakes.
- Explain why measuring product cost for a bakery is more complex than measuring product cost for a retail store.
- Assume that Martha decides to bake cakes for her customers at her home. Consequently, she will avoid the cost of renting a bakery. However, her home utility bills will increase. She also plans to offer different types of cakes for which baking time will vary. Cakes mixed with ice cream will require freezing, and other cakes will need refrigeration. Some can cool at room temperature. Under these circumstances, how can Martha estimate the amount of utility cost required to produce a given cake? Identify two costs other than utility cost that she will incur that could be difficult to measure.

LO 3**Exercise 1-7B** *Product versus selling, general, and administrative costs*

In reviewing Laxton Company's September accounting records, Mitchell Hinz, the chief accountant, noted the following depreciation costs.

- Factory buildings—\$25,000.
- Computers used in manufacturing—\$4,000.
- A building used to display finished products—\$8,000.
- Trucks used to deliver merchandise to customers—\$14,000.
- Forklifts used in the factory—\$22,000.
- Furniture used in the president's office—\$9,000.
- Elevators in administrative buildings—\$6,000.
- Factory machinery—\$9,000.

Required

- What amount of depreciation cost would be classified as selling, general, and administrative expense?
- Assume that Laxton manufactured 3,000 units of product and sold 2,000 units of product during the month of September. Determine the amount of depreciation cost that would be included in cost of goods sold.

LO 2, 3**Exercise 1-8B** *Recording product versus selling, general, and administrative costs in a financial statements model*

Reid Electronics Company experienced the following events during its first accounting period.

- Received \$120,000 cash by issuing common stock.
- Paid \$18,000 cash for wages to production workers.
- Paid \$9,000 for salaries to administrative staff.
- Purchased for cash and used \$9,000 of raw materials.
- Recognized \$1,000 of depreciation on administrative offices.
- Recognized \$1,500 of depreciation on manufacturing equipment.

7. Recognized \$48,000 of sales revenue from cash sales of products.
8. Recognized \$30,000 of cost of goods sold from the sale referenced in Event 7.

Required

Use a horizontal financial statements model to show how each event affects the balance sheet and income statement. Indicate whether the event increases (I), decreases (D), or does not affect (NA) each element of the financial statements. The first transaction is shown as an example. (Note: Show accumulated depreciation as a decrease in the book value of the appropriate asset account.)

Event No.	Assets				Equity		Rev.	Exp.	Net Inc.
	Cash	+ Inventory	+ Manuf. Equip.	+ Adm. Offices	= Com. Stk.	+ Ret. Ear.			
1.	I	NA	NA	NA	I	NA	NA	NA	NA

Exercise 1-9B *Allocating product costs between ending inventory and cost of goods sold*

LO 2

Ryan Manufacturing Company began operations on January 1. During January, it started and completed 3,000 units of product. The company incurred the following costs:

1. Raw materials purchased and used—\$5,000.
2. Wages of production workers—\$4,000.
3. Salaries of administrative and sales personnel—\$2,000.
4. Depreciation on manufacturing equipment—\$3,000.
5. Depreciation on administrative equipment—\$2,400.

Ryan sold 2,500 units of product.

Required

- a. Determine the total product cost.
- b. Determine the total cost of the ending inventory.
- c. Determine the total of cost of goods sold.

Exercise 1-10B *Financial statement effects for manufacturing versus service organizations*

LO 3

The following horizontal financial statements model shows the effects of recording the expiration of insurance in two different circumstances. One circumstance represents the expiration of insurance on a factory building. The other circumstance represents the expiration of insurance on an administrative building. The effects of each event have been recorded using the letters (I) for increase, (D) for decrease, and (NA) for no effect.

Event No.	Assets			Equity		Rev.	Exp.	Net Inc.
	Cash	+ Prepaid Insurance	+ Inventory	= Com. Stk.	+ Ret. Ear.			
1.	NA	D	I	NA	NA	NA	NA	NA
2.	NA	D	NA	NA	D	NA	I	D

Required

- a. Identify the event that represents the expiration of insurance on the factory building.
- b. Explain why recognizing the expiration of insurance on a factory building affects financial statements differently than recognizing the expiration of insurance on an administrative building.

LO 3**Exercise 1-11B** *Effect of product versus selling, general, and administrative cost on the income statement*

Each of the following asset acquisitions requires a year-end adjusting entry.

1. Paid \$80,000 cash on January 1 to purchase a hamburger franchise that had an estimated expected useful life of 10 years and no salvage value.
2. Paid \$80,000 cash on January 1 to purchase a patent to manufacture a special product. The patent had an estimated expected useful life of 10 years.
3. Paid \$10,000 cash on April 1 for a one-year insurance policy on the administrative building.
4. Paid \$10,000 cash on April 1 for a one-year insurance policy on the manufacturing building.
5. Paid \$5,400 cash to purchase office supplies for the accounting department. At the end of the year, \$1,000 of office supplies was still on hand.
6. Paid \$5,400 cash to purchase factory supplies. At the end of the year, \$500 of factory supplies was still on hand.

Required

Explain how the adjusting entry affects the amount of net income reported in the annual financial statements. The first event is shown as an example. Assume that any products that have been made have not been sold.

Event No.	Net Income
	Amount of Change
1. Adjusting Entry	(8,000)

LO 4**Exercise 1-12B** *Upstream and downstream costs*

During 2011 Jada Pharmaceutical Company incurred \$50,000,000 of research and development (R&D) costs to develop a new hay fever drug called Allergone. In accordance with FASB standards, the entire R&D cost was recognized as expense in 2011. Manufacturing costs (direct materials, direct labor, and overhead) to produce Allergone are expected to be \$40 per unit. Packaging, shipping, and sales commissions are expected to be \$5 per unit. Jada expects to sell 5,000,000 units of Allergone before developing a new drug to replace it in the market. During 2011, Jada produced 800,000 units of Allergone and sold 500,000 of them.

Required

- a. Identify the upstream and downstream costs.
- b. Determine the 2011 amount of cost of goods sold and the December 31, 2011, ending inventory balance.
- c. Determine the unit sales price Jada should establish assuming it desires to earn a profit margin equal to 40 percent of the *total cost* of developing, manufacturing, and distributing Allergone.
- d. Prepare an income statement for 2011 using the sales price from Requirement c.
- e. Why would Jada price Allergone at a level that would generate a loss for 2011?

LO 6**Exercise 1-13B** *Effect of a just-in-time inventory system on financial statements*

In reviewing Kopplin Company's financial statements for the past two years, Nancy Martin, a bank loan officer, noticed that the company's inventory level had increased significantly while sales revenue had remained constant. Such a trend typically indicates increasing inventory carrying costs and slowing cash inflows. Ms. Martin concluded that the bank should deny Kopplin's credit line application.

Required

Explain how implementing an effective just-in-time inventory system would affect Kopplin's financial statements and possibly reverse Ms. Martin's decision about its credit line application.

Exercise 1-14B *Using JIT to minimize waste and lost opportunity***LO 6**

May Motz is the editor-in-chief of her school's yearbook. The school has 1,000 students and 60 faculty and staff members. The firm engaged to print copies of the yearbook charges the school \$13 per book and requires a 10-day lead time for delivery. May and her editors plan to order 800 copies to sell at the school fair for \$20 each.

Required

- If the school sells 700 yearbooks, what amount of profit will it earn? What is the cost of waste due to excess inventory?
- If 150 buyers are turned away after all yearbooks have been sold, what amount of profit will the school earn? What amount of opportunity cost will the school incur?
- How could May use a JIT inventory system to maximize profits by eliminating waste and opportunity cost?

Exercise 1-15B *Using JIT to minimize holding costs***LO 6**

Olivia's Beauty Salon purchases inventory supplies from a variety of vendors, some of which require a four-week lead time before delivering inventory purchases. To ensure that she will not run out of supplies, Olivia Stear, the owner, maintains a large inventory. The average cost of inventory on hand is \$9,000. Ms. Stear usually finances inventory purchases with a line of credit that has a 12 percent annual interest charge. Her accountant has suggested that she purchase all inventory from a single large distributor that can satisfy all of her orders within a three-day period. With such prompt delivery, Ms. Stear would be able to reduce her average inventory balance to \$2,000. She also believes that she could save \$1,000 per year through reduced phone bills, insurance costs, and warehouse rental costs associated with ordering and maintaining the higher level of inventory.

Required

- Is the inventory system the accountant suggested to Ms. Stear a pure or approximate just-in-time system?
- Based on the information provided, how much inventory holding cost could Ms. Stear eliminate by taking the accountant's advice?

Exercise 1-16B *The fraud triangle***LO 7**

The accounting records of Rice Manufacturing Company (RMC) revealed that the company incurred \$3 million of materials, \$5 million of production labor, \$4 million of manufacturing overhead, and \$6 million of selling, general, and administrative expense during 2011. It was discovered that RMC's chief financial officer (CFO) included \$2.6 million dollars of upstream research and development expense in the manufacturing overhead account when it should have been classified as selling, general, and administrative expense. RMC made 5,000 units of product and sold 4,000 units of product in 2011.

Required

- Indicate whether the elements on the 2011 financial statements (i.e., assets, liabilities, equity, revenue, expense, and net income) would be overstated or understated as a result of the misclassification of the upstream research and development expense. Determine the amount of the overstatement or understatement for each element.
- Speculate as to what would cause the CFO to intentionally misclassify the research and development expense. (Hint: Review the chapter material regarding the fraud triangle.)

Exercise 1-17B *Applications of the Sarbanes-Oxley Act***LO 7**

Greg Madrid, a HealthSouth billing clerk, filed a suit under the False Claims Act charging that HealthSouth purchased computer equipment from a company owned by Richard Scrusby's parents at prices two and three times the normal price. At the time, Richard Scrusby was the CEO of HealthSouth. The overcharges inflated HealthSouth's expense ratios that the government used when calculating a Medicare reimbursement rate. As a result, the government was overcharged for services provided by HealthSouth. While refusing to recognize any wrongdoing, HealthSouth agreed to pay an \$8 million settlement related to the lawsuit brought by the whistleblower.



Required

Explain how the provisions of Sarbanes-Oxley would provide protection to a whistleblower such as Greg Madrid.

LO 10**Exercise 1-18B** *Value chain analysis (Appendix)*

Fastidious Vincent washed his hair at home and then went to a barbershop for a haircut. The barber explained that shop policy is to shampoo each customer's hair before cutting, regardless of how recently it had been washed. Somewhat annoyed, Vincent submitted to the shampoo, after which the barber cut his hair with great skill. After the haircut, the barber dried his hair and complimented Vincent on his appearance. He added, "That will be \$18; \$3 for the shampoo and \$15 for the cut and dry." Vincent did not tip the barber.

Required

Identify the nonvalue-added activity described. How could the barber modify this nonvalue-added activity?

PROBLEMS—SERIES B**LO 2, 3****Problem 1-19B** *Product versus selling, general, and administrative costs*

Garcin Manufacturing Company was started on January 1, 2011, when it acquired \$180,000 cash by issuing common stock. Garcin immediately purchased office furniture and manufacturing equipment costing \$20,000 and \$38,000, respectively. The office furniture had a four-year useful life and a zero salvage value. The manufacturing equipment had a \$2,000 salvage value and an expected useful life of six years. The company paid \$14,000 for salaries of administrative personnel and \$18,000 for wages of production personnel. Finally, the company paid \$24,000 for raw materials that were used to make inventory. All inventory was started and completed during the year. Garcin completed production on 8,000 units of product and sold 6,000 units at a price of \$14 each in 2011. (Assume that all transactions are cash transactions.)

Required

- Determine the total product cost and the average cost per unit of the inventory produced in 2011.
- Determine the amount of cost of goods sold that would appear on the 2011 income statement.
- Determine the amount of the ending inventory balance that would appear on the December 31, 2011, balance sheet.
- Determine the amount of net income that would appear on the 2011 income statement.
- Determine the amount of retained earnings that would appear on the December 31, 2011, balance sheet.
- Determine the amount of total assets that would appear on the December 31, 2011, balance sheet.

LO 2, 3**Problem 1-20B** *Effect of product versus selling, general, and administrative costs on financial statements*

Windsor Company experienced the following accounting events during its first year of operation. With the exception of the adjusting entries for depreciation, all transactions were cash transactions.

- Acquired \$80,000 cash by issuing common stock.
- Paid \$15,000 for the materials used to make its products. All products started were completed during the period.
- Paid salaries of \$6,000 to selling and administrative employees.
- Paid wages of \$9,000 to production workers.
- Paid \$12,000 for furniture used in selling and administrative offices. The furniture was acquired on January 1. It had a \$1,500 estimated salvage value and a seven-year useful life.

6. Paid \$22,000 for manufacturing equipment. The equipment was acquired on January 1. It had a \$2,000 estimated salvage value and a five-year useful life.
7. Sold inventory to customers for \$43,000 that had cost \$25,000 to make.

Required

Explain how these events would affect the balance sheet and income statement by recording them in a horizontal financial statements model as indicated here. The first event is recorded as an example.

Financial Statements Model						
Event No.	Assets			Equity		Rev. - Exp. = Net Inc.
	Cash	+ Inventory	+ Manuf. Equip.* + Office Furn.*	=	Com. Stk.	
1.	80,000				80,000	

*Record accumulated depreciation as negative amounts in these columns.

Problem 1-21B *Product versus selling, general, and administrative costs*

LO 2, 3

The following transactions pertain to 2012, the first year of operations of Jardine Company. All inventory was started and completed during the accounting period. All transactions were cash transactions.

1. Acquired \$56,000 of contributed capital from its owners.
2. Paid \$9,600 for materials used to produce inventory.
3. Paid \$4,400 to production workers.
4. Paid \$5,000 rental fee for production equipment.
5. Paid \$1,500 to administrative employees.
6. Paid \$3,200 rental fee for administrative office equipment.
7. Produced 1,900 units of inventory of which 1,500 units were sold at a price of \$17.40 each.

Required

Prepare an income statement and a balance sheet.

Problem 1-22B *Service versus manufacturing companies*

LO 2, 3, 5

Knoll Company began operations on January 1, 2012, by issuing common stock for \$94,000 cash. During 2012, Knoll received \$77,000 cash from revenue and incurred costs that required \$90,000 of cash payments.



Required

Prepare an income statement and a balance sheet for Knoll Company for 2012, under each of the following independent scenarios.

- a. Knoll is an employment agency. The \$90,000 was paid for employee salaries and advertising.
- b. Knoll is a trucking company. The \$90,000 was paid to purchase two trucks. The trucks were purchased on January 1, 2012, had five-year useful lives and no expected salvage value. Knoll uses straight-line depreciation.
- c. Knoll is a manufacturing company. The \$90,000 was paid to purchase the following items:
 - (1) Paid \$18,000 cash to purchase materials used to make products during the year.
 - (2) Paid \$28,000 cash for wages to production workers who make products during the year.
 - (3) Paid \$4,000 cash for salaries of sales and administrative employees.
 - (4) Paid \$40,000 cash to purchase manufacturing equipment. The equipment was used solely for the purpose of making products. It had a six-year life and a \$4,000 salvage value. The company uses straight-line depreciation.
 - (5) During 2012, Knoll started and completed 2,600 units of product. The revenue was earned when Knoll sold 2,200 units of product to its customers.

- d. Refer to Requirement *c*. Could Knoll determine the actual cost of making the 500th unit of product? How likely is it that the actual cost of the 500th unit of product was exactly the same as the cost of producing the 501st unit of product? Explain why management may be more interested in average cost than in actual cost.

LO 2, 3, 7**Problem 1-23B** *Importance of cost classification*

Livy Company was started when it acquired \$70,000 by issuing common stock. During the first year of operations, the company incurred specifically identifiable product costs (materials, labor, and overhead) amounting to \$40,000. Livy also incurred \$20,000 of product development costs. There was a debate regarding how the product development costs should be classified. Advocates of Option 1 believed that the costs should be included in the selling, general, and administrative cost category. Advocates of Option 2 believed it would be more appropriate to classify the product development costs as product costs. During the first year, Livy made 10,000 units of product and sold 8,000 units at a price of \$14 each. All transactions were cash transactions.

Required

- Prepare an income statement and a balance sheet under each of the two options.
- Identify the option that results in financial statements that are more likely to leave a favorable impression on investors and creditors.
- Assume that Livy provides an incentive bonus to the company president that is equal to 8 percent of net income. Compute the amount of the bonus under each of the two options. Identify the option that provides the president with the higher bonus.
- Assume a 35 percent income tax rate. Determine the amount of income tax expense under each of the two options. Identify the option that minimizes the amount of the company's income tax expense.
- Comment on the conflict of interest between the company president as determined in Requirement *c* and the stockholders of the company as indicated in Requirement *d*. Describe an incentive compensation plan that would avoid conflicts between the interests of the president and the owners.

LO 6**Problem 1-24B** *Using JIT to reduce inventory holding costs*

Olsen Automobile Dealership, Inc. (OAD), buys and sells a variety of cars made by Great Motor Corporation. OAD maintains about 30 new cars in its parking lot for customers' selection; the cost of this inventory is approximately \$400,000. Additionally, OAD hires security guards to protect the inventory from theft and a maintenance crew to keep the facilities attractive. The total payroll cost for the guards and maintenance crew amounts to \$75,000 per year. OAD has a line of credit with a local bank that calls for a 15 percent annual rate of interest. Recently, Neil Tanner, the president of OAD, learned that a competitor in town, Pardoe Dealership, has been attracting some of OAD's usual customers because Pardoe could offer them lower prices. Mr. Tanner also discovered that Pardoe carries no inventory at all but shows customers a catalog of cars as well as pertinent information from online computer databases. Pardoe promises to deliver any car that a customer identifies within three working days.

Required

- Based on the information provided, determine OAD's annual inventory holding cost.
- Name the inventory system that Pardoe uses and explain how the system enables Pardoe to sell at reduced prices.

LO 6**Problem 1-25B** *Using JIT to minimize waste and lost opportunity*

Mark's Hamburger is a small fast-food shop in a busy shopping center that operates only during lunch hours. Mark Haygood, the owner and manager of the shop, is confused. On some days, he does not have enough hamburgers to satisfy customer demand. On other days, he has more hamburgers than he can sell. When he has excess hamburgers, he has no choice but to dump them. Usually, Mr. Haygood prepares about 160 hamburgers before the busy lunch hour. The product cost per hamburger is approximately \$0.75; the sales price is \$3.00 each. Mr. Haygood pays general, selling, and administrative expenses that include daily rent of \$60 and daily wages of \$40.

Required

- Prepare an income statement based on sales of 100 hamburgers per day. Determine the cost of wasted hamburgers if 160 hamburgers were prepared in advance.
- Prepare an income statement assuming that 200 customers attempt to buy a hamburger. Since Mr. Haygood has prepared only 160 hamburgers, he must reject 40 customer orders because of insufficient supply. Determine the amount of lost profit.
- Suppose that hamburgers can be prepared quickly after each customer orders. However, Mr. Haygood must hire an additional part-time employee at a cost of approximately \$20 per day. The per unit cost of each hamburger remains at \$0.75. Prepare an income statement under the JIT system assuming that 100 hamburgers are sold. Compare the income statement under JIT with the income statement prepared in Requirement *a*. Comment on how the JIT system would affect profitability.
- Assume the same facts as in Requirement *c* with respect to a JIT system that requires additional labor costing \$20 per day. Prepare an income statement under the JIT system, assuming that 200 hamburgers are sold. Compare the income statement under JIT with the income statement prepared in Requirement *b*. Comment on how the JIT system would affect profitability.
- Explain how the JIT system might be able to improve customer satisfaction as well as profitability.

Problem 1-26B *The fraud triangle, ethics, and the Sarbanes-Oxley Act***LO 7**

The CEO and the CFO of Automation Company were both aware that the company's controller was reporting fraudulent revenues. Upper level executives are paid very large bonuses when the company meets the earnings goals established in the company's budgets. While the CEO had pushed the CFO and controller to "make the numbers," he had not told him to "make up the numbers." Besides, he could plead ignorance if the fraud was ever discovered. The CFO knew he should prohibit the fraudulent reporting but also knew the importance of making the numbers established in the budget. He told himself that it wasn't just for his bonus but for the stockholders as well. If the actual earnings were below the budgeted target numbers, the stock price would drop and the shareholders would suffer. Besides, he believed that the actual revenues would increase dramatically in the near future and they could cover for the fraudulent revenue by underreporting these future revenues. He concluded that no one would get hurt and everything would be straightened out in the near future.

Required

- Explain why the internal control practice of separation of duties failed to prevent the fraudulent reporting.
- Identify and discuss the elements of the fraud triangle that motivated the fraud.
- Explain how the provisions of the Sarbanes-Oxley Act would serve to deter this type of fraudulent reporting.
- Review the statement of ethical professional practice shown in Exhibit 1.15. Identify and comment on which of the ethical principles were violated by the CFO.

Problem 1-27B *Value chain analysis (Appendix)***LO 8**

Ellen Milan visited her personal physician for treatment of flu symptoms. She was greeted by the receptionist, who gave her personal history and insurance forms to complete. She needed no instructions; she completed these same forms every time she visited the doctor. After completing the forms, Ms. Milan waited for 30 minutes before being ushered into the patient room. After waiting there for an additional 15 minutes, Dr. Heape entered the room. The doctor ushered Ms. Milan into the hallway where he weighed her and called her weight out to the nurse for recording. Ms. Milan had gained 10 pounds since her last visit, and the doctor suggested that she consider going on a diet. Dr. Heape then took her temperature and asked her to return to the patient room. Ten minutes later, he returned to take a throat culture and draw blood. She waited another 15 minutes for the test results. Finally, the doctor returned and told Ms. Milan that she had strep throat and bronchitis. Dr. Heape prescribed an antibiotic and told her to get at least two days of bed rest. Ms. Milan was then ushered to the accounting department to settle her bill. The accounting clerk asked her several questions; the answers to most of them were on the forms that she had completed when she first arrived at the office. Finally, Ms. Milan paid her required copayment and left the office. Three weeks later, she received a bill indicating that she had not paid the copayment. She called the accounting department, and after a search of the records, the

clerk verified that the bill had, in fact, been paid. The clerk apologized for the inconvenience and inquired as to whether Ms. Milan's health had improved.

Required

- Identify at least three value-added and three nonvalue-added activities suggested in this scenario.
- Provide logical suggestions for how to eliminate the nonvalue-added activities.

ANALYZE, THINK, COMMUNICATE

ATC 1-1 Business Applications Case *Financial versus managerial accounting*

The following information was taken from the 2008 and 2009 Form 10-Ks for Dell, Inc.



	Fiscal Year Ended	
	January 30, 2009	February 1, 2008
Number of regular employees	76,500	82,700
Number of temporary employees	2,400	5,500
Revenues (in millions)	\$61,101	\$61,133
Properties owned or leased in the U.S.	7.4 million square feet	8.2 million square feet
Properties owned or leased outside the U.S.	9.4 million square feet	9.7 million square feet
Total assets (in millions)	\$26,500	\$27,561
Cross margin (in millions)	\$10,957	\$11,671

Required

- Explain whether each line of information in the table above would best be described as being primarily financial accounting or managerial accounting in nature.
- Provide some additional examples of managerial and financial accounting information that could apply to Dell.
- If you analyze only the data you identified as financial in nature, does it appear that Dell's 2009 fiscal year was better or worse than its 2008 fiscal year? Explain.
- If you analyze only the data you identified as managerial in nature, does it appear that Dell's 2009 fiscal year was better or worse than its 2008 fiscal year? Explain.

ATC 1-2 Group Assignment *Product versus upstream and downstream costs*



Victor Holt, the accounting manager of Sexton, Inc., gathered the following information for 2011. Some of it can be used to construct an income statement for 2011. Ignore items that do not appear on an income statement. Some computation may be required. For example, the cost of manufacturing equipment would not appear on the income statement. However, the cost of manufacturing equipment is needed to compute the amount of depreciation. All units of product were started and completed in 2011.

- Issued \$864,000 of common stock.
- Paid engineers in the product design department \$10,000 for salaries that were accrued at the end of the previous year.
- Incurred advertising expenses of \$70,000.
- Paid \$720,000 for materials used to manufacture the company's product.
- Incurred utility costs of \$160,000. These costs were allocated to different departments on the basis of square footage of floor space. Mr. Holt identified three departments and determined the square footage of floor space for each department to be as shown in the table below.

Department	Square Footage
Research and development	10,000
Manufacturing	60,000
Selling and administrative	<u>30,000</u>
Total	<u>100,000</u>

6. Paid \$880,000 for wages of production workers.
7. Paid cash of \$658,000 for salaries of administrative personnel. There was \$16,000 of accrued salaries owed to administrative personnel at the end of 2011. There was no beginning balance in the Salaries Payable account for administrative personnel.
8. Purchased manufacturing equipment two years ago at a cost of \$10,000,000. The equipment had an eight-year useful life and a \$2,000,000 salvage value.
9. Paid \$390,000 cash to engineers in the product design department.
10. Paid a \$258,000 cash dividend to owners.
11. Paid \$80,000 to set up manufacturing equipment for production.
12. Paid a one-time \$186,000 restructuring cost to redesign the production process to implement a just-in-time inventory system.
13. Prepaid the premium on a new insurance policy covering nonmanufacturing employees. The policy cost \$72,000 and had a one-year term with an effective starting date of May 1. Four employees work in the research and development department and eight employees in the selling and administrative department. Assume a December 31 closing date.
14. Made 69,400 units of product and sold 60,000 units at a price of \$70 each.

Required

- a. Divide the class into groups of four or five students per group, and then organize the groups into three sections. Assign Task 1 to the first section of groups, Task 2 to the second section of groups, and Task 3 to the third section of groups.

Group Tasks

- (1) Identify the items that are classified as product costs and determine the amount of cost of goods sold reported on the 2011 income statement.
 - (2) Identify the items that are classified as upstream costs and determine the amount of upstream cost expensed on the 2011 income statement.
 - (3) Identify the items that are classified as downstream costs and determine the amount of downstream cost expensed on the 2011 income statement.
- b. Have the class construct an income statement in the following manner. Select a member of one of the groups assigned the first group task identifying the product costs. Have that person go to the board and list the costs included in the determination of cost of goods sold. Anyone in the other groups who disagrees with one of the classifications provided by the person at the board should voice an objection and explain why the item should be classified differently. The instructor should lead the class to a consensus on the disputed items. After the amount of cost of goods sold is determined, the student at the board constructs the part of the income statement showing the determination of gross margin. The exercise continues in a similar fashion with representatives from the other sections explaining the composition of the upstream and downstream costs. These items are added to the income statement started by the first group representative. The final result is a completed income statement.

ATC 1-3 Research Assignment *Identifying product costs at Snap-on Inc.*

Use the 2008 Form 10-K for [Snap-on Inc.](#) to complete the requirements below. To obtain the Form 10-K you can use either use the EDGAR system following the instructions in Appendix A, or it can be found under “Corporate Information” on the company’s corporate website; www.snapon.com. Read carefully the following portions of the document:

- “Products and Services” on page 5.
“Consolidated Statement of Earnings” on page 55.
The following parts of Note 1 on page 60:
 - “Shipping and handling”
 - “Advertising and promotion”
- “Note 4: Inventories” on page 66.
- “Note 5: Property and equipment” on page 67.



Required

- Does the level of detail that Snap-on provides regarding costs incurred to manufacture its products suggest the company's financial statements are designed primarily to meet the needs of external or internal users?
- Does Snap-on treat shipping and handling costs as product or period costs?
- Does Snap-on treat advertising and promotion costs as product or period costs?
- In the first accounting course you learned about a class of inventory called merchandise inventory. What categories of inventory does Snap-on report in its annual report?
- What is the cost of the land owned by Snap-on? What is the cost of its machinery and equipment?

ATC 1-4 Writing Assignment *Emerging practices in managerial accounting*

An annual report of the **Maytag Corporation** contained the following excerpt:

The Company announced the restructuring of its major appliance operations in an effort to strengthen its position in the industry and to deliver improved performance to both customers and shareowners. This included the consolidation of two separate organizational units into a single operation responsible for all activities associated with the manufacture and distribution of the Company's brands of major appliances and the closing of a cooking products plant in Indianapolis, Indiana, with transfer of that production to an existing plant in Cleveland, Tennessee.

The restructuring cost Maytag \$40 million and disrupted the lives of many of the company's employees.

Required

Assume that you are Maytag's vice president of human relations. Write a letter to the employees who are affected by the restructuring. The letter should explain why it was necessary for the company to undertake the restructuring. Your explanation should refer to the ideas discussed in the section "Emerging Trends in Managerial Accounting" of this chapter (see Appendix A).

ATC 1-5 Ethical Dilemma *Product cost versus selling and administrative expense*

Emma Emerson is a proud woman with a problem. Her daughter has been accepted into a prestigious law school. While Ms. Emerson beams with pride, she is worried sick about how to pay for the school; she is a single parent who has worked hard to support herself and her three children. She had to go heavily into debt to finance her own education. Even though she now has a good job, family needs have continued to outpace her income and her debt burden is staggering. She knows she will be unable to borrow the money needed for her daughter's law school.

Ms. Emerson is the chief financial officer (CFO) of a small manufacturing company. She has just accepted a new job offer. Indeed, she has not yet told her employer that she will be leaving in a month. She is concerned that her year-end incentive bonus may be affected if her boss learns of her plans to leave. She plans to inform the company immediately after receiving the bonus. She knows her behavior is less than honorable, but she believes that she has been underpaid for a long time. Her boss, a relative of the company's owner, makes twice what she makes and does half the work. Why should she care about leaving with a little extra cash? Indeed, she is considering an opportunity to boost the bonus.

Ms. Emerson's bonus is based on a percentage of net income. Her company recently introduced a new product line that required substantial production start-up costs. Ms. Emerson is fully aware that GAAP requires these costs to be expensed in the current accounting period, but no one else in the company has the technical expertise to know exactly how the costs should be treated. She is considering misclassifying the start-up costs as product costs. If the costs are misclassified, net income will be significantly higher, resulting in a nice boost in her incentive bonus. By the time the auditors discover the misclassification, Ms. Emerson will have moved on to her new job. If the matter is brought to the attention of her new employer, she will simply plead ignorance. Considering her daughter's needs, Ms. Emerson decides to classify the start-up costs as product costs.

Required

- Based on this information, indicate whether Ms. Emerson believes the number of units of product sold will be equal to, less than, or greater than, the number of units made. Write a brief paragraph explaining the logic that supports your answer.
- Explain how the misclassification could mislead an investor or creditor regarding the company's financial condition.



Required

Place formulas in row 16 to automatically add the columns. Also add formulas in column S to calculate net income after each event, and add formulas in row 18 to compute total assets and equity. Notice that you must enter the events since only the first one is shown as an example.

Spreadsheet Tips

1. The column widths are set by choosing **F**ormat, then **C**olumn, and then **W**idth.
2. The shading in columns B, N, and T is added by highlighting a column and choosing **F**ormat, then **C**ells, and then clicking on the tab titled **P**atterns and choosing a color.
3. The sum function is an easy way to add a column or row. For example, the formula in cell C16 is =SUM(C6:C15).
4. As an example of the formulas in column S (net income), the formula in cell S7 is =O7-Q7.
5. If you find that some of the columns are too far to the right to appear on your screen, you can set the zoom level to show the entire spreadsheet. The zoom is set by choosing **V**iew, then **Z**oom, and then clicking on **C**ustom and typing 100 percent in the box. The shortcut method to set the zoom is to click in the box on the right side of the top tool bar that appears immediately below the menu.

COMPREHENSIVE PROBLEM

Magnificent Modems, Inc., makes modem cards that are used in notebook computers. The company completed the following transactions during 2010. All purchases and sales were made with cash.

1. Acquired \$750,000 of cash from the owners.
2. Purchased \$270,000 of manufacturing equipment. The equipment has a \$30,000 salvage value and a four-year useful life. Label the purchase of the equipment as **Event 2a** and the recognition of depreciation as **Event 2b**.
3. The company started and completed 5,000 modems. Direct materials purchased and used amounted to \$40 per unit.
4. Direct labor costs amounted to \$25 per unit.
5. The cost of manufacturing supplies used amounted to \$4 per unit.
6. The company paid \$50,000 to rent the manufacturing facility.
7. Magnificent sold all 5,000 units at a cash price of \$120 per unit. Label the recognition of the sale as **Event 7a** and the cost of goods sold as **Event 7b**. (Hint: It will be necessary to determine the manufacturing costs in order to record the cost of goods sold.)
8. The sales staff was paid a \$6 per unit sales commission.
9. Paid \$39,000 to purchase equipment for administrative offices. The equipment was expected to have a \$3,000 salvage value and a three-year useful life. Label the purchase of the equipment as **Event 9a** and the recognition of depreciation as **Event 9b**.
10. Administrative expenses consisting of office rental and salaries amounted to \$71,950.

Required

- a. Record the transaction data for Magnificent Modems, Inc., in the financial statements like the one shown below. The first transaction is recorded as an example.

Event No.	Assets						=	Equity								
	Cash	+	Inventory	+	Manuf. Equip.*	+	Office Equip.*	=	Com. Sock.	+	Ret. Ear.	Rev.	-	Exp.	=	Net Inc.
1.	750,000								750,000							
Ck. Fig.	544,050	+	0	+	210,000	+	27,000	=	750,000	+	31,050	600,000	-	568,950	=	31,050

*Negative amounts in these columns represent accumulated depreciation.

- b. Use the following forms to prepare an income statement and balance sheet.

MAGNIFICENT MODEMS, INC.	
Income Statement	
For the Period Ended December 31, 2011	
Sales	
Cost of goods sold	
Gross margin	
Sales commission	
Depreciation expense	
Administrative expense	
Net income	\$31,050

MAGNIFICENT MODEMS, INC.	
Balance Sheet	
As of December 31, 2011	
Assets:	
Cash	
Manufacturing equipment, net of acc. depreciation	
Office equipment, net of acc. depreciation	
Finished goods inventory	
Total assets	\$781,050
Equity	
Common stock	
Retained earnings	
Total stockholder's equity	\$781,050