



## chapter 3

# Financial Management Planning

### **3.1 BUSINESS FINANCIAL GOALS**

### **3.2 UNDERSTAND FINANCIAL STATEMENTS**

### **3.3 DEVELOP A FINANCIAL BUDGET**

### **3.4 INTEREST AND TIME VALUE OF MONEY**

 **Point Your [Browser]**  
[www.thomsonedu.com/school/busfinance](http://www.thomsonedu.com/school/busfinance)

# Case STUDY

## Apple Computer: A New Life

Few companies get a second chance. Apple Computer has fought back from the brink of financial failure several times.

Apple Computer was the creation of Steve Jobs and Steve Wozniak. When they introduced the Apple II in 1977, the personal computer moved from being primarily a desktop tool for businesspeople to a computer that individuals could afford and use. It was a one-box computer and monitor that was easy to assemble and simple to use. They developed their own easy-to-use and reliable operating system rather than relying on the established Microsoft software used on most computers. Since Apple was reluctant to license the operating system to other companies, it never achieved the widespread use of Microsoft Windows.

Apple received recognition for continuing innovation with a series of unique products including the Lisa computer, the Newton handheld computer, and the PowerMac G4 Cube. They also refined their operating software resulting in OS X, a faster, more flexible, easy-to-update operating system. However, the company struggled with operations and management issues. Steve Jobs was replaced as the head of Apple in 1985 and left the company. A series of CEOs worked on marketing, new product development, partnerships with other companies, and other strategies, but failed to return the company to its original success. Many business and financial experts predicted that the company would not survive.

Jobs was rehired by Apple in 1996 and soon was reinstated as CEO. He recommitted the company to a narrowly focused set of innovative products and concentrated on exploiting the growing popularity of the Internet. In fact, he often used the title iCEO to demonstrate his belief in the importance of the Internet focus. The first new company success was iTunes, a software system that made it easy to download, manage, and listen to music on the computer. That was quickly followed by the iPod, which has become the world's most popular portable media player. Apple opened the online iTunes Music Store, selling individual songs as downloadable music files inexpensively.

The company's financial condition has rebounded with a rising stock price, excellent cash flow, and a return to profitability. Additional new product plans including partnerships with companies such as Nike and Disney suggest Apple has been able to reinvent and reestablish itself.

### Think Critically

1. How could Apple Computer be a leader in innovation yet financially unsuccessful?
2. Use a Web search to identify new product ideas Apple is developing on its own and in partnership with other companies. Do you believe they continue to focus on innovative ideas?

## 3.1

# Business Financial Goals

### Goals

- Describe the three primary financial goals of businesses.
- Identify the characteristics of effective financial goals.

### Terms

- business financial goals
- creditor
- principal
- interest
- collateral

## Financial Needs of Business

Financial health is a critical factor in the success of any business. A business that has good financial resources is in a position to take advantage of opportunities, combat competition from other businesses, and respond to problems it encounters. Without those resources, the business will be in a constant struggle to survive.

Business owners and managers pay constant attention to the financial position and financial health of the overall business and of its major operating units. Financial management determines the current financial health of the company. It also determines the amount of money needed for all business activities and operations, where the financing will be obtained, and how planned activities and operations will contribute to the overall financial health of the business.

### SET FINANCIAL GOALS

The first step in financial management for a business is to establish financial goals. **Business financial goals** establish direction for the financial plans of a business. Business financial goals are developed to respond to three main financial needs.

1. A business must meet its financial obligations and pay its debts.
2. A business must provide a competitive rate of return for its investors.
3. A business must finance future growth and improvement to remain competitive.

### MEET CURRENT FINANCIAL OBLIGATIONS

All businesses need money to operate. Typically the owners of the business are not able to provide all of the money a business requires. Creditors provide additional money to pay for business operations. A **creditor** is an individual or an organization that provides funds to a business, with repayment of the funds and agreed-upon interest due at a future date. Regular payments of **principal**—the amount of money borrowed—and **interest**—the amount paid for the privilege of borrowing money—must be made to all creditors. A bank may provide a loan to purchase equipment or to finance construction of a building. A supplier may offer credit for thirty or sixty days or longer to help finance the purchase of raw materials, supplies, or equipment. Financial management recognizes the amounts owed to creditors and determines



how those obligations will be repaid as they become due. It also determines whether the company is in a good position to borrow additional funds from creditors when financial resources are needed.

The sale of products and services by the business also provides money to finance operations. All sales have related costs to the business, so income from sales does not automatically translate into profits for the business. The sale of goods and services usually results in cash coming in to the business. Cash is important to pay for ongoing expenses. If the amount of income received from sales does not exceed the costs of producing the sales, the financial position of the business will decline. That means the business will have a more difficult time meeting financial obligations because sales were not profitable. Another part of financial management is determining the profitability of a company's products and services and how to improve the financial position resulting from ongoing business operations.

## PROVIDE COMPETITIVE FINANCIAL RETURN TO INVESTORS

People invest money with the expectation of making a good financial return, or profit, on their investment. They will generally invest their money where they can receive the highest rate of return within the level of risk they are willing to take. If a business is not able to make adequate profits to pay its investors a competitive financial return, it will be unable to attract additional money from investors when needed. It will also run the risk that investors will take their money from the business and reinvest it where a higher return is available.

Owners of sole proprietorships, partnerships, and even small corporations may be willing to accept a comparatively low rate of return on the money they have invested for a time. The operation and success of the business is an important part of their lives and they are usually seeking more from the business than the highest possible rate of financial return. People who invest in a larger corporation as stockholders, on the other hand, have little personal interest in the ongoing business operations. They are primarily concerned about the money they have invested and the return they are receiving on that investment. If they see that the return is not comparable to what they can receive from other investment choices, they will quickly sell their stock. There is pressure on corporate management to maintain a competitive rate of return and provide evidence that the financial position of the company is healthy and improving. That pressure has led to some notable legal problems for executives as well as company failures as a result of fraudulent financial and accounting transactions. Recent examples include Enron and WorldCom.



*Businesses may borrow money to finance new construction or expansion.*



### teamwork

"A business needs to grow and improve in order to be successful." Do you agree or disagree with that statement? Discuss it with your teammates and provide reasons to support each of the positions.

Financial management determines how funds will be returned to owners in the form of salaries and dividends at a level that satisfies their expectations and that is competitive with alternative investments. Financial managers are sensitive to the needs and perceptions of investors. They make financial decisions designed to maintain an appropriate rate of return and positive relations with important investors.

## FINANCE BUSINESS GROWTH AND IMPROVEMENT

If you study the history of today's largest businesses, each of them started as a small business. There is no guarantee that growth will assure the success of a business. Large businesses run into financial difficulties that may lead to bankruptcy. Not every business needs to grow into a giant company with billions of dollars of sales and thousands of employees. But even small businesses look for new customers, higher sales, and greater profits.

Businesses can finance growth through attracting additional investments, borrowing more money from creditors, or reinvesting profits. Each of those alternatives requires the business to be financially healthy. Only investors who are in a position to accept a very high risk of losing their money will place money in a business experiencing financial difficulties. Investors expect to receive compensation for assuming high risk. For example, they may demand a greater percentage of ownership of the business than the amount they invested would typically warrant. They may negotiate an agreement that if the business fails they are the first to receive money after creditors have been paid.

A creditor is not likely to loan money or to finance a purchase for a company experiencing financial difficulties. Credit terms extended in those situations will usually command a higher interest rate, a shorter term of the loan, or a part of the business as collateral. **Collateral** is an asset promised by a business to a creditor if repayment of a loan isn't completed. Any creditor providing a large amount of financing will want to have assurance that the financial health of the business is strong. That way, creditors reduce the risk that they will not be repaid for the money loaned.

Financial management carefully prepares for growth and expansion and determines the best ways to finance the growth through additional investments, seeking credit, using company profits, or a combination of these choices. Financial managers prepare the necessary financial documents and information needed by prospective investors and creditors in order to successfully obtain the financing.



© GETTY IMAGES/PHOTODISC

*Not every small business must become large, but most try to attract new customers and attain greater profits.*

### checkpoint



What are the three main financial needs of a business?

## ■ Establish Financial Goals

Business financial goals, just like personal financial goals, must be clear and specific. It is not enough for managers to state that the business will provide an adequate investor return or to devote some of the profits earned to future expansion.

### CHARACTERISTICS OF EFFECTIVE GOALS

Business financial goals must have several elements to be effective. Business financial goals must be

- Specific
- Realistic
- Measurable
- Established for an identified period of time

**Specific** A *specific* financial goal is directed at a particular business action. For example “to increase the profitability of all new product introductions after six months of sales by 1.5 percent” directs efforts at a specific business activity—new product introductions. Everyone knows what part of business operations must receive attention in order to achieve the goal.

**Realistic** A *realistic* financial goal must be possible. It can stretch the organization to perform better than it has in the past, but it cannot be so high as to be unrealistic. In the example above, the goal was to increase profitability of new sales by 1.5 percent within six months. If in the past, profitability from new sales had never increased more than 0.3 percent, the new goal is probably not realistic.

**Measurable** A *measurable* goal identifies the financial performance that is expected to change. It must be a goal for which the business is able to gather information and evaluate the results. In the example, the goal is to increase profits from new product sales. If some costs cannot be matched to specific products or if information is not collected on a monthly basis, the goal cannot be measured.

**Identified Time** Finally, an *identified time* allows adequate time for the business to improve the identified performance as well as a time frame in which the business usually measures performance. In this case, the goal establishes a standard for improving the profitability of new products within six months. That amount of time is realistic for a new product to become established in a market and accepted by customers.

**Example** If a company regularly introduces new products and wants to improve the profitability of those products, the established goal “to increase the profitability of all new product introductions after six months of sales by 1.5 percent” establishes an important financial performance target for the company. Achieving the goal will demonstrate that the financial performance of an important business activity is improving. Company managers and employees will use the goal to determine how they can increase sales and control costs of the new products in order to meet the standard established at the end of six months. Financial managers can gather and analyze the data and provide updated information to company employees on the progress that is being made toward achieving the goal.



## technology topics

### A Bank in a Kiosk

Estimates are that 15 percent of U.S. households do not use banks. That means they don't have savings or checking accounts and seldom have credit cards since most require a bank account for approval. The "un-banked" still need financial services. Self-service kiosks placed in convenience stores, malls, and other public locations are meeting that need. Financial services kiosks allow consumers to withdraw cash, purchase money orders, cash paychecks, transfer money, pay utility and telephone bills, and purchase prepaid credit, debit, and gift cards. Some kiosks are even set up to allow customers to receive their wages in cash from employers or their pensions or other payments from the government. In addition to the value the kiosks provide to people who do not have bank accounts, they also provide convenient access to financial services for people who do have bank accounts. You can quickly pay a bill while filling up your gas tank or purchasing a cup of coffee.

### Think Critically

1. Why would a convenience store want to have a self-service kiosk offering financial products?
2. Do you believe that banks should view the kiosks as competition? Why or why not?

f.y.i.

When asked by *Fortune* magazine in 2006 to select companies they most admire other than their own, businesspeople worldwide identified four U.S. companies in the top five. They are General Electric, Procter & Gamble, FedEx, and Johnson & Johnson. One non-U.S. company, Toyota Motors, also appeared in the top five.

## DETERMINE FINANCIAL PRIORITIES

Over a period of years, companies must be able to accomplish each of the three financial goals. They must have adequate levels of investment, be able to meet short- and long-term credit obligations, and finance growth plans. One of these goals may be more important than the others at a certain time or based on circumstances facing the business. An important financial management responsibility is determining the immediate and long-term financial needs of the business and establishing appropriate goals.

Companies facing increasing competition or rising costs may want to concentrate on meeting current financial obligations. They may set goals to improve productivity or increase profitability. Other goals may be to reduce the amount of credit owed and increase their cash position.

A company that is focused on growth needs to determine how that growth will be financed. Will the company choose to increase the amount of investment by offering additional stock for sale or will it choose to finance the growth through increased borrowing from creditors? In either case, the financial position of the company will need to be strong.

Increasing the attractiveness of the company to investors may mean working to increase stock value or dividend rates. To appeal to creditors, the company must have adequate assets to cover the increased expenses of the credit payments. The financial priorities of the company will help to determine the types of specific financial goals that will be needed.

### checkpoint



Identify the four characteristics of effective business financial goals.



## 3.1 Lesson Assessment

### UNDERSTAND CONCEPTS

Determine the best answer for each of the following questions.

1. Which of the following is NOT one of the main financial needs of a business?
  - a. A business must provide a competitive rate of return for its investors.
  - b. A business must meet its financial obligations and pay its debts.
  - c. A business must finance future growth and improvement to remain competitive.
  - d. A business must make a profit on all of its activities.
2. A \_\_\_\_? \_\_\_\_ financial goal is directed at a particular business action.
  - a. measurable
  - b. specific
  - c. realistic
  - d. clear
3. **True or False?** A business that wants to finance growth needs to be financially healthy.
4. A \_\_\_\_? \_\_\_\_ is an individual or an organization that provides funds to a business with a repayment of the funds and agreed-upon interest due at a future date.
5. **True or False?** A company should address all three of the main financial goals at the same time rather than selecting one as a priority.

### MAKE ACADEMIC CONNECTIONS

6. **Technology** Various investments provide different rates of return to investors but also have different levels of risk. Use the Internet to identify the annual rate of return an investor could receive for placing \$10,000 in each of the following investment choices one year ago: a checking account, a 12-month certificate of deposit, purchasing gold on the commodity market, buying stock in Wal-Mart. How do the investment choices differ in the level of risk for the investor?
7. **Speech** Prepare a two-minute persuasive speech saying why having an adequate supply of cash may be more important to a new business than showing a profit at the end of the first year of operations.
8. **Research** Identify three different types of creditors a business could use to finance a new computer purchase. Prepare a table that compares the advantages and disadvantages of the three alternatives.
9. **Math** A company established a goal to increase the ratio of assets to liabilities by 5 percent within one year. At the beginning of the year, the assets were \$1,565,898 and liabilities were \$1,326,527. At the end of the year, the assets were \$1,964,025 and liabilities were \$1,598,296. Calculate the change in assets and liabilities from the beginning to the end of the year. Calculate the increase or decrease in the percentage (ratio) of assets to liabilities from the beginning to the end of the year. Did the company meet its goal?



## 3.2

# Understand Financial Statements

### Goals

- Explain the purpose and elements of a balance sheet.
- Explain the purpose and elements of an income statement.
- Explain the purpose and elements of a cash flow statement

### Terms

- financial statements
- balance sheet
- assets
- depreciation
- liabilities
- owner's equity
- income statement
- cash flow statement

## The Balance Sheet

Businesses prepare financial statements to report financial information.

**Financial statements** are specific reports prepared according to accepted accounting standards that provide financial information about an enterprise. The three primary financial statements—the *balance sheet*, the *income statement*, and the *cash flow statement*—are used to understand the financial health of a business and to make financial decisions. The three types of

statements are used not only in businesses but by government agencies, nonprofit organizations, and even individuals who prepare personal financial statements to apply for a loan, purchase a home, or make a substantial investment.

In order to be useful for decision-making, financial statements must be understandable, reliable, and comparable. *Understandable* means that the forms are organized in the same way so they can be read and interpreted by both financial experts and people who have a general understanding of financial concepts and principles. *Reliable* means the statements contain objective and unbiased information so it can be trusted by those who must use the information. *Comparable* means that information from financial statements prepared for different time periods or even for different companies can be compared.

To meet those requirements, financial statements are created following guidelines established by the Financial Accounting Standards Board and endorsed by the American Institute of Certified Public Accountants. Public corporations are required by the Securities and Exchange Commission (SEC) to prepare financial statements and have them audited by an independent certified public accountant. The statements and audit reports must be available for public review.



© GETTY IMAGES/PHOTODISC

An accountant provides financial information that is useful for business decision-making.

## BALANCE SHEET COMPONENTS

The **balance sheet**, also known as the statement of financial position, identifies the assets, liabilities, and equity of a business as of a specific date. The balance sheet describes what the company owns, what it owes, and its value to the owners. The balance sheet is organized around the basic accounting equation.

$$\text{Assets} = \text{Liabilities} + \text{Owner's Equity}$$

A balance sheet provides a “snapshot” of the financial status of a business at a specific date. Balance sheets are always prepared at the end of the fiscal year for a company. They are also often prepared quarterly or monthly so changes in the financial position of a company can be readily identified. The values can change quickly based on management decisions and company performance, so it is important to examine several consecutive balance sheets to determine if changes are occurring and the values of those changes. A sample balance sheet is shown in Figure 3-1.

**FIGURE 3-1**

### Sample Balance Sheet

BALANCE SHEET			
December 31, 20xx			
Assets		Liabilities and Owners' Equity	
<b>Current Assets</b>		<b>Current Liabilities</b>	
Cash	\$ 24,500	Note Payable	\$86,090
Accounts Receivable	85,445	Loans Payable	25,540
Inventory	128,900	Accounts Payable	38,800
Prepaid Expenses	20,050	Taxes Payable	27,600
Operating Supplies	12,300	<b>Long-Term Liabilities</b>	
<b>Long-Term Assets</b>		Mortgage	498,200
Investments in Subsidiaries	825,000	Pensions Payable	560,000
Vehicles	93,200	<b>Total Liabilities</b>	1,236,230
Land	86,235	<b>Owner's Equity</b>	
Buildings	657,000	Stock	\$707,825
Capital Equipment	394,500	Capital Surplus	225,000
Less: Accumulated Depreciation	(29,450)	Retained Earnings	128,625
<b>Total Assets</b>	<b>\$2,297,680</b>	<b>Total Liabilities and Owner's equity</b>	<b>\$2,297,680</b>

**Assets** All of the things a business owns and uses as a part of business operations are **assets**. Everything from the buildings, land, and equipment to office supplies and inventory are assets of a business. Assets are categorized on the balance sheet according to the length of time they will be available for use by the business. *Current assets* have a short life of less than a year. If necessary, current assets can be quickly converted to cash. Common types of current assets for many businesses are cash, inventory, materials and supplies, and accounts receivable. *Long-term assets* have a longer life of a year or more and often define the nature of the business. Common types of long-term assets are buildings, land, equipment, patents, investments made by the company for a period longer than a year, and other owned resources used by the business.

f.y.i.

In 2004, U.S. companies spent over \$1 trillion on investments in long-term assets. About 2/3 of the money spent was for operating equipment and 1/3 for buildings and facilities.

The value of most long-term assets decreases over time. A decline in the value of an asset as it ages is known as **depreciation**. The balance sheet reflects both the original value of the asset and its depreciated value. The method used to calculate depreciation is established by federal tax laws.

**Liabilities** Those things that the business owes to others are **liabilities**. Anything the business has purchased, leased, or used but not yet paid for results in a liability. The amount of the loan or lease must be included in the liabilities section of the balance sheet.

Just as with assets, there are two categories of liabilities. *Current liabilities* are those that will be paid for within a year. *Long-term liabilities* are any for which payment will not be made in full for more than a year. Common types of current liabilities are accounts payable, which are purchases for which suppliers have provided short-term credit, loans that must be repaid quickly, and wages and taxes owed. Long-term liabilities include mortgages on land and buildings, long-term purchase agreements, and multi-year leases on equipment.

**Owner's Equity** The total value that all owners and investors have in the firm is **owner's equity**. In a corporation, owner's equity is the value of all stock and any profits being held by the business. In proprietorships and partnerships, owner's equity is the total amount the owners have invested in the business and the increase (or decrease) in value of the business resulting from its operations.

## ANALYZING A BALANCE SHEET

The balance sheet lists the values of everything owned and owed by a business. As its name implies, a balance sheet must be in balance. The difference between the value of all current and long-term assets and all current and long-term liabilities is the owner's equity. Therefore, to balance the financial position of a business

$$\text{Assets} - \text{Liabilities} = \text{Owner's Equity}$$

If liabilities increase in relation to the value of assets, owner's equity declines. If assets increase more than the value of liabilities, owner's equity increases.

The changes in values of assets, liabilities, and owner's equity can be compared over time. How has the value of specific types of assets or total assets changed during a one-year period? Has owner's equity increased or decreased during that time? What specific assets or liabilities changed in value to affect owner's equity? Another important type of analysis is to compare specific values on a balance sheet with each other. A common comparison is to determine the relationship of current assets and current liabilities to the value of total assets. If the percentage of current liabilities to total assets is increasing faster than the percentage of current assets to total assets, the business may run into a problem in paying its short-term debts. More detailed discussion of the analysis of balance sheets and other financial statements will occur in later chapters.

### checkpoint



What is the basic accounting equation around which a balance sheet is organized?

# Income Statement

The balance sheet presents a company's financial position on a specific date. The second financial statement, the **income statement**, provides a view of the financial changes in a business that have occurred during a specified period of time. It documents all income and expenses during that period and the resulting profit or loss earned. A sample income statement is shown in Figure 3-2. Just like the balance sheet, an income statement needs to be prepared at least once a year but is usually prepared very frequently, often once a month. Recognizing changes in income, expenses, and profits is very important for effective financial management.

**FIGURE 3-2**

## Sample Income Statement

INCOME STATEMENT	
January 1 – June 30, 20xx	
<b>Revenue from Sales</b>	
Product 1	\$454,125
Product 2	283,143
Sale of Services	181,443
Less: Product Returns	(18,200)
<b>Total Sales Revenue</b>	<b>\$900,511</b>
<b>Cost of Sales</b>	
Product 1	202,204
Product 2	123,118
Services	61,240
<b>Total Cost of Sales</b>	<b>\$386,562</b>
<b>Gross Profit (Loss)</b>	<b>\$513,949</b>
<b>Operating Expenses</b>	
General & Administrative	\$43,292
Sales & Marketing	201,389
Non-Management Salaries	92,100
Research & Development	21,214
Operations Expenses	78,225
<b>Total Operating Expenses</b>	<b>\$436,220</b>
Interest Paid	8,200
<b>Income before Taxes</b>	<b>\$69,529</b>
Taxes Paid	11,127
<b>Net Income</b>	<b>\$58,402</b>



## teamwork

Discuss with your team members what you can learn from an income statement about a company's strengths and weaknesses that you cannot learn from a balance sheet. What does a balance sheet offer that cannot be learned from an income statement?

All sources of revenue or income received by the business are listed on the income statement. Those sources are commonly income from the sale of products and services and interest earned from savings and investments. To make sure that income is reported accurately, any reductions in the income received such as the value of products returned by customers must be deducted. Subtracting the cost of goods sold results in the gross profit for the business.

Following the calculation of gross profit, all expenses are itemized and subtracted. Items such as salaries, rents, leases, interest payments on loans and mortgages, supplies, utilities, insurance, maintenance, and repairs are common business expenses listed on an income statement. Usually income



before taxes is calculated followed by subtracting the amount of taxes paid. The result is the business' net income or loss for the period.

## ANALYZING AN INCOME STATEMENT

Just as with the balance sheet, a full understanding of the profit or loss earned by a business requires a detailed analysis of the income statement. Each category of revenues and expenses should be compared from month to month and year to year to note changes that show improvement or decline in factors contributing to profits or losses. Comparing individual items within one income statement also offers important information. For example, comparing the value of sales to the cost of goods sold or net sales to salaries can show whether those expenses are consuming an appropriate percentage of the specific revenue item. Finally, comparing specific elements of a company's financial performance with the performance of similar companies or same-industry averages is an important type of analysis.

### checkpoint



How is profit or loss calculated on an income statement?

## Cash Flow Statement

Neither the balance sheets nor the income statements disclose all of the important financial information needed to understand a company's financial strengths or weaknesses. Financial data reported on both statements does not necessarily reflect the actual cash received and spent by the business during the time period represented. If a customer purchases a product on credit, the money may not be received for some time after the actual sale. In



© GETTY IMAGES/PHOTODISC

*A business keeps track of its financial health using financial statements.*

the same way, if the business obtains a loan or buys equipment or supplies on credit, money will not be spent until payments are made to the creditors.

Having access to an adequate supply of cash is important to every business. A lack of cash may mean that too much credit is being extended to customers or the company has too many current liabilities. A **cash flow statement** is prepared to show how cash is used by a business during a specified time period. A sample statement is shown in Figure 3-3.

**FIGURE 3-3**

### Sample Cash Flow Statement

#### STATEMENT OF CASH FLOW

For the six months ending June 30, 20xx

<b>Beginning Cash Balance</b>	\$10,867
<b>Cash Receipts</b>	
Cash Sales	\$2,574,828
Asset Sales	526,800
Receipts on Accounts Receivable	198,560
Receipts on Loans Receivable	33,210
Contributed Capital	325,000
<b>Total Cash In</b>	\$3,658,398
<b>Available Cash</b>	\$3,669,265
<b>Cash Payments</b>	
Salaries	\$1,023,530
Other Operating Expenses	1,729,633
Loan Payments	324,910
Capital Expenditures	88,620
Tax Payments	46,173
<b>Total Cash Out</b>	\$3,212,866
<b>Net Cash Flow</b>	\$445,532
<b>Ending Cash Balance</b>	\$456,399

The statement separates cash flows into categories of cash receipts and cash payments. Receipts are reported by specific types of revenues such as cash sales, payments received from customers, interest received, and owner's investments. Common categories of cash payments are payments to creditors, payments of salaries, utilities, and taxes, and cash purchases of equipment and supplies. The result of the analysis of cash flow is a net increase or decrease in the company's cash balance for the period.

Analysis of the cash flow statement compares the company's cash position from one time period to the next, whether the amount of available cash is increasing or decreasing, and how cash is being generated and used. The analysis will help decision-makers decide if the company's ability to pay for current expenses is improving or declining. It will also help to explain whether the company has adequate resources to finance ongoing operations and growth or whether it will have to seek other sources of financing.

### checkpoint



What important financial information is not reflected in either the balance sheet or the income statement?



## finance in your life

### Using a Personal Budget

Are you one of those people who is always wondering where your money went? Have you intended to save for college, a car, or your own apartment, but don't seem to have enough money to pay your current expenses? Businesses rely on budgets to make sure they have adequate resources to meet current expenses and to anticipate future financial needs. You can do the same thing.

Budgeting provides information to help you understand your financial resources and current spending patterns. With a budget you have a clear picture of what income you receive and how you use that income to meet current needs and future goals.

First, establish your real income. To be able to budget you have to know how much money you earn each week or month. Be honest. Don't expect that your parents or grandparents may give you money or that you can earn a quick extra amount by mowing a lawn or taking a babysitting job. What do you regularly receive from your part-time job, allowance, or earnings on a savings account? That is the amount you must use to budget expenses.

Second, identify what you really spend. It's just like counting calories. You often forget many of the things you eat each day and you surely don't remember everything you purchase. You need a specific list of the categories of your regular expenses and an accurate amount you spend each week or month. You may need to record all expenditures for several weeks and months to get an accurate understanding of where your money goes.

Third, balance real income with real expenses. Are you spending everything you earn each week? Do your expenditures really reflect how you want to spend your money considering both immediate and future wants and needs? Most people need to find ways to reduce their current expenditures to be able to save more for important future needs. Planning and following a budget helps you make those difficult decisions.

Finally, apply the 60/40 rule. A good rule to balance immediate and long-term needs is to budget 60 percent of your income on your regular expenses—those things you know you have to purchase each week or month. Then reserve 40 percent for other expenses that are not regular purchases. Those expenses can include savings for education, a car, or future expenses when you are on your own. You might establish a special savings for personal rewards—a vacation or a special purchase. You may want to save 10 percent just for fun money. But be careful you don't tap into your other savings.

### Think Critically

1. What can you do with a personal budget if you find your current expenses just meet or even exceed your income?
2. Based on your current personal financial circumstances, do you believe you could apply the 60/40 rule in your budget? Why or why not?

## 3.2 Lesson Assessment

### UNDERSTAND CONCEPTS

Determine the best answer for each of the following questions.

1. Which of these terms is NOT a part of the basic accounting equation?
  - a. income
  - b. liabilities
  - c. assets
  - d. owner's equity
2. **True or False?** The balance sheet reflects the original value of an asset but not its depreciated value.
3. **True or False?** The income statement presents a company's financial position on a specific date.
4. After all expenses and taxes are subtracted from a company's gross profit, the result is the company's
  - a. net worth
  - b. profit or loss
  - c. cash flow
  - d. revenue
5. Specific types of revenues such as cash sales, payments received from customers, interest received, and owner's investments are all cash \_\_\_\_? \_\_\_\_.

### MAKE ACADEMIC CONNECTIONS

6. **Technology** Templates are available through various Internet web sites that provide a relatively easy way to construct and complete the calculations for financial statements. Search the Internet to locate a simple template for a balance sheet and an income statement. Transfer the information from Figures 3-1 and 3-2 into the appropriate template. Make sure the final calculations are correct and then print the two financial statements.
7. **Ethics** When the managers of a large company intentionally misrepresent the financial condition of the company to make it appear better than it actually is, negative consequences can result for stockholders, creditors, employees, and others. Use the Internet or library to gather information on a company that failed due to fraudulent financial practices. Prepare a one-page report on the case, identifying the ethical issues involved and the negative consequences of the fraud.
8. **Math** Use the information in Figure 3-1 to calculate the following ratios: (1) current assets to long-term assets, (2) each category of assets to total assets, (3) current liabilities to long-term liabilities, (4) each category of liabilities to total liabilities, (5) total assets to owner's equity, and (6) total liabilities to owner's equity. How do the ratios help you to understand the financial health of the company? What additional information would be useful in analyzing the company's financial condition?



## 3.3

# Develop a Financial Budget

### Goals

- Recognize the purpose of budgeting and types of financial budgets.
- Understand the process for developing a financial budget.

### Terms

- financial budget
- budget discrepancies
- operating budget
- capital budget
- trend analysis

## Plan the Financial Future

An important tool for financial planning is the financial budget. A **financial budget** is a projected financial statement for a specific future time period. Financial budgets should be carefully prepared based on considerations of future events that could affect the business' financial performance and condition.

### THE PURPOSE OF BUDGETING

Will the company's sales be higher or lower in six months? Will production costs increase? If so, by how much? Are there enough employees to meet sales expectations? What will happen to operating expenses if sales increase or decline? Can the profitability of the company be improved? Each of these questions relies on an understanding of future financial conditions of the business. The answers provide important information for managers and employees to develop realistic production, marketing, and operating plans that can be supported by the company's financial resources and contribute to strengthening its financial position.

Budgeting requires that planners project into the future and understand factors that can affect specific elements of the business' finances. Budgets that are not accurate will mislead managers, investors, creditors, and others who use the budgets to make decisions. Without an accurate budget, the business may not be able to meet short- and long-term financial obligations. It may miss out on opportunities that lead to growth and profitability.

Budgets serve as a road map for monitoring business activities and performance. If a budget is established for a period of six months or a year, the specific items in the budget can be monitored during that time to see if the financial results of company operations are matching the budgeted amounts. If not, managers can determine what has occurred that is not consistent with the planning used to develop the budget. Changes can be made to



© GETTY IMAGES/PHOTODISC

*Financial budgets help a business plan for the future.*

attempt to bring financial performance in line with the budget or to modify the budget to reflect the changing conditions and performance.

When the time period for which the budget was developed has ended, financial statements are prepared to reflect actual financial performance. Those statements are then compared to the budget to determine the accuracy of the budget. An analysis of **budget discrepancies**, differences between budgeted amounts and actual financial performance, will help to improve understanding of factors affecting financial performance and improve the accuracy of future budgets.

## TYPES OF FINANCIAL BUDGETS

The primary types of financial budgets are the operating budget, cash budget, and capital budget.

**Operating Budget** An **operating budget** projects all income and expenses for the operations of a business for a specific future time period. It estimates all types of income, operating costs, expenses, and the projected profit or loss from operations. A large company will usually develop operating budgets for smaller operating units such as a division, a specific factory or business location, or a product group. Those operating budgets are then combined into a full budget for the entire company.

An operating budget projects whether operations for the budgeting period will be profitable. That allows for adjustments to be made in income and expenses to achieve profitability goals.

**Cash Budget** A *cash budget* is the estimate of the flow of cash into and out of a company for a specified time period. Whether a company is making or losing money at a particular time, it must have adequate cash on hand to meet immediate financial obligations. Because the availability of cash is so very important to the short-term financial health of a company, the cash budget is one of the most critical financial planning tools. Cash budgets are often prepared for a six-month or even year-long period of time but are divided into month-by-month projections of cash flow. An example monthly cash budget is shown in Figure 3-4.

**FIGURE 3-4**

### Sample Monthly Cash Budget

#### CASH BUDGET

January 1 – 31, 20xx

Beginning cash balance	<b>\$545,300</b>
<b>Cash Inflow</b>	
Collections on accounts receivable	\$752,000
Cash sales	483,000
<b>Total Inflow</b>	<b>\$1,235,000</b>
<b>Cash Outflow</b>	
Payments on accounts payable	\$520,000
Cash expenses	110,500
Payments on long-term debt	750,000
Quarterly dividend payable	50,000
<b>Total Outflow</b>	<b>\$1,430,500</b>
<b>Estimated ending cash balance</b>	<b>\$ 349,800</b>



## teamwork

An example of a personal budgeting decision similar to a business' capital budget is deciding whether to purchase an expensive automobile or save for the upcoming costs of college. Discuss with your team how individuals can make difficult choices among expensive alternatives that will require payments for several years.

**Capital Budget** A **capital budget** is a plan to acquire and finance long-term assets of a business. It projects the need for, cost, and value of capital assets. Capital budgets include assets such as land, buildings, and equipment that have a lifespan of more than a year. A capital budget includes costs of acquiring, expanding, upgrading, improving, and renovating the major assets of a company. It can even include purchasing another company or selling existing assets. Because capital items are usually very expensive, decisions about what capital expenditures are needed, when to purchase, and how much can be spent are critical to the financial health of a company.

## checkpoint



What are the three main types of financial budgets and what is the purpose of each?

## ■ Prepare a Financial Budget

Budgets will not be useful if they are not accurate. Having an incomplete or inaccurate budget may be a greater problem than having no budget at all. People may be misled by inaccurate budget information and make poor decisions. A budget should be prepared carefully following a systematic process, drawing on information from inside and outside the company.

### STEPS IN BUDGET PREPARATION

Each type of budget is different. Each is a part of the overall financial plan of the business and contributes to its financial condition. Each of the business budgets should be prepared using the same sources of information and the same systematic process.

- 1. Identify the type of budget and the categories of financial information included in the budget.** An operating budget estimates all income and expenses of a company. A cash budget looks at cash inflows and outflows during the budgeted time period. A capital budget analyzes the long-term costs and contributions of capital assets. The categories of financial information should be the same as those used in the company's financial statements.
- 2. Organize the information categories to reflect the financial calculations that must be completed in the budget.** For example, the operating statement is organized according to the profitability equation

$$\text{Income} - \text{Expenses} = \text{Profit or Loss}$$

All categories of income and expenses needed to calculate gross and net profit are included in the operating budget.

The cash budget uses the formula

$$\text{Cash Receipts} - \text{Cash Payments} = \text{Net Cash Flow}$$

As with the operating budget, all categories of cash receipts must be listed followed by each type of cash payment. Subtracting payments from receipts provides net cash flow. That amount is used to predict what the company's cash balance will be at the end of the budgeting period.



*Adding new employees will affect a business' budget.*

- 3. Gather and analyze internal and external information that will affect the budget.** Internal financial information is gathered from current and past financial statements and the financial records of the company. Budgets must reflect planned changes in the organization. If products are being discontinued or added, if the company is undertaking a new marketing strategy, or if new employees are being added or payrolls increased, those changes need to be reflected in the projected financial data in the budgets. The strategies and plans of the business that will be implemented during the budget period provide important information for budget planning.

Analysis of the accuracy of prior budgets will help improve budget planning. If any of the categories of financial information are regularly under- or overestimated, adjustments should be made in the current budget.

Factors outside the company are also important budget considerations. Economic conditions can affect future financial performance. Inflation, a slow economy, rising interest rates, or changes in taxes or regulations might influence overall financial performance or specific elements of a business' costs. Increasing competition, changes in technology, or international business conditions might pose challenges or open opportunities that must be reflected in budgets.

- 4. Select the method of calculating budgeted amounts.** By how much will each of the amounts in a budget change from the prior budget? It is not likely that each amount can be adjusted just by increasing or decreasing it a specific percentage. Certain budget items are related to other items, so a change in one will have a particular effect on the other. If sales are projected to increase by a certain amount, payroll costs will need to increase to pay for the additional production and sales efforts. Payroll often is calculated as a specific percentage of production or sales.

Trend analysis is a valuable method of developing budgets.

**Trend analysis** examines financial performance over several periods of time to determine patterns. The patterns can then be used to improve forecasting.



- 5. Complete the budget by making the necessary financial calculations.** The gathered information is used to calculate all of the required budget items. The completed budget then becomes a planning, decision-making, and communications tool for the business.

## checkpoint

Why is analysis of internal and external information an important part of budget development?



## finance around the world

### Origins of World Currencies

You have probably heard of the dollar, the peso, and the euro. But how about the baht, the kwacha, and the rand? With over 200 countries in the world, many currency names exist.

Some monetary units, like the peso, are used in more than one country. The word *franc* is used as the currency name by over 25 countries in Africa and other places. These nations were influenced by France through colonization and other global activities. Similarly, the *shilling* is used in Kenya, Somalia, Tanzania, and Uganda, which were previously British colonies.

Some monetary unit names have unusual origins. The *quetzal* in Guatemala is the name for a bird with a long tail. In Malawi and Zambia, the *kwacha* is based on the slogan “New dawn of freedom.”

The word *peso* means “weight.” The first pesos, coined in Spain in 1497, were also known as *pieces of eight*. The pieces were made of eight *reals*, a Spanish word for royal, which was also a common coin at the time. Each real weighed slightly less than 424 troy grains and consisted of silver 0.93 fine. Today, the peso is the monetary unit of Mexico, the Philippines, and several Latin American countries.

In the United Kingdom, the *pound sterling* has been the currency for over 900 years. Introduced in 1158, it was originally an old English silver coin made of 92.5 percent sterling silver and weighed 1/20 a troy ounce (about 1.555 grams). *Pound* comes from “pund,” which is from the Latin word “pondus,” meaning “weight.” *Sterling* is most likely from an old English word “steorra,” meaning “star”—a small star appeared on early pennies. However, another explanation also exists. At one point, the English referred to their coins as Easterlings, a region with skilled metal refiners. “Easterling silver” may have become “sterling silver.”

What about the *dollar*? Where does that name come from? *Dollar* comes from the 16th century German word “thaler.” This was short for “Joachimsthaler,” which was a coin made from metal mined in Joachimsthal, a town in what is now the Czech Republic. Over time, the name became associated with the money of the United States and over 30 other countries.

### Think Critically

1. What factors influence the names of the currency used in different countries?
2. Conduct an Internet search to locate additional information about the name origins and current values of various world currencies.

## 3.3 Lesson Assessment

### UNDERSTAND CONCEPTS

Determine the best answer for each of the following questions.

1. The difference between a financial budget and a financial statement is that the budget
  - a. is projected
  - b. has less information
  - c. is not accurate
  - d. none of the above
2. **True or False?** A budget discrepancy is the difference between a budgeted amount and actual financial performance.
3. A(n) \_\_\_\_? \_\_\_\_ budget projects all income and expenses for the operations of a business for a specific future time period.
4. Which financial budget is typically prepared for the shortest period of time?
  - a. operating
  - b. cash
  - c. capital
  - d. all are prepared for one year
5. **True or False?** The most accurate method to calculate the amounts in a budget is to apply a specific percentage of increase or decrease.

### MAKE ACADEMIC CONNECTIONS

6. **Oral Communication** Prepare a short oral presentation that discusses the similarities and differences of financial statements and financial budgets.
7. **Math** The budgeted amount of sales for an operating budget is \$1,938,592. The actual amount of sales at the end of the period was \$2,285,492. Calculate the budget discrepancy in actual dollars and as a percentage of the budgeted amount.
8. **Research** Use the Internet to complete research on the use of trend analysis by businesses. Prepare a chart, graph, or other visual that illustrates how trend analysis can be used to aid business decision-making.
9. **Economics** Read the business section of a newspaper or review articles in a current business magazine. Identify one projected change in the U.S. economy and another one in the international economy. Develop a one-page written report describing each of the changes and discussing how each change could affect the operating budget of a business.

## 3.4

# Interest and Time Value of Money

### Goals

- Discuss how interest rates affect investment decisions.
- Understand how to calculate the time value of money on investments and loans.

### Terms

- interest rate
- future value
- time value of money
- present value

## ■ The Meaning of Interest

You deposit \$1,000 in a savings account paying 5 percent annual interest. At the end of the year you have \$1,050. You might think it hardly seems worth it when you consider what you could have purchased with the \$1,000. If you simply left the \$1,000 in the account, its value would double in 14 years. If you were able to add \$100 each month to that savings, at the end of the same 14 years your savings account would be valued at over \$26,000. Would that amount make it worth saving the money rather than spending it immediately?



*Compound interest makes saving worthwhile.*

## UNDERSTAND INTEREST RATES

*Interest* is the amount charged to a borrower for the use of the lender's money. If you are the borrower, you must repay more than you borrowed to compensate the lender for the time you used the money and the risk to the lender than you might not repay it. In the same way if you place some of your money in a bank or in another investment, you expect that the value you receive for allowing others to use your money will be greater than the amount you invested.

The amount of interest a lender receives is based on the interest rate. An **interest rate** is the cost of borrowing money, expressed as a percentage of the amount borrowed, usually over a period of one year. Interest is either paid as simple interest or compound interest. With *simple interest*, the amount of interest is calculated at the end of each year based on the total amount loaned. *Compound interest* pays interest not only on the total amount borrowed but also on the interest that has been earned.

## CALCULATE SIMPLE INTEREST

Determining the amount of interest owed or earned can be easy or it may be complicated. The formula for determining simple interest is

$$i = Prt$$

$i$  = interest  
 $P$  = principal  
 $r$  = interest rate  
 $t$  = time (the length of the loan or investment in years)

Adding the interest,  $i$ , to the principal,  $P$ , will yield the total amount that is earned from the investment or that needs to be repaid for a loan.

**Example** If \$1,000 is loaned at 5 percent simple interest, at the end of two years \$100 in interest has been earned.

$$\$1,000 \times 0.05 \times 2 = \$100 \quad \text{simple interest at the end of 2 years}$$

## CALCULATE COMPOUND INTEREST

If the interest is compounded annually, the interest at the end of the first year is added to the amount loaned and that amount is used to calculate the interest earned at the end of the second year.

**Example** Rather than \$100 earned from simple interest, the lender now has earned \$102.50 of interest.

$$\begin{aligned} \$1,000 \times 0.05 &= \$50 \\ \$1,050 \times 0.05 &= \$52.50 \\ \$50 + \$52.50 &= \$102.50 \quad \text{compound interest at the end of 2 years} \end{aligned}$$

Interest can be compounded at various times. In the example, interest was compounded once a year, but it could be compounded quarterly, monthly, or even daily. The frequency of the compounding affects the total amount of interest paid. The more frequent the compounding, the higher will be the total interest and therefore the return on the investment. The same \$1,000 invested for two years at 5 percent compounded daily would earn \$1,105.16.



### teamwork

Under the Truth in Lending Act, information on credit and finance terms must be made “clearly and conspicuously” to consumers by a business. This means that disclosures must be legible and reasonably understandable. Locate examples of credit information in newspaper and magazine ads. Discuss with your team members whether you believe the examples meet the legal requirement or not.



## CALCULATE FUTURE VALUE

Calculating the effects of compounding interest is a bit more complex. The formula has to account for the rate and amount of compounding during the time of the loan or investment. **Future value,  $FV$** , is the amount to which an amount of money will grow in a defined period of time at a specified investment rate. The formula for calculating the future value of a loan or investment with compound interest is

$$FV = P(1 + i)^n$$

$FV$  = future value of the investment or loan  
 $P$  = principal  
 $i$  = interest rate per period of compounding  
 $n$  = number of compounding periods in the length of the loan

It is important to recognize that  $i$  is not the annual interest rate unless interest is compounded only once a year. If interest is compounded quarterly, the annual interest rate would be divided by 4 to determine the interest rate per compounding period. Therefore, 5 percent interest compounded quarterly would be an interest rate of 1.25 percent, or 0.0125. If that same interest is compounded monthly, the interest rate per compounding period is 5/12 percent, 0.4167 percent, or 0.004167.

In the same way  $n$  is only the number of years of the investment or loan if interest is compounded annually. For quarterly compounding of a three-year loan,  $n = 12$ , 3 years  $\times$  4 periods per year. Monthly compounding would yield an  $n$  of 36, 3 years  $\times$  12 periods per year.

Future Value,  $FV$ , is the total amount of principal and interest. To determine the amount of interest earned or due, subtract the principal of the loan or investment from the future value.

$$I = FV - P$$

## ACTUAL RATE OF INTEREST

Knowing the actual rate of interest is very important in evaluating an investment or deciding to borrow money. Usually the stated rate is the annual rate disregarding compounding. So, the cost of a loan may be stated as a 10 percent annual rate or the rate on a certificate of deposit may be listed as a 4.25 percent APR (annual percentage rate). The effective interest rate is the actual rate paid by the borrower or earned by the investor and includes compounding. If the interest charged for the loan with a 10 percent APR is compounded quarterly, the effective interest rate is 10.38 percent. The certificate of deposit with a stated interest rate of 4.25 percent if compounded daily pays an effective interest rate of 4.44 percent.

### checkpoint

What is the difference between simple interest and compound interest?

## ■ Time Value of Money

How do businesses decide whether they should borrow or invest money? An investment decision involves more than just seeing if a company has cash available that is not currently being used for anything. A borrowing decision must consider factors other than that the company has a need for additional cash or assets. Investment and borrowing decisions are influenced by the time value of money. The **time value of money** is the difference in purchasing power of an amount of money at a future date. The time value of an amount of money is affected by inflation. *Inflation* is the general increase in the price of all goods and services over time. Because of inflation, you will be able to purchase less at a future date than you can today with the same amount of money. The value is also affected by interest rates that must be paid for loans or that can be earned on investments.

The time value of money compares the future value with the present value of an amount of money. *Future value* is the amount to which an amount of money will grow in a defined period of time at a specified investment rate. **Present value** is the current value of an amount of money to be received at a future date based on a specified investment rate.

Time value of money is used to determine the value of investments. Investments are affected by both inflation and interest rates. Investment decisions are based on what can be purchased now versus what can be purchased with the same amount of money in the future considering the effects of inflation and interest rates. To make an investment worthwhile, the amount earned by the end of the investment period should be greater than the rate of inflation over the same time period. Obtaining a loan to have money to use today makes financial sense if the present value of the money is higher than the value of the money including interest when the loan is repaid.



© GETTY IMAGES/PHOTODISC

*The time value of money is the change in purchasing power of an amount of money over time.*

## NETBookmark

Many personal finance calculators are available on the Internet. Access [thomsonedu.com/school/busfinance](http://thomsonedu.com/school/busfinance) and click on the link for Chapter 3. What kinds of calculators are available? Find a calculator for deciding whether to buy a new or a used car.

[www.thomsonedu.com/school/busfinance](http://www.thomsonedu.com/school/busfinance)

## PRESENT VALUE EXAMPLES

Businesses encounter several situations where they need to determine the present value of money. If a company wants to borrow money, the lender will charge interest for the time the company uses the money. A typical procedure is for the lender to discount the loan. A *discount* is the amount of money subtracted from a loan at the time of lending equal to the interest charged by the lender.

For example, if a business borrows \$10,000 for one year from a bank at an interest (discount) rate of 8 percent, the bank will subtract \$800 ( $\$10,000 \times 0.08$ ). The actual amount of money received by the business is \$9,200. At the end of the year, the business

must repay the bank \$10,000. Using this example, the present value of the \$10,000 that must be repaid in one year is \$9,200. If the business needed the full \$10,000 it would have to borrow \$10,870, as shown in the following equation

$$\$10,870 - (\$10,870 \times 0.08) = \$10,000.40$$

Another example of the use of present value is when a company has a large amount of accounts receivable from customers but needs cash immediately. It can sell those accounts to another business for a discounted value. That business will then attempt to collect the full value of the accounts from customers in the future when payments are scheduled.

If a company has \$30,000 of accounts receivable that are due in 90 days, another company may offer to discount them at an annual rate of 20 percent. Since 90 days =  $1/4$  of a year, the effective interest rate is  $0.20 \div 4 = 0.05$  or 5 percent. The discount amount is  $\$30,000 \times 0.05 = \$1,500$ . The present value of the \$30,000 accounts receivable is  $\$30,000 - \$1,500 = \$28,500$ .



*Interest rates and inflation affect the decisions made by a business owner.*

## FUTURE VALUE EXAMPLES

A business may face questions such as

- **Question 1** If we borrow \$380,000 today to replace outdated equipment and the terms are 8 percent for 5 years compounded quarterly, what is the total cost of the purchase?
- **Question 2** If we invest \$20,000 per month in an employee retirement account at an annual interest rate of 6 percent compounded monthly, what will be the value of the fund in 10 years?



DIGITAL VISION

Each of these questions requires the calculation of future value of money. The formula for calculating future value that appeared earlier in this lesson assumed one principal amount invested at a specific interest rate for an identified time period. That formula will work to answer the first question.

**Question 1** To determine the total cost of the equipment purchase, the calculation is

$$\begin{aligned}FV &= PV(1 + i)^n \\FV &= \$380,000(1 + 0.02)^{20} \\FV &= \$380,000 \times 1.4859 \\FV &= \$564,642\end{aligned}$$

**Question 2** The second question requires a more complex calculation. Not only is interest being compounded each month, the principal is being increased every month as well. The formula to determine the future value of the retirement fund is

$$FV = PMT \left[ \frac{(1 + i)^n - 1}{i} \right]$$

$PMT$  = payment  
 $i$  = interest rate per period of compounding  
 $n$  = number of compounding periods in the length of the loan

The annual interest rate is 6 percent so the monthly interest rate is 6/12 percent or 0.5 percent or 0.005. The investment is for 10 years and compounded monthly so there are  $10 \times 12 = 120$  compounding periods.

$$\begin{aligned}FV &= \$20,000 \left[ \frac{(1 + 0.005)^{120} - 1}{0.005} \right] \\FV &= \$20,000 (1.8194 - 1) \div 0.005 \\FV &= \$20,000 \times 163.88 \\FV &= \$3,277,600\end{aligned}$$



## METHODS OF CALCULATING TIME VALUE OF MONEY

Calculation of the time value of money can be accomplished using a variety of techniques. Several methods are described in Figure 3-5. The examples illustrate calculations of a \$10,000 investment at an interest rate of 5 percent compounded annually. The future value of the investment after 10 years is approximately \$16,200. Slight differences in the figures in the examples are the result of rounding.

### checkpoint



What two factors affect the time value of money?

FIGURE 3-5

### Alternatives for Calculating Time Value of Money

Method	Process and Results
<b>MATHEMATICAL FORMULAS</b> The most basic method of time value of money calculations involves the use of a formula. Formulas for calculating PV and FV are given in this lesson.	The future value after 10 years of a \$10,000 investment at an interest rate of 5 percent compounded annually is $FV = PV(1 + i)^n$ $\$16,288.95 = \$10,000 (1 + 0.05)^{10}$
<b>TIME VALUE OF MONEY TABLES</b> Instead of calculating with a formula, you can use time value of money tables. The numeric factors presented ease the computational process. Sample tables are included in Appendices A–D.	Using the tables in Appendices A–D $\$10,000 \times \text{Future Value of \$1, 5 percent, 10 periods}$ $\$10,000 \times \$1 \times 1.629 = \$16,290$
<b>FINANCIAL CALCULATOR</b> Handheld financial calculators are programmed with various financial functions. Both future value and present value calculations may be performed using the appropriate keystrokes.	With a financial calculator, use the following keystrokes. Amount                      10,000 <b>[PMT]</b> Time periods                10 <b>[N]</b> Interest rate                5 <b>[I]</b> Result <b>[FV]</b> \$16,288.95
<b>SPREADSHEET SOFTWARE</b> Excel and other software programs have built-in formulas for various financial computations, including time value of money.	When using a spreadsheet program, use the following formula $= FV(\text{rate, periods, amount per period, single amount})$ $= FV(0.05, 10, 0, 10000) = \$16,288.95$
<b>WEB SITES</b> Many time value of money calculators are available online. Some only address simple questions while others compute complex problems.	Some easy-to-use calculators for computing the time value of money and other financial computations are located at <a href="http://www.kiplinger.com/tools">www.kiplinger.com/tools</a> <a href="http://cgi.money.cnn.com/tools">cgi.money.cnn.com/tools</a> <a href="http://www.finance.cch.com/tools/calcs.asp">www.finance.cch.com/tools/calcs.asp</a>

## 3.4 Lesson Assessment

### UNDERSTAND CONCEPTS

Determine the best answer for each of the following questions.

1. **True or False?** An investment grows faster with compound interest than with simple interest at the same interest rate.
2. Which of the following is NOT one of the factors used to calculate interest?
  - a. principal
  - b. rate
  - c. time
  - d. value
3. The amount to which an amount of money will grow in a defined period of time at a specified investment rate is the
  - a. present value
  - b. current value
  - c. future value
  - d. time value
4. **True or False?** The time value of money can be computed using a specialized handheld financial calculator.

### MAKE ACADEMIC CONNECTIONS

5. **Economics** Use the Internet and locate the five highest interest rates currently being paid for a minimum \$10,000 investment. Create a table that compares the investments. Include the name of the organization offering the investment, the type of organization, the minimum term of the investment, the annual percentage rate, and the effective interest rate. Compare your table with those of other students.
6. **Math** Calculate the amount of interest that would be earned on an investment of \$5,500 for two years at a simple interest rate of 8.5 percent. How much more interest would be earned if the interest was compounded quarterly for the two years?
7. **History** List five common household products used in your home that would have been used by a family in the mid-1900s. Research the current cost to purchase each of the products in your community. Then using the Internet or other information sources, identify what each product would have cost approximately 50 years ago. Create a poster or other visual that compares the prices from the two time periods. Prepare a short oral presentation that discusses reasons for the price differences.
8. **Technology** Use three of the methods shown in Figure 3-5 to calculate the future value of an investment of \$8,000 for 5 years at 6 percent interest compounded quarterly. For each method write a brief description of the process you used to complete the calculation. Show the numeric values used and the result of each calculation.

# Chapter 3 Assessment

## Summary

### 3.1 BUSINESS FINANCIAL GOALS

1. Business financial goals are developed to respond to three main financial needs. A business must provide a competitive rate of return for its investors. It must meet its financial obligations and pay its debts. And it must finance future growth and improvement to remain competitive.
2. Business financial goals must have several elements to be effective. The goals must be specific, realistic, measurable, and established for an identified period of time.

### 3.2 UNDERSTAND FINANCIAL STATEMENTS

3. Financial statements are used to understand the financial health of a business and make financial decisions. The balance sheet identifies the assets, liabilities, and owner's equity of a business as of a specific date.
4. The income statement provides a view of the financial changes in a business that have occurred during a specific period of time. It documents income and expenses and the resulting profit or loss.
5. A cash flow statement is prepared to show how cash is used by a business during a specified time period. A lack of cash may mean that too much credit is being extended to customers or the company has too many current liabilities.

### 3.3 DEVELOP A FINANCIAL BUDGET

6. Financial budgets are prepared based on considerations of future events that could affect the business' financial performance and condition. The primary types of financial budgets are the operating budget, cash budget, and capital budget.
7. Budgets are not useful if they are not accurate. A budget should be prepared carefully following a systematic process and drawing on information from inside and outside the company.

### 3.4 INTEREST AND TIME VALUE OF MONEY

8. An interest rate is the cost of borrowing money, expressed as a percentage of the amount borrowed, usually over a period of one year. The amount of simple interest is calculated at the end of each year based on the total amount loaned. Compound interest is paid not only on the total amount borrowed but also on the interest earned.
9. Time value of money is used to determine the value of investments. Investments decisions are based on what can be purchased now versus what can be purchased with the same amount of money in the future considering the effects of inflation and interest rates.

## Develop Your Business Language

Match the terms listed with the definitions. Some terms will not be used.

1. Total value that all owners and investors have in the firm
  2. All of the things a business owns and uses as a part of business operations
  3. The difference in purchasing power of an amount of money at a future date
  4. Identifies the assets, liabilities, and equity of a business as of a specific date
  5. Differences between budgeted amounts and actual financial performance
  6. Projected financial statement for a specific future time period
  7. Decline in the value of an asset as it ages
  8. Amount of money borrowed
  9. Plan to acquire and finance long-term assets of a business
  10. Asset promised by a business to a creditor if repayment of a loan isn't completed
  11. Amount paid for the privilege of borrowing money
  12. Examines financial performance over several periods of time to determine patterns
  13. Establish direction for the financial plans of a business
- a. assets
  - b. balance sheet
  - c. budget discrepancies
  - d. business financial goals
  - e. capital budget
  - f. cash flow statement
  - g. collateral
  - h. creditor
  - i. depreciation
  - j. financial budget
  - k. financial statements
  - l. future value
  - m. income statement
  - n. interest
  - o. interest rate
  - p. liabilities
  - q. operating budget
  - r. owner's equity
  - s. present value
  - t. principal
  - u. time value of money
  - v. trend analysis

## Review Concepts

14. Which of the following is one of the main financial needs of a business?
  - a. A business must provide low prices for competitors to remain competitive.
  - b. A business must meet its financial obligations and pay its debts.
  - c. A business must avoid growing to a large size in order to maintain effectiveness and efficiency.
  - d. All are correct.
15. Effective business financial goals must have each of the following elements except
  - a. They must be specific.
  - b. They must be realistic.
  - c. They must be open-ended.
  - d. They must be established for an identified period of time.

## Chapter 3 Assessment

### Think Critically

16. Describe why the financial health of a company affects the way it can respond to competition, problems, and opportunities. Should a company try to maintain a large amount of unused capital and cash to be able to respond to unanticipated circumstances? Why or why not?
17. How can a company be profitable but not have enough cash to meet immediate financial obligations? Is it possible for a company to have a large amount of cash on hand but not be profitable? Explain.
18. If you were the owner of a business and could choose the method of financing growth, would you prefer to invest more of your own personal money, attract additional investors, borrow money from creditors to be repaid, or wait to make additional profits to reinvest in the business? Analyze the advantages and disadvantages of each choice.
19. Prepare two written financial goals for a business and show how the goals meet all of the characteristics of effective goals.
20. If you had to choose one of the three main financial statements to learn about the overall financial health of a business, which would you choose and why? If you wanted to learn about the current financial performance, which statement would be the most helpful? Why?
21. Describe why both inflation and interest rates should be considered by a business when choosing among investments and when deciding whether to borrow money to finance a major purchase.

### Business Financial Calculations

22. Calculate the simple interest and compound interest earned for each of the investments using the information from the table.

Amount invested	Interest rate	Compounding period	Length of investment	Simple interest	Compound interest
\$10,000	5.0	annual	2 years		
\$150,000	6.5	quarterly	1 year		
\$1,490,500	8.0	monthly	18 months		

23. Use the information from Figure 3-1 to calculate
  - a. The percentage of current liabilities to current assets
  - b. The percentage of total liabilities to total assets
  - c. The percentage of current assets to total assets
  - d. The percentage of total owner's equity to total assets
24. A business needs to borrow \$75,000 from the bank to replace a damaged delivery vehicle. It will be able to repay the loan in six months. The bank will discount the loan and charge an annual interest rate of 7.5 percent. What amount must the company borrow in order to receive the needed money?
25. If your grandparents deposit \$500 in an investment account for your college education each year from the time you are born and the account pays 5 percent compounded quarterly, what will be the total amount in the account when you turn 18 years old?



## Analyze Cases

Use the case from the beginning of the chapter, Apple Computer: A New Life, to answer the following questions.

26. If you were an investment business looking for new companies that held a great deal of promise for growth and financial return, what would you have thought about the strengths and weaknesses of Apple Computer in the late 1970s? Do you think Apple Computer provides a more or less risky investment opportunity today than it did in the first few years of its existence? Justify your opinion.
27. If you analyzed current balance sheets of Apple Computer and compared them to the balance sheets of the first few years of its operations, what differences would you expect to see other than a much larger business?
28. One of Apple's unique competitive strengths has been that it has concentrated on being innovative rather than providing products that are similar to its competitors. Why do you believe that strategy resulted in some of the past financial problems for the company? Why have products like iPod and iTunes improved the company's financial health?

## Portfolio Activity

**COLLECT** an example of a balance sheet and an income statement from a public corporation. Recent financial statements are often available on a company's web site.

**CREATE** a visual to demonstrate how the two financial statements provide important information about the company's financial health.

**CONNECT** your visual to other items already in your class portfolio or relate it to an important concept you have learned in another class. Make the connection by preparing a one-minute presentation on the importance of being able to understand financial statements.

## Stock Market Activity

As companies plan their strategy for success, various factors must be considered. Setting organizational goals, preparing a budget, and analyzing financial statements are activities involved in business financial planning. Appropriate planning along with successful implementation of these plans will likely have a positive affect on a company's stock price.

Select a company that you will research and analyze. Conduct library and web research, and obtain a copy of the company's annual report to

1. Identify recent and current goals of the company.
2. Determine the extent to which these goals have been achieved.
3. Assess how financial performance has affected the company's stock price.
4. Describe potential actions that might be appropriate for future company success.
5. Maintain a record of the company's stock value with the date and closing price. Note any major company, economic, or news developments that may affect stock prices.

# Planning a Career in Government Financial Planning



The federal government is a major employer, with over 3 million employees. State and local governments add another 7 million jobs. Financial career opportunities in government are interesting, varied, and offered at all levels of government and in most agencies. A growing demand for finance expertise exists in the FBI, IRS, military, and Homeland Security.

Every government agency and office is involved in budget planning and budget management. Financial planners, accountants, auditors, investment analysts, and financial managers make important decisions about government services, budget management, tax planning, collections, and auditing. Financial expertise is required to support lawmakers. Government agency managers consider financial policies, develop a broad range of laws, and maintain effective and balanced budgets.

## Employment Outlook

- Good employment prospects in government finance careers are projected for the near future, with major employment growth in the IRS focusing on tax collections and enforcement and in the Defense Department working with procurement and contract management. State and local government positions are expected to grow at an even faster pace than federal.
- Pay scales for government employment are lower than equivalent jobs in the private sector. Job security is often better with excellent benefits at the federal level.

## Job Titles

- Auditor
- Contract specialist
- Budget analyst
- Cash management specialist

- Financial institution examiner
- Intelligence specialist
- Internal revenue agent
- Finance policy specialist

## Needed Skills

- Well-developed quantitative skills and preparation in mathematics, statistics, and computer finance and business applications.
- Varied education levels with opportunities for graduates of two- and four-year colleges. Specialized and managerial positions require a B.A. and often an M.B.A. or Master's in Accounting.
- Accuracy, objectivity, and attention to detail with an understanding of financial policies and procedures.

## What's It Like to Work in Government Budget Planning?

The federal budget of the United States outlines annual expenditures of over \$2.5 trillion. The complete budget and its supporting materials consume over 1000 printed pages. Personnel in the Federal Office of Management and Budget complete the federal budget under the direction of the President of the United States. The OMB coordinates the planning efforts and compiles the individual budgets of every government office and agency. Budget planning and preparation is a continuing job involving thousands of employees from technicians to managers and administrators. When completed, the budget is presented to Congress, where it is analyzed, modified, and passed into law.

**What about you?** What do you see as the advantages and disadvantages of a finance career in government? What type of agency or career area would appeal to you most?



## ENTREPRENEURSHIP EVENT

The BPA Entrepreneurship Event challenges participants to develop an operating plan and operational structure for a small business. Each participant selects a legal form of business that is appropriate for their small business. The business plan developed in this event includes financial goals, a budget, and other necessary financial statements.

Each contestant will develop a business plan that cannot exceed ten (10) single-spaced pages. The business plan is for a start-up business in the student's community or local area. The business plan must market a new product. Students should conduct extensive research to determine what type of new business would be successful in their community or region. The business plan must convince bankers and venture capitalists that the idea has great profit potential. Most businesses take up to three years to earn a profit. The proposed business plan must show enough financial depth to weather the early years of operation.

The business plan must include title page, table of contents, executive summary, description of proposed business, objectives of the business, proposed business strategies, products and/or services, form of ownership, management, market analysis, customer profile, competition, short-range operational goals, financial analysis, and supporting documentation.

## PERFORMANCE INDICATORS EVALUATED

- Demonstrate knowledge and understanding of entrepreneurship.
- Communicate research clearly and concisely, both orally and in writing.
- Demonstrate effective persuasive and informative communication and presentation skills.
- Develop a written business plan for a start-up business.
- Identify the target market for the business.
- Understand the demographics of the target market.
- Identify the competition and strategies to attract business.
- Identify strengths, weaknesses, opportunities, and threats (SWOT) for your business idea.
- Demonstrate oral presentation skills when presenting the business plan.
- Develop a business plan to market a new product for a start-up business.

*Go to the BPA web site for more detailed information.*

## Think Critically

1. What is the value of research when proposing a new business idea?
2. How should the target market be involved before presenting a start-up business proposal?
3. Why do most entrepreneurs need substantial savings before proposing a start-up business?
4. Why is the executive summary so important?

**www.bpa.org**