# INCOME STATEMENT

## WHAT IS NET INCOME?

In Chapter 1, we stated that a basic objective of every business is to earn a profit, or net income. Why? The answer lies in the very definition of net income: ***an increase in owner's equity resulting from the profitable operation of the business.*** The opposite of net income, a ***decrease*** in owner's equity resulting from unprofitable operation of the business, is termed a ***net loss.***

If you were to organize a business of your own, you would do so with the hope and expectation that the business would operate at a profit, thereby increasing your ownership equity. Individuals who invest in the capital stock of a large corporation also expect the business to earn a profit which will increase the value of their investment.

Notice that net income does not consist of cash or any other specific asset. Rather, net income is a ***computation*** of the overall effects of many business transactions upon ***owner's equity.*** The increase in owner's equity resulting from profitable operations usually is accompanied by an increase in total assets, though not necessarily an increase in cash. In some cases, however, an increase in owner's equity is accompanied by a decrease in total liabilities.

Our point is that net income represents an ***increase in owner's equity*** and has no direct relationship to the types or amounts of assets on hand. Consequently even a business operating at a profit may run short of cash and become insolvent.

In the balance sheet, the changes in owner's equity resulting from profitable or unprofitable operations are reflected in the balance of the ***owner's capital account.*** The assets of the business organization appear in the ***assets*** section of the balance sheet.

Some of the largest corporations have become large by consistently retaining in the business most of the resources generated by profitable operations.

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**CASE IN POINT** A recent annual report of Campbell Soup Company shows total owner's equity amounting to nearly $2 billion. The owners originally invested only about $71 million—less than 4% of the current equity—in exchange for capital stock. By operating profitably and retaining earnings, Campbell has added more than $1¾ billion to its ownership equity.

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### The Income Statement: A Preview

An income statement is a one-page financial statement which summarizes the profitability of the business entity over a specified period of time. In this statement, net income is determined by comparing for the time period: (1) the ***sales price*** of the goods sold and services rendered by the business with (2) the ***cost*** to the business of the goods and services used up in business operations. The technical accounting terms for these components of net income are ***revenue*** and ***expenses.*** Therefore, accountants say that net income is equal to ***revenue minus expenses,*** as shown in the following income statement.

tively short accounting periods of equal length. This concept, called the ***time period principle,*** is one of the generally accepted accounting principles that guide the interpretation of financial events and the preparation of financial statements.

The length of a company's accounting period depends upon how frequently managers, investors, and other interested people require information about the company's performance. Every business prepares annual income statements, and most businesses prepare quarterly and monthly income statements as well. (Quarterly statements cover a three-month period and are prepared by all large corporations for distribution to their stockholders.)

The 12-month accounting period used by an entity is called its ***fiscal year.*** The fiscal year used by most companies coincides with the calendar year and ends on December 31. Some businesses, however, elect to use a fiscal year which ends on some other date. It may be convenient for a business to end its fiscal year during a slack season rather than during a time of peak activity.

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CASE IN POINT Walt Disney Company ends its fiscal year on September 30. Why? One reason is that September and October are relatively slow months at Disney's theme parks; another is that September financial statements provide timely information about the preceding summer, which is the company's busiest season.

As another example, many department stores, including K mart, Neiman-Marcus, Nordstrom, and J. C. Penney, end their fiscal years on January 31—after the rush of the holiday season.

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Let us now explore the meaning of the accounting terms ***revenue*** and ***expenses.***

### Revenue

***Revenue is the price of goods sold and services rendered during a given accounting period.*** Earning revenue causes owner's equity to increase. When a business renders services or sells merchandise to its customers, it usually receives cash or acquires an account receivable from the customer. The inflow of cash and receivables from customers increases the total assets of the company. On the other side of the accounting equation, the liabilities do not change, but owner's equity increases to match the increase in total assets. Thus revenue is the gross ***increase in owner's equity*** resulting from operation of the business.

Various terms are used to describe different types of revenue; for example, the revenue earned by a real estate broker might be called ***Sales Commissions Earned,*** or alternatively, ***Commissions Revenue.*** In the professional practice of lawyers, physicians, dentists, and CPAs, the revenue is called ***Fees Earned.*** A business which sells merchandise rather than services (General Motors, for example) will use the term ***Sales*** to describe the revenue earned. Another type of revenue is ***Interest Earned,*** which means the amount received as interest on notes receivable, bank deposits, government bonds, or other securities.

**ROBERTS REAL ESTATE COMPANY**
**Income Statement**
**For the Month Ended October 31, 19__**

| | | |
|---|---|---|
| *Revenue:* | | |
| *Sales commissions earned* | | $10,640 |
| *Expenses:* | | |
| *Advertising expense* | $ 630 | |
| *Salaries expense* | 7,100 | |
| *Telephone expense* | 144 | |
| *Depreciation expense: building* | 150 | |
| *Depreciation expense: office equipment* | 45 | 8.069 |
| *Net income* | | $ 2.571 |

When we measure the net income earned by a business we are measuring its economic performance—its success or failure as a business enterprise. The owner, managers, and major creditors are anxious to see the latest available income statement and thereby judge how well the company is doing. If the business is organized as a corporation, the stockholders and prospective investors also will be keenly interested in each successive income statement.

Later in this chapter we will show how this income statement is developed from the accounting records of Roberts Real Estate Company. For the moment, however, this illustration will assist us in discussing some of the basic concepts involved in measuring business income.

***Income Must Be Related to a Specified Period of Time*** Notice that our sample income statement covers a ***period*** of time—namely, the month of October. A balance sheet shows the financial position of a business at a ***particular date.*** An income statement, on the other hand, shows the results of business operations over a span of time. We cannot evaluate net income unless it is associated with a specific time period. For example, if an executive says, "My business earns a net income of $10,000," the profitability of the business is unclear. Does it earn $10,000 per week, per month, or per year?

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**CASE IN POINT** The late J. Paul Getty, one of the world's first billionaires, was once interviewed by a group of business students. One of the students asked Getty to estimate the amount of his income. As the student had not specified a time period, Getty decided to have some fun with his audience and responded, "About $11,000 . . . " He paused long enough to allow the group to express surprise over this seemingly low amount and then completed his sentence, " . . . an hour." Incidentally, $11,000 per hour (24 hours per day) amounts to about $100 million per year.

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***Accounting Periods*** The period of time covered by an income statement is termed the company's ***accounting period.*** To provide the users of financial statements with timely information, net income is measured for rela-

***When to Record Revenue: The Realization Principle*** When is revenue recorded in the accounting records? For example, assume that on May 24, a real estate company signs a contract to represent a client in selling the client's personal residence. The contract entitles the real estate company to a commission equal to 5% of the selling price, due 30 days after the date of sale. On June 10, the real estate company sells the house at a price of $120,000, thereby earning a $6,000 commission ($120,000 × 5%), to be received on July 10. When should the company record this $6,000 commission revenue—in May, June, or July?

The company should record this revenue on June 10—the day it ***rendered the service*** of selling the client's house. As the company will not collect this commission until July, it must also record an account receivable on June 10. In July, when this receivable is collected, the company must not record revenue a second time. Collecting an account receivable increases one asset, Cash, and decreases another asset, Accounts Receivable. Thus, collecting an account receivable ***does not increase owner's equity*** and does not represent revenue.

Our answer illustrates a generally accepted accounting principle called the ***realization principle.*** The realization principle states that a business should record revenue at the time ***services are rendered to customers*** or ***goods sold are delivered to customers.*** In short, revenue is recorded when it is ***earned,*** without regard as to when the cash is received.

## Expenses

***Expenses are the costs of the goods and services used up in the process of earning revenue.*** Examples include the cost of employees' salaries, advertising, rent, utilities, and the gradual wearing-out (depreciation) of such assets as buildings, automobiles, and office equipment. All these costs are necessary to attract and serve customers and thereby earn revenue. Expenses are often called the "costs of doing business," that is, the cost of the various activities necessary to carry on a business.

An expense always causes a ***decrease in owner's equity.*** The related changes in the accounting equation can be either (1) a decrease in assets or (2) an increase in liabilities. An expense reduces assets if payment occurs at the time that the expense is incurred (or if payment has been made in advance). If the expense will not be paid until later, as, for example, the purchase of advertising services on account, the recording of the expense will be accompanied by an increase in liabilities.

***When to Record Expenses: The Matching Principle*** A significant relationship exists between revenue and expenses. Expenses are incurred for the ***purpose of producing revenue.*** In measuring net income for a period, revenue should be offset by ***all the expenses incurred in producing that revenue.*** This concept of offsetting expenses against revenue on a basis of "cause and effect" is called the ***matching principle***

Timing is an important factor in matching (offsetting) revenue with the related expenses. For example, in preparing monthly income statements, it is important to offset this month's expenses against this month's revenue.

We should not offset this month's expenses against last month's revenue, because there is no cause and effect relationship between the two.

To illustrate the matching principle, assume that the salaries earned by sales personnel waiting on customers during July are not paid until early August. In which month should these salaries be regarded as an expense? The answer is ***July,*** because this is the month in which the sales personnel's services ***helped to produce revenue.***

We previously explained that revenue and cash receipts are not one and the same thing. Similarly, expenses and cash payments are not identical. The cash payment for an expense may occur before, after, or in the same period that an expense helps to produce revenue. In deciding when to record an expense, the critical question is ***"In what period will this expenditure help to produce revenue?"*** not "When will the cash payment occur?"

***Expenditures Benefiting More Than One Accounting Period*** Many expenditures made by a business benefit two or more accounting periods. Fire insurance policies, for example, usually cover a period of 12 months. If a company prepares monthly income statements, a portion of the cost of such a policy should be allocated to insurance expense each month that the policy is in force. In this case, apportionment of the cost of the policy by months is an easy matter. If the 12-month policy costs $2,400 for example, the insurance expense for each month amounts to $200 ($2,400 ÷ 12 months).

Not all transactions can be so precisely divided by accounting periods. The purchase of a building, furniture and fixtures, machinery, a typewriter, or an automobile provides benefits to the business over all the years in which such an asset is used. No one can determine in advance exactly how many years of service will be received from such long-lived assets. Nevertheless, in measuring the net income of a business for a period of one year or less, the accountant must ***estimate*** what portion of the cost of the building and other long-lived assets is applicable to the current year. Since the allocations of these costs are estimates rather than precise measurements, it follows that income statements should be regarded as useful ***approximations*** of net income rather than as absolutely exact measurements.

For some expenditures, such as those for advertising or employee training programs, it is not possible to estimate objectively the number of accounting periods over which revenue is likely to be produced. In such cases, generally accepted accounting principles require that the expenditure be charged ***immediately to expense.*** This treatment is based upon the accounting principle of ***objectivity*** and the concept of ***conservatism.*** Accountants require ***objective evidence*** that an expenditure will produce revenue in future periods before they will view the expenditure as creating an asset. When this objective evidence does not exist, they follow the conservative practice of recording the expenditure as an expense. ***Conservatism,*** in this context, means applying the accounting treatment which results in the ***lowest*** (most conservative) estimate of net income for the current period.

### *Debit and Credit Rules for Revenue and Expense*

We have stressed that revenue increases owner's equity and that expenses decrease owner's equity. The debit and credit rules for recording revenue and expenses in the ledger accounts are a natural extension of the rules for recording changes in owner's equity. The rules previously stated for recording increases and decreases in owner's equity were as follows:

- ***Increases*** in owner's equity are recorded by ***credits.***
- ***Decreases*** in owner's equity are recorded by ***debits.***

This rule is now extended to cover revenue and expense accounts:

- Revenue ***increases*** owner's equity; therefore revenue is recorded by a ***credit.***
- Expenses ***decrease*** owner's equity; therefore expenses are recorded by ***debits.***

### *Ledger Accounts for Revenue and Expenses*

During the course of an accounting period, a great many revenue and expense transactions occur in the average business. To classify and summarize these numerous transactions, a separate ledger account is maintained for each major type of revenue and expense. For example, almost every business maintains accounts for advertising expense, telephone expense, and salaries expense. At the end of the period, all the advertising expenses appear as debits in the Advertising Expense account. The debit balance of this account represents the total advertising expense of the period and is listed as one of the expense items in the income statement.

Revenue accounts are usually much less numerous than expense accounts. A small business such as Roberts Real Estate Company in our continuing illustration may have only one or two types of revenue, such as commissions earned from arranging sales of real estate, and fees earned from managing properties on behalf of clients. In a business of this type, the revenue accounts might be called Sales Commissions Earned and Management Fees Earned.

### *Investments and Withdrawals by the Owner*

The owner of an unincorporated business may at any time invest assets or withdraw assets from the business. These "investment transactions" cause changes in the amount of owner's equity, but they are ***not*** considered revenue or expenses of the business.

Investments of assets by the owner are recorded by debiting the asset accounts and crediting the owner's capital account. This transaction is not viewed as revenue, because the business has not sold any merchandise or rendered any service in exchange for the assets received.

The income statement of a sole proprietorship does not include any salary expense representing the managerial services rendered by the owner. One reason for not including a salary to the owner-manager is that individuals in such positions are able to set their salaries at any amount they

choose. The use of an unrealistic salary to the proprietor would tend to destroy the usefulness of the income statement for measuring the profitability of the business. Thus, accountants regard the owner-manager as working to earn the ***entire net income*** of the business, rather than as working for a salary.

Even though the owner does not technically receive a salary, he or she usually makes withdrawals of cash from time to time for personal use. These withdrawals reduce the assets and owner's equity of the business, but they are ***not*** expenses. Expenses are incurred for the purpose of ***generating revenue,*** and withdrawals by the owner do not have this purpose.

Withdrawals could be recorded by debiting the owner's capital account. However, a clearer record is created if a separate Drawing account is debited. (In our Roberts Real Estate Company example, we will use an account entitled ***James Roberts, Drawing*** to record withdrawals by the owner.)

Debits to the owner's drawing account result from such transactions as:

1 Withdrawals of cash.
2 Withdrawals of other assets. The owner of a clothing store, for example, may withdraw merchandise for his or her personal use. The amount of the debit to the drawing account would be for the cost of the goods which were withdrawn.
3 Payment of the owner's personal bills out of company funds.

As investments and withdrawals by the owner are not classified as revenue and expenses, they are not included in the income statement. Instead, they are summarized in the statement of owner's equity, which will be discussed later in this chapter.

### *Recording Revenue and Expense Transactions: An Illustration*

The organization of Roberts Real Estate Company during September has already been described. The illustration is now continued for October, during which the company earned commissions by selling several residences for its clients. Bear in mind that the company does not own any residential property; it merely acts as a broker or an agent for clients wishing to sell their houses. A commission of 6% of the sales price of the house is charged for this service. During October the company not only earned commissions but also incurred a number of expenses.

Note that each illustrated transaction which affects an income statement account also affects a balance sheet account. This pattern is consistent with our previous discussion of revenue and expenses. In recording revenue transactions, we debit the assets received and credit a revenue account. In recording expense transactions, we debit an expense account and credit the asset Cash, or a liability account if payment is to be made later. The transactions for October were as follows:

***Oct. 1*** Paid $360 for publication of newspaper advertising describing various houses offered for sale.

# BALANCE SHEET

## The Balance Sheet

The purpose of a balance sheet is to show the ***financial position*** of a ***given business entity*** at a ***specific date.*** Every business prepares a balance sheet at the end of the year, and most companies prepare one at the end of each month. A balance sheet consists of a listing of the assets, the liabilities, and the owner's equity of a business. The ***balance sheet date*** is important, as the financial position of a business may change quickly. A balance sheet is most useful if it is ***relatively recent.*** The following balance sheet shows the financial position of ***Vagabond Travel Agency*** at ***December 31, 1994.***

**VAGABOND TRAVEL AGENCY**
**Balance Sheet**
**December 31, 1994**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 22,500 | *Liabilities:* | |
| *Notes receivable* | 10,000 | *Notes payable* | $ 41,000 |
| *Accounts receivable* | 60,500 | *Accounts payable* | 36,000 |
| *Supplies* | 2,000 | *Salaries payable* | 3,000 |
| *Land* | 100,000 | *Total liabilities* | $ 80,000 |
| *Building* | 90,000 | *Owner's equity:* | |
| *Office equipment* | 15,000 | *Terry Crane, capital* | 220,000 |
| *Total* | $300,000 | *Total* | $300,000 |

Let us briefly describe several features of this balance sheet. First, the heading sets forth three things: (1) the name of the business entity, (2) the name of the financial statement, and (3) the balance sheet date. The body of the balance sheet also consists of three distinct sections: ***assets, liabilities,*** and ***owner's equity.***

Notice that cash is listed first among the assets, followed by notes receivable, accounts receivable, supplies, and any other assets that will ***soon be converted into cash or consumed in business operations.*** Following these relatively "liquid" assets are the more "permanent" assets, such as land, buildings, and equipment.

Liabilities are shown before owner's equity. Each major type of liability (such as notes payable, accounts payable, and salaries payable) is listed separately, followed by a figure for total liabilities.

Finally, notice that the amount of total assets ($300,000) is ***equal*** to the total amount of liabilities and owner's equity (also $300,000). This relationship ***always exists***—in fact, the ***equality of these totals*** is one reason that this financial statement is called a ***balance*** sheet.

***The Concept of the Business Entity*** Generally accepted accounting principles require that a set of financial statements describe the affairs of a specific business entity. This concept is called the ***entity principle.***

A ***business entity*** is an economic unit that engages in ***identifiable business activities.*** For accounting purposes, the business entity is regarded as ***separate from the personal affairs of its owner.*** For example, Vagabond is a business organization operating as a travel agency. Its owner, Terry Crane, may have a personal bank account, a home, a car, and even another business, such as a cattle ranch. These items are ***not involved in the operation of the travel agency*** and should not appear in Vagabond's financial statements.

If the owner were to intermingle his or her personal affairs with the transactions of the business, the resulting financial statements would fail to describe clearly the financial position and operating results of the business organization.

## Assets

***Assets are economic resources which are owned by a business and are expected to benefit future operations.*** Assets may have definite physical form, as do buildings, machinery, and an inventory of merchandise. On the other hand, some assets exist not in physical or tangible form but in the form of valuable legal claims or rights; examples are amounts due from customers, investments in government bonds, and patent rights.

One of the most basic and at the same time most controversial problems in accounting is determining dollar values for the various assets of a business. At present, generally accepted accounting principles call for the valuation of assets in a balance sheet at ***cost,*** rather than at appraised market values. The specific accounting principles supporting cost as the basis for asset valuation are discussed below.

***The Cost Principle*** Assets such as land, buildings, merchandise, and equipment are typical of the many economic resources that will be used in producing income for the business. The prevailing accounting view is that such assets should be recorded at their cost. When we say that an asset is shown in the balance sheet at its ***historical cost,*** we mean the dollar amount originally paid to acquire the asset; this amount may be very different from what we would have to pay today to replace it.

For example, let us assume that a business buys a tract of land for use as a building site, paying $100,000 in cash. The amount to be entered in the accounting records as the value of the asset will be the cost of $100,000. If we assume a booming real estate market, a fair estimate of the sales value of the land 10 years later might be $250,000. Although the market

price or economic value of the land has risen greatly, the accounting value as shown in the accounting records and in the balance sheet would continue unchanged at the cost of $100,000. This policy of accounting for assets at their cost is often referred to as the ***cost principle*** of accounting.

In reading a balance sheet, it is important to bear in mind that the dollar amounts listed do not indicate the prices at which the assets could be sold nor the prices at which they could be replaced. One useful generalization to be drawn from this discussion is that a balance sheet ***does not*** show "how much a business is ***worth.***"

***The Going-Concern Assumption*** It is appropriate to ask ***why*** accountants do not change the recorded values of assets to correspond with changing market prices for these properties. One reason is that the land and building being used to house the business were acquired for ***use*** and not for resale; in fact, these assets cannot be sold without disrupting the business. The balance sheet of a business is prepared on the assumption that the business is a continuing enterprise, a "going concern." Consequently, the present estimated prices at which the land and buildings could be sold are of less importance than if these properties were intended for sale.

***The Objectivity Principle*** Another reason for using cost rather than current market values in accounting for assets is the need for a definite, factual basis for valuation. Accountants use the term ***objective*** to describe asset valuations that are factual and can be verified by independent experts. For example, if land is shown on the balance sheet at cost, any CPA who performed an audit of the business would be able to find objective evidence that the land was actually valued at the cost of acquiring it. Estimated market values, on the other hand, for assets such as buildings and specialized machinery are not factual and objective. Market values are constantly changing, and estimates of the prices at which assets could be sold are largely a matter of personal opinion.

At the date an asset is acquired, the cost and market value usually are the same. The bargaining process which results in the sale of an asset serves to establish both the current market value of the property and the cost to the buyer. With the passage of time, however, the current market value of assets is likely to differ considerably from the cost recorded in the owner's accounting records.

***The Stable-Dollar Assumptions*** Severe inflation in several countries in recent years has raised serious doubts as to the adequacy of the conventional cost basis in accounting for assets. When inflation becomes very severe, historical cost values for assets simply lose their relevance as a basis for making business decisions. Much consideration has been given to the use of balance sheets which would show assets at current appraised values or at replacement costs rather than at historical cost.

Accountants in the United States by adhering to the cost basis of accounting are implying that the dollar is a ***stable unit of measurement,*** as is the gallon, the acre, or the mile. The cost principle and the stable-dollar assumption work very well in periods of stable prices but are less satisfactory under conditions of rapid inflation. For example, if a company bought land 20 years ago for $100,000 and purchased a second similar tract of land

today for $500,000, the total cost of land shown by the accounting records would be $600,000. This treatment ignores the fact that dollars spent 20 years ago had far greater purchasing power than today's dollar. Thus, the $600,000 total for cost of land is a mixture of two kinds of dollars with very different purchasing power.

After much research into this problem, the FASB required on a trial basis that large corporations report supplementary data showing current replacement costs and price-level adjusted data. However, after a few years, the cost of developing and disclosing such information in financial statements was judged to be greater than the benefits provided. Consequently, the disclosure requirement was eliminated. At the present time, the stable-dollar assumption continues in use in the United States—perhaps until challenged by more severe inflation sometime in the future.

### *Liabilities*

Liabilities are debts. All business concerns have liabilities; even the largest and most successful companies find it convenient to purchase merchandise and supplies on credit rather than to pay cash at the time of each purchase. The liability arising from the purchase of goods or services on credit is called an ***account payable,*** and the person or company to whom the account payable is owed is called a ***creditor.***

A business concern frequently finds it desirable to borrow money as a means of supplementing the funds invested by the owner, thus enabling the business to expand more rapidly. The borrowed funds may, for example, be used to buy merchandise which can be sold at a profit to the firm's customers. Or the borrowed money might be used to buy new and more efficient machinery, thus enabling the company to turn out a larger volume of products at lower cost. When a business borrows money for any reason, a liability is incurred and the lender becomes a creditor of the business. The form of the liability when money is borrowed is usually a ***note payable,*** a formal written promise to pay a certain amount of money, plus interest, at a definite future time.

An ***account payable,*** as contrasted with a ***note payable,*** does not involve the issuance of a formal written promise to the creditor, and it does not call for payment of interest. When a business has both notes payable and accounts payable, the two types of liabilities are shown separately in the balance sheet, with notes payable usually listed first. A figure showing the total of the liabilities should also be inserted, as shown by the illustrated balance sheet on page 15.

The creditors have claims against the assets of the business, usually not against any particular asset but against the assets in general. The claims of the creditors are liabilities of the business and have priority over the claims of owners. Creditors are entitled to be paid in full even if such payment should exhaust the assets of the business, leaving nothing for the owner.

### *Owner's Equity*

The owner's equity in a business represents the resources invested by the owner (or owners). The equity of the owner is a ***residual claim,*** because

the claims of the creditors legally come first. If you are the owner of a business, you are entitled to whatever remains ***after the claims of the creditors are fully satisfied.*** Thus, owner's equity is equal to the ***total assets minus the liabilities.*** For example, using the data from the illustrated balance sheet of Vagabond Travel Agency (page 15):

| | |
|---|---|
| *Vagabond has total assets of* | *$300,000* |
| *And total liabilities amounting to* | *80,000* |
| *Therefore, the owner's equity must equal* | *$220,000* |

Suppose that Vagabond borrows $20,000 from a bank. After recording the additional asset of $20,000 in cash and recording the new liability of $20,000 owed to the bank, we would have the following:

| | |
|---|---|
| *Vagabond now has total assets of* | *$320,000* |
| *And total liabilities are now* | *100,000* |
| *Therefore, the owner's equity still is equal to* | *$220,000* |

It is apparent that the total assets of the business were increased by the act of borrowing money from a bank, but the increase in total assets was exactly offset by an increase in liabilities, and the owner's equity remained unchanged. The owner's equity in a business ***is not increased*** by the incurring of liabilities of any kind.

***Increases in Owner's Equity*** The owner's equity in a business comes from two sources:

1 Investment by the owner
2 Earnings from profitable operation of the business

Only the first of these two sources of owner's equity is considered in this chapter. The second source, an increase in owner's equity through earnings of the business, will be discussed in Chapter 3.

***Decreases in Owner's Equity*** If you are the owner of a sole proprietorship, you have the right to withdraw cash or other assets from the business at any time. Because you want to see the business succeed, you will probably not make withdrawals that would handicap the business in operating efficiently. Withdrawals are most often made by writing a check drawn on the company's bank account and payable to the owner. Other types of withdrawals also occur, such as taking office equipment out of the business for personal use by the owner or using cash belonging to the business to pay the personal debts of the owner. Every withdrawal by the owner reduces the total assets of the business and also reduces the owner's equity.

In summary, decreases in the owner's equity in a business are caused in two ways:

1 ***Withdrawals*** of cash or other assets by the owner
2 ***Losses*** from unprofitable operation of the business

Accounting for these types of transactions will be explained and illustrated in Chapter 3.

### *The Accounting Equation*

A fundamental characteristic of every balance sheet is that the total dollar amount of assets is ***equal to*** the total of liabilities and owner's equity. As stated earlier, the equality of these two totals is one reason for calling this financial statement a ***balance sheet.*** But ***why*** do total assets always equal the total of liabilities and owner's equity? The answer can be given in one short paragraph.

The dollar totals on the two sides of the balance sheet are always equal because these two sides are merely two views of the same business property. The listing of assets shows us ***what resources*** the business owns; the listing of liabilities and owner's equity tells us ***who supplied these resources*** to the business and how much each group supplied. Everything that a business owns has been supplied to it by the creditors or by the owner. Therefore, the total claims of the creditors plus the claim of the owner equal the total assets of the business.

The equality of assets on the one hand and of the claims of the creditors and the owner on the other hand is expressed in the equation:

| Assets | = | Liabilities | + | Owner's Equity |
|---|---|---|---|---|
| $300,000 | = | $80,000 | + | $220,000 |

The amounts listed in the equation were taken from the balance sheet illustrated on page 15. A balance sheet is simply a detailed statement of this equation. To illustrate this relationship, compare the balance sheet of Vagabond Travel Agency with the above equation.

To emphasize that the equity of the owner is a residual element, secondary to the claims of creditors, it is often helpful to transpose the terms of the equation, as follows:

| Assets | − | Liabilities | = | Owner's Equity |
|---|---|---|---|---|
| $300,000 | − | $80,000 | = | $220,000 |

Every business transaction, no matter how simple or how complex, can be expressed in terms of its effect on the accounting equation. A thorough understanding of the equation and some practice in using it are essential to the student of accounting.

Regardless of whether a business grows or contracts, this equality between the assets and the claims against the assets is always maintained. Any increase in the amount of total assets is necessarily accompanied by an equal increase on the other side of the equation, that is, by an increase in either the liabilities or the owner's equity. Any decrease in total assets is necessarily accompanied by a corresponding decrease in liabilities or owner's equity. The continuing equality of the two sides of the balance sheet can best be illustrated by taking a brand-new business as an example and observing the effects of various transactions upon its balance sheet.

### *Effects of Business Transactions upon the Balance Sheet*

Assume that James Roberts, a licensed real estate broker, decided to start a real estate business of his own, to be known as Roberts Real Estate

Company. The planned operations of the new business call for obtaining "listings" of houses being offered for sale by owners, advertising these houses, and showing them to prospective buyers. The listing agreement signed with each owner provides that Roberts Real Estate Company shall receive at the time of sale a commission equal to 6% of the sales price of the property.

The new business was begun on September 1, when Roberts deposited $180,000 in a bank account in the name of the business, Roberts Real Estate Company. The initial balance sheet of the new business then appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 1, 19__**

| *Assets* | | *Owner's Equity* | |
|---|---|---|---|
| *Cash* | *$180,000* | *James Roberts, capital* | *$180,000* |

Observe that the equity of the owner in the assets is designated on the balance sheet by the caption, ***James Roberts, capital.*** The word ***capital*** is the traditional accounting term used in describing the equity of the proprietor in the assets of the business.

***Purchase of an Asset for Cash*** The next transaction entered into by Roberts Real Estate Company was the purchase of land suitable as a site for an office. The price for the land was $141,000 and payment was made in cash on September 3. The effect of this transaction on the balance sheet was twofold: first, cash was decreased by the amount paid out; and second, a new asset, Land, was acquired. After this exchange of cash for land, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 3, 19__**

| *Assets* | | *Owner's Equity* | |
|---|---|---|---|
| *Cash* | *$ 39,000* | *James Roberts, capital* | *$180,000* |
| *Land* | *141,000* | | |
| *Total assets* | *$180,000* | *Total owner's equity* | *$180,000* |

***Purchase of an Asset and Incurring of a Liability*** On September 5 an opportunity arose to buy from Kent Company a complete office building which had to be moved to permit the construction of a freeway. A price of $36,000 was agreed upon, which included the cost of moving the building and installing it upon the Roberts Company's lot. As the building was in excellent condition and would have cost approximately $80,000 to build, Roberts considered this a very fortunate purchase.

The terms provided for an immediate cash payment of $15,000 and payment of the balance of $21,000 within 90 days. Cash was decreased $15,000, but a new asset, Building, was recorded at cost in the amount of $36,000. Total assets were thus increased by $21,000, but the total of liabil-

ities and owner's equity was also increased as a result of recording the $21,000 account payable as a liability. After this transaction had been recorded, the balance sheet appeared as shown below. (Remember that cash is always the first asset listed in a balance sheet.)

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 5, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 24,000 | *Liabilities:* | |
| *Land* | 141,000 | *Accounts payable* | $ 21,000 |
| *Building* | 36,000 | *Owner's equity:* | |
| | | *James Roberts, capital* | 180,000 |
| *Total* | $201,000 | *Total* | $201,000 |

Note that the building appears in the balance sheet at $36,000, its cost to Roberts Real Estate Company. The estimate of $80,000 as the probable cost to construct such a building is irrelevant. Even if someone should offer to buy the building from Roberts Company for $80,000 or more, this offer, if refused, would have no bearing on the balance sheet. In a balance sheet, most assets are valued at their ***cost,*** not at their current market values.

***Sale of an Asset*** After the office building had been moved to the Roberts Company's lot, Roberts decided that the lot was larger than was needed. The adjoining business, Carter's Drugstore, wanted more room for a parking area, so, on September 10, Roberts Company sold a small, unused corner of the lot to Carter's Drugstore for a price of $11,000. Since the sales price was computed at the same amount per square foot as Roberts Company had paid for the land, there was neither a profit nor a loss on the sale. No down payment was required, but it was agreed that the full price would be paid within three months. In this transaction a new asset, Accounts Receivable, was acquired, but the asset Land was decreased by the same amount. Consequently, there was no change in the amount of total assets. After this transaction, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 10, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 24,000 | *Liabilities:* | |
| *Accounts receivable* | 11,000 | *Accounts payable* | $ 21,000 |
| *Land* | 130,000 | *Owner's equity:* | |
| *Building* | 36,000 | *James Roberts, capital* | 180,000 |
| *Total* | $201,000 | *Total* | $201,000 |

In the illustration thus far, Roberts Real Estate Company has an account receivable from only one debtor, and an account payable to only one

creditor. As the business grows, the number of debtors and creditors will increase, but the Accounts Receivable and Accounts Payable designations will continue to be used. The additional records necessary to show the amount receivable from each individual debtor and the amount owing to each individual creditor will be explained in Chapter 5.

***Purchase of an Asset on Credit*** A complete set of office furniture and equipment was purchased on credit from General Equipment, Inc., on September 14 for $5,400. As the result of this transaction the business owned a new asset, Office Equipment, but it had also incurred a new liability in the form of Accounts Payable. The increase in total assets was exactly offset by the increase in liabilities. After this transaction the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 14, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 24,000 | *Liabilities:* | |
| *Accounts receivable* | 11,000 | *Accounts payable* | $ 26,400 |
| *Land* | 130,000 | *Owner's equity:* | |
| *Building* | 36,000 | *James Roberts, capital* | 180,000 |
| *Office equipment* | 5,400 | | |
| *Total* | $206,400 | *Total* | $206,400 |

***Collection of an Account Receivable*** On September 20, cash in the amount of $1,500 was received as partial settlement of the account receivable from Carter's Drugstore. This transaction caused cash to increase and the accounts receivable to decrease by an equal amount. In essence, this transaction was merely the exchange of one asset for another of equal value. Consequently, there was no change in the amount of total assets. After this transaction, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 20, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 25,500 | *Liabilities:* | |
| *Accounts receivable* | 9,500 | *Accounts payable* | $ 26,400 |
| *Land* | 130,000 | *Owner's equity:* | |
| *Building* | 36,000 | *James Roberts, capital* | 180,000 |
| *Office equipment* | 5,400 | | |
| *Total* | $206,400 | *Total* | $206,400 |

***Payment of a Liability*** On September 30, Roberts Real Estate Company paid $3,000 in cash to General Equipment, Inc. This payment caused a

decrease in cash and an equal decrease in liabilities. Therefore the balance sheet totals were still in balance. After this transaction, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 30, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | *$ 22,500* | *Liabilities:* | |
| *Accounts receivable* | *9,500* | *Accounts payable* | *$ 23,400* |
| *Land* | *130,000* | *Owner's equity:* | |
| *Building* | *36,000* | *James Roberts, capital* | *180,000* |
| *Office equipment* | *5,400* | | |
| *Total* | *$203,400* | *Total* | *$203,400* |

The transactions which have been illustrated for the month of September were merely preliminary to the formal opening for business of Roberts Real Estate Company on October 1. Since we have assumed that the business earned no commissions and incurred no expenses during September, the owner's equity at September 30 is shown in the above balance sheet at $180,000, unchanged from the original investment by Roberts on September 1. September was a month devoted exclusively to organizing the business and not to regular operations. In succeeding chapters we shall continue the example of Roberts Real Estate Company by illustrating operating transactions and considering how the net income of the business can be determined.

## *Effect of Business Transactions upon the Accounting Equation*

A balance sheet is merely a detailed expression of the accounting equation, ***Assets = Liabilities + Owner's Equity.*** To emphasize the relationship between the accounting equation and the balance sheet, let us now repeat the September transactions of Roberts Real Estate Company to show the effect of each transaction upon the accounting equation. Briefly restated, the seven transactions were as follows:

**Sept. 1** Began the business by depositing $180,000 in a company bank account.

**2** Purchased land for $141,000 cash.

**5** Purchased a prefabricated building for $36,000, paying $15,000 cash and incurring a liability of $21,000.

**10** Sold part of the land at a price equal to cost of $11,000, collectible within three months.

**14** Purchased office equipment on credit for $5,400.

**20** Received $1,500 cash as partial collection of the $11,000 account receivable.

**30** Paid $3,000 on accounts payable.

The table below shows the effects of each of the September transactions on the accounting equation. The final line in the table corresponds to the amounts in the balance sheet at the end of September. Note that the equality of the two sides of the equation was maintained throughout the recording of the transactions.

| | Assets | | | | | = | Liabilities | + | Owner's Equity |
|---|---|---|---|---|---|---|---|---|---|
| | Cash | + Accounts Receivable | + Land | + Building | + Office Equipment | = | Accounts Payable | + | James Roberts, Capital |
| ept. 1 | +$180,000 | –0– | –0– | –0– | –0– | | –0– | | +$180,000 |
| ept. 3 | −141,000 | | +$141,000 | | | | | | |
| ances | $39,000 | –0– | $141,000 | –0– | –0– | | –0– | | $180,000 |
| ept. 5 | −15,000 | | | +$36,000 | | | +$21,000 | | |
| ances | $24,000 | –0– | $141,000 | $36,000 | –0– | | $21,000 | | $180,000 |
| ct. 10 | | +$11,000 | −11,000 | | | | | | |
| ances | $24,000 | $11,000 | $130,000 | $36,000 | –0– | | $21,000 | | $180,000 |
| ct. 14 | | | | | +$5,400 | | +5,400 | | |
| ances | $24,000 | $11,000 | $130,000 | $36,000 | $5,400 | | $26,400 | | $180,000 |
| ct. 20 | +1,500 | −1,500 | | | | | | | |
| ances | $25,500 | $9,500 | $130,000 | $36,000 | $5,400 | | $26,400 | | $180,000 |
| ct. 30 | −3,000 | | | | | | −3,000 | | |
| ances | $22,500 | + $9,500 | + $130,000 | + $36,000 | + $5,400 | = | $23,400 | + | $180,000 |

# RATIO ANALYSIS

Financial statements are the instrument panel of a business enterprise. They constitute a report on managerial performance, attesting to managerial success or failure and flashing warning signals of impending difficulties. To read a complex instrument panel, one must understand the gauges and their calibration to make sense out of the array of data they convey. Similarly, one must understand the inner workings of the accounting system and the significance of various financial relationships to interpret the data appearing in financial statements. To a reader with a knowledge of accounting, a set of financial statements tells a great deal about a business enterprise.

The financial affairs of a business may be of interest to a number of different groups: management, creditors, investors, politicians, union officials, and government agencies. Each of the groups has somewhat different needs, and accordingly each tends to concentrate on particular aspects of a company's financial picture.

### *What Is Your Opinion of the Level of Corporate Profits?*

As a college student who has completed (or almost completed) a course in accounting, you have a much better understanding of corporate profits than do people who have never studied accounting. The level of earnings of large corporations is a controversial topic, a favorite topic in many political speeches and at cocktail parties. Many of the statements one reads or hears from these sources are emotional rather than rational, fiction rather than fact. Public opinion polls show that the public believes the average manufacturing company has an after-tax profit of about 30% of sales, when in fact such profit has been ***about 5% of sales*** in recent years. A widespread public belief that profits are six times the actual rate may lead to some unwise legislation.

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**CASE IN POINT** General Motors in an annual report a few years ago showed a net income of $321 million. This profit may sound like a huge amount, but it was only one-half of 1% of GM's sales. Thus, of every dollar received as revenue, only ½ cent represented profit for GM. On a $10,000 car, this was a profit of $50. Actually, earning only $321 million in a year must be regarded as very poor performance for a corporation the size of General Motors. Shortly afterward, however, GM set new records for both sales and earnings. Net income was $4.5 billion and represented about 5½ cents profit on each dollar of sales. That was a profit of $550 on a $10,000 automobile.

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An in-depth knowledge of accounting does not enable you to say at what level corporate earnings ***should be;*** however, a knowledge of accounting does enable you to read audited financial statements that show what the level of corporate earnings ***actually is.*** Moreover, you are aware the information in published financial statements of corporations has been audited by CPA firms and has been reviewed in detail by government agencies, such as the Securities and Exchange Commission (SEC) and the Internal Revenue Service (IRS). Consequently, you know that the profits reported

in these published financial statements are reasonably reliable; they have been determined in accordance with generally accepted accounting principles and verified by independent experts.

### *Some Specific Examples of Corporate Earnings . . . and Losses*

Not all leading corporations earn a profit every year. For the ten years from 1981 through 1990, Pan American Airways reported a net loss each year. Late in 1991 Pan Am—America's "flagship" airline—ceased operations. Many American corporations had a bad year in 1991. Each of the "Big Three" American automakers reported huge losses. Even IBM sustained a net loss—the first in the company's 80-year history.

The oil companies have been particularly subject to criticism for so-called excessive profits, so let us briefly look at the profits of Exxon, the world's largest oil company. A recent annual report of Exxon (audited by Price Waterhouse) shows that profits amounted to a little over $3.5 billion. Standing alone, that figure seems enormous—but we need to look a little farther. The total revenue of Exxon was over $95 billion, so net income amounted to less than 4% of sales. On the other hand, income taxes, excise taxes, and other taxes and duties levied upon Exxon amounted to more than $27 billion, or about $7\frac{1}{2}$ times as much as the company's profit. Thus, taxation represents a far greater portion of the cost of a gallon of gasoline than does the oil company's profit.

There are many ways of appraising the adequacy of corporate earnings. Certainly, earnings should be compared with total assets and with invested capital as well as with sales. In this chapter we shall look at a number of ways of evaluating corporate profits and solvency.

### *Sources of Financial Information*

For the most part, our discussion will be limited to the kind of analysis that can be made by "outsiders" who do not have access to internal accounting records. Investors must rely to a considerable extent on financial statements in published annual and quarterly reports. In the case of largely publicly owned corporations, additional information is filed with the SEC and is available to the public.

The SEC requires large corporations to include in their annual reports a ***discussion and analysis*** by top management of the results of the company's operations and of its current financial position. In this section of the annual report, management is required to highlight favorable and unfavorable trends, and to identify significant events and existing uncertainties affecting the company's financial condition. (This element of an annual report is illustrated in Comprehensive Problem 5, on pages 974–975.)

Many financial analysts also study the financial position and future prospects of publicly owned corporations and sell their analyses, conclusions, and investment recommendations for a fee. For example, detailed financial analyses of most large corporations are published weekly by Moody's Investors Service, Standard & Poor's, and The Value Line Investment Survey. Anyone may subscribe to these investment advisory services.

Bankers and major creditors usually are able to obtain detailed financial information from borrowers simply by requesting it as a condition for

granting a loan. Suppliers and other trade creditors may obtain some financial information about almost any business from credit-rating agencies, such as Dunn & Bradstreet.

### Comparative Financial Statement

Significant changes in financial data are easy to see when financial statement amounts for two or more years are placed side by side in adjacent columns. Such a statement is called a ***comparative financial statement.*** The amounts for the most recent year are usually placed in the left-hand money column. Both the balance sheet and the income statement are often prepared in the form of comparative statements. A highly condensed comparative income statement covering three years is shown below.

**BENSON CORPORATION**
**Comparative Income Statement**
**For the Years Ended December 31, 1994, 1993, and 1992**
**(in thousands of dollars)**

| | 1994 | 1993 | 1992 |
|---|---|---|---|
| Net sales | $600 | $500 | $400 |
| Cost of goods sold | 370 | 300 | 235 |
| Gross profit | $230 | $200 | $165 |
| Expenses | 194 | 160 | 115 |
| Net income | $ 36 | $ 40 | $ 50 |

### Tools of Analysis

Few figures in a financial statement are highly significant in and of themselves. It is their relationship to other quantities or the amount and direction of change that is important. Analysis is largely a matter of establishing significant relationships and identifying changes and trends. Four widely used analytical techniques are (1) dollar and percentage changes, (2) trend percentages, (3) component percentages, and (4) ratios.

### Dollar and Percentage Changes

The dollar amount of change from year to year is significant, but expressing the change in percentage terms adds perspective. For example, if sales this year have increased by $100,000, the fact that this is an increase of 10% over last year's sales of $1 million puts it in a different perspective than if it represented a 1% increase over sales of $10 million for the prior year.

The dollar amount of any change is the difference between the amount for a ***comparison*** year and for a ***base*** year. The percentage change is computed by dividing the amount of the change between years by the amount for the base year. This is illustrated in the tabulation below, using data from the comparative income statement above.

| | In Thousands | | | Increase or (Decrease) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1994 over 1993 | | 1993 over 1992 | |
| | Year 1994 | Year 1993 | Year 1992 | Amount | % | Amount | % |
| Net sales | $600 | $500 | $400 | $100 | 20% | $100 | 25% |
| Net income | 36 | 40 | 50 | (4) | (10%) | (10) | (20%) |

Although net sales increased $100,000 in both 1993 and 1994, the percentage of change differs because of the shift in the base from 1992 to 1993. These calculations present no problems when the figures for the base year are positive amounts. If a negative amount or a zero amount appears in the base year, however, a percentage change cannot be computed. Thus if Benson Corporation had incurred a net loss in 1993, the percentage change in net income from 1993 to 1994 could not have been calculated.

***Evaluating Percentage Changes in Sales and Earnings*** Computing the percentage changes in sales, gross profit, and net income from one year to the next gives insight into a company's rate of growth. If a company is experiencing growth in its economic activities, sales and earnings should increase at ***more than the rate of inflation.*** Assume, for example, that a company's sales increase by 6% while the general price level rises by 10%. It is probable that the entire increase in the dollar amount of sales may be explained by inflation, rather than by an increase in sales volume (the number of units sold). In fact, the company may well have sold ***fewer*** goods than in the preceding year.

In measuring the dollar or percentage change in ***quarterly*** sales or earnings, it is customary to compare the results of the current quarter with those of the ***same quarter in the preceding year.*** Use of the same quarter of the preceding year as the base period prevents our analysis from being distorted by seasonal fluctuations in business activity.

***Percentages Become Misleading When the Base Is Small*** Percentage changes may create a misleading impression when the dollar amount used as a base is unusually small. Occasionally we hear a television newscaster say that a company's profits have increased by a very large percentage, such as 900%. The initial impression created by such a statement is that the company's profits must now be excessively large. But assume, for example, that a company had net income of $100,000 in its first year; that in the second year net income drops to $10,000; and that in the third year net income returns to the $100,000 level. In this third year, net income has increased by $90,000, representing a 900% increase over the profits of the second year. What needs to be added is that this 900% increase in profits in the third year ***exactly offsets*** the 90% decline in profits in the second year.

Few people realize that a 90% decline in earnings must be followed by a 900% increase just to get back to the starting point.

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**CASE IN POINT** In the third quarter of 1979, General Motors earned $21.4 million, as compared with $527.9 million in the third quarter of 1978. This represented a 96% decline in third quarter profits, computed as follows:

| | |
|---|---|
| *Decline in profits ($527.9 – $21.4)* | *$506.5* |
| *Base period earnings (third quarter, 1978)* | *$527.9* |
| *Percentage decrease ($506.5 ÷ $527.9)* | *96%* |

How much of an increase in profits would be required in the third quarter of 1980 for profits to return to the 1978 level? Many people erroneously guess 96%. However, the correct answer is an astounding 2,367%, computed as follows:

| | |
|---|---|
| *Required increase to reach 1978 profit level (from $21.4 to $527.9)* | *$506.5* |
| *Base period earnings (third quarter, 1979)* | *$ 21.4* |
| *Required percentage increase ($506.5 ÷ $21.4)* | *2,367%* |

Unfortunately for GM, the company's 1980 profits did not return to 1978 levels. Instead, the company lost a then record-setting $567 million in the third quarter of 1980.

## *Trend Percentages*

The changes in financial statement items from a base year to following years are often expressed as ***trend percentages*** to show the extent and direction of change. Two steps are necessary to compute trend percentages. First, a base year is selected and each item in the financial statements for the base year is given a weight of 100%. The second step is to express each item in the financial statements for following years as a percentage of its base-year amount. This computation consists of dividing an item such as Sales in the years after the base year by the amount of Sales in the base year.

For example, assume that 1989 is selected as the base year and that Sales in the base year amounted to $300,000 as shown below. The trend percentages for Sales are computed by dividing the Sales amount of each following year by $300,000. Also shown in the illustration are the yearly amounts of net income. The trend percentages for net income are computed by dividing the Net Income amount for each following year by the base-year amount of $15,000.

| | *1994* | *1993* | *1992* | *1991* | *1990* | *1989* |
|---|---|---|---|---|---|---|
| *Sales* | *$450,000* | *$360,000* | *$330,000* | *$320,000* | *$312,000* | *$300,000* |
| *Net income* | *22,950* | *14,550* | *21,450* | *19,200* | *15,600* | *15,000* |

When the computations described above have been made, the trend percentages will appear as shown below.

| | *1994* | *1993* | *1992* | *1991* | *1990* | *1989* |
|---|---|---|---|---|---|---|
| *Sales* | *150%* | *120%* | *110%* | *107%* | *104%* | *100%* |
| *Net income* | *153%* | *97%* | *143%* | *128%* | *104%* | *100%* |

The above trend percentages indicate a very modest growth in sales in the early years and accelerated growth in 1993 and 1994. Net income also shows an increasing growth trend with the exception of the year 1993,

# INCOME STATEMENT

## WHAT IS NET INCOME?

In Chapter 1, we stated that a basic objective of every business is to earn a profit, or net income. Why? The answer lies in the very definition of net income: ***an increase in owner's equity resulting from the profitable operation of the business.*** The opposite of net income, a ***decrease*** in owner's equity resulting from unprofitable operation of the business, is termed a ***net loss.***

If you were to organize a business of your own, you would do so with the hope and expectation that the business would operate at a profit, thereby increasing your ownership equity. Individuals who invest in the capital stock of a large corporation also expect the business to earn a profit which will increase the value of their investment.

Notice that net income does not consist of cash or any other specific asset. Rather, net income is a ***computation*** of the overall effects of many business transactions upon ***owner's equity.*** The increase in owner's equity resulting from profitable operations usually is accompanied by an increase in total assets, though not necessarily an increase in cash. In some cases, however, an increase in owner's equity is accompanied by a decrease in total liabilities.

Our point is that net income represents an ***increase in owner's equity*** and has no direct relationship to the types or amounts of assets on hand. Consequently even a business operating at a profit may run short of cash and become insolvent.

In the balance sheet, the changes in owner's equity resulting from profitable or unprofitable operations are reflected in the balance of the ***owner's capital account.*** The assets of the business organization appear in the ***assets*** section of the balance sheet.

Some of the largest corporations have become large by consistently retaining in the business most of the resources generated by profitable operations.

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**CASE IN POINT** A recent annual report of Campbell Soup Company shows total owner's equity amounting to nearly $2 billion. The owners originally invested only about $71 million—less than 4% of the current equity—in exchange for capital stock. By operating profitably and retaining earnings, Campbell has added more than $1¾ billion to its ownership equity.

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### The Income Statement: A Preview

An income statement is a one-page financial statement which summarizes the profitability of the business entity over a specified period of time. In this statement, net income is determined by comparing for the time period: (1) the ***sales price*** of the goods sold and services rendered by the business with (2) the ***cost*** to the business of the goods and services used up in business operations. The technical accounting terms for these components of net income are ***revenue*** and ***expenses.*** Therefore, accountants say that net income is equal to ***revenue minus expenses,*** as shown in the following income statement.

tively short accounting periods of equal length. This concept, called the ***time period principle,*** is one of the generally accepted accounting principles that guide the interpretation of financial events and the preparation of financial statements.

The length of a company's accounting period depends upon how frequently managers, investors, and other interested people require information about the company's performance. Every business prepares annual income statements, and most businesses prepare quarterly and monthly income statements as well. (Quarterly statements cover a three-month period and are prepared by all large corporations for distribution to their stockholders.)

The 12-month accounting period used by an entity is called its ***fiscal year.*** The fiscal year used by most companies coincides with the calendar year and ends on December 31. Some businesses, however, elect to use a fiscal year which ends on some other date. It may be convenient for a business to end its fiscal year during a slack season rather than during a time of peak activity.

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CASE IN POINT Walt Disney Company ends its fiscal year on September 30. Why? One reason is that September and October are relatively slow months at Disney's theme parks; another is that September financial statements provide timely information about the preceding summer, which is the company's busiest season.

As another example, many department stores, including K mart, Neiman-Marcus, Nordstrom, and J. C. Penney, end their fiscal years on January 31—after the rush of the holiday season.

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Let us now explore the meaning of the accounting terms ***revenue*** and ***expenses.***

### Revenue

***Revenue is the price of goods sold and services rendered during a given accounting period.*** Earning revenue causes owner's equity to increase. When a business renders services or sells merchandise to its customers, it usually receives cash or acquires an account receivable from the customer. The inflow of cash and receivables from customers increases the total assets of the company. On the other side of the accounting equation, the liabilities do not change, but owner's equity increases to match the increase in total assets. Thus revenue is the gross ***increase in owner's equity*** resulting from operation of the business.

Various terms are used to describe different types of revenue; for example, the revenue earned by a real estate broker might be called ***Sales Commissions Earned,*** or alternatively, ***Commissions Revenue.*** In the professional practice of lawyers, physicians, dentists, and CPAs, the revenue is called ***Fees Earned.*** A business which sells merchandise rather than services (General Motors, for example) will use the term ***Sales*** to describe the revenue earned. Another type of revenue is ***Interest Earned,*** which means the amount received as interest on notes receivable, bank deposits, government bonds, or other securities.

**ROBERTS REAL ESTATE COMPANY**
**Income Statement**
**For the Month Ended October 31, 19__**

| | | |
|---|---|---|
| *Revenue:* | | |
| *Sales commissions earned* | | $10,640 |
| *Expenses:* | | |
| *Advertising expense* | $ 630 | |
| *Salaries expense* | 7,100 | |
| *Telephone expense* | 144 | |
| *Depreciation expense: building* | 150 | |
| *Depreciation expense: office equipment* | 45 | 8.069 |
| *Net income* | | $ 2.571 |

When we measure the net income earned by a business we are measuring its economic performance—its success or failure as a business enterprise. The owner, managers, and major creditors are anxious to see the latest available income statement and thereby judge how well the company is doing. If the business is organized as a corporation, the stockholders and prospective investors also will be keenly interested in each successive income statement.

Later in this chapter we will show how this income statement is developed from the accounting records of Roberts Real Estate Company. For the moment, however, this illustration will assist us in discussing some of the basic concepts involved in measuring business income.

***Income Must Be Related to a Specified Period of Time*** Notice that our sample income statement covers a ***period*** of time—namely, the month of October. A balance sheet shows the financial position of a business at a ***particular date.*** An income statement, on the other hand, shows the results of business operations over a span of time. We cannot evaluate net income unless it is associated with a specific time period. For example, if an executive says, "My business earns a net income of $10,000," the profitability of the business is unclear. Does it earn $10,000 per week, per month, or per year?

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**CASE IN POINT** The late J. Paul Getty, one of the world's first billionaires, was once interviewed by a group of business students. One of the students asked Getty to estimate the amount of his income. As the student had not specified a time period, Getty decided to have some fun with his audience and responded, "About $11,000 . . . " He paused long enough to allow the group to express surprise over this seemingly low amount and then completed his sentence, " . . . an hour." Incidentally, $11,000 per hour (24 hours per day) amounts to about $100 million per year.

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***Accounting Periods*** The period of time covered by an income statement is termed the company's ***accounting period.*** To provide the users of financial statements with timely information, net income is measured for rela-

***When to Record Revenue: The Realization Principle*** When is revenue recorded in the accounting records? For example, assume that on May 24, a real estate company signs a contract to represent a client in selling the client's personal residence. The contract entitles the real estate company to a commission equal to 5% of the selling price, due 30 days after the date of sale. On June 10, the real estate company sells the house at a price of $120,000, thereby earning a $6,000 commission ($120,000 × 5%), to be received on July 10. When should the company record this $6,000 commission revenue—in May, June, or July?

The company should record this revenue on June 10—the day it ***rendered the service*** of selling the client's house. As the company will not collect this commission until July, it must also record an account receivable on June 10. In July, when this receivable is collected, the company must not record revenue a second time. Collecting an account receivable increases one asset, Cash, and decreases another asset, Accounts Receivable. Thus, collecting an account receivable ***does not increase owner's equity*** and does not represent revenue.

Our answer illustrates a generally accepted accounting principle called the ***realization principle.*** The realization principle states that a business should record revenue at the time ***services are rendered to customers*** or ***goods sold are delivered to customers.*** In short, revenue is recorded when it is ***earned,*** without regard as to when the cash is received.

## Expenses

***Expenses are the costs of the goods and services used up in the process of earning revenue.*** Examples include the cost of employees' salaries, advertising, rent, utilities, and the gradual wearing-out (depreciation) of such assets as buildings, automobiles, and office equipment. All these costs are necessary to attract and serve customers and thereby earn revenue. Expenses are often called the "costs of doing business," that is, the cost of the various activities necessary to carry on a business.

An expense always causes a ***decrease in owner's equity.*** The related changes in the accounting equation can be either (1) a decrease in assets or (2) an increase in liabilities. An expense reduces assets if payment occurs at the time that the expense is incurred (or if payment has been made in advance). If the expense will not be paid until later, as, for example, the purchase of advertising services on account, the recording of the expense will be accompanied by an increase in liabilities.

***When to Record Expenses: The Matching Principle*** A significant relationship exists between revenue and expenses. Expenses are incurred for the ***purpose of producing revenue.*** In measuring net income for a period, revenue should be offset by ***all the expenses incurred in producing that revenue.*** This concept of offsetting expenses against revenue on a basis of "cause and effect" is called the ***matching principle***

Timing is an important factor in matching (offsetting) revenue with the related expenses. For example, in preparing monthly income statements, it is important to offset this month's expenses against this month's revenue.

We should not offset this month's expenses against last month's revenue, because there is no cause and effect relationship between the two.

To illustrate the matching principle, assume that the salaries earned by sales personnel waiting on customers during July are not paid until early August. In which month should these salaries be regarded as an expense? The answer is ***July,*** because this is the month in which the sales personnel's services ***helped to produce revenue.***

We previously explained that revenue and cash receipts are not one and the same thing. Similarly, expenses and cash payments are not identical. The cash payment for an expense may occur before, after, or in the same period that an expense helps to produce revenue. In deciding when to record an expense, the critical question is ***"In what period will this expenditure help to produce revenue?"*** not "When will the cash payment occur?"

***Expenditures Benefiting More Than One Accounting Period*** Many expenditures made by a business benefit two or more accounting periods. Fire insurance policies, for example, usually cover a period of 12 months. If a company prepares monthly income statements, a portion of the cost of such a policy should be allocated to insurance expense each month that the policy is in force. In this case, apportionment of the cost of the policy by months is an easy matter. If the 12-month policy costs $2,400 for example, the insurance expense for each month amounts to $200 ($2,400 ÷ 12 months).

Not all transactions can be so precisely divided by accounting periods. The purchase of a building, furniture and fixtures, machinery, a typewriter, or an automobile provides benefits to the business over all the years in which such an asset is used. No one can determine in advance exactly how many years of service will be received from such long-lived assets. Nevertheless, in measuring the net income of a business for a period of one year or less, the accountant must ***estimate*** what portion of the cost of the building and other long-lived assets is applicable to the current year. Since the allocations of these costs are estimates rather than precise measurements, it follows that income statements should be regarded as useful ***approximations*** of net income rather than as absolutely exact measurements.

For some expenditures, such as those for advertising or employee training programs, it is not possible to estimate objectively the number of accounting periods over which revenue is likely to be produced. In such cases, generally accepted accounting principles require that the expenditure be charged ***immediately to expense.*** This treatment is based upon the accounting principle of ***objectivity*** and the concept of ***conservatism.*** Accountants require ***objective evidence*** that an expenditure will produce revenue in future periods before they will view the expenditure as creating an asset. When this objective evidence does not exist, they follow the conservative practice of recording the expenditure as an expense. ***Conservatism,*** in this context, means applying the accounting treatment which results in the ***lowest*** (most conservative) estimate of net income for the current period.

### *Debit and Credit Rules for Revenue and Expense*

We have stressed that revenue increases owner's equity and that expenses decrease owner's equity. The debit and credit rules for recording revenue and expenses in the ledger accounts are a natural extension of the rules for recording changes in owner's equity. The rules previously stated for recording increases and decreases in owner's equity were as follows:

- ***Increases*** in owner's equity are recorded by ***credits.***
- ***Decreases*** in owner's equity are recorded by ***debits.***

This rule is now extended to cover revenue and expense accounts:

- Revenue ***increases*** owner's equity; therefore revenue is recorded by a ***credit.***
- Expenses ***decrease*** owner's equity; therefore expenses are recorded by ***debits.***

### *Ledger Accounts for Revenue and Expenses*

During the course of an accounting period, a great many revenue and expense transactions occur in the average business. To classify and summarize these numerous transactions, a separate ledger account is maintained for each major type of revenue and expense. For example, almost every business maintains accounts for advertising expense, telephone expense, and salaries expense. At the end of the period, all the advertising expenses appear as debits in the Advertising Expense account. The debit balance of this account represents the total advertising expense of the period and is listed as one of the expense items in the income statement.

Revenue accounts are usually much less numerous than expense accounts. A small business such as Roberts Real Estate Company in our continuing illustration may have only one or two types of revenue, such as commissions earned from arranging sales of real estate, and fees earned from managing properties on behalf of clients. In a business of this type, the revenue accounts might be called Sales Commissions Earned and Management Fees Earned.

### *Investments and Withdrawals by the Owner*

The owner of an unincorporated business may at any time invest assets or withdraw assets from the business. These "investment transactions" cause changes in the amount of owner's equity, but they are ***not*** considered revenue or expenses of the business.

Investments of assets by the owner are recorded by debiting the asset accounts and crediting the owner's capital account. This transaction is not viewed as revenue, because the business has not sold any merchandise or rendered any service in exchange for the assets received.

The income statement of a sole proprietorship does not include any salary expense representing the managerial services rendered by the owner. One reason for not including a salary to the owner-manager is that individuals in such positions are able to set their salaries at any amount they

choose. The use of an unrealistic salary to the proprietor would tend to destroy the usefulness of the income statement for measuring the profitability of the business. Thus, accountants regard the owner-manager as working to earn the ***entire net income*** of the business, rather than as working for a salary.

Even though the owner does not technically receive a salary, he or she usually makes withdrawals of cash from time to time for personal use. These withdrawals reduce the assets and owner's equity of the business, but they are ***not*** expenses. Expenses are incurred for the purpose of ***generating revenue,*** and withdrawals by the owner do not have this purpose.

Withdrawals could be recorded by debiting the owner's capital account. However, a clearer record is created if a separate Drawing account is debited. (In our Roberts Real Estate Company example, we will use an account entitled ***James Roberts, Drawing*** to record withdrawals by the owner.)

Debits to the owner's drawing account result from such transactions as:

1 Withdrawals of cash.
2 Withdrawals of other assets. The owner of a clothing store, for example, may withdraw merchandise for his or her personal use. The amount of the debit to the drawing account would be for the cost of the goods which were withdrawn.
3 Payment of the owner's personal bills out of company funds.

As investments and withdrawals by the owner are not classified as revenue and expenses, they are not included in the income statement. Instead, they are summarized in the statement of owner's equity, which will be discussed later in this chapter.

### *Recording Revenue and Expense Transactions: An Illustration*

The organization of Roberts Real Estate Company during September has already been described. The illustration is now continued for October, during which the company earned commissions by selling several residences for its clients. Bear in mind that the company does not own any residential property; it merely acts as a broker or an agent for clients wishing to sell their houses. A commission of 6% of the sales price of the house is charged for this service. During October the company not only earned commissions but also incurred a number of expenses.

Note that each illustrated transaction which affects an income statement account also affects a balance sheet account. This pattern is consistent with our previous discussion of revenue and expenses. In recording revenue transactions, we debit the assets received and credit a revenue account. In recording expense transactions, we debit an expense account and credit the asset Cash, or a liability account if payment is to be made later. The transactions for October were as follows:

***Oct. 1*** Paid $360 for publication of newspaper advertising describing various houses offered for sale.

# BALANCE SHEET

## The Balance Sheet

The purpose of a balance sheet is to show the ***financial position*** of a ***given business entity*** at a ***specific date.*** Every business prepares a balance sheet at the end of the year, and most companies prepare one at the end of each month. A balance sheet consists of a listing of the assets, the liabilities, and the owner's equity of a business. The ***balance sheet date*** is important, as the financial position of a business may change quickly. A balance sheet is most useful if it is ***relatively recent.*** The following balance sheet shows the financial position of ***Vagabond Travel Agency*** at ***December 31, 1994.***

**VAGABOND TRAVEL AGENCY**
**Balance Sheet**
**December 31, 1994**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 22,500 | *Liabilities:* | |
| *Notes receivable* | 10,000 | *Notes payable* | $ 41,000 |
| *Accounts receivable* | 60,500 | *Accounts payable* | 36,000 |
| *Supplies* | 2,000 | *Salaries payable* | 3,000 |
| *Land* | 100,000 | *Total liabilities* | $ 80,000 |
| *Building* | 90,000 | *Owner's equity:* | |
| *Office equipment* | 15,000 | *Terry Crane, capital* | 220,000 |
| *Total* | $300,000 | *Total* | $300,000 |

Let us briefly describe several features of this balance sheet. First, the heading sets forth three things: (1) the name of the business entity, (2) the name of the financial statement, and (3) the balance sheet date. The body of the balance sheet also consists of three distinct sections: ***assets, liabilities,*** and ***owner's equity.***

Notice that cash is listed first among the assets, followed by notes receivable, accounts receivable, supplies, and any other assets that will ***soon be converted into cash or consumed in business operations.*** Following these relatively "liquid" assets are the more "permanent" assets, such as land, buildings, and equipment.

Liabilities are shown before owner's equity. Each major type of liability (such as notes payable, accounts payable, and salaries payable) is listed separately, followed by a figure for total liabilities.

Finally, notice that the amount of total assets ($300,000) is ***equal*** to the total amount of liabilities and owner's equity (also $300,000). This relationship ***always exists***—in fact, the ***equality of these totals*** is one reason that this financial statement is called a ***balance*** sheet.

***The Concept of the Business Entity*** Generally accepted accounting principles require that a set of financial statements describe the affairs of a specific business entity. This concept is called the ***entity principle.***

A ***business entity*** is an economic unit that engages in ***identifiable business activities.*** For accounting purposes, the business entity is regarded as ***separate from the personal affairs of its owner.*** For example, Vagabond is a business organization operating as a travel agency. Its owner, Terry Crane, may have a personal bank account, a home, a car, and even another business, such as a cattle ranch. These items are ***not involved in the operation of the travel agency*** and should not appear in Vagabond's financial statements.

If the owner were to intermingle his or her personal affairs with the transactions of the business, the resulting financial statements would fail to describe clearly the financial position and operating results of the business organization.

## Assets

***Assets are economic resources which are owned by a business and are expected to benefit future operations.*** Assets may have definite physical form, as do buildings, machinery, and an inventory of merchandise. On the other hand, some assets exist not in physical or tangible form but in the form of valuable legal claims or rights; examples are amounts due from customers, investments in government bonds, and patent rights.

One of the most basic and at the same time most controversial problems in accounting is determining dollar values for the various assets of a business. At present, generally accepted accounting principles call for the valuation of assets in a balance sheet at ***cost,*** rather than at appraised market values. The specific accounting principles supporting cost as the basis for asset valuation are discussed below.

***The Cost Principle*** Assets such as land, buildings, merchandise, and equipment are typical of the many economic resources that will be used in producing income for the business. The prevailing accounting view is that such assets should be recorded at their cost. When we say that an asset is shown in the balance sheet at its ***historical cost,*** we mean the dollar amount originally paid to acquire the asset; this amount may be very different from what we would have to pay today to replace it.

For example, let us assume that a business buys a tract of land for use as a building site, paying $100,000 in cash. The amount to be entered in the accounting records as the value of the asset will be the cost of $100,000. If we assume a booming real estate market, a fair estimate of the sales value of the land 10 years later might be $250,000. Although the market

price or economic value of the land has risen greatly, the accounting value as shown in the accounting records and in the balance sheet would continue unchanged at the cost of $100,000. This policy of accounting for assets at their cost is often referred to as the ***cost principle*** of accounting.

In reading a balance sheet, it is important to bear in mind that the dollar amounts listed do not indicate the prices at which the assets could be sold nor the prices at which they could be replaced. One useful generalization to be drawn from this discussion is that a balance sheet ***does not*** show "how much a business is ***worth.***"

***The Going-Concern Assumption*** It is appropriate to ask ***why*** accountants do not change the recorded values of assets to correspond with changing market prices for these properties. One reason is that the land and building being used to house the business were acquired for ***use*** and not for resale; in fact, these assets cannot be sold without disrupting the business. The balance sheet of a business is prepared on the assumption that the business is a continuing enterprise, a "going concern." Consequently, the present estimated prices at which the land and buildings could be sold are of less importance than if these properties were intended for sale.

***The Objectivity Principle*** Another reason for using cost rather than current market values in accounting for assets is the need for a definite, factual basis for valuation. Accountants use the term ***objective*** to describe asset valuations that are factual and can be verified by independent experts. For example, if land is shown on the balance sheet at cost, any CPA who performed an audit of the business would be able to find objective evidence that the land was actually valued at the cost of acquiring it. Estimated market values, on the other hand, for assets such as buildings and specialized machinery are not factual and objective. Market values are constantly changing, and estimates of the prices at which assets could be sold are largely a matter of personal opinion.

At the date an asset is acquired, the cost and market value usually are the same. The bargaining process which results in the sale of an asset serves to establish both the current market value of the property and the cost to the buyer. With the passage of time, however, the current market value of assets is likely to differ considerably from the cost recorded in the owner's accounting records.

***The Stable-Dollar Assumptions*** Severe inflation in several countries in recent years has raised serious doubts as to the adequacy of the conventional cost basis in accounting for assets. When inflation becomes very severe, historical cost values for assets simply lose their relevance as a basis for making business decisions. Much consideration has been given to the use of balance sheets which would show assets at current appraised values or at replacement costs rather than at historical cost.

Accountants in the United States by adhering to the cost basis of accounting are implying that the dollar is a ***stable unit of measurement,*** as is the gallon, the acre, or the mile. The cost principle and the stable-dollar assumption work very well in periods of stable prices but are less satisfactory under conditions of rapid inflation. For example, if a company bought land 20 years ago for $100,000 and purchased a second similar tract of land

today for $500,000, the total cost of land shown by the accounting records would be $600,000. This treatment ignores the fact that dollars spent 20 years ago had far greater purchasing power than today's dollar. Thus, the $600,000 total for cost of land is a mixture of two kinds of dollars with very different purchasing power.

After much research into this problem, the FASB required on a trial basis that large corporations report supplementary data showing current replacement costs and price-level adjusted data. However, after a few years, the cost of developing and disclosing such information in financial statements was judged to be greater than the benefits provided. Consequently, the disclosure requirement was eliminated. At the present time, the stable-dollar assumption continues in use in the United States—perhaps until challenged by more severe inflation sometime in the future.

### *Liabilities*

Liabilities are debts. All business concerns have liabilities; even the largest and most successful companies find it convenient to purchase merchandise and supplies on credit rather than to pay cash at the time of each purchase. The liability arising from the purchase of goods or services on credit is called an ***account payable,*** and the person or company to whom the account payable is owed is called a ***creditor.***

A business concern frequently finds it desirable to borrow money as a means of supplementing the funds invested by the owner, thus enabling the business to expand more rapidly. The borrowed funds may, for example, be used to buy merchandise which can be sold at a profit to the firm's customers. Or the borrowed money might be used to buy new and more efficient machinery, thus enabling the company to turn out a larger volume of products at lower cost. When a business borrows money for any reason, a liability is incurred and the lender becomes a creditor of the business. The form of the liability when money is borrowed is usually a ***note payable,*** a formal written promise to pay a certain amount of money, plus interest, at a definite future time.

An ***account payable,*** as contrasted with a ***note payable,*** does not involve the issuance of a formal written promise to the creditor, and it does not call for payment of interest. When a business has both notes payable and accounts payable, the two types of liabilities are shown separately in the balance sheet, with notes payable usually listed first. A figure showing the total of the liabilities should also be inserted, as shown by the illustrated balance sheet on page 15.

The creditors have claims against the assets of the business, usually not against any particular asset but against the assets in general. The claims of the creditors are liabilities of the business and have priority over the claims of owners. Creditors are entitled to be paid in full even if such payment should exhaust the assets of the business, leaving nothing for the owner.

### *Owner's Equity*

The owner's equity in a business represents the resources invested by the owner (or owners). The equity of the owner is a ***residual claim,*** because

the claims of the creditors legally come first. If you are the owner of a business, you are entitled to whatever remains ***after the claims of the creditors are fully satisfied.*** Thus, owner's equity is equal to the ***total assets minus the liabilities.*** For example, using the data from the illustrated balance sheet of Vagabond Travel Agency (page 15):

| | |
|---|---|
| *Vagabond has total assets of* | *$300,000* |
| *And total liabilities amounting to* | *80,000* |
| *Therefore, the owner's equity must equal* | *$220,000* |

Suppose that Vagabond borrows $20,000 from a bank. After recording the additional asset of $20,000 in cash and recording the new liability of $20,000 owed to the bank, we would have the following:

| | |
|---|---|
| *Vagabond now has total assets of* | *$320,000* |
| *And total liabilities are now* | *100,000* |
| *Therefore, the owner's equity still is equal to* | *$220,000* |

It is apparent that the total assets of the business were increased by the act of borrowing money from a bank, but the increase in total assets was exactly offset by an increase in liabilities, and the owner's equity remained unchanged. The owner's equity in a business ***is not increased*** by the incurring of liabilities of any kind.

***Increases in Owner's Equity*** The owner's equity in a business comes from two sources:

1 Investment by the owner
2 Earnings from profitable operation of the business

Only the first of these two sources of owner's equity is considered in this chapter. The second source, an increase in owner's equity through earnings of the business, will be discussed in Chapter 3.

***Decreases in Owner's Equity*** If you are the owner of a sole proprietorship, you have the right to withdraw cash or other assets from the business at any time. Because you want to see the business succeed, you will probably not make withdrawals that would handicap the business in operating efficiently. Withdrawals are most often made by writing a check drawn on the company's bank account and payable to the owner. Other types of withdrawals also occur, such as taking office equipment out of the business for personal use by the owner or using cash belonging to the business to pay the personal debts of the owner. Every withdrawal by the owner reduces the total assets of the business and also reduces the owner's equity.

In summary, decreases in the owner's equity in a business are caused in two ways:

1 ***Withdrawals*** of cash or other assets by the owner
2 ***Losses*** from unprofitable operation of the business

Accounting for these types of transactions will be explained and illustrated in Chapter 3.

### *The Accounting Equation*

A fundamental characteristic of every balance sheet is that the total dollar amount of assets is ***equal to*** the total of liabilities and owner's equity. As stated earlier, the equality of these two totals is one reason for calling this financial statement a ***balance sheet.*** But ***why*** do total assets always equal the total of liabilities and owner's equity? The answer can be given in one short paragraph.

The dollar totals on the two sides of the balance sheet are always equal because these two sides are merely two views of the same business property. The listing of assets shows us ***what resources*** the business owns; the listing of liabilities and owner's equity tells us ***who supplied these resources*** to the business and how much each group supplied. Everything that a business owns has been supplied to it by the creditors or by the owner. Therefore, the total claims of the creditors plus the claim of the owner equal the total assets of the business.

The equality of assets on the one hand and of the claims of the creditors and the owner on the other hand is expressed in the equation:

| Assets | = | Liabilities | + | Owner's Equity |
|---|---|---|---|---|
| $300,000 | = | $80,000 | + | $220,000 |

The amounts listed in the equation were taken from the balance sheet illustrated on page 15. A balance sheet is simply a detailed statement of this equation. To illustrate this relationship, compare the balance sheet of Vagabond Travel Agency with the above equation.

To emphasize that the equity of the owner is a residual element, secondary to the claims of creditors, it is often helpful to transpose the terms of the equation, as follows:

| Assets | − | Liabilities | = | Owner's Equity |
|---|---|---|---|---|
| $300,000 | − | $80,000 | = | $220,000 |

Every business transaction, no matter how simple or how complex, can be expressed in terms of its effect on the accounting equation. A thorough understanding of the equation and some practice in using it are essential to the student of accounting.

Regardless of whether a business grows or contracts, this equality between the assets and the claims against the assets is always maintained. Any increase in the amount of total assets is necessarily accompanied by an equal increase on the other side of the equation, that is, by an increase in either the liabilities or the owner's equity. Any decrease in total assets is necessarily accompanied by a corresponding decrease in liabilities or owner's equity. The continuing equality of the two sides of the balance sheet can best be illustrated by taking a brand-new business as an example and observing the effects of various transactions upon its balance sheet.

### *Effects of Business Transactions upon the Balance Sheet*

Assume that James Roberts, a licensed real estate broker, decided to start a real estate business of his own, to be known as Roberts Real Estate

Company. The planned operations of the new business call for obtaining "listings" of houses being offered for sale by owners, advertising these houses, and showing them to prospective buyers. The listing agreement signed with each owner provides that Roberts Real Estate Company shall receive at the time of sale a commission equal to 6% of the sales price of the property.

The new business was begun on September 1, when Roberts deposited $180,000 in a bank account in the name of the business, Roberts Real Estate Company. The initial balance sheet of the new business then appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 1, 19__**

| *Assets* | | *Owner's Equity* | |
|---|---|---|---|
| *Cash* | *$180,000* | *James Roberts, capital* | *$180,000* |

Observe that the equity of the owner in the assets is designated on the balance sheet by the caption, ***James Roberts, capital.*** The word ***capital*** is the traditional accounting term used in describing the equity of the proprietor in the assets of the business.

***Purchase of an Asset for Cash*** The next transaction entered into by Roberts Real Estate Company was the purchase of land suitable as a site for an office. The price for the land was $141,000 and payment was made in cash on September 3. The effect of this transaction on the balance sheet was twofold: first, cash was decreased by the amount paid out; and second, a new asset, Land, was acquired. After this exchange of cash for land, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 3, 19__**

| *Assets* | | *Owner's Equity* | |
|---|---|---|---|
| *Cash* | *$ 39,000* | *James Roberts, capital* | *$180,000* |
| *Land* | *141,000* | | |
| *Total assets* | *$180,000* | *Total owner's equity* | *$180,000* |

***Purchase of an Asset and Incurring of a Liability*** On September 5 an opportunity arose to buy from Kent Company a complete office building which had to be moved to permit the construction of a freeway. A price of $36,000 was agreed upon, which included the cost of moving the building and installing it upon the Roberts Company's lot. As the building was in excellent condition and would have cost approximately $80,000 to build, Roberts considered this a very fortunate purchase.

The terms provided for an immediate cash payment of $15,000 and payment of the balance of $21,000 within 90 days. Cash was decreased $15,000, but a new asset, Building, was recorded at cost in the amount of $36,000. Total assets were thus increased by $21,000, but the total of liabil-

ities and owner's equity was also increased as a result of recording the $21,000 account payable as a liability. After this transaction had been recorded, the balance sheet appeared as shown below. (Remember that cash is always the first asset listed in a balance sheet.)

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 5, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 24,000 | *Liabilities:* | |
| *Land* | 141,000 | *Accounts payable* | $ 21,000 |
| *Building* | 36,000 | *Owner's equity:* | |
| | | *James Roberts, capital* | 180,000 |
| *Total* | $201,000 | *Total* | $201,000 |

Note that the building appears in the balance sheet at $36,000, its cost to Roberts Real Estate Company. The estimate of $80,000 as the probable cost to construct such a building is irrelevant. Even if someone should offer to buy the building from Roberts Company for $80,000 or more, this offer, if refused, would have no bearing on the balance sheet. In a balance sheet, most assets are valued at their ***cost,*** not at their current market values.

***Sale of an Asset*** After the office building had been moved to the Roberts Company's lot, Roberts decided that the lot was larger than was needed. The adjoining business, Carter's Drugstore, wanted more room for a parking area, so, on September 10, Roberts Company sold a small, unused corner of the lot to Carter's Drugstore for a price of $11,000. Since the sales price was computed at the same amount per square foot as Roberts Company had paid for the land, there was neither a profit nor a loss on the sale. No down payment was required, but it was agreed that the full price would be paid within three months. In this transaction a new asset, Accounts Receivable, was acquired, but the asset Land was decreased by the same amount. Consequently, there was no change in the amount of total assets. After this transaction, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 10, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 24,000 | *Liabilities:* | |
| *Accounts receivable* | 11,000 | *Accounts payable* | $ 21,000 |
| *Land* | 130,000 | *Owner's equity:* | |
| *Building* | 36,000 | *James Roberts, capital* | 180,000 |
| *Total* | $201,000 | *Total* | $201,000 |

In the illustration thus far, Roberts Real Estate Company has an account receivable from only one debtor, and an account payable to only one

creditor. As the business grows, the number of debtors and creditors will increase, but the Accounts Receivable and Accounts Payable designations will continue to be used. The additional records necessary to show the amount receivable from each individual debtor and the amount owing to each individual creditor will be explained in Chapter 5.

***Purchase of an Asset on Credit*** A complete set of office furniture and equipment was purchased on credit from General Equipment, Inc., on September 14 for $5,400. As the result of this transaction the business owned a new asset, Office Equipment, but it had also incurred a new liability in the form of Accounts Payable. The increase in total assets was exactly offset by the increase in liabilities. After this transaction the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 14, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 24,000 | *Liabilities:* | |
| *Accounts receivable* | 11,000 | *Accounts payable* | $ 26,400 |
| *Land* | 130,000 | *Owner's equity:* | |
| *Building* | 36,000 | *James Roberts, capital* | 180,000 |
| *Office equipment* | 5,400 | | |
| *Total* | $206,400 | *Total* | $206,400 |

***Collection of an Account Receivable*** On September 20, cash in the amount of $1,500 was received as partial settlement of the account receivable from Carter's Drugstore. This transaction caused cash to increase and the accounts receivable to decrease by an equal amount. In essence, this transaction was merely the exchange of one asset for another of equal value. Consequently, there was no change in the amount of total assets. After this transaction, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 20, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | $ 25,500 | *Liabilities:* | |
| *Accounts receivable* | 9,500 | *Accounts payable* | $ 26,400 |
| *Land* | 130,000 | *Owner's equity:* | |
| *Building* | 36,000 | *James Roberts, capital* | 180,000 |
| *Office equipment* | 5,400 | | |
| *Total* | $206,400 | *Total* | $206,400 |

***Payment of a Liability*** On September 30, Roberts Real Estate Company paid $3,000 in cash to General Equipment, Inc. This payment caused a

decrease in cash and an equal decrease in liabilities. Therefore the balance sheet totals were still in balance. After this transaction, the balance sheet appeared as follows:

**ROBERTS REAL ESTATE COMPANY**
**Balance Sheet**
**September 30, 19__**

| *Assets* | | *Liabilities & Owner's Equity* | |
|---|---|---|---|
| *Cash* | *$ 22,500* | *Liabilities:* | |
| *Accounts receivable* | *9,500* | *Accounts payable* | *$ 23,400* |
| *Land* | *130,000* | *Owner's equity:* | |
| *Building* | *36,000* | *James Roberts, capital* | *180,000* |
| *Office equipment* | *5,400* | | |
| *Total* | *$203,400* | *Total* | *$203,400* |

The transactions which have been illustrated for the month of September were merely preliminary to the formal opening for business of Roberts Real Estate Company on October 1. Since we have assumed that the business earned no commissions and incurred no expenses during September, the owner's equity at September 30 is shown in the above balance sheet at $180,000, unchanged from the original investment by Roberts on September 1. September was a month devoted exclusively to organizing the business and not to regular operations. In succeeding chapters we shall continue the example of Roberts Real Estate Company by illustrating operating transactions and considering how the net income of the business can be determined.

## *Effect of Business Transactions upon the Accounting Equation*

A balance sheet is merely a detailed expression of the accounting equation, ***Assets = Liabilities + Owner's Equity.*** To emphasize the relationship between the accounting equation and the balance sheet, let us now repeat the September transactions of Roberts Real Estate Company to show the effect of each transaction upon the accounting equation. Briefly restated, the seven transactions were as follows:

**Sept. 1** Began the business by depositing $180,000 in a company bank account.

**2** Purchased land for $141,000 cash.

**5** Purchased a prefabricated building for $36,000, paying $15,000 cash and incurring a liability of $21,000.

**10** Sold part of the land at a price equal to cost of $11,000, collectible within three months.

**14** Purchased office equipment on credit for $5,400.

**20** Received $1,500 cash as partial collection of the $11,000 account receivable.

**30** Paid $3,000 on accounts payable.

The table below shows the effects of each of the September transactions on the accounting equation. The final line in the table corresponds to the amounts in the balance sheet at the end of September. Note that the equality of the two sides of the equation was maintained throughout the recording of the transactions.

| | Assets | | | | | = | Liabilities | + | Owner's Equity |
|---|---|---|---|---|---|---|---|---|---|
| | Cash | + Accounts Receivable | + Land | + Building | + Office Equipment | = | Accounts Payable | + | James Roberts, Capital |
| ept. 1 | +$180,000 | –0– | –0– | –0– | –0– | | –0– | | +$180,000 |
| ept. 3 | −141,000 | | +$141,000 | | | | | | |
| ances | $39,000 | –0– | $141,000 | –0– | –0– | | –0– | | $180,000 |
| ept. 5 | −15,000 | | | +$36,000 | | | +$21,000 | | |
| ances | $24,000 | –0– | $141,000 | $36,000 | –0– | | $21,000 | | $180,000 |
| ct. 10 | | +$11,000 | −11,000 | | | | | | |
| ances | $24,000 | $11,000 | $130,000 | $36,000 | –0– | | $21,000 | | $180,000 |
| ct. 14 | | | | | +$5,400 | | +5,400 | | |
| ances | $24,000 | $11,000 | $130,000 | $36,000 | $5,400 | | $26,400 | | $180,000 |
| ct. 20 | +1,500 | −1,500 | | | | | | | |
| ances | $25,500 | $9,500 | $130,000 | $36,000 | $5,400 | | $26,400 | | $180,000 |
| ct. 30 | −3,000 | | | | | | −3,000 | | |
| ances | $22,500 | + $9,500 | + $130,000 | + $36,000 | + $5,400 | = | $23,400 | + | $180,000 |

# RATIO ANALYSIS

Financial statements are the instrument panel of a business enterprise. They constitute a report on managerial performance, attesting to managerial success or failure and flashing warning signals of impending difficulties. To read a complex instrument panel, one must understand the gauges and their calibration to make sense out of the array of data they convey. Similarly, one must understand the inner workings of the accounting system and the significance of various financial relationships to interpret the data appearing in financial statements. To a reader with a knowledge of accounting, a set of financial statements tells a great deal about a business enterprise.

The financial affairs of a business may be of interest to a number of different groups: management, creditors, investors, politicians, union officials, and government agencies. Each of the groups has somewhat different needs, and accordingly each tends to concentrate on particular aspects of a company's financial picture.

### *What Is Your Opinion of the Level of Corporate Profits?*

As a college student who has completed (or almost completed) a course in accounting, you have a much better understanding of corporate profits than do people who have never studied accounting. The level of earnings of large corporations is a controversial topic, a favorite topic in many political speeches and at cocktail parties. Many of the statements one reads or hears from these sources are emotional rather than rational, fiction rather than fact. Public opinion polls show that the public believes the average manufacturing company has an after-tax profit of about 30% of sales, when in fact such profit has been ***about 5% of sales*** in recent years. A widespread public belief that profits are six times the actual rate may lead to some unwise legislation.

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**CASE IN POINT** General Motors in an annual report a few years ago showed a net income of $321 million. This profit may sound like a huge amount, but it was only one-half of 1% of GM's sales. Thus, of every dollar received as revenue, only ½ cent represented profit for GM. On a $10,000 car, this was a profit of $50. Actually, earning only $321 million in a year must be regarded as very poor performance for a corporation the size of General Motors. Shortly afterward, however, GM set new records for both sales and earnings. Net income was $4.5 billion and represented about 5½ cents profit on each dollar of sales. That was a profit of $550 on a $10,000 automobile.

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An in-depth knowledge of accounting does not enable you to say at what level corporate earnings ***should be;*** however, a knowledge of accounting does enable you to read audited financial statements that show what the level of corporate earnings ***actually is.*** Moreover, you are aware the information in published financial statements of corporations has been audited by CPA firms and has been reviewed in detail by government agencies, such as the Securities and Exchange Commission (SEC) and the Internal Revenue Service (IRS). Consequently, you know that the profits reported

in these published financial statements are reasonably reliable; they have been determined in accordance with generally accepted accounting principles and verified by independent experts.

### *Some Specific Examples of Corporate Earnings . . . and Losses*

Not all leading corporations earn a profit every year. For the ten years from 1981 through 1990, Pan American Airways reported a net loss each year. Late in 1991 Pan Am—America's "flagship" airline—ceased operations. Many American corporations had a bad year in 1991. Each of the "Big Three" American automakers reported huge losses. Even IBM sustained a net loss—the first in the company's 80-year history.

The oil companies have been particularly subject to criticism for so-called excessive profits, so let us briefly look at the profits of Exxon, the world's largest oil company. A recent annual report of Exxon (audited by Price Waterhouse) shows that profits amounted to a little over $3.5 billion. Standing alone, that figure seems enormous—but we need to look a little farther. The total revenue of Exxon was over $95 billion, so net income amounted to less than 4% of sales. On the other hand, income taxes, excise taxes, and other taxes and duties levied upon Exxon amounted to more than $27 billion, or about $7\frac{1}{2}$ times as much as the company's profit. Thus, taxation represents a far greater portion of the cost of a gallon of gasoline than does the oil company's profit.

There are many ways of appraising the adequacy of corporate earnings. Certainly, earnings should be compared with total assets and with invested capital as well as with sales. In this chapter we shall look at a number of ways of evaluating corporate profits and solvency.

### *Sources of Financial Information*

For the most part, our discussion will be limited to the kind of analysis that can be made by "outsiders" who do not have access to internal accounting records. Investors must rely to a considerable extent on financial statements in published annual and quarterly reports. In the case of largely publicly owned corporations, additional information is filed with the SEC and is available to the public.

The SEC requires large corporations to include in their annual reports a ***discussion and analysis*** by top management of the results of the company's operations and of its current financial position. In this section of the annual report, management is required to highlight favorable and unfavorable trends, and to identify significant events and existing uncertainties affecting the company's financial condition. (This element of an annual report is illustrated in Comprehensive Problem 5, on pages 974–975.)

Many financial analysts also study the financial position and future prospects of publicly owned corporations and sell their analyses, conclusions, and investment recommendations for a fee. For example, detailed financial analyses of most large corporations are published weekly by Moody's Investors Service, Standard & Poor's, and The Value Line Investment Survey. Anyone may subscribe to these investment advisory services.

Bankers and major creditors usually are able to obtain detailed financial information from borrowers simply by requesting it as a condition for

granting a loan. Suppliers and other trade creditors may obtain some financial information about almost any business from credit-rating agencies, such as Dunn & Bradstreet.

### Comparative Financial Statement

Significant changes in financial data are easy to see when financial statement amounts for two or more years are placed side by side in adjacent columns. Such a statement is called a ***comparative financial statement.*** The amounts for the most recent year are usually placed in the left-hand money column. Both the balance sheet and the income statement are often prepared in the form of comparative statements. A highly condensed comparative income statement covering three years is shown below.

**BENSON CORPORATION**
**Comparative Income Statement**
**For the Years Ended December 31, 1994, 1993, and 1992**
**(in thousands of dollars)**

| | 1994 | 1993 | 1992 |
|---|---|---|---|
| Net sales | $600 | $500 | $400 |
| Cost of goods sold | 370 | 300 | 235 |
| Gross profit | $230 | $200 | $165 |
| Expenses | 194 | 160 | 115 |
| Net income | $ 36 | $ 40 | $ 50 |

### Tools of Analysis

Few figures in a financial statement are highly significant in and of themselves. It is their relationship to other quantities or the amount and direction of change that is important. Analysis is largely a matter of establishing significant relationships and identifying changes and trends. Four widely used analytical techniques are (1) dollar and percentage changes, (2) trend percentages, (3) component percentages, and (4) ratios.

### Dollar and Percentage Changes

The dollar amount of change from year to year is significant, but expressing the change in percentage terms adds perspective. For example, if sales this year have increased by $100,000, the fact that this is an increase of 10% over last year's sales of $1 million puts it in a different perspective than if it represented a 1% increase over sales of $10 million for the prior year.

The dollar amount of any change is the difference between the amount for a ***comparison*** year and for a ***base*** year. The percentage change is computed by dividing the amount of the change between years by the amount for the base year. This is illustrated in the tabulation below, using data from the comparative income statement above.

| | In Thousands | | | Increase or (Decrease) | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1994 over 1993 | | 1993 over 1992 | |
| | Year 1994 | Year 1993 | Year 1992 | Amount | % | Amount | % |
| Net sales | $600 | $500 | $400 | $100 | 20% | $100 | 25% |
| Net income | 36 | 40 | 50 | (4) | (10%) | (10) | (20%) |

Although net sales increased $100,000 in both 1993 and 1994, the percentage of change differs because of the shift in the base from 1992 to 1993. These calculations present no problems when the figures for the base year are positive amounts. If a negative amount or a zero amount appears in the base year, however, a percentage change cannot be computed. Thus if Benson Corporation had incurred a net loss in 1993, the percentage change in net income from 1993 to 1994 could not have been calculated.

***Evaluating Percentage Changes in Sales and Earnings*** Computing the percentage changes in sales, gross profit, and net income from one year to the next gives insight into a company's rate of growth. If a company is experiencing growth in its economic activities, sales and earnings should increase at ***more than the rate of inflation.*** Assume, for example, that a company's sales increase by 6% while the general price level rises by 10%. It is probable that the entire increase in the dollar amount of sales may be explained by inflation, rather than by an increase in sales volume (the number of units sold). In fact, the company may well have sold ***fewer*** goods than in the preceding year.

In measuring the dollar or percentage change in ***quarterly*** sales or earnings, it is customary to compare the results of the current quarter with those of the ***same quarter in the preceding year.*** Use of the same quarter of the preceding year as the base period prevents our analysis from being distorted by seasonal fluctuations in business activity.

***Percentages Become Misleading When the Base Is Small*** Percentage changes may create a misleading impression when the dollar amount used as a base is unusually small. Occasionally we hear a television newscaster say that a company's profits have increased by a very large percentage, such as 900%. The initial impression created by such a statement is that the company's profits must now be excessively large. But assume, for example, that a company had net income of $100,000 in its first year; that in the second year net income drops to $10,000; and that in the third year net income returns to the $100,000 level. In this third year, net income has increased by $90,000, representing a 900% increase over the profits of the second year. What needs to be added is that this 900% increase in profits in the third year ***exactly offsets*** the 90% decline in profits in the second year.

Few people realize that a 90% decline in earnings must be followed by a 900% increase just to get back to the starting point.

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**CASE IN POINT** In the third quarter of 1979, General Motors earned $21.4 million, as compared with $527.9 million in the third quarter of 1978. This represented a 96% decline in third quarter profits, computed as follows:

| | |
|---|---|
| *Decline in profits ($527.9 – $21.4)* | *$506.5* |
| *Base period earnings (third quarter, 1978)* | *$527.9* |
| *Percentage decrease ($506.5 ÷ $527.9)* | *96%* |

How much of an increase in profits would be required in the third quarter of 1980 for profits to return to the 1978 level? Many people erroneously guess 96%. However, the correct answer is an astounding 2,367%, computed as follows:

| | |
|---|---|
| *Required increase to reach 1978 profit level (from $21.4 to $527.9)* | *$506.5* |
| *Base period earnings (third quarter, 1979)* | *$ 21.4* |
| *Required percentage increase ($506.5 ÷ $21.4)* | *2,367%* |

Unfortunately for GM, the company's 1980 profits did not return to 1978 levels. Instead, the company lost a then record-setting $567 million in the third quarter of 1980.

## *Trend Percentages*

The changes in financial statement items from a base year to following years are often expressed as ***trend percentages*** to show the extent and direction of change. Two steps are necessary to compute trend percentages. First, a base year is selected and each item in the financial statements for the base year is given a weight of 100%. The second step is to express each item in the financial statements for following years as a percentage of its base-year amount. This computation consists of dividing an item such as Sales in the years after the base year by the amount of Sales in the base year.

For example, assume that 1989 is selected as the base year and that Sales in the base year amounted to $300,000 as shown below. The trend percentages for Sales are computed by dividing the Sales amount of each following year by $300,000. Also shown in the illustration are the yearly amounts of net income. The trend percentages for net income are computed by dividing the Net Income amount for each following year by the base-year amount of $15,000.

| | *1994* | *1993* | *1992* | *1991* | *1990* | *1989* |
|---|---|---|---|---|---|---|
| *Sales* | *$450,000* | *$360,000* | *$330,000* | *$320,000* | *$312,000* | *$300,000* |
| *Net income* | *22,950* | *14,550* | *21,450* | *19,200* | *15,600* | *15,000* |

When the computations described above have been made, the trend percentages will appear as shown below.

| | *1994* | *1993* | *1992* | *1991* | *1990* | *1989* |
|---|---|---|---|---|---|---|
| *Sales* | *150%* | *120%* | *110%* | *107%* | *104%* | *100%* |
| *Net income* | *153%* | *97%* | *143%* | *128%* | *104%* | *100%* |

The above trend percentages indicate a very modest growth in sales in the early years and accelerated growth in 1993 and 1994. Net income also shows an increasing growth trend with the exception of the year 1993,

when net income declined despite a solid increase in sales. This variation could have resulted from an unfavorable change in the gross profit margin or from unusual expenses. However, the problem was overcome in 1994 with a sharp rise in net income. Overall the trend percentages give a picture of a profitable growing enterprise.

As another example, assume that sales are increasing each year but that the cost of goods sold is increasing at a faster rate. This means that the gross profit margin is shrinking. Perhaps the increases in sales are being achieved through excessive price cutting. The company's net income may be declining even though sales are rising.

## Component Percentages

Component percentages indicate the ***relative size*** of each item included in a total. For example, each item on a balance sheet could be expressed as a percentage of total assets. This shows quickly the relative importance of current and noncurrent assets as well as the relative amount of financing obtained from current creditors, long-term creditors, and stockholders. By computing component percentages for several successive balance sheets, we can see which items are increasing in importance and which are becoming less significant.

***Common Size Income Statement*** Another application of component percentages is to express all items in an income statement as a percentage of net sales. Such a statement is called a common size income statement. A condensed income statement in dollars and in common size form is illustrated below.

**Income Statement**

| | Dollars | | Component Percentages | |
|---|---|---|---|---|
| | 1994 | 1993 | 1994 | 1993 |
| Net sales | $1,000,000 | $600,000 | 100.0% | 100.0% |
| Cost of goods sold | 700,000 | 360,000 | 70.0 | 60.0 |
| Gross profit on sales | $ 300,000 | $240,000 | 30.0% | 40.0% |
| Expenses (including income taxes) | 250,000 | 180,000 | 25.0 | 30.0 |
| Net income | $ 50,000 | $ 60,000 | 5.0% | 10.0% |

Looking only at the component percentages, we see that the decline in the gross profit rate from 40% to 30% was only partially offset by the decrease in expenses as a percentage of net sales, causing net income to decrease from 10% to 5% of net sales.

## Ratios

A ratio is a simple mathematical expression of the relationship of one item to another. Every percentage may be viewed as a ratio—that is, one number expressed as a percentage of another.

Ratios may be stated in several ways. To illustrate, let us consider the current ratio, which expresses the relationship between current assets and

current liabilities. If current assets are $100,000 and current liabilities a $50,000, we may say either that the current ratio is 2 to 1 (which is writt as 2:1) or that current assets are 200% of current liabilities. Either stat ment correctly summarizes the relationship—that is, that current asse are twice as large as current liabilities.

If a ratio is to be useful, the two amounts being compared must l logically related. Our interpretation of a ratio often requires investigatio of the underlying data.

## Comparative Data in Annual Reports of Major Corporations

The annual reports of major corporations usually contain comparative bal ance sheets covering two years and comparative income statements fo three years. Supplementary schedules showing sales, net income, anc other key amounts are often presented for periods of five to 10 years Shown below are selected items from an annual report of The Coca-Cola Company showing some interesting trends for a five-year period.

**THE COCA-COLA COMPANY**
**(Dollars in millions, except per share data)**

| | 1989 | 1988 | 1987 | 1986 | 1985 |
|---|---|---|---|---|---|
| Net sales | $8.966 | $8.338 | $7.658 | $6.977 | $5.879 |
| Net income | 1.724 | 1,045 | 916 | 934 | 722 |
| Net earnings per share | 4.92 | 2.85 | 2.43 | 2.42 | 1.84 |
| Dividends per share | 1.36 | 1.20 | 1.12 | 1.04 | .99 |
| Market price per share (year-end) | 77.25 | 44.63 | 38.13 | 37.75 | 28.17 |

## Standards of Comparison

In using dollar and percentage changes, trend percentages, component percentages, and ratios, financial analysts constantly search for some standard of comparison against which to judge whether the relationships that they have found are favorable or unfavorable. Two such standards are (1) the past performance of the company and (2) the performance of other companies in the same industry.

***Past Performance of the Company*** Comparing analytical data for a current period with similar computations for prior years affords some basis for judging whether the condition of the business is improving or worsening. This comparison of data over time is sometimes called ***horizontal*** or ***trend*** analysis, to express the idea of reviewing data for a number of consecutive periods. It is distinguished from ***vertical*** or ***static*** analysis, which refers to the review of the financial information for only one accounting period.

In addition to determining whether the situation is improving or becoming worse, horizontal analysis may aid in making estimates of future prospects.

Because changes may reverse their direction at any time, however, projecting past trends into the future is always a somewhat risky statistical pastime.

A weakness of horizontal analysis is that comparison with the past does not afford any basis for evaluation in absolute terms. The fact that net income was 2% of sales last year and is 3% of sales this year indicates improvement, but if there is evidence that net income ***should be*** 7% of sales, the record for both years is unfavorable.

***Industry Standard*** The limitations of horizontal analysis may be overcome to some extent by finding an appropriate "yardstick" against which to measure a particular company's performance. The yardsticks most widely used by most analysts are the performance of comparable companies and the average performance of several companies in the same industry.[1]

Assume, for example, that the revenue of Alpha Airlines drops by 5% during the current year. If the revenue for the airlines industry had dropped an average of 15% during this year, Alpha's 5% decline might be viewed as a ***favorable*** performance. As another example, assume that Omega Co. earns a net income equal to 2% of net sales. This would be substandard if Omega were a manufacturer of commercial aircraft, but it would be satisfactory performance if it were a grocery chain.

When we compare a given company with its competitors or with industry averages, our conclusions will be valid only if the companies in question are reasonably comparable. Because of the large number of diversified companies formed in recent years, the term ***industry*** is difficult to define, and companies that fall roughly within the same industry may not be comparable in many respects. For example, one company may engage only in the marketing of oil products; another may be a fully integrated producer from the well to the gas pump, yet both are said to be in the "oil industry."

## *Quality of Earnings*

Profits are the lifeblood of a business entity. No entity can survive for long and accomplish its other goals unless it is profitable. On the other hand, continuous losses will drain assets from the business, consume owners' equity, and leave the company at the mercy of creditors. In assessing the prospects of a company, we are interested not only in the total ***amount*** of earnings but also in the ***rate*** of earnings on sales, on total assets, and on owner's equity. In addition, we must look at the ***stability*** and ***source*** of earnings. An erratic earnings performance over a period of years, for example, is less desirable than a steady level of earnings. A history of increasing earnings is preferable to a "flat" earnings record.

A breakdown of sales and earnings by ***major product lines*** is useful in evaluating the future performance of a company. Publicly owned companies include with their financial statements supplementary schedules showing sales and profits by product line and by geographical area. These schedules assist financial analysts in forecasting the effect upon the company of changes in consumer demand for particular types of products.

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[1] Industry data are available from a number of sources. For example. Robert Morris Associates publishes *Annual Statement Studies* which include data from many thousands of annual reports, grouped into several hundred industry classifications. Industry classifications are subdivided further by company size. Dun & Bradstreet, Inc., annually publishes *Key Business Ratios* for more than 800 lines of business.

Financial analysts often express the opinion that the earnings of one company are of higher quality than earnings of other similar companies. This concept of ***quality of earnings*** arises because each company management can choose from a variety of accounting principles and methods, all of which are considered generally acceptable. A company's management often is under heavy pressure to report rising earnings, and accounting policies may be tailored toward this objective. We have already pointed out the impact on current reported earnings of the choice between the LIFO and FIFO methods of inventory valuation and the choice of depreciation policies. In judging the quality of earnings, the financial analyst should consider whether the accounting principles and methods selected by management lead to a conservative measurement of earnings or tend to inflate reported earnings.

### *Quality of Assets and the Relative Amount of Debt*

Although a satisfactory level of earnings may be a good indication of the company's long-run ability to pay its debts and dividends, we must also look at the composition of assets, their condition and liquidity, the relationship between current assets and current liabilities, and the total amount of debt outstanding. A company may be profitable and yet be unable to pay its liabilities on time; sales and earnings may appear satisfactory, but plant and equipment may be deteriorating because of poor maintenance policies; valuable patents may be expiring; substantial losses may be imminent due to slow-moving inventories and past-due receivables. Companies with large amounts of debt often are vulnerable to increases in interest rates and to even temporary reductions in cash inflows.

### *Impact of Inflation*

During a period of significant inflation, financial statements prepared in terms of historical costs do not reflect fully the economic resources or the real income (in terms of purchasing power) of a business enterprise. The FASB recommends that companies include in their annual reports supplementary schedules showing the effects of inflation upon their financial statements. Inclusion of these supplementary disclosures is voluntary, not mandatory. Most companies do ***not*** include these supplementary schedules because of the high cost of developing this information.

### *Illustrative Analysis for Seacliff Company*

Keep in mind the above discussion of analytical principles as you study the illustrative financial analysis which follows. The basic information for our analysis is contained in a set of condensed two-year comparative financial statements for Seacliff Company shown below and on the following pages. Summarized statement data, together with computations of dollar increases and decreases, and component percentages where applicable, have been compiled. For convenience in this illustration, relatively small dollar amounts have been used in the Seacliff Company financial statements.

Using the information in these statements, let us consider the kind analysis that might be of particular interest to (1) common stockholde (2) long-term creditors, (3) preferred stockholders, and (4) short-term cre tors.

**SEACLIFF COMPANY**
**Comparative Income Statement**
**For the Years Ended December 31, 1994 and December 31, 1993**

| | | | Increase or (Decrease) | | Percentage of Net Sales | |
|---|---|---|---|---|---|---|
| | 1994 | 1993 | Dollars | % | 1994 | 1993 |
| Net sales | $900,000 | $750,000 | $150,000 | 20.0 | 100.0 | 100.0 |
| Cost of goods sold | 530,000 | 420,000 | 110,000 | 26.2 | 58.9 | 56.0 |
| Gross profit on sales | $370,000 | $330,000 | $ 40,000 | 12.1 | 41.1 | 44.0 |
| Operating expenses: | | | | | | |
| Selling expenses | $117,000 | $ 75,000 | $ 42,000 | 56.0 | 13.0 | 10.0 |
| General and administrative expenses | 126,000 | 95,000 | 31,000 | 32.6 | 14.0 | 12.7 |
| Total operating expenses | $243,000 | $170,000 | $ 73,000 | 42.9 | 27.0 | 22.7 |
| Operating income | $127,000 | $160,000 | $(33,000) | (20.6) | 14.1 | 21.3 |
| Interest expense | 24,000 | 30,000 | (6,000) | (20.0) | 2.7 | 4.0 |
| Income before income taxes | $103,000 | $130,000 | $(27,000) | (20.8) | 11.4 | 17.3 |
| Income taxes | 28,000 | 40,000 | (12,000) | (30.0) | 3.1 | 5.3 |
| Net income | $ 75,000 | $ 90,000 | $(15,000) | (16.7) | 8.3 | 12.0 |
| Earnings per share of common stock | $13.20 | $20.25 | $(7.05) | (34.8) | | |

**SEACLIFF COMPANY**
**Statement of Retained Earnings**
**For the Years Ended December 31, 1994 and December 31, 1993**

| | | | Increase or (Decrease) | |
|---|---|---|---|---|
| | 1994 | 1993 | Dollars | % |
| Retained earnings, beginning of year | $176,000 | $115,000 | $61,000 | 53.0 |
| Net income | 75,000 | 90,000 | (15,000) | (16.7) |
| | $251,000 | $205,000 | $46,000 | 22.4 |
| Less: Dividends on common stock ($5.00 per share in 1991, $4.80 per share in 1992) | $ 24,000 | $ 20,000 | $ 4,000 | 20.0 |
| Dividends on preferred stock ($9 per share) | 9,000 | 9,000 | | |
| | $ 33,000 | $ 29,000 | $ 4,000 | 13.8 |
| Retained earnings, end of year | $218,000 | $176,000 | $42,000 | 23.9 |

## SEACLIFF COMPANY
### Condensed Comparative Balance Sheet*
### December 31, 1994 and December 31, 1993

| Assets | 1994 | 1993 | Increase or (Decrease) Dollars | Increase or (Decrease) % | Percentage of Total Assets 1994 | Percentage of Total Assets 1993 |
|---|---|---|---|---|---|---|
| Current assets | $390,000 | $288,000 | $102,000 | 35.4 | 41.1 | 33.5 |
| Plant and equipment (net) | 500,000 | 467,000 | 33,000 | 7.1 | 52.6 | 54.3 |
| Other assets (loans to officers) | 60,000 | 105,000 | (45,000) | (42.9) | 6.3 | 12.2 |
| Total assets | $950,000 | $860,000 | $ 90,000 | 10.5 | 100.0 | 100.0 |
| **Liabilities & Stockholders' Equity** | | | | | | |
| Liabilities: | | | | | | |
| Current liabilities | $112,000 | $ 94,000 | $ 18,000 | 19.1 | 11.8 | 10.9 |
| 12% long-term note payable | 200,000 | 250,000 | (50,000) | (20.0) | 21.1 | 29.1 |
| Total liabilities | $312,000 | $344,000 | $(32,000) | (9.3) | 32.9 | 40.0 |
| Stockholders' equity: | | | | | | |
| 9% preferred stock, $100 par, callable at 105 | $100,000 | $100,000 | | | 10.5 | 11.6 |
| Common stock, $50 par | 250,000 | 200,000 | $ 50,000 | 25.0 | 26.3 | 23.2 |
| Additional paid-in capital | 70,000 | 40,000 | 30,000 | 75.0 | 7.4 | 4.7 |
| Retained earnings | 218,000 | 176,000 | 42,000 | 23.9 | 22.9 | 20.5 |
| Total stockholders' equity | $638,000 | $516,000 | $122,000 | 23.6 | 67.1 | 60.0 |
| Total liabilities & stockholders' equity | $950,000 | $860,000 | $ 90,000 | 10.5 | 100.0 | 100.0 |

* In order to focus attention on important subtotals, this statement is highly condensed and does not show individual asset and liability items. These details will be introduced as needed in the next discussion. For example, a list of Seacliff Company's current assets and current liabilities appears on page 941.

## SEACLIFF COMPANY
### Condensed Comparative Statement of Cash Flows
### For the Years Ended December 31, 1994 and December 31, 1993

| | 1994 | 1993 | Increase or (Decrease) Dollars | Increase or (Decrease) % |
|---|---|---|---|---|
| Cash flows from operating activities: | | | | |
| Net cash flow from operating activities | $ 19,000 | $ 95,000 | $(76,000) | (80.0) |
| Cash flows from investing activities: | | | | |
| Purchases of plant assets | (63,000) | (28,000) | (35,000) | 125.0 |
| Collections of loans from officers | 45,000 | (35,000) | 80,000 | N/A* |
| Net cash used by investing activities | $(18,000) | $(63,000) | $ 45,000 | (71.4) |
| Cash flows from financing activities: | | | | |
| Dividends paid | $(33,000) | $(29,000) | $ (4,000) | 13.7 |
| Repayment of long-term debt | (50,000) | -0- | (50,000) | N/A* |
| Proceeds from issuing capital stock | 80,000 | -0- | 80,000 | N/A* |
| Net cash used by financing activities | $ (3,000) | $(29,000) | $ 26,000 | (89.6) |
| Net increase (decrease) in cash and cash equivalents | $ (2,000) | $ 3,000 | $ (5,000) | N/A* |
| Cash and cash equivalents, beginning of the year | 40,000 | 37,000 | 3,000 | .1 |
| Cash and cash equivalents, end of the year | $ 38,000 | $ 40,000 | $ (2,000) | (.1) |

* N/A indicates that computation of the percentage change is not appropriate. Percentages changes cannot be determined if the base year is zero, or if a negative amount (cash outflow) changes to a positive amount (cash inflow).

## Analysis by Common Stockholders

Common stockholders and potential investors in common stock look first at a company's earnings record. Their investment is in shares of stock, so ***earnings per share and dividends per share*** are of particular interest.

***Earnings per Share of Common Stock*** As indicated in Chapter 15, earnings per share of common stock are computed by dividing the income applicable to the common stock by the weighted-average number of shares of common stock outstanding during the year. Any preferred dividend requirements must be subtracted from net income to determine income applicable to common stock, as shown in the following computations for Seacliff Company:

**Earnings per Share of Common Stock**

| | | 1994 | 1993 |
|---|---|---|---|
| Net income | | $75,000 | $90,000 |
| Less: Preferred dividend requirements | | 9,000 | 9,000 |
| Income applicable to common stock | (a) | $66,000 | $81,000 |
| Shares of common stock outstanding, during the year | (b) | 5,000 | 4,000 |
| Earnings per share of common stock (a ÷ b) | | $13.20 | $20.25 |

Notice that earnings per share have decreased by ***$7.05*** in 1994, representing a decline of nearly ***35%*** from their level in 1993 ($7.05 ÷ $20.25 = 34.8%). Common stockholders consider a decline in earnings per share to be an extremely unfavorable development. A decline in earnings per share generally represents a decline in the profitability of the company, and creates doubt as to the company's prospects for future growth.

With such a significant decline in earnings per share, we should expect to see a ***substantial*** decline in the market value of Seacliff's common stock during 1994. [For purposes of our illustration, we will assume the common stock had a market value of ***$160*** at December 31, 1993 and of ***$132*** at the end of 1994. This drop of $28 per share represents a ***17½%*** decline in the market value of every common stockholder's investment ($28 decline ÷ $160 = 17.5%).]

***Price-Earnings Ratio*** The relationship between the market price of common stock and earnings per share is so widely recognized that it is expressed as a ratio, called the price-earnings ratio (or ***p/e*** ratio). The p/e ratio is determined by dividing the market price per share by the annual earnings per share.

The average p/e ratio of the 30 stocks included in the Dow-Jones Industrial Average has varied widely in recent years, ranging from a low of about 10 to a high of about 18. The outlook for future earnings is the major factor influencing a company's p/e ratio. Companies with track records of rapid growth may sell at p/e ratios of perhaps 20 to 1, or even higher. Companies with "flat" earnings or earnings expected to decline in future years often sell at price-earnings ratios below, say, 10 to 1.

At the end of 1993, Seacliff's p/e ratio was approximately ***8 to 1*** ($160 ÷ $20.25 = 7.9), suggesting that investors ***were expecting*** earnings to decline in 1994. At December 31, 1994, the price earnings ratio was ***10 to 1***

($132 ÷ $13.20 = 10.0). A p/e ratio in this range suggests that investors expect future earnings to stabilize around the current level.

***Dividend Yield*** Dividends are of prime importance to some stockholders but a secondary factor to others. In other words, some stockholders invest primarily to receive regular cash income, while others invest in stocks principally with the hope of securing capital gains through rising market prices. If a corporation is profitable and retains its earnings for expansion of the business, the expanded operations should produce an increase in the net income of the company and thus tend to make each share of stock more valuable.

In comparing the merits of alternative investment opportunities, we should relate earnings and dividends per share to the ***market value*** of the stock. Dividends per share divided by market price per share determine the ***yield*** rate of a company's stock. Dividend yield is especially important to those investors whose objective is to maximize the dividend revenue from their investments.

***Summary of Earnings and Dividend Data for Seacliff*** The relationships of Seacliff's per-share earnings and dividends to its year-end stock prices are summarized below:

**Earnings and Dividends per Share of Common Stock**

| Date | Assumed Market Value per Share | Earnings per Share | Price-Earnings Ratio | Dividends per Share | Dividend Yield, % |
|---|---|---|---|---|---|
| Dec. 31, 1993..... | $160 | $20.25 | 8 | $5.00 | 3.1 |
| Dec. 31, 1994..... | 132 | 13.20 | 10 | 4.80 | 3.6 |

The decline in market value during 1994 presumably reflects the decreases in both earnings and dividends per share. Investors appraising this stock at December 31, 1994, should consider whether a price-earning ratio of ***10*** and a dividend yield of ***3.6%*** represent a satisfactory situation in the light of alternative investment opportunities. These investors will also place considerable weight on estimates of the company's prospective future earnings and the probable effect of such estimated earnings on the market price of the stock and on dividend payments.

***Book Value per Share of Common Stock*** The procedures for computing book value per share were fully described in Chapter 14 and will not be repeated here. We will, however, determine the book value per share of common stock for the Seacliff Company:

**Book Value per Share of Common Stock**

| | | 1994 | 1993 |
|---|---|---|---|
| Total stockholders' equity ..... | | $638,000 | $516,000 |
| Less: Equity of preferred stockholders (1,000 shares at call price of $105) ..... | | 105,000 | 105,000 |
| Equity of common stockholders..... | (a) | $533,000 | $411,000 |
| Shares of common stock outstanding ..... | (b) | 5,000 | 4,000 |
| Book value per share of common stock (a ÷ b) ..... | | $106.60 | $102.75 |

Book value indicates the net assets represented by each share of stock. This statistic is often helpful in estimating a reasonable price for a company's stock, especially for small corporations whose shares are not publicly traded. However, if a company's future earnings prospects are unusually good or unusually poor, the market price of its shares may differ significantly from their book value.

***Revenue and Expense Analysis*** The trend of earnings of Seacliff Company is unfavorable, and stockholders will want to know the reasons for the decline in net income. The comparative income statement on page 932 shows that despite a 20% increase in net sales, net income fell from $90,000 in 1993 to $75,000 in 1994, a decline of 16.7%. As a percentage of net sales, net income fell from 12% to only 8.3%. The primary causes of this decline were the increases in selling expenses (56.0%), in general and administrative expenses (32.6%), and in the cost of goods sold (26.2%), all of which exceeded the 20% increase in net sales.

Let us assume that further investigation reveals Seacliff Company decided in 1994 to reduce its sales prices in an effort to generate greater sales volume. This would explain the decrease in gross profit rate from 44% to 41.1% of net sales. Since the dollar amount of gross profit increased $40,000 in 1994, the strategy of reducing sales prices to increase volume would have been successful if there had been little or no increase in operating expenses. However, operating expenses rose by $73,000, resulting in a $33,000 decrease in operating income.

The next step is to find which expenses increased and why. An investor may be handicapped here, because detailed operating expenses are not usually shown in published financial statements. Some conclusions, however, can be reached on the basis of even the condensed information available in the comparative income statement for Seacliff Company shown on page 932.

The substantial increase in selling expenses presumably reflects greater selling effort during 1994 in an attempt to improve sales volume. However, the fact that selling expenses increased $42,000 while gross profit increased only $40,000 indicates that the cost of this increased sales effort was not justified in terms of results. Even more disturbing is the increase in general and administrative expenses. Some growth in administrative expenses might be expected to accompany increased sales volume, but because some of the expenses are fixed, the growth generally should be ***less than proportional*** to any increase in sales. The increase in general and administrative expenses from 12.7 to 14% of sales would be of serious concern to informed investors.

Management generally has greater control over operating expenses than over revenue. The ***operating expense ratio*** is often used as a measure of management's ability to control its operating expenses. The unfavorable trend in this ratio for Seacliff Company is shown below:

**Operating Expense Ratio**

| | 1994 | 1993 |
|---|---|---|
| Operating expenses | (a) $243,000 | $170,000 |
| Net sales | (b) $900,000 | $750,000 |
| Operating expense ratio (a ÷ b) | 27.0% | 22.7% |

If management were able to increase the sales volume while at the same time increasing the gross profit rate and decreasing the operating expense ratio, the effect on net income could be quite dramatic. For example, if in 1993 Seacliff Company can increase its sales by 11% to $1,000,000, increase its gross profit rate from 41.1 to 44%, and reduce the operating expense ratio from 27 to 24%, its operating income will increase from $127,000 to $200,000 ($1,000,000 − $560,000 − $240,000), an increase of over 57%.

### *Return on Investment (ROI)*

The rate of return on investment (often called ROI) is a measure of management's efficiency in using available resources. Regardless of the size of the organization, capital is a scarce resource and must be used efficiently. In judging the performance of branch managers or of companywide management, it is reasonable to raise the question: What rate of return have you earned on the resources under your control? The concept of return on investment can be applied to a number of situations: for example, evaluating a branch, a total business, a product line, or an individual investment. A number of different ratios have been developed for the ROI concept, each well suited to a particular situation. We shall consider the ***return on assets*** and the ***return on common stockholders' equity*** as examples of the return on investment concept.

***Return on Assets*** An important test of management's ability to earn a return on funds supplied from all sources is the rate of return on total assets.

The income figure used in computing this ratio should be ***operating income,*** since interest expense and income taxes are determined by factors other than the efficient use of resources. Operating income is earned throughout the year and therefore should be related to the ***average*** investment in assets during the year. The computation of this ratio of Seacliff Company is shown below:

**Percentage Return on Assets**

| | 1994 | 1993 |
|---|---|---|
| Operating income | (a) $127,000 | $160,000 |
| Total assets, beginning of year | (b) $860,000 | $820,000 |
| Total assets, end of year | (c) $950,000 | $860,000 |
| Average investment in assets [(b + c) ÷ 2] | (d) $905,000 | $840,000 |
| Return on assets (a ÷ d) | 14% | 19% |

This ratio shows that the rate of return earned on the company's assets has fallen off in 1994. Before drawing conclusions as to the effectiveness of Seacliff's management, however, we should consider the trend in the return on assets earned by other companies of similar kind and size.

***Return on Common Stockholders' Equity*** Because interest and dividends paid to creditors and preferred stockholders are fixed in amount, a company may earn a greater or smaller return on the common stockholders'

equity than on its total assets. The computation of return on stockholders' equity for Seacliff Company is shown below:

**Return on Common Stockholders' Equity**

| | 1994 | 1993 |
|---|---|---|
| Net income | $ 75,000 | $ 90,000 |
| Less: Preferred dividend requirements | 9,000 | 9,000 |
| Net income applicable to common stock | (a) $ 66,000 | $ 81,000 |
| Common stockholders' equity, beginning of year | (b) $416,000 | $355,000 |
| Common stockholders' equity, end of year | (c) $538,000 | $416,000 |
| Average common stockholders' equity [(b ÷ c) ÷ 2] | (d) $477,000 | $385,500 |
| Return on common stockholders' equity (a ÷ d) | 13.8% | 21.0% |

In both years, the rate of return on common stockholders' equity was higher than the 12% rate of interest paid to long-term creditors or the 9% dividend rate paid to preferred stockholders. This result was achieved through the favorable use of leverage.

## Leverage

The term ***leverage*** means operating a business with borrowed money. If the borrowed capital can be used in the business to earn a return ***greater*** than the cost of borrowing, then the net income and the return on common stockholders' equity will ***increase.*** In other words, if you can borrow money at 12% and use it to earn 20%, you will benefit by doing so. However, leverage can act as a "double-edged sword"; the effects may be favorable or unfavorable to the holders of common stock.

If the rate of return on total assets should fall ***below*** the average rate of interest on borrowed capital, leverage will ***reduce*** net income and the return on common stockholders' equity. In this situation, paying off the loans that carry high interest rates would appear to be a logical move. However, most companies do not have enough cash to retire long-term debt on short notice. Therefore, the common stockholders may become "locked in" to the unfavorable effects of leverage.

In deciding how much leverage is appropriate, the common stockholders should consider the ***stability*** of the company's return on assets as well as the relationship of this return to the average cost of borrowed capital. If a business incurs so much debt that it becomes unable to meet the required interest and principal payments, the creditors may force liquidation or reorganization of the business.

***Equity Ratio*** One indicator of the amount of leverage used by a business is the equity ratio. This ratio measures the proportion of the total assets financed by stockholders, as distinguished from creditors. It is computed by dividing total stockholders' equity by total assets. A ***low*** equity ratio indicates an extensive use of leverage, that is, a large proportion of financing provided by creditors. A high equity ratio, on the other hand, indicates that the business is making little use of leverage.

The equity ratio at year-end for Seacliff is determined as follows:

**Equity Ratio**

| | 1994 | 1993 |
|---|---|---|
| *Total stockholders' equity* | *(a) $638,000* | *$516,000* |
| *Total assets (or total liabilities & stockholders' equity)* | *(b) $950,000* | *$860,000* |
| *Equity ratio (a ÷ b)* | *67.2%* | *60.0%* |

Seacliff Company has a higher equity ratio in 1994 than in 1993. Is this favorable or unfavorable?

From the viewpoint of the common stockholder, a low equity ratio will produce maximum benefits if management is able to earn a rate of return on assets greater than the rate of interest paid to creditors. However, a low equity ratio can be very ***unfavorable*** if the return on assets falls ***below*** the rate of interest paid to creditors. Since the return on total assets earned by Seacliff Company has declined from 19% in 1993 to a relatively low 14% in 1994, the common stockholders probably would ***not*** want to risk a low equity ratio. The action by management in 1994 of retiring $50,000 in long-term liabilities will help to protect the common stockholders from the unfavorable effects of leverage if the rate of return on assets continues to decline.

## *Analysis by Long-Term Creditors*

Bondholders and other long-term creditors are primarily interested in three factors: (1) the rate of return on their investment, (2) the firm's ability to meet its interest requirements, and (3) the firm's ability to repay the principal of the debt when it falls due.

***Yield Rate on Bonds*** The yield rate on bonds or other long-term indebtedness cannot be computed in the same manner as the yield rate on shares of stock, because bonds, unlike stocks, have a definite maturity date and amount. The ownership of a 12%, 10-year, $1,000 bond represents the right to receive $120 each year for 10 years plus the right to receive $1,000 at the end of 10 years. If the market price of this bond is $950, the yield rate on an investment in the bond is the rate of interest that will make the present value of these two contractual rights equal to $950. When bonds sell at maturity value, the yield rate is equal to the bond interest rate. ***The yield rate varies inversely with changes in the market price of the bond.*** If interest rates rise, the market price of existing bonds will fall; if interest rates decline, the price of bonds will rise. If the price of a bond is above maturity value, the yield rate is less than the bond interest rate; if the price of a bond is below maturity value, the yield rate is higher than the bond interest rate.

***Interest Coverage Ratio*** Bondholders feel that their investments are relatively safe if the issuing company earns enough income to cover its annual interest obligations by a wide margin.

A common measure of creditors' safety is the ratio of operating income available for the payment of interest to the annual interest expanse, called the ***interest coverage ratio.*** This computation for Seacliff Company would be:

**Interest Coverage Ratio**

| | 1994 | 1993 |
|---|---|---|
| *Operating income (before interest and income taxes)* | (a) $127,000 | $160,000 |
| *Annual interest expense* | (b) $ 24,000 | $ 30,000 |
| *Interest coverage (a ÷ b)* | 5.3 times | 5.3 times |

The ratio remained unchanged at a satisfactory level during 1994. A ratio of 5.3 times interest earned would be considered strong in many industries. In the electric utilities industry, for example, the interest coverage ratio for the leading companies presently averages about 3, with the ratios of individual companies varying from 2 to 6.

***Debt Ratio*** Long-term creditors are interested in the percentage of total assets financed by debt, as distinguished from the percentage financed by stockholders. The percentage of total assets financed by debt is measured by the debt ratio. This ratio is computed by dividing total liabilities by total assets, shown below for Seacliff Company.

**Debt Ratio**

| | 1994 | 1993 |
|---|---|---|
| *Total liabilities* | (a) $312,000 | $344,000 |
| *Total assets (or total liabilities & stockholders' equity)* | (b) $950,000 | $860,000 |
| *Debt ratio (a ÷ b)* | 32.8% | 40.0% |

From a creditor's viewpoint, the lower the debt ratio (or the higher the equity ratio) the better, since this means that stockholders have contributed the bulk of the funds to the business, and therefore the margin of protection to creditors against a shrinkage of the assets is high.

## *Analysis by Preferred Stockholders*

Some preferred stocks are convertible into common stock at the option of the holder. However, many preferred stocks do not have the conversion privilege. If a preferred stock is convertible, the interests of the preferred stockholders are similar to those of common stockholders. If a preferred stock is not convertible, the interests of the preferred stockholders are more like those of long-term creditors.

Preferred stockholders are interested in the yield on their investment. The yield is computed by dividing the dividend per share by the market value per share. The dividend per share of Seacliff Company preferred stock is $9. If we assume that the market value at December 31, 1994, is $75 per share, the yield rate at that time would be 12% ($9 ÷ $75).

The primary measurement of the safety of an investment in preferred stock is the ability of the firm to meet its preferred dividend requirements. The best test of this ability is the ratio of the net income to the amount of the annual preferred dividends, as follows:

**Preferred Dividends Coverage Ratio**

| | 1994 | 1993 |
|---|---|---|
| *Net income* | (a) $75,000 | $90,000 |
| *Annual preferred dividend requirements* | (b) $ 9,000 | $ 9,000 |
| *Preferred dividend coverage (a ÷ b)* | 8.3 times | 10 times |

Although the margin of protection declined in 1994, the annual preferred dividend requirement still appears well protected.

As previously discussed in Chapter 14 (page 663) the market price of a preferred stock tends to ***vary inversely*** with interest rates. When interest rates are moving up, preferred stock prices tend to decline, when interest rates are dropping, preferred stock prices rise.

### *Analysis by Short-Term Creditors*

Bankers and other short-term creditors share the interest of stockholders and bondholders in the profitability and long-run stability of a business. Their primary interest, however, is in the current position of the firm—its ability to generate sufficient funds (working capital) to meet current operating needs and to pay current debts promptly. Thus the analysis of financial statements by a banker considering a short-term loan, or by a trade creditor investigating the credit status of a customer, is likely to center on the working capital position of the prospective debtor.

***Amount of Working Capital*** The details of the working capital of Seacliff Company are shown below:

**SEACLIFF COMPANY**
**Comparative Schedule of Working Capital**
**As of December 31, 1994 and December 31, 1993**

| | | | Increase or (Decrease) | | Percentage of Total Current Items | |
|---|---|---|---|---|---|---|
| | 1994 | 1993 | Dollars | % | 1994 | 1993 |
| *Current assets:* | | | | | | |
| Cash | $ 38,000 | $ 40,000 | $ (2,000) | (5.0) | 9.7 | 13.9 |
| Receivables (net) | 117,000 | 86,000 | 31,000 | 36.0 | 30.0 | 29.9 |
| Inventories | 180,000 | 120,000 | 60,000 | 50.0 | 46.2 | 41.6 |
| Prepaid expenses | 55,000 | 42,000 | 13,000 | 31.0 | 14.1 | 14.6 |
| Total current assets | $390,000 | $288,000 | $102,000 | 35.4 | 100.0 | 100.0 |
| *Current liabilities:* | | | | | | |
| Notes payable to creditors | $ 14,600 | $ 10,000 | $ 4,600 | 46.0 | 13.1 | 10.7 |
| Accounts payable | 66,000 | 30,000 | 36,000 | 120.0 | 58.9 | 31.9 |
| Accrued liabilities | 31,400 | 54,000 | (22,600) | (41.9) | 28.0 | 57.4 |
| Total current liabilities | $112,000 | $ 94,000 | $ 18,000 | 19.1 | 100.0 | 100.0 |
| *Working capital* | $278,000 | $194,000 | $84,000 | 43.3 | | |

The amount of working capital is measured by the ***excess of current assets over current liabilities.*** Thus, working capital represents the amount of cash, near-cash items, and cash substitutes (prepayments) on hand after providing for payment of all current liabilities.

This schedule shows that current assets increased $102,000, while current liabilities rose by only $18,000, with the result that working capital increased $84,000.

***Quality of Working Capital*** In evaluating the debt-paying ability of a business, short-term creditors should consider the quality of working capital as well as the total dollar amount. The principal factors affecting the quality of working capital are (1) the nature of the current assets and (2) the length of time required to convert these assets into cash.

The preceding schedule shows an unfavorable shift in the composition of Seacliff Company's working capital during 1994; cash decreased from 13.9% to 9.7% of current assets, while inventory rose from 41.6% to 46.2%. Inventory is a less liquid resource than cash. Therefore, the quality of working capital is not as liquid as in 1993. ***Turnover rates*** (or ***ratios***) may be used to assist short-term creditors in estimating the time required to turn assets such as receivables and inventory into cash.

***Accounts Receivable Turnover Rate*** As explained in Chapter 8, the accounts receivable turnover rate indicates how quickly a company converts its accounts receivable into cash. The accounts receivable turnover ***rate*** is determined by dividing net sales by the average balance of accounts receivable.[2] The number of ***days*** required (on average) to collect accounts receivable then may be determined by dividing the number of days in a year (365) by the turnover rate. These computations are shown below using the data in our Seacliff example:

**Accounts Receivable Turnover**

| | 1994 | 1993 |
|---|---|---|
| Net sales | (a) $900,000 | $750,000 |
| Receivables, beginning of year | $ 86,000 | $ 80,000 |
| Receivables, end of year | $117,000 | $ 86,000 |
| Average receivables | (b) $101,500 | $ 83,000 |
| Receivable turnover per year (a ÷ b) | 8.9 times | 9.0 times |
| Average number of days to collect receivables (divide 365 days by receivable turnover) | 41 days | 41 days |

There has been no significant change in the average time required to collect receivables. The interpretation of the average age of receivables depends upon the company's credit terms and the seasonal activity immediately before year-end. For example, if the company grants 30-day credit terms to its customers, the above analysis indicates that accounts receivable collections are lagging. If the terms are for 60 days, however, collections are being made ahead of schedule.

***Inventory Turnover Rate*** The inventory turnover rate indicates how many times during the year the company is able to sell a quantity of goods equal to its average inventory. Mechanically, this rate is determined by dividing the cost of goods sold for the year by the average amount of inventory on hand during the year. The number of days required to sell this amount of inventory may be determined by dividing 365 days by the turnover rate.

These computations were explained in Chapter 9, and are demonstrated below using the data of Seacliff Company:

**Inventory Turnover**

| | 1994 | 1993 |
|---|---|---|
| Cost of goods sold | (a) $530,000 | $420,000 |
| Inventory, beginning of year | $120,000 | $100,000 |
| Inventory, end of year | $180.000 | $120,000 |
| Average inventory | (b) $150,000 | $110,000 |
| Average inventory turnover per year (a ÷ b) | 3.5 times | 3.8 times |
| Average number of days to sell inventory (divide 365 days by inventory turnover) | 104 days | 96 days |

The trend indicated by this analysis is unfavorable, since the length of time required for Seacliff to turn over (sell) its inventory is increasing.

Companies that have low gross profit rates often need high inventory turnover rates in order to operate profitably. This is merely another way of saying that if the gross profit rate is low, a high volume of transactions is necessary to produce a satisfactory amount of profits. Companies that sell "high markup" items, such as jewelry stores and art galleries, can operate successfully with much lower inventory turnover rates.

***Operating Cycle*** In Chapter 5 we defined the term ***operating cycle*** as the average time period between the purchase of merchandise and the conversion of this merchandise back into cash. In other words, the merchandise acquired for inventory is gradually converted into accounts receivable by selling goods to customers on credit, and these receivables are converted into cash through the process of collection. The word ***cycle*** refers to the circular flow of assets from cash to inventory to receivables and back into cash.

Seacliff's operating cycle in 1994 was approximately 145 days, computed by adding the 104 days required to turn over inventory and the average 41 days required to collect receivables. This compares to an operating cycle of only 137 days in 1993, computed as 96 days to dispose of the inventory plus 41 days to collect the resulting receivables. From the viewpoint of short-term creditors, the shorter the operating cycle, the higher the quality of the borrower's working capital. Therefore, these creditors would regard the lengthening of Seacliff Company's operating cycle as an unfavorable trend.

***Current Ratio*** The current ratio (current assets divided by current liabilities) expresses the relationship between current assets and current liabilities. As debts come due, they must be paid out of current assets. Therefore, short-term creditors frequently compare the amount of current assets with the amount of current liabilities. The current ratio indicates a company's short-run, debt-paying ability. It is a measure of liquidity and of solvency. A strong current ratio provides considerable assurance that a company will be able to meet its obligations coming due in the near future. The current ratio for Seacliff Company is computed as follows:

| | 1994 | 1993 |
|---|---|---|
| *Total current assets* | *(a) $390,000* | *$288.000* |
| *Total current liabilities* | *(b) $112,000* | *$ 94,000* |
| *Current ratio (a ÷ b)* | *3.5* | *3.1* |

A widely used rule of thumb is that a current ratio of 2 to 1 or better is satisfactory. By this standard, Seacliff Company's current ratio appears quite strong. Creditors tend to feel that the higher the current ratio the better. From a managerial point of view, however, there is an upper limit. Too high a current ratio may indicate that capital is not being used productively in the business.

Use of both the current ratio and the amount of working capital helps to place debt-paying ability in its proper perspective. For example, if Company X has current assets of $200,000 and current liabilities of $100,000 and Company Y has current assets of $2,000,000 and current liabilities of $1,900,000, each company has $100,000 of working capital, but the current position of Company X is clearly superior to that of Company Y. The current ratio for Company X is quite satisfactory at 2 to 1, but Company Y's current ratio is very low—only slightly above 1 to 1.

As another example, assume that Company A and Company B both have current ratios of 3 to 1. However, Company A has working capital of $50,000 and Company B has working capital of $500,000. Although both companies appear to be good credit risks, Company B would no doubt be able to qualify for a much ***larger*** bank loan than would Company A.

***Quick Ratio*** Because inventories and prepaid expenses are further removed from conversion into cash than other current assets, a statistic known as the ***quick ratio*** is sometimes computed as a supplement to the current ratio. The quick ratio compares the highly liquid current assets (cash, marketable securities, and receivables) with current liabilities. Seacliff Company has no marketable securities; its quick ratio is computed as follows:

**Quick Ratio**

| | 1994 | 1993 |
|---|---|---|
| *Quick assets (cash and receivables)* | *(a) $155,000* | *$126.000* |
| *Current liabilities* | *(b) $112,000* | *$ 94,000* |
| *Quick ratio (a ÷ b)* | *1.4* | *1.3* |

Here again the analysis reveals a favorable trend and a strong position. If the credit periods extended to customers and granted by creditors are roughly equal, a quick ratio of 1.0 or better is considered satisfactory.

***Unused Lines of Credit*** From the viewpoint of a short-term creditor, a company's unused lines of credit represent a "resource" almost as liquid as cash. An unused line of credit means that a bank has agreed in advance to lend the company any amount, up to the specified limit. As long as this line of credit remains available, creditors know that the business can borrow cash quickly and easily for any purpose, including payments of creditors' claims.

Existing unused lines of credit are ***disclosed*** in notes accompanying the financial statements.

### *Cash Flow Analysis*

In Chapter 19 we stressed the importance of a company being able to generate sufficient cash flow from its operations. In 1993, Seacliff generated a net cash flow of $95,000 from its operating activities—a relatively "normal" amount, considering that net income for the year was $90,000. This $95,000 net cash flow remained ***after*** payment of interest to creditors and amounted to more than three times the dividends paid to stockholders. Thus, in 1993 the net cash flow from operating activities appeared quite sufficient to ensure that Seacliff could pay its interest obligations and also pay dividends.

In 1994, however, net cash flow from operating activities declined to only $19,000, an amount far below the company's $75,000 net income and less than one-half of the amount of dividends paid. Stockholders and creditors alike would view this dramatic decline in cash flow as a negative and potentially dangerous development.

A reconciliation of Seacliff's net income in 1994 with its net cash flow from operating activities is shown below:

| | | |
|---|---|---|
| *Net income* | | *$ 75,000* |
| *Add:* | | |
| *Depreciation expense* | *$30,000* | |
| *Increase in notes payable to suppliers* | *4,600* | |
| *Increase in accounts payable* | *36,000* | *70,600* |
| | | *$145,600* |
| *Less:* | | |
| *Increase in accounts receivable* | *$31,000* | |
| *Increase in inventories* | *60,000* | |
| *Increase in prepaid expenses* | *13,000* | |
| *Decrease in accrued liabilities* | *22,600* | *126,600* |
| *Net cash flow from operating activities* | | *$ 19,000* |

(As explained in Chapter 19, the FASB requires companies to provide this type of reconciliation either in the statement of cash flows or in a supplemental schedule.)

The primary reasons for Seacliff's low net operating cash flow appear to be the growth in uncollected accounts receivable and inventories, and the substantial reduction in accrued liabilities. Given the significant increase in sales during 1994, the increase in accounts receivable is to be expected. The large reduction in accrued liabilities probably is a one-time event, not likely to recur next year. The large increase in inventory, however, may have reduced Seacliff's liquidity unnecessarily.

Seacliff's financial position would appear considerably stronger if its increased sales volume were supplied by a higher ***inventory turnover rate,*** instead of a larger inventory.

### *Usefulness of the Notes to Financial Statements*

A set of financial statements normally is accompanied by several pages of ***notes,*** disclosing information useful in interpretation of the statements. Users should view these notes as an ***integral part*** of the financial statements.

In our preceding chapters, we have identified many items which are disclosed in notes to the financial statements. Among the most useful disclosures are (a) a summary of the accounting methods in use, (b) material loss contingencies, (c) current market value of financial instruments, (d) identification of the assets pledged to secure specific liabilities, (e) maturity dates of significant liabilities, (f) unused lines of credit, and (g) preferred stock dividends in arrears. The notes also supplement the financial statements by providing further explanation of such items as extraordinary gains and losses, changes in accounting principle, and significant financial events occurring after the balance sheet date.

In summary, the notes often contain information ***essential*** to a proper interpretation of the company's financial position, operating results, and future prospects.

### *Summary of Analytical Measurements*

The basic ratios and other measurements discussed in this chapter and their significance are summarized below.

The student should keep in mind the fact that the full significance of any of these ratios or other measurements depends on the ***direction of its trend*** and its ***relationship to some predetermined standard*** or industry average.

| Ratio or Other Measurement | Method of Computation | Significance |
|---|---|---|
| rnings per share of mmon stock | $\frac{\text{Net income} - \text{preferred dividends}}{\text{Shares of common outstanding}}$ | Indicates the amount of earnings applicable to a share of common stock. |
| ce-earnings ratio | $\frac{\text{Market price per share}}{\text{Earnings per share}}$ | Indicates if price of stock is in line with earnings. |
| idend yield | $\frac{\text{Dividend per share}}{\text{Market price per share}}$ | Shows the rate of return earned by stockholders based on current price for a share of stock. |
| ok value per share of mmon stock | $\frac{\text{Common stockholders' equity}}{\text{Shares of common outstanding}}$ | Measures the recorded value of net assets behind each share of common stock. |
| erating expense ratio | $\frac{\text{Operating expenses}}{\text{Net sales}}$ | Indicates management's ability to control expenses. |
| urn on assets | $\frac{\text{Operating income}}{\text{Average total assets}}$ | Measures the productivity of assets regardless of capital structure. |

| | | | |
|---|---|---|---|
| 7 | Return on common stockholders' equity | $\frac{\text{Net income} - \text{preferred dividends}}{\text{Average common stockholders' equity}}$ | Indicates the earning power of common stock equity. |
| 8 | Equity ratio | $\frac{\text{Total stockholders' equity}}{\text{Total assets}}$ | Shows the protection to creditors and the extent of leverage being used. |
| 9 | Debt ratio | $\frac{\text{Total liabilities}}{\text{Total assets}}$ | Indicates the percentage of assets financed through borrowing; it shows the extent of leverage being used. |
| 10 | Interest coverage ratio | $\frac{\text{Operating income}}{\text{Annual interest expense}}$ | Measures the coverage of interest requirements, particularly on long-term debt. |
| 11 | Preferred dividends coverage ratio | $\frac{\text{Net income}}{\text{Annual preferred dividends}}$ | Shows the adequacy of current earnings to cover dividends on preferred stocks. |
| 12 | Working capital | Current assets – current liabilities | Measures short-run debt-paying ability. |
| 13 | Inventory turnover rate | $\frac{\text{Cost of goods sold}}{\text{Average inventory}}$ | Indicates marketability of inventory and reasonableness of quantity on hand. |
| 14 | Accounts receivable turnover rate | $\frac{\text{Net sales}}{\text{Average receivables}}$ | Indicates reasonableness of accounts receivable balance and effectiveness of collections. |
| 15 | Current ratio | $\frac{\text{Current assets}}{\text{Current liabilities}}$ | Measures short-run debt-paying ability. |
| 16 | Quick ratio | $\frac{\text{Quick assets}}{\text{Current liabilities}}$ | Measures the short-term liquidity of a firm. |

**3 Explain the uses of dollar and percentage changes, trend percentages, component percentages, and ratios.**

Analysis of financial statements should indicate whether a company's earnings and solvency are on the upgrade or are deteriorating. The dollar change in any item is the difference between the amount for a ***comparison*** year and for a ***base*** year. The percentage change is computed by dividing the change between years by the amount for the base year.

Trend percentages are useful to compare performance in each of a series of years with a selected base year. Thus, the rate of growth in sales is revealed by trend percentages.

Component percentages indicate the relative size of each item included in a total. Thus, each item on a balance sheet may be expressed as a percentage of total assets. Each item on an income statement may be expressed as a percentage of net sales.

**4 Discuss the "quality" of a company's earnings, assets, and working capital.**

The concept of "quality" of earnings exists because each company management can choose from a variety of accounting principles and methods all of which are considered generally accepted. For example, the choice between straight-line depreciation and accelerated depreciation leads to different reported earnings. In judging the quality of earnings, the financial analyst considers whether the accounting principles and methods selected by management lead to a conservative measurement of earnings or tend to inflate earnings. The trend of earnings, their stability, and source are also significant in judging quality of earnings.

The quality of assets and of working capital are affected by such factors as the nature and liquidity of assets and the maturity dates of liabilities.

**5 Analyze financial statements from the viewpoints of common stockholders, creditors, and others.**

Investors in ***common stocks*** are interested primarily in ***future profitability, dividends,*** and the ***market price*** of the common shares. Therefore, these investors look at the ***trend*** in such measures of profitability as return on assets, return on equity, and earnings per share, and also the trend in dividend payments and cash flow from operating activities. They also are interested in measures which place stock price into perspective, such as the price-earnings ratio and dividend yield.

***Long-term creditors*** are interested primarily in the ***yield*** on their investment and in the ***borrower's ability to make its principal and interest payments on schedule.***

***Short-term creditors*** are primarily interested in the borrower's ***liquidity*** as indicated by such measurements as cash flow from operating activities, unused lines of credit, the current ratio, quick ratio, and inventory and receivables turnover ratios.

**6 Compute the ratios widely used in financial statement analysis and explain the significance of each.**

The ratios widely used in financial statement analysis, the methods of computation, and the significance of each ratio are summarized in the table on pages 946–947.

This chapter concludes our emphasis upon financial accounting—the preparation and interpretation of the accounting information included in financial statements. In the remaining chapters of this text, we will shift our emphasis to managerial accounting—the use of accounting information by managers in planning and controlling business operations. In these chapters you will encounter many new terms and concepts; however, you will find your background in financial accounting to be extremely useful.

## KEY TERMS INTRODUCED OR EMPHASIZED IN CHAPTER 20

**Comparative financial statements** Financial statement data for two or more successive years placed side by side in adjacent columns to facilitate study of changes.

**Component percentage** The percentage relationship of any financial statement item to a total including that item. For example, each type of asset as a percentage of total assets.

**Horizontal analysis** Comparison of the change in a financial statement item such as inventories during two or more accounting periods.

**Leverage** Refers to the practice of financing assets with borrowed capital. Extensive leverage creates the possibility for the rate of return on common stockholders' equity to be substantially above or below the rate of return on total assets. When the rate of return on total assets exceeds the average cost of borrowed capital, leverage increases net income and the return on common stockholders' equity. However, when the return on total assets is less than the average cost of borrowed capital, leverage reduces net income and the return on common stockholders' equity.

**Quality of assets** The concept that some companies have assets of better quality than others, such as well-balanced composition of assets, well-maintained plant and equipment, and receivables that are all current. A lower quality of assets might be indicated by poor maintenance of plant and equipment, slow-moving inventories with high danger of obsolescence, past-due receivables, and patents approaching an expiration date.

**Quality of earnings** Earnings are said to be of high quality if they are stable, the source seems assured, and the methods used in measuring income are conservative. The existence of this concept suggests that the range of alternative but acceptable accounting principles may still be too wide to produce financial statements that are comparable.

**Rate of return on investment (ROI)** A measure of management's ability to earn a satisfactory return on the assets under its control. Numerous variations of the ROI concept are used, such as return on total assets, return on total stockholders' equity, and return on common stockholders' equity.

**Ratios** See pages 946–947 for list of ratios, methods of computation, and significance.

**Trend percentages** The purpose of computing trend percentages is to measure the increase or decrease in financial items (such as sales, net income, cash, etc.) from a selected base year to a series of following years. For example, the dollar amount of net income each year is divided by the base year net income to determine the trend percentage.

**Vertical analysis** Comparison of a particular financial statement item to a total including that item, such as inventories as a percentage of current assets, or operating expenses in relation to net sales.

## DEMONSTRATION PROBLEM FOR YOUR REVIEW

The accounting records of King Corporation showed the following balances at the end of 1993 and 1994:

| | 1994 | 1993 |
|---|---|---|
| Cash | $ 35,000 | $ 25,000 |
| Accounts receivable (net) | 91,000 | 90,000 |
| Inventory | 160,000 | 140,000 |
| Short-term prepayments | 4,000 | 5,000 |
| Investment in land | 90,000 | 100,000 |
| Equipment | 880,000 | 640,000 |
| Less: Accumulated depreciation | (260,000) | (200,000) |
| Total assets | $1,000,000 | $ 800,000 |

| | 1994 | 1993 |
|---|---|---|
| Accounts payable | $ 105,000 | $ 45,000 |
| Income taxes payable and other accrued liabilities | 40,000 | 25,000 |
| Bonds payable—8% | 280,000 | 280,000 |
| Premium on bonds payable | 3,600 | 4,000 |
| Capital stock, $5 par | 165,000 | 110,000 |
| Retained earnings | 406,400 | 336,000 |
| Total liabilities and stockholders' equity | $1,000,000 | $ 800,000 |

| | | |
|---|---|---|
| Sales (net of discounts and allowances) | $2,200,000 | $1,600,000 |
| Cost of goods sold | 1,606,000 | 1,120,000 |
| Gross profit on sales | $ 594,000 | $ 480,000 |
| Expenses (including $22,400 interest expense) | (336,600) | (352,000) |
| Income taxes | (91,000) | (48,000) |
| Net income | $ 166,400 | $ 80,000 |

Cash dividends of $40,000 were paid and a 50% stock dividend was distributed early in 1994. All sales were made on credit at a relatively uniform rate during the year. Inventory and receivables did not fluctuate materially. The market price of the company's stock on December 31, 1994, was $86 per share; on December 31, 1993, it was $43.50 (before the 50% stock dividend distributed in 1994).

Compute the following for 1994 and 1993:

1 Quick ratio.
2 Current ratio.
3 Equity ratio.
4 Debt ratio.
5 Book value per share of capital stock (based on shares outstanding after 50% stock dividend in 1994).
6 Earnings per share of capital stock.
7 Price-earnings ratio.
8 Gross profit percentage.
9 Operating expense ratio.
10 Net income as a percentage of net sales.

11 Inventory turnover. (Assume an average inventory of $150,000 for both years.)

12 Accounts receivable turnover. (Assume average accounts receivable for $90,000 for 1993.)

13 Interest coverage ratio.

## SOLUTION TO DEMONSTRATION PROBLEM

| | 1994 | 1993 |
|---|---|---|
| *(1) Quick ratio:* | | |
| *$126,000 ÷ $145,000* | *.9 to 1* | |
| *$115,000 ÷ $71,000* | | *1.6 to 1* |
| *(2) Current ratio:* | | |
| *$290,000 ÷ $145,000* | *2 to 1* | |
| *$260,000 ÷ $71,000* | | *3.7 to 1* |
| *(3) Equity ratio:* | | |
| *$571,400 ÷ $1,000,000* | *57%* | |
| *$445,000 ÷ $800,000* | | *56%* |
| *(4) Debt ratio:* | | |
| *$428,600 ÷ $1,000,000* | *43%* | |
| *$355,000 ÷ $800,000* | | *44%* |
| *(5) Book value per share of capital stock:* | | |
| *$571,400 ÷ 33,000 shares* | *$17.32* | |
| *$445,000 ÷ 33,000* shares* | | *$13.48* |
| *(6) Earnings per share of capital stock:* | | |
| *$166,400 ÷ 33,000 shares* | *$5.04* | |
| *$80,000 ÷ 33,000* shares* | | *$2.42* |
| *(7) Price-earnings ratio:* | | |
| *$86 ÷ $5.04* | *17 times* | |
| *$43.50 ÷ 1.5* = $29, adjusted market price; $29 ÷ $2.42* | | *12 times* |
| *(8) Gross profit percentage:* | | |
| *$594,000 ÷ $2,200,000* | *27%* | |
| *$480,000 ÷ $1,600,000* | | *30%* |
| *(9) Operating expense ratio:* | | |
| *($336,600 − $22,400) ÷ $2,200,000* | *14%* | |
| *($352,000 − $22,400) ÷ $1,600,000* | | *20.6%* |
| *(10) Net income as a percentage of net sales:* | | |
| *$166,400 ÷ $2,200,000* | *7.6%* | |
| *$80,000 ÷ $1,600,000* | | *5%* |
| *(11) Inventory turnover:* | | |
| *$1,606,000 ÷ $150,000* | *10.7 times* | |
| *$1,120,00 ÷ $150,000* | | *7.5 times* |
| *(12) Accounts receivable turnover:* | | |
| *$2,200,000 ÷ $90,500* | *24.3 times* | |
| *$1,600,000 ÷ $90,000* | | *17.8 times* |
| *(13) Interest coverage ratio:* | | |
| *($166,400 + $22,400 + $91,000) ÷ $22,400* | *12.5 times* | |
| *($80,000 + $22,400 + $48,000) ÷ $22,400* | | *6.7 times* |

* Adjusted retroactively for 50% stock dividend.