

ANALYSIS AND USES OF FINANCIAL STATEMENTS

Copyright © 2013 *by*

DELTA PUBLISHING COMPANY

P.O. Box 5332, Los Alamitos, CA 90721-5332

All rights reserved. No part of this course may be reproduced in any form or by any means, without permission in writing from the publisher.

Table of Contents

Preface

Chapter 1

Objectives of Financial Statement Analysis and Financial Reporting

Chapter 2

Accounting Assumptions, Principles, Procedures, and Policies

Chapter 3

Understanding Financial Statements

Chapter 4

An Overview of Financial Statement Analysis

Chapter 5

Analysis of Liquidity and Activity

Chapter 6

Analysis of Solvency and Capital Structure

Chapter 7

Profitability Analysis

Chapter 8

Market Strength and Overall Evaluation

Chapter 9

Analysis of Cash Flows

Chapter 10

Interim Statements and Segment Analysis

GLOSSARY

PREFACE

Analysis and Uses of Financial Statements is designed for interested parties who must understand how to read, interpret, and analyze financial statements. This course describes in clear, concise, and understandable language the intricacies of financial statements, and their use by investors, creditors, analysts, and other interested parties.

This course can enhance your chance for success in business and investing; by enabling you to profit from the knowledge, insights, and perceptions of professionals who use financial statement analysis tools and techniques on a day-to-day basis. Realistic examples and illustrations of financial statement analysis are widely used in this course to make the subject matter crystal clear. That is the major objective of this course.

This course explains the objectives of financial statements in a meaningful manner. The accounting principles used in compiling financial statements and the qualitative characteristics of data appearing on financial statements are relevantly and reliably described. After a thorough overview of financial statements, major tools and techniques as explained, including

- Horizontal and vertical analysis
- Common-size statements
- Ratio analysis
- Liquidity and activity ratios
- Profitability ratios
- Capital structure and solvency ratios
- Market test ratios
- Cash flow ratios

The significance of interim financial statements and segment reporting is explored, as are analysis of annual reports and management discussion and analysis (MDA).

The analytical techniques discussed in this course are well within the limits of today's information technology. Once the concepts are understood, software can be used to eliminate much of the computational tedium involved.

CHAPTER 1

OBJECTIVES OF FINANCIAL STATEMENT ANALYSIS AND FINANCIAL REPORTING

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. Cite some real-life scenarios and understand why financial statement analysis is necessary to solve some puzzles presented by these scenarios.
 2. Describe the focus of financial statement analysis.
 3. Outline the information needs of investors and creditors.
 4. State the objectives of financial reporting.
 5. Identify the qualitative characteristics of accounting information.
-

You are interested in the stock of a major financial institution as a possible investment. An article about the company in today's issue of a financial journal raised some questions about the stock. The article noted that for the past three years, the company's return on equity averaged 8.5 percent, compared with an estimated industry average of 15 percent. A major competitor's return on equity rate was 16 percent. Although the company you are interested in doubled its revenue last year, this increase was not reflected in the return on equity or in the price of the stock. What would you make of this information? Are there reasons why you might want to investigate this stock further before making a decision?

Two high-tech firms merged in the early 2000s. The acquiring company took on a large amount of debt to complete the business combination. Will the leverage work for the acquiring airline? The company's debt equity ratio is more than 8-to-1. What difference will it make to investors and creditors if after the acquisition the acquiring company has long-term liabilities exceeding \$4 billion and equity of about \$500 million? Will the company be able to cover the debt service? How can you know? How significant will the next several interim financial statements be? What is the current position of this company? Some companies in the past used leverage advantageously. In a similar situation, a major retailer filed under the bankruptcy laws. The company's stock currently trades at about 6.5 time earnings. What factors entered into this price-earnings ratio?

Consider the two cases which have just been presented. If you were an investor in these companies, how would you evaluate this information? What action might you take? Are there any significant factors about the financial statements of these companies you might want to examine more thoroughly? To interpret this information, a serious investor or creditor must be able to read, interpret, and analyze financial statements.

FOCUS OF FINANCIAL STATEMENT ANALYSIS

Financial statement analysis is a process which examines past and current financial data for the purpose of evaluating performance and estimating future risks and potential. Financial statement analysis is used by investors, creditors, security analysts, bank lending officers, managers, auditors, taxing authorities, regulatory agencies, labor unions, customers, and many other parties who rely on financial data for making economic decisions about a company. Emphasis of this course is placed on the needs of investors, especially shareholders and bondholders.

Analysis of financial statements focuses primarily on data provided in external reports plus supplementary information provided by management. The analysis should identify major changes or turning points in trends, amounts, and relationships. Financial statements are merely summaries of detailed financial information. Many different groups are interested in getting inside financial statements, especially investors and creditors. Their objectives are sometimes different but often related. However, the basic tools and techniques of financial statement analysis can be effectively applied by all of the interested groups. Financial statement analysis can assist investors and creditors in finding the type of information they require for making decisions relating to their interests in a particular company.

ASSESSMENT OF PAST PERFORMANCE AND CURRENT POSITION

Past performance is often a good indicator of future performance. Therefore, an investor or creditor looks at the trend of past sales, expenses, net income, cash flow, and return on investment not only as a means for judging management's past performance but also as a possible indicator of future performance. In addition, an analysis of current position will tell, for example, what assets the business owns and what liabilities must be paid. It will also tell what the cash position is, how much debt the company has in relation to equity, and what levels of inventories and receivable exist. Knowing a company's past performance and current position is often important in achieving the second general objective of financial analysis.

ASSESSMENT OF FUTURE POTENTIAL AND RELATED RISK

Information about the past and present is useful only to the extent that it bears on decisions about the future. An investor judges the potential earning ability of a company because that ability will affect the market price of the company's stock and the amount of dividends the company will pay. A creditor judges the potential debt-paying ability of the company.

The riskiness of an investment or loan depends on how easy it is to predict future profitability or liquidity. If an investor can predict with confidence that a company's earnings per share will be between \$2.50 and \$2.60 in the next year, the investment is less risky than if the earnings per share are expected to fall between \$2.00 and \$3.00. For example, the potential associated with an investment in an established and stable electric utility, or a loan to it, is relatively easy to predict on the basis of the company's past performance and current position. The potential associated with a small high-tech firm, on the other hand, may be much harder to predict. For this reason, the investment in or loan to the electric utility carries less risk than the investment in or loan to the small high-tech company.

Often, in return for taking a greater risk, an investor in the information technology (IT) company will demand a higher expected return (increase in market price plus dividends) than will an investor in the utility company. Also, a creditor of the IT company will demand a higher interest rate and possibly more assurance of repayment (a secured loan, for instance) than a creditor of the utility company. The higher interest rate reimburses the creditor for assuming a higher risk.

INVESTOR'S NEEDS

Investors and potential investors are primarily interested in evaluating the investment characteristics of a company. Investment characteristics of an investment include such factors as risk, return, dividend or interest yield, safety, liquidity, growth, and others.

The relationship of the current value of a stock or bond to expectations of its future value is basically involved in the evaluation of investment opportunities. Investors are also interested in the safety of their investment as reflected in the financial condition of the company and its operating performance. The dividend policy of a company is usually a major concern of investors. Investors are also interested in the operating income of the firm in order to evaluate the normal earnings trend of the firm. Since many investors are interested in growth potential they look for information concerning how the company obtained its resources and how it uses them. What is the capital structure of the company? What risks and rewards does it hold out for equity investors? Does the firm have any financial leverage? Investment evaluation also involves predicting the timing, amounts, and uncertainties of future cash flows of the firm.

Investors are also interested in monitoring the activities and effectiveness of management. Information about how management acquires resources and uses the resources under its control can influence investment decisions. The track record of management is often the most critical factor in deciding whether or not to invest in the securities of a particular firm.

Bondholders and other creditors of a company are primarily concerned with the company's ability to meet its obligations. Lenders want to know the reasons for a company's borrowings. Are they short or long-term needs? Are they self-liquidating? How has the company handled its debt in the past?

Investment analysts and financial advisors have a major interest in the tools and techniques of financial statement analysis. Such persons have the same basic information needs as investors and creditors as it relates to their clients and potential clients. Analysts frequently adjust the financial statements prepared by accountants for items they do not consider significant or for items they consider significant but which do not appear on the statements.

OBJECTIVES OF FINANCIAL REPORTING

Financial reporting provides information that is useful in making business and economic decisions. The objectives of general purpose external financial reporting primarily come from the needs of external users who must rely on information that management communicates to them.

SFAC (Statement of Financial Accounting Concepts) No. 1 describes the objectives of financial reporting. The financial reporting has the following major objectives:

1. Financial reporting should provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit, and similar decisions. The information should be comprehensive to those who have a reasonable understanding of business and economic activities and are willing to study the information with reasonable diligence.
2. Financial reporting should provide information to help present and potential investors and creditors and other users in assessing the amounts, timing, and uncertainty of prospective cash receipts from dividends or interest and the proceeds from the sales, redemption, or maturity of securities or loans. Since investors' and creditors' cash flows are related to enterprise cash flows, financial reporting should provide information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the related enterprise.
3. Financial reporting should provide information about the economic resources of an enterprise, the claims to those resources (obligations of the enterprise to transfer resources to other entities and owners' equity), and the effects of transactions, events, and circumstances that change its resources and claims to those resources.

The primary focus of financial reporting is ordinarily considered to be information about earnings and its components. Earnings analysis gives clue to (a) management's performance, (b) long-term earning capabilities, (c) future earnings, and (d) risks associated with lending to and investing in the enterprise.

Financial reporting should also provide information about how management has discharged its stewardship function to stockholders for the use of the enterprise's resources entrusted to it. Management is responsible not only for the custody and safekeeping of enterprise resources but also for their efficient profitable use.

Management through financial reporting can provide significant financial information to users by identifying events and circumstances and explaining their financial effects on the enterprise. However, investors, creditors, and others who rely on financial reporting must do their own evaluating, estimating, predicting, and assessing and not rely exclusively on management's presentations.

QUALITATIVE CHARACTERISTICS OF ACCOUNTIN INFORMATION

SFAC No. 2 identifies the primary and secondary qualitative characteristics of accounting information that distinguish better (more useful) information from inferior (less useful) information decision-making process. Qualitative characteristics of accounting information are those qualities or ingredients of accounting information that make it useful. The diagram in Exhibit 1-1 outlines a hierarchy of accounting information qualities. Exhibit 1-2 provides a summary of definitions used in Exhibit 1-1.

The hierarchical arrangement in Exhibit 1-1 is used to show certain relationships among the qualities. The hierarchy shows that information useful for decision-making is the most important. The primary qualities are that accounting information shall be relevant and reliable. If either of these two qualities is completely missing, the information cannot be useful. To be *relevant*, information must be timely, and it must have predictive value or feedback value or both. To be *reliable*, information must have representational faithfulness, and it must be verifiable and neutral. The ingredients of reliability are verifiability, neutrality, and representational faithfulness. Verifiability is the ability through consensus among measurers to ensure that information represents what it purports to represent or that the chosen method of measurement has been used without error or bias. Management's estimate of market value may not be verifiable because it may not reflect a consensus and may be biased or in error.

Comparability, including relevance and reliability, contributes to the overall usefulness of information. Two constraints are shown on the chart in Exhibit 1-1: (1) benefits must exceed costs and (2) materiality. To be useful and worth providing, the benefits of information should exceed its cost. All of the qualities described are subject to a materiality threshold. The hierarchy of qualitative characteristics does not rank the characteristics. If information is to be useful, all characteristics are required to a minimum degree. At times various qualities may conflict in particular circumstances, in which even trade-offs are often necessary or appropriate. For example, the most relevant information may be difficult to understand, or information that is easy to understand may not be very relevant.

EXHIBIT 1-1
QUALITATIVE CHARACTERISTICS OF ACCOUNTING INFORMATION
A HIERARCHY OF ACCOUNTING QUALITIES

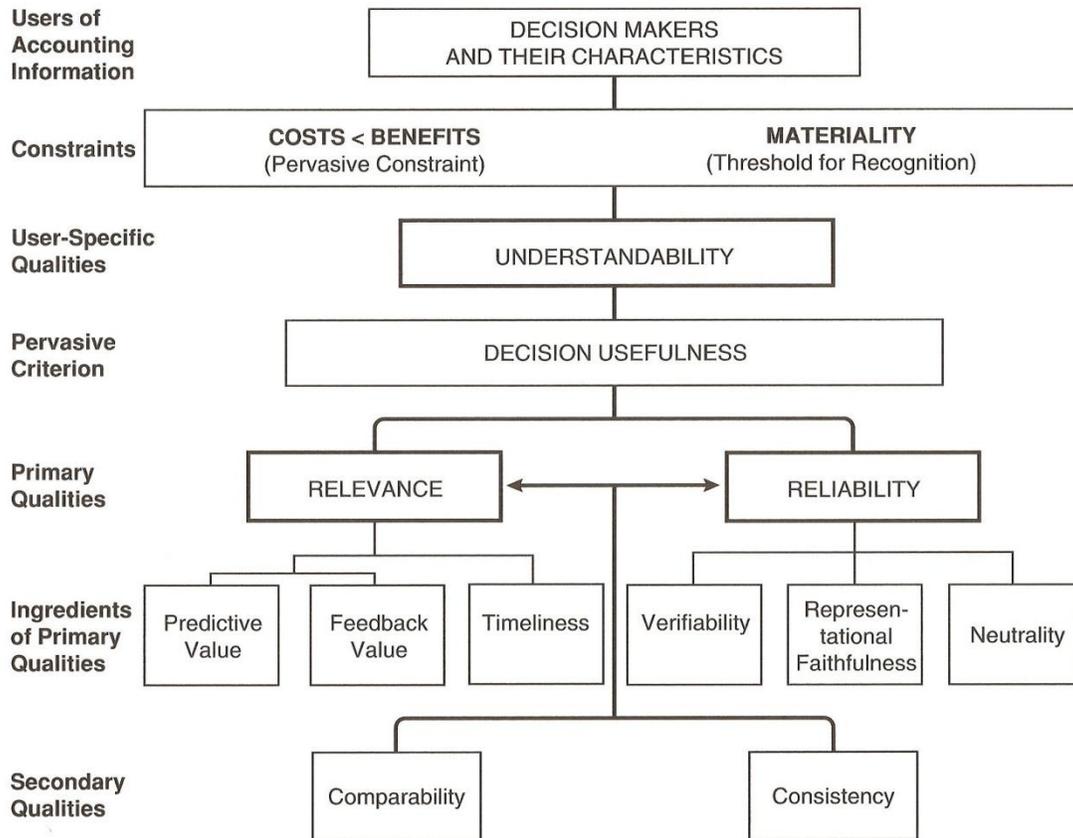


EXHIBIT 1-2
TERMS: QUALITATIVE CHARACTERISTICS OF
ACCOUNTING INFORMATION

Bias Bias in measurement is the tendency of a measure to fall more often on one side than the other of what it represents instead of being equally likely to fall on either side. Bias in accounting measures means a tendency to be consistently too high or too low.

Comparability The quality of information that enables users to identify similarities in and differences between two sets of economic phenomena.

Completeness The inclusion in reported information of everything material that is necessary for faithful representation of the relevant phenomena.

Conservatism A prudent reaction to uncertainty to try to insure that uncertainty and risks inherent in business situations are adequately considered.

Consistency Conformity from period to period with unchanging policies and procedures.

Feedback Value The quality of information that enables users to confirm or correct prior expectations.

Materiality The magnitude of an omission or misstatement of accounting information that, in the light of surrounding circumstances, makes it probable that the judgment of a reasonable person relying on the information would have been changed or influenced by the omission or misstatement.

Neutrality Absence in reported information of bias intended to attain a predetermined result or to induce a particular mode of behavior.

Predictive Value The quality of information that helps users to increase the likelihood of correctly forecasting the outcome of past or present events.

Relevance The capacity of information to make a difference in a decision by helping users to form predictions about the outcomes of past, present, and future events or to confirm or correct prior expectations.

Reliability The quality of information that assures that information is reasonably free from error and bias and faithfully represents what it purports to represent.

Representational Faithfulness Correspondence or agreement between a measure or description and the phenomenon that it purports to represent (sometimes called validity).

Timeliness Having information available to a decision maker before it loses its capacity to influence decisions.

Understandability The quality of information that enables users to perceive its significance.

Verifiability The ability through consensus among measures to ensure that information represents what it purports to represent or that the chosen method of measurement has been used without error or bias.

EXAMPLE

A company with total assets of \$200 million and net profit of \$12 million purchases staplers with an estimated life of 10 years for \$2,000. The company elects to debit miscellaneous expense. This scenario is most closely associated with materiality and the balance between cost and benefit. In principle, wasting assets should be capitalized and depreciated. However, the effect on the financial statements of expensing rather than capitalizing and depreciating the staplers is clearly not material given that they cost \$2,000 and the enterprise has total assets of \$200 million. Also, the cost of producing the information about depreciation expense over 10 years for the staplers probably is higher than the benefits of the information for decision making. Thus, the expedient procedure of expensing the \$2,000 should be followed.

SUMMARY

Financial statement analysis is not an end in itself but is performed for the purpose of providing information that is useful in making lending and investing decisions. An understanding

of analytical methods associated with financial statement analysis is extremely useful when interpreting and analyzing financial reports.

The objectives of financial reporting are designed to meet the needs of investors and creditors for decision-making purpose. The primary focus of financial reporting is information about earnings and its components. Information useful in evaluating the amounts, timing, and uncertainty of prospective cash receipts from dividends or interest and the proceeds from the sale, redemption, or maturity of securities or loans is basic to many investment decisions. These and other concerns are the basic objectives of financial reporting

The qualitative characteristics of accounting information are those qualities that enhance its usefulness for decision-making. Predictive value, feedback value, and timeliness are the three components of relevance. Representational faithfulness and verifiability are the components of reliability. The qualitative characteristics of useful accounting information are pervasive and provide a basis for choosing among accounting and reporting alternatives. The balance between benefit and cost is a pervasive constraint, *not* a qualitative characteristic. The benefits should exceed the cost of information.

CHAPTER 2

ACCOUNTING ASSUMPTIONS, PRINCIPLES, PROCEDURES AND POLICIES

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. Describe the basic assumptions of accounting.
 2. Explain the application of the basic principles of accounting.
 3. Explain the meaning of generally accepted accounting principles.
 4. Differentiate the cash basis of accounting from the accrual basis of accounting.
 5. Describe the impact that constraints have on reporting accounting information.
-

An understanding of the assumptions, principles, procedures, and policies underlying financial statements will be helpful in understanding the nature and scope of financial statement analysis. In this chapter, accounting assumptions, principles, procedures, and policies will be discussed.

ACCOUNTING ASSUMPTIONS

Accounting assumptions are broad concepts that underlie *generally accepted accounting principles* (GAAP) and serve as a foundation for these principles. The major accounting assumptions include the following: the business entity assumption, the continuity assumption, the periodic and timely reporting assumption, and the monetary unit assumption.

The most basic accounting assumption is that economic activity can be identified with a particular unit or entity of accountability. The unit or entity to be accounted for can be defined as an area of economic interest to a particular individual or group. Corporations, sole proprietorships, and partnerships are example of accounting entities. The *economic entity assumption* determines the nature and scope of the reporting that is required for the unit or entity. Accounting information pertains to an entity, the boundaries of which are not necessarily those of the legal entity. For instance, a parent and subsidiary are legally separate but are treated as a single entity in consolidated statements.

Accounting is based on the assumption that the accounting unit or entity is engaged in continuous and ongoing activities. The accounting unit or entity is assumed to remain in operation into the foreseeable future to achieve its goals and objectives. This assumption is referred to as the *going concern (or continuity) assumption*. If evidence indicates that the unit or entity has a limited life, modifications in accounting principles, methods, and reporting practices would ordinarily be required; for example, in cases where corporate reorganization or liquidation under bankruptcy is involved.

The continuous operations of a business or other economic unit or entity over an extended period of time can be meaningfully segmented into equal time periods, such as a year, quarter, or month. The *time period assumption* requires that the economic life of a business can be divided into artificial time periods. Accounting time periods are generally a month, a quarter, or a year. A fiscal year is an accounting time period that is one year long.

The *monetary unit assumption* requires that financial information be measured and accounted for in the basic monetary unit of the country in which the enterprise is located. The monetary value of an economic event or transaction, determined at the time it is recorded, is not adjusted for subsequent changes in the purchasing power of the monetary unit.

ACCOUNTING PRINCIPLES

Accounting principles are the guidelines, laws, or rules which are adopted by the accounting profession and which serve as guides to accounting practice. A major objective of accounting principles is to reduce the difference and inconsistencies in accounting practice, thereby improving the comparability and credibility of financial reports.

The phrase *generally accepted accounting principles (GAAP)* is a set of standards and rules that are recognized as a general guide to financial reporting. GAAP reflects a consensus of what the accounting profession considers good accounting practices and procedures. GAAP establishes which resources and obligations should be recorded as assets and liabilities, which changes in assets and liabilities should be recorded, when these changes should be recorded, how the recorded assets and liabilities and changes in them should be measured, what information should be disclosed, and which financial statements should be prepared. GAAP is prescribed by authoritative bodies, such as the Financial Accounting Standards Board (FASB). On June 3, 2009, the FASB approved the Codification (<http://asc.fasb.org/home>). The Accounting Standards Codification (ASC) is not intended to change existing U.S. GAAP, but rather integrates existing accounting standards by multiple standard-setters within the current GAAP hierarchy. The Codification is now the single official source of authoritative, nongovernmental U.S. GAAP, superseding existing FASB, AICPA, EITF, and related literature. For example, Statement of Financial Accounting Standards No. 141R (FAS-141R) (Business Combinations), is now ASC 805-10 (Business Combinations-Overall).

Major accounting principles include the cost principle, the realization principle, the matching principle, the full disclosure principle, the materiality principle, the conservatism principle, the consistency principle, and others.

The *cost principle* states that the acquisition cost is the proper amount at which transactions and events involving assets, liabilities, and owners' equity should be initially recorded in the accounting system. Transactions and events are measured by the exchange price at which the transfer takes place. Cost is the exchange price in an arm's-length transaction, that is, a transaction in which each of the parties involved is seeking to serve his own best interest.

The *revenue realization principle* determines when revenue is to be considered realized. *Realization* refers to the process of converting non-cash resources and rights into money; the

term is used in accounting and financial reporting to refer to sales of assets for cash or claims to cash. According to the realization principle, revenue is realized when the sale takes place because the earnings process is substantially completed and an exchange has taken place. It is also assumed that (1) the amount of revenue is determinable and its collection's reasonably assured, and (2) reasonable estimates can be made of related future costs. Revenue from services rendered is recognized when services have been performed and are billable. Revenue from permitting others to use enterprise resources, such as interest, rent and royalties is recognized as time passes or as the resources are used. *Recognition* dictates that revenue should be recognized in the accounting period in which it is earned. Exceptions to the basic revenue principle provide for the *recognition* of revenue under the following conditions:

1. Recognition when the sale price is collected, i.e., the cash method and the installment method.
2. Recognition when the production process is completed, but before the sale, i.e., the production method.
3. Recognition proportionally over the performance of a long-term contract, i.e., the percentage of completion method.
4. Recognition at the completion of a long-term contract, i.e., the completed contract method.
5. Recognition of profit from the sale only after the payments received equal the cost of the item sold, i.e., the cost recovery method.

The *matching principle* requires that revenues generated and expenses incurred in earning those revenues be reported in the same income statement. In this way, sacrifices (expenses) are matched against benefits or accomplishments (revenues). It is through the matching process that net income is determined. General guidelines for applying the matching principle include the following:

1. *Associating cause and effect.* Some costs are recognized as expenses on the basis of a presumed direct association with specific revenues. For example, sales commission expense can be associated with the sales revenue of the period and should be reported on the income statement when the sales revenue is reported.
2. *Systematic and rational allocation.* Where there is no cause and effect relationship between revenue and expenses, and attempt is made to associate costs in a systematic and rational manner with the products of the period affected. For example, depreciation expense for office equipment has no cause and effect relationship to revenue of the period; the cost of the equipment should be depreciated in a systematic and rational manner over the life of the asset.
3. *Immediate recognition.* Costs that cannot be related to revenues by either of the two preceding processes are recognized as expenses of the current period. For example, the salary of the company's president should be given immediate recognition as an expense in the period it is incurred.

The *full disclosure principle* requires that information provided in financial statements be sufficiently complete to avoid misleading users of the reports by omitting significant facts of

information. The full disclosure principle also refers to revealing information that would be useful in the decision-making processes of informed users. Full disclosure is required for the fair presentation of financial statements. Many disclosures are made in the body of the financial statements and in notes (footnotes), schedules, and supplementary reports, and in a summary of significant policies preceding the first note to financial statements.

Materiality refers to the magnitude or significance of something that would be of interest to an informed investor or creditor in making evaluations and decisions. The materiality principle requires that anything that is material to financial statements must be disclosed. An item is material for accounting purposes if the omission or misstatement of it, in light of surrounding circumstances, make it probable that the judgment of a reasonable person relying on the information would have been changed or influenced by the omission or misstatement. Immaterial items which have little or no consequences to statement users can be handled as expediency, fairness, and professional judgment require.

Conservatism is a basic accounting principle that requires the reasonable anticipation of potential losses in recorded assets or in the settlement of liabilities at the time when financial statements are prepared. The principle of conservatism is sometimes expressed as follows: “Recognize all losses and anticipate no gains.” Thus, a gain contingency is not recorded in the financial statements. If the probability of realization is high, the contingency is disclosed in the notes.

A major purpose of the principle of conservatism is to assure that assets will not be overstated or liabilities understated. Conservatism is a prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered (SFAC 2). Valuing inventory at the *lower of cost or market* is an application of this principle.

Consistency refers to the reporting from year to year within an entity. The consistency principle requires that a particular accounting principle, method, or procedure, once adopted, not be changed from period to period. Should management determine that a particular accounting treatment is not appropriate and should be changed, generally accepted accounting principles requires that the facts related to the change and its dollars effects be reported.

ACCOUNTING PROCEDURES AND POLICIES

Accounting procedures are those rules and practices that are associated with the operations of an accounting system and that lead to the development of financial statements. Accounting procedures include the methods, practices, and techniques used to carry out accounting objectives and to implement accounting principles. For example, last-in, first out (LIFO) and straight-line depreciation are examples of accounting for inventory and buildings. Accounting procedures can vary from company to company and from industry to industry. An accounting procedure should be selected in a given circumstance if its use reflects generally accepted accounting principles and if it is appropriate to record, process, and report the event or transaction.

Information about the *accounting policies* adopted by a reporting enterprise is essential for financial statement users and should be disclosed. Accounting principles and their method of application in the following areas are considered particularly important:

1. A selection from existing alternatives (for example, inventory methods such as LIFO, FIFO, and average methods).
2. Areas those are peculiar to a particular industry in which the company operates.
3. Unusual and innovative applications of generally accepted accounting principles.
4. Significant accounting policies are usually disclosed as the initial note or as a summary preceding the notes to the financial statements.

APB 22 (*Disclosure of Accounting Policies*) (ASC 235-10-05; 235-10-50-3) explicitly lists certain items as commonly required disclosures in a summary of significant accounting policies. These items include the basis of consolidation, depreciation methods, amortization of intangibles, inventory pricing, recognition of profit on long-term construction-type contracts, and recognition of revenue from franchising and leasing operations.

OTHER ACCOUNTING CONSIDERATIONS

Major bases of accounting include the accrual basis and cash basis. *In accrual accounting*, revenue and gains are recognized in the period when they are earned. Expenses and losses are recognized in the period they are incurred. Accrual accounting is concerned with the economic consequences of events and transactions instead of merely with cash receipts and cash payments. Under accrual accounting, net income does not necessarily reflect cash receipts and cash payments for a time period. Accrual accounting generally provides the best measure of earnings, earning power, managerial performance, and stewardship.

Cash-basis accounting recognizes only transactions involving actual cash receipts and disbursements occurring in a given period. Cash-basis accounting recognizes revenues and gains when cash is received and expenses and losses when cash is paid. No attempt is made to record unpaid bills or amounts owed to or by the entity. No attempt is made to match revenues and expenses to determine income. Cash-basis accounting is widely used by small businesses and for income tax purposes.

The *economic substance* of a transaction is sometimes considered more significant than the *legal form* of the transaction for reporting purposes. For example, consolidated financial statements are usually considered more relevant than are the separate statements of members of the affiliated group. Consolidated financial statements do not represent the legal statements of any accounting entity. However, they do represent an accounting entity. Some leases which are legal leases are considered the purchases and sale of an asset for accounting purposes. In this case, the economic substance of the transaction supersedes the legal form of the transaction.

SUMMARY

Accounting assumption provides the foundation for the structure of financial accounting theory and explains why financial information is presented in a given manner. GAAP represent the standards and practices that a firm must use in preparing external financial statements. GAAP

or standards are prescribed by authoritative bodies such as FASB, and are based on theoretical as well as practical considerations. These principles evolve and change in response to changes in the economic environment.

CHAPTER 3

UNDERSTANDING FINANCIAL STATEMENTS

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- Interpret the basic financial statements: the balance sheet, income statement, and statement of cash flows.
 - Explain how the balance sheet portrays a company's financial position.
 - Describe how the income statement reveals the entity's operating performance.
 - Determine and assess a company's cash inflows and cash outflows.
 - State the many types of accounts that may exist in the accounting system.
 - Outline the usefulness of the statement of cash flows.
 - Explain what the annual report is and read and understand its components, including the financial statements, footnotes, review of operations, auditor's report, and supplementary schedules
 - Discuss management's discussion and analysis (MD&A).
 - Summarize how the Sarbanes-Oxley 404 reporting differs from traditional reporting.
-

Financial statements are the most widely used and most comprehensive way of communicating financial information about a business enterprise to users of the information provided on the reports. Different users of financial statements have different information needs. *General-purpose financial statements* have been developed to meet the needs of users of financial statements, primarily the needs of investors and creditors.

The basic output of the financial accounting process is presented in the following interrelated general purpose financial statements:

1. A *balance sheet* (or *statement of financial position*) summarizes the financial position of an accounting entity at a particular point in time.
2. An *income statement* (or *profit and loss statement*) summarizes the results of operations for a given period of time.
3. A *statement of retained earnings* shows the increases and decreases in earnings retained by the company over a given period of time.
4. A *statement of cash flows* summarizes an enterprise's operating, financing, and investing activities over a given period of time.

Notes to financial statements are considered an integral part of financial statements. Notes provide additional information not included in the accounts on the financial statements;

they are usually factual rather than interpretative. Notes should be carefully read and evaluated when financial statement analysis is undertaken.

Financial statements must include disclosures of material, related-party transactions, extraordinary compensation arrangements, expense allowances, and similar items. Related parties may be any of the following: affiliates; principal owners and close kin; management and close kin; parent companies and subsidiaries; equity method investors and investees; or any other party that can significantly influence the management or operating policies of the reporting enterprise, to the extent that it may be prevented from operating in its own best interest.

This chapter looks at the corporate *annual report* that contains the key financial statements. These financial statements are the only financial information outsiders are likely to see. Other contents of the annual report, such as management discussion and analysis (MD&A) and audit reports are also discussed. The Sarbanes-Oxley 404 reporting requirements are also explained.

WHAT AND WHY OF FINANCIAL STATEMENTS

Financial decisions are typically based on information generated from the accounting system. Financial management, stockholders, potential investors, and creditors are concerned with how well the company is doing. The three reports generated by the accounting system and included in the company's annual report are the *balance sheet*, *income statement*, and *statement of cash flows*. Although the form of these financial statements may vary among different businesses or other economic units, their basic purposes do not change.

The balance sheet portrays the financial position of the organization at a particular point in time. It shows what you own (assets), how much you owe to vendors and lenders (liabilities), and what is left (assets minus liabilities, known as equity or net worth). A balance sheet is a snapshot of the company's financial position as of a certain date. The balance sheet equation can be stated as: $\text{Assets} - \text{Liabilities} = \text{Stockholders' Equity}$.

The income statement, on the other hand, measures the operating performance for a specified period of time (e.g., for the year ended December 31, 20X1). If the balance sheet is a snapshot, the income statement is a motion picture. The income statement serves as the bridge between two consecutive balance sheets. Simply put, the balance sheet indicates the wealth of your company and the income statement tells you how your company did last year.

The balance sheet and the income statement tell different things about your company. For example, the fact the company made a big profit last year does not necessarily mean it is liquid (has the ability to pay current liabilities using current assets) or solvent (noncurrent assets are enough to meet noncurrent liabilities). (Liquidity and solvency are discussed in detail in later chapters.) A company may have reported a significant net income but still have a deficient net worth. In other words, to find out how your organization is doing, you need both statements. The income statement summarizes your company's operating results for the accounting period; these results are reflected in the equity (net worth) on the balance sheet. This relationship is shown in Exhibit 3-1. The third basic financial statement is the statement of cash flows. This statement

provides useful information about the inflows and outflows of cash that cannot be found in the balance sheet and the income statement.

EXHIBIT 3-1
THE BALANCE SHEET AND INCOME STATEMENT

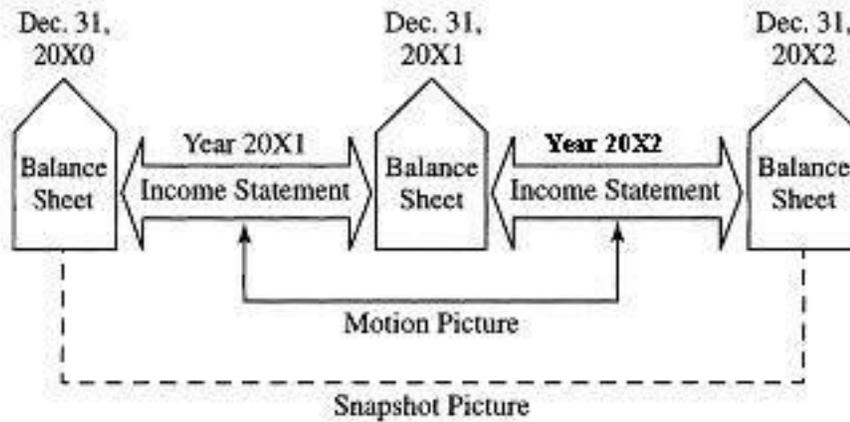
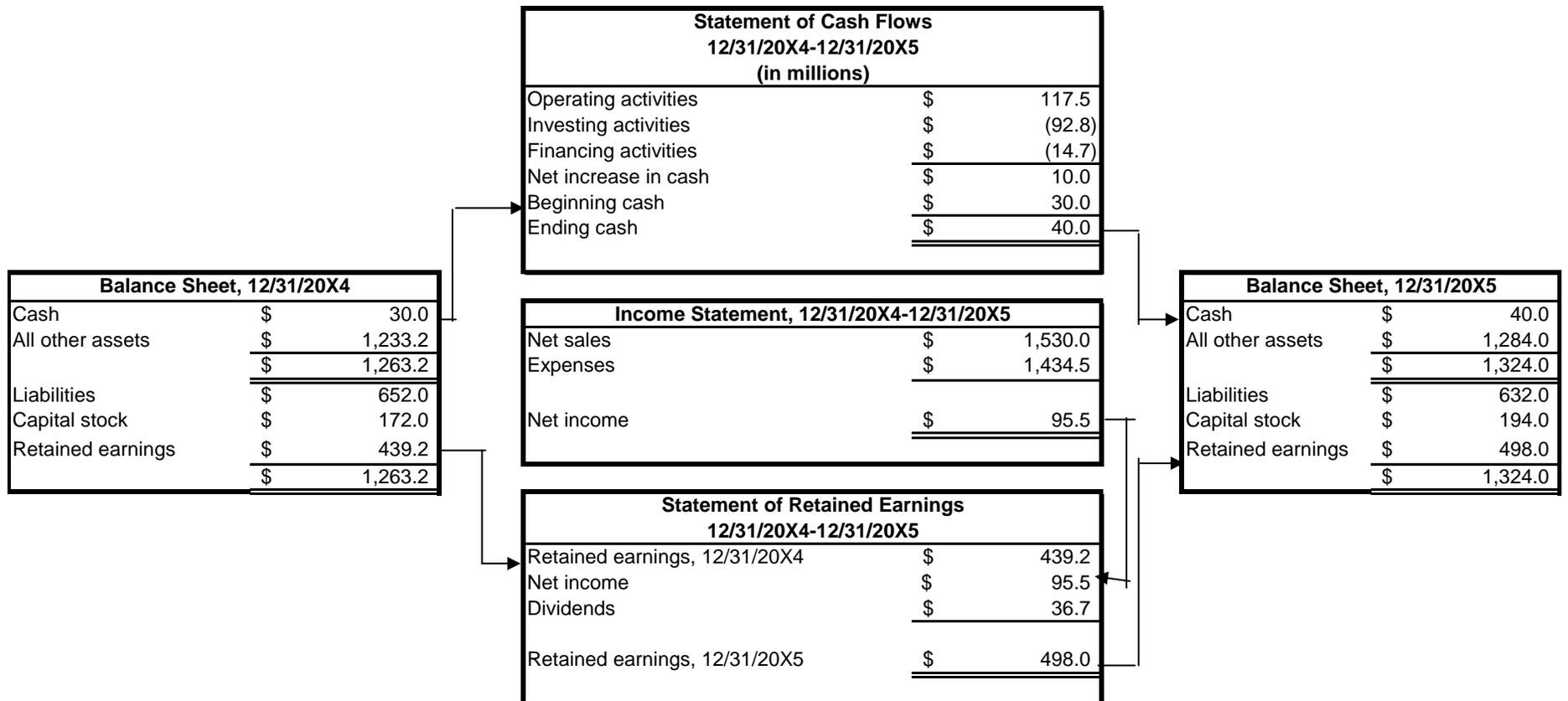


Exhibit 3-2 shows how these statements, including the statement of retained earnings (to be discussed later), tie together with numerical figures. *Note:* The beginning amount of cash (\$30 million) from the 20x4 balance sheet is added to the net increase or decrease in cash (from the statement of cash flows) to derive the cash balance (\$40 million) as reported on the 20x5 balance sheet. Similarly, the retained earnings balance as reported on the 20x5 balance sheet comes from the beginning retained earnings balance (20x4 balance sheet) plus net income for the period (from the income statement) less dividends paid. As you study financial statements, these relationships will become clearer and you will understand the concept of articulation better.

EXHIBIT 3-2
HOW THE FINANCIAL STATEMENTS TIE TOGETHER



CONSOLIDATED FINANCIAL STATEMENTS

Exhibits 3-3, 3-4, 3-5, and 3-6 present four consolidated financial statements for the Beta Manufacturing Company. They are the balance sheet, income statement, statement of retained earnings, and statement of cash flows, Footnotes and supplementary information applicable to the statements are not shown in the exhibits. *Consolidated financial statements* include a complete set of statements prepared for the consolidated entity and the sum of the assets, liabilities, revenues, and expenses of the affiliated companies (after eliminating the effect of any transactions among the affiliated companies.) Consolidated financial statements present the financial position and results of operating of the economic unit controlled by the parent company as a single accounting entity. Emphasis is placed on the economic unit under control of one management rather than upon the legal form of the separate entities.

Consolidated financial statements are prepared primarily for the benefit of the shareholders and creditors of the parent company. There is a presumption that consolidated statements are more meaningful than the separate statements of members of the affiliation. However, subsidiary creditors, minority shareholders, and regulatory agencies must rely on the statements of the subsidiary to assess their claims. The usual condition for consolidating the statements of an affiliated group of companies is ownership of a majority voting interest in common stock. Ownership by one company, directly or indirectly, of over 50 percent of the outstanding voting shares of another company is required for consolidation.

THE BALANCE SHEET

The *balance sheet* (or *statement of financial position*) is a report that shows the financial position of an enterprise at a particular time, including the firm's economic resources (assets), economic obligations (liabilities), and the residual claims of owners (owners' equity). Assets are usually show in the order of their liquidity (nearness to cash) and liabilities in the order of their maturity date.

The balance sheet is usually presented in one of the following formats:

1. Account form: $\text{Assets} = \text{Liabilities} + \text{Owners' equity}$
2. Report form: $\text{Assets} - \text{Liabilities} + \text{Owners' equity}$

Major classifications used in the statement of financial position include the following;

1. Assets:
 - a. Current assets (cash, marketable securities, accounts receivable, inventory, and prepaid expenses)
 - b. Investments.
 - c. Property, plant, and equipment.
 - d. Intangible assets (e.g., patents, copyrights, goodwill)
 - e. Deferred charges or other assets
2. Liabilities:
 - a. Current liabilities (accounts payable, notes payable, wages payable, accrued liabilities, unearned revenue)

- b. Long-term liabilities
- 3. Owners' equity:
 - a. Capital stock
 - b. Additional paid-in capital
 - c. Retained earnings

Balance sheets are usually presented in comparative form. Comparative statements include the current year's statement and statements of one or more of preceding accounting periods. Comparative statements are useful in evaluating and analyzing trends and relationships. Exhibit 3-3 shows a comparative balance sheet for the Beta Company.

MEASUREMENTS USED IN FINANCIAL STATEMENTS Assets and liabilities reported on the balance sheet are measured by different attributes—for example, historical cost, current (or replacement) cost, current market value, net realizable—value, and present value of future cash flows, depending upon the nature of the item and the relevance and reliability of the attribute measured. *Historical cost* is the exchange price of the asset when it was acquired. *Current cost* is the amount of cash or its equivalent required to obtain the same asset at the balance sheet date. *Current market value* or exit value is the amount of cash that may be obtained at the balance sheet date from selling the asset in an orderly liquidation. *Net realizable value* is the amount of cash that can be obtained as a result of a future sale of an asset, less cost of disposing of the asset. *Present value* is the expected exit value discounted to the balance sheet date.

ASSETS

Assets are probable economic benefits obtained or controlled by a particular entity as a result of past transactions or events. *Future economic benefits* refers to the capacity of an asset to benefit the enterprise by being exchanged for something else of value to the enterprise, by being used to produce something of value to the enterprise, or by being used to settle its liabilities. The future economic benefits of assets usually result in net cash inflows to the enterprise. Assets are recognized in the financial statements when (1) the item meets the definition of an asset, (2) it can be measured with sufficient reliability, (3) the information about it is capable of making a difference in user decisions, and (4) the information about the item is reliable.

CURRENT ASSETS *Current assets* are cash and other assets which are reasonably expected to be converted into cash, sold, or consumed within the normal operating cycle of the business or one year, whichever is longer. An operating cycle is the average time required to expend cash for inventory, process and sell the inventory, collect the receivables, and convert the receivables into cash. Current assets include cash and cash equivalents, short-term investments, accounts receivable, inventories, accrued revenues (assets), and prepaid expenses.

Cash and cash equivalents represents money on hand and balances of checking accounts at banks. Cash includes coins, checks, money orders, bank drafts, and any item acceptable to a bank for deposit. A compensating balance arises when a bank lends funds to a customer and requires that a minimum balance be retained at all times in the customer's checking account. If compensating balances are not disclosed, misleading inferences about the company's liquidity and interest costs might be made.

EXHIBIT 3-3
Beta Manufacturing Company
Consolidated Balance Sheet
December 31, 20x5 and 20x4
(Millions of dollars)

Assets	20x5	20x4
Current assets		
Cash and cash equivalents	\$40.0	\$30.0
Short-term marketable debt securities	80.0	64.0
Accounts receivable, net of allowances of \$88 in 20x5 and \$69 in 20x4	312.0	290.0
Inventories	360.0	370.0
Prepaid expenses and other current Assets	8.0	6.0
Total current assets	800.0	760.0
Property, plant, and equipment	770.0	693.2
Less accumulated depreciation	(250.0)	(195.0)
Property, plant, and equipment, net	520.0	498.2
Intangibles (patents, goodwill)	4.0	5.0
Total Assets	\$1,324.0	\$1,263.2
Liabilities and stockholders' equity		
Current liabilities		
Accounts payable	\$144.0	\$138.0
Current portion of long-term debt and short-term borrowings	102.0	122.0
Accrued payroll-related liabilities	94.0	102.0
Total current liabilities	340.0	362.0
Long-term liabilities		
Long-term debt	272.0	272.0
Deferred income taxes	20.0	18.0
Total liabilities	\$632.0	\$652.0
Stockholders' equity		
Preferred stock \$5.83 cumulative, \$100 par value, authorized 150,000, outstanding 120,000	\$12.0	\$12.0
Common stock \$5 par value, outstanding 20x5 30,000,000 shares, 20x4 29,000,000	150.0	145.0

Additional paid-in capital on common stock	32.0	15.0
Retained earnings	498.0	439.2
Stockholders' equity	<u>692.0</u>	<u>611.2</u>
Total Liabilities and Stockholder's Equity	<u><u>\$1,324.0</u></u>	<u><u>\$1,263.2</u></u>

EXHIBIT 3-4
Beta Manufacturing Company
Consolidated Income Statement
For the Years Ended December 31, 20x5 and 20x4
(Millions of dollars)

	20x5	20x4
Net sales	\$1,530.0	\$1,450.0
Cost of sales	1,070.0	1,034.0
Gross margin	460.0	416.0
Operating expenses:		
Selling, general and administrative	245.0	226.0
Depreciation and amortization	56.0	50.0
Total operating expenses	301.0	276.0
Operating Income (loss)	159.0	140.0
Interest and other income, net	(22.0)	(15.0)
Income (loss) before income taxes	137.0	125.0
Provision for (benefit from) income taxes	41.5	44.0
Net income (loss)	\$95.5	\$81.0
Net income (loss) per common share--basic and diluted	3.18	2.79
Shares used in the calculation of net income (loss) per common share--basic and diluted	30.0	29.0

EXHIBIT 3-5
Beta Manufacturing Company
Retaining Earnings Statement
December 31, 20x5 and 20x4
(Millions of dollars)

	20x5	20x4
Balance January 1	\$439.2	\$393.7
Net income	95.5	81.0
Total	534.7	474.7
Less:		
Dividend on preferred stock	0.7	0.7
Dividend on common stock	36.0	34.8
Balance December 31	498.0	439.2

EXHIBIT 3-6
Beta Manufacturing Company
Statement of Cash Flows
For the Years Ended December 31, 20x5 and 20x4
(Millions of dollars)

	20X5		20X4	
Cash flows from operating activities:				
Net income	\$95.5		\$81.0	
Add (deduct) to reconcile net income to net cash flow				
Depreciation	56.0		50.0	
Increase in accounts payable	6.0		2.0	
Decrease in notes payable	(20.0)		(2.5)	
Decrease in payroll liabilities	(8.0)		(1.0)	
Increase in deferred taxes	2.0		2.0	
Increase in prepaid expense	(2.0)		(1.5)	
Increase in accounts receivable	(22.0)		(1.0)	
Decrease in inventory	10.0	22.0	5.0	53.0
Net cash flow from operating activities		117.5		134.0
Cash flows from investing activities:				
Cash paid to purchase marketable securities	(16.0)		(1.0)	
Cash paid to purchase fixed assets	(76.8)		(135.5)	
Net cash flow used for investing activities		(92.8)		(136.5)
Cash flows from financing activities:				
Issuance of common stock	22.0		0.0	
Cash dividends	(36.7)		(35.5)	
Net cash flow used in financing activities		(14.7)		(35.5)
Net decrease in cash and cash equivalents		10.0		(38.0)
Cash and cash equivalents at the		30.0		68.0

beginning of the year
Cash and cash equivalents at the end of
the year

\$40.0

\$30.0

Short-term investments are investments in debt and equity securities. They are short-term, low risk, highly liquid, low yield. Examples are treasury bills and commercial paper. Investments in debt securities are classified as either *trading*, *available-for-sale*, or *held-to-maturity*, while investments in equity securities are classified as either trading or available-for-sale. Trading and available-for-sale securities are reported at fair value, while held-to-maturity securities are reported at amortized cost.

Accounts receivable represent amounts due from customers arising from sales or from services performed. The *allowance for doubtful accounts* shown on most balance sheets is a contra asset account. The allowance represents a reduction of the accounts receivable that is established to adjust this item to an estimate of the amount realizable. *Notes receivable* are unconditional promises in writing to pay definite sums of money at certain or determinable dates, usually with a specified interest rate.

Inventories represent merchandise, work in process, and raw materials that a business normally uses in its manufacturing and selling operations. Inventories are usually reported at cost or at the lower of cost or market value. Accountants determine cost by using one of many methods, each based on a different assumption of cost flows. Typical cost flow assumptions include the following:

1. *First-in, first-out (FIFO)*. The costs of the first items purchased are assigned to the first items sold and the costs of the last items purchased are assigned to the items remaining in inventory.
2. *Last-in, first-out (LIFO)*. The costs of the last items purchased are assigned to the first items sold; the cost of the inventory on hand consists of the cost of items from the oldest purchases.
3. *Average-cost method*. Each item carries an equal cost, which is determined by dividing the total of the goods available for sale by the number of units to arrive at an average unit cost.
4. *Specific identification method*. The actual cost of a particular inventory item is assigned to the item.

IFRS Treatment

IFRS prohibits the use of the LIFO cost flow assumption. FIFO and average cost are the only two acceptable cost flow assumptions permitted under IFRS. Both US GAAP and IFRS permit specific identification where appropriate.

Major impacts of FIFO and LIFO inventory costing methods on financial statements in times of rising prices are shown here:

	<i>FIFO</i>	<i>LIFO</i>
Ending inventory	Higher	Lower
Current assets	Higher	Lower
Working capital	Higher	Lower
Total assets	Higher	Lower
Cost of goods sold	Lower	Higher

Gross margin	Higher	Lower
Net income	Higher	Lower
Taxable income	Higher	Lower
Income taxes	Higher	Lower

The major accounting objective in selecting an inventory method should be to choose the one which, under the conditions and circumstances in practice, most clearly reflects periodic income. *Prepaid expenses* are expenses of a future period that have been paid for but for which the company has not yet received benefits, such as prepaid rent, prepaid insurance, or prepaid advertising. The benefits will usually be received in the next year. Prepaid expenses are assets, not expenses as the title might suggest. They are reported as deferred charges in the “other asset” section.

An *accrued asset* or *accrued revenue* is revenue for which the service has been performed or the goods have been delivered but that has not been recorded in the accounts, i.e., unrecorded revenue. For example, interest on a loan receivable is earned daily but may not actually be received until the following accounting period. On the balance sheet before the interest is received, unearned revenue would be reported as an asset. An adjusting entry would record the asset and the revenue.

LONG-TERM INVESTMENTS *Long-term investments* in stocks, bonds, and other investments owned by a company that are to be held for a period of time exceeding the normal operating cycle of the business or one year, whichever is longer, are classified as investments on the balance sheet. Investments in common stock in which an investor is able to exercise significant influence over the operating and financial policies of an investee require the use of the *equity method* of accounting. An investment of between 20 percent and 50 percent in the outstanding common stock of the investee is a presumption of significant influence. When the equity method is used, income from the investment is recorded by the investor when it is reported by the investee. The amount of the income recognized is based on the investor’s percentage of ownership in the investee. Dividends are recorded as reductions in the carrying value of the investment account when they are paid by the investee. *Note:* When ownership is less than 20%, the *cost method* is used—the investment is recorded at cost.

PROPERTY, PLANT, AND EQUIPMENT *Property, plant, and equipment* represent tangible, long-lived assets such as land, buildings, machinery, and tools acquired for use in normal business operations (and not primarily for sale) during a period of time greater than the normal operating cycle or one year, whichever is long. *Accumulated depreciation* is a contra asset account which represents the accumulation of charges resulting from allocating the cost of an asset over its useful life. The cost of the asset is decreased each year to reflect the effect of use, wear and tear, and obsolescence. The *book value* of the asset is the excess of its cost over its accumulated depreciation. The book value of an asset does not necessarily represent its fair market value of appraisal value.

Natural resources or *wasting assets* represent inventories of raw materials that can be consumed (exhausted) through extraction or removal from their natural location. Natural resources include ore deposits, mineral deposits, oil reserves, gas deposits, and timber tracts. Natural

resources are classified as a separate category within the property, plant, and equipment section. Natural resources are typically recorded at their acquisition cost plus exploration and development cost. Natural resources are subject to depletion. *Depletion* is the exhaustion of a natural resource that results from the physical removal of a part of the resource. On the balance sheet, natural resources are reported at total cost less accumulated depletion.

INTANGIBLE ASSETS *Intangible assets* are long-lived assets representing nonphysical rights, values, privileges, and so on—exclusive of receivables and investments. Intangible assets include patents, copyright, franchises, trademarks, trade names, goodwill, and other assets. *Goodwill* is the excess of the cost of an acquired business over the value assigned to the tangible and other identifiable intangible assets of the firm. Goodwill is recorded and reported only when it is acquired in the purchase of a business. *Research and development costs* (R&D) are those costs related to developing new products, processes, services, or techniques, or modifying existing ones. Most R&D and internally-developed goodwill are not capitalized but are expensed as incurred. This practice suggests that the future expected value of R&D costs does not merit recognition as an asset because of the risks, uncertainties, and estimates involved. The costs of materials, equipment, and facilities that are acquired or constructed for R&D activities and that have alternative future uses should be capitalized when acquired or constructed. When such equipment and facilities are used, the depreciation of the items and materials consumed should be included as research and development costs.

OTHER ASSETS Assets that cannot be classified elsewhere on the balance sheet, including prepayments for services or benefits that affect the company over a future period greater than the period of time encompassed by the current asset classification, are reported as *other assets* or deferred charges. *Deferred charges* are long-term bond issue costs, and benefits in the form of reduced future cash outflows for services. Deferred charges are similar to prepaid expenses. However, the benefit from such expenditures will be obtained over several years in the future.

LIABILITIES

Liabilities are probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events. Three essential characteristics of an accounting liability include the following:

1. A duty or obligation to pay exists.
2. The duty is virtually unavoidable by a particular entity.
3. The event obligating the enterprise has occurred.

CURRENT LIABILITIES Liabilities are usually classified as current or non-current liabilities. *Current liabilities* are those obligations whose liquidation is reasonably expected to require the use of existing resources properly classified as current assets, or the creation of other current liabilities. This definition emphasizes a short-term creditors' claim to working capital rather than the due date for classification purposes. Current liabilities include (1) trade accounts payable, (2) short-term notes payable, (3) current maturities of long-term liabilities, (4) unearned revenues (collections in

advance, e.g., rent, interest, and magazine subscription revenues), (5) accrued expenses for payrolls, interest, taxes, and others expenses. *Unearned revenues* arise when assets are received before being earned; a liability called unearned revenue is created. After the services are performed, revenue is earned and the liability is settled. *Accrued liabilities* are liabilities that exist at the end of an accounting period but which have not yet been recorded. All liabilities not classified as current are reported as long-term liabilities.

Net working capital is the excess of current assets over current liabilities. Adequate working capital is necessary for the business if it is to pay its debts as they come due. Creditors often consider working capital to constitute a margin of safety for paying short-term debts. Working capital assets are in a constant cycle of being converted into cash. Cash is used to acquire inventories which, when sold, become account receivable; receivables upon collection become cash; cash is used to pay current liabilities and expenses and to acquire more inventories. Working capital does not appear as a specific item on the balance sheet, but it can be computed as the difference between the reported current assets and current liabilities.

CONTINGENT LIABILITIES Contingent liabilities arise from an existing situation or set of circumstances involving uncertainty as to possible loss to an enterprise that will ultimately be resolved when one or more future events occur or fail to occur. Examples of contingent liabilities include product warranties and pending litigation. An estimated loss from a loss contingency must be accrued in the accounts and reported in financial statements as a charge against income and as a liability if both of the following conditions are met:

1. It is probable that an asset has been impaired or a liability has been incurred at the date of the financial statements.
2. The amount of the loss can be reasonably estimated.

LEASES A lease is a contractual agreement in which the owner of property (the lessor) allows another party (the lessee) to use the property for a stated period of time in exchange for specified payments. The major reporting problem for *leases* is whether the lease should be included in the financial statements. A lease that transfers substantially all of the benefits and risks associated with ownership of the property should be accounted for as the acquisition of an asset and the incurrence of an obligation by the lessee and as a sale or financing by the lessor. According to FASB 13 (*Accounting for Leases*) (ASC 840-10-05, *Leases: Overall.*), the criteria used to classify a lease as a *capital lease* for a lessee are the following five:

1. The lesser transfer ownership of the property to the lessee by the end of the lease term.
2. The lease contains a bargain purchase option.
3. The lease term is equal to 75 percent of the estimated economic life of the leased property.
4. The present value at the beginning of the lease term of the minimum lease payments excluding that portion representing executory costs equals or exceeds 90 percent of the fair market value of the property.
5. The payments are equal to the full cost of the asset, cancellation is not permitted, and maintenance is ordinarily not provided.

If a lease meets any one of the above criteria, it should usually be accounted for as a purchase by the lessee and a sale by the lessor; thus the asset is recorded as an asset and related liability on the lessee's balanced sheet. Otherwise it is considered an *operating lease*. An operating lease is usually for a term less than the economic life of the asset, and the lease payments are for an amount less than the full cost. Moreover, a cancellation clause in the agreement usually permits the lessee to return the asset before expiration of the term, for example, because of technological change. Accounting for an operating lease merely involves the recognition of rent expense over the term of the lease by the lessee, as in the typical rental transaction. The lessor continues to carry on its balance sheet the leased assets, which it depreciates, and reports rent revenue when it is earned.

LONG-TERM DEBT *Long-term* debt securities can be classified as (1) long-term notes and mortgages and (2) bonds payable. *Long-term notes* usually report the stated interest rate on an annual basis even though cash interest payments are made at more frequent intervals. Notes may be secured or unsecured. A *bond* is a legal instrument that represents a formal promise to pay (1) periodic interest on the principal and (2) a specified principal amount at a specified date in the future. Bonds have different characteristics depending upon (1) the character of the issuing corporation, (2) security, (3) purpose of issue, (4) payment of interest, (5) maturity of principal (term, serial, callable, redeemable, and convertible). Premiums and discounts on bonds represent adjustments of the effective interest rate. The premium (discount) is amortized over the life of the issue, reducing (increasing) the coupon rate of interest to the effective interest rate incurred. The analyst is primarily interested in evaluating the terms of indebtedness, uncertainties related to the issue, and the coverage of interest charges. On a balance sheet, bond premiums and discounts are reported as adjustment of the face value of the bonds issued.

STOCKHOLDERS' EQUITY

Equity is the residual interest in the assets of an entity that remains after deducting its liabilities. In a business enterprise, the equity or capital is the ownership interest. In accounting for stockholders' equity, the basic accounting purposes are the following:

1. To identify the source of corporate capital.
2. To identify legal capital.
3. To indicate the dividends that could be distributed to the stockholders.

PAID-IN OR CONTRIBUTED CAPITAL A distinction is usually made between capital originating from stockholders' investments, referred to as *contributed capital* or *paid-in capital*, and the equity originating from earnings, referred to as *retained earnings*. The stockholders' equity section of a corporate balance sheet is usually divided into three parts:

1. Capital stock—The par or stated value of the shares issued.
2. Additional paid-in capital—Primarily the excess of the amounts paid in over the par or stated value
3. Retained earnings—the undistributed earnings of the corporation.

Corporate capital stock may be either preferred stock or common stock. *Preferred stock* usually has preferences over common stock relating to dividends and claims to assets if the corporation is dissolved. *Common stock* carries the right to vote in corporate affairs and to share in residual profits. A corporation may issue par value, stated value, or no-par capital stock. *Par value* or *stated value* refers to a specific dollar amount per share which is printed on the stock certificate. Such values are frequently merely nominal amounts. The par or stated value of stock has no direct relationship to the share's market value. However, they frequently represent the corporation's *legal capital* as defined by state laws. *Legal capital* refers to the minimum amount that the corporation may not pay out in dividends. *Additional paid-in-capital* includes the excess of the price paid for the stock over its par or stated value.

RETAINED EARNINGS *Retained earnings* represents the accumulated earnings of the corporation less dividends distributed to shareholders. A negative balance in the retained earnings account is referred to as a *deficit*. The retained earnings account does not represent cash or any other asset. The directors of a corporation may restrict, reserve, or appropriate retained earnings to show that it cannot be used to distribute assets as dividends. Retained earnings may be appropriated as result of a legal, contractual, or discretionary requirement. The appropriation of retained earnings does not set aside or reserve cash or any other asset.

TREASURY STOCK *Treasury stock* represents a corporation's own stock that has been reacquired after having been issued and fully paid. Such reacquired shares are held in the treasury for reissue and are not retired. Treasury stock is not an asset. A corporation cannot recognize a gain or a loss when reacquiring or reissuing its own stock. Treasury stock does not possess voting rights, nor does it share in dividend distributions or in assets at liquidation of the enterprise. It is reported as a reduction of stockholders' equity in the stockholders' equity section of a balance sheet. Most state laws require that retained earnings be restricted in the amount of the cost of the treasury stock.

OFF-BALANCE SHEET ITEMS

Off-balance sheet items are sometimes encountered in financial statement analysis. Off-balance sheet items generally refer to the application of procedures that provide financing without adding debt on a balance sheet, thus not affecting financial ratios or borrowing capacity of an enterprise. Off-balance sheet items are often related to the sale of receivables with recourse and leases.

BALANCE SHEET LIMITATIONS

The balance sheet has major limitations. First, the balance sheet does not reflect current value or fair market value because accountants apply the historical cost principle in valuing and reporting assets and liabilities. Second, the balance sheet omits many items that have financial value to the business. For example, the value of the company's human resources including managerial skills is often significant but is not reported. In addition, professional judgment and estimates are often used in the preparation of balance sheets and can possibly impair the usefulness of the statements.

THE INCOME STATEMENT

The *income statement* (or *profit and loss statement*) presents the results of operations for a reporting period. Exhibit 3-4 presents an income statement for the Beta Manufacturing Company. The contents of an income statement can be summarized as follows:

The income statement provides information concerning return on investment, risk, financial flexibility, and operating capabilities. *Return on investment* is a measure of a firm's overall performance. Risk is the uncertainty associated with the future of the enterprise. *Financial flexibility* is the firm's ability to adapt to problems and opportunities. *Operating capability* relates to the firm's ability to maintain a given level of operations.

CONTENTS An income statement should reflect all items of profit and loss recognized during the period, except for a few items that would go directly to retained earnings, notably prior-period adjustment (mainly the correction of errors of prior periods). The following summary illustrates the income statement currently considered to represent generally accepted accounting principles:

- Revenues
- Deduct: Cost of goods sold and expenses
- Income from continuing operations
- Discontinued operations
- Extraordinary gains and losses
- Net income

GAAP requires disclosing *earnings per share* amounts on the income statement of all publicly reporting entities (ASC 260-10, *Earnings per Share: Overall* (FAS-128, *Earnings per Share*). Earnings per share data provide a measure of the enterprise's management and past performance and enable users of financial statements to evaluate future prospects of the enterprise and assess dividend distributions to shareholders. Disclosure of earnings per share effects of discontinued operations and extraordinary items is optional but is required for income from continuing operation, income before extraordinary items, and net income. In certain cases, earnings per share data must be presented for (1) basic earnings per share and (2) diluted earnings per share. *Basic earnings per share* are a presentation based on the outstanding common shares and those securities that are in substance equivalent to common shares and have a dilutive effect. Convertible bond, convertible preferred stock, stock options, and warrants are examples of common stock equivalents. *Diluted earnings per share* presentation is a pro forma presentation which affects the dilution of earnings per share that would have occurred if all contingent issuances of common stock that would individually reduce earnings per share had taken place at the beginning of the period.

REVENUES AND EXPENSES On an income statement, *sales* refers to the total amount charged to customers as the sales prices of products sold during the accounting period. Sales discounts and sales returns and allowances are usually shown as adjustments to total sales.

Cost of goods sold (*cost of sales*) refers to the cost to the business of the goods sold to customers during the period. The accounting method adopted for inventory can have a significant impact on cost of goods sold. Merchandising organizations, such as Wal-Mart, Rite Aid, and Office

Depot, purchase products that are ready for resale. These organizations maintain one inventory account, called Merchandise Inventory, which reflects the costs of products held for resale. To calculate the cost of goods sold for a merchandising organization, the equation is used:

Cost of Goods Sold =	Merchandise Inventory, beginning	+	Cost of Goods Purchased	-	Merchandise Inventory, ending
----------------------	----------------------------------	---	-------------------------	---	-------------------------------

For example, Allison Candy Store had a balance of \$3,000 in the Merchandise Inventory account on January 1, 20x0. During the year, the store purchased candy products totaling \$23,000 (adjusted for purchase discounts, purchases returns and allowances, and freight-in). At December 31, 20x0, the Merchandise Inventory balance was \$4,500. The cost of goods sold is thus \$21,500.

$$\text{Cost of Goods Sold} = \$3,000 + \$23,000 - \$4,500 = \$21,500$$

Manufacturing firms, such as Nokia, GM, and IBM, use materials, labor, and manufacturing overhead to manufacture products for sale. Materials are purchased and used in the production process. The Materials Inventory account shows the balance of the cost of unused materials. During the production process, the costs of manufacturing the product are accumulated in the Work in Process Inventory account. The balance of the Work in Process Inventory account represents the costs of unfinished product.

Once the product is complete and ready for sale, the cost of the goods manufactured is reflected in the Finished Goods Inventory account. The balance in the Finished Goods Inventory account is the cost of unsold completed product. When the product is sold, the manufacturing organization calculates the cost of goods sold using the following equation:

Cost of Goods Sold =	Finished Goods Inventory, beginning	+	Cost of Goods Manufactured	-	Finished Goods Inventory, ending
----------------------	-------------------------------------	---	----------------------------	---	----------------------------------

Operating expenses include those costs incurred in normal profit directed operations, such as selling expenses and general and administrative expenses. *Depreciation* is an operating expense. Depreciation is the result of the accounting process of allocating the cost or other basic value of a tangible, long-lived asset or group of assets less salvage value, if any, over the estimated useful life of the asset(s) in a systematic and rational manner. Recording depreciation does not establish the market value of the related asset. Depreciation charges are non-cash expenses that reduce net income. The depreciation allowance is not a cash fund accumulated to cover the replacement cost of an asset. Two major depreciation methods are frequently used by companies to compute depreciation expense:

1. *Straight-line depreciation*, which allocates the cost of the asset, less any salvage value, equally over the life of the asset, and
2. *Accelerated depreciation*, which charges a greater proportion of the asset's total depreciation during the early years of its life than during the later years.

The analyst needs to know the reasonableness of the company's depreciation policy as well as the depreciation method used, and their impact on net income and income taxes. Spreading the cost of an intangible asset is called *amortization*, while spreading the cost of a natural resource is called *depletion*.

Other revenue and expenses include items arising from transactions not directly related to normal operations. Other revenue and expenses include dividends and interest received from stocks or bonds owned, income from rents and royalties, gains and losses, on sale of assets, and others items.

DISCONTINUED OPERATIONS *Discontinued operations* are those operations of an enterprise that have been sold, abandoned, or otherwise disposed of. The results of continued operations must be reported separately in the income statement from discontinued operations, and any gain or loss from the disposal of a segment must be reported along with the operating results of the discontinued segment. A segment of a business is component of an entity whose activities represent a separate major line of business or class of customer.

EXTRAORDINARY ITEMS *Extraordinary items* are material events and transactions that are both unusual in nature and infrequent of occurrence. Extraordinary items could result if gains or losses were the direct result of any of the following events or circumstances:

1. A major casualty, such as an earthquake,
2. An expropriation of property by a foreign government, and
3. A prohibition under a newly enacted law or regulation.

Extraordinary items are shown separately, net of tax, in order that trend analysis can be made of income before extraordinary items.

CHANGES IN ACCOUNTING PRINCIPLES. An *accounting change* refers to a change in accounting principle, accounting estimate, or reporting entity. *Changes in accounting principle* result when an accounting principle is adopted that is different from the one previously used. For example, a change in depreciation from the straight-line method to the double-declining method would be considered a change in accounting principle. Changes are now treated as change in estimate or retroactive restatement of retained earnings. *Changes in estimate* involve revisions of estimates, such as useful lives or residual value of depreciable assets, the loss for bad debts, and warranty costs. In such cases, prior period statements are not adjusted; the new estimate is used over the current and future periods. A *change in reporting entity* occurs when a company changes its composition from the prior period, as occurs when a new subsidiary is acquired. Changes in a reporting entity require that financial statements of all prior periods presented be restated to show financial information for the new reporting entity for all periods.

IMPLICATIONS FOR ANALYSTS When analyzing the income statement, the analyst is primarily interested in (1) identifying the components of income change, (2) determining the profitability trend, and (3) estimating the sensitivity of income to operating and economic factors.

The income statement has some limitations. Among other things the income statement does not include many items that contribute to the earnings of an enterprise, especially items that cannot be quantified. In addition, the income numbers reported on income statements are often the result of accounting methods employed by the accountant in preparing the statements. Accounting methods can affect the quality of earnings reflected on the income statement.

RETAINED EARNING STATEMENT

The *retained earnings statement* reconciles the beginning and ending balances in the retained earnings account. Exhibit 3-5 presents a retained earnings statement for the Beta Manufacturing Company. This statement can be presented as a separate statement or in a combined statement of income and retained earnings. A *dividend* is a distribution of cash, other assets, liabilities, or a company's own stock to stockholders in proportion to the number of shares owned. The distribution is usually generated from earnings of the corporation. The board of directors of a corporation is responsible for determining dividend policy including the amount, timing, and type of dividends to be declared. The types of dividends can be classified as follows:

1. Dividends that decrease total stockholders' equity:
 - a. Cash dividends
 - b. Property dividends
 - c. Script dividends
2. Dividends not affect total stockholders' equity:
 - a. Stock dividends
 - b. "Dividends" not affecting any stockholders' equity account (stock splits in the form of a dividend)

A *stock dividend* is the issuance by a corporation of its own shares of common stock to its common stockholders without consideration. Corporations sometimes issue stock dividends when they want to make a distribution to their stockholders but either do not want to distribute assets or do not have enough assets to distribute. Stock dividends have also been used to reduce the market value of a corporation's stock, thereby making it available to a larger number of potential investors and hopefully increasing the demand for the stock. The net assets of the corporation are not affected by the distribution of a stock dividend.

A stock split is a distribution of a company's own capital stock to existing stockholders with the purpose of reducing the market price of the stock which hopefully increases the demand for the shares. After a stock split, the components of stockholders' equity are the same as before the split. Only the par values of the shares and the number of shares outstanding have changed.

STATEMENT OF CASH FLOWS

It is important to know your cash flow so that you may adequately plan your expenditures. Should there be a cut back on payments because of a cash problem? Where are you getting most of your cash? What products or projects are cash drains or cash cows? Is there enough money to pay bills and buy needed machinery?

A company is required to prepare a statement of cash flows in its annual report. A statement of cash flows is required as part of a full set of financial statements of all business entities (both publicly held) and not-for-profit organizations. It contains useful information for external users, such as lenders and investors, who make economic decisions about a company. The statement presents the sources and uses of cash and is a basis for cash flow analysis. The statement of cash flows is covered in more detail in Chapter 9. It details how it looks and how to analyze it.

CONTENTS OF THE STATEMENT OF CASH FLOWS

The statement of cash flows classifies cash receipts and cash payments arising from investing activities, financing activities, and operating activities.

Investing Activities

Investing activities include the results of the purchase or sale of debt and equity securities of other entities and fixed assets. Cash inflows from investing activities are comprised of (1) receipts from sales of equity and debt securities of other companies and (2) amounts received from the sale of fixed assets. Cash outflows for investing activities include (1) payments to buy equity or debt securities of other companies and (2) payments to buy fixed assets.

Financing Activities

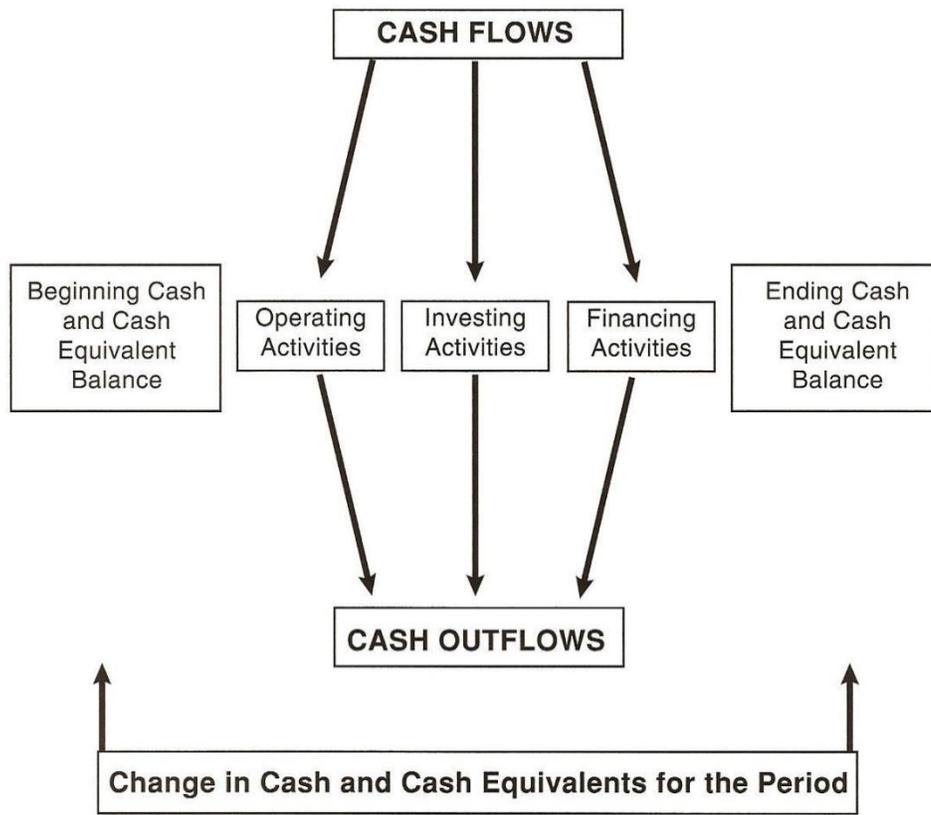
Financing activities include the issuance of stock and the reacquisition of previously issued shares (treasury stock), as well as the payment of dividends to stockholders. Also included are debt financing and repayment. Cash inflows from financing activities are comprised of funds received from the sale of stock and the incurrence of debt. Cash outflows for financing activities include (1) repaying debt, (2) repurchasing of stock, and (3) issuing dividend payments.

Operating Activities

Operating activities are connected to the manufacture and sale of goods or the rendering of services. Cash inflows from operating activities include (1) cash sales or collections on receivable arising from the initial sale of merchandise or rendering of service and (2) cash receipts from debt securities (e.g., interest income) or equity securities (e.g., dividend income) of other entities. Cash outflows for operating activities include (1) cash paid for raw material or merchandise intended for resale, (2) payments on accounts payable arising from the initial purchase of goods, (3) payments to suppliers of operating expense items (e.g., office supplies, advertising, insurance), and (4) wages. Exhibit 3-7 shows an outline of the statement of cash flows.

EXHIBIT 3-7

OUTLINE OF THE STATEMENT OF CASH FLOWS



OTHER SECTIONS OF THE ANNUAL REPORT

Other sections in the annual report in addition to the financial statements are helpful in understanding the company's financial health. These sections include the highlights, review of operations, footnotes, supplementary schedules, auditor's report, and management discussion and analysis (MD&A).

Highlights

The highlights section provides comparative financial statement information and covers important points such as profitability, sales, dividends, market price of stock, and asset acquisitions. At a minimum, the company provides sales, net income, and earnings per share figures for the last two years.

Review of Operations

The review of operations section discusses the company's products, services, facilities, and future directions in both numbers and narrative form.

History of Market Price

While this information is optional, many companies provide a brief history of the market price of stock, such as quarterly highs and lows. This information reveals the variability and direction in market price of stock. Below is an example of such presentation.

	<u>High</u>	<u>Low</u>
First Quarter	\$30	\$26
Second Quarter	28	25
Third Quarter	34	31
Fourth Quarter	32	27

THE AUDITORS' REPORT

An audit and the *auditors' report* provide additional assurance to users of financial statements concerning the information presented in the statement. The attest function of external auditing refers to the auditor's expressing an opinion on a company's financial statements. Generally, the criteria for judging an auditee's financial statement are GAAP. In other words, the opinion concerns the fairness with which the statements have been presented in conformity with GAAP. The typical audit leads to an attestation regarding the fairness and dependability of the financial statements which is communicated to the officials of the audited entity in the form of a written report which accompanies the financial statements.

The independent audit report sets forth the independent auditor's opinion regarding the financial statements, that is, they are fairly presented in conformity with generally accepted accounting principle applied on a basis consistent with that of the preceding year. A fair presentation of financial statements is generally understood by accountants to refer to whether:

1. The accounting principles used in the statements have general acceptability, and
2. The accounting principles are appropriate in the circumstances.

The fair presentation of financial statements does not mean that the statements are fraud-proof. The independent auditor has the responsibility to search for errors or irregularities within the recognized limitations of the auditing process. An auditor understands that the audit was based on selective testing and was subject to risks that material errors or irregularities, if they exist, will not be detected.

A typical *short-form audit report* format consists of two paragraphs. The first paragraph, or *scope* section, describes the nature and limits of the examination. The second paragraph is the *opinion* or judgment section. An audit report will include an *unqualified opinion* if the auditor has no reservations concerning the financial statement. A *qualified audit report* is one in which the auditor takes exception to certain current period accounting applications or is unable to establish the possible outcome of a material uncertainty. A *disclaimer of opinion* (no opinion) is included in an audit report if the auditor has been so restricted that an opinion cannot be rendered, if statements are issued without audit, or if there are major un-auditable uncertainties. An *adverse (unfavorable) opinion* is issued when the financial statements are misleading or do not reflect the proper application of generally accepted accounting principles, and qualification is not considered appropriate. Exhibit 8 identifies various types of audit opinions.

**EXHIBIT 3-8
TYPES OF AUDIT OPINIONS**

<i>Types of Opinions</i>	<i>Types of Material Deficiencies in Financial Statements or Audit</i>
UNQUALIFIED	No deficiencies in the financial statements or the audit
QUALIFIED (Financial statements taken as whole present fairly but have a material deficiency) <ul style="list-style-type: none"> • “except for” • “subject to” 	Accounting deficiency in financial statements or scope restriction in audit Uncertainty involving the financial statements
ADVERSE (Financial statements taken as a whole do not present fairly)	Accounting deficiency in financial statements
DISCLAIMER (No opinion is expressed on the financial statements)	Uncertainty involving the financial statements or scope restriction in audit
NO OPINION OR DISCLAIMER	Due to unusual circumstances, the auditor withdraws from the engagement

Unqualified Opinion. An unqualified opinion means the CPA is satisfied that the company's financial statements present fairly its financial position and results of operations and gives the financial manager confidence that the financial statements are an accurate reflection of the company's financial health and operating performance.

A typical standard report presenting an unqualified opinion is provided in Exhibit 3-9.

**EXHIBIT 3-9
INDEPENDENT AUDITOR'S REPORT**

Board of Directors and Shareholders:

We have audited the accompanying Consolidated Balance Sheet of PepsiCo, Inc. and subsidiaries as of December 25, 2010 and December 27, 2009 and the related Consolidated Statements of Income, Cash Flows and Common Shareholders' Equity for each of the years in the three-year period ended December 25, 2010. We have also audited management's assessment, included in the accompanying Management's Report on Internal Control over Financial Reporting, that PepsiCo, Inc. and subsidiaries maintained effective internal control over financial reporting as of December

25, 2010, based on criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). PepsiCo, Inc.'s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting. Our responsibility is to express an opinion on these consolidated financial statements, an opinion on management's assessment, and an opinion on the effectiveness of PepsiCo, Inc.'s internal control over financial reporting based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, evaluating management's assessment, testing and evaluating the design and operating effectiveness of internal control, and performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

If the company is facing a situation with an uncertain outcome that may substantially affect its financial health, such as a lawsuit, the CPA may still give an unqualified opinion. However, there will probably be an explanatory paragraph describing the material uncertainty; this uncertainty will undoubtedly affect readers' opinions of the financial statement information. As a financial manager, you are well advised to note the contingency (potential problem, such as a dispute with the government) and its possible adverse financial effects on the company.

Qualified Opinion. The CPA may issue a qualified opinion if your company has placed a "scope limitation" on his or her work. A scope limitation prevents the independent auditor from doing one or more of the following: (1) gathering enough evidential matter to permit the expression of an unqualified opinion; (2) applying a required auditing procedure; or (3) applying one or more auditing procedures considered necessary under the circumstances.

If the scope limitation is fairly minor, the CPA may issue an "except for" qualified opinion. This may occur, for example, if the auditor is unable to confirm accounts receivable or observe inventory.

Disclaimer of Opinion. When a severe scope limitation exists, the auditor may decide to offer a disclaimer of opinion. A disclaimer indicates that the auditor was unable to form an opinion on the fairness of the financial statements.

Adverse Opinion. The auditor may issue an adverse opinion when the financial statements do *not* present the company's financial position, results of operations, retained earnings, and cash flows fairly and in conformity with generally accepted accounting principles. By issuing an adverse opinion, the CPA is stating that the financial statements may be misleading.

Obviously, the financial manager wants the independent auditor to render an unqualified opinion. Disclaimers and adverse opinions are viewed very negatively by readers such as investors and creditors, who then put little if any faith in the company's financial statements.

Note: Management has the responsibility to adopt sound accounting policies and to establish and maintain internal controls that will record, process, summarize, and report transactions, events, and conditions consistent with the assertions in the financial statements. The fairness of the representations made therein is the responsibility of management alone because the transactions and the related assets, liabilities, and equity reflected are within management's direct knowledge and control.

NOTES TO THE FINANCIAL STATEMENTS (FOOTNOTES)

Notes to the financial statements, or footnotes for short, are the means of amplifying or explaining the items presented in the main body of the statements. Financial statements themselves are concise and condensed, and any explanatory information that cannot readily be abbreviated is added in greater detail in the footnotes. In such cases, the report contains a statement similar to this: "The accompanying footnotes are an integral part of the financial statements."

Footnotes provide detailed information on financial statement figures, accounting policies, explanatory data such as mergers and stock options, and any additional disclosure.

Footnote disclosures usually include accounting rules methods, estimated figures such as pension fund, and profit-sharing arrangements, terms and characteristics of long-term debt, particulars of lease agreements, contingencies, and tax matters. The Summary of Significant Accounting Policies answers such questions as: What method of depreciation is used on plant assets? What valuation method is employed on inventories? What amortization policy is followed in regard to intangible assets? How are marketing costs handled for financial reporting purposes? Notes also describe financial disclosures about items not appearing in the financial statements

The footnotes appear at the end of the financial statements and explain the figures in those statements both in narrative form and in numbers. It is essential that the financial manager evaluate footnote information to arrive at an informed opinion about the company's financial stature and earning potential.

MANAGEMENT'S DISCUSSION AND ANALYSIS (MD&A)

The Management's Discussion and Analysis (MD&A) section of an annual report must be included in SEC filings. The content of the MD&A section is required by regulations of the SEC. The MD&A contains standard financial statements and summarized financial data for at least 5 years. Other matters must be included in annual reports to shareholders and in Form 10-K filed with the SEC. It addresses in a nonquantified manner the prospects of the company. The SEC examines it with care to determine that management has disclosed material information affecting the company's future results.

To accomplish this, the following items must be disclosed:

- Liquidity
- Capital resources
- Results of operations
- Positive and negative trends
- Significant uncertainties
- Events of an unusual or infrequent nature
- Underlying causes of material changes in financial statement items
- A narrative discussion of the material effects of inflation

The MD&A not only discusses the results of operations but also provides forward-looking information, in the form of management's estimates concerning the future performance of the firm. Prior to 1995, companies were discouraged from providing forward-looking information because of the potential for lawsuits from investors who purchased stock based on management's estimates of future performance and suffered a loss when the predicted performance was not realized. To reduce the number of lawsuits related to forward-looking information, the *Private Securities Litigation Reform Act (PSLRA) of 1995* was enacted after much debate, a presidential veto, and a congressional override. By enacting the PSLRA, Congress hoped, among other things, to discourage frivolous lawsuits from being filed without deterring the filing of meritorious suits.

The SEC does not require forecasts but encourages companies to issue projections of future economic performance. To encourage the publication of such information in SEC filings, the safe harbor rule was established to protect a company that prepares a forecast on a reasonable basis and in good faith. For example, included in Amazon.com's MD&A is the following statement:

This Annual Report on Form 10-K includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical fact, including statements regarding industry prospects and future results of operations or financial position, made in this Annual Report on Form 10-K are forward-looking. We use words such as anticipates, believes, expects, future, intends, and similar expressions to identify forward-looking statements. Forward-looking statements reflect management's current expectations and are inherently uncertain. Our actual results may differ significantly from management's expectations. The following discussion includes forward-looking statements regarding expectations of future pro forma profitability, net sales, cash flows from operations and free cash flows, all of which are inherently difficult to predict.

The information required by the SEC to be reported in Part II of Form 10-K and in the annual report includes a 5-year summary of selected financial data. If trends are relevant, management's discussion and analysis should emphasize the summary. Favorable and unfavorable trends and significant events and uncertainties should be identified. *Note:* The SEC has authority to regulate external financial reporting. Nevertheless, its traditional role has been to promote disclosure rather than to exercise its power to establish accounting recognition and measurement principles. Its objective is to allow the accounting profession (through the FASB) to establish principles and then

to ensure that corporations abide by those principles. This approach allows investors to evaluate investments for themselves.

Exhibit 3-10 presents Eastman Kodak's MD&A.

EXHIBIT 3-10
MANAGEMENT'S DISCUSSION AND ANALYSIS
EASTMAN KODAK COMPANY

OVERVIEW

Kodak is the world's foremost imaging innovator and generates revenue and profits from the sale of products, technology, solutions and services to consumers, businesses and creative professionals. The Company's portfolio is broad, including image capture and output devices, consumables and systems and solutions for consumer, business, and commercial printing applications. Kodak has three reportable business segments, which are more fully described later in this discussion in "Kodak Operating Model and Reporting Structure." The three business segments are: Consumer Digital Imaging Group ("CDG"), Film, Photofinishing and Entertainment Group ("FPEG") and Graphic Communications Group ("GCG").

During 2009, the Company established the following key priorities for the year:

- Align the Company's cost structure with external economic realities
- Fund core investments
- Transform portions of its product portfolio
- Drive positive cash flow before restructuring

The recessionary trends in the global economy, which began in 2008, continued to significantly affect the Company's revenue throughout 2009. While the rate of decline slowed significantly in the fourth quarter of 2009, the level of business activity has not returned to pre-recession levels. However, the Company believes that the actions taken, as described below, have helped to mitigate the impacts to its results in 2009 and position it well for the future as the global economy continues to rebound. The demand for the Company's consumer products is largely discretionary in nature, and sales and earnings of the Company's consumer businesses are linked to the timing of holidays, vacations, and other leisure or gifting seasons. Continued declines in consumer spending have had an impact in the Company's digital camera and digital picture frame businesses in the CDG segment. This decline was more than offset by the completion, in 2009, of an anticipated nonrecurring intellectual property transaction within CDG. In the GCG segment, lack of credit availability, combined with the weak economy, has resulted in lower capital spending by businesses, negatively impacting sales. The Entertainment Imaging business within the FPEG segment improved in the fourth quarter of 2009 due to the recovery in demand for entertainment films. However, the secular decline of Film Capture, also within the FPEG segment, continues to impact the traditional businesses. In anticipation of the continuation of the recession in 2009, the Company implemented a number of actions in order to successfully accomplish the key priorities listed above.

Specifically, the Company has implemented actions to focus business investments in certain areas that are core to the Company's strategy (see below), while also maintaining an intense focus on cash generation and conservation in 2009. On April 30, 2009, the Company announced that its Board of Directors decided to suspend future cash dividends on its common stock effective immediately. Further, the Company also implemented temporary compensation-related actions, which reduced compensation for the chief executive officer and several other senior executives, as well as the Board of Directors, of the Company for the rest of 2009. In addition, U.S. based employees of the Company were required to take one week of unpaid leave during 2009. These actions are in addition to a targeted cost reduction program announced in 2009 (the 2009 Program). This 2009 cost reduction program is designed to more appropriately size the organization's cost structure with its expected revenue reductions as a result of the current economic

environment. The program involves the rationalization of selling, marketing, administrative, research and development, supply chain and other business resources in certain areas

THE SARBANES-OXLEY ACT

Section 404 of the Sarbanes-Oxley Act — "Enhanced Financial Disclosures, Management Assessment of Internal Control" — mandates sweeping changes. Section 404, in conjunction with the related SEC rules and Auditing Standard (AS) No. 5, An Audit of Internal Control Over Financial Reporting Performed in Conjunction with an Audit of Financial Statements (Auditing Standard No. 2), established by the Public Company Accounting Oversight Board (PCAOB), requires management of a public company and the company's independent auditor to issue new reports at the end of every fiscal year. The auditor may choose to issue a combined report (i.e., one report containing both an opinion on the financial statements and an opinion on internal control over financial reporting) or separate reports on the company's financial statements and on internal control over financial reporting. These reports must be included in the company's annual report filed with the Securities and Exchange Commission (SEC).

- *Management must report annually on the effectiveness of the company's internal control over financial reporting.*
- *In conjunction with the audit of the company's financial statements, the company's independent auditor must issue a report on internal control over financial reporting, which includes both an opinion on management's assessment and an opinion on the effectiveness of the company's internal control over financial reporting.*

In the past, a company's internal controls were considered in the context of planning the audit but were not required to be reported publicly, except in response to the SEC's Form 8-K requirements when related to a change in auditor. The new audit and reporting requirements have drastically changed the situation and have brought the concept of internal control over financial reporting to the forefront for audit committees, management, auditors, and users of financial statements.

The Auditing Standard No. 5 highlight the concept of a significant deficiency in internal control over financial reporting, and mandate that both management and the independent auditor must publicly report any material weaknesses in internal control over financial reporting that exist as of the fiscal year-end assessment date. Under both PCAOB Auditing Standard No. 2 and the SEC rules implementing Section 404, the existence of a single material weakness requires management and the independent auditor to conclude that internal control over financial reporting is not effective. Internal control over financial reporting encompasses the processes and procedures management has established to include the following:

- Management may include the existence of a single material weakness and conclude internal control over financial reporting is not effective.
- For external purposes in accordance with U.S. GAAP management must maintain records that accurately reflect the company's transactions..

- The prepared financial statements and footnote disclosures for external use must provide reasonable assurance that receipts and expenditures are appropriately authorized.
- Management must prevent or promptly detect unauthorized acquisitions, use, or disposition of the company's assets that could have a material effect on the financial statement.

The main features of the AS No. 5 are summarized later in the chapter.

How will the new reporting model differ from historical reporting?

In the past, the independent auditor provided an opinion on whether the company's financial statements were presented fairly in all material respects, in accordance with GAAP. The new reporting model maintains this historical requirement for the auditor to express an opinion on the financial statements. Section 404 also institutes additional requirements for management and the independent auditor to report on the effectiveness of internal control over financial reporting, as shown in the table below:

Historical Reporting

Independent auditor's opinion on 'whether the financial statements are presented fairly in all material respects, in accordance with GAAP

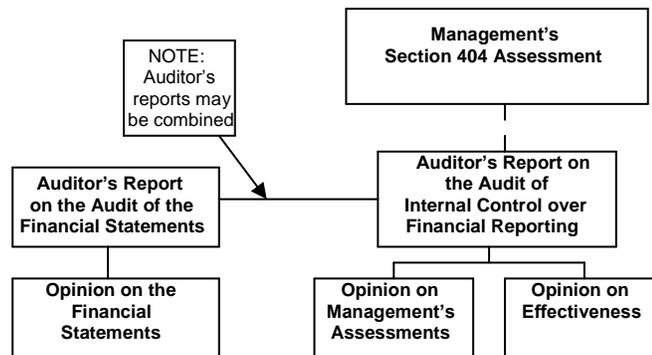
New Reporting

Management's report on its assessment of the effectiveness of the company's internal control over financial reporting

Independent auditor's report on internal control over financial reporting, including the auditor's opinions on: (1) whether management's assessment is fairly stated in all material respects (i.e., whether the auditor concurs with management's conclusions about the effectiveness of internal control, over financial reporting), and (2) the effectiveness of the company's internal control over financial reporting

The independent auditor's opinions on the financial statements and on internal control over financial reporting may be issued in a combined report or in separate reports. Exhibit 3-11 identifies the various reports, and reflects the fact that management's assessment of internal control over financial reporting constitutes the starting point for the auditor's reporting.

EXHIBIT 3-11 SECTION 404 REPORTING



What will management's report include?

Neither the SEC nor the PCAOB has issued a standard or illustrative management report on internal control over financial reporting; thus, there may be differences in the nature and extent of the information companies provide. We advise companies to consult with legal counsel on these matters. At a minimum, management's report on internal control over financial reporting should include the following information:

- *Statement of management's responsibility for establishing and maintaining adequate internal control over financial reporting.*
- *Statement identifying the framework used by management to evaluate the effectiveness of internal control over financial reporting.*
- *Management's assessment of the effectiveness of the company's internal control over financial reporting as of the end of the company's most recent fiscal year, including an explicit statement as to whether that internal control is effective and disclosing any material weaknesses identified by management in that control.*
- *Statement that the registered public accounting firm that audited the financial statements included in the annual report has issued an attestation report on management's internal control assessment.*

Management's report must indicate that internal control over financial reporting is either:

- **Effective** - *Internal control over financial reporting is effective (i.e., no material weaknesses in internal control over financial reporting existed as of the assessment date); or*
- **Ineffective** — *Internal control is not effective because one or more material weaknesses existed as of management's assessment date.*

Management is required to watch *whether or not* the company's internal control over financial reporting is effective. A negative assurance statement, such as "nothing has come to management's attention to suggest internal control is ineffective" is not acceptable. If a material weakness exists as of the assessment date, management is required to conclude that internal control over financial reporting is not effective and to disclose all material weaknesses that may have been identified. The SEC Chief Accountant has stated publicly that he expects management's report to disclose the nature of any material weakness in sufficient detail to enable investors and other financial statement users to understand the weakness and evaluate the circumstances underlying it.

Management may not express a qualified conclusion, such as stating that internal control is effective except to the extent certain problems have been identified. If management is unable to assess certain aspects of internal control that are material to overall control effectiveness, management must conclude that internal control over financial reporting is ineffective. Although management cannot issue a report with a scope limitation, under specific conditions newly acquired businesses or certain other consolidated entities may be excluded from the assessment.

Exhibit 3-12 shows PepsiCo.'s Management's Report on Internal Control over Financial Reporting.

EXHIBIT 3-12
PepsiCo.'S MANAGEMENT'S REPORT ON
INTERNAL CONTROL OVER FINANCIAL REPORTING

To Our Shareholders:

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) of the Exchange Act. Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based upon the framework in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on that evaluation, our management concluded that our internal control over financial reporting is effective as of December 25, 2004.

KPMG LLP, an independent registered public accounting firm, has audited the consolidated financial statements included in this Annual Report and, as part of their audit, has issued their report, included herein, (1) on our management's assessment of the effectiveness of our internal controls over financial reporting and (2) on the effectiveness of our internal control over financial reporting.



Peter A. Bridgman
Senior Vice President and Controller



Indra K. Nooyi
President and Chief Financial Officer



Steven S. Reinemund
Chairman of the Board and Chief Executive Officer

TOP MANAGEMENT'S CERTIFICATION OF FINANCIAL STATEMENTS

To curb fraudulent financial reporting, the SEC and the provisions of the Sarbanes-Oxley Act now require a firm's CEO and CFO to certify that their firm's financial statements do not contain any misstatements. Exhibit 3-13 presents an example of such certifications by Amazon.com's chairman and CEO, Jeff Bezos.

EXHIBIT 3-13 FINANCIAL STATEMENT CERTIFICATION AMAZON.COM

I, Jeffrey P. Bezos, certify that:

1. I have reviewed this Form 10-K of Amazon.com, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Jeffrey P. Bezos
Chairman and Chief Executive Officer
(Principal Executive Officer)

KEY POINTS OF AUDITING STANDARD NO. 5

1. Focus the audit of internal control over financial reporting on the most important matters

AS5 articulates a key principle that a direct relationship exists between the risk of material weakness and the amount of auditor attention given to that area. It requires auditors to use a top-down, risk-based approach, beginning with the financial statements and company-level controls, and requires the auditor to perform a walk-through for each significant process before selecting the controls to test. Using this assessment, the auditor selects the controls to test based on the risk of a material weakness. AS5 emphasizes the integration of the financial statement audit with the audit of internal control over financial reporting.

2. Provide explicit and practical guidance on scaling the audit to fit the size and complexity of the company

These provisions do not create a separate standard for smaller companies. Instead, AS5 explicitly

requires the auditor to tailor the nature, extent and timing of testing to meet the unique characteristics of smaller companies.

3. Eliminate procedures that are unnecessary to achieve the intended benefits

AS5 links the testing of specific controls to a risk assessment of that control. This means that the risk of a specific control not being effective should drive the nature, extent and timing of testing performed and evidence of effectiveness obtained for that control.

4. Require auditors to consider whether and how to use the work of others

AS5 allows auditors to place greater reliance on testing completed by management and the internal audit function. The scope of the new Auditing Standard applies to both the audit of internal control over financial reporting as well as the audit of financial statements -- eliminating a barrier to the integrated audit.

4. Incorporate guidance on efficiency

Many of the audit efficiency practices outlined in its May 16, 2005, guidance are contained in the new Standard. AS5 specifically includes the language from the May 16 guidance regarding the baselining of IT controls. As a result, companies can leverage this guidance to reduce compliance costs on a year-over-year basis.

5 A simplified standard

AS5 changes the definitions of material weakness from “more than remote” to “reasonably possible” and significant deficiency from “more than inconsequential” to “significant.” AS5 defines “significant” as “less than material but merits the attention of those with the responsibility for the oversight of financial reporting.” In other words, significant deficiencies are not material weaknesses but items that those responsible for oversight need to know about

SUMMARY

One should have a good understanding of the financial statements of the company in order to make an informed judgment on the financial position and operating performance of the entity. The balance sheet reveals the company's financial status as of a given date, while the income statement reports the earnings components for the year. The statement of cash flows allows readers to analyze the company's sources and uses of cash. These financial statements are included in the annual report, along with other vital information including footnote disclosures, the auditor's report, management's discussion of operations, and supplementary schedules. *Note:* You can find these documents in the quarterly financial statements called the 10-Q, and annual financial statements, the 10-K, which the company files with the SEC. The SEC has authority to regulate external financial reporting. Nevertheless, its traditional role has been to promote disclosure rather than to exercise its power to establish accounting recognition and measurement principles. Its objective is to allow the accounting profession (through the FASB) to establish principles and then to ensure that corporations abide by those principles. This approach allows investors to evaluate investments for themselves. Go to the SEC's EDGAR Website, www.edgar-online.com

CHAPTER 4

AN OVERVIEW OF FINANCIAL STATEMENT ANALYSIS

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

- Explain what financial statement analysis is and why it is important.
 - Compare horizontal analysis and vertical analysis.
 - List the basic components of ratio analysis.
 - Distinguish between trend analysis, industry comparison, and benchmarking.
 - Calculate a comprehensive set of financial ratios and interpret them.
 - Explain the limitations of ratio analysis.
-

As discussed in Chapter 1, financial statement analysis involves tools and techniques which enable analysts to examine past and current financial statements so that a company's performance and financial position can be evaluated and future risks and potential estimated. Financial statement analysis can yield valuable information about trends and relationships, the quality of a company's earnings, and the strengths and weaknesses of its financial position. An overall evaluation of the company must include the company's competitive position in the industry in which it operates, the industry outlook, and other external factors.

BASIC CONSIDERATIONS

Financial statement analysis begins with establishing the objective(s) of the analysis. For example, is the analysis undertaken to provide a basis for granting credit or making an investment? After the objective of the analysis is established, the data is accumulated from the financial statements and from other sources. The results of the analysis are summarized and interpreted. Conclusions are reached and a report is made to the person(s) for whom the analysis was undertaken. To evaluate financial statements, you must:

1. Be acquainted with business practices,
2. Understand the purpose, nature, and limitations of accounting,
3. Be familiar with the terminology of business and accounting,
4. Have a working knowledge of the fundamentals of finance, and
5. Be acquainted with the tools of financial statement analysis.

Financial analysis of a company should include an examination of financial statements of the company, including notes to the financial statements, and the auditor's report. The auditor's report will state whether the financial statements have been audited. The report also indicates whether the statements fairly present the company's financial position, results of operations, and changes in financial position in accordance with generally accepted accounting principles on a basis consistent with the preceding year.

Notes to the financial statements are often more meaningful than the data found within the body of the statements. The notes explain the accounting policies of the company and usually provide detailed explanations of how those policies were applied along with supporting details.

Analysts often compare the financial statements of one company with those of other companies in the same industry and of the industry in which the company operates as well as with prior year statements of the company being analyzed. This procedure substantially broadens the scope of financial statement analysis.

MAJOR TOOLS OF ANALYSIS

Accountants and others have developed a variety of standardized tools and techniques which can be used in financial statement analysis. Financial statement procedures fall into three basic categories: (1) comparisons and measurements relating to financial data for two or more periods, (2) comparisons and measurements relating to financial data of the current period, and (3) special-purpose examination. A review of financial statements can involve the three types of analysis. The following analytical tools will be discussed in this chapter to provide an overview of financial statement analysis:

1. Comparative financial statements:
 - a. Horizontal analysis
 - b. Vertical analysis
2. Common-size financial statements
3. Ratio Analysis
4. Special-purpose examinations

Additional tools of analysis will be presented in subsequent chapters.

SOURCES OF INFORMATION

Statement users must often rely on statistics prepared by sources external to the company being analyzed. The following sources can provide additional information that can be used when analyzing financial statements:

1. *Risk Management Association (RMA)*. RMA, previously known as *Robert Morris Associates*, has been compiling statistical data on financial statements for more than 75 years. The *RMA Annual Statement Studies* provide statistical data from more than 150,000 actual companies on many key financial ratios, such as gross margin, operating margins and return on equity and assets. If you're looking to put real authority into the industry average and upper a lower quartiles numbers that your company is beating, the Statement Studies are the way to go. They're organized by SIC codes, and you can buy the financial statement studies for your industry in report form or over the Internet (www.rmahq.org).
2. *Dun and Bradstreet*. Dun and Bradstreet publishes *Industry Norms* and *Key Business Ratios*, which covers over 1 million firms in over 800 lines of business.
3. *Value Line*. *Value Line Investment Service* provides financial data and rates stocks of over 1,700 firms.

4. *The Department of Commerce.* The Department of Commerce (DC) Financial Report provides financial statement data and includes a variety of ratios and industry-wide common-size vertical financial statements.
5. *Others.* Standard and Poor's, Moody's Investment Service, and various brokerage compile industry studies. Further, numerous online services such as Yahoo-Finance, MSN Money Central, to name a few, also provide these data.

COMPARATIVE FINANCIAL STATEMENTS

Financial statements presenting financial data for two or more periods are called *comparative statements*. Comparative financial statements usually give similar reports for the current period and for one or more preceding periods. Comparative financial statements provide analysts with significant information about *trends* and *relationships* over two or more years. Comparative statements are considerably more significant than are single-year statements. Comparative statements emphasize the fact that financial statements for a single accounting period are only one part of the continuous history of the company.

TREND ANALYSIS Trend analysis indicates in which direction a company is headed. Trend percentages are computed by taking a base year and assigning its figures as a value of 100. Figures generated in subsequent years are expressed as percentages of base-year numbers.

The following selected figures are given for a five-year period:

	<u>20x1</u>	<u>20x2</u>	<u>20x3</u>	<u>20x4</u>	<u>20x5</u>
Net Sales	\$775	\$760	\$830	\$875	\$910
Cost of goods sold	<u>460</u>	<u>441</u>	<u>483</u>	<u>510</u>	<u>573</u>
Gross profit	<u>\$315</u>	<u>\$319</u>	<u>\$347</u>	<u>\$365</u>	<u>\$337</u>

A schedule showing trend percentages is as follows:

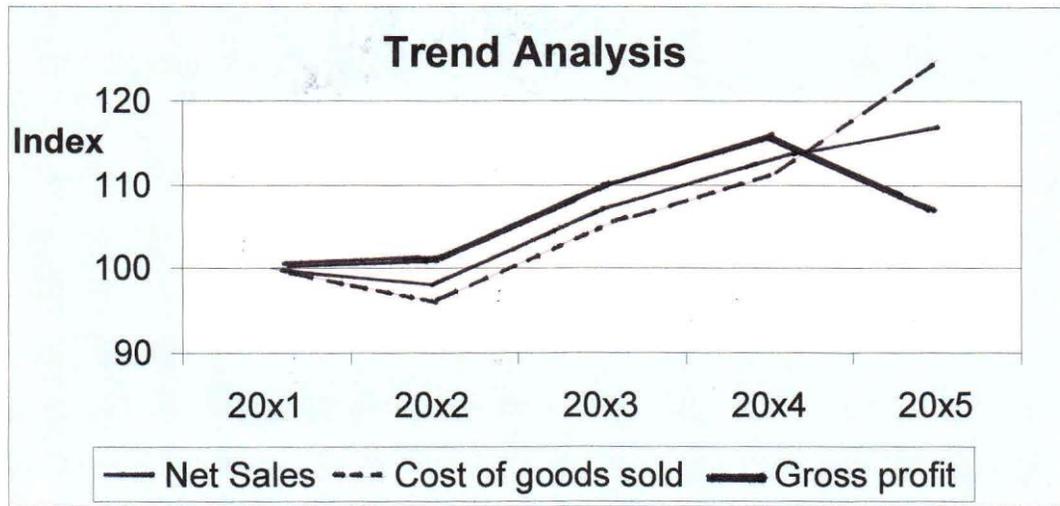
	<u>20x1</u>	<u>20x2</u>	<u>20x3</u>	<u>20x4</u>	<u>20x5</u>
Net Sales	100	98	107	113	117
Cost of goods sold	100	96	105	111	125
Gross profit	100	101	110	116	107

Exhibit 4-1 displays the trend graphically.

With 20x1 taken as the base year, its numbers are divided into those from subsequent years to yield comparative percentages. For example, net sales in 20x1 (\$775,000) is divided into 20x5's net-sales figure (\$910,000).

Net sales shows an upward trend after a downturn in 20x2. Cost of goods sold shows a sharp increase between 20x4 and 20x5 after a small drop in costs between 20x1 and 20x2. There appears to be a substantial drop in gross profit between 20x4 and 20x5 which is attributable to the increased cost of goods sold.

EXHIBIT 4-1



Trend percentages show horizontally the degree of increase or decrease, but they do not indicate the reason for the changes. They do serve to indicate unfavorable developments that will require further investigation and analysis. A significant change may have been caused by a change in the application of an accounting principle or by controllable internal conditions, such as a decrease in operating efficiency.

Note: Comparisons between financial statements are most informative and useful under the following conditions:

1. The presentations are in good form; that is, the arrangements within the statements are identical.
2. The content of the statements is identical; that is, the same items from the underlying accounting records are classified under the same captions.
3. Accounting principles are not changed or, if they are changed, the financial effects of the changes are disclosed.
4. Changes in circumstances or in the nature of the underlying transactions are disclosed.

HORIZONTAL ANALYSIS *Horizontal analysis* spotlights trends and establishes relationships between items that appear on the same row of a comparative statement. Horizontal analysis discloses changes on items in financial statements over time. Each item (such as sales) on a row for one fiscal period is compared with the same item in a different period. Horizontal analysis can be carried out in terms of changes in dollar amounts, in percentages of change, or in a ratio format.

Exhibit 4-2 illustrates horizontal analysis on a balance sheet. The *amount of change* is computed by subtracting the amount for the bases year (20x4) from the amount for the current year (20x5). The *percentage of change* is computed by dividing the amount of change by the base year. The *year-to-year ratio* is computed by dividing the current year data. When the base figure is a positive value, the dollar change and the percentage change can be validly computed. If the base

figure is zero or a negative value, the dollar change can be computed but the percentage change cannot. A ratio can be computed only when two positive values are available. Where changes are expressed as percentages, no vertical addition or subtraction of the percentages can be made because the percentage changes are the results of different bases. When individual items have small base amounts, a relatively small dollar change can result in a significant percentage change, thereby assigning more importance to the item than might be meaningful.

A *base-year-to-date* approach to horizontal analysis is sometimes used to disclose the cumulative percentage changes. When this approach is used, the initial year is used as the base year, and the cumulative results from subsequent years are compared with the initial year to determine the cumulative percentage changes.

**EXHIBIT 4-2
HORIZONTAL ANALYSIS**

	<u>20x5</u>	<u>20x4</u>	<u>Amount</u>	<u>Percent</u>
ASSETS				
Current Assets:				
Cash	\$ 60,000	\$ 30,000	\$ 30,000	100.0
Account receivable, net	113,000	79,000	34,000	43.0
Inventories	107,100	106,900	200	0.0
Prepaid expenses	5,700	6,100	(400)	(7.0)
Total current assets	\$ 285,800	\$ 222,000	\$ 63,800	28.7
Property, plant, and equipment, net	660,000	665,000	(5000)	(0.10)
Total assets	\$ 945,800	\$ 887,000	\$ 58,800	6.6
LIABILITIES				
Current liabilities:				
Notes payable	\$ 40,000	\$ 33,000	\$ 7,000	21.2
Accounts payable	100,600	57,500	43,100	75.0
Total current liabilities	140,600	90,500	50,100	55.4
Long-term debt	400,000	410,000	(10,000)	(2.4)
Total liabilities	\$ 540,600	\$ 500,500	\$ 40,100	8.1
STOCKHOLDERS' EQUITY				
Common stock, no-par	\$ 200,000	\$ 200,000	-	0.0
Retaining earnings	205,200	186,500	18,700	10.0
Total stockholders' equity	\$ 405,200	\$ 386,500	\$ 18,700	5.0
Total liabilities and stockholders' equity	\$ 945,800	\$ 887,000	\$ 58,800	6.6

VERTICAL ANALYSIS *Vertical analysis* involves the conversion of items appearing in statement *columns* into terms of percentages of a base figure to show the relative significance of the items and to facilitate comparison. For example, individual items appearing on the income statement can be expressed as percentages of sales. On the balance sheet, individual assets can be expressed in terms of their relationship to total assets. Liabilities and shareholders' equity accounts can be expressed in terms of their relationship to total liabilities and shareholders' equity. On the income statement, each item is stated as a percentage of sales. On the retained earnings statement, beginning retained earnings is 100 percent. *Note:* The percentages for the company in question can be compared with industry norms. Exhibit 4-3 illustrates vertical analysis of an income statement.

**EXHIBIT 4-3
VERTICAL ANALYSIS**

	20x5	
	<u>Amount</u>	<u>Percent</u>
Net Sales	\$990,000	100.0
Cost of goods sold	574,000	58.0
Gross profit	416,000	42.0
Operating expenses:		
Selling expenses	130,000	13.1
General expenses	122,500	12.4
Total operating expenses	252,500	25.5
Income from operation	163,500	16.5
Interest expense	24,000	2.4
Income before income taxes	139,500	14.1
Income tax expense	36,360	3.7
Net income	\$103,140	10.4

COMMON-SIZE STATEMENTS Statements omitting dollar amounts and showing only percentages are referred to as *common-size statements* because each item in the statement has a common basis for comparison, for example, total assets, net sales. Data for common-size statements is computed in a manner similar to that described for vertical analysis computations. Changes in proportions are emphasized in common-size statements which make efficiencies and inefficiencies easier to identify than in comparative statements. For example, notice from Exhibit 4-4 that 58 cents of every dollar of sales was needed to cover cost of goods sold in 20x5, as compared to only 57 cents in the prior year. Exhibit 4-4 illustrates a common-size statement.

**EXHIBIT 4-4
COMMON SIZE STATEMENTS**

20x5 20x4

	<u>Percent</u>	<u>Percent</u>
Net Sales	100.0	100.0
Cost of goods sold	58.0	57.0
Gross profit	42.0	43.0
Operating expenses:		
Selling expenses	13.1	13.3
General expenses	12.4	13.6
Total operating expenses	25.5	26.9
Income from operation	16.5	16.1
Interest expense	2.4	2.9
Income before income taxes	14.1	13.2
Income tax expense	3.7	3.2
Net income	10.4	10.0

When analyzing the balance sheet, common-size statements are useful in examining the sources and structure of capital of the enterprise, that is, the relationship concerning the distribution of assets among current assets, investments, property, plant, and equipment, intangible assets, and other assets. Common-size income statements provide information concerning what proportion of sales dollar is absorbed by cost of goods sold and various expenses. On comparative, common-size statement, the comparisons demonstrate the changing or stable relationships within groups of assets, liabilities, revenues, expenses, and other financial statement categories. Care must be exercised when such comparisons are made since the percentage change can result from a change in the absolute amount of the item or a change in the total of the group of which it is a part, or both.

Common-size statements are useful in comparing companies because such statements are based on 100 percent and present a relative comparison instead of absolute amounts. Such inter-company comparisons can help the analysts identify variations in structure or distributions among groups and subgroups.

RATIO ANALYSIS

A *ratio* is an expression of a mathematical relationship between one quantity and another. The ratio of 400 to 200 is 2:1. If a ratio is to have any utility, the element which constitutes the ratio must express a meaningful relationship. For example, there is a relationship between accounts receivable and sales, between net income and total assets, and between current assets and current liabilities. Ratio analysis can disclose relationships which reveal conditions and trends that often cannot be noted by inspection of the individual components of the ratio. Typical ratios are fractions usually expressed in percent or times.

Ratios to be discussed later in this course are summarized in Exhibit 4-5.

EXHIBIT 4-5 SUMMARY OF FINANCIAL RATIOS

<i>Category</i>	<i>Purpose</i>	<i>Examples</i>

Liquidity	Used to assess a firm's ability to meet its financial obligations in the short term	Net working capital, current ratio, quick ratio, cash ratio cash burn rate
Activity	Used to assess the efficiency with which a firm uses its assets	Accounts receivable turnover, inventory turnover, operating cycle, cash conversion cycle, total asset turnover
Leverage	Provide data about the long-term solvency of a firm	Debt ratio, debt to equity, equity to debt-assets, times interest earned, cash coverage, free cash flow
Profitability	Used to examine how successful a firm is in using its operating processes and resources to earn income	Gross profit margin, profit margin on sales, return on total assets, return on stockholders' equity
Market test	Helps measure market strength	Earnings per share, price-earnings ratio, price-sales ratio, market value added, dividend yields, dividend payout
Cash flow	Used to measure cash adequacy and cash flow return	Cash flow coverage (or adequacy) ratios, cash flow performance measures

Ratios are generally not significant of themselves but assume significance when they are compared with (1) previous ratios of the same firm, (2) some predetermined standard, (3) ratios of other enterprises in the same industry, or (4) ratios of the industry within which the company operates. When used in this manner, ratios serve as “benchmarks” against which the company can evaluate itself. Ratios are not ends in themselves but help provide answers to questions concerning specific issues and insights into the operations of a business enterprise.

Benchmarking is comparing one company's financial results with results from other companies or with an industry average. Many sites, such as Bizstats (<http://www.bizstats.com/>), offer benchmark ratios.

When using ratios, analysts must understand the factors which enter into the structure of the ratio and the way changes in such factors influence the ratio. For example, what impact does borrowing money from a bank have on the current ratio? Will it increase, decrease, or have no impact on the ratio? If the objective is to improve the ratio, what changes can be made in the components of the ratio to accomplish the desired goal?

MATHEMATICAL CAUTIONS Care is taken in projecting the effect on a ratio of a change in the numerator or denominator of a ratio. For example,

1. If a ratio is less than 1.00 (numerator is smaller than the denominator), equal increases in both quantities in the ratio would cause the ratio to increase. For example, $3/4 = 0.75$ and $(3+1)/(4+1) = 4/5 = 0.80$. Similarly, equal decreases in both numerator and denominator would cause the ratio to decrease.
2. If the value of a ratio is greater than 1.00, equal increases in both quantities in the ratio would cause the ratio to decrease. For example, $4/3 = 1.33$ and $(4+1)/(3+1) = 5/4 = 1.25$. Equal decreases in both numerator and denominator would cause the ratio to increase.

3. If the value of a ratio is exactly 1.00, equal changes in the numerator and denominator will have no effect on the ratio, which remains at 1.00.
4. If the numerator increases (decreases) with no change in the denominator, the ratio would increase (decrease).
5. If the denominator increases (decreases) with no change in the numerator, the ratio would decrease (increase).
6. If the numerator and denominator change but in unequal amounts, the ratio will increase, decrease, or remain unchanged depending upon the direction and the amount of the change.

IMPLICATIONS FOR ANALYSIS In ratio analysis, the analyst identifies deviations in computed ratios and then examines the causes of the deviations. For example, deviation from industry norms could indicate that the firm was doing something different from the average enterprise in the industry, excluding businesses that did not survive.

Ratios should be used with caution. Ratios generally should not be the sole basis for decision-making. They should be treated as additional evidence (not conclusive evidence leading to a decision or solution).

Ratios are only as relevant and reliable as the data that goes into them. One must constantly keep in mind that while financial statements are prepared according to generally accepted accounting principles, the statements reflect estimates and judgments which may or may not be particularly relevant in an analysis that is directed towards a particular objective.

At times, ratios are difficult to interpret. For example, exactly what does a 2:1 ratio mean? Is it good or bad, favorable or unfavorable? Comparing ratios with some standard, such as those of preceding years, other companies, or the industry, can provide some guidance.

The analyst should understand that ratios have certain limitations in addition to those mentioned above, including the following:

1. Ratios reflect past conditions, transactions, events, and circumstances.
2. Ratios reflect book values, not real economic values or price-level effects.
3. The computation of ratios is not completely standardized.
4. The application of accounting principles and policies varies among firms, and changes in their application from period to period affect the ratios.
5. Ratio analysis may be affected by seasonal factors. For example, inventory and receivables may vary widely, and the year-end balances may not reflect the averages for the period or the balances at the end of various interim periods.
6. Inter-company comparisons are difficult when companies are diversified or have different risk characteristics.
7. Firms using different fiscal years, and different sources of information impair the comparability of financial statement amounts and the ratios derived from them. Consequently, financial statements must be adjusted to permit intercompany comparisons.

In spite of the difficulties associated with the formation and interpretation of ratios, ratio analysis is an important technique for financial statement analysis because it can identify significant fundamental and structural relationships and trends.

Computerized data bases that contain financial information on many companies are commercially available from several firms. For example, Compustat data base is marketed by Standard & Poor's. This data base contains information on over 120 items for over 2,500 industrial companies. Although such data bases have certain theoretical and practical problems related to their use, they can provide the analyst with valuable source material in many instances.

CASH FLOW ANALYSIS

Along with financial ratio analysis, cash flow analysis is a valuable tool. The cash flow statement provides information on how your company generated and used cash, that is, why cash flow increased or decreased. An analysis of the statement is helpful in appraising past performance, projecting the company's future direction, forecasting liquidity trends, and evaluating your company's ability to satisfy its debts at maturity. Cash flow analysis is especially useful in evaluating credit and investment decisions since it focuses on liquidity, solvency, and profitability relationships. Because the statement lists the specific sources and uses of cash during the period, it can be used to answer the following:

- How was the expansion in plant and equipment financed?
- What use was made of net income?
- Where did you obtain funds?
- How much required capital is generated internally?
- Is the dividend policy in balance with its operating policy?
- How much debt was paid off?
- How much was received from the issuance of stock?
- How much debt financing was taken out?

This topic is covered in depth in Chapter 9 (*Analysis of Cash Flows*).

SPECIALIZED ANALYTICAL TOOLS

In addition to comparative statements, common-size statements, and ratio analysis, analysts have many specialized tools and techniques which they can apply to special purpose studies. Such studies could include factors such as insurance coverage, the seasonal nature of the business, segment data, foreign operations, concentration of sales within a small number of customers, unusual events affecting the company, and the effect of inventory method (LIFO, FIFO) and depreciation methods on financial statements. Additional procedures that are available for use in special situations include:

1. Gross margin analysis—Gross margin analysis provides special insights into the operating performance of a company. It helps in evaluating overall gross margin by product mix. This topic is touched on in Chapter 7 (*Profitability Analysis*) .

2. Breakeven, cost-volume-profit, and contribution analysis—This tool discloses relationships between revenue and patterns of cost behavior for fixed and variable expenses. Different managers within a company use breakeven analysis because it is important when beginning a new activity, such as starting a new line of business, expanding an existing business, or introducing a new product or service. This topic is reserved for courses such as *Analyzing Cost Data for Management* or *Cost Management*.
3. Return-on-investment analysis—Return-on-investment analysis provides a comprehensive measure of financial performance. Especially, the ROI breakdown, known as the *Du Pont formula*, analysis gives an insight into how a company improve its performance. This technique is discussed in detail in Chapter 7 (*Profitability Analysis*) .

Special analytical procedures are available to isolate the different types of fluctuations as they relate to historical data and forecasts. When there is an established relationship between series, it is possible to use these relationships to make estimates and forecasts.

Time-series analysis is used where data classified on the basis of interval of time represent vital information in the control and operation of a business. The changes that can be isolated in time-series analysis represent the following major types of economic change: secular trend, seasonal variations, cyclical fluctuations, and random or erratic fluctuations.

Regression analysis is another tool of financial statement analysis. Regression analysis seeks to determine the relationship between financial statement variables. *Correlation analysis* measures the degree of relationship between two or more variables. Time series, regression, and correlation analyses are more sophisticated techniques and are beyond the scope of this course.

SUMMARY

According to a committee of the Financial Analysts Federation, the elements of good reporting include:

1. Clear presentation of information that goes beyond the minimum reporting requirements and puts company operations in perspective.
2. Written commentary that explains why important developments occurred.
3. A timely, consistent, and responsible investor relations program that informs the financial analyst in an unbiased manner.
4. An ability to articulate and communicate the business philosophy and principal strategies of management and the way in which management is organized to carry them out.

Many analytical tools and techniques of financial statement analysis are available. In determining which ones to use, consider its relevance, controllability, consistency, comparability, and simplicity.

CHAPTER 5

ANALYSIS OF LIQUIDITY AND ACTIVITY

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. Define working capital.
 2. Compute and interpret liquidity ratios.
 3. Compute and interpret activity ratios.
 4. Define operating cycle and cash conversion cycle.
 5. Define liquidity and activity and explain how they relate to each other.
 6. Describe the LIFO reserve and explain its importance for comparing results of different companies.
-

Short-term *liquidity* refers to the ability of a firm to meet its current obligations as they mature. Liquidity implies an ability to convert assets into cash or to obtain cash. *Short-term* refers to one year or the normal operating cycle of the business, whichever is longer. Activity refers to the efficiency with which a firm uses its current assets. In evaluating liquidity, analysts are interested in information relating to the amounts, timing, and certainty of a company's future cash flows.

Liquidity and certain areas of operating activity are dependent upon the working capital position of a firm. *Net working capital* is the excess of current assets over current liabilities. The amount of and changes in net working capital from period to period are significant measures of a company's ability to pay its debts as they mature. Net working capital is generated to a great extent through events that occur during the operating cycle of a business, including transactions involving investing in inventories, converting inventories through sales to receivables, collecting the receivables, and using the cash to pay current debts and to replace the inventory sold. Liquidity and activity ratios are useful in evaluating certain trends and relationships involving various aspects of the operating cycle of a business.

LIQUIDITY RATIOS

The relationship of current assets to current liabilities is an important indicator of the degree to which a firm is liquid. Working capital and the components of working capital also provide measures of the liquidity of a firm. Ratios that directly measure a firm's liquidity provide clues concerning whether or not a firm can pay its maturing obligations. The current (or working capital) ratio and the acid-test (or quick) ratio are important ratios that are used to measure a firm's liquidity.

NET WORKING CAPITAL. *Net working capital* is equal to current assets less current liabilities. Current assets are those assets that are expected to be converted into cash or used up within 1 year.

Current liabilities are those liabilities that must be paid within 1 year; they are paid out of current assets. Net working capital is a safety cushion to creditors. A large balance is required when the entity has difficulty borrowing on short notice. For Beta Manufacturing Company in 20x5 is:

$$\begin{aligned} \text{Net working capital} &= \text{Current assets} - \text{Current liabilities} \\ &= \$800,000 - \$340,000 \\ &= \$460,000 \end{aligned}$$

In 20x4, net working capital was \$398,000 (\$760,000 - \$362,000). The increase in net working capital is a favorable sign.

CURRENT RATIO The *current ratio* expresses the relative relationship between current assets and current liabilities. The current ratio is computed as follows using data taken from the balance sheet of the Beta Manufacturing Company, Exhibit 2-3 of Chapter 2:

$$\text{Current ratio} = \left(\frac{\text{Current assets}}{\text{Current liabilities}} \right) = \left(\frac{\$800,000}{\$340,000} \right) = 2.35$$

It is convenient to set the computations in the following format:

	<u>20x5</u>	<u>20x4</u>
Current assets	\$800,000	\$760,000
Current liabilities	340,000	362,000
Current ratio	<u>2.35</u>	<u>2.10</u>

The 20x5 ratio is interpreted to mean that there is \$2.35 of current assets for each dollar for each dollar of current liabilities. This represents an improvement over 20x4. A rule of thumb suggests that a 2:1 ratio is ordinarily satisfactory, but this is by no means a necessarily reliable relationship. Consideration must also be given to industry practices, the firm's operating cycle, and the mix of current assets. A very low current ratio would ordinarily cause for concern since cash flow problems appear imminent. An excessively high current ratio could suggest that the firm is not managing its current assets properly.

QUICK (ACID-TEST) RATIO A quick measure of the debt-paying ability of a company is referred to as the quick ratio or acid-test ratio. The *quick ratio* expresses the relationship of quick assets (cash, marketable securities, and accounts receivable) to current liabilities. Inventory and prepaid expenses are not considered quick assets because they may not be easily convertible into cash. The acid-test ratio is a more severe test of a company's short-term ability to pay debt than is the current ratio. A rule of thumb for the quick ratio is suggested as 1:1. Again, industry practices and the company's special operating circumstances must be considered. The 20x5 and 20x4 acid-test ratios of the Beta Manufacturing Company are computed as follows:

$$20x5 \text{ Quick (acid-test) ratio} = \frac{\text{Current assets} - \text{Inventory} - \text{Prepaid expenses}}{\text{Current liabilities}}$$

$$= \frac{\text{Cash} + \text{Marketable securities} + \text{Accounts receivable}}{\text{Current liabilities}} =$$

$$\left(\frac{\$40,000 + \$80,000 + \$312,000}{\$340,000} \right) = 1.30$$

$$20x4 \text{ Quick ratio} = \left(\frac{\$384,000}{\$362,000} \right) = 1.06$$

For each \$1 of current liabilities in 20x5, there is \$1.30 of quick assets available to pay the obligations. There has been a significant improvement in the quick ratio.

Note:

Short-Term Creditors. A significant decline in the quick ratio indicates deterioration in the company's liquidity, which could indicate the company's inability to satisfy its maturing debt immediately, if it had to do so.

Financial Management. A lower quick ratio may mean that the company will have greater difficulty borrowing short-term funds. A very low ratio may indicate that the company will be unable to meet its short-term debt payments.

It is important to understand how various transactions affect particular ratios and net working capital. Selected transactions will be used to demonstrate this issue. Assume that a company has an acid-test ratio of 2:1. The following transactions occurred and their effect on the acid-test ratio and on net working capital is shown:

	<i>Acid-test Ratio</i>	<i>Net Working Capital</i>
1. An account payable is paid in cash	+	0
2. An account receivable is collected	0	0
3. Inventory is purchased for cash	-	0
4. Inventory is purchased on account	-	0
5. A cash dividend is declared	-	-
6. Land is purchased for cash	-	-
7. Land is purchased for common stock	0	0
8. Marketable securities are sold for cash at a loss	-	-
9. Marketable securities are purchased for cash	0	0
10. Bonds are purchased for cash and held as a long-term investment	-	-
11. Common stock is issued at discount for cash	+	+
12. The cash dividend declared earlier is distributed	+	0

OTHER LIQUIDITY RATIOS. Two other popular liquidity ratios that a short-term creditor might be interested in are: the cash ratio and the cash burn rate. The *cash ratio*, also known as the

doomsday ratio, is a more severe test of liquidity than the acid-test ratio. The cash ratio is computed by dividing cash by current liabilities:

$$\frac{\text{Cash}}{\text{Current liabilities}}$$

<u>20x5</u>	<u>20x4</u>	<u>Trend</u>
\$40,000/\$340,000= 0.18	\$30,000/\$362,000=0.08	Improving

Note: This ratio is most relevant for companies in financial distress. The doomsday ratio name comes from the worst case assumption that the business ceases to exist and only the cash on hand is available to meet credit obligations.

Suppose that a company is facing a strike and cash inflows begin to dry up. How long could the company keep running? One answer is given by the *cash burn rate*:

$$\text{Cash burn rate} = \frac{\text{Current assets}}{\text{Average daily operating expenses}}$$

In 20x5, total operating expenses were \$1,371,000 (\$1,070,000 cost of goods sold + \$301,000 operating expenses). The daily average expense was $\$1,371,000/365 = \$3,756.16$ per day. The burn rate is thus $=\$800,000/\$3,756.16 = 212.98$ days. Based on this, the company could hang on for about 7 months.

For 20x4:

$$\text{The daily average expense} = \frac{\$1,034,000 + \$276,000}{365} = \$3,589.04 \text{ per day}$$

$$\text{The burn rate} = \$760,000/\$3,589.04 = 211.76 \text{ days.}$$

This suggests that the burn rate is about the same.

Note: This ratio is most relevant for start-up companies that often have little in the way of revenues. A high value indicates no need for outside financing. It may also suggest that the company is in the mature or declining phase of the corporate life cycle.

The overall liquidity trend shows a slight improvement as reflected in the higher net working capital. Current and quick ratios display an improvement although they are behind the industry norms (see Exhibit 8-1 in Chapter 8 for industry averages). Further, cash-related ratios show a sign of improvement, as measured by the cash ratio and cash burn rate.

ACTIVITY RATIOS

Activity (asset utilization, turnover) ratios are used to determine how quickly various accounts are converted into sales or cash. Overall liquidity ratios generally do not give an adequate picture of a company's real liquidity, due to differences in the kinds of current assets and liabilities the company holds. Thus, it is necessary to evaluate the activity or liquidity of specific current accounts. Various ratios exist to measure the activity of receivables, inventory, and total assets.

ACCOUNTS RECEIVABLE RATIOS *Accounts receivable ratios* comprise the accounts receivable turnover and the average collection period.

The *accounts receivable turnover* gives the number of times accounts receivable is collected during the year. It is found by dividing net credit sales (if not available, then total sales) by the average accounts receivable. Average accounts receivable is typically found by adding the beginning and ending accounts receivable and dividing by 2. *Note:* When a balance sheet amount is related to an income statement amount in computing a ratio, the balance sheet amount should be converted to an average for the year. The reason is that the income statement amounts represent activity over a period. Thus, the balance sheet figure should be adjusted to reflect assets available for use throughout the period.

Although average accounts receivable may be computed annually, quarterly, or monthly, the ratio is most accurate when the shortest period available is used. In general, the higher the accounts receivable turnover, the better since the company is collecting quickly from customers and these funds can then be invested. However, an excessively high ratio may indicate that the company's credit policy is too stringent, with the company not tapping the potential for profit through sales to customers in higher risk classes. Note that before changing its credit policy, a company has to weigh the profit potential against the risk inherent in selling to more marginal customers.

$$\text{Accounts receivable turnover} = \frac{\text{Net credit sales}}{\text{Average accounts receivable}}$$

For 20x5, the average accounts receivable is:

$$\frac{\$312,000 + \$290,000}{2} = \$301,000$$

Note: If the beginning of the period balance is not available, as in the 20x4 computation below, the end of the period accounts receivable would be used in the denominator of the formula.

The accounts receivable turnover for 20x5 is:

$$\frac{\$1,530,000}{\$301,000} = 5.08 \text{ times}$$

In 20x4, the turnover was 5.0 (\$1,450,000/\$290,000). A high turnover ratio suggests that the receivables are being effectively managed, fewer resources are invested in receivables, and better credit and collection practices are in place.

The *average collection period* (the *number of days' sales in receivables ratio*) is the number of days it takes to collect on receivables.

$$\text{Average collection period} = \frac{365 \text{ days}}{\text{Accounts receivable turnover}}$$

In 20x5, the collection period is:

$$\frac{365}{5.08} = 71.85 \text{ days}$$

This means that it takes almost 72 days for a sale to be converted into cash. In 20x4, the average collection period was 73 days (365/5). This computation gives a measure of the time the accounts receivable have been outstanding. An improvement is noted for this company. *Note:* Use of the natural business year instead of 365 days tends to understate the average collection period because receivables will usually be at a low point at the beginning and end of the natural year. For example, a ski resort may close its books on May 31, a low point in its operating cycle.

Note:

Management. When the number of days' sales in receivables is compared with the company's credit term (e.g., 2% 10 days, net 60 days), analysts can obtain some idea of how the company's credit and collection policies are working. This data also provides some idea of the age of the receivables. When this data is compared with the credit terms, with data for comparable firms in the same industry, and with prior year, the firm can obtain some information concerning the efficiency in collecting receivables and the trends in credit management. A sharp rise in accounts receivable relative to the previous year may infer higher realization risk. This could suggest that the company is selling to more marginal-credit customers. Management must examine the trends in accounts receivable to total assets and in accounts receivable to sales to identify unusual increases in receivables.

Short-Term Creditors. Accounts receivable ratios are examined by short-term creditors as an indication of corporate liquidity. A high turnover ratio and short collection period, indications that a company is able to collect quickly from customers, is looked upon favorably by creditors.

BAD-DEBTS RATIOS. Bad-debts ratios measure expected uncollectibility on credit sales. An increase in bad debts is a negative sign, since it indicates greater realization risk in accounts receivable and possible future write-offs. Bad-debts ratios are:

- Bad debts to sales = $\frac{\text{Bad debts}}{\text{Sales}}$
- Bad debts to accounts receivable = $\frac{\text{Bad debts}}{\text{Accounts receivable}}$

Beta reports the following financial data (in millions of dollars):

	20x5	20x4
Sales	\$1,530	\$1,450
Accounts receivable	312	290
Bad Debts	5	4.5

The results of the relevant ratios follow:

	20x5	20x4
Bad debts to sales	0.33%	0.31%
Bad debts to accounts receivable	1.60%	1.55%

Beta is selling to little more risky customers in 20x5 relative to 20x4. Since the firm is selling to more risky customers, its bad debt provision should rise in 20x5.

Note: Investment and credit analysts examine trends in bad-debt ratios. Unwarranted reductions in bad-debt provisions lower the quality of earnings. This can occur when there is a reduction in bad debts even though the company is selling to less creditworthy customers and/or actual bad-debt losses are on the rise. Firms that intentionally overstate bad-debt provisions to establish accounting cushions will report understated earnings. A company may attempt to manage its earnings by first increasing and then lowering its bad-debt provision. Firms that provide substantial bad-debt allowances in the current year because inadequate provisions for bad debts were made in previous years distort their earnings trends. Firms that take sudden, substantial accounts receivable write-offs may have previously understated their bad-debt expense provisions.

INVENTORY RATIOS The inventory turnover ratio establishes the relationship between the volume of goods sold and inventory. The inventory turnover for businesses in different industries and within industries can vary widely. A grocery store may have an average turnover of 20, for all items. A furniture store would normally have a much smaller turnover.

The *inventory turnover* is computed as follows, using the average inventory (where data is available) as the denominator. The reason is that the income statement amounts represent activity over a period. Thus, the balance sheet figure should be adjusted to reflect assets available for use throughout the period.

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Average inventory is computed as follows: beginning of period inventory plus end of period inventory divided by two. If the beginning of the period inventory is not available, as in the 20x4 computation below, the end of the period inventory would be used in the denominator of the formula.

When cost of goods sold is not available, some analysts use net sale in the numerator. Note, however, that the cost of sales is preferred rather than sales because the cost of sales base eliminates any changes caused solely by sales price changes. Furthermore, using sales in the numerator is inconsistent with valuing inventories at cost in the denominator.

The inventory turnover for 20x5 is:

$$\frac{\$1,070,000}{\$365,000} = 2.93 \text{ times}$$

For 20x4, the turnover was 2.79 times (\$1,034,000/\$370,000).

The turnover of 2.93 means that goods are bought: sold out more than 2.93 times per year on average.

Note: Inter-company comparisons of inventory turnover do not provide valid comparisons when the companies are using different inventory methods, e.g., FIFO and LIFO, since the cost of goods sold and inventory under LIFO during periods of rising prices will be higher and lower, respectively, than under FIFO. These effects are summarized below:

Normal Financial Statement Effects of Rising Prices

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

Note: Generally, a high inventory turnover indicates that the firm (1) is operating effectively as far as inventory is concerned (purchasing, receiving, storing, selling), (2) investment in inventory is reduced, (3) the operating cycle involving converting inventory to cash is shortened, and (4) less opportunity for the inventory to become obsolete exists. An excessively high inventory turnover may suggest that the company is not keeping sufficient inventory on hand to meet sales requirements resulting in stock-outs and unhappy customers. A low value for the inventory turnover ratio suggests an excessive amount of inventory on hand, slow sales, high carrying costs for the inventory, and weak cash inflow prospects. A low turnover could increase the company's exposure to future financing problems.

Note: U.S. GAAP requires firms using LIFO to report the amount by which inventory would be increased (or on occasion decreased) if the firm had instead been using FIFO. This amount is referred to as the *LIFO reserve*. It is not meaningful to compare the current ratio for a company using LIFO to one for a company using FIFO. It would be like comparing apples to oranges, since the two companies measure inventory (and cost of goods sold) differently. Reporting the LIFO reserve enables analysts to make adjustments to compare companies that use different cost flow methods.

Example

Assume the following numbers for ABC Company:

Current assets = \$487.8 million, current liabilities = \$217.8 million, and LIFO reserve = \$11.7 million. The current ratio using LIFO is: $\$487.8 \div \$217.8 = 2.2$. After adjusting for the LIFO effect,

ABC's current ratio under FIFO would be: $(\$487.8 + \$11.7) \div \$217.8 = 2.3$. Thus, without the LIFO adjustment, the ABC's current ratio is understated.

IFRS Treatment

IFRS prohibits the use of the LIFO cost flow assumption. FIFO numbers (for inventory and cost of goods sold) must be converted to LIFO numbers using the *LIFO reserve*, as follows

1. FIFO inventory = LIFO inventory + LIFO reserve
2. FIFO cost of goods sold = LIFO cost of goods sold – Change in LIFO reserve

This means many ratios including inventory ratios, current ratio, profitability ratios, and financial leverage ratios will be affected.

To compute *average age of inventory* (the *number of days' sales in inventory*), the following formula is used:

$$\text{Average age of inventory} = \frac{365}{\text{Inventory turnover}}$$

In 20x5, the average age is:

$$\frac{365}{2.93} = 124.6 \text{ days}$$

In the previous year, the average age was 130.8 days (365/2.79).

The number of days in ending inventory provides some idea of the age of the inventory and the days' supply in inventory. It also indicates whether a company is over or under stocking its inventory.

For analyzing the inventory of a manufacturing firm, additional ratios can be computed if the required data is available. The finished goods turnover indicates the liquidity of the finished goods, i.e., the number of times average inventory was sold during the period. The ratio could indicate whether a company was over or under-stocked. The ratio is computed as following:

$$\text{Finished goods inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average finished goods inventory}}$$

A *raw material turnover ratio* indicates the number of times raw material inventory was used on the average during the period. The ratio is computed as follows:

$$\text{Raw material inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average raw material inventory}}$$

A *work-in-process inventory turnover* can also be computed. This ratio is computed as follows:

$$\text{Work-in-process inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average work - in - process inventory}}$$

ACCOUNT PAYABLE RATIOS The relationship of accounts payable to purchases of the period can provide information concerning the proportion of payables outstanding. This ratio is computed as follow:

$$\text{Accounts payables turnover} = \frac{\text{Cost of goods sold}}{\text{Average accounts payable}}$$

and

$$\text{Accounts payable period (the number of days' purchases in payables)} = \frac{365}{\text{Accounts payable turnover}}$$

The days' purchases in accounts payable determines the average number of days that it takes for the company to pay short-term creditors. This ratio is used by creditors and financial management to measure the extent to which accounts payable represents current rather than overdue obligations. Accounts payable period (the number of days' purchases in payables) is useful when compared to the credit terms gives by suppliers.

$$\text{In 20x5, accounts payables turnover} = \frac{\$1,070,000}{(\$144,000 + \$138,000)2} = 7.59 \text{ times}$$

$$\text{Accounts payable period} = \frac{365}{7.59} = 48.1 \text{ days}$$

$$\text{In 20x4, accounts payables turnover} = \frac{\$1,034,000}{\$138,000} = 7.49 \text{ times}$$

$$\text{Accounts payable period} = \frac{365}{7.49} = 48.7 \text{ days}$$

The decrease in the days' purchases in accounts payable has a positive sign because it indicates that Beta is able to repay creditors more quickly in 20x5 than in 20x4.

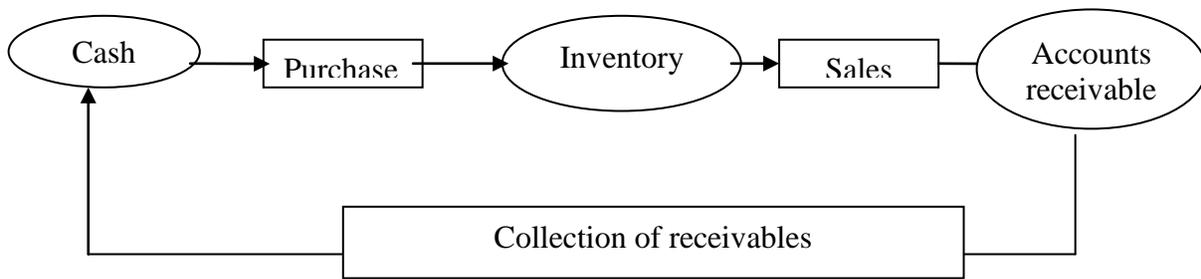
Note: If the average day's payables is increasing, it could mean that trade credit is being used increasingly as a source of fund. It may also indicate that that the company is having financial problems, requiring it to stretch out its payables; on the other hand, this situation could also indicate that the business is managing its payables properly, taking greater advantage of interest-free financing by delaying payments to creditors. If the company's payable period is less than the industry average, it could indicate that management is under using available credit. If it exceeds the industry average, it could indicate that the company is overdue on its payables. Since purchase data is frequently not available to external analysts, an estimate of purchases is equal to cost of goods sold, adjusted for inventory change. The analyst should also keep in mind that

account payable reported on the balance sheet many not be limited to trade creditors but may include other payables.

OPERATING CYCLE OF A BUSINESS

The operating cycle is the time needed to turn cash into inventory, inventory into receivables, and receivables back into cash. It is the time from the purchase of inventory to collection of cash. The company's operating cycle can be computed by adding the number of day sales in receivables to the number of days in the company's inventory. In 20x5 and 20x4, the Beta Manufacturing Company's operating cycle were 195.45 days (71.85 days in receivable and 122.9 days in inventory) and 203.8 days (73 and 130.8), respectively. This can be interpreted to mean that the company's cash was tied up in inventory and receivables about 195.45 days and 203.8 days in 20x5 and 20x4, respectively. A company with a short operating cycle typically requires only a small amount of working capital, reflected in relatively low current and quick ratios. A company with a long operating cycle typically requires a larger cushion of current assets and higher current and quick ratios, unless the firm's suppliers extend their credit terms. The operating cycle of a business is illustrated in Exhibit 5-1

EXHIBIT 5-1
OPERATING CYCLE OF A FIRM



Cash Conversion Cycle. Noncash working capital consists of current assets and liabilities, other than cash. One way to view noncash working capital efficiency is to view operations as a cycle—from initial purchase of inventory to the final collection upon sale. The cycle begins with a purchase of inventory on account followed by the account payment, after which the item is sold and the account collected. These three balances can be translated into days of sales and is used to measure how well a company efficiently manages noncash working capital This measure is termed the *cash conversion cycle* or *cash cycle*. This is the number of days that pass before we collect the cash from a sale, measured from when we actually pay for the inventory. The cash conversion cycle is:

$$\text{Cash conversion cycle} = \text{Operating cycle} - \text{Accounts payable period}$$

In 20x5 for the company, the cash conversion cycle = 195.45 days – 48.1 days = 147.35 days. Thus, on average, there is a 148-day delay between the time the company pays for merchandise and the time it collects on the sale. In 20x4 the ratio was 155.1 days (203.8 days – 48.7 days). This is a favorable sign since a reduced cycle implies that less money is being tied up in inventories and receivables.

Note:

Financial Managers. The operating cycle or cash conversion cycle is of interest to financial management because it reveals how long cash is tied up in inventory and receivables. A shorter operating cycle is desired because the freed cash can be invested to add to the returns.

Creditors, Suppliers, and Loan Officers. Short-term creditors are interested in knowing the cycle of a company since a shorter period indicates that cash will be more readily available to meet short-term obligations. Suppliers and loan officers are more assured of repayment with a shorter cycle.

ASSET TURNOVER The total asset turnover ratio is helpful in evaluating a company's ability to use its asset base efficiently to generate revenue. A low ratio may be due to many factors, and it is important to identify the underlying reasons. For example, is investment in assets excessive when compared to the value of the output being produced? If so, the company might want to consolidate its present operation, perhaps by selling some of its assets and investing the proceeds for a higher return or using them to expand into a more profitable area. This ratio is computed as follows:

$$\text{Total asset turnover} = \frac{\text{Net sales}}{\text{Average total assets}}$$

Long-term investments are usually excluded from total assets when they make no contribution to sales. If sales can be expressed in units sold, the ratio of units sold to total assets can provide basically the same information as the asset turnover except that units sold are not affected by price changes.

In 20x5, the ratio is:

$$\frac{\$1,530,000}{(\$1,324,000 + \$1,263,200) / 2} = \frac{\$1,530,000}{\$1,301,600} = 1.18$$

In 20x4, the ratio was 1.15 (\$1,450,000/\$1,263,200). The company's use of assets increased slightly.

Fixed asset turnover reflects the productivity and efficiency of property, plant, and equipment in generating revenue and earnings. A high fixed-asset turnover reflects positively on the company's ability to utilize its fixed assets in business operations.. The fixed asset turnover rate is:

$$\frac{\text{Sales}}{\text{Average fixed assets}}$$

The following data for Beta is given:

	20x5	20x4
Sales	\$1,530	\$1,450
Fixed assets	520.0	498.2
Fixed-asset turnover	2.94 times	2.91

Fixed assets are more productive in 20x5, as indicated by the higher turnover rate.

Overall. Beta shows an improvement in activity ratios, although the 20x5 ratios are out of line with the industry averages (See Exhibit 8-1 in Chapter 8). It appears that problems are inefficient collection and obsolescence of inventory.

Note: Managers and financial analysts understand that assets should not be held by an enterprise unless they contribute to sales or profitability; thus, utilization of many of these turnover ratios is critical to understanding the productivity of assets. Higher ratios of asset utilization are better because they indicate that assets are more productive in obtaining a return. A high ratio for one industry, however, may be considered a low ratio for another. In certain special situations, such as developmental companies, the meaning of asset turnover may have to be modified because most assets are committed to the development of future potential. Similarly, if abnormal supply situations exist or if strikes occur, these factors affect capital utilization and require separate evaluation and interpretation.

INTERRELATIONSHIP OF LIQUIDITY AND ACTIVITY TO EARNINGS.

A trade-off exists between liquidity risk and return. Liquidity risks are minimized by holding greater current assets than noncurrent assets. However, the rate of return will decline because the return on current assets (i.e., marketable securities) is typically less than the rate earned on productive fixed assets. Also, excessively high liquidity may mean that management has not aggressively searched for desirable capital investment opportunities. Maintaining a proper balance between liquidity and return is important to the overall financial health of a business.

It must be pointed out that high profitability does not necessarily infer a strong cash flow position. Income may be high but cash problems may exist because of maturing debt and the need to replace assets, among other reasons. For example, it is possible that a growth company may experience a decline in liquidity since the net working capital needed to support the expanding sales is tied up in assets that cannot be realized in time to meet the current obligations. The impact of earning activities on liquidity is highlighted by comparing cash flow from operations to net income. If accounts receivable and inventory turn over quickly, the cash flow received from customers can be invested for a return, thus increasing net income.

EXAMPLE 1

Companies A and B are identical in every respect but one: Company B has invested \$20,000 in T-bills, which has been financed with equity. Assume a 50 percent tax rate. The balance sheets and earnings of the two companies are shown below.

	<i>Company A</i>	<i>Company B</i>
Cash	\$2,000	\$2,000
Marketable Securities		20,000
Other Current Assets	50,000	50,000
Fixed Assets	100,000	100,000
Total	<u>152,000</u>	<u>172,000</u>
Current Liabilities	\$30,000	\$30,000
Long-Term Debt	50,000	50,000
Owner's Equity	72,000	92,000
Total	<u>152,000</u>	<u>172,000</u>
Net Income	\$20,000	\$20,800 (A)

Current ratio

$$\frac{\$52,000}{\$30,000} = 1.73 \qquad \frac{\$72,000}{\$30,000} = 2.4$$

Return on total assets (ROI)

$$\frac{\$20,000}{\$152,000} = 13.16\% \qquad \frac{\$20,800}{\$172,000} = 12.09\%$$

(a) During the year Company B held \$20,000 in T-bills, which earned an 8 percent return or \$1,600 for the year or \$800 after taxes.

Note that Company A has a current ratio of 1.73 and earns 13.16 percent return on its total assets. Company B, on the other hand, has a higher liquidity as expressed by a current ratio of 2.4, but earns only 12.09 percent.

OTHER CONSIDERATIONS

When analyzing the marketing function as it relates to operating performance, the management of a company could use the following ratios:

<i>Ratio</i>	<i>Interpretation</i>
Sales/number of calls	Response per call

Travel expense/days	Cost awareness
Selling expenses/sales	Response per selling effort
Sales/sales orders	Sales efficiency
Number of calls/days	Sales effort

These ratios are useful in developing trend information and an overall picture of the company's sales efforts. These ratios must be used with considerable care since they do not represent sophisticated marketing analysis techniques.

SUMMARY

The liquidity and activity ratios provide information concerning the quality and liquidity of current assets, inventory, and receivables. Inventory and receivables usually constitute a major portion of a firm's current assets and working capital and must receive special attention when analyzing financial statements.

Creditors typically prefer companies with higher current and quick ratios and short operating cycles. However, excessively high ratios or short operating cycles could indicate unfavorable conditions. Analysts should be aware that companies sometimes "manage" working capital and ratios just before financial statements are presented by making working capital relationships look better than they actually are. These practices commonly referred to as *window dressing*. Also, many firms follow an acceptable practice of using a natural business year that ends when inventories and receivables are lowest. Using the natural business year can make working capital and certain financial ratios more attractive than they might be if the companies were using another accounting period, such as a calendar year. While the information derived from financial statement analysis can be extremely valuable, analysts should understand that financial statements have limitations and are compiled according to accounting assumptions, principles, procedures, and policies.

CHAPTER 6

ANALYSIS OF SOLVENCY AND CAPITAL STRUCTURE

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. Define solvency.
2. List capital structure ratios and explain what they measure.
3. Measure operating leverage and financial leverage and distinguish between them.

The capital structure of an enterprise consists of debt and equity funds. The sources and composition of the two types of capital determine to a considerable extent the financial stability and long-term solvency of the firm. Equity capital is risk capital, and the return on investment to an investor is subject to many uncertainties. Debt capital must be paid on a specified date, usually with interest, if the firm is to survive.

There is no ideal capital structure common to all firms. In general, a firm should not have a heavy amount of long-term debt and preferred stock in relation to common stock and retained earnings. Senior security holders should be well protected, and the common stock should not be burdened by excessive debt. A company's capitalization usually depends on the industry, the financial position of the company, and the philosophy of management. Generally, relatively stable industries, such as utilities, have a higher debt to equity structure than industrial companies.

Companies with only common stock capitalization can be attractive to both investors and creditors because there are no prior claims ahead of the common. However, long-term debt and preferred stock can provide leverage to a company's capital structure and can possibly enhance the return to the common stockholders.

SOLVENCY (LEVERAGE AND DEBT SERVICE)

Solvency is the company's ability to satisfy long-term debt as it becomes due. You should be concerned about the long-term financial and operating structure of any firm in which you might be interested. Another important consideration is the size of debt in the firm's capital structure, which is referred to as *financial leverage*.

Solvency also depends on earning power; in the long run a company will not satisfy its debts unless it earns profits. A leveraged capital structure subjects the company to fixed interest charges, which contributes to earnings instability. Excessive debt may also make it difficult for the firm to borrow funds at reasonable rates during tight money markets.

CAPTIAL STRUCTURE RATIOS

The *debt ratio* compares total liabilities (total debt) to total assets. It shows the percentage of total funds obtained from creditors. Creditors would rather see a low debt ratio because there is a greater cushion for creditor losses if the firm goes bankrupt. *Note:* How much debt is too much? The rule of thumb is: The debt portion should be less than 50%. All of bankruptcies arise from a company's inability to meet its debt obligations, according to <http://BankruptcyData.com>.

The debt ratio is:

$$\text{Debt ratio} = \frac{\text{Average total liabilities}}{\text{Average total assets}}$$

In 20x5, the ratio is:

$$\frac{(632,000 + \$652,000) / 2}{(\$1,324,000 + \$1,263,200) / 2} = \frac{\$642,000}{\$1,293,600} = 0.496$$

In 20x4, the ratio was 0.516 ($\$652,000 / \$1,263,200$). There was a slight improvement in the ratio over the year as indicated by the lower degree of debt to total assets.

The relationship of equity to total liabilities is an important measure of the capital structure of a business. As stockholders' equity increases in relation to total liabilities, the margin of protection to creditors increases, other things remaining unchanged. The enterprise is less vulnerable to declines in business or in the economy, the cost of carrying debt is reduced, and the company should be able to meet its obligations more easily. The *equity to debt ratio* is:

$$\frac{\text{Shareholders' equity}}{\text{Total liabilities}}$$

$$\begin{aligned} 20x5 \text{ ratio} &= \frac{\$692,000}{\$632,000} \\ &= 1.09 \end{aligned}$$

$$\begin{aligned} 20x4 \text{ ratio} &= \frac{\$611,200}{\$652,000} \\ &= 0.937 \end{aligned}$$

This ratio provides a measure of the relative claims of the owners and creditors against the resources of the firm. A high value of the ratio shows that the claims of the owners are greater than those of the creditors. A high value is viewed by creditors as a favorable sign that the firm has a high degree of security.

The *debt to equity ratio* is the reciprocal of the equity to debt ratio. This ratio measures the amount of leverage used by a company. It measures the number of times the shareholders capital has been leveraged by the use of debt. A highly leveraged company involves a substantial use of debt and a limited use of equity. Investors generally consider a higher debt to equity ratio favorable

while creditors favor a lower ratio. This ratio is an indicator of creditors' risk. Generally, the higher relative amount of debt in the capital structures of an enterprise, the larger the volatility of net earnings. The ratio is computed as follows:

$$\text{Debt-equity ratio} = \frac{\text{Total liabilities}}{\text{Stockholders' equity}}$$

$$20x5 \text{ ratio} = \frac{\$632,000}{\$692,000}$$

$$= 91.3\%$$

$$20x4 \text{ ratio} = \frac{\$652,000}{\$611,200}$$

$$= 107\%$$

Note:

1. Because total assets equal the sum of liabilities and equity, an increase in the debt-equity ratio will simultaneously increase the debt ratio.
2. Because debt plus equity equals assets, a debt-equity ratio would have a lower denominator than a debt-to-assets ratio. Thus, the debt-equity ratio would be higher than the debt assets ratio.

SHAREHOLDERS' EQUITY TO TOTAL ASSETS

The *shareholders equity to total assets ratio* measures the proportion of the firm's assets that are provided or claimed by the shareholders. The ratio is a measure of creditor risk. The less leveraged the company, the safer the creditors' interests. A high ratio of shareholders' equity to assets can represent a relatively large degree of security for the firm, but it also indicates that the firm is not highly leveraged. On the other hand, if the shareholders' equity is a small proportion of total assets, the firm may be viewed as being financially weak, because the shareholders would be viewed as having a relatively small investment in the firm. The ratio is computed as follows:

$$\text{Equity to total assets} = \frac{\text{Shareholders' equity}}{\text{Total assets}}$$

$$20x5 \text{ ratio} = \frac{\$692,000}{\$1,324,400}$$

$$= 0.523$$

$$20x4 \text{ ratio} = \frac{\$611,200}{\$1,263,200}$$

$$= 0.484$$

NUMBER OF TIMES INTEREST EARNED

The *number of times interest is earned ratio* is a measure of the debt position of a firm in relation to its earnings. This ratio emphasizes the importance of a company's covering total interest charges. The ratio indicates the company's ability to meet interest payments and the degree of safety available to creditors. Concern over the impact of interest expense differs as between companies, different stages of the business cycle, and stages of the life cycle of the business. The ratio is computed by dividing income before any charges for interest or income tax by the interest requirements for the period. This ratio uses in the numerator income before interest and income tax because this amount indicates the income available to cover interest. Income taxes are paid only after interest charges have been taken care of. The ratio is computed as follows:

$$\text{Times interest earned} = \frac{\text{Income before interest and taxes (EBIT)}}{\text{Interest expense}}$$

$$20x5 \text{ ratio} = \left(\frac{\$95,500 + \$41,500 + \$34,000}{\$34,000} \right) = 5.03$$

$$20x4 \text{ ratio} = \left(\frac{\$81,000 + \$44,000 + \$34,000}{\$34,000} \right) = 4.68$$

It appears that there is adequate coverage for the interest charges in this case.

Cash Coverage Ratio. A problem with the times interested earned ratio is that is based on EBIT, which it is not really a measure of cash available to pay interest. A more accurate way is to use earnings before interest, taxes, and depreciation (EBITD). (*Note:* depreciation, a noncash expense, should not be taken out.)

The cash coverage ratio (or EBITD coverage ratio) is:

$$\frac{\text{EBITD}}{\text{Interest}}$$

For Beta, the *cash coverage ratio* is:

<u>20x5</u>	<u>20x4</u>	<u>Trend</u>
\$21,000/\$2,000 = 5.68 times	\$23,000/\$2,000=5.15 times	Improving

Managers want to generate cash from operations using a minimum of noncash working capital resources. The efficiency and cash generating ability of a firm can be measured by the cash conversion cycle and free cash flow.

Free Cash Flow. This is a valuable tool for evaluating the cash position of a business. Free cash flow (FCF) is a measure of operating cash flow available for corporate purposes after

providing sufficient fixed asset additions to maintain current productive capacity and dividends and to reduce its debts or add to its liquidity. The greater the free cash flow, the greater its options.

It is calculated as follows:

Cash flow from operations
Less: Cash used to purchase fixed assets
Less: Cash dividends
<u>Free cash flow</u>

For the Beta Manufacturing Company, FCF is:

<u>20x5</u>	<u>20x4</u>	<u>Trend</u>
$\$117,500 - 76,800 - 36,700 = \$4,000$	$\$134,000 - 135,500 - 35,500 = (\$37,000)$	Improving

The company's positive free cash flow for the year 20x5 would be an encouraging sign to management and investors.

A company that has FCF is able to fund internal growth, retire debt, and enjoy financial flexibility. Lack of FCF can be an early sign of liquidity problems. In fact, major credit rating agencies use a form of FCF in evaluating credit-worthiness of businesses.

As shown in Exhibit 8-1 in Chapter 8, the company's overall solvency is not only steadily improving but also good, relative to the industry averages. There has been a favorable change in its ability to satisfy long-term debt. Note that significantly more profit is available to cover interest payments.

LEVERAGE

Leverage is used explain a firm's ability to use fixed-cost assets or funds to magnify the returns to its owners. Leverage exists whenever a company has fixed costs. There are three types of leverage in financial management: operating, financial, and total leverage.

Financial leverage is a financing technique that uses borrowed funds or preferred stock (items involving fixed financial costs) to improve the return on an equity investment. As long as a higher rate of return can be earned on assets than is paid for the capital used to acquire the assets, the rate of return to owners can be increased. This is referred to as *favorable (positive) financial leverage*. Financial leverage is used in many business transactions, especially where real estate and financing by bonds or preferred stock instead of common stock are involved. Financial leverage is concerned with the relationship between the firm's earnings before interest and taxes (EBIT) and the earnings available to common stockholders or other owners. Financial leverage is often referred to as "trading on the equity."

Operating leverage is based on the relationship between a firm's sales revenue and its earnings before interest and taxes. Operating leverage refers to the existence of fixed costs in a company's cost structure, and is used as a measure of operating risk. This situation indicates greater operating risk for the company, because it will have to meet its fixed cost commitments,

which cannot be cut to meet declining sales volume in the short term. Higher fixed charges also result in greater earnings instability, because high leverage magnifies changes in earnings that result from small changes in sales.

Total leverage reflects the impact of operating and financial leverage on the total risk of the firm (the degree of uncertainty associated with the firm's ability to cover its fixed-payment obligations.)

Financial leverage arises as a result of fixed financial charges related to the presence of bonds or preferred stock. Such charges do not vary with the firm's earnings before interest and taxes. The effect of financial leverage is that an increase in the firm's earnings before interest and taxes results in a greater than proportional increase in the firm's earnings per share. A decrease in the firm's earnings before interest and taxes results in a more than proportional decrease in the firm's earnings per share. The degree of financial leverage (DFL) can be measured by the following formula:

$$\text{Degree of financial leverage (DFL)} = \frac{\text{Percentage change in earning per share (EPS)}}{\text{Percentage change in earnings before interest and taxes (EBIT)}}$$

The degree of financial leverage indicates how large a change in earnings per share will result from a given percentage change in earnings before interest and taxes. Whenever the degree of financial leverage is greater than one, financial leverage exists. The higher these quotients are, the larger of the degree of financial leverage. Note also that when the DFL rises, fixed interest charges and the riskiness of the firm rise. As a result, the variability of returns will increase. In other words, the standard deviation of returns of the company rises.

Operating leverage refers to the extent that fixed costs are utilized in the production process during an operating cycle. Operating leverage can also be used to measure the impact on earnings per share (EPS) of having different levels of fixed to variable costs in manufacturing products. Earnings before interest and taxes (EBIT) are related to changes in the variable cost to fixed cost relationship. As fixed operating costs are added by the firm, the potential operating profits and losses are magnified, and are ultimately reflected in the variation in earnings per share of stock. For example, a book publisher's cost of producing another book is below the average cost of producing the book; hence, the gross margin (sales minus cost of goods sold) per book is relatively large. An enterprise with a large percentage increase in income relative to its increase in unit sales can expect to have large operating leverage. The degree of operating leverage (DOL) can be measured by the following formula:

$$\text{Degree of operating leverage (DOL)} = \frac{\text{Percentage change in earning before interest and taxes (EBIT)}}{\text{Percentage change in sales}}$$

The degree of operating leverage indicates how large a change in operating profit will result from a given percentage change in sales. As long as the degree of operating leverage is greater than one, there is a positive operating leverage.

Total leverage indicates a firm's ability to use both operating and financial fixed costs to magnify the effect of changes in sales on a firm's earnings per share. The degree of total or combined leverage (DTL) is computed as follows:

$$\text{Degree of total leverage} = \frac{\text{Percentage change in earning per share (EPS)}}{\text{Percentage change in sales}} = \frac{(\text{unit sales price} - \text{unit variable cost}) \times X}{(\text{unit sales price} - \text{unit variable cost}) \times X - \text{fixed costs} - \text{interest charges}}$$

where X = sales

EXAMPLE 1

A company has unit sales of 200,000, the unit variable cost is \$1.00, the unit sales price is \$2.00, and the annual fixed costs are \$60,000. Furthermore, the annual interest expense is \$40,000. The degree of total leverage is

$$= \frac{(\$2.00 - 1.00) \times 200,000}{[(\$2.00 - 1.00) \times 200,000] - \$60,000 - 40,000} = \frac{\$200,000}{\$100,000} = 2$$

EXAMPLE 2

Whenever the percentage changes in earning per share resulting from a given percentage change in sales exceeds the percentage change in sales, total leverage is positive. The total or combined leverage for a company equals the *product* of the operating and financial leverages (DTL= DOL x DFL).

Exhibit 6-1 illustrates the application of leverages to a firm's income statement. In this illustration, note that fixed expenses and interest expense remain unchanged. Note the section of the statement involved in the computation of operating leverage, financial leverage and total leverage. Also note that what provides the leverage is fixed expenses and interest expense, which remain unchanged. When operating, financial, and total leverages increase, the risks the firm assumes also increase since the total risk of the firm is related to the firm's ability to cover fixed operating and financial costs. In the illustration, note that the total or combined leverage of 2.0 is the result of multiplying 1.2 (DOL) by 1.67 (DFL). For this illustration, if sales increase by 1 percent, EBIT will increase by 1.2 percent. If EBIT increases by 10 percent, net income will increase by 18.7 percent. With total leverage of 2.0, to increase net income by 10 percent, sales must increase by 5 percent. Leverage analysis is an extension of break-even analysis and uses the same basis information: price, quantity, variable expenses, and fixed expenses.

EXHIBIT 6-1
OPERATING, FINANCIAL, AND TOTAL LEVERAGE—
DOL, DFL, AND DTL

DTL { DFL { 	DOL {	Sales (in units)	40,000	↗ 50%	60,000	
		Sales (@\$5)	200,000		300,000	
		Less: Operating Expenses				
		Variable (@\$2)	80,000		120,000	
		Fixed	20,000		20,000	
	Earnings before interest and taxes (EBIT)	<u>100,000</u>		<u>160,000</u>	DOL = 60%/50% =	1.20
	Less: Interest	<u>40,000</u>		<u>40,000</u>		
	Earnings before taxes (EBT)	<u>60,000</u>		<u>120,000</u>		
	Less: taxes (40%)	<u>24,000</u>		<u>48,000</u>		
	Earnings available for common stock (EAC)	<u><u>36,000</u></u>		<u><u>72,000</u></u>	DFL = 100%/60% =	1.67
Earnings per share (EPS)--10,000 shares		3.6	↗ 100%	7.2	DTL = 100%/50% =	2.00

Note:

Managers and analysts are interested in knowing the degree of operating leverage of a company. A high operating leverage means greater fixed cost commitments that have to be met even when sales volume declines. Managers and analysts must be aware that high degrees of operating leverage in combination with highly elastic product demand will result in high levels of variability in earnings, although such a condition may be inherent in the industry (e.g., the airline and auto industries). Financial managers should note that the effects of operating leverage diminish as revenue increases above the breakeven point, since the bases to which increases in earnings are compared become progressively larger. Hence, financial managers should examine the relationship between sales and the breakeven point. Financial analysts should note that a company with a high breakeven point is quite vulnerable to economic declines. A high ratio of variable cost to total cost indicates greater earnings stability, because variable cost can be adjusted more easily than fixed cost to meet a decline in product demand.

CASH FLOW RATIOS AND SOLVANCY

Cash flow analysis should not be overlooked when evaluating the liquidity of a company. Cash flow ratios need to be evaluated to determine a company's ability to satisfy its debts. It is useful in predicting financial distress (or even bankruptcy). Cash flow to total debt appraises the adequacy of available funds to meet debt obligations. Concern is also directed to how many times a

company's immediate liquid resources are sufficient to meet cash expenses. The cash flow-to-capital expenditures ratio indicates a company's ability to maintain plant and equipment from cash provided from operations, rather than by borrowing or issuing new stock. The purpose of the cash flow adequacy ratio is to determine the degree to which an enterprise has generated sufficient cash flow from operations to cover capital expenditures, net investment in inventories, and cash dividends. Chapter 9 (Cash Flow Ratios) discusses how to analyze cash flows of a company and evaluates more cash flow ratios.

Note:

In analyzing company performance, a high ratio of total liabilities to total stockholders' equity (financial leverage) implies a great deal of risk because it may be difficult for the company to satisfy its interest and principal payments and also obtain reasonable levels of further financing. A high debt/equity ratio is an especially acute problem for companies with cash problems, particularly during times when adverse business conditions exist. Carrying excessive amounts of debt will result in less financial flexibility for the company since it is more difficult to obtain funds in a tight money market. Also, having to pay high fixed interest charges can also cause earnings instability.

A favorable leverage situation occurs when the return on borrowed funds exceeds the interest cost, provided that the firm is not in debt over its head. A desirable debt/equity ratio depends on many variables, including the rates of other companies in the industry, the access to further debt financing, and the stability of earnings. A ratio in excess of 1 for long-term debt-to-stockholders' equity indicates a higher long-term debt participation as compared to equity capital. The debt ratio (total liabilities to total assets) shows the percentage of total funds obtained from creditors. The ratio is an indicator of how much debt may be comfortably taken on, given the company's situation. Creditors would rather see a low debt ratio because there is then a greater cushion for creditor losses if the firm goes bankrupt. Potential creditors are reluctant to give financing to a company with a high debt position; however, the size of debt taken on may be satisfactory, depending on the nature of a particular business. For example, a utility can afford a higher debt ratio than a manufacturer because its earnings can be controlled by rate adjustments. If analysis shows that interest on borrowed capital has increased, it is important to search out the reason. Is it due to lenders demanding a higher interest rate because of increased corporate risk? Is it because market interest rates have risen sharply?

SUMMARY

The evaluation of the relative size of the different sources of funds of an enterprise is major factor in determining the financial stability of the firm, including the risk of insolvency. As a source of funds, debt has both advantages and disadvantages, especially as it relates to leverage. Since most long-term debt involves interest, the importance of earning coverage of those charges can be appreciated. Earnings are used as a measure of liquid resources that can be generated from operations. Analysts must constantly monitor the ratios related to financial structure and solvency so that changes in factors affecting these ratios will be detected.

CHAPTER 7

PROFITABILITY ANALYSIS

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. List and explain various ratios related to profitability.
 2. Explain what ROI or ROA is.
 3. Identify the basic components of the Du Pont formula and to explain how it can be used for profit improvement.
 4. Interpret and compute ROE how it relates to ROI.
 5. Describe how financial leverage affects the stockholder's return.
-

Operating performance reflects the results of the profit-seeking activities of the enterprise. Much of the data required for evaluating operating performance is obtained directly from the income statement, which summarizes the results of operations. However, performance must be related to the assets which produce operating results. Furthermore, performance must be related to how outsiders (e.g., the stock market) perceive the performance and earnings of the enterprise. A company's ability to earn a good profit and return on investment is an indicator of its financial well-being and the efficiency with which it is managed. Poor earnings have detrimental effects on market price of stock and dividends. Total dollar net income has little meaning unless it is compared to the input in getting that profit.

Profitability refers to the ability of a company to earn income. Net income is the single most significant measure of profitability. Investors and creditors have a great interest in evaluating the current and prospective profitability of an enterprise.

Profitability ratios have been developed to measure operational performance. The numerator of the ratios consists of profits according to specified definition (gross margin, operating income, net income); the denominator represents a relevant investment base.

The *gross profit margin* reveals the percentage of each dollar left over after the business has paid for its goods. The higher the gross profit earned, the better. Gross profit equals net sales less cost of goods sold.

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Net sales}}$$

In 20x5, the ratio is:

$$\frac{\$460,000}{\$1,530,000} = 0.30$$

The ratio was 0.287 in 20x4 (\$416,000/\$1,450,000). The rise in this ratio indicates the business is earning more gross profit on each sales dollar. The reasons for the increase may be many, including a lower relative production cost of goods sold.

Note: A higher growth margin ratio suggests that the average margin between sales price and inventory cost (or production cost) is increasing. Too high a margin may result in lost sales. A decline in the ratio might have several causes: (1) the company may have begun to sell products with a lower markup, (2) increased competition may have resulted in a lower sales price, or (3) the company may be forced to pay higher prices to its suppliers without being able to pass these costs on to its customers.

Operating expenses to sales ratio is a useful measure of operating efficiency. A higher value should be investigated to determine whether cost cutting or downsizing is necessary.

$$\text{Operating expenses to sales ratio} = \frac{\text{Operating expenses}}{\text{Net sales}}$$

For Beta

<u>20x5</u>	<u>20x4</u>	<u>Trend</u>
\$301/\$1,530 = 19.67%	\$276/\$1,450=19.03%	Deteriorating

Profit margin on sales indicates the dollar amount of net income the company receives from each dollar of sales. This ratio reflects the ability of the company to control costs and expenses in relation to sales. The formula for computing the profit margin on sales is as follows:

$$\text{Profit margin on sales} = \frac{\text{Net income}}{\text{Net sales}}$$

$$\begin{aligned} 20x5 \text{ ratio} &= \frac{\$95,500}{\$1,530,000} \\ &= 6.2\% \end{aligned}$$

$$\begin{aligned} 20x4 \text{ ratio} &= \frac{\$81,000}{\$1,450,000} \\ &= 5.6\% \end{aligned}$$

The profit margin on sales increased significantly from 20x4 to 20x5. The reasons for this change relate primarily to factors related to revenue and expenses reported on the income statement.

The net operating margin on sales ratio excludes non-operating items, such as interest expense, gains and losses on disposal of discontinued operations, and extraordinary items. The net operating margin is computed as follows:

$$\text{Net operating income} = \frac{\text{Operating income}}{\text{Net sales}}$$

The gross profit to sales ratio is helpful in evaluating operating performance and income. Gross profit is the difference between selling price (sale) and the actual cost of goods sold. This ratio indicates whether or not the company is maintaining or improving its markup on costs, which is a major business objective.

Note:

Financial Management. The profit margin indicates the success of management in generating earnings from its operations. The higher the profit margin on each sales dollar generated, the better the company is doing financially. Profit may also be increased by controlling expenses. A high profit margin is desirable because it indicates that the company is earning a good return on its cost of merchandise sold and operating expenses.

Investors and Creditors. By examining the company's profit margin relative to previous years and to industry norms, one can evaluate the company's operating efficiency and pricing strategy as well as its competitive status within the industry. The ratio to income to sales is important to investors and creditors because it indicates the financial success of the business. The "bottom line" is what counts. Profit margin reveals the entity's ability to generate earnings at a particular sales level. Investors will be reluctant to invest in an entity with poor earning potential, since the market price of stock and future dividends will be adversely affected. Creditors will also shy away from companies with deficient profitability, since the amounts owed to them may not be paid.

QUALITY OF EARNINGS

Quality of earnings is the realistic earnings of a company that conform to economic reality. Quality of earnings is a multifaceted concept that embraces many accounting and financial considerations and involves both quantitative and qualitative elements. Quantitative elements, such as cash flow, are subject to measurement; qualitative elements, such as the quality of management, cannot be measured objectively. This section considers only the quantitative aspects that are subject to computation.

Reported net income
Add: Items unrealistically deducted from earnings
Less: Items unrealistically added to earnings
Equals: Quality of earnings

There is no absolute "true" (real) earnings figure; however, the "quality of earnings" figure (adjusted earnings) should be more of a representative of a company's operational activity than reported net income.

EXAMPLE

A company reports sales of \$1,000,000 and net income of \$400,000. Included in the net income figure is \$50,000 in research and development costs, or 5 percent of sales. In past years, however, the company's research and development cost relative to sales was 8 percent. Competing

companies are showing 8 percent this year as well. Thus, an analyst can conclude that research and development should be realistically 8%? $\$1,000,000 = \$80,000$. Hence, R&D is understated by $\$80,000 - \$50,000 = \$30,000$.

The adjusted earnings follows:

Reported net income	\$400,000
Less: Understatement of R&D	<u>30,000</u>
Equals: Quality of earnings	<u>\$370,000</u>

In this example, there is only one adjustment. Of course, many adjustments would typically be required.

Earning quality is relative rather than absolute; it refers to comparing the attributes of reported earnings among companies in an industry. Analytical points to consider are:

1. The “quality of earnings” encompasses much more than the mere understatement or overstatement of net income; it refers also to such factors as the stability of income statement components, the realization risk of assets, and the maintenance of capital.
2. Quality of earnings affects the P-E ratio, the bond rating, the cost of financing, and the availability of financing.
3. Identical earnings of competing companies may possess different degrees of quality. The key to evaluating a company’s earnings quality is to compare its earnings profile (that is, the mixture and the degree of favorable and unfavorable characteristics associated with reported results) with the earnings profile of other companies in the same industry. Investment and credit analysts attempt to assess earnings quality in order to render the earnings comparable, and to determine the level of valuation that should be placed on those earnings.

RETURN ON INVESTMENT

Many analysts consider return on investment (ROI) one of the most important ratio for evaluating profitability because it relates earnings to investment. Return on investment can be computed on the following bases:

1. Total assets
2. Shareholders’ equity.
3. Comprehensive basis.

RETURN ON TOTAL ASSETS The *return on total assets (ROA)* or *return on investment (ROI)* indicates management’s performance in using the firm’s assets to produce income. There should be a reasonable return on funds committed to the enterprise. This return can be compared to alternative uses of the funds. As a measure of effectiveness, the higher the return, the better. The return on total assets is computed as follows:

$$\text{Return on total assets} = \frac{\text{Net income}}{\text{Average total assets}}$$

$$\begin{aligned} 20x5 \text{ ratio} &= \frac{\$95,500}{(\$1,324,000 + \$1,263,200) / 2} \\ &= 0.0738 = 7.38\% \end{aligned}$$

$$\begin{aligned} 20x4 \text{ ratio} &= \frac{\$81,000}{\$1,263,200} \\ &= 0.0641 = 6.41\% \end{aligned}$$

Interest expenses, net of income taxes, is sometimes added back to net income in the numerator because the denominator includes the resources provided by both creditors and owners, hence the numerator should include the return on both. *Note:* Throughout the discussion, the terms *return on total assets (ROA)* and *return on investment (ROI)* are used interchangeably.

RETURN ON STOCKHOLDERS' EQUITY *Return on stockholders' equity (ROE)* indicates management's success or failure at maximizing the return to stockholders based on their investment in the company. This ratio emphasizes the income yield in relationship to the amount invested. Financial leverage can be estimated by subtracting return on total assets from return on shareholders' equity. If the return on shareholders' equity is greater than the return on total assets, financial leverage is positive to the extent of the difference. If there is no debt, the two ratios would be the same. Return on stockholders' equity is computed as follows:

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Average stockholders' equity}}$$

$$\begin{aligned} 20x5 \text{ ratio} &= \frac{\$95,500}{\$651,600} \\ &= 0.1465 = 14.65\% \end{aligned}$$

$$\begin{aligned} 20x4 \text{ ratio} &= \frac{\$81,000}{\$611,200} \\ &= 0.1325 = 13.25\% \end{aligned}$$

Extraordinary items are usually excluded from net income in the numerator because such items are non-recurring. Return on stockholders' equity is sometimes computed using the *market value* of the outstanding stock of the company instead of average stockholders' equity.

COMPREHENSIVE RETURN ON INVESTMENT—DU PONT FORMULA Return on investment is a comprehensive measure of financial performance. The ROI formula takes into account the major items that go into the balance sheet and income statement and so represents a comprehensive overview of performance.

The basic formula for computing a comprehensive return on investment involves the following components:

$$\text{Return on total assets (ROI)} = \text{profit margin} \times \text{total asset turnover}$$

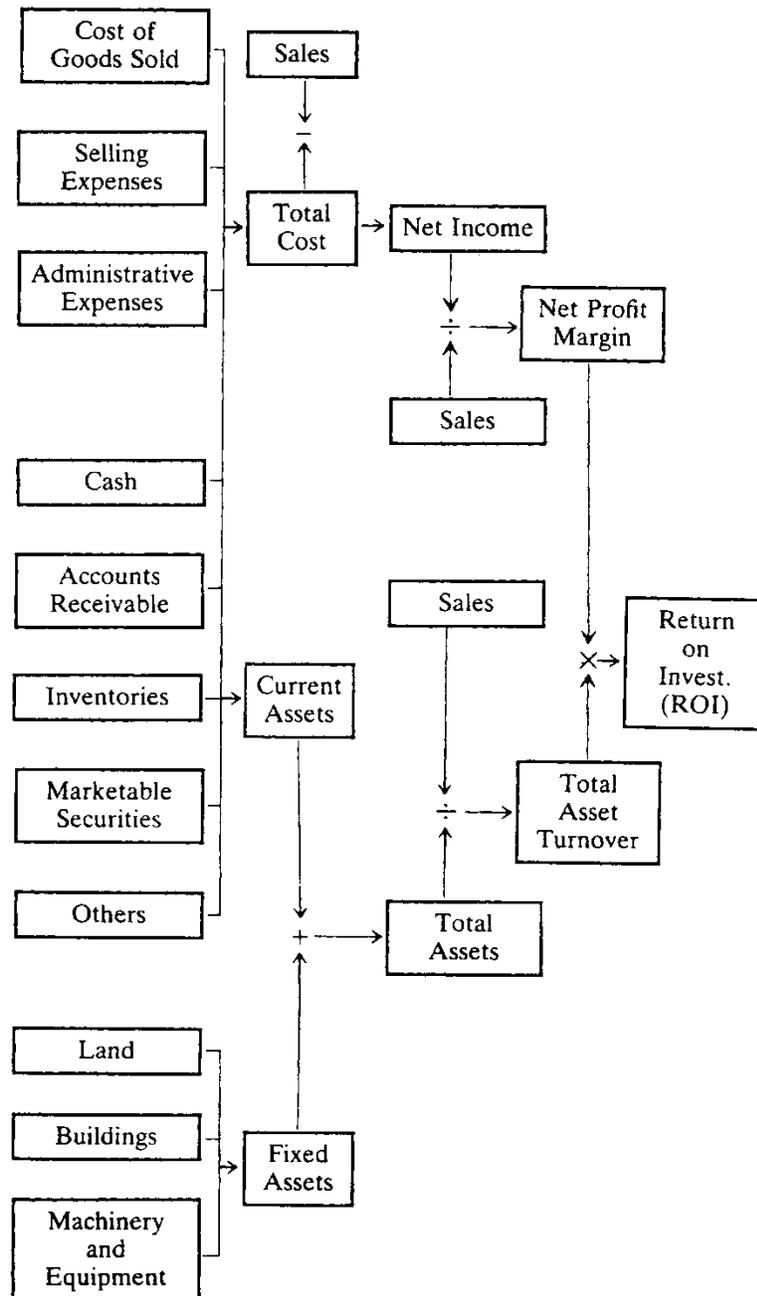
Therefore,

$$\text{ROI} = \frac{\text{Net income}}{\text{Average total assets}} = \frac{\text{Net income}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Average total assets}}$$

Asset turnover is the ratio of sales to capital employed in generating the sales. Capital turnover is a measure of the use of assets in relation to sales. Generally, the larger the volume of sales that management can generate on a given investment in assets, the more efficient its operations. *Profit margin* is the ratio of net income to sales and is a measure of operating efficiency.

The relationship of ROI to balance sheet and income statement items is shown in Exhibit 7-1

**EXHIBIT 7-1
RETURN ON INVESTMENT (ROI) RELATIONSHIPS**



Advantages claimed for ROI analysis include the following:

1. Focuses management's attention upon earning the best return on total assets.
2. Serves as a measure of management's efficiency and effectiveness.
3. Integrates financial planning, budgeting, sales objectives, cost control, and profit-making activities.
4. Provides a basis for comparing companies.
5. Provides a motivational basis for management.
6. Identifies weaknesses in the utilization of assets.

Return on investment can be improved by:

1. Improving operating efficiency (increasing profit margin),
2. Improving operating effectiveness (increasing asset turnover), or
3. Using a combination of efficiency and effectiveness.

EXAMPLE 1

To illustrate the computation of ROI, assume the following information is available:

<i>Condensed Income Statement</i>	
Sales	\$1,000,000
Less: Cost of sales and operating expenses	800,000
Net income	<u>\$200,000</u>
<i>Condensed Balance Sheet</i>	
Current assets	\$100,000
Plant and equipment	300,000
Total assets	<u>400,000</u>

Return on total assets (ROI) = profit margin x total asset turnover

Therefore,

$$\begin{aligned}
 \text{ROI} &= \frac{\text{Net income}}{\text{Average total assets}} = \frac{\text{Net income}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Average total assets}} \\
 &= \frac{\$200,000}{\$400,000} = \frac{\$200,000}{\$1,000,000} \times \frac{\$1,000,000}{\$400,000} = 50\%
 \end{aligned}$$

Recall that the ROI formula can be restated as follows:

$$\begin{aligned}
 \text{Return on total assets (ROI)} &= \text{profit margin} \times \text{total asset turnover} \\
 &= 20\% \times 2.5 \\
 &= 50\%
 \end{aligned}$$

Various actions can be taken to improve ROI, including the following:

1. Increase total sales by increasing volume, sales price, or some combination thereof, while maintaining or improving the margin on sales.
2. Decrease expenses, thereby increasing net income.
3. Reduce the amount of capital employed (for example, reduce the inventory level, improve collection of accounts receivable) without decreasing sales.

If the chief executive officer of this firm wants to increase ROI to 60 percent next year, and sales (price and/or volume) and invested capital cannot be changed, what change must occur in net income to achieve this objective?

$$\begin{aligned} \text{ROI} = 60\% &= \frac{\text{Net income (to be computed)}}{\$1,000,000} \times \frac{\$1,000,000}{\$400,000} \\ &= 60\% = \frac{\text{Net income (to be computed)}}{\$400,000} \end{aligned}$$

$$\text{Net income} = \$240,000 \text{ (i.e., } \$400,000 \times 60\%)$$

The comprehensive rate of return for the Beta Manufacturing Company is computed as follows for 20x5; capital employed equals average total assets in this computation:

$$\text{ROI} = \frac{\$95,500}{\$1,530,000} \times \frac{\$1,530,000}{\$1,293,600}$$

$$= .074 = 7.4\%, \text{ the same rate as computed earlier for the return on total assets}$$

In this case, management must focus attention on profit margin rather than on asset turnover, which is assumed to be unchangeable. Since sales cannot be increased, the improvement in net income must come from a reduction of expenses.

DU PONT FORMULA II. Du Pont formula II, also called *modified Du Pont formula*, reveals how ROE and ROI are related through what is known as the equity multiplier as follows:

$$\text{ROE} = \frac{\text{Net income}}{\text{Average stockholders' equity}} = \frac{\text{Net income}}{\text{Average total assets}} \times \frac{\text{Average total assets}}{\text{Average stockholders' equity}}$$

$$\text{ROE} = \text{ROI} \times \text{equity multiplier}$$

$$\text{ROE} = \text{ROI} \times \frac{1}{(1 - \text{debt ratio})}$$

In 20x5, the debt ratio is 0.496. Thus,

$$\text{ROE} = 0.0738 \times \frac{1}{(1 - 0.496)} = 0.0738 \times 1.984 = 0.1464 = 14.64\%$$

Note that ROI = 7.38% and ROE = 14.65% . (*Note:* Rounded causes the 1% difference). This means that through the favorable use of leverage (debt), the company was able to increase the stockholders' return significantly. *Note:* If the return on the resources provided by creditors exceeds the cost (interest or fixed dividends), leverage is used effectively, and the return to common equity will be higher than the other measures. The reason is that common equity provides a smaller proportion of the investment than in an unleveraged company. The purpose of financial leverage is to use other people's money (OPM) to earn income for shareholders.

	<i>ROI</i>	<i>Equity multiplier (debt ratio)</i>	<i>ROE</i>
20x5	7.38%	1.984 (0.496)	14.65%
20x4	6.41%	2.066 (0.516)	13.25%

SUMMARY

This chapter stressed various strategies to increase the return on total assets (ROI). The breakdown of ROI into margin and turnover, popularly known as the Du Pont formula, provides lots of insight into: (a) the strengths and weaknesses of a business and its segments, and (b) what needs to be done in order to improve performance. Another version of the Du Pont formula --the modified Du Pont formula--relates ROI to ROE (stockholders' return) through financial leverage. It shows how leverage can work favorably for the shareholders of the company. The use of financial leverage has a multiplier effect on the return on assets. The modified Du Pont formula illustrates this point by showing that the return on equity equals the ROI times the leverage factor, also called the equity multiplier (total assets/common equity). Thus, greater use of debt increases the equity multiplier and the return on equity.

CHAPTER 8

MARKET STRENGTH AND OVERALL EVALUATION

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. Differentiate between two different capital structures—simple and complex.
 2. Compute earnings per share in a simple capital structure.
 3. Compute earnings per share in a complex capital structure.
 4. List market test ratios and calculate them.
 5. Form an overall evaluation on a company's financial performance.
 6. Summarize the limitations of ratio analysis.
-

A final group of ratios are useful in testing the market strength of a company. They relate the firm's stock price to its earnings (book value, sales, cash flow) per share. They also include dividend-related ratios.

EARNINGS PER SHARE

Earnings per share (EPS) data are widely used in judging the operating performance of a business. Earnings per share appears frequently in financial statements and business publications. It is perhaps the most significant figure appearing on the income statement because it condenses into a single figure the data reflecting the current net income of the period in relation to the number of shares of common stock outstanding. Separate earnings per share data must be shown for income from continuing operations and net income. Earnings per share may be reported for the result from discontinued operations or extraordinary items if they are reported on the income statement. Current accounting practice requires that earnings per share be disclosed prominently on the face of the income statement.

If the capital structure of a corporation contains only common stock, earning per share is computed as follows:

$$\text{Earnings per Share (EPS)} = \frac{\text{Net income available to common stockholders}}{\text{Weighted average number of common shares outstanding}}$$

If the capital structure contains common stock and non-convertible, cumulative preferred stock or non-cumulative preferred stock on which the dividends have been paid, the earnings per share is computed as follows:

$$\text{EPS} = \frac{\text{Net income} - \text{Preferred dividends}}{\text{Weighted average number of common shares outstanding}}$$

$$\begin{aligned} 20x5 \text{ EPS} &= \frac{\$95,500 - \$700}{30,000} \\ &= \$3.16 \end{aligned}$$

$$\begin{aligned} 20x4 \text{ EPS} &= \frac{\$81,000 - \$700}{29,000} \\ &= \$2.77 \end{aligned}$$

The *weighted average number of common shares outstanding* in the denominator is equal to the number of common shares outstanding at the end of the accounting period if no shares have been issued or reacquired during the year. If shares have been issued or required a weighted average of these shares must be calculated. For example, if 10,000 shares were issued on July 1, these shares would be included in the denominator as 5,000 shares.

Corporations issue a variety of securities that can be converted into common stock, for example, convertible bonds and convertible preferred stock. Stock options and warrants are other securities that can be converted into common stock under specified conditions. If these common stock equivalents were converted, they would increase the number of shares of common stock outstanding and could decrease (dilute) earnings per share. If such securities exist, GAAP requires a disclosure of the dilution that would develop if all possible contingencies occurred. In such cases, a dual presentation of earnings per share would usually be required:

1. Basic earnings per share - This presentation are based on the outstanding common shares and those securities that are in substance equivalent to common shares and have a dilutive effect.
2. Diluted earnings per share – This is a pro forma presentation which affects the dilution of earnings per share that would have occurred if all contingent issuances of common stock that would individually reduce earnings per share had taken place at the beginning of the period.

The details of earnings-per-share computations are highly technical and are not proper subject of this course. The basic factors entering into the computations of basic and diluted earnings per share are summarized here:

$$\begin{aligned} \text{Basic earnings per share} &= \\ &= \frac{\text{Net income available to common stockholders}}{\text{Weighted average number of common shares outstanding}} \end{aligned}$$

$$\begin{aligned} \text{Diluted earnings per share} = & \\ & \frac{\text{Net income available to common stockholders} + \text{Net of tax} \\ & \quad \text{Interest and/or dividend on convertible securities}}{\text{Weighted average number of common shares outstanding} + \\ & \quad \text{Effect of convertible securities} + \text{net effect of stock options}} \end{aligned}$$

In the formulas, common stock equivalents are securities that, in substance, can be considered common stock. These include convertible debt and preferred stock, stock options and warrants, and contingent shares. Securities which have an anti-dilutive (increase earnings or reduce loss) effect on primary earnings per share are excluded from the computations. In the numerator of the formula, the addition to net income for “adjustments for common stock equivalents” could include such items as the after-tax effect of interest on convertible bonds and dividends on the preferred stock that were subtracted in determining net income available to common stock which must be added back. The special treatment given to stock options could also result in increasing the numerator of the formula.

The formulas used to compute earnings per share figures include arbitrary and subjective assumptions that can detract from their usefulness. Excessive emphasis should not be given to this one ratio. Many analysts use the conservative diluted earnings-per-share data when evaluating per share earnings. This may not represent the current situation or future expectations. According to ASC 260-10, *Earnings per Share: Overall* (FAS-128, *Earnings per Share*), earnings per share disclosures are required for companies with publicly traded common stock or potential common stock. It also applies to companies that have filed or are in the process of filing with a regulatory body in preparation for issuing such securities.

EXAMPLE

A company's net income for the year is \$200,000, and preferred dividends are \$20,000. On 1/1/20x5, 10,000 common shares were issued, and on 4/1/20x5, 2,000 additional shares were issued. A stock option exists for 3,000 common shares. A \$10,000 convertible bond is not a common stock equivalent, but rather an "other fully diluted security." Each \$1,000 bond is convertible into 500 common shares. The dual presentation of BPS follows:

$$\text{Weighted-average common stock outstanding} = (10,000 \times 3/12) + (12,000 \times 9/12) = 11,500$$

$$\text{EPS} = \frac{\$200,000 - \$20,000}{11,500 + 3,000} = \$12.41$$

The common shares exchangeable for the convertible bond is:

$$\frac{\$10,000}{\$1,000} = 10 \text{ bonds} \times 500 \text{ shares} = 5,000$$

$$\text{Fully Diluted EPS} = \frac{\$200,000 - \$20,000}{11,500 + 3,000 + 5,000} - \frac{\$180,000}{19,500} = \$9.23$$

Note:

Investors. Investors are interested in using EPS as a measure of the operating success of a company. A higher EPS will likely result in higher dividends per share and market price per share. However, the number is subject to manipulation. Values should not be compared across companies.

Management. Management wants a higher EPS because it reflects management's success in running the business.

Creditors. Creditors look negatively upon a company with declining profitability, since the decline may infer that the company has encountered financial difficulties, suggesting that there could be a greater risk of nonpayment of the amount owed.

Accountants. The independent CPA auditing a client firm may view a sudden drop in EPS as a sign of potential business failure that could spur third-party lawsuits.

MARKET TEST RATIOS

The price-earnings and dividend yield ratios can be used to measure the relationship between the market value of shares and earnings or dividends. The dividends payout ratio can be used to evaluate the company's dividends policy.

The *price-earnings ratio (P-E)* or *multiple* reflects to some extent the growth potential of a company and the market's evaluation of the firm's earnings. The P-E ratio expresses what the market is willing to pay for the earnings of the firm, e.g., a 15:1 ratio indicates that the market is paying \$15 for every \$1 of the earnings. An increasing ratio is generally reflecting investors' expectations of future earnings of the firm. A company with high growth opportunities typically has a high P-E ratio because investors are willing to pay a price for the stock higher than that justified by current earnings. In effect, they are trading current earnings for potential future earnings. *Earnings yield*, the inverse of the price-earnings ratio, is the amount of earnings you buy for every dollar worth of stock.

The formula for computing the P-E ratio is as follows:

$$\text{Price-earnings ratio} = \frac{\text{Market price per share}}{\text{Earnings per share}}$$

Given the following for Beta,

	<u>20x5</u>	<u>20x4</u>
Stock price at year-end	\$40	\$35
Average number of shares outstanding	30,000,000	29,000,000

$$\begin{aligned} 20x5 \text{ ratio} &= \frac{\$40}{\$3.16} \\ &= \$12.66 \end{aligned}$$

$$\begin{aligned} 20x4 \text{ ratio} &= \frac{\$35}{\$2.77} \\ &= \$12.64 \end{aligned}$$

Note: What does it mean when a firm's stock sells on a high or low P-E ratio? To answer this question, the Gordon's dividend growth model can be helpful. If a company's dividends are expected to grow at a constant rate, then

$$P_o = \frac{D_1}{r - g}$$

where P_o = the current price of stock, D_1 = the expected dividend next year, r = the return required by investors from similar investments, and g = the expected growth in dividends. In order to find the P-E ratio, dividing through by expected EPS.

$$\frac{P_o}{\text{EPS}} = \frac{D_1}{\text{EPS}} \times \frac{1}{r - g}$$

Thus, a high P-E ratio may indicate that

- Investors expect high dividend growth (g), or
- The stock has low risk and, therefore investors are content with a low prospective return (r), or
- The company is expected to achieve average growth while paying out a high proportion of earnings (D_1/EPS).

A high P-E multiple for a company is good because it indicates that the investing public considers the company in a favorable light. A steady decrease in the P-E ratio reflects decreasing investor confidence in the growth potential of the company. The P-E ratio varies among companies in an industry as well as among companies in different industries; thus, a company's price-earnings ratios should be compared to the P-E ratios of competing companies in the same industry to obtain a relative measure of comparison. Some companies have P-E multiples, reflecting high earnings growth expectations. Young, fast-growing companies often have high-P-E stocks, with multiples over 20.

The P-E ratio is useful in appraising the investment potential of a company—for example, investors may use it in deciding whether or not to invest in the company. Investors also use the P-E ratio as an indicator of how the company's stock price is performing.

Some investors believe that if a company's P-E ratio is too low relative to its industry, the stock may be undervalued and represent an acquisition opportunity. A high P-E ratio is desirable because it indicates that investors highly value company's earnings. On the other hand, some investors believe that if the P-E ratio is too high relative to industry averages, the stock may be overvalued and should be sold. Of course, many other financial and economic factors have to be taken into account in making this decision. *Note:* A P-E ratio cannot be computed when a firm has losses. Also, a firm with abnormally low profits could have an extremely high and thus meaningless P-E ratio.

The *book value (or equity) per share* is usually computed at a price equal to the equity per share of the outstanding stock. The computation of book value per share is usually computed on the going concern value of the enterprise, not on the liquidation value. The computation is made as follows:

$$\text{Book value per share} = \frac{\text{Total stockholders' equity} - \text{Preferred stock}}{\text{Common shares outstanding}}$$

If a corporation has treasury stock, the balance in the treasury stock account is deducted to determine the common stockholder's equity. If a company has preferred stock outstanding, the total equity of the preferred stock must first be computed and deducted from total stockholders' equity to determine the amount of stockholders' equity belonging to the common shares. In the case of the Beta Manufacturing Company, there is preferred stock outstanding. In computing the equity of the preferred stock, any dividends in arrears must be assigned to the preferred stock, if it is cumulative preferred stock, along with either (1) the par or stated value, (2) call price, or (3) liquidation price of the preferred stock. The call price is frequently used if it is available because this represents the maximum claim to net assets available to the preferred shares. The book value per share of common stock for the Beta Manufacturing Company is computed as follows for 20x5:

Total stockholders' equity	\$692,000
Less: Amount assigned to preferred stock: 120,000 shares, \$100 par value (no call price or liquidating price)	12,000
Equity applicable to common shares	<u>\$680,000</u>
Book value per share (\$680,000,000/30,000,000 shares)	\$22.67

For 20x4, (\$611,200,000 - \$12,000,000)/29,000,000 shares = \$20.66

The increased book value per share is a favorable sign, because it indicates that each share now has a higher book value. Book value per share typically does not approximate market value per share because book value is related to book figures (historical costs) and market value is related to the future potential as seen by investors.

Significant changes in book value of common stock can result from transactions such as the conversion of convertible bonds or preferred stock, issuance or retirement of common shares, stock splits and reverse stock splits, and other events. The analysts should be aware of these possibilities.

Book value per share is a figure that represents what the shareholders would receive for their shares of ownership if the corporation were liquidated without gain or loss. This ratio is sometimes referred to as the liquidation value per share. In other words, if corporate assets could be sold for exactly the value carried for them in the books, all liabilities settled, and the remaining cash distributed to shareholders, all shareholders should receive the book value of their stock holdings. Book value is based on the financial statements, which are stated in terms of historical cost and nominal dollars. The figure can be misleading because fair market values may differ substantially from book figures.

Note: A comparison of book value per share with market price per share gives an indication of how the stock market views the company. Generally, market price per share should be higher than book value per share, because the former is based on current prices. For example if a company's market price per share of stock is currently \$20 and the book value per share is \$26, the stock is probably not favored by investors. An acquiring company may pay a market price less than the liquidation value (breakup value) for an acquired company in order to obtain a profit by liquidating the acquired business.

The *price-book value ratio* shows the market value of the company in comparison to its historical accounting value. Market price is based on current prices, whereas book value is based on historical prices. Market price per share should generally be higher than book value per share, as a result of inflation and good corporate performance over the years. A company with old assets may have a high ratio whereas one with new assets may have a low ratio. In some businesses, the book value per share may typically be higher than the market price per share, such as the case for many banks. Hence, you should note the changes in the ratio in an effort to appraise the corporate assets.

The ratio equals:

$$\text{Price-book value} = \frac{\text{Market price per share}}{\text{Book value per share}}$$

In 20x5, the ratio is:

$$\frac{\$40}{\$22.67} = 1.76$$

In 20x4, the ratio was 1.69 (\$35/\$20.66). A rise in the ratio may indicate a higher opinion of the company in the eyes of investors. Market price of stock may have risen because of an improvement in liquidity, activity, and profitability ratios. The major indicators of a company's performance are intertwined (i.e., one affects the other) so that improvements in one area may spill over into another. This appears to have happened to the company in our example.

Note: The analytical implication of a low ratio may be that the company has not been performing well. If analysts see that a company's market price is below its book value, the situation could

suggest that the company is having financial and operating problems. Some analysts, however, feel a buying opportunity may exist when book value is above market price, because the company stock may be undervalued.

The *price-sales (P-S) ratio* shows the market value of the company in comparison to its sales. It is computed as:

$$\frac{\text{Market price per share}}{\text{Sales per share}}$$

The sales (revenue) per share is

	20x4	20x5
	\$1,450,000,000/29,000,000	\$1,530,000,000/30,000,000
=	\$50 per share	\$51 per share

For Beta, the price-sales ratio is:

$$= \frac{\frac{20x5}{\$40}}{\frac{20x4}{\$51}} = \frac{0.78}{0.70}$$

A P-S of, say, 0.78 means you are paying 78 cents for every dollar of sales. The P-S ratio reflects a company's underlying strength.

Market Value Added. The major goal of a firm is to maximize wealth maximization. This goal is maximized by maximizing the difference between the market value of the firm's stock and the amount of equity capital supplied by shareholders. The difference is called the *market value added (MVA)*. $MVA = \text{market value of the firm's stock} - \text{equity capital supplied by shareholders} = (\text{stock price} \times \text{shares outstanding}) - \text{total common equity}$

In 20x5, the company's MVA is $(\$40 \times 30,000 \text{ shares}) - (\$150,000 + \$13,200) = \$1,036,800$.

In 20x4, the company's MVA is $(\$35 \times 29,000 \text{ shares}) - (\$145,000 + \$15,000) = \$855,000$, which indicates a substantial increase in the company's market value added. The higher its MVA, the better the job management is doing for the company's shareholders.

Dividends per share simply reports the dividends distributed per share of common stock. It is computed as follows:

$$\text{Dividends per common share} = \frac{\text{Dividends on common stock}}{\text{Number of common shares}}$$

$$\begin{aligned} 20x5 \text{ ratio} &= \frac{\$36,000}{30,000} \\ &= \$1.20 \end{aligned}$$

$$\begin{aligned} 20x4 \text{ ratio} &= \frac{\$34,800}{29,000} \\ &= \$1.20 \end{aligned}$$

Dividends per share data, for a number of years, are of special interest to investors. Dividends per share can be used to compute the dividend yield.

Dividends yield is a measure of a common stockholder's total return for the period. The dividend yield is computed as follows:

$$\text{Dividend yield} = \frac{\text{Dividends per share}}{\text{Market price per share}}$$

$$\begin{aligned} 20x5 \text{ dividend yield} &= \frac{\$1.20}{\$35} \\ &= 3.4\% \end{aligned}$$

$$\begin{aligned} 20x4 \text{ dividend yield} &= \frac{\$1.20}{\$40} \\ &= 3.0\% \end{aligned}$$

The *dividend payout ratio* indicates the income available to common stockholders that has been distributed as a dividend. This ratio reflects the dividend policy of the company and to some extent management's perceptions regarding the uncertainties associated with future earnings. The ratio is computed as follows:

$$\text{Dividend payout ratio} = \frac{\text{Common dividends}}{\text{Earnings available to common shareholders}}$$

$$\begin{aligned} 20x5 \text{ dividend payout} &= \frac{\$36,000}{\$95,500 - \$700} \\ &= 38\% \end{aligned}$$

$$20x4 \text{ dividend payout} = \frac{\$34,800}{\$81,000 - \$700}$$

$$= 43.3\%$$

The dividend payout ratio can also be computed as the percentage of EPS that is distributed to common stockholders. In 20x5 this would be computed as follows:

$$\text{Dividend payout ratio} = \frac{\text{Dividends per share}}{\text{Earnings per share}}$$

$$\begin{aligned} 20x5 \text{ ratio} &= \frac{\$1.20}{\$3.16} \\ &= 38.0\% \end{aligned}$$

$$\begin{aligned} 20x4 \text{ ratio} &= \frac{\$1.20}{\$2.77} \\ &= 43.3\% \end{aligned}$$

Note: A low dividend yield ratio suggests that the company is retaining its earnings for reinvestment in future growth, as many high-tech companies are. A high dividend payout ratio is attractive to investors looking for a steady investment income stream than stock price appreciation. A reduction in dividend payouts will cause stockholders to be concerned—particularly stockholders relying on a fixed income, such as an older couple. Stockholders may be tempted to sell their shares in a company that has cut its dividend.

OTHER CONSIDERATIONS

Additional ratios are available to evaluate specific areas of profitability related factors. The *ratio of selling, general, and administrative expense to sales* provides some information concerning the effectiveness of cost control efforts undertaken by the company as well as management's efficiency of managing operating expenses in relationship to changing sales volumes. With continuing inflationary cost increases, this ratio should be carefully monitored. Generally, this ratio should decrease with an increasing sales volume. Trend analysis is particularly useful in identifying areas of strength or weakness; any significant fluctuations in the trend should be investigated. The *ratio of advertising to sales* is especially useful in evaluating consumer-oriented enterprises. Inter-company and industry comparisons are especially relevant in such situations.

Operating profit per unit of capacity or service, such as per room for hotels or per bed for hospitals, indicates the profitability of available physical resources and compares operations of different sizes. Productivity ratio attempt to measure both output and input in physical volumes; thus eliminating the impact of price changes. *Productivity ratios* are usually set up as follows:

$$\frac{\text{Output (physical goods or services quantified)}}{\text{Input (direct labor hours or machine hours)}}$$

Just as pension and lease obligations are an important part of balance sheet analysis, pension and lease-related expenses can be a significant factor when the income statement is being

analyzed. Companies are providing increases disclosure regarding pensions and leases. This information needs to be carefully studied and analyzed in terms of the underlying accounting principles applied.

The analysis of profitability or earnings performance is a major concern to investors and creditors. The analysts should keep in mind that the amount of earnings is affected by the accounting principles and practices followed in compiling the statements. Analysts should be concerned not only with the amount of earnings and their relationships to other statement factors but also with the quality of those earnings.

AN OVERALL EVALUATION -- SUMMARY OF FINANCIAL RATIOS

As indicated in the chapter, a single ratio or a single group of ratios is not adequate for assessing all aspects of the firm's financial condition. Exhibit 8-1 summarizes the 20x4 and 20x5 ratios calculated in the previous sections, along with the industry average ratios for 20x5. The figure also shows the formula used to calculate each ratio. The last three columns of the figure contain subjective assessments of Beta's financial condition, based on trend analysis and 20x5 comparisons to the industry norms. (5-year ratios are generally needed for trend analysis to be more meaningful, however.)

By appraising the trend in the company's ratios from 20x4 to 20x5, we see from the rise in the current and quick ratios that there has been a slight improvement in short-term liquidity, although they have been below the industry averages. Net working capital has also improved. It is encouraging that the cash ratio and cash burn rate were improving. A slight increase in the activity ratios has occurred, indicating that improved credit and inventory policies are in effect. They are not terribly encouraging, however, since these ratios are out of line with industry averages. Also, total utilization of assets, as indicated by the total asset turnover, shows a favorable trend., but lags way behind the industry.

Leverage (amount of debt) ratios have been steadily improving. Free cash flow (FCF) rose substantially over 20x4. Further, there is more profit and cash available to satisfy interest charges. Beta's profitability has improved over the year. In 20x5, it is consistently above the industry average in every measure of profitability. In consequence, the return on the owner's investment and the return on total assets have gone up. The earnings increase may be partly due to the firm's lower cost of short-term financing and partly due to operating efficiency. The lower costs may be due to better receivable and inventory management that raised the liquidity and activity ratios. Furthermore, as receivables and inventory turn over more, profit will rise from increase sales and the costs of carrying less in current asset balances.

The firm's market value, as measured by the price-earnings (P-E) ratio, is respectable as compared with the industry. Market value added showed a sizable increase, which indicates that investors started viewing the company's results very favorably.

In summary, it appears that the company is doing satisfactorily in the industry in many categories. The 20x4-20x5 period seems to indicate that the company is poised for better times ahead in terms of earnings, long-term solvency, activity, short-term liquidity, and cash flow adequacy ratios. This performance may be further rewarded by a higher market price per share down the road. Note,

however, that, in 20x5, the company is lagging behind the industry in liquidity and activity and needs to concentrate on improving these areas.

IS RATIO ANALYSIS A PANACEA?

While ratio analysis is an effective tool for assessing a business's financial condition, you must also recognize the following limitations:

1. Accounting policies vary among companies and can inhibit useful comparisons. For example, the use of different depreciation methods (straight-line vs. double declining balance) will affect profitability and return ratios.
2. Management may "fool around" with ("window-dress") the figures. For example, it can reduce needed research expense just to bolster net income. This practice, however, will almost always hurt the company in the long run.
3. A ratio is static and does not reveal future flows. For example, it will not answer questions such as "How much cash do you have in your pocket now?" or "Is that sufficient, considering your expenses and income over the next month?"
4. A ratio does not indicate the quality of its components. For example, a high quick ratio may contain receivables that may not be collected.
5. Reported liabilities may be undervalued. An example is a lawsuit on which the company is contingently liable.
6. The company may have multiple lines of business, making it difficult to identify the industry group the company is a part of.
7. Industry averages cited by financial advisory services are only approximations. Hence, you may have to compare a company's ratios to those of competing companies in the industry.

SUMMARY

The analysis of financial statements means different things to different people. It is of interest to creditors, present and prospective investors, and the firm's own management. This chapter has presented the various financial statement analysis tools useful in evaluating the firm's present and future financial condition. These techniques include horizontal, vertical, and ratio analysis, which provide relative measures of the performance and financial health of the company. Two methods were demonstrated for analyzing financial ratios. The first involved trend analysis for the company over time; the second involved making comparisons with industry norms. While ratio analysis is an effective tool for assessing a company's financial condition, the limitation of ratios must be recognized.

EXHIBIT 8-1
The Beta Manufacturing Company
Summary of Financial Ratios - Trend and Industry Comparisons

Ratios	Definitions	20x4	20x5	(a) Industry	(b) Evaluation		
					Ind.(20x5)	Trend	Overall
LIQUIDITY							
Net working capital	Current assets - Current liabilities	\$398,000	\$460,000	\$480,000	poor	improving	OK
Current ratio	Current assets/Current liabilities	2.10	2.35	2.40	poor	Improving	OK
Quick (Acid-test) ratio	(Cash + Marketable securities + Accounts receivable)/Current liabilities	1.06	1.30	1.32	poor	Improving	OK
Cash ratio	Cash/Current liabilities	0.08	0.18	N/A	N/A	Improving	OK
Cash burn rate	Current assets/Average daily operating expenses	211.76 days	212.98 days	N/A	N/A	Improving	OK
ASSET UTILIZATION							
Accounts receivable turnover	Net credit sales/Average accounts receivable	5.0	5.08	5.2	poor	Improving	OK
Average collection period	365 days/Accounts receivable turnover	73 days	71.85 days	69.9 days	poor	Improving	OK
Inventory turnover	Cost of goods sold/Average inventory	2.79	2.93	2.3	poor	Improving	OK
Average age	365 days/Inventory turnover	130	124.6	N/A	N/A	Improving	OK

of inventory		days	days				
Operating cycle	Average collection period + Average age of inventory	48.7 days	48.1 days	N/A	N/A	Improving	OK
Cash conversion cycle	Operating cycle - Average payable period	155.1 days	147.35 days	N/A	N/A	Improving	OK
Total asset turnover	Net sales/Average total assets	1.15	1.18	155	poor	Improving	OK
Fixed asset turnover	Net sales/Average fixed assets	2.91	2.94	3.12	poor	Improving	OK
SOLVENCY							
Debt ratio	Total liabilities/Total assets	0.516	0.496	0.490	good	Improving	good
Equity-debt ratio	Stockholders' equity/Total liabilities	0.94	1.09	1.00	good	Improving	good
Debt-equity ratio	Total liabilities/Stockholders' equity	107%	91.3%	100%	good	Improving	good
Equity-total assets ratio	Stockholders' equity/Total assets	0.484	0.523	0.5	good	Improving	good
Times interest earned	Income before interest and taxes (EBIT)/ Interest expense	4.68 times	5.03 times	4 times	good	Improving	good
Cash coverage ratio	EBITD/Interest	5.15 times	5.68 times	N/A	N/A	Improving	OK
Free cash flow (FCF)	Cash flow from operations - Cash used to purchase fixed assets - Cash dividends	(\$37,000)	\$4,000	N/A	N/A	Improving	OK

PROFITABILITY							
Gross profit margin	Gross profit/Net sales	28.7%	30%	25%	good	Improving	good
Operating expenses/sales	Operating expense/Net sales	19.03%	19.67%	NA	NA	Deteriorating	Deteriorating
Profit margin	Net income/Net sales	5.6%	6.2%	6.0%	good	Improving	good
Return on total assets (ROI)	Net income/Average total assets	6.41%	7.38%	7.10%	good	Improving	good
Return on equity (ROE)	Earnings available to common stockholders/ Average stockholders' equity	13.25%	14.65%	14%	good	Improving	good
MARKET VALUE							
Earnings per share (EPS)	(Net income -preferred dividend)/ Common shares outstanding	\$2.77	\$3.16	NA	NA	Improving	OK
Price-earnings (P-E) ratio	Market price per share/EPS	12.64	12.66	12.15	good	Improving	good
Book value per share	(Total stockholders' equity - preferred stock)/ Common shares outstanding	\$20.66	\$22.67	\$21.0	good	improving	good
Price-book value (P-B) ratio	Market price per share/Book value per share	1.69	1.76	1.70	good	improving	good
Price-sales(P-S) ratio	Market price per share/Sales per share	0.7	0.78	0.75	good	improving	good
Market value added (MVA)	Market value of the firm's stock - Equity capital supplied by	\$855,000	\$1,036,800	N/A	N/A	improving	OK

	shareholders						
Dividend yield	Dividends per share/Market price per share	3.0%	3.4%	3%	poor	improving	OK
Dividend payout	Dividends per share/EPS	43.3%	38.0%	40.0%	poor	Deteriorated	poor

(a) Obtained from sources not included in this chapter

(b) Represent subjective evaluation

CHAPTER 9

ANALYSIS OF CASH FLOWS

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. Describe the purpose of the statement of cash flows.
2. Identify the major classifications of cash flows.
3. Prepare and analyze the statement of cash flows.
4. Differentiate between net income and net cash flows from operating activities.
5. Distinguish between cash flow coverage (or adequacy) ratios and cash flow performance measures.
6. Analyze and interpret two major categories of cash flow ratios.

Along with financial ratio analysis, cash flow analysis is a valuable tool. The cash flow statement provides information on how your company generated and used cash, that is, why cash flow increased or decreased. An analysis of the statement is helpful in appraising past performance, projecting the company's future direction, forecasting liquidity trends, and evaluating your company's ability to satisfy its debts at maturity. Because the statement lists the specific sources and uses of cash during the period, it can be used to answer the following:

- How was the expansion in plant and equipment financed?
- What use was made of net income?
- Where did you obtain funds?
- How much required capital is generated internally?
- Is the dividend policy in balance with its operating policy?
- How much debt was paid off?
- How much was received from the issuance of stock?
- How much debt financing was taken out?

The primary purpose is to provide information about the cash receipts and cash payments of a business enterprise during a period. This information helps investors, creditors, and other users to assess the enterprise's ability to generate net cash inflows, meet obligations, pay dividends, and secure external financing. It also helps assess reasons for the differences between net income and net cash flow and the effects of cash and noncash financing and investing activities (*ASC 230, Statement of Cash Flows (FAS-95, Statement of Cash Flows)*).

Current profitability is only one important factor in predicting corporate success; current and future cash flow is also essential. In fact, it is possible for a profitable company to have a cash crisis; for example, a company with significant credit sales but a very long collection period may show a profit without actually having the cash from those sales.

Financial managers are responsible for planning how and when cash will be used and obtained. When planned expenditures require more cash than planned activities are likely to produce, financial managers must decide what to do. They may decide to obtain debt or equity funds or to dispose of some fixed assets or a whole business segment. Alternatively, they may decide to cut back on planned activities by modifying operational plans, such as ending a special advertising campaign or delaying new acquisitions, or to revise planned payments to financing sources, such as bondholders or stockholders. Whatever is decided, the financial manager's goal is to balance the cash available and the needs for cash over both the short and the long term.

Evaluating the statement of cash flows is essential if you are to appraise accurately an entity's cash flows from operating, investing, and financing activities and its liquidity and solvency positions. Inadequacy in cash flow has possible serious implications, including declining profitability, greater financial risk, and even possible bankruptcy.

PREPARING AND ANALYZING THE STATEMENT OF CASH FLOWS

In this section, we do an analysis of a hypothetical statement of cash flows, prepared from sample balance sheet and income statement figures. *Note:* Throughout the analysis, the term *cash* refers to *cash* and *cash equivalents*. ASC 230, *Statement of Cash Flows* defines cash equivalents as short-term, highly liquid investments that are both readily convertible to known amounts of cash and so near their maturity that they present insignificant risk of changes in value because of changes in interest rates. Moreover, cash equivalents ordinarily include only investments with original maturities to the holder of three months or less. An example is the T-bill.

EXAMPLE 1

X Company provides the following financial statements:

X Company
 Comparative Balance Sheets
 December 31
 (in millions)

ASSETS	20X1	20X0
Cash	\$ 40	\$ 47
Accounts receivable	30	35
Prepaid expenses	4	2
Land	50	35
Building	100	80
Accumulated depreciation	(9)	(6)
Equipment	50	42
Accumulated depreciation	(11)	(7)
Total assets	\$254	\$228
LIABILITIES AND STOCKHOLDERS' EQUITY		
Accounts payable	\$ 20	\$ 16
Long-term notes payable	30	20
Common stock	100	100
Retained earnings	104	92
Total liabilities and stockholders' equity	\$254	\$228

X Company
 Income Statement
 for the Year Ended December 31, 20X1
 (in millions)

Revenue	\$300
Operating expenses	
(excluding depreciation) \$200	
Depreciation	7
Income from operations	\$ 93
Income tax expense	32
Net income	\$ 61

X Company
Statement of Cash Flows
for the Year Ended December 31, 20X1
(in millions)

Operating activities:		
Net income		\$61
Adjustments to reconcile net income to cash provided by operating activities:		
Depreciation	\$ 7	
Changes in operating assets and liabilities:		
Decrease in accounts receivable	5	
Increase in prepaid items	(2)	
Increase in accounts payable	<u>4</u>	
Cash provided by operating activities		75
Cash flow from investing activities		
Purchase of land	(\$15)	
Purchase of building	(20)	
Purchase of equipment	(8)	(43)
Cash flow from financing activities		
Issuance of long-term notes payable	\$10	
Payment of cash dividends	(49)	(39)
Net decrease in cash		<u><u>\$ 7</u></u>

Assume the company has a policy of paying very high dividends.

Information for 20X0 follows: Net income, \$32; cash flow from operations, \$20. A financial analysis of the statement of cash flows reveals that the profitability and operating cash flow of X Company improved from 20X0 to 20X1. The company's earnings performance was good, and the \$61 earnings resulted in cash inflow from operations of \$75. Thus, compared to 20X0, 20X1 showed better results.

The decrease in accounts receivable may reveal better collection efforts. The increase in accounts payable is a sign that suppliers are confident they will be paid and are willing to give interest-free financing. The acquisition of land, building, and equipment points to a growing business undertaking capital expansion. The issuance of long-term notes payable indicates that the company is financing part of its assets through debt. Stockholders will be happy with the significant dividend payout of 80.3 percent (dividends divided by net income, or \$49/\$61). Overall, there was a decrease in cash on hand of \$7, but this should not cause alarm because of the company's profitability and the fact that the cash was used for capital expansion and dividend payments. We recommend that the dividend payout be reduced from its high level and that the funds be reinvested in the business; the reduction of dividends by more than \$7 would result in a positive net cash flow for the year, which is needed for immediate liquidity.

EXAMPLE 2

Y Company presents the following statement of cash flows.

Y Company
Statement of Cash Flows
for the Year Ended December 31, 20X0

Operating activities:		
Net income		\$134,000
Adjustments to reconcile net income to cash provided by operating activities:		
Depreciation	\$21,000	
Changes in operating assets and liabilities:		
Decrease in accounts receivable	10,000	
Increase in prepaid items	(6,000)	
Increase in accounts payable	35,000	60,000
Cash provided by operating activities		\$194,000
Cash flows from investing activities		
Purchase of land	(\$70,000)	
Purchase of building	(200,000)	
Purchase of equipment	(68,000)	
Cash used by investing activities		(338,000)
Cash flows from financing activities		
Issuance of bonds	150,000	
Payment of cash dividends	(18,000)	
Cash provided by financing activities		132,000
Net decrease in cash		<u><u>\$(12,000)</u></u>

An analysis of the statement of cash flows reveals that the company is profitable and that cash flow from operating activities exceeds net income, which indicates good internal cash generation. The ratio of cash flow from operating activities to net income is a solid 1.45 (\$194,000/\$134,000). A high ratio is desirable because it shows that earnings are backed up by cash. The decline in accounts receivable may indicate better collection efforts; the increase in accounts payable shows the company can obtain interest-free financing. The company is definitely in the process of expanding for future growth, as demonstrated by the purchase of land, building, and equipment. The debt position of the company has increased, indicating greater risk for investors. The dividend payout was 13.4 percent (\$18,000/\$134,000), which is good news for stockholders, who look positively on companies that pay dividends. The decrease of \$12,000 in cash flow for the year is a negative sign.

TREND ANALYSIS AND INDUSTRY COMPARISON

The statement of cash flows, like the other primary financial statements, provides information that can be analyzed over time to obtain a better understanding of the past performance of a firm, as well as its future prospects. Examining the change in the cash provided by operating activities from the previous period to the current period can also offer financial statement users useful clues. For example, if the cash provided by operating activities declined significantly during the reporting period, it is important to determine the reason for the drop and to assess whether it may signal a future trend. If the cash provided by operating activities is negative (net cash is used by operations) and continues that way, the firm's ability to remain a going concern must be carefully evaluated.

Information gleaned from this statement can also be effectively used to compare the performance and prospects of different firms in an industry and of different industries. There are

several ratios based on cash flows from operating activities that are useful in this analysis. These ratios generally fall into two major categories: cash flow coverage (or adequacy) ratios and cash flow performance measures.

CASH FLOW COVERAGE (ADEQUACY) RATIOS

As we have noted, a firm's operating activities must, in the long run, be able to generate enough cash to meet the firm's needs, as there are always limits to the amount of funds that can be generated through debt and equity offerings. Several ratios have been developed to help users assess the amount of cash generated from operating activities. The three most common ratios include:

- Cash debt coverage ratio
- Cash dividend coverage ratio
- Cash interest coverage ratio

These ratios are based on cash provided by operating activities, and they provide a way to measure adequacy or liquidity. Because the ratios that follow are aimed at determining the adequacy of cash, cash interest payments, cash tax payments, and dividends paid are used rather than their accrual-basis counterparts—interest expense, tax expense, and dividends declared. If the activities of a company are fairly stable, there will not be much difference between the cash-basis and the accrual-basis figures for these items. However, to the extent that a company is growing or shrinking cash flows, figures may lag or lead accrual-basis figures. Nonetheless, to be consistent both the numerator and denominator of the ratios are based on the cash flow figure, where appropriate.

Exhibit 9-1 is a summary of financial data of Beta Manufacturing Company extracted from Exhibits 3-3, 3-4, 3-5, and 3-6 and used to illustrate these ratios. All data except for common shares outstanding are in thousands.

EXHIBIT 9-1
SUMMARY OF FINANCIAL DATA
BETA MANUFACTURING COMPANY

	<u>20x4</u>	<u>20x5</u>
Cash flows from operating activities	\$117,500	\$134,000
Cash interest payments	34,000	34,000
Cash tax payments	44,000	41,500
Cash dividends paid to shareholders	35,500	36,700
Cash dividend on preferred stock	700	700
Operating income	140,000	159,000
Net income	81,000	95,500
Average total assets	1,263,200	1,293,600
Average total debt	652,000	642,000
Average stockholders' equity	611,200	651,600
Common stock—shares outstanding	29,000,000	30,000,000

CASH DEBT COVERAGE RATIO

The cash debt coverage ratio is calculated by dividing cash flows from operating activities by average total debt (current liabilities plus long-term debt). This ratio measures a firm's ability to repay both its short- and long-term debt. In a sense, this ratio is an indicator of the financial risk of a firm. If the ratio is high, the firm faces less risk by generating cash flows to repay its debt. This ratio is computed as follows:

$$\text{Cash debt coverage ratio} = \frac{\text{Cash flows from operating activities}}{\text{Average total debt}}$$

For Beta,

	<u>20x4</u>	<u>20x5</u>
	<u>\$117,500</u>	<u>\$134,000</u>
	652,000	642,000
=	0.180	0.209

Although cash coverage is improving, it is not a particularly high ratio.

Note: A higher ratio indicates liquidity and solvency, that the company is generating cash sufficient to meet its near-term and long-term needs. A general rule of thumb is that a ratio below .2 times is considered cause for addition investigation

CASH DIVIDEND COVERAGE RATIO

The cash dividend coverage ratio is calculated by dividing cash flows from operating activities by total dividends paid and measures the firm's ability to pay dividends at the current level or to potentially increase dividends in the future. The cash dividend coverage ratio for Beta is calculated as:

$$\text{Cash dividend coverage ratio} = \frac{\text{Cash flows from operating activities}}{\text{Average dividends paid}}$$

	<u>20x4</u>	<u>20x5</u>
	<u>\$117,500</u>	<u>\$134,000</u>
	35,500	36,700
=	3.01	3.66

This ratio indicates that Beta is generating almost four times the amount of cash needed to cover its current dividends in 20x5. It also shows an improvement.

CASH INTEREST COVERAGE RATIO

The cash interest coverage ratio is calculated by adding cash flows from operating activities to interest and taxes paid in cash, then dividing this total by cash interest payments. It is a measure of a firm's ability to meet its current interest payments. This ratio is similar to the times interest earned ratio, except that it is based on cash flows from operating activities rather than net income. For Beta, this ratio is computed as follows:

$$\text{Cash interest coverage ratio} = \frac{\text{Cash flows from operating activities} + \text{Interest paid} + \text{Taxes paid}}{\text{Cash interest payments}}$$

	<u>20x4</u>	<u>20x5</u>
	<u>(\$117,500 + \$34,000 + \$44,000)</u>	<u>(\$134,000 + \$34,000 + \$41,500)</u>
	\$34,000	\$34,000
=	5.75	= 6.18

This ratio indicates that Beta is generating cash flows before interest and taxes that are more than six times the amount of its interest payments in 20x5. This ratio, together with the cash dividend coverage ratio, indicates that Beta is generating more than enough cash flows from its operating activities to cover its annual interest and dividend payments.

CASH FLOW PERFORMANCE MEASURES

Information presented on the statement of cash flows can also be used to analyze the performance of a firm from a cash flow perspective. These performance measures are

- Cash flow return on assets and cash flow return on equity
- Cash flow per share
- Cash flow to operating income ratio and cash flow to net income ratio

CASH FLOW RETURN ON ASSETS AND ON EQUITY

Cash flow return on assets is calculated by dividing cash flows from operating activities before interest and taxes by average total assets for the period, while cash flow return on equity is calculated by dividing cash flows from operating activities less any preferred dividends by average common stockholders' equity. These ratios help users assess whether a firm is earning an adequate cash flow return on its net assets and whether stockholders are earning adequate cash flows from their investments. For Beta, the cash flow return on assets and cash flow return on equity are calculated as follows:

$$\text{Cash flow return on assets} = \frac{\text{Cash flows from operating activities} + \text{Interest paid} + \text{Taxes paid}}{\text{Average total assets}}$$

<u>20x4</u>	<u>20x5</u>
$\frac{(\$117,500 + \$34,000 + \$44,000)}{\$1,263,200}$	$\frac{(\$134,000 + \$34,000 + \$41,500)}{\$1,293,600}$
= 0.155	= 0.162

$$\text{Cash flow return on equity} = \frac{\text{Cash flows from operating activities} - \text{Preferred dividends paid}}{\text{Average common stockholders' equity}}$$

<u>20x4</u>	<u>20x5</u>
$\frac{(\$117,500 - \$700)}{\$611,200}$	$\frac{(\$134,000 - \$700)}{\$651,600}$
= 0.191	= 0.205

The cash return on equity is high because Beta is somewhat leveraged. *Note:* A profitable highly leveraged company will generate high returns on equity, as most of the assets are provided not by the stockholders, but by the debt holders.

CASH FLOW PER SHARE

Cash flow per share is calculated by dividing cash flows from operating activities by the number of issued shares. This measurement helps users understand how much cash flow is attributed to each share of stock issued. For Beta, this ratio is calculated as follows:

$$\text{Cash flow per share} = \frac{\text{Cash flows from operating activities}}{\text{Number of common shares issued}}$$

<u>20x4</u>	<u>20x5</u>
$\frac{\$117,500,000}{29,000,000}$	$\frac{\$134,000,000}{30,000,000}$

=	4.05	4.48
---	------	------

Note: Cash flow per share is not presented in financial statements. According to ASC 230, *Statement of Cash Flows*, doing so might imply that cash flow is an alternative to net income as an indicator of performance.

CASH FLOW TO OPERATING INCOME AND CASH FLOW TO NET INCOME RATIOS—QUALITY OF EARNINGS INDICES

Operating income and net income, the results of accrual-based GAAP, must ultimately generate cash flows. Indicators of how closely income mirrors cash flows from operating activities are the *cash flow to operating income ratio* and the *cash flow to net income ratio*. Some analysts consider these ratios a measure of the quality of earnings. That is, the closer operating income and net income are to cash flows from operating activities, the higher the quality of earnings.

Using the data from Beta, these ratios are calculated as follows:

$$\text{Cash flow to operating income ratio} = \frac{\text{Cash flows from operating activities}}{\text{Operating income}}$$

	<u>20x4</u>	<u>20x5</u>
	<u>\$117,500</u>	<u>\$134,000</u>
	140,000	159,000
=	0.839	0.846

$$\text{Cash flow to net income ratio} = \frac{\text{Cash flows from operating activities}}{\text{Net income}}$$

	<u>20x4</u>	<u>20x5</u>
	<u>\$117,500</u>	<u>\$134,000</u>
	81,000	95,500
=	1.45	1.40

These ratios indicate that not only is Beta profitable, but its operations are generating large amounts of cash flows—about 40 to 45% more than the amount of net income.

PRICE/CASH FLOW RATIO

The *price/cash flow ratio* shows the market value of the company in comparison to its cash flow. You should note the changes in the ratio in an effort to appraise the company's cash generating capability. This is another measure of a company's market value, along with the price-

earnings (P-E), price-sales (P-S), and price-book (P-B) ratios, which was covered in Chapter 8 (*Market Strength and Overall Evaluation*).

The ratio equals:

$$\text{Price/cash flow value} = \frac{\text{Market price per share}}{\text{Cash flow per share}}$$

In 20x5, the ratio is:

$$\frac{\$40}{\$4.48} = 8.93$$

In 20x4, the ratio was 8.64 (\$35/\$4.05). A rise in the ratio may indicate a higher opinion of the company in the eyes of investors. Market price of stock may have risen because of an improvement in liquidity. The major indicators of a company's performance are intertwined (i.e., one affects the other) so improvements in one area may spill over into another. This appears to have happened to the company in our example.

MSN offers these ratios for Amazon (AMZN):

PRICE RATIOS	COMPANY	INDUSTRY	S&P 500
Current P/E Ratio	2,979.4	7.5	33.3
P/E Ratio 5-Year High	NA	154.3	132.8
P/E Ratio 5-Year Low	NA	21.9	2.8
Price/Sales Ratio	1.76	2.88	2.28
Price/Book Value	13.37	9.22	3.71
Price/Cash Flow Ratio	50	33.6	12.4

Source: <http://investing.money.msn.com/investments/key-ratios?symbol=AMZN&page=PriceRatio> accessed 10/26/2012.

Note:

Financial Management. Earnings are of higher quality if they are backed up by cash, since cash can be used to meet debt payments, buying fixed assets, and so forth. A high cash reinvestment ratio indicates that more cash is being used in the business.

Short-Term Creditors. A company with a high percentage of internally generated cash earnings has better liquidity.

CHAPTER 10

INTERIM STATEMENTS AND SEGMENT ANALYSIS

LEARNING OBJECTIVES

After reading this chapter, you should be able to:

1. Describe the accounting problems associated with interim reporting.
 2. Outline the disclosure requirements for major segments of a business.
-

Companies frequently prepare income statements for stockholders and others. Such statements can provide a wealth of information for the serious investor. Also, many public companies are required to disclose significant information about segments of their operations. Analysts should understand what kind of information are disclosed in interim financial statements and segment reporting.

INTERIM FINANCIAL REPORT

Annual financial statements frequently encompass a time period longer than that required to permit timely reporting to investors and creditors of a company. Interim financial statements have been developed to provide a timelier source of information. Interim financial reports are frequently unaudited; if so, they should be clearly labeled “unaudited” to avoid misleading the statement users. The statement analyst should understand what interim statements disclose and what the limitations of these reports are.

Interim reports are financial statements that cover periods of less than one year, such as a month or a quarter of a year. In generally, the results for each interim period should be based on the GAAP and reporting practices used in the last annual reporting period, although certain modifications of accounting principles and practices are allowed when applied to in interim reports. Interim reports are considered an *integral* part of the annual reporting period and are not viewed as a discrete (independent) time period. (ASC 270-10 (APB-28, *Interim Financial Reporting*)

Interim reports are essential in providing investors, creditors, and others with more timely information as to the financial position and operating results of an enterprise.

Major uses and objectives of interim reporting include the following:

1. To estimate annual earnings.
2. To make projections and predictions.
3. To identify turning points in operations and financial position.
4. To evaluate the management performances for a period of time shorter than a year.
5. To supplement information presented in the annual report.

Accounting principles do not require as much information in interim reports as would be required in annual financial statements, although companies are encouraged to publish complete interim financial statements. Interim information is usually reported for the current interim period (e.g., the third quarter) and current year-to-date (e.g., January 1 to September 30 for a company reporting on a calendar year basis) with comparative data for the preceding fiscal year.

Publicly traded companies usually report the following summarized financial information at interim dates:

1. Gross revenues, provision for income taxes, extraordinary items, effects of accounting changes, and net income.
2. Basic and diluted earnings-per-share data.
3. Material seasonal variations of revenues, costs, and expenses.
4. Contingent items, unusual or infrequently occurring items, and effects of the disposal of a segment of a business.
5. Nontemporary market price decline in inventory.
6. Material changes in financial position.

Revenues are recognized in interim statements on the same basis as that for fiscal periods. Product costs and other expenses are determined in a manner similar to the procedures used for the fiscal period, with some exceptions for inventory valuation, income taxes, and a few other items. The interim-period income tax is computed by applying the estimated annual effective tax rate to the year-to-date ordinary income or loss, and subtracting the previous interim year-to-date tax on the ordinary income or loss. *Note:* According to ASC 270-10 (APB-28, *Interim Financial Reporting*), "At the end of each interim period the company should make its best estimate of the effective tax rate expected to be applicable for the full fiscal year. The rate so determined should be used in providing for income taxes on a current year-to-date basis."

Costs should be allocated on a systematic and rational basis to the accounting periods to which these costs relate. For example, the accrual or deferral of advertising costs is appropriate for both interim and year-end financial reporting if their benefits clearly apply to more than one period. Moreover, if a cost that would be fully expensed in an annual report benefits more than one interim period, it may be allocated to those interim periods.

According to ASC 270-10, material contingencies that exist at an interim date must be disclosed in interim reports in a manner similar to that required when annual reports are presented. The contingencies are evaluated in relation to the annual report. Interim statements must disclose the seasonal nature of the activities of the company if such seasonal activities exist. Financial reporting for segments of a business is not required for interim reporting.

Analysts should understand that interim data are usually less reliable than annual data as a measure of a company's operations and financial position because of the shortness of the period. Also, disclosures on interim reports are usually very limited as compared with annual reports. Interim reports are also subject to management manipulation, especially by presenting conservative early quarters and strong ending quarter(s). Because of the seasonality of some businesses, the need for increased use of estimates, the need for allocations of costs and expenses

among interim periods, and other factors, the usefulness of the information provided by interim financial statements may be limited. Hence, they emphasize timeliness over reliability.

A market decline reasonably expected to be restored within the fiscal year may be deferred at an interim reporting date because no loss is anticipated for the year. Inventory losses from nontemporary market declines, however, must be recognized at the interim reporting date. When a market price recovery occurs in an interim period, it should be treated as a change in estimate.

ASC 270-10 requires that extraordinary items be disclosed separately and included in the determination of net income for the interim period in which they occur. Gains and losses similar to those that would not be deferred at year-end should not be deferred to later interim periods of the same year. Hence, the extraordinary gain should not be prorated. Extraordinary items are material gains or losses that are unusual in nature and infrequent in occurrence within the environment in which the business operates.

SEGMENT REPORTING

Many U.S. companies operate in several different industries or in different geographic area. When this occurs, the difficulties related to financial statement analysis are compounded. Investors who must evaluate the relative strengths and weaknesses of stock of a diversified company have a difficult task when analyzing such companies which report only the aggregate of their operations. Industry segments and geographic areas of operations can have different levels of risk and opportunities. Strengths and weaknesses of a company are difficult to isolate when only consolidated financial statement are presented and segments exist. For this reason, financial statement analysts prefer to rely upon supplementary information provided in financial statements referred to as *segment reporting* which provides disaggregated information to assist them in evaluating the company.

The need for segment information is the result of many environmental factors, including the growth of conglomerates, acquisitions, diversifications, and foreign activities of enterprises. Segment information is included (1) within the body of the financial statements, with supporting footnote disclosures, (2) entirely in the footnotes, or (3) in a separate schedule that is considered an integral part of the financial statements.

REPORTABLE SEGMENT ASC 280-10-50-10, *Segment Reporting: Overall* (FAS-131, *Disclosures about Segments of an Enterprise and Related Information*), defines an operating segment as a component of an enterprise that engages in business activities from which it may earn revenues and incur expenses (including revenues and expenses relating to transactions with other components of the same enterprise), whose operating results are regularly reviewed by the enterprise's chief operating decision maker to make decisions about resources to be allocated to the segment and assess its performance, and for which discrete financial information is available. Examples of a segment of a business include a subsidiary, a division, a department, a product, a market, or other separations where the activities, assets, liabilities, and operating income can be distinguished for operational and reporting purposes. Information about segments of a business, especially for diversified companies, is useful to investors of large, complex, heterogeneous, publicly traded enterprises in evaluating risks, earnings, growth cycles, profit characteristics, capital requirements, and return on investments that can differ among segments of a business.

A reportable segment is determined by:

1. Identifying the enterprise's products and services,
2. Grouping the products and services into industry segments, and
3. Selecting the significant industry segments by applying various test established for this purpose.

Under ASC 280-10-50-10,, information must be reported separately about an operating segment that reaches one of three quantitative thresholds: (1) Its revenue (including sales to external customers and intersegment sales or transfers) is equal to at least 10 percent of the combined revenue, internal and external, of all the enterprise's operating segments; (2) its assets are equal to at least 10 percent of the combined assets of all operating segments; and (3) the absolute amount of its reported profit or loss is equal to at least 10 percent of the greater, in absolute amount, of the combined reported profit of all operating segments that did not report a loss or the combined reported loss of all operating segments that did report a loss (profit or loss test).

Note: ASC 280-10-50-10state that a group of customers under common control must be regarded as a single customer in determining whether 10 percent or more of the revenue of an enterprise is derived from sales to any single customer. A parent and a subsidiary are under common control, and they should be regarded as a single customer. ASC 280-10-50-10 does not specifically define the reported revenue of an operating segment except to say that it includes both sales to external customers and intersegment sales or transfers. ASC 280-10-50-10 requires disclosures about measurements of segment profit or loss (including revenue) and segment assets, but it does not stipulate how those measurements are to be made.

SEGMENT DISCLOSURES Segment information that must be disclosed in financial statements includes an enterprise's operations in different industries, foreign operations and export sales, and major customers. Detailed information must be disclosed relating to revenues; segment's operating profit or loss, and identifiable asset along with additional information. Segment information is primarily a desegregation of the entity's basic financial statements. Publicly held corporations must report for each reportable segment of the entity the following information:

1. Revenues.
2. Operating profit or loss.
3. Identifiable assets.
4. Depreciation, depletion, and amortization expenses.
5. Capital expenditures.
6. Effects of accounting changes.
7. Equity in net income and net assets of equity method investees whose operations are vertically integrated with the operations of the segment, as well as the geographic areas in which those vertically integrated equity method investees operate.

GAAP requires companies to report the following items for each *foreign operation*, if (1) revenue from such operations is 10 percent or more of the consolidated revenue or (2) identifiable assets of the entity's foreign operations are 10 percent or more of consolidated total assets:

1. Revenues.
2. Operating profit or loss
3. Identifiable assets.

If 10 percent or more of the revenue of an enterprise is obtained from sales to any *single customer*, that fact and the amount of revenue from each such customer must be disclosed.

According to a committee of the Financial Analysts Federation, the elements of good reporting include:

1. Clear presentation of information that goes beyond the minimum reporting requirements and put company operations in perspective.
2. Written commentary that explains why important developments have occurred.
3. A timely, consistent, and responsible investor relations program that informs the financial analyst in an unbiased manner.
4. An ability to articulate and communicate the business philosophy and principal strategies of management and the way in which management is organized to carry them out.

Segment analysis is especially useful in understanding the relative contribution of segments to the overall performance and asset base of a company. Segment information discloses a great deal about a company's diversification policy and enables the analysts to make meaningful industry comparisons. The analyst's task is made difficult because of the rather limited segment disclosures required and the accounting practices involved in compiling the data.

The company must also disclose if foreign operations, sales to a major customer, or domestic contract revenue provide 10 percent or more of total sales. The percentage derived and the source of the sales must be stated.

The following information about geographic areas is reported if practicable: external revenues attributed to the home country, external revenues attributed to all foreign countries, material external revenues attributed to an individual foreign country, the basis for attributing revenues from external customers, and certain information about assets. Useful segment information that may be disclosed includes sales, operating profit, total assets, fixed assets, intangible assets, inventory, cost of sales, depreciation, and amortization. Segment cash flow need not be reported.

Exhibit 10-1 presents a sample segment report.

EXHIBIT 10-1
SEGMENTED INCOME STATEMENT

OFFICE EQUIPMENT AND AUTO PARTS COMPANY			
INCOME STATEMENT DATA			
(IN MILLIONS)			
	<u>Consolidated</u>	<u>Office Equipment</u>	<u>Auto Parts</u>
Net sales	\$78.8	\$18.0	\$60.8
Manufacturing costs			
Inventories, beginning	12.3	4.0	8.3
Materials and services	38.9	10.8	28.1
Wages	12.9	3.8	9.1
Inventories, ending	<u>(13.3)</u>	<u>(3.9)</u>	<u>(9.4)</u>
	50.8	14.7	36.1
Selling and administrative expense	<u>12.1</u>	<u>1.6</u>	<u>10.5</u>
Total operating expenses	<u>62.9</u>	<u>16.3</u>	<u>46.6</u>
Income before taxes	15.9	1.7	14.2
Income taxes	<u>(9.3)</u>	<u>(1.0)</u>	<u>(8.3)</u>
Net income	<u>\$ 6.6</u>	<u>\$ 0.7</u>	<u>\$ 5.9</u>

Two-Year Quarterly Data. This schedule gives a quarterly breakdown of sales, profit, high and low stock price, and the common stock dividend. Quarterly operating information is particularly useful for a seasonal business, because it helps readers to track the business's highs and lows more accurately. The quarterly market price reveals fluctuations in the market price of stock, while the dividend quarterly information reveals how regularly the company pays dividends.

These quarterly reports may provide unaudited financial statements or updates on operating highlights, changes in outstanding shares, compliance with debt restrictions, and pending lawsuits.

At a minimum, quarterly reports must provide data on sales, net income, taxes, nonrecurring revenue and expenses, accounting changes, contingencies (e.g., tax disputes), additions or deletions of business segments, and material changes in financial position.

The company may provide financial figures for the quarter itself (e.g., the third quarter, from July 1 to September 30) or cumulatively from the beginning of the year (cumulative up to the third quarter, or January 1 to September 30). Prior-year data must be provided in a form that allows for comparisons. The financial manager should read the quarterly report in conjunction with the annual report.

SUMMARY

Interim financial statements can assist the analyst in determining trends and in identifying trouble areas before the annual reports are available. Interim reports usually contain more

estimates than are found in the annual reports because of the tentative nature of the reports. This should be understood by the analysts.

In segment reporting, the required financial statement disclosures are basically a desegregation of the company's regular financial statements. The same accounting principles are used for the segment data and for the financial statements, except that many inter-company transactions that are eliminated in consolidated financial statements are included in segmental reporting. ASC 280-10-50-10 is intended to base segmentation for external reporting purposes on the structure of an enterprise's internal organization, that is, to align external reporting with internal reporting. Accordingly, the amount of a segment item reported, such as profit or loss, is the measure reported to the chief operating decision maker for purposes of making resource allocation and performance evaluation decisions regarding the segment. However, ASC 280-10-50-10 does not stipulate the specific items included in the calculation of that measure.

GLOSSARY

ACCOUNT – a form or place used to collect and record data arising from transactions affecting a single item, such as cash, inventory, accounts receivable, etc.

ACCOUNTING – an information system that measures, processes, and communicates economic information about an identifiable entity to permit users of the system to make informed judgments and decisions.

ACCOUNTING CHANGES – changes in accounting caused by changing accounting principles, estimates, or entity.

ACCOUNTING CYCLE – the sequence of events beginning with initial recognition of transactions, events, and circumstances in the accounting system and ending with the preparation of the financial statements.

ACCOUNTING ENTITY – the unit or organization that is being accounted for.

ACCOUNTING EQUATION – the underlying structure for the conventional accounting system:
 $\text{Assets} = \text{Liabilities} + \text{Owners' Equity}$.

ACCOUNTING PERIOD - the time period for which financial statements are prepared.

ACCRUAL BASIS OF ACCOUNTING – a method of recording revenues when earned and expenses when incurred. This method contrasts with the cash basis of accounting, which recognizes revenue when cash is received and expenses when cash is paid.

ACCRUED EXPENSES – expenses which are recognized prior to the firm's disbursement of cash.

ACCRUED REVENUE – revenue which is recognized prior to the collection of cash.

ALLOCATION – the process of assigning costs and revenues to time periods, activities, departments, etc., according to benefits received, responsibilities assumed, usage, or other ratio measure.

AMORTIZATION – the process of measuring and recognizing the periodic decline in future usefulness of intangible assets; the periodic write off of a bond premium.

ANNUITY – a stream of level payments; cash flows that are equal in each period.

ANNUAL REPORT — an audited document issued annually by all publicly listed corporations to their shareholders in accordance with SEC regulation. Contains information on financial results and overall performance of the previous fiscal year and comments on future outlook

AUDIT REPORT — statement of the accounting firm's assessment of the validity and accuracy of a company's financial information and conformity with accepted accounting practices.

ASSET – probable future economic benefit obtained or controlled by a particular entity as a result of past transactions or events.

AUTHORIZED SHARES – the number of shares of each category of stock that a corporation can issue according to its charter.

BALANCE SHEET – a financial statement that provides information about an entity's assets, liabilities, and equity and their relationships to each other at a moment in time. Assets – Liabilities = Owners' Equity.

BENCHMARK -- an appropriate stock used to gauge the performance of an investment.

BOND – a promise to pay a given sum of money at some future date and to pay periodic interest amounts for the use of funds.

BOND RATINGS-- letter grades that signify investment quality of a bond.

BOOK VALUE – total assets of a company minus total liabilities, sometimes referred to as carrying value. The term is also applied to specific assets or liabilities.

CAPITAL – ownership equity in a business.

CAPITAL LEASE – a lease that is, in substance, a sale of property from the lessor to the lessee.

CAPTIAL STOCK – all of a corporation's stock including common and preferred stock.

CARRYING VALUE – the amount at which an item is valued on a company's books and reported in the financial statements.

CAPITALIZATION-- total amount of the various securities issued by a corporation. Capitalization may include bonds, debentures, preferred and common stock. Bonds and debentures are usually carried on the books of the issuing company in terms of their par or face value. Preferred and common shares may be carried in terms of par or stated value.

CASH BASIS - method of accounting which recognizes transactions only when cash is received or paid.

CASH FLOW -- (1) net income plus noncash expenses (e.g., depreciation) minus noncash revenue (e.g., amortization of deferred revenue) yields cash flow from operations. (2) cash receipts minus cash payments.

CASH PROVIDED BY OPERATIONS – a source of financial resources disclosed on a statement of changes in financial position. The amount is computed by adding back to net income the items on the income statement that did not result in an outflow of cash and subtracting the items on the income statement that did not provide an inflow of cash.

CLASSIFIED FINANCIAL STATEMENTS – financial statements prepared using percentages instead of dollars.

COMMON STOCK – the basic stockholders' interest that gives shareholders voting rights and represents the residual owner's equity in a corporation.

COMPARABILITY – a quality of information that enables users to identify similarities in and differences between two sets of economic phenomena.

COMPARATIVE FINANCIAL STATEMENTS – financial statements that show data for two or more accounting periods.

CONSERVATISM – the accounting principle that requires prudence or caution in financial reporting to ensure that uncertainty and risks inherent in business situations are adequately considered. It requires that the accountant select the alternative that has the least favorable impact on income or financial position.

CONSISTENCY – a basic accounting principle that requires that the financial statements be prepared in a similar manner from year to year. This requires a degree of conformity from period to period with unchanging accounting policies and procedures.

CONSOLIDATED FINANCIAL STATEMENTS – financial statements that integrate the statements of a parent and its subsidiaries.

CONTINGENT LIABILITIES – liabilities, where future outcomes and amounts owed are uncertain.

CORPORATION – an artificial legal entity separate and distinct from its owners.

COST/BENEFIT – a concept that requires that the value derived from an activity must be equal to or greater than its cost to be considered.

COST OF GOODS SOLD – an amount calculated by subtracting the merchandise inventory at the end of the year from the goods available for sale (beginning inventory plus net purchases) during the period.

CUMULATIVE PREFERRED STOCK – preferred stock where all dividends not paid in prior years must be paid along with the current year's dividends before dividends are distributed to common stockholders.

CURRENT ASSETS – cash or other assets that are expected to be realized in cash or sold during a normal operating year of a business or within one year if the operating cycle is shorter than one year.

CURRENT LIABILITIES – obligations due within the normal operating cycle of the business or within a year, whichever is longer.

CURRENT VALUE ACCOUNTING – an accounting procedure that restates historical costs in terms of their current market values.

DEFERRED EXPENSE – an asset created through the payment of cash prior to the time benefits will be obtained from the expenditure. It is commonly referred to as prepaid expense.

DEFERRED INCOME TAXES – the difference between income taxes actually paid in an accounting period and the tax expense based on accounting income reported in that period.

DEFERRED REVENUE – a liability which arose through the receipt of cash prior to performance of a service or the sale of a product. It is commonly referred to as unearned revenue.

DEPRECIATION – the process of allocating the cost of a tangible fixed asset, less salvage value, over its estimated useful life in a rational and systematic manner.

DEPLETION – the process of allocating the cost of a natural resource or wasting asset to inventory as the asset is reduced.

DIVIDEND – a distribution of assets from retained earnings to shareholders. A stock dividend does not involve the distribution of assets but merely involves the issuance of additional shares of a company's own stock.

DIVIDEND YIELD -- return earned on dividend income. It relates dividends to share price.

EARNINGS PER SHARE – that portion of a corporation's net income that relates to each share of common stock outstanding.

EFFECTIVE INTEREST RATE – the actual rate of interest earned taking into consideration premiums or discounts on the debt. The effective rate may be higher or lower than the stated interest rate on the face of the security. This rate is sometimes referred to as the market rate.

EFFICIENCY – optimal relationship between inputs and outputs.

ENTITY

- 1 The focus of the accounting process, e.g., a corporation, partnership, or sole proprietorship.
- 2 The residual interest in the assets of an entity that remains after deducting its liabilities. In a business enterprise, the equity is the ownership interest.

EQUITY METHOD – an accounting method for long-term investments in stock where a proportionate share of the earnings of the investee is included in the investor’s income. Dividends from the investee are not considered income but are treated as a reduction of the investment account.

EXPENSE – outflows or other uses of assets or incurrence of liabilities (or a combination of both) during a period from delivering or producing goods, rendering services, or carrying out other activities that constitute the entity’s ongoing major or central operations.

EXTRAORDINARY ITEMS – material items that are both unusual in nature and infrequent in occurrence, taking into consideration the economic environment of the company.

FINANCIAL ACCOUNTING STANDARDS BOARD (FASB) – a seven-member organization which was established by the accounting profession to establish accounting principle which represents generally accepted reporting practices.

FINANCIAL STATEMENT ANALYSIS – a term used to describe techniques that disclose significant relationships in financial statements and permit comparisons from period to period and among companies.

FINANCIAL STATEMENTS – reports by which companies communicate information to users, especially investors and creditors.

FINANCIAL STRUCTURE – the liabilities and equity of an enterprise that reflect the way in which assets are being financed.

FREE CASH FLOW — the amount of cash from operations after adjusting for capital expenditures and cash dividends paid.

GENERALLY ACCEPTED ACCOUNTING PRINCIPLES (GAAP) – the conventions, rules, and procedures that reflect a consensus at a particular time about the correct way to report information on financial statements. Responsibility for the development of authoritative generally accepted accounting principles is primarily the responsibility of the Financial Accounting Standards Board (FASB).

GOING-CONCERN ASSUMPTION – the accounting assumption that the entity will continue to operate in the future.

GOODWILL – an intangible asset representing the excess of the cost of acquiring a business over the fair market value of the identifiable net assets acquired.

GROSS MARGIN – the excess of sales revenue over cost of goods sold. Gross margin analysis established the relationship between sales, cost of goods sold, and gross margin.

HISTORICAL COST – an accounting principle that measures the value of an item by reference to its original purchase or acquisition price.

INCOME STATEMENT – a financial statement that show revenues, expenses, and net income (loss) for a business over an accounting period.

INTERIM FINANCIAL STATEMENTS – financial statements for period of less than a year, usually quarterly.

INTERPREIOD TAX ALLOCATION – an accounting procedure which applies to differences between income tax expense shown on the income statement and income taxes actually paid to the government.

LEVERAGE – an activity that borrows funds at a specified interest rate with the expectation of using these funds to earn a higher rate of return for the benefit of the enterprise. The term also applies to an activity that obtains funds through the issuance of preferred stock at a specified dividend rate with expectation of earning a higher rate of return through the use of such funds for the benefit of common stockholders. Financial leverage is the ratio of debt to equity; the ratio of fixed financial charges to operating profit before fixed financial charges. Operating leverage is the ratio of fixed operating costs to total operating costs, usually reflecting the sensitivity of operating profit to changes in sales.

LIABILITIES – probably future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future as a result of past transactions or events.

LIQUIDITY – the ability to pay bills when they are due. Liquidity reflects an asset's or liability's nearness to cash. Liquidity ratio provides insights into a company's short-term cash requirements.

LOSSES – decreases in equity (net assets) from peripheral or incidental transactions of an entity and from all other transactions and other events and circumstances affecting the entity during a period except those that result from expenses or distribution to owners.

LOWER OF COST OR MARKET RULE – an accounting rules that assigns the lower of the historical cost or current replacement value to an item for financial statement purposes.

MANAGEMENT – people with overall responsibility for achieving a company's goals and objectives.

MARGIN – revenues minus specified expenses; contribution margin; gross margin.

MARKET CAPITALIZATION -- market cap, for short. The market value of a company, or how much it would cost, in theory, to buy the company outright. A company's market cap is computed by multiplying its current per-share stock price by the number of shares outstanding.

MARKET VALUE (STRENGTH, TEST) RATIOS – ratios that provide information and insights on the desirability of a stock investment.

MATCHING PRINCIPLE – an accounting principle that requires all expenses to be recognized in the same accounting period as the revenues with which they are associated.

MATERIALITY – an accounting assumption that requires that anything that would be of interest to an informed investor be fully disclosed in the financial statements.

MEASUREMENT – a basic accounting concept which indicates how financial information is to be reported.

MINORITY INTEREST – shareholders in subsidiary that is partially owned by a parent company.

MONETARY ITEM – assets and liabilities fixed in terms of dollars by statute or contract. Cash, accounts receivable, and accounts payable are examples of monetary items.

NET INCOME – the net increase in owners' equity resulting from the profit-seeking operations of a company; revenues – expenses = net income.

NET PRESENT VALUE – present value of all cash inflows and outflows of a project or from a unit at a given discount rate.

NORMAL OPERATING CYCLE OF A BUSINESS – the time during which cash is used to acquire goods and services, sell the inventory (or services), and convert the sale into cash.

OBJECTIVITY – an accounting principle that requires the use of information that can be independently verified.

OPERATING CYCLE – see Normal Operating Cycle of a Business

OPERATING LEASE – a lease in which substantially all of the risks and benefits of ownership have been retained by the lessor.

OWNER'S EQUITY – Assets – Liabilities = Owners' Equity

PAID IN CAPITAL – the amount provided by owners in exchange for their investment in a corporation.

PAR VALUE – an arbitrary amount stated on a share of common or preferred stock which often signifies the legal minimum amount below which stockholders' equity cannot be reduced, except in certain circumstances.

PARENT COMPANY – a corporation that acquires over 50 percent of the voting stock of another corporation.

PARTICIPATING PREFERRED STOCK - a preferred stock that gives its holders the right to receive additional dividends along with the common stock holders.

PREFERRED STOCK – capital stock that confers a preference to its holders over those of the common shareholders, especially preferences as to dividends and assets upon the dissolution of the corporation, but which generally lacks voting rights.

PREPAID EXPENSES – assets reflecting payment for supplies or services before they are used.

PRESENT VALUE – the current value of amounts to be received or paid in the future discounted at some interest rate.

PROFITABILITY RATIOS – financial ratios that measure the effectiveness of management in operating the enterprise.

PERFORMANCE REPORTS – summaries of actual results and budgeted data.

PLANNING – establishing goals and objectives and selecting the means for attaining them.

PROFIT MARGIN – the percentage of each sales dollar that results in net income; net income divided by sales.

PUBLIC COMPANY ACCOUNTING OVERSIGHT BOARD (PCAOB) (www.pcaobus.com) — established in 2002 as a result of the Sarbanes-Oxley Act, a private sector, non-profit corporation set up to oversee the audits of public companies and ensure that accountancy firms should no longer derive non-audit revenue streams, such as consultancy, from their audit clients.

PURCHASE METHOD – an accounting method used to account for a business combination in which the acquiring company issues cash or other assets, debt securities, and sometimes stock for a subsidiary's common stock. The parent company records its investment in the subsidiary at the fair market value of the asset or securities given up or the fair market value of the common stock received, whichever is more objectively determined.

RATE OF RETURN – the ratio of net income to the capital employed to generate that net income.

RATIO – the number resulting when one number is divided by another. Financial statement ratios are frequently used to evaluate profitability, solvency, and liquidity.

RATIO ANALYSIS – a technique of interpreting financial statements by computing financial ratios between various amounts shown on the statements. These ratios are compared with historical standards in the same company, other companies, and the industry.

REALIZATION – the process of converting non-cash resources and rights into money and usually refers to sales of assets for cash or claims to cash.

RECOGNITION – the process of formally recording an item in the financial statements of an entity.

RELEVANCE – a quality of information that enables it to make a difference in a decision.

RELEVANT RANGE – a level of activity in which budgeted sales and expense relationships are valid.

RELIABILITY – a quality that requires that information be reasonably free from error and bias and faithfully represent what it purports to represent.

RETAINED EARNINGS – that portion of total assets that came from profitable operations and that has not been distributed as a dividend.

RETURN ON ASSETS – net income divided by total assets.

RETURN ON INVESTMENT – the return per dollar of investment used to measure the efficiency with which capital resources are employed

REVENUE – inflows or other enhancements of assets of an entity or settlements of its liabilities (or a combination of both) during a period from delivering or producing goods, rendering services, or other activities that constitute the entity's ongoing major or central operations.

SEGMENT – a fairly autonomous unit or division of a company.

SINKING FUND – cash and other resources set aside periodically for repaying a loan or debt at maturity.

SOLVENCY – the excess of the fair market value of total assets over total liabilities.

STATED VALUE – an arbitrary amount assigned to no-par common stock that limits the amount that can be distributed as dividends.

STATEMENT OF CASH FLOWS — financial statement, such as ASC 230, *Statement of Cash Flows* (FAS-95, *Statement of Cash Flows*), that provides information about the cash transactions between the firm and the outside world by separating these transactions into cash flows related to operating, investing, and financing activities.

STATEMENT OF FINANCIAL POSITION – a financial report that shows the assets, liabilities, and owners' equity of an entity at some specified time. It is commonly referred to as the balance sheet.

STATEMENT OF RETAINED EARNINGS – a financial report of a corporation which describes changes in the balance of retained earnings over an accounting period.

STOCK DIVIDEND – a dividend that is paid in stock of the distributing corporation.

SUBSIDIARY – a corporation where over 50 percent of the voting stock is owned by another corporation.

TIME VALUE OF MONEY – the concept that recognizes that payments or receipts in the future time periods have less value than payments or receipts today.

TRADING ON THE EQUITY – see leverage.

TRANSACTION – an external event involving transfer of something of value between two or more entities.

TREASURY STOCK – corporate shares reacquired by the issuing corporation for purposes other than retirement.

TURNOVER – the number of times that assets (such as inventory and accounts receivable) are replaced on the average during the period. Turnover ratios indicate how efficiently management uses its assets.

SARBANES-OXLEY (SOX) ACT —wide-ranging U.S. corporate reform legislation, coauthored by the Democrat in charge of the Senate Banking Committee, Paul Sarbanes, and Republican Congressman Michael Oxley. It is legislation to ensure internal controls or rules to govern the creation and documentation of corporate information in financial statements. It establishes new standards for corporate accountability and penalties for corporate wrongdoing.

SECURITIES AND EXCHANGE COMMISSION (SEC) (www.sec.gov) — a federal agency created by the Securities Exchange Act of 1934 to protect investors from dangerous or illegal financial practices or fraud by requiring full and accurate financial disclosure by companies offering stocks, bonds, mutual funds, and other securities to the public. It is the chief regulator of the U.S. securities market and overseer of the nation's stock exchanges, broker-dealers, investment advisors, and mutual funds.

UNEARNED REVENUE – unearned revenue or revenue received before completion of the earnings process.

VERIFIABILITY – capable of being proved by examination or investigation.

VERTICAL ANALYSIS – the relating of the component parts of a financial statement to the total in the statements.

WORKING CAPITAL – the excess of current assets over current liabilities.

YIELD – interest rate of return on a stream of cash flows.