

Introduction to Accounting: The Language of Business

Lesson 10: Financial Statement Analysis

Supplemental Textbook



Analysis and interpretation of financial statements

Learning objectives

After studying this chapter, you should be able to:

- Describe and explain the objectives of financial statement analysis.
- Describe the sources of information for financial statement analysis.
- Calculate and explain changes in financial statements using horizontal analysis, vertical analysis, and trend analysis.
- Perform ratio analysis on financial statements using liquidity ratios, long-term solvency ratios, profitability tests, and market tests.
- Describe the considerations used in financial statement analysis.

Accountants as investment analysts

More than ever, accounting students are being hired as securities analysts, portfolio managers, strategists, consultants, or other investment specialists. Duties in these fields involve understanding the operations of the company, assessing the value of the company, and predicting its future performance. These fields can be enormously exciting and may reap tremendous monetary rewards to those who are successful. For example, Apple's stock closed at USD 21.82 per share in January 2002, and at USD 218.95 in March 2010. So, if you had invested in Apple stock in 2002 your investment would have been worth ten times as much in 2010. Not bad!

Of course, failure to understand the relationship between financial accounting information and company value can result in negative consequences as well. For example, during the dot.com boom, the stock of Webvan, an online grocer, plummeted from a high of USD 40 to just six cents within a few months as investors realized that the company could not meet expected earnings projections and was therefore highly overvalued. (Later, however, framed Webvan stock certificates were selling on Ebay for over USD 100.00 as stark symbols of the dot.com bust). In the area of investing, what accounting information can be used to separate the winners from the losers?

This is the goal of investment analysts—to understand the current value of a company and then use available information in predicting future performance. Investment analysts rely heavily on financial statements as a source of information in predicting stock price movements. Since financial statements are prepared by accountants, it is no surprise that accountants are being hired for purposes of interpreting financial information and making predictions. Given the complexity of business organizations and business transactions in today's global markets, accounting professionals no longer are solely responsible for preparing financial statements, but are being asked to interpret these statements as well.

The two primary objectives of every business are solvency and profitability. Solvency is the ability of a company to pay debts as they come due; it is reflected on the company's balance sheet. Profitability is the ability of a company to generate income; it is reflected on the company's income statement. Generally, all those interested in the affairs of a company are especially interested in solvency and profitability.

This chapter discusses several common methods of analyzing and relating the data in financial statements and, as a result, gaining a clear picture of the solvency and profitability of a company. Internally, management analyzes a

company's financial statements as do external investors, creditors, and regulatory agencies. Although these users have different immediate goals, their overall objective in financial statement analysis is the same—to make predictions about an organization as an aid in decision making.

Objectives of financial statement analysis

Management's analysis of financial statements primarily relates to parts of the company. Using this approach, management can plan, evaluate, and control operations within the company. Management obtains any information it wants about the company's operations by requesting special-purpose reports. It uses this information to make difficult decisions, such as which employees to lay off and when to expand operations. Our primary focus in this chapter, however, is not on the special reports accountants prepare for management. Rather, it is on the information needs of persons outside the firm.

Investors, creditors, and regulatory agencies generally focus their analysis of financial statements on the company as a whole. Since they cannot request special-purpose reports, external users must rely on the general-purpose financial statements that companies publish. These statements include a balance sheet, an income statement, a statement of stockholders' equity, a statement of cash flows, and the explanatory notes that accompany the financial statements.

Users of financial statements need to pay particular attention to the explanatory notes, or the financial review, provided by management in annual reports. This integral part of the annual report provides insight into the scope of the business, the results of operations, liquidity and capital resources, new accounting standards, and geographic area data. Moreover, this section provides an economic outlook that an analyst may find very helpful when considering the possible future profitability of the company.

Financial statement analysis consists of applying analytical tools and techniques to financial statements and other relevant data to obtain useful information. This information reveals significant relationships between data and trends in those data that assess the company's past performance and current financial position. The information shows the results or consequences of prior management decisions. In addition, analysts use the information to make predictions that may have a direct effect on decisions made by users of financial statements.

Present and potential investors are interested in the future ability of a company to earn profits—its profitability. These investors wish to predict future dividends and changes in the market price of the company's common stock. Since both dividends and price changes are likely to be influenced by earnings, investors may predict earnings. The company's past earnings record is the logical starting point in predicting future earnings.

Some outside parties, such as creditors, are more interested in predicting a company's solvency than its profitability. The liquidity of the company affects its short-term solvency. The company's **liquidity** is its state of possessing liquid assets, such as cash and other assets easily converted to cash. Because companies must pay short-term debts soon, liquid assets must be available for their payment. For example, a bank asked to extend a 90-day loan to a company would want to know the company's projected short-term liquidity. Of course, the company's predicted ability to repay the 90-day loan is likely to be based at least partially on its past ability to pay off debts.

Long-term creditors are interested in a company's long-term solvency, which is usually determined by the relationship of a company's assets to its liabilities. Generally, we consider a company to be solvent when its assets exceed its liabilities so that the company has a positive stockholders' equity. The larger the assets are in relation to

the liabilities, the greater the long-term solvency of the company. Thus, the company's assets could shrink significantly before its liabilities would exceed its assets and destroy the company's solvency.

Investors perform several types of analyses on a company's financial statements. All of these analyses rely on comparisons or relationships of data that enhance the utility or practical value of accounting information. For example, knowing that a company's net income last year was USD 100,000 may or may not, by itself, be useful information. Some usefulness is added when we know that the prior year's net income was USD 25,000. And even more useful information is gained if we know the amounts of sales and assets of the company. Such comparisons or relationships may be expressed as:

- Absolute increases and decreases for an item from one period to the next.
- Percentage increases and decreases for an item from one period to the next.
- Percentages of single items to an aggregate total.
- Trend percentages.
- Ratios.

Earlier chapters have discussed and illustrated many of these analysis techniques. However, in this chapter we apply all of these techniques in analyzing Synotech, Inc.'s performance. This was the company introduced in Chapter 16.

Items 1 and 2 make use of comparative financial statements. **Comparative financial statements** present the same company's financial statements for one or two successive periods in side-by-side columns. The calculation of dollar changes or percentage changes in the statement items or totals is **horizontal analysis**. This analysis detects changes in a company's performance and highlights trends.

Analysts also use vertical analysis of a single financial statement, such as an income statement. **Vertical analysis** (item 3) consists of the study of a single financial statement in which each item is expressed as a percentage of a significant total. Vertical analysis is especially helpful in analyzing income statement data such as the percentage of cost of goods sold to sales.

Financial statements that show only percentages and no absolute dollar amounts are **common-size statements**. All percentage figures in a common-size balance sheet are percentages of total assets while all the items in a common-size income statement are percentages of net sales. The use of common-size statements facilitates vertical analysis of a company's financial statements.

Trend percentages (item 4) are similar to horizontal analysis except that comparisons are made to a selected base year or period. Trend percentages are useful for comparing financial statements over several years because they disclose changes and trends occurring through time.

Ratios (item 5) are expressions of logical relationships between items in the financial statements of a single period. Analysts can compute many ratios from the same set of financial statements. A ratio can show a relationship between two items on the same financial statement or between two items on different financial statements (e.g. balance sheet and income statement). The only limiting factor in choosing ratios is the requirement that the items used to construct a ratio have a logical relationship to one another.

Sources of information

Financial information about publicly owned corporations can come from different sources such as published reports, government reports, financial service information, business publications, newspapers, and periodicals.

Public corporations must publish annual financial reports. The Annual report appendix gives such data for The Limited, Inc.. The major sections of an annual report are (not necessarily in this order):

- **Consolidated financial statements** Consolidated financial statements include a balance sheet containing two years of comparative data; an income statement containing three years of comparative data; a statement of cash flows containing three years of comparative data; and a statement of shareholders' equity containing three years of comparative data. For examples of each statement, refer to the annual report booklet.

- **Notes to consolidated financial statements** Notes to consolidated financial statements provide an in-depth look into the numbers contained in the financial statements. The notes usually contain sections on significant accounting policies, long-term debt, leases, stock option plans, etc. These explanations allow stockholders to look beyond the numbers to the events that triggered the dollar amounts recorded in the financial statements.

- **Letters to stockholders** Most annual reports are introduced with a letter to the stockholders. The letter often includes information about the company's past history, its mission, current year operating results, and the company's future goals.

- **Reports of independent accountants** The Securities and Exchange Commission (SEC) requires the financial statements of certain companies to be audited. The report of independent accountants, found at the end of the financial statements, provides assurance that the financial statements prepared by the company have been audited and are free of material misstatements. The report also may include a paragraph highlighting the significant accounting policies that the company has changed recently.

- **Management discussion and analysis** The management discussion and analysis section of the annual report provides management's view of the performance of the company. The analysis is based on the financial statements, the conditions of the industry, and ratios.

Publicly held companies must file detailed annual reports (Form 10-K), quarterly reports (Form 10-Q), and special events reports (Form 8-K) with the Securities and Exchange Commission. These reports are available to the public for a small charge and sometimes contain more detailed information than the published reports.

Financial statement information is often more meaningful when users compare it with industry norms. Two firms that provide information on individual companies and industries are Moody's Investors Service and Standard & Poor's. Dun & Bradstreet Companies, Inc., publishes *Key Business Ratios* and Robert Morris Associates publishes *Annual Statement Studies*; both provide information for specific industries. Standard & Poor's *Industry Surveys* contains background descriptions and the economic outlook for different industries.

Business publications such as *The Wall Street Journal*, *Barron's*, *Forbes*, and *Fortune* also report industry financial news. Because financial statement users must be knowledgeable about current developments in business, the information in financial newspapers and periodicals is very valuable to them.

Horizontal analysis and vertical analysis: An illustration

The comparative financial statements of Synotech, Inc., will serve as a basis for an example of horizontal analysis and vertical analysis of a balance sheet and a statement of income and retained earnings. Recall that horizontal analysis calculates changes in comparative statement items or totals, whereas vertical analysis consists of a comparison of items on a single financial statement.

Imagine that you are a prospective investor interested in Synotech, Inc.. You have acquired the 2010 Annual Report of the company and want to perform some horizontal and vertical analyses of the financial statements.

First, we begin with the balance sheets. Exhibit 1 shows the comparative balance sheets for 2010 and 2009 in Columns (1) and (2). Take a few minutes to study the balance sheets. Then review Columns (3) and (4), which show the horizontal analysis that would be performed on the comparative balance sheets.

Column (3) shows the change that occurred in each item between 2009 December 31, and 2010 December 31. If the change between the two dates is an increase from 2009 to 2010, the change is a positive figure. If the change is a decrease, the change is a negative figure and is shown in parentheses. Column (4) shows the percentage change in each item. You can calculate the percentage change by dividing the dollar change by the dollar balance of the earlier year (2009). While examining the horizontal analysis in Exhibit 1 note that:

- Total current assets have increased USD 14.3 million, consisting largely of increases in cash, marketable securities, and other current assets despite a USD 63.0 million decrease in net receivables, while total current liabilities have increased USD 181.4 million, largely as a result of increases in the current portion of long-term debt and other accruals.
- Total liabilities have decreased USD 114.1 million, while total assets increased by USD 311.0 million.

Next, study Column (4), which expresses as a percentage the dollar change in Column (3). Frequently, these percentage increases are more informative than absolute amounts, as illustrated by the current asset and current liability changes. Although the absolute amount of current liabilities has increased tremendously over the amount of current assets, the percentages reveal that current assets increased .5 per cent, while current liabilities increased 8.6 per cent. Thus, current liabilities are increasing at a faster rate than current assets. Current assets still exceed current liabilities. This fact indicates that the company will be able to pay its debts as they come due.

Studying the percentages in Column (4) could lead to several other observations. For instance, the 6.9 per cent decrease in long-term debt indicates that interest charges will be lower in the future, having a positive effect on future net income. The 14.2 per cent increase in retained earnings could be a sign of increased dividends in the future; in addition, the increase in cash of 19 per cent could support this conclusion.

Now examine Columns (5) and (6) to see the vertical analysis that would be performed. A vertical analysis of the company's balance sheet discloses each account's significance to total assets or total equities. This comparison aids in assessing the importance of the changes in each account. Columns (5) and (6) in Exhibit 1 express the dollar amount of each item in Columns (1) and (2) as a percentage of total assets or equities. For example, although other assets declined USD 6.3 million in 2010, the decrease of 1.4 per cent in the account represents only approximately 4.8 per cent of total assets and, therefore, probably does not have great significance. Vertical analysis also shows that total debt financing decreased from 78.0 per cent of total equities (liabilities and stockholders' equity) in 2009, to 74.3 per cent in 2010. At the same time, the percentage of stockholder financing to total assets of the company increased from 22.0 per cent to 25.7 per cent.

Synotech, Inc.

Comparative balance sheets

2010 December 31, and 2009

	December 31		Horizontal Increase or (Decrease)	Analysis 2010 over 2009	Vertical Analysis Per cent of Total Assets	
Assets	(1) 2010	(2) 2009	(3) Dollars*	(4) Per cent*	(5) 2010	(6) 2009
Current assets						
Cash and cash equivalents	\$ 298.0	\$ 250.5	\$47.5	19.0%	3.1 %	2.7 %
Marketable securities	71.3	57.5	13.8	24.0	0.8	0.6
Receivables, net	1,277.3	1,340.3	(63.0)	(4.7)	13.5	14.6
Inventories	924.8	929.8	(5.0)	(0.5)	9.8	10.1
Other current assets	275.3	254.3	21.0	8.3	2.9	2.8
Total current assets	\$2,846.7	\$2,832.4	\$14.3	0.5	30.0	30.9
Property, plant and equipment, net	2,914.7	2,586.2	328.5	12.7	30.7	28.2
Goodwill and other intangibles, net	3,264.5	3,290.0	(25.5)	(0.8)	34.4	35.9
Other assets	455.9	462.2	(6.3)	(1.4)	4.8	5.0
Total assets	\$9,481.8	\$9,170.8	\$311.0	3.4	100.0	100.0
Liabilities and shareholders' equity						
Current liabilities						
Notes and loans payable	\$ 206.8	\$ 245.3	\$ (38.5)	(15.7)	2.2	2.7
Current portion of long-term debt	132.5	44.4	88.1	198.4	1.4	0.5
Accounts payable	902.0	886.4	15.6	1.8	9.5	9.7
Accrued income taxes	111.7	92.1	19.6	21.3	1.2	1.0
Other accruals	932.2	835.6	96.6	11.6	9.8	9.1
Total current liabilities	\$2,285.2	\$2,103.8	\$181.4	8.6	24.1	22.9
Long-term debt	3,344.2	3,590.4	(246.2)	(6.9)	35.3	39.2
Deferred income taxes	281.2	284.8	(3.6)	(1.3)	3.0	3.1
Other liabilities	1,130.4	1,176.1	(45.7)	(3.9)	11.9	12.8
Total liabilities	\$7,041.0	\$7,155.1	\$(114.1)	(1.6)	74.3	78.0
Shareholders' equity						
Preferred stock	\$ 471.2	\$ 484.2	\$ (13.0)	(2.7)	5.0	5.3
Common stock, \$1.20 par value (500,000,000 shares authorized, 183,213,295 shares issued)	219.9	219.9	0.0	0.0	2.3	2.4
Additional paid-in capital	1,321.9	1,240.4	81.5	6.6	13.9	13.5
Retained earnings	3,277.1	2,870.6	406.5	14.2	34.6	31.3
Cumulative translation adjustments	(641.6)	(615.6)	(26.0)	4.2	-6.8	-6.7
Unearned compensation	\$4,648.5	\$4,199.5	\$449.0	10.7	49.0	45.8
Treasury stock, at cost	(445.1)	(453.6)	8.5	(1.9)	-4.7	-4.9
Total shareholders' equity	(1,762.6)	(1,30.2)	(32.4)	1.9	-18.6	-18.9
Total liabilities and stockholders equity	\$2,440.8	\$2,015.7	\$425.1	21.1	25.7	22.0
	\$9,481.8	\$9,170.8	\$311.0	3.4	100.0	100.0

*Dollars = (1) – (2); Per cent = (3)/(2)

Exhibit 1: Comparative balance sheets

Exhibit 2 provides the information needed to analyze Synotech's comparative statements of income and retained earnings. Such a statement merely combines the income statement and the statement of retained earnings. Columns (7) and (8) in Exhibit 2 show the dollar amounts for the years 2010 and 2009, respectively. Study these statements for a few minutes. Then examine Columns (9) and (10) which show the horizontal analysis that would be performed on the company's comparative statements of income and retained earnings. Columns (9) and (10)

show the absolute and percentage increase or decrease in each item from 2009 to 2010. The absolute change is determined by deducting the 2009 amount from the 2010 amount. If the change between two dates is an increase from 2009 to 2010, the change is a positive figure. If the change is a decrease, the change is a negative figure and is shown in parentheses. You calculate the percentage change by dividing the dollar change by the dollar amount for 2009.

Synotech, Inc.
Comparative statements of income and retained earnings
For the years ended 2010 December 31, and 2009
(USD millions)

Year ended (7) 2007	December 31 (8) 2006	Horizontal analysis		Vertical analysis		
		Increase or (9) Dollars*	(decrease) (10) Per cent*	Per cent (11) 2010	net sales (12) 2009	
Net sales	\$10,498.8	\$10,029.8	\$469.0	4.7%	100.0%	100.0%
Cost of goods sold	5,341.3	5,233.7	117.6	2.3	50.9	52.1
Gross profit	\$5,157.5	\$4,806.1	\$351.4	7.3	49.1	47.9
Selling, general and administrative expenses	3,662.5	3,455.5	207.0	6.0	34.9	34.5
Provision for restructured operations	---	552.6	(552.6)	(100.0)	0.0	5.5
Other expense, net	112.6	115.3	(2.7)	(2.3)	1.1	1.1
Interest expense, net of interest income of \$41.2 and \$36.7, respectively	236.9	246.5	(9.6)	(3.9)	2.3	2.5
Income before income taxes	\$1,145.5	\$436.2	\$709.3	162.6	10.9	4.3
Provision for income taxes	383.5	229.8	153.7	66.9	3.7	2.3
Net income	\$762.0	\$206.4	\$555.6	269.2	7.3	2.1
Retained earnings, January 1	2,870.6	2,996.0	(125.4)	(4.2)		
Total	\$3,632.6	\$3,202.4	\$430.2	13.4		
Dividends declared:						
Series B convertible preference stock, net of income taxes	25.1	25.3	(0.2)	(0.8)		
Preferred stock	0.6	0.6	0.0	0.0		
Common stock	329.8	305.9	23.9	7.8		
Retained earnings, December 31	\$3,277.1	\$2,870.6	\$406.5	14.2		

*Dollars = (7) – (8); Per cent = (9)/(8)

Exhibit 2: Comparative statements of income and retained earnings

Having completed the horizontal analysis and vertical analysis of Synotech's balance sheet and statement of income and retained earnings, you are ready to study trend percentages and ratio analysis. The last section in this chapter discusses some final considerations in financial statement analysis. Professional financial statement analysts use several tools and techniques to determine the solvency and profitability of companies.

The horizontal analysis shows that sales increased a total of USD 469.0 million, an increase of 4.7 per cent. Since cost of goods sold increased by a much smaller amount (USD 117.6 million), gross profit increased by USD 351.4, or 7.3 per cent. The USD 552.6 million expense in 2009 was the result of a provision for restructured operations. Although this is not a recurring expense, it does not classify as an extraordinary expense and is treated as part of income from continuing operations.

Now look at Columns (11) and (12) to see the vertical analysis that would be performed. Columns (11) and (12) express the dollar amount of each item in Columns (7) and (8) as a percentage of net sales. Even though cost of goods sold increased in 2010, it remained a fairly constant percentage of net sales. Therefore, gross profit as a

percentage of net sales increased only slightly. The percentage of expenses to net sales decreased somewhat, thus yielding an increase in income before income taxes as a percentage of net sales.

Trend percentages

Trend percentages, also referred to as index numbers, help you to compare financial information over time to a base year or period. You can calculate trend percentages by:

- Selecting a base year or period.
- Assigning a weight of 100 per cent to the amounts appearing on the base-year financial statements.
- Expressing the corresponding amounts on the other years' financial statements as a percentage of base-year or period amounts. Compute the percentages by dividing nonbase-year amounts by the corresponding base-year amounts and then multiplying the result by 100.

The following information for Synotech illustrates the calculation of trend percentages:

(USD millions)	2008	2009	2010
Net sales	\$ 9,105.5	\$10,029.8	\$10,498.8
Cost of goods sold	4,696.0	5,223.7	5,341.3
Gross profit	\$ 4,409.5	\$ 4,806.1	\$ 5,157.5
Operating expenses	3,353.6	4,369.9	4,012.0
Income before income taxes	\$ 1,055.9	\$ 436.2	\$ 1,145.5

If 2008 is the base year, to calculate trend percentages for each year divide net sales by USD 9,105.5 million; cost of goods sold by USD 4,696.0 million; gross profit by USD 4,409.5 million; operating expenses by USD 3,353.6 million; and income before income taxes by USD 1,055.9 million. After all divisions have been made, multiply each result by 100. The resulting percentages reflect trends as follows:

	2008	2009	2010
Net sales	100.0%	119.2%	115.3%
Cost of goods sold	100.0	111.2	113.7
Gross profit	100.0	109.0	117.0
Operating expenses	100.0	130.3	119.6
Income before income taxes	100.0	41.3	108.5

These trend percentages indicate the changes taking place in the organization and highlight the direction of these changes. For instance, the percentage of sales is increasing each year compared to the base year. Cost of goods sold increased at a lower rate than net sales in 2008 and 2010, causing gross profit to increase at a higher rate than net sales. Operating expenses in 2009 increased due to the provision for restructured operations, causing a significant decrease in income before income taxes. Percentages provide clues to an analyst about which items need further investigation or analysis. In reviewing trend percentages, a financial statement user should pay close attention to the trends in related items, such as the cost of goods sold in relation to sales. Trend analysis that shows a constantly declining gross margin (profit) rate may be a signal that future net income will decrease.

As useful as trend percentages are, they have one drawback. Expressing changes as percentages is usually straightforward as long as the amount in the base year or period is positive—that is, not zero or negative. Analysts cannot express a USD 30,000 increase in notes receivable as a percentage if the increase is from zero last year to USD 30,000 this year. Nor can they express an increase from a loss last year of USD 10,000 to income this year of USD 20,000 in percentage terms.

Proper analysis does not stop with the calculation of increases and decreases in amounts or percentages over several years. Such changes generally indicate areas worthy of further investigation and are merely clues that may lead to significant findings. Accurate predictions depend on many factors, including economic and political conditions; management's plans regarding new products, plant expansion, and promotional outlays; and the

expected activities of competitors. Considering these factors along with horizontal analysis, vertical analysis, and trend analysis should provide a reasonable basis for predicting future performance.

Ratio analysis

Logical relationships exist between certain accounts or items in a company's financial statements. These accounts may appear on the same statement or on two different statements. We set up the dollar amounts of the related accounts or items in fraction form called ratios. These ratios include: (1) liquidity ratios; (2) equity, or long-term solvency, ratios; (3) profitability tests; and (4) market tests.

Liquidity ratios indicate a company's short-term debt-paying ability. Thus, these ratios show interested parties the company's capacity to meet maturing current liabilities.

Current (or working capital) ratio Working capital is the excess of current assets over current liabilities. The ratio that relates current assets to current liabilities is the **current (or working capital) ratio**. The current ratio indicates the ability of a company to pay its current liabilities from current assets and, thus, shows the strength of the company's working capital position.

You can compute the current ratio by dividing current assets by current liabilities:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

The ratio is usually stated as a number of dollars of current assets to one dollar of current liabilities (although the dollar signs usually are omitted). Thus, for Synotech in 2010, when current assets totaled USD 2,846.7 million and current liabilities totaled USD 2,285.2 million, the ratio is 1.25:1, meaning that the company has USD 1.25 of current assets for each USD 1.00 of current liabilities.

The current ratio provides a better index of a company's ability to pay current debts than does the absolute amount of working capital. To illustrate, assume that we are comparing Synotech to Company B. For this example, use the following totals for current assets and current liabilities:

	Synotech	Company B
Current assets (a)	\$ 2,846.7	\$120.0
Current liabilities (b)	2,285.2	53.2
Working capital (a – b)	\$ 561.5	\$ 66.8
Current ratio (a/b)	1.25:1	2.26:1

Synotech has eight times as much working capital as Company B. However, Company B has a superior debt-paying ability since it has USD 2.26 of current assets for each USD 1.00 of current liabilities.

Short-term creditors are particularly interested in the current ratio since the conversion of inventories and accounts receivable into cash is the primary source from which the company obtains the cash to pay short-term creditors. Long-term creditors are also interested in the current ratio because a company that is unable to pay short-term debts may be forced into bankruptcy. For this reason, many bond indentures, or contracts, contain a provision requiring that the borrower maintain at least a certain minimum current ratio. A company can increase its current ratio by issuing long-term debt or capital stock or by selling noncurrent assets.

A company must guard against a current ratio that is too high, especially if caused by idle cash, slow-paying customers, and/or slow-moving inventory. Decreased net income can result when too much capital that could be used profitably elsewhere is tied up in current assets.

Refer to Exhibit 1. The Synotech data in Column (4) indicate that current liabilities are increasing more rapidly than current assets. We could also make such an observation directly by looking at the change in the current ratio. Synotech's current ratios for 2010 and 2009 follow:

(USD millions)	December 31		Amount of increase
	2010	2009	
Current assets (a)	\$2,846.7	\$,2832.4	14.3
Current liabilities (b)	2,285.6	2,103.8	181.4
Working capital (a – b)	\$ 561.5	\$ 728.6	\$(167.1)
Current ratio (a/b)	1.25:1	1.35:1	

Synotech's working capital decreased by USD 167.1 million, or 22.9 per cent (USD 167.1/USD 728.6), and its current ratio decreased from 1.35:1 to 1.25:1. Together, these figures reflect that its current liabilities increased faster than its current assets.

Acid-test (quick) ratio The current ratio is not the only measure of a company's short-term debt-paying ability. Another measure, called the **acid-test (quick) ratio**, is the ratio of quick assets (cash, marketable securities, and net receivables) to current liabilities. Analysts exclude inventories and prepaid expenses from current assets to compute quick assets because they might not be readily convertible into cash. The formula for the acid-test ratio is:

$$\text{Acid – test ratio} = \frac{\text{Quick assets}}{\text{Current liabilities}}$$

Short-term creditors are particularly interested in this ratio, which relates the pool of cash and immediate cash inflows to immediate cash outflows.

The acid-test ratios for 2010 and 2009 for Synotech are:

(USD millions)	December 31		Amount of increase or (decrease)
	2010	2009	
Quick assets (a)	\$1,646.6	\$1,648.3	\$ (1.7)
Current liabilities (b)	2,285.6	2,103.8	181.8
Net quick assets (a – b)	\$ (639.0)	\$ (455.5)	\$(183.5)
Acid-test ratio (a/b)	.72:1	.78:1	

In deciding whether the acid-test ratio is satisfactory, investors consider the quality of the marketable securities and receivables. An accumulation of poor-quality marketable securities or receivables, or both, could cause an acid-test ratio to appear deceptively favorable. When referring to marketable securities, poor quality means securities likely to generate losses when sold. Poor-quality receivables may be uncollectible or not collectible until long past due. The quality of receivables depends primarily on their age, which can be assessed by preparing an aging schedule or by calculating the accounts receivable turnover. (Covered in Chapter 6.)

Cash flow liquidity ratio Another approach to measuring short-term liquidity is the **cash flow liquidity ratio**. The numerator, as an approximation of cash resources, consists of (1) cash and marketable securities, or liquid current assets, and (2) net cash provided by operating activities, or the cash generated from the company's operations. This reflects the company's ability to sell inventory and collect accounts receivable. The formula for the cash flow liquidity ratio is:

$$\frac{\text{Cash also marketable securities} + \text{Net cash provided by operating activities}}{\text{Current liabilities}}$$

For 2010, Synotech has USD 298.0 million in cash and cash equivalents, USD 71.3 million in marketable securities, USD 2,285.2 million in current liabilities, and USD 1,101.0 million in cash provided by operating activities (taken from the statement of cash flows in its annual report). Its cash flow liquidity ratio is:

$$\frac{\text{USD } 298.0 + \text{USD } 71.3 + \text{USD } 1,101.0}{\text{USD } 2,285.2} = .64 \text{ time}$$

This indicates that the company is going to have to rely on some other sources of funding to pay its current liabilities. The company's liquid current assets will only cover about two-thirds of the current liabilities. Possibly net cash provided by operations will be substantially higher in 2011.

Accounts receivable turnover is the relationship between the amount of an asset and some measure of its use. **Accounts receivable turnover** is the number of times per year that the average amount of receivables is collected. To calculate this ratio, divide net credit sales (or net sales) by average net accounts receivable; that is, accounts receivable after deducting the allowance for uncollectible accounts:

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

When a ratio compares an income statement item (like net credit sales) with a balance sheet item (like net accounts receivable), the balance sheet item should be an average. Ideally, analysts calculate average net accounts receivable by averaging the end-of-month balances or end-of-week balances of net accounts receivable outstanding during the period. The greater the number of observations used, the more accurate the resulting average. Often, analysts average only the beginning-of-year and end-of-year balances because this information is easily obtainable from comparative financial statements. Sometimes a formula calls for the use of an average balance, but only the year-end amount is available. Then the analyst must use the year-end amount.¹

In theory, the numerator of the accounts receivable turnover ratio consists of only net credit sales because those are the only sales that generate accounts receivable. However, if cash sales are relatively small or their proportion to total sales remains fairly constant, analysts can obtain reliable results by using total net sales. In most cases, the analyst may have to use total net sales because the separate amounts of cash sales and credit sales are not reported on the income statement.

Synotech's accounts receivable turnover ratios for 2010 and 2009 follow. Net accounts receivable on 2009 January 1, totaled USD 1,259.5 million.

(USD millions)	December 31		
	2010	2009	Amount of increase
Net sales (a)	\$10,498.8	\$10,029.8	\$469.0
Net accounts receivable:			
January 1	\$ 1,340.3	\$ 1,259.5	\$ 80.8
December 31	1,277.3	1,340.3	(63.0)
Total (b)	\$ 2,617.6	\$ 2,599.8	\$ 17.8
Average net receivables (c) (b/2 = c)	\$ 1,308.8	\$1,299.9	
Turnover of accounts receivable (a/c)	8.02	7.72	

The accounts receivable turnover ratio provides an indication of how quickly the company collects receivables. The accounts receivable turnover ratio for 2010 indicates that Synotech collected, or turned over, its accounts receivable slightly more than eight times. The ratio is better understood and more easily compared with a company's credit terms if we convert it into a number of days, as is illustrated in the next ratio.

¹ These general comments about the use of averages in a ratio apply to the other ratios involving averages discussed in this chapter.

Number of days' sales in accounts receivable The **number of days' sales in accounts receivable** ratio is also called the average collection period for accounts receivable. Calculate it as follows:

$$\text{Number of days' sales per accounts receivable} = \frac{\text{Number of days per year (365)}}{\text{Accounts receivable turnover}}$$

The turnover ratios for Synotech show that the number of days' sales in accounts receivable decreased from about 47 days (365/7.72) in 2009 to 46 days (365/8.02) in 2010. The change means that the average collection period for the company's accounts receivable decreased from 47 to 46 days.

An accounting perspective:

Business insight

The number of days' sales in accounts receivable ratio measures the average liquidity of accounts receivable and indicates their quality. Generally, the shorter the collection period, the higher the quality of receivables. However, the average collection period varies by industry; for example, collection periods are short in utility companies and much longer in some retailing companies. A comparison of the average collection period with the credit terms extended customers by the company provides further insight into the quality of the accounts receivable. For example, receivables with terms of 2/10, n/30 and an average collection period of 75 days need to be investigated further. It is important to determine why customers are paying their accounts much later than expected.

Inventory turnover A company's inventory turnover ratio shows the number of times its average inventory is sold during a period. You can calculate **inventory turnover** as follows:

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

When comparing an income statement item and a balance sheet item, measure both in comparable dollars. Notice that we measure the numerator and denominator in cost rather than sales dollars. (Earlier, when calculating accounts receivable turnover, we measured both numerator and denominator in sales dollars.) Inventory turnover relates a measure of sales volume to the average amount of goods on hand to produce this sales volume.

Synotech's inventory on 2009 January 1, was USD 856.7 million. The following schedule shows that the inventory turnover decreased slightly from 5.85 times per year in 2009 to 5.76 times per year in 2010. To convert these turnover ratios to the number of days it takes the company to sell its entire stock of inventory, divide 365 by the inventory turnover. Synotech's average inventory sold in about 63 and 62 (365/5.76 and 365/5.85) in 2010 and 2009, respectively.

(USD millions)	December 31		Amount of increase or (decrease)
	2010	2009	
Cost of goods sold (a)	\$5,341.3	\$5,223.7	\$117.6
Merchandise inventory:			
January 1	\$929.8	\$856.7	\$ 73.1
December 31	924.8	929.8	(5.0)
Total (b)	\$1,854.6	\$1,786.5	\$ 68.1
Average inventory (c) (b/2 = c)	\$927.3	\$893.3	

Turnover of inventory (a/c) 5.76 5.85

Other things being equal, a manager who maintains the highest inventory turnover ratio is the most efficient. Yet, other things are not always equal. For example, a company that achieves a high inventory turnover ratio by keeping extremely small inventories on hand may incur larger ordering costs, lose quantity discounts, and lose sales due to lack of adequate inventory. In attempting to earn satisfactory income, management must balance the costs of inventory storage and obsolescence and the cost of tying up funds in inventory against possible losses of sales and other costs associated with keeping too little inventory on hand.

An accounting perspective:

Business insight

Cabletron Systems develops, manufactures, installs, and supports a wide range of standards-based LAN and WAN connectivity hardware and software products. For the year ended 2009 December 31, both its number of day's sales in accounts receivable and its inventory turnover rate increased as compared to the prior year. In its 2009 annual report, the company explained these increases as follows:

Accounts receivable, net of allowance for doubtful accounts, were USD 210.9 million, or 66 days of sales outstanding, at 2009 December 31 compared to USD 228.4 million at 2008 December 31, or 54 days sales outstanding. The increase in days of sales outstanding was a result of the timing of sales and related collections.

Worldwide inventories were USD 98.1 million at 2009 December 31 or 63 days of inventory, compared to USD 85.0 million, or 37 days of inventory, at 2008 December 31. The increase of days in inventory was due to the increase in finished goods inventory purchased to protect against an anticipated shortage of supply components.

Total assets turnover **Total assets turnover** shows the relationship between the dollar volume of sales and the average total assets used in the business. We calculate it as follows:

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

This ratio measures the efficiency with which a company uses its assets to generate sales. The larger the total assets turnover, the larger the income on each dollar invested in the assets of the business. For Synotech, the total asset turnover ratios for 2010 and 2009 follow. Total assets as of 2009 January 1, were USD 7,370.9 million.

(USD millions)	2010	2009	Amount of increase
Net sales (a)	\$ 10,498.8	\$ 10,029.8	\$ 469.0
Total assets:			
January 1	\$9,170.8	\$7,370.9	\$1,799.9
December 31	9,481.8	9,170.8	311.0
Total (b)	\$18,652.6	\$16,541.7	\$2,110.9
Average total assets (c) (b/2 = c)	\$9,331.8	\$8,270.9	
Turnover of total assets (a/c)	1.13:1	1.21:1	

Each dollar of total assets produced USD 1.21 of sales in 2009 and USD 1.13 of sales in 2010. In other words, between 2009 and 2010, the company had a decrease of USD .08 of sales per dollar of investment in assets.

Equity, or long-term solvency, ratios show the relationship between debt and equity financing in a company.

Equity (stockholders' equity) ratio The two basic sources of assets in a business are owners (stockholders) and creditors; the combined interests of the two groups are total equities. In ratio analysis, however, the term equity generally refers only to stockholders' equity. Thus, the **equity (stockholders' equity) ratio** indicates the proportion of total assets (or total equities) provided by stockholders (owners) on any given date. The formula for the equity ratio is:

$$\text{Equity ratio} = \frac{\text{Stockholders' equity}}{\text{Total assets (total equities)}}$$

Synotech's liabilities and stockholders' equity from Exhibit 1 follow. The company's equity ratio increased from 22.0 per cent in 2009 to 25.7 per cent in 2010. Exhibit 1 shows that stockholders increased their proportionate equity in the company's assets due largely to the retention of earnings (which increases retained earnings).

(USD millions)	2010		2009	
	December 31	Per cent	December 31	Per cent
Current liabilities	\$2,285.2	24.1%	\$2,103.8	22.9%
Long-term liabilities	4,755.8	50.2	5,051.3	55.1
Total liabilities	\$7,041.0	74.3	\$7,155.1	78.0
Total stockholders' equity	2,440.8	25.7	2,015.7	22.0
Total equity (equal to total assets)	\$9,481.8	100%	\$9,170.8	100.0%

The equity ratio must be interpreted carefully. From a creditor's point of view, a high proportion of stockholders' equity is desirable. A high equity ratio indicates the existence of a large protective buffer for creditors in the event a company suffers a loss. However, from an owner's point of view, a high proportion of stockholders' equity may or may not be desirable. If the business can use borrowed funds to generate income in excess of the net after-tax cost of the interest on such funds, a lower percentage of stockholders' equity may be desirable.

To illustrate the effect of higher leveraging (i.e. a larger proportion of debt), assume that Synotech could have financed an increase in its productive capacity with USD 40 million of 6 per cent bonds instead of issuing 5 million additional shares of common stock. The effect on income for 2010 would be as follows, assuming a federal income tax rate of 40 per cent:

Net income as presently stated (Exhibit 2)	\$762,000,000
Deduct additional interest on debt (0.06 x \$40 million)	2,400,000
	\$759,600,000
Add reduced taxes due to interest deduction (.4 x 2,400,000)	960,000
Adjusted net income	\$760,560,000

As shown, increasing leverage by issuing bonds instead of common stock reduces net income. However, there are also fewer shares of common stock outstanding. Assume the company has 183 million shares of common stock outstanding. Earnings per share (EPS) with the additional debt would be USD 4.16 (or USD 760,560,000/183 million shares), and EPS with the additional stock would be USD 4.05 (or USD 762,000,000/188 million shares).

Since investors place heavy emphasis on EPS amounts, many companies in recent years have introduced large portions of debt into their capital structures to increase EPS, especially since interest rates have been relatively low in recent years.

We should point out, however, that too low a percentage of stockholders' equity (too much debt) has its dangers. Financial leverage magnifies losses per share as well as EPS since there are fewer shares of stock over which to spread the losses. A period of business recession may result in operating losses and shrinkage in the value of assets, such as receivables and inventory, which in turn may lead to an inability to meet fixed payments for interest and

principal on the debt. As a result, the company may be forced into liquidation, and the stockholders could lose their entire investments.

Stockholders' equity to debt (debt to equity) ratio Analysts express the relative equities of owners and creditors in several ways. To say that creditors held a 74.3 per cent interest in the assets of Synotech on 2010 December 31, is equivalent to saying stockholders held a 25.7 per cent interest. Another way of expressing this relationship is the **stockholders' equity to debt ratio**:

$$\text{Stockholders' equity for debt ratio} = \frac{\text{Stockholders' equity}}{\text{Total debt}}$$

Such a ratio for Synotech would be .28:1 (or USD 2,015.7 million/USD 7,155.1 million) on 2009 December 31, and .35:1 (or USD 2,440.8 million/USD 7,041.0 million) on 2010 December 31. This ratio is often inverted and called the **debt to equity ratio**. Some analysts use only long-term debt rather than total debt in calculating these ratios. These analysts do not consider short-term debt to be part of the capital structure since it is paid within one year.

Profitability is an important measure of a company's operating success. Generally, we are concerned with two areas when judging profitability: (1) relationships on the income statement that indicate a company's ability to recover costs and expenses, and (2) relationships of income to various balance sheet measures that indicate the company's relative ability to earn income on assets employed. Each of the following ratios utilizes one of these relationships.

Rate of return on operating assets The best measure of earnings performance without regard to the sources of assets is the relationship of net operating income to operating assets, the **rate of return on operating assets**. This ratio shows the earning power of the company as a bundle of assets. By disregarding both nonoperating assets and nonoperating income elements, the rate of return on operating assets measures the profitability of the company in carrying out its primary business functions. We can break the ratio down into two elements—the operating margin and the turnover of operating assets.

Operating margin reflects the percentage of each dollar of net sales that becomes net operating income. Net operating income excludes **nonoperating income elements** such as extraordinary items, cumulative effect on prior years of changes in accounting principle, losses or gains from discontinued operations, interest revenue, and interest expense. Another name for **net operating income** is "income before interest and taxes" (IBIT). The formula for operating margin is:

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

Turnover of operating assets shows the amount of sales dollars generated for each dollar invested in operating assets. **Operating assets** are all assets actively used in producing operating revenues. Typically, we use year-end operating assets, even though in theory an average would be better. **Nonoperating assets** are owned by a company but not used in producing operating revenues, such as land held for future use, a factory building rented to another company, and long-term bond investments. Analysts do not use these nonoperating assets in evaluating earnings performance. Nor do they use total assets that include nonoperating assets not contributing to the generation of sales. The formula for the turnover of operating assets is:

$$\text{Turnover of operating assets} = \frac{\text{Net sales}}{\text{Operating assets}}$$

The rate of return on operating assets of a company is equal to its operating margin multiplied by turnover of operating assets. The more a company earns per dollar of sales and the more sales it makes per dollar invested in operating assets, the higher is the return per dollar invested. To find the rate of return on operating assets, use the following formulas:

$$\text{Operating margin} \times \text{Turnover of operating assets} = \text{Rate of return on operating assets}$$

or

$$\text{Rate of return on operating assets} = \frac{\text{Net operating income}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Operating assets}}$$

Because net sales appears in both ratios (once as a numerator and once as a denominator), we can cancel it out, and the formula for rate of return on operating assets becomes:

$$\text{Rate of return on operating assets} = \frac{\text{Net operating income}}{\text{Operating assets}}$$

For analytical purposes, the formula should remain in the form that shows margin and turnover separately, since it provides more information.

The rates of return on operating assets for Synotech for 2010 and 2009 are:

(USD millions)	2010	2009	Amount of increase or (decrease)
Net operating income (a)*	\$ 1,382.4	\$ 682.7	\$699.7
Net sales (b)	\$10,498.8	\$10,029.8	\$469.0
Operating assets (c) †	\$9,481.8	\$ 9,170.8	\$311.0
Operating margin (a/b)	13.17%	6.81%	
Turnover of operating assets (b/c)	1.11 times	1.09 times	
Rate of return on operating assets (a/c)	14.58%	7.44%	

*Calculated as income before income taxes plus net interest expense. This method excludes nonoperating items.

†When companies have no nonoperating assets, total assets are used in the calculation

Net income to net sales (return on sales) ratio Another measure of a company's profitability is the **net income to net sales ratio**, calculated as follows:

$$\text{Net income by net sales} = \frac{\text{Net income}}{\text{Net sales}}$$

This ratio measures the proportion of the sales dollar that remains after deducting all expenses. The computations for Synotech for 2010 and 2009 are:

An accounting perspective:

Business insight

Companies that are to survive in the economy must attain some minimum rate of return on operating assets. However, they can attain this minimum rate of return in many different ways. To illustrate, consider a grocery store and a jewelry store, each with a rate of return of 8 per cent on operating assets. The grocery store normally would attain this rate of return with a low margin and a high turnover, while the jewelry store would have a high margin and a low turnover, as shown here:

$$\text{Margin} \times \text{Turnover} = \text{Rate of return on}$$

			operating assets
Grocery store	1% x	8.0 times	= 8%
Jewelry store	20 x	0.4	= 8

(USD millions)	2010	2009	Amount of increase or (decrease)
Net income (a)	\$ 762.0	\$206.4	\$555.6
Net sales (b)	\$10,498.	\$10,029.	\$469.0
	8	8	
Ratio of net income to net sales (a/b)	7.26%	2.06%	

Although the ratio of net income to net sales indicates that the net amount of profit increased on each sales dollar, exercise care in using and interpreting this ratio. The net income includes all nonoperating items that may occur only in a particular period; therefore, net income includes the effects of such things as extraordinary items, changes in accounting principle, effects of discontinued operations, and interest charges. Thus, a period that contains the effects of an extraordinary item is not comparable to a period that contains no extraordinary items. Also, since interest expense is deductible in the determination of net income while dividends are not, the methods used to finance a company's assets affect net income.

Return on average common stockholders' equity From the stockholders' point of view, an important measure of the income-producing ability of a company is the relationship of return on average common stockholders' equity, also called rate of **return on average common stockholders' equity**, or simply the **return on equity (ROE)**. Although stockholders are interested in the ratio of operating income to operating assets as a measure of management's efficient use of assets, they are even more interested in the return the company earns on each dollar of stockholders' equity. The formula for return on average common stockholders' equity if no preferred stock is outstanding is:

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

When a company has preferred stock outstanding, the numerator of this ratio becomes net income minus the annual preferred dividends, and the denominator becomes the average book value of common stock. The book value of common stock is equal to total stockholders' equity minus (1) the liquidation value (usually equal to par value) of preferred stock and (2) any dividends in arrears on cumulative preferred stock. Thus, the formula becomes:

$$\text{Return on average common stockholders' equity} = \frac{(\text{Net income} - \text{Preferred stock dividends})}{\text{Average book value of common stock}}$$

Synotech has preferred stock outstanding. The ratios for the company follow. Total common stockholders' equity on 2009 January 1, was USD 1,697.4 million. Preferred dividends were USD 25.7 million in 2010 and USD 25.9 million in 2009.

(USD millions)	2010	2009	Amount of increase or (decrease)
Net income – Preferred stock dividends (a)	\$ 736.3	\$ 180.5	\$ 555.8
Total common stockholders' equity (book value of common stock):*			
January 1	\$1,531.5	\$1,697.4	\$(165.9)
December 31	1,969.6	1,531.5	438.1

Total (b)	\$3,501.1	\$3,228.9	\$ 272.2
Average common stockholders' equity:	\$1,750.6	\$1,614.5	
(c) (b/2 = c)			
Return on common stockholders' equity (a/c)	42.06%	11.18%	

*Total stockholders' equity – par value of preferred stock

The stockholders would regard the increase in the ratio from 11.18 per cent to 42.06 per cent favorably. This ratio indicates that for each dollar of capital invested by a common stockholder, the company earned approximately 42 cents in 2010.

An accounting perspective:

Business insight

Sometimes, two companies have the same return on assets but have different returns on stockholders' equity, as shown here:

	Company 1	Company 2
Return on assets	12.0%	12.0%
Return on stockholders' equity	6.4	8.0

The difference of 1.6 per cent in Company 2's favor is the result of Company 2's use of borrowed funds, particularly long-term debt, in its capital structure. Use of these funds (or preferred stock with a fixed return) is called trading on the equity. When a company is trading profitably on the equity, it is generating a higher rate of return on its borrowed funds than it is paying for the use of the funds. The excess, in this case 1.6 per cent, is accruing to the benefit of the common stockholders, because their earnings are being increased.

Companies that magnify the gains from this activity for the stockholders are using leverage. Using leverage is a risky process because losses also can be magnified, to the disadvantage of the common stockholders.

Cash flow margin The cash flow margin measures a company's overall efficiency and performance. The **cash flow margin** indicates the ability of a company to translate sales into cash. Measuring the amount of cash a company generates from every dollar of sales is important because a company needs cash to service debt, pay dividends, and invest in new capital assets. The formula for the cash flow margin is:

$$\text{Cash flow margin} = \frac{\text{Net cash provided by operating activities}}{\text{Net sales}}$$

Thus, we calculate Synotech's 2010 cash flow margin as follows:

$$\frac{\text{USD 1,101.0 million net cash provided by operating activities}}{\text{USD 10,498.8 million net sales}} = 10.49 \text{ per cent}$$

Earnings per share of common stock Probably the measure used most widely to appraise a company's operations is **earnings per share (EPS)** of common stock. EPS is equal to earnings available to common stockholders divided by the weighted average number of shares of common stock outstanding. The financial press regularly publishes actual and forecasted EPS amounts for publicly traded corporations, together with period-to-

period comparisons. The Accounting Principles Board noted the significance attached to EPS by requiring that such amounts be reported on the face of the income statement.² (Chapter 13 illustrates how earnings per share should be presented on the income statement.)

The calculation of EPS may be fairly simple or highly complex depending on a corporation's capital structure. A company has a simple capital structure if it has no outstanding securities (e.g. convertible bonds, convertible preferred stocks, warrants, or options) that can be exchanged for common stock. If a company has such securities outstanding, it has a complex capital structure. Discussion of EPS for a corporation with a complex capital structure is beyond the scope of this text.

A company with a simple capital structure reports a single basic EPS amount, which is calculated as follows:

$$\text{EPS of common stock} = \frac{\text{Earnings available for common stockholders}}{\text{Weighted - average number of common shares outstanding}}$$

The amount of earnings available to common stockholders is equal to net income minus the current year's preferred dividends, whether such dividends have been declared or not.

Determining the weighted-average number of common shares The denominator in the EPS fraction is the weighted-average number of common shares outstanding for the period. If the number of common shares outstanding did not change during the period, the weighted-average number of common shares outstanding would, of course, be the number of common shares outstanding at the end of the period. The balance in the Common Stock account of Synotech (Exhibit 1) was USD 219.9 million on 2010 December 31. The common stock had a USD 1.20 par value. Assuming no common shares were issued or redeemed during 2010, the weighted-average number of common shares outstanding would be 183.2 million (or USD 219.9 million/USD 1.20 per share). (Normally, common treasury stock reacquired and reissued are also included in the calculation of the weighted-average number of common shares outstanding. We ignore treasury stock transactions to simplify the illustrations.)

If the number of common shares changed during the period, such a change increases or decreases the capital invested in the company and should affect earnings available to stockholders. To compute the weighted-average number of common shares outstanding, we weight the change in the number of common shares by the portion of the year that those shares were outstanding. Shares are outstanding only during those periods that the related capital investment is available to produce income.

To illustrate, assume that during 2009 Synotech's common stock balance increased by USD 14.0 million (11.7 million shares). Assume that the company issued 9.5 million of these shares on 2009 April 1, and the other 2.2 million shares on 2009 October 1. The computation of the weighted-average number of common shares outstanding would be:

171,5 million shares x 1 year	171.500 million
9.5 million shares x ¾ year (April – December)	7.125 million
2.2 million shares x ¼ year (October – December)	.550
Weighted-average number of common shares outstanding	179.125 million

An alternate method looks at the total number of common shares outstanding, weighted by the portion of the year that the number of shares was outstanding, as follows:

171.5 million shares x ¼ year (January – March)	42.875 million
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² Accounting Principles Board, *Opinion No. 15*, "Reporting Earnings per Share" (New York: AICPA, 1969), par. 12. *FASB Statement No. 128*, "Earnings per Share" (Norwalk, Connecticut: FASB, 1997), simplified the standards for computing earnings per share and made them comparable to international EPS standards.

181.0 million shares x ½ year (April – September)	90.500 million
183.2 million shares x 1/3 year (October – December)	45.800 million
Weighted-average number of shares outstanding	179.175 million

Another alternate method is:

171.5 million shares x 3 months =	514.5 million share-months
181.0 million shares x 6 months =	1,086.0 million share-months
183.2 million shares x 3 months =	549.6 million share-months
12 months	2,150.1 million share-months

2,150.1 million share-months/12 months = 179.175 million

Note that all three methods yield the same result. In 2010, the balance in the common stock account did not change as it had during 2009. Therefore, the weighted-average number of common shares outstanding during 2010 is equal to the number of common shares issued, 183.2 million. The EPS of common stock for the Synotech are:

(USD millions)	2010	2009	Amount of increase or (decrease)
Net income-preferred dividends (a)	USD 736.30	USD 180.50	USD 555.80
Average number of shares of common stock (b)	183.2	179.13	4.03
EPS of common stock (a,b)	USD 4.02	USD 1.01	

Synotech's stockholders would probably view the increase of approximately 298.0 per cent ((USD 4.02 - USD 1.01)/USD 1.01) in EPS from USD 1.01 to USD 4.02 favorably.

EPS and stock dividends or splits Increases in shares outstanding as a result of a stock dividend or stock split do not require weighting for fractional periods. Such shares do not increase the capital invested in the business and, therefore, do not affect income. All that is required is to restate all prior calculations of EPS using the increased number of shares. For example, assume a company reported EPS for 2010 as USD 1.20 (or USD 120,000/100,000 shares) and earned USD 180,000 in 2011. The only change in common stock over the two years was a two-for-one stock split on 2011 December 1, which doubled the shares outstanding to 200,000. The firm would restate EPS for 2010 as USD 0.60 (or USD 120,000/200,000 shares) and as USD 0.90 (USD 180,000/200,000 shares) for 2011.

Basic EPS and diluted EPS In the merger wave of the 1960s, corporations often issued securities to finance their acquisitions of other companies. Many of the securities issued were calls on common or possessed equity kickers. These terms mean that the securities were convertible to, or exchangeable for, shares of their issuers' common stock. As a result, many complex problems arose in computing EPS. Until 1997, *APB Opinion No. 15* provided guidelines for solving these problems. In 1997, *FASB Statement No. 128*, "Earnings per Share" replaced *APB Opinion No. 15*. A company with a complex capital structure must present at least two EPS calculations, basic EPS and diluted EPS. Because of the complexities involved in the calculations, we reserve further discussion of these two EPS calculations for an intermediate accounting text.

Times interest earned ratio Creditors, especially long-term creditors, want to know whether a borrower can meet its required interest payments when these payments come due. The **times interest earned ratio**, or interest coverage ratio, is an indication of such an ability. It is computed as follows:

$$\text{Time interest earned ratio} = \frac{\text{Income before interest including taxes (IBIT)}}{\text{Interest expense}}$$

The ratio is a rough comparison of cash inflows from operations with cash outflows for interest expense. Income before interest and taxes (IBIT) is the numerator because there would be no income taxes if interest expense is equal to or greater than IBIT. (To find income before interest and taxes, take net income from continuing operations and add back the net interest expense and taxes.) Analysts disagree on whether the denominator should be (1) only interest expense on long-term debt, (2) total interest expense, or (3) net interest expense. We will use net interest expense in the Synotech illustration.

For Synotech, the net interest expense is USD 236.9 million. With an IBIT of USD 1,382.4 million, the times interest earned ratio is 5.84, calculated as:

$$\frac{\text{USD } 1,382.4}{\text{USD } 236.9} = 5.84 \text{ time}$$

The company earned enough during the period to pay its interest expense almost 6 times over.

Low or negative interest coverage ratios suggest that the borrower could default on required interest payments. A company is not likely to continue interest payments over many periods if it fails to earn enough income to cover them. On the other hand, interest coverage of 5 to 10 times or more suggests that the company is not likely to default on interest payments.

Times preferred dividends earned ratio Preferred stockholders, like bondholders, must usually be satisfied with a fixed-dollar return on their investments. They are interested in the company's ability to make preferred dividend payments each year. We can measure this ability by computing the **times preferred dividends earned ratio** as follows:

$$\text{Time preferred dividends earned ratio} = \frac{\text{Net income}}{\text{Annual preferred dividends}}$$

Synotech has a net income of USD 762.0 million and preferred dividends of USD 25.7 million. The number of times the annual preferred dividends are earned for 2010 is:

$$\frac{\text{USD } 762.0}{\text{USD } 25.7} = 29.65 : 1, \text{ or } 29.65 \text{ times}$$

The higher this rate, the higher is the probability that the preferred stockholders will receive their dividends each year.

Analysts compute certain ratios using information from the financial statements and information about the market price of the company's stock. These tests help investors and potential investors assess the relative merits of the various stocks in the marketplace.

The **yield** on a stock investment refers to either an earnings yield or a dividends yield.

Earnings yield on common stock You can calculate a company's **earnings yield on common stock** as follows:

$$\text{Earnings yield on common stock} = \frac{\text{EPS}}{\text{Current market price per share of common stock}}$$

Assume Synotech has common stock with an EPS of USD 5.03 and that the quoted market price of the stock on the New York Stock Exchange is USD 110.70. The earnings yield on common stock would be:

$$\frac{\text{USD } 5.03}{\text{USD } 110.7} = 4.54 \text{ per cent}$$

Price-earnings ratio When inverted, the earnings yield on common stock is the **price-earnings ratio**. To compute the price-earnings ratio:

$$\text{Price-earnings ratio} = \frac{\text{Current market price per share of common stock}}{\text{EPS}}$$

$$\frac{\text{USD } 110.7}{\text{USD } 5.03} = 22.01:1$$

Investors would say that this stock is selling at 22 times earnings, or at a multiple of 22. These investors might have a specific multiple in mind that indicates whether the stock is underpriced or overpriced. Different investors have different estimates of the proper price-earnings ratio for a given stock and also different estimates of the future earnings prospects of the company. These different estimates may cause one investor to sell stock at a particular price and another investor to buy at that price.

Payout ratio on common stock Using dividend yield, investors can compute the payout ratio on common stock. Assume that Synotech's dividends per share were USD 1.80 and earnings per share were USD 5.03. To calculate **payout ratio on common stock**, divide the dividend per share of common stock by EPS. The payout ratio of stock in 2010 is:

$$\text{Payout ratio on common stock} = \frac{\text{Dividend per share of common stock}}{\text{EPS}}$$

$$\frac{\text{USD } 1.80}{\text{USD } 5.03} = 35.8 \text{ per cent}$$

A payout ratio of 35.8 per cent means that the company paid out 35.8 per cent of its earnings in the form of dividends. Some investors are attracted by the stock of companies that pay out a large percentage of their earnings. Other investors are attracted by the stock of companies that retain and reinvest a large percentage of their earnings. The tax status of the investor has a great deal to do with this preference. Investors in high tax brackets often prefer to have the company reinvest the earnings with the expectation that this reinvestment results in share price appreciation.

Dividend yield on common stock The dividend paid per share of common stock is also of much interest to common stockholders. When the current annual dividend per share of common stock is divided by the current market price per share of common stock, the result is called the **dividend yield on common stock**. Synotech's 2010 December 31, common stock price was USD 110.70 per share. Its dividends per share were USD 1.80. The company's dividend yield on common stock was:

$$\text{Dividend yield on common stock} = \frac{\text{Dividend per share of common stock}}{\text{Current market price per share of common stock}}$$

$$\frac{\text{USD } 1.80}{\text{USD } 110.7} = 1.63 \text{ per cent}$$

Dividend yield on preferred stock Preferred stockholders, as well as common stockholders, are interested in dividend yields. The computation of the **dividend yield on preferred stock** is similar to the common stock dividend yield computation. Assume that Synotech's dividend per share of preferred stock is USD 5.10 with a current market price of USD 84.00 per share. We compute the dividend yield on preferred stock as follows:

$$\text{Dividend yield on preferred stock} = \frac{\text{Dividend per share of preferred stock}}{\text{Current market price per share of preferred stock}}$$

$$\frac{\text{USD } 5.10}{\text{USD } 84.00} = 6.07 \text{ per cent}$$

Through the use of dividend yield rates, we can compare different preferred stocks having different annual dividends and different market prices.

Cash flow per share of common stock Investors calculate the **cash flow per share of common stock** ratio as follows:

$$\text{Cash flow per share of common stock} = \frac{\text{Net cash provided by operating activities}}{\text{Average number of shares of common stock outstanding}}$$

Currently, *FASB Statement No. 95* does not permit the use of this ratio for external reporting purposes. However, some mortgage and investment banking firms do use this ratio to judge the company's ability to pay dividends and pay liabilities. The cash flow per share of common stock ratio for Synotech is as follows:

	Fiscal Year	
	2010	2009
Cash provided by operating activities (a)	\$1,101.0	\$972.3
Average shares outstanding (b) (assumed)	146.6	145.2
Cash flow per share of common stock (a)/(b)	\$7.51	\$6.70

Final considerations in financial statement analysis

Standing alone, a single financial ratio may not be informative. Investors gain greater insight by computing and analyzing several related ratios for a company. Exhibit 3 summarizes the ratios presented in this chapter, and Exhibit 4 presents them graphically.

Financial analysis relies heavily on informed judgment. As guides to aid comparison, percentages and ratios are useful in uncovering potential strengths and weaknesses. However, the financial analyst should seek the basic causes behind changes and established trends.

An accounting perspective:

Uses of technology

Most companies calculate some of the ratios we have discussed, if not all of them. To efficiently and effectively perform these calculations, accountants use computers. Some programs that gather information in the preparation of financial statements calculate the ratios at the end of a period. Accountants also create spreadsheets to perform this task. Remember, to interpret the numbers correctly, investors and management must compare these ratios with the industry in which the company operates.

Liquidity ratios	Formula	Significance
Current, or working capital, ratio	Current assets + Current liabilities	Test of debt-paying ability
Acid-test (quick) ratio	Quick assets (cash + marketable securities + net receivables) + Current liabilities	Test of immediate debt-paying ability
Cash flow liquidity ratio	(Cash and marketable securities + Net cash provided by operating activities) + Current liabilities	Test of short-term, debt-paying ability
Accounts receivable turnover	Net credit sales (or net sales) + Average net accounts receivable	Test of quality of accounts receivable
Number of days' sales in accounts receivable (average collection period of accounts receivable)	Number of days in year (365) + Accounts receivable turnover	Test of quality of accounts receivable
Inventory turnover	Cost of goods sold + Average inventory	Test of whether or not a sufficient volume of business is being generated relative to inventory
Total assets turnover	Net sales + Average total assets	Test of whether or not the volume of business generated is adequate relative to amount of capital invested in the business
Equity, or Long-term Solvency, Ratios		
Equity (stockholders' equity) ratio	Stockholders' equity + Total assets (or total equities)	Index of long-run solvency and safety
Stockholders' equity to debt (debt to equity) ratio	Stockholders' equity + Total debt	Measure of the relative proportion of stockholders' and of creditors' equities
Profitability Tests		
Rate of return on operating assets	Net operating income + Operating assets or Operating margin x Turnover operating assets	Measure of managerial
Net income to net sales (return on sales)	Net income + Net sales	Indicator of the amount of net profit on each dollar of sales
Return on average common stockholders' equity	Net income + Average common stockholders' equity	Measure of what a given company earned for its stockholders from all sources as a percentage of common stockholders' investment
Cash flow margin	Net cash provided by operating activities + Net sales	Measure of the ability of a firm to translate sales into cash
EPS of common stock	Earnings available to common stockholders' + Weighted-average number of common shares outstanding	Measure of the return to investors
Times interest earned ratio	Income before interest and taxes + Interest expense	Test of the likelihood that creditors will continue to receive their interest payments
Time preferred dividends earned ratio	Net income + Annual preferred dividends	Test of the likelihood that preferred stockholders will receive their dividend each year
Market Tests		
Earnings yield on common stock	EPS + Current market price per share of common stock	Comparison with other common stocks
Price-earnings ratio	Current market price per share of common stock + EPS	Index of whether a stock is relatively cheap or expensive based on the ratio
Pay cut ratio on common stock	Dividend per share of common stock + EPS	Index of whether company pays out a large percentage of earnings as dividends or reinvests most of its earnings
Dividend yield on common stock	Dividend per share of common stock + Current market price per share of common stock	Comparisons with other common stocks
Dividend yield on preferred stock	Dividend per share of preferred stock + Current market price per share of preferred stock	Comparison with other preferred stocks
Cash flow per share of common stock	Net cash provided by operating activities + Average number of share of common stock outstanding	Test of ability to pay dividends and liabilities

Exhibit 3: Summary of ratios

Analysts must be sure that their comparisons are valid—especially when the comparisons are of items for different periods or different companies. They must follow consistent accounting practices if valid interperiod comparisons are to be made. Comparable intercompany comparisons are more difficult to secure. Accountants cannot do much more than disclose the fact that one company is using FIFO and another is using LIFO for inventory and cost of goods sold computations. Such a disclosure alerts analysts that intercompany comparisons of inventory turnover ratios, for example, may not be comparable.

Also, when comparing a company's ratios to industry averages provided by an external source such as Dun & Bradstreet, the analyst should calculate the company's ratios in the same manner as the reporting service. Thus, if Dun & Bradstreet uses net sales (rather than cost of goods sold) to compute inventory turnover, so should the analyst. Net sales is sometimes preferable because all companies do not compute and report cost of goods sold amounts in the same manner.

Facts and conditions not disclosed by the financial statements may, however, affect their interpretation. A single important event may have been largely responsible for a given relationship. For example, competitors may put a new product on the market, making it necessary for the company under study to reduce the selling price of a product suddenly rendered obsolete. Such an event would severely affect the percentage of gross margin to net sales. Yet there may be little chance that such an event will happen again.

Analysts must consider general business conditions within the industry of the company under study. A corporation's downward trend in earnings, for example, is less alarming if the industry trend or the general economic trend is also downward.

Investors also need to consider the seasonal nature of some businesses. If the balance sheet date represents the seasonal peak in the volume of business, for example, the ratio of current assets to current liabilities may be much lower than if the balance sheet date is in a season of low activity.

Potential investors should consider the market risk associated with the prospective investment. They can determine market risk by comparing the changes in the price of a stock in relation to the changes in the average price of all stocks.

Potential investors should realize that acquiring the ability to make informed judgments is a long process and does not occur overnight. Using ratios and percentages without considering the underlying causes may lead to incorrect conclusions.

Relationships between financial statement items also become more meaningful when standards are available for comparison. Comparisons with standards provide a starting point for the analyst's thinking and lead to further investigation and, ultimately, to conclusions and business decisions. Such standards consist of (1) those in the analyst's own mind as a result of experience and observations, (2) those provided by the records of past performance and financial position of the business under study, and (3) those provided about other enterprises. Examples of the third standard are data available through trade associations, universities, research organizations (such as Dun & Bradstreet and Robert Morris Associates), and governmental units (such as the Federal Trade Commission).

In financial statement analysis, remember that standards for comparison vary by industry, and financial analysis must be carried out with knowledge of specific industry characteristics. For example, a wholesale grocery company would have large inventories available to be shipped to retailers and a relatively small investment in property,

plant, and equipment, while an electric utility company would have no merchandise inventory (except for repair parts) and a large investment in property, plant, and equipment.

Even within an industry, variations may exist. Acceptable current ratios, gross margin percentages, debt to equity ratios, and other relationships vary widely depending on unique conditions within an industry. Therefore, it is important to know the industry to make comparisons that have real meaning.

Illustration 17.4 Graphic Depiction of Financial Statement analysis Utilizing Financial Ratios

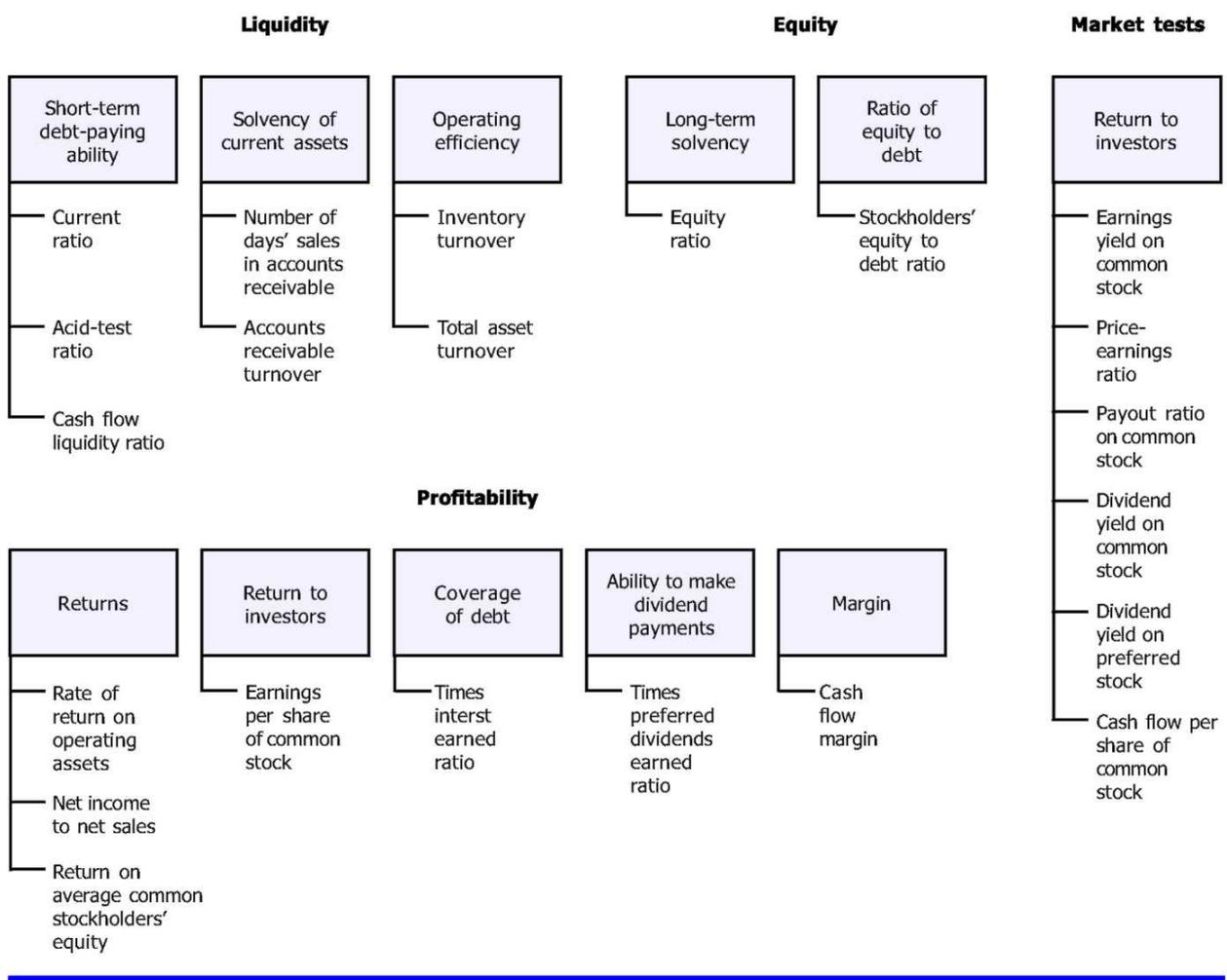


Exhibit 4: Graphic depiction of financial statement analysis utilizing financial ratios

The bankruptcies of companies like General Motors and Lehman Brothers, with the resulting significant losses to employees, stockholders, and other members of the general public, have caused important changes in corporate governance, standards of accounting, and auditing procedures and standards. These changes have come about as a result of self-regulation, oversight by the Public Company Accounting Oversight Board, regulation by the Securities and Exchange Commission, regulation by the stock exchanges, and legislation passed by Congress, and by some combination of these actions. Further changes are likely.

Financial statements are likely to become more "transparent". This means they will reveal more clearly the results of operations and the financial condition of the company. There is likely to be an increased focus on the balance sheet and on the quality and measurement of assets and the extent and nature of liabilities as well as on a

proper identification of other risks. The quality of earnings will continue to be of paramount importance. There have been too many situations where companies have had to restate their earnings for prior years because they did not properly disclose material facts or properly implement the revenue recognition and/or expense recognition principles.

An accounting perspective:

Business insight

The Enron situation was the focus of a massive investigation that led to significant changes in corporate governance, accounting rules, and auditing procedures. Enron was formed in 1985 and became a major player in the energy industry. Its stock reached a high of about USD 90 per share in August 2000. Top executives began selling stock shortly thereafter, while at least for a short period during the ensuing fall in the stock's price, employees were prevented from doing so. In October of 2001, the disclosure of off-balance sheet partnerships, with attendant liabilities for Enron, resulted in a USD 1.2 billion write-off in stockholder's equity. In November of 2001, Enron revealed that it had overstated earnings by USD 586 million since 1997. In December 2001, Enron filed for bankruptcy. Enron stock became almost worthless, selling for under USD 1. Employees of Enron not only lost their jobs, but many also lost their retirement savings because they consisted largely of Enron stock. Individual and pension fund investors as a group lost billions of dollars. The state of Florida's pension fund lost about USD 340 million. Enron's external auditor, Arthur Andersen & Co., was accused of shredding documents pertaining to Enron after the US Justice Department confirmed its investigation and was indicated in March of 2002 for that action. (For more information about the Enron situation see, for instance: U.S. News & World Report, March 18 2002, pp, 26-36)

External auditors, internal auditors, audit committee members, and members of Boards of Directors are likely to ask much tougher questions of management. They are also more likely to investigate questionable transactions. Audit committees may be required to publicly disclose their activities that were performed to carry out their duties.

Management's letter to the stockholders contained in the annual report, and usually signed by the CEO, contains the views of management regarding current operations, operating results, and plans for the future. This letter is likely to become even more important in the future than it is now. There could be financial penalties if this letter is purposely misleading in that its contents are not supported by the financial statements or they misrepresent significant facts. To the extent these letters are more conservative rather than being unrealistic, individuals analyzing financial statements will be able to rely on their content to a greater extent in the future. The Sarbanes-Oxley Act of 2002 in the US sets more stringent standards for financial reporting for public companies and their managers. Boards, and independent auditors, along with strict penalties for non-compliance.

Financial statement analysis is going to have increasing importance. Some consider this amount to be less susceptible to manipulation than is net income.

Management may disclose in an accounting policy statement, its policies regarding their business practices and those accounting policies that were followed in preparing the financial statements. Conflicts of interest will be identified and discouraged.

Professional financial analysts, such as those working for stock brokerage firms and those employed to help evaluate possible merger and acquisition candidates, typically go "beyond the numbers" in analyzing a company. They usually visit the company, interview management, and assess the physical facilities and plans for the future. They are interested in evaluating such factors as the competence and integrity of management. Professional financial analysts form an overall impression of the company by giving all of the data and other information the "smell test". In other words, does everything seem legitimate or are there possible significant hidden factors that have not yet been identified which makes one think that something is not right.

The future looks bright. Needed changes will be made to maintain public confidence in financial reporting. Protecting the public interest should be paramount in the future.

This chapter concludes our coverage of financial accounting. It is likely you will continue on with studies in managerial accounting. It is important to realize that it is impossible to completely separate financial and managerial accounting information into neat packages. Managers use both the published financial statements and managerial accounting information in making decisions. Also, some of the concepts covered in managerial accounting (e.g. job costing and process costing) have a direct impact on the formal financial statements. Many accountants are attracted to managerial accounting because it is not constrained by having to conform to generally accepted accounting principles. Instead, management accountants can provide to management whatever information in whatever form management requests.

An accounting perspective:

Uses of technology

The *Journal of Accountancy* periodically publishes articles on Internet resources to encourage greater use of technology by accountants. One of the best in this category is called "Smart Stops on the Web", a series authored by Megan Pinkston. (For example, see this one from 2007): <http://www.journalofaccountancy.com/Issues/2007/Jun/SmartStopsOnTheWebArticle>.

You may want to investigate this article and some of the others in the series and then visit some of the websites they list. There is no doubt that the Internet will only grow in importance in the future. The more you know about it, the more marketable you will be upon graduation.

Understanding the learning objectives

- A company's financial statements are analyzed internally by management and externally by investors, creditors, and regulatory agencies.
- Management's analysis of financial statements primarily relates to parts of the company. Management is able to obtain specific, special-purpose reports to aid in decision making.
- External users focus their analysis of financial statements on the company as a whole. They must rely on the general-purpose financial statements that companies publish.

- Financial statement analysis consists of applying analytical tools and techniques to financial statements and other relevant data to obtain useful information.

- This information is the significant relationships between data and trends in those data assessing the company's past performance and current financial position.

- The information is useful for making predictions that may have a direct effect on decisions made by many users of financial statements.

- Present and potential company investors use this information to assess the profitability of the firm.

- Outside parties and long-term creditors sometimes are interested in a company's solvency, and thus use the information in predicting the company's solvency.

- Published reports are one source of financial information. Published reports include financial statements, explanatory notes, letters to stockholders, reports of independent accountants, and management's discussion and analysis (MDA).

- Government reports are another source of financial information and include Form 10-K, Form 10-Q, and Form 8-K. These reports are available to the public for a small charge.

- Financial service information, business publications, newspapers, and periodicals offer meaningful financial information to external users. Moody's Investors Services; Standard & Poor's; Dun & Bradstreet, Inc.; and Robert Morris Associates all provide useful industry information. Business publications, such as *The Wall Street Journal* and *Forbes*, also report industry financial news.

- Horizontal analysis is the calculation of dollar changes or percentage changes in comparative statement items or totals. Use of this analysis helps detect changes in a company's performance and highlights trends.

- Vertical analysis consists of a study of a single financial statement in which each item is expressed as a percentage of a significant total. Use of this analysis is especially helpful in analyzing income statement data such as the percentage of cost of goods sold to sales or the percentage of gross margin to sales.

- Trend analysis compares financial information over time to a base year. The analysis is calculated by:

- (a) Selecting a base year or period.

- (b) Assigning a weight of 100 per cent to the amounts appearing on the base-year financial statements.

- (c) Expressing the corresponding amounts shown on the other years' financial statements as a percentage of base-year or period amounts. The percentages are computed by dividing nonbase-year amounts by the corresponding base-year amounts and then multiplying the results by 100.

Trend analysis indicates changes that are taking place in an organization and highlights the direction of these changes.

- **Liquidity ratios** indicate a company's short-term debt-paying ability. These ratios include (1) current, or working capital, ratio; (2) acid-test (quick) ratio; (3) cash flow liquidity ratio; (4) accounts receivable turnover; (5) number of days' sales in accounts receivable; (6) inventory turnover; and (7) total assets turnover.

- **Equity, or long-term solvency, ratios** show the relationship between debt and equity financing in a company. These ratios include (1) equity (stockholders' equity) ratio and (2) stockholders' equity to debt ratio.

- **Profitability tests** are an important measure of a company's operating success. These tests include (1) rate of return on operating assets, (2) net income to net sales, (3) net income to average common stockholders'

equity, (4) cash flow margin, (5) earnings per share of common stock, (6) times interest earned ratio, and (7) times preferred dividends earned ratio.

- **Market tests** help investors and potential investors assess the relative merits of the various stocks in the marketplace. These tests include (1) earnings yield on common stock, (2) price-earnings ratio, (3) dividend yield on common stock, (4) payout ratio on common stock, (5) dividend yield on preferred stock, and (6) cash flow per share of common stock.

- For a complete summary and a graphic depiction of all liquidity, long-term solvency, profitability, and market test ratios, see Exhibit 3 and Exhibit 4.

- **Need for comparative data:** Analysts must be sure that their comparisons are valid—especially when the comparisons are of items for different periods or different companies.

- **Influence of external factors:** A single important event, such as the unexpected placing of a product on the market by a competitor, may affect the interpretation of the financial statements. Also, the general business conditions and the possible seasonal nature of the business must be taken into consideration, since these factors could have an impact on the financial statements.

- **Impact of inflation:** Since financial statements fail to reveal the impact of inflation on the reporting entity, one must make sure that the items being compared are all comparable; that is, the impact of inflation has been taken into consideration.

- **Need for comparative standards:** In financial statement analysis, remember that standards for comparison vary by industry, and financial analysis must be carried out with knowledge of specific industry characteristics.

Demonstration problem

Demonstration problem A Comparative financial statements of Kellogg Company for 2003 and 2002 follow:

Kellogg Company
Comparative income statements
For the years ended 2003 December 31, and 2002
(USD millions)

	2003	2002
Net revenues	\$6,954.7	\$6,984.2
Cost of goods sold	3,327.0	3,325.1
Gross margin	\$3,627.7	\$3,659.1
Operating expense	2,551.4	2,585.7
Nonoperating expense (interest)	137.5	118.8
Income before income taxes	\$ 938.8	\$ 954.6
Income taxes	280.0	198.4
Net earnings	\$ 658.8	\$ 756.2

Kellogg Company
Comparative Balance sheets
2003 December 31, and 2002
(USD millions)

	2003	2002
Assets		
Cash and temporary investments	\$ 204.4	\$ 150.6
Accounts receivable, net	685.3	678.5
Inventories	443.8	503.8
Other current assets	273.3	236.3
Property, net	2,526.9	2,640.9
Other assets	762.6	589.6
Total assets	\$4,896.3	\$4,808.7
Liabilities and stockholders' equity		
Current liabilities	\$2,492.6	\$1,587.8
Long-term liabilities	1,506.2	2,407.7

Common stock	103.8	103.8
Capital in excess of par value	102.0	104.5
Retained earnings	1,501.0	1,317.2
Treasury stock	(374.0)	(380.9)
Currency translation adjustment	(435.3)	(331.4)
Total liabilities and stockholders' equity	\$4,896.3	\$4,808.7

- Prepare comparative common-size income statements for 2003 and 2002.
- Perform a horizontal analysis of the comparative balance sheets.

Demonstration problem B The balance sheet and supplementary data for Xerox Corporation follow:

Xerox corporation
Balance sheet with IOFS on an equity basis
2003 December 31
(USD millions)

	2003
Assets	
Cash	\$ 1,741
Accounts receivable, net	2,281
Finance receivables, net	5,097
Inventories	1,932
Deferred taxes and other current assets	1,971
Total current assets	\$ 13,022
Finance receivables due after one year, net	7,957
Land, buildings, and equipment, net	2,495
Investments in affiliates, at equity	1,362
Goodwill	1,578
Other assets	3,061
Total assets	\$ 29,475
Liabilities and stockholders' equity	
Short-term debt and current portion of long-term debt	\$ 2,693
Accounts payable	1,033
Accrued compensation and benefit costs	662
Unearned income	250
Other current liabilities	1,630
Total current liabilities	\$ 6,268
Long-term debt	15,404
Liabilities for post-retirement medical benefits	1,197
Deferred taxes and other liabilities	1,876
Discontinued policyholders' deposits and other operations liabilities	670
Deferred ESOP benefits	(221)
Minorities' interests in equity of subsidiaries	141
Preferred stock	647
Common shareholders' equity (108.1 million)	3,493
Total liabilities and shareholders' equity	\$ 29,475

- Cost of goods sold, USD 6,197.
- Net sales, USD 18,701.
- Inventory, January 1, USD 2,290.
- Net interest expense, USD 1,031.
- Net income before interest and taxes, USD 647.
- Net accounts receivable on January 1, USD 2,633.
- Total assets on January 1, USD 28,531.

Compute the following ratios:

- Current ratio.
- Acid-test ratio.
- Accounts receivable turnover.

- d. Inventory turnover.
- e. Total assets turnover.
- f. Equity ratio.
- g. Times interest earned ratio.

Solution to demonstration problem

Solution to demonstration problem A

a.

Kellogg Company

Common-size comparative income statements

For the year ended 2003 December 31, and 2002

	Per cent	
	2003	2002
Net revenues	100.00 %	100.00%
Cost of goods sold	47.84	47.61
Gross margin	52.16	52.39
Operating expenses	36.69	37.02
Nonoperating expense (interest)	1.98	1.70
Income before income taxes	13.49 %*	13.67 %
Income taxes	4.03	2.84
Net earnings	9.46 %*	10.83%

*Difference due to rounding.

b.

**Kellogg company
Comparative balance sheets
2003 December 31, and 2002
(USD millions)**

	2003	2002	Increase or Decrease	
			2003 amount	2002 per cent
Assets				
Cash and temporary investments	\$204.4	\$150.6	\$ 53.8	35.72 %
Accounts receivable, net	685.3	678.5	6.8	1.00
Inventories	443.8	503.8	(60.0)	(11.91)
Other current assets	273.3	236.3	37.0	15.66
Property, net	2,526.9	2,640.9	(114.0)	(4.32)
Other assets	762.9	589.6	164.0	27.40
Total assets	\$4,896.3	\$4,808.7	\$ 87.6	1.82 %
Liabilities and stockholders' equity				
Current liabilities	\$2,492.6	\$ 1,587.8	\$ 904.8	56.98%
Long-term liabilities	1,506.2	2,407.7	(901.5)	(37.44)
Common stock	103.8	103.8	0.0	0.0
Capital in excess of par value	102.0	104.5	(2.5)	(2.39)
Retained earnings	1,501.0	1,317.2	183.8	13.95
Treasury stock	(374.0)	(380.9)	6.9	(1.81)
Currency translation adjustment	(435.3)	(331.4)	(103.9)	31.35
Total liabilities and stockholders' equity	\$4,896.3	\$4,808.7	\$ 87.6	1.82 %

Solution to demonstration problem B

a. Current ratio:

$$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\text{USD } 13,022,000,000}{\text{USD } 6,268,000,000} = 2.08 : 1$$

b. Acid-test ratio:

$$\frac{\text{Quick assets}}{\text{Current liabilities}} = \frac{\text{USD } 9,119,000,000}{\text{USD } 6,268,000,000} = 1.45 : 1$$

c. Accounts receivable turnover:

$$\frac{\text{Net sales}}{\text{Average net accounts receivable}} = \frac{\text{USD } 18,701,000,000}{\text{USD } 2,457,000,000} = 7.61 \text{ time}$$

d. Inventory turnover:

$$\frac{\text{Cost of goods sold}}{\text{Average inventory}} = \frac{\text{USD } 6,197,000,000}{\text{USD } 2,111,000,000} = 2.94 \text{ time}$$

e. Total assets turnover:

$$\frac{\text{Net sales}}{\text{Average total assets}} = \frac{\text{USD } 18,701,000,000}{\text{USD } 29,003,000,000} = .64 \text{ time}$$

f. Equity ratio:

$$\frac{\text{Stockholders' equity}}{\text{Total assets}} = \frac{\text{USD } 4,140,000,000}{\text{USD } 29,475,000,000} = 14.05 \text{ per cent}$$

g. Times interest earned ratio:

$$\frac{\text{Income before interest also taxes}}{\text{Interest expense}} = \frac{\text{USD } 647,000,000}{\text{USD } 1,031,000,000} = .63 \text{ time}$$

Key terms

Accounts receivable turnover Net credit sales (or net sales) divided by average net accounts receivable.

Acid-test (quick) ratio Ratio of quick assets (cash, marketable securities, and net receivables) to current liabilities.

Cash flow liquidity ratio Cash and marketable securities plus net cash provided by operating activities divided by current liabilities.

Cash flow margin Net cash provided by operating activities divided by net sales.

Cash flow per share of common stock Net cash provided by operating activities divided by the average number of shares of common stock outstanding.

Common-size statements Show only percentages and no absolute dollar amounts.

Comparative financial statements Present the same company's financial statements for two or more successive periods in side-by-side columns.

Current ratio Also called working capital ratio. Current assets divided by current liabilities.

Debt to equity ratio Total debt divided by stockholders' equity.

Dividend yield on common stock Dividend per share of common stock divided by current market price per share of common stock.

Dividend yield on preferred stock Dividend per share of preferred stock divided by current market price per share of preferred stock.

Earnings per share (EPS) The amount of earnings available to common stockholders (which equals net income less preferred dividends) divided by weighted-average number of shares of common stock outstanding.

Earnings yield on common stock Ratio of current EPS to current market price per share of common stock.

Equity (stockholders' equity) ratio The ratio of stockholders' equity to total assets (or total equities).

Horizontal analysis Analysis of a company's financial statements for two or more successive periods showing percentage and/or absolute changes from prior year. This type of analysis helps detect changes in a company's performance and highlights trends.

Inventory turnover Cost of goods sold divided by average inventory.

Liquidity Company's state of possessing liquid assets, such as (1) cash and (2) other assets that will soon be converted to cash.

Net income to net sales Net income divided by net sales.

Net operating income Income before interest and taxes.

Nonoperating assets Assets owned by a company but not used in producing operating revenues.

Nonoperating income elements Elements excluded from net operating income because they are not directly related to operations; includes such elements as extraordinary items, cumulative effect on prior year of changes in accounting principle, losses or gains from discontinued operations, interest revenue, and interest expense.

Number of days' sales in accounts receivable The number of days in a year (365) divided by the accounts receivable turnover. Also called the average collection period for accounts receivable.

Operating assets All assets actively used in producing operating revenues.

Operating margin Net operating income divided by net sales.

Payout ratio on common stock The ratio of dividends per share of common stock divided by EPS.

Price-earnings ratio The ratio of current market price per share of common stock divided by the EPS of the stock.

Rate of return on operating assets $\frac{\text{Net operating income}}{\text{Net sales}} \times \frac{\text{Net sales}}{\text{Operating assets}}$. Result is equal to net operating income divided by operating assets.

Return on average common stockholders' equity Net income divided by average common stockholders' equity; often called rate of return on average common stockholders' equity, or simply return on equity (ROE).

Return on equity (ROE) Net income divided by average common stockholders' equity.

Stockholders' equity to debt ratio Stockholders' equity divided by total debt; often used in inverted form and called the debt to equity ratio.

Times interest earned ratio A ratio computed by dividing income before interest and taxes by interest expense (also called interest coverage ratio).

Times preferred dividends earned ratio Net income divided by annual preferred dividends.

Total assets turnover Net sales divided by average total assets.

Trend percentages Similar to horizontal analysis except that a base year or period is selected, and comparisons are made to the base year or period.

Turnover The relationship between the amount of an asset and some measure of its use. See accounts receivable turnover, inventory turnover, and total assets turnover.

Turnover of operating assets Net sales divided by operating assets.

Vertical analysis The study of a single financial statement in which each item is expressed as a percentage of a significant total; for example, percentages of sales calculations.

Yield (on stock) The yield on a stock investment refers to either an earnings yield or a dividend yield. Also see Earnings yield on common stock and Dividend yield on common stock and preferred stock.

Self-test

True-false

Indicate whether each of the following statements is true or false.

An objective of financial statement analysis is to provide information about the company's past performance and current financial position.

Vertical analysis helps detect changes in a company's performance over several periods and highlights trends.

Common-size statements provide information about changes in dollar amounts relative to the previous periods.

Liquidity ratios show a company's capacity to pay maturing current liabilities.

A company that is quite profitable may find it difficult to pay its accounts payable.

Financial statement analysts must be sure that comparable data are used among companies to make the comparisons valid.

Multiple-choice

Select the best answer for each of the following questions.

The following data were abstracted from the 2007 December 31, balance sheet of Andrews Company (use for the first two questions questions):

Cash	\$136,000
Marketable securities	64,000
Accounts and notes receivable, net	184,000
Merchandise inventory	244,000
Prepaid expenses	12,000
Accounts and notes payable, short-term	256,000
Accrued liabilities	64,000
Bonds payable, long-term	400,000

The current ratio is:

- a. 1:2.
- b. 2:1.
- c. 1.2:1.
- d. 3:1.

The acid-test ratio is:

- a. 1:2.
- b. 2:1.
- c. 1.2:1.
- d. 3:1.

Benson Company shows the following data on its 2011 financial statements (use for the rest of the questions):

Accounts receivable, January 1	\$720,000
Accounts receivable, December 31	960,000
Merchandise inventory, January 1	900,000
Merchandise inventory, December 31	1,020,000
Gross sales	4,800,000
Sales returns and allowances	180,000
Net sales	4,620,000
Cost of goods sold	3,360,000
Income before interest and taxes	720,000
Interest on bonds	192,000
Net income	384,000

The accounts receivable turnover is:

- a. 5.5 times per year.
- b. 5.714 times per year.
- c. 5 times per year.
- d. 6.667 times per year.

The inventory turnover is:

- a. 5 times per year.
- b. 4.8125 times per year.
- c. 3.5 times per year.
- d. 4 times per year.

The times interest earned ratio is:

- a. 4.75 times per year.
- b. 3.75 times per year.
- c. 2 times per year.
- d. 3 times per year.

Now turn to “Answers to self-test” at the end of the chapter to check your answers.

Questions

- What are the major sources of financial information for publicly owned corporations?
- The higher the accounts receivable turnover rate, the better off the company is. Do you agree? Why?
- Can you think of a situation where the current ratio is very misleading as an indicator of short-term, debt-paying ability? Does the acid-test ratio offer a remedy to the situation you have described? Describe a situation where the acid-test ratio does not suffice either.
- Before the Marvin Company issued USD 20,000 of long-term notes (due more than a year from the date of issue) in exchange for a like amount of accounts payable, its current ratio was 2:1 and its acid-test ratio was 1:1. Will this transaction increase, decrease, or have no effect on the current ratio and acid-test ratio? What would be the effect on the equity ratio?
- Through the use of turnover rates, explain why a firm might seek to increase the volume of its sales even though such an increase can be secured only at reduced prices.
- Indicate which of the relationships illustrated in the chapter would be best to judge:
 - The short-term debt-paying ability of the firm.
 - The overall efficiency of the firm without regard to the sources of assets.
 - The return to owners (stockholders) of a corporation.
 - The safety of long-term creditors' interest.
 - The safety of preferred stockholders' dividends.
- Indicate how each of the following ratios or measures is calculated:
 - Payout ratio.
 - Earnings per share of common stock.
 - Price-earnings ratio.
 - Earnings yield on common stock.
 - Dividend yield on preferred stock.
 - Times interest earned.
 - Times preferred dividends earned.
 - Return on average common stockholders' equity.
 - Cash flow margin.
- How is the rate of return on operating assets determined? Is it possible for two companies with operating margins of 5 per cent and 1 per cent, respectively, to both have a rate of return of 20 per cent on operating assets? How?
- Cite some of the possible deficiencies in accounting information, especially regarding its use in analyzing a particular company over a 10-year period.
- **Real world question** From the Consolidated Statements of Income of The Limited in the Annual report appendix, determine the percentage change in operating income from 2002 to 2003.
- **Real world question** From the Consolidated Statements of Income of The Limited in the Annual report appendix, determine the 2003 net income per common share.

- **Real world question** From the financial statements of The Limited in the Annual report appendix, determine the 2003 cash dividends per common share.
- **Real world question** From the financial statements of The Limited in the Annual report appendix, determine the 2003 cash flow margin.

Exercises

Exercise A Income statement data for Boston Company for 2009 and 2010 follow:

	2009	2010
Net sales	\$2,610,000	\$1,936,000
Cost of goods sold	1,829,600	1,256,400
Selling expenses	396,800	350,000
Administrative expenses	234,800	198,400
Federal income taxes	57,600	54,000

Prepare a horizontal and vertical analysis of the income data in a form similar to Exhibit 2. Comment on the results of this analysis.

Exercise B A company engaged in the following three independent transactions:

- Merchandise purchased on account, USD 2,400,000.
- Machinery purchased for cash, USD 2,400,000.
- Capital stock issued for cash, USD 2,400,000.

a. Compute the current ratio after each of these transactions assuming current assets were USD 3,200,000 and the current ratio was 1:1 before the transactions occurred.

b. Repeat part (a) assuming the current ratio was 2:1.

c. Repeat part (a) assuming the current ratio was 1:2.

Exercise C A company has sales of USD 3,680,000 per year. Its average net accounts receivable balance is USD 920,000.

a. What is the average number of days accounts receivable are outstanding?

b. By how much would the capital invested in accounts receivable be reduced if the turnover could be increased to 6 without a loss of sales?

Exercise D Columbia Corporation had the following selected financial data for 2009 December 31: Net cash provided by operating activities

Net sales	\$1,800,000
Cost of goods sold	1,080,000
Operating expenses	315,000
Net income	195,000
Total assets	1,000,000
Net cash provided by operating activities	25,000

Compute the cash flow margin.

Exercise E From the following partial income statement, calculate the inventory turnover for the period.

Net sales	\$2,028,000
Cost of goods sold:	
Beginning inventory	\$ 234,000
Purchases	1,236,000
Cost of goods available for sale	\$1,560,000
Less: Ending inventory	265,200
Cost of goods sold	1,294,800
Gross margin	\$ 733,200
Operating expenses	327,600
Net operating income	\$ 405,600

Exercise F Eastern, Inc., had net sales of USD 3,520,000, gross margin of USD 1,496,000, and operating expenses of USD 904,000. Total assets (all operating) were USD 3,080,000. Compute Eastern's rate of return on operating assets.

Exercise G Nelson Company began the year 2010 with total stockholders' equity of USD 2,400,000. Its net income for 2010 was USD 640,000, and USD 106,800 of dividends were declared. Compute the rate of return on average stockholders' equity for 2010. No preferred stock was outstanding.

Exercise H Rogers Company had 60,000 shares of common stock outstanding on 2010 January 1. On 2010 April 1, it issued 20,000 additional shares for cash. The amount of earnings available for common stockholders for 2010 was USD 600,000. What amount of EPS of common stock should the company report?

Exercise I Smith Company started 2011 with 800,000 shares of common stock outstanding. On March 31, it issued 96,000 shares for cash, and on September 30, it purchased 80,000 shares of its own stock for cash. Compute the weighted-average number of common shares outstanding for the year.

Exercise J A company reported EPS of USD 2 (or $\frac{\text{USD } 2,400,000}{1,200,000 \text{ shares}}$) for 2009, ending the year with 1,200,000 shares outstanding. In 2010, the company earned net income of USD 7,680,000, issued 320,000 shares of common stock for cash on September 30, and distributed a 100 per cent stock dividend on 2010 December 31. Compute EPS for 2010, and compute the adjusted earnings per share for 2009 that would be shown in the 2010 annual report.

Exercise K A company paid interest of USD 32,000, incurred federal income taxes of USD 88,000, and had net income (after taxes) of USD 112,000. How many times was interest earned?

Exercise L John Company had 20,000 shares of USD 600 par value, 8 per cent preferred stock outstanding. Net income after taxes was USD 5,760,000. The market price per share was USD 720.

- How many times were the preferred dividends earned?
- What was the dividend yield on the preferred stock assuming the regular preferred dividends were declared and paid?

Exercise M A company had 80,000 weighted-average number of shares of USD 320 par value common stock outstanding. The amount of earnings available to common stockholders was USD 800,000. Current market price per share is USD 720. Compute the EPS and the price-earnings ratio.

Problems

Problem A Loom's comparative statements of income and retained earnings for 2010 and 2009 are given below.

Loom		
Consolidated statement of earnings		
For the years ended 2010 December 31, and 2009		
(USD thousands, except per data share)		
	December 31	
	(1)	(2)
	2010	2009
Net sales	\$ 2,403,100	\$ 2,297,800
Cost of sales	1,885,700	1,651,300
Gross earnings	\$ 517,400	\$ 646,500
Selling, general and administrative expenses	429,700	376,300
Goodwill amortization	37,300	35,200
Impairment write down of goodwill	158,500	0
Operating earnings (loss)	\$ (108,100)	\$ 235,000
Interest expense	(116,900)	(95,400)

Other expense-net	(21,700)	(6,100)
Earnings (loss) before income tax (benefit) expense, extraordinary item and cumulative effect of change in accounting principles	\$ (246,700)	\$133,500
Income tax (benefit) expense	(19,400)	73,200
Earnings (loss) before cumulative effect of change in account principles	\$ (227,300)	\$60,300
Cumulative effect of change in accounting principles:		
Pre-operating costs	(5,200)	0
Net earnings (loss)	\$ (232,500)	\$60,300
Retained earnings, January 1	680,600	620,300
	\$ 448,100	\$680,600
Dividends	0	0
Retained earnings, December 31	\$ 448,100	\$680,600

Loom
consolidated balance sheet
As of 2010 December 31, and 2009

(USD thousands)

	December 31	
	(1)	(2)
	2010	2009
Assets		
Current assets		
Cash and cash equivalents	\$ 26,500	\$ 49,400
Notes and accounts receivable (less allowance for possible losses of \$26,600,000 and \$20,700,000, respectively)	261,000	295,600
Inventories		
Finished goods	522,300	496,200
Work in process	132,400	141,500
Materials and supplies	44,800	39,100
Other	72,800	54,800
Total current assets	\$ 1,059,800	\$ 1,076,600
Property, plant, and equipment		
Land	\$ 20,100	\$ 19,300
Buildings, structures and improvements	486,400	435,600
Machinery and equipment	1,076,600	1,041,300
Construction in progress	24,200	35,200
Total property, plant and equipment	\$ 1,607,300	\$ 1,531,400
Less accumulated depreciation	578,900	473,200
Net property, plant and equipment	\$ 1,028,400	\$ 1,058,200
Other assets		
Goodwill (less accumulated amortization of \$257,800,000 and \$242,400,000, respectively).	\$ 771,100	\$ 965,800
Other	60,200	62,900
Total other assets	\$831,300	\$ 1,028,700
Total assets	\$ 2,919,500	\$ 3,163,500
Liabilities and stockholders' equity		
Current liabilities		
Current maturities of long-term debt	\$ 14,600	\$ 23,100
Trade accounts payable	60,100	113,300
Accrued insurance obligations	38,800	23,600
Accrued advertising and promotion	23,800	23,400
Interest payable	16,000	18,300
Accrued payroll and vacation pay	15,300	33,100
Accrued pension	11,300	19,800
Other accounts payable and accrued expenses	123,900	77,200
Total current liabilities	\$ 303,800	\$ 331,800
Noncurrent liabilities		
Long-term debt	1,427,200	1,440,200
Net deferred income taxes	0	43,400
Other	292,900	222,300
Total noncurrent liabilities	\$ 1,720,000	\$ 1,705,900
Total liabilities	\$ 2,023,900	\$ 2,037,700
Common stockholders' equity		

Common stock and capital in excess of par value, \$.01 par value; authorized, Class A, 200,000,000 shares, Class B, 30,000,000 shares; issued and outstanding:		
Class A Common Stock, 69,268,701 and 69,160,349 shares, respectively	\$ 465,600	\$ 463,700
Class B Common Stock, 6,690,976 shares	4,400	4,400
Retained earnings	448,100	680,600
Currency translation and minimum pension liability adjustments	(22,500)	(22,900)
Total common stockholders' equity	\$ 895,600	\$ 1,125,800
Total liabilities and stockholders' equity	\$ 2,919,500	\$ 3,163,500

Perform a horizontal and vertical analysis of Loom's financial statements in a manner similar to those illustrated in this chapter. Comment on the results of the analysis in (a).

Problem B Deere & Company manufactures, distributes, and finances a full range of agricultural equipment; a broad range of industrial equipment for construction, forestry, and public works; and a variety of lawn and grounds care equipment. The company also provides credit, health care, and insurance products for businesses and the general public. Consider the following information from the Deere & Company 2000 Annual Report:

(in millions)	1997	1998	1999	2000
Sales	\$12,791	\$13,822	\$11,751	\$13,137
Cost of goods sold	8,481	9,234	8,178	8,936
Gross margin	4,310	4,588	3,573	4,201
Operating expenses	2,694	2,841	3,021	3,236
Net operating income	\$ 1,616	\$ 1,747	\$ 552	\$ 965

- Prepare a statement showing the trend percentages for each item using 1997 as the base year.
- Comment on the trends noted in part (a).

Problem C The following data are for Toy Company:

	December 31	
	2011	2010
Allowance for uncollectible accounts	\$72,000	\$57,000
Prepaid expenses	34,500	45,000
Accrued liabilities	210,000	186,000
Cash in Bank A	1,095,000	975,000
Wages payable	-0-	37,500
Accounts payable	714,000	585,000
Merchandise inventory	1,342,500	1,437,000
Bonds payable, due in 2005	615,000	594,000
Marketable securities	217,500	147,000
Notes payable (due in six months)	300,000	195,000
Accounts receivable	907,500	870,000
Cash flow from operating activities	192,000	180,000

- Compute the amount of working capital at both year-end dates.
- Compute the current ratio at both year-end dates.
- Compute the acid-test ratio at both year-end dates.
- Compute the cash flow liquidity ratio at both year-end dates.
- Comment briefly on the company's short-term financial position.

Problem D On 2011 December 31, Energy Company's current ratio was 3:1 before the following transactions were completed:

- Purchased merchandise on account.
- Paid a cash dividend declared on 2011 November 15.
- Sold equipment for cash.
- Temporarily invested cash in trading securities.

- Sold obsolete merchandise for cash (at a loss).
- Issued 10-year bonds for cash.
- Wrote off goodwill to retained earnings.
- Paid cash for inventory.
- Purchased land for cash.
- Returned merchandise that had not been paid for.
- Wrote off an account receivable as uncollectible. Uncollectible amount is less than the balance in the Allowance for Uncollectible Accounts.
 - Accepted a 90-day note from a customer in settlement of customer's account receivable.
 - Declared a stock dividend on common stock.

Consider each transaction independently of all the others.

a. Indicate whether the amount of working capital will increase, decrease, or be unaffected by each of the transactions.

b. Indicate whether the current ratio will increase, decrease, or be unaffected by each of the transactions.

Problem E Digital Company has net operating income of USD 500,000 and operating assets of USD 2,000,000.

Its net sales are USD 4,000,000.

The accountant for the company computes the rate of return on operating assets after computing the operating margin and the turnover of operating assets.

a. Show the computations the accountant made.

b. Indicate whether the operating margin and turnover increase or decrease after each of the following changes. Then determine what the actual rate of return on operating assets would be. The events are not interrelated; consider each separately, starting from the original earning power position. No other changes occurred.

(a) Sales increased by USD 160,000. There was no change in the amount of operating income and no change in operating assets.

(b) Management found some cost savings in the manufacturing process. The amount of reduction in operating expenses was USD 40,000. The savings resulted from the use of less materials to manufacture the same quantity of goods. As a result, average inventory was USD 16,000 lower than it otherwise would have been. Operating income was not affected by the reduction in inventory.

(c) The company invested USD 80,000 of cash (received on accounts receivable) in a plot of land it plans to use in the future (a nonoperating asset); income was not affected.

(d) The federal income tax rate increased and caused income tax expense to increase by USD 20,000. The taxes have not yet been paid.

(e) The company issued bonds and used the proceeds to buy USD 400,000 of machinery to be used in the business. Interest payments are USD 20,000 per year. Net operating income increased by USD 100,000 (net sales did not change).

Problem F Polaroid Corporation designs, manufactures, and markets worldwide instant photographic cameras and films, electronic imaging recording devices, conventional films, and light polarizing filters and lenses. The following information is for Polaroid:

(in millions)	2000	1999
Net sales	\$13,994	\$14,089
Income before interest and taxes	2,310	2,251
Net income	1,407	1,392
Interest expense	178	142
Stockholders' equity (on 1998 December 31, \$3,988)	3,428	3,912
Common stock, par value \$1, December 31	978	978

Compute the following for both 2000 and 1999. Then compare and comment.

- EPS of common stock.
- Net income to net sales.
- Net income to average common stockholders' equity.
- Times interest earned ratio.

Problem G The Walt Disney Company operates several ranges of products from theme parks and resorts to broadcasting and other creative content. The following balance sheet and supplementary data are for The Walt Disney Company for 2000.

**The Walt Disney Company
Consolidated balance sheet
For 2000 September 30
(USD millions)**

Assets		
Cash and cash equivalents		\$ 842
Receivables		3,599
Inventories		702
Film and television costs		1,162
Other		1,258
Total current costs		\$7,563
Film and television costs		5,339
Investments		2,270
Theme parks, resorts, and other property, at cost		
Attractions, buildings, and equipment	\$16,160	
Accumulated depreciation	(6,892)	
		9,718
Project in process		1,995
Land		597
Intangibles assets, net		16,117
Other assets		1,428
Total assets		\$25,027
Liabilities and stockholders' equity		
Accounts payable and accrued liabilities		\$ 5,161
Current portion of borrowing		2,502
Unearned royalties		739
Total current liabilities		\$ 8,402
Borrowings		6,959
Deferred income taxes		2,833
Other long-term liabilities		2,377
Minority interest		356
Common shareholders' equity		
Common shares (\$.01 par value)	\$12,101	
Retained earnings	12,767	
Cumulative translation and other adjustments	(28)	
Treasury shares	(740)	24,100
Total liabilities and stockholders' equity		\$45,027

- Net income, USD 920.
- Income before interest and taxes, USD 3,231.
- Cost of goods sold, USD 21,321.
- Net sales, USD 25,402.
- Inventory on 1999 September 30, USD 796.

- Total interest expense for the year, USD 598.

Calculate the following ratios and show your computations. For calculations normally involving averages, such as average stockholders' equity, use year-end amounts unless the necessary information is provided.

- Current ratio.
- Net income to average common stockholders' equity.
- Inventory turnover.
- Number of days' sales in accounts receivable (assume 365 days in 2000).
- EPS of common stock (ignore treasury stock).
- Times interest earned ratio.
- Equity ratio.
- Net income to net sales.
- Total assets turnover.
- Acid-test ratio.

Problem H Cooper Company currently uses the FIFO method to account for its inventory but is considering a switch to LIFO before the books are closed for the year. Selected data for the year are:

Merchandise inventory, January 1	\$1,430,000
Current assets	3,603,600
Total assets (operating)	5,720,000
Cost of goods sold (FIFO)	2,230,800
Merchandise inventory, December 31 (LIFO)	1,544,400
Merchandise inventory, December 31 (FIFO)	1,887,600
Current liabilities	1,144,000
Net sales	3,832,400
Operating expenses	915,200

- Compute the current ratio, inventory turnover ratio, and rate of return on operating assets assuming the company continues using FIFO.
- Repeat part (a) assuming the company adjusts its accounts to the LIFO inventory method.

Alternate problems

Alternate problem A Steel Corporation's comparative statements of income and retained earnings and consolidated balance sheet for 2010 and 2009 follow:

Steel Corporation
Consolidated statement of Earnings
For the years ended 2010 December 31, 2009
(USD thousands)

	December 31	
	(1)	(2)
	2010	2009
Net sales	\$4,876.5	\$4,819.4
Costs and expenses:		
Cost of sales	\$4,202.8	\$4,287.3
Depreciation	284.0	261.1
Estimated restructuring losses	111.8	137.4
Total costs	\$4,598.6	\$4,685.8
Income from operations	\$268.9	\$ 133.6
Financing income (expense):		
Interest and other income	7.7	7.1
Interest and other financing costs	(60.0)	(46.2)
Loss before income taxes and cumulative effect of changes in accounting	\$ 216.6	\$ 94.5
Benefit (provision) for income taxes	(37.0)	(14.0)

Net earning (loss)	\$ 179.6	\$ 80.5
Retained earnings, January 1	(859.4)	(939.9)
	\$ (679.8)	\$ (859.4)
Dividends	0.0	0.0
Retained earnings, December 31	\$ (679.8)	(859.4)

Steel Corporation
Consolidated balance sheet
As of 2010 December 31, and 2009

	December 31	
	(1)	(2)
	2010	2009
Assets		
Current Assets		
Cash and cash equivalents	\$ 180.0	\$ 159.5
Receivables	374.6	519.5
Total	\$ 554.6	\$ 679.0
Inventories		
Raw materials and supplies	\$ 335.5	\$ 331.9
Finished and semifinished products	604.9	534.9
Contract work in process less billings of \$10.9 and \$2.3	17.8	16.1
Total inventories	\$ 958.2	\$ 882.9
Other current assets	\$ 13.0	\$ 7.2
Total current assets	\$ 1,525.8	\$ 1,569.1
Property, plant and equipment less accumulated depreciation of \$4329.5 and \$4167.8	\$ 2,714.2	\$ 2,759.3
Investments and miscellaneous assets	112.3	124.2
Deferred income tax asset – net	885.0	903.2
Intangible asset – Pensions	463.0	426.6
Total assets	\$ 5,700.3	\$ 5,782.4
Liabilities and stockholders' equity		
Current liabilities		
Accounts payable	\$ 381.4	\$ 387.0
Accrued employment costs	208.0	165.8
Postretirement benefits other than pensions	150.0	138.0
Accrued taxes	72.4	67.6
Debt and capital lease obligations	91.5	88.9
Other current liabilities	146.3	163.9
Total current liabilities	\$ 1,049.6	\$ 1,011.2
Pension liability	\$ 1,115.0	\$ 1,117.1
Postretirement benefits other than pensions	1,415.0	1,441.4
Long-term debt and capital lease obligations	546.8	668.4
Other	335.6	388.5
Total noncurrent liabilities	\$ 3,412.4	\$ 3,615.4
Total liabilities	\$ 4,462.0	\$ 4,626.6
Common stockholders' equity		
Preferred stock – at \$1 per share par value (aggregate liquidation preference of \$481.2); Authorized 20,000,000 shares	\$ 11.6	\$ 11.6
Preference stock – at \$1 per share par value (aggregate liquidation preference of \$88.2); Authorized 20,000,000 shares	2.6	2.6
Common stock – at \$1 per share par value/Authorized 250,000,000 and 150,000,000 shares; Issued 112,699,869 and 111,882,276 shares	112.7	111.9
Held in treasury, 1,992,189 and 1,996,715 shares at cost	(59.4)	(59.5)
Additional paid-in capital	1,850.6	1,948.6
Accumulated deficit	(679.8)	(859.4)
Total common stockholders' equity	\$ 1,238.3	\$ 1,155.8
Total liabilities and stockholders' equity	\$ 5,700.3	\$ 5,782.4

a. Perform a horizontal and vertical analysis of Steel's financial statements in a manner similar to Exhibit 1 and Exhibit 2.

b. Comment on the results obtained in part (a).

Alternate problem B Ford Motor Company is the world's second-largest producer of cars and trucks and ranks among the largest providers of financial services in the United States. The following information pertains to Ford: (in millions)

(in millions)	1998	1999	2000
Sales	\$118,017	\$135,073	\$141,230
Cost of goods sold	104,616	118,985	126,120
Gross margin	\$ 13,401	\$ 16,088	\$ 15,110
Operating expenses	7,834	8,874	9,884
Net operating income	\$ 5,567	\$ 7,214	\$ 5,226

- Prepare a statement showing the trend percentages for each item, using 1998 as the base year.
- Comment on the trends noted in part (a).

Alternate problem C The following data are for Clock Company: Allowance for uncollectible accounts

	December 31	
	2011	2010
Notes payable (due in 90 days)	\$75,200	\$60,000
Merchandise inventory	240,000	208,000
Cash	100,000	128,000
Marketable securities	49,600	30,000
Accrued liabilities	19,200	22,000
Accounts receivable	188,000	184,000
Accounts payable	112,000	72,000
Allowance for uncollectible accounts	24,000	15,200
Bonds payable, due 2008	156,000	160,000
Prepaid expenses	6,400	7,360
Cash flow from operating activities	60,000	40,000

- Compute the amount of working capital at both year-end dates.
- Compute the current ratio at both year-end dates.
- Compute the acid-test ratio at both year-end dates.
- Compute the cash flow liquidity ratio at both year-end dates.
- Comment briefly on the company's short-term financial position.

Alternate problem D Tulip Products, Inc., has a current ratio on 2010 December 31, of 2:1 before the following transactions were completed:

- Sold a building for cash.
- Exchanged old equipment for new equipment. (No cash was involved.)
- Declared a cash dividend on preferred stock.
- Sold merchandise on account (at a profit).
- Retired mortgage notes that would have matured in 2011.
- Issued a stock dividend to common stockholders.
- Paid cash for a patent.
- Temporarily invested cash in government bonds.
- Purchased inventory for cash.
- Wrote off an account receivable as uncollectible. Uncollectible amount is less than the balance of the Allowance for Uncollectible Accounts.
- Paid the cash dividend on preferred stock that was declared earlier.
- Purchased a computer and gave a two-year promissory note.
- Collected accounts receivable.

- Borrowed from the bank on a 120-day promissory note.
- Discounted a customer's note. Interest expense was involved.

Consider each transaction independently of all the others.

a. Indicate whether the amount of working capital will increase, decrease, or be unaffected by each of the transactions.

b. Indicate whether the current ratio will increase, decrease, or be unaffected by each of the transactions.

Alternate problem E The following selected data are for three companies:

	Operating Assets	Net Operating Income	Net Sales
Company 1	\$ 1,404,000	\$ 187,200	\$ 2,059,200
Company 2	8,424,000	608,400	18,720,000
Company 3	37,440,000	4,914,000	35,100,000

a. Determine the operating margin, turnover of operating assets, and rate of return on operating assets for each company.

b. In the subsequent year, the following changes took place (no other changes occurred):

Company 1 bought some new machinery at a cost of USD 156,000. Net operating income increased by USD 12,480 as a result of an increase in sales of USD 249,600.

Company 2 sold some equipment it was using that was relatively unproductive. The book value of the equipment sold was USD 624,000. As a result of the sale of the equipment, sales declined by USD 312,000, and operating income declined by USD 6,240.

Company 3 purchased some new retail outlets at a cost of USD 6,240,000. As a result, sales increased by USD 9,360,000, and operating income increased by USD 499,200.

- Which company has the largest absolute change in:

- Operating margin ratio?
- Turnover of operating assets?
- Rate of return on operating assets?

- Which one realized the largest dollar change in operating income? Explain this change in relation to the changes in the rate of return on operating assets.

Alternate problem F One of the largest spice companies in the world, McCormick & Company, Inc., produces a diverse array of specialty foods. The following information is for McCormick & Company, Inc.:

	2000	1999
(USD thousands)		
Net sales	\$2,123,500	\$2,006,900
Income before interest and taxes	225,700	174,700
Net income	137,500	98,500
Interest expense	39,700	32,400
Stockholders' equity	359,300	382,400
Common stock, no par value, November 30	175,300	173,800

Assume average common shares outstanding for 2000 and 1999 are 69,600 and 72,000 (in thousands), respectively.

Compute the following for both 2000 and 1999. Then compare and comment. Assume stockholders' equity for 1998 was USD 388,100.

- EPS of common stock.
- Net income to net sales.

c. Return on average common stockholders' equity.

d. Times interest earned ratio.

Alternate problem G Parametric Technology Corporation is in the CAD/CAM/CAE industry and is the top supplier of software tools used to automate a manufacturing company. The following consolidated balance sheet and supplementary data are for Parametric for 2003:

Parametric Technology Corporation
Consolidated balance sheet
For 2003 September 30 (in thousands)
Assets

Current assets	
Cash and cash equivalents	\$ 325,872
Short-term investments	22,969
Accounts receivable, net of allowances for doubtful account of \$6,270	183,804
Other current assets	95,788
Total current assets	\$ 628,433
Marketable investments	26,300
Property and equipment, net	66,879
Other assets	203,271
Total assets	\$ 924,883

Liabilities and stockholders' equity

Current liabilities	
Accounts payable and accrued expenses	\$ 77,144
Accrued compensation	52,112
Deferred revenue	231,495
Income taxes	1,601
Total current liabilities	\$ 362,352
Other liabilities	33,989
Stockholders' equity	
Preferred stock, \$.01 par value; 5,000 shares authorized; none issued	
Common stock, \$.01 par value; 500,000 shares authorized; 276,053 (2000) and 272,277 (1999) shares issued	2,761
Additional paid-in capital	1,641,513
Foreign currency translation adjustment	(12,629)
Accumulated deficit	(1,036,456)
Treasury stock, at cost, 6,456 (2000) and 2,113 (1999) shares	(66,647)
Total liabilities and stockholders' equity	\$ 924,883

- Net loss, (USD 3,980).
- Loss before interest and taxes, (USD 4,700).
- Cost of goods sold, USD 244,984.
- Net sales, USD 928,414.
- Total interest expense for the year, USD 367.
- Weighted-average number of shares outstanding, 273,081.

Calculate the following ratios and show your computations. For calculations normally involving averages, such as average accounts receivable or average stockholders' equity, use year-end amounts if the information is not available to use averages.

a. Current ratio.

b. Net income to average common stockholders' equity.

c. Number of days' sales in accounts receivable (assume 365 days in 2003).

d. EPS of common stock.

e. Times interest earned ratio.

f. Equity ratio.

g. Net income to net sales.

- h. Total assets turnover.
- i. Acid-test ratio.

Alternate problem H Paper Company is considering switching from the FIFO method to the LIFO method of accounting for its inventory before it closes its books for the year. The January 1 merchandise inventory was USD 864,000. Following are data compiled from the adjusted trial balance at the end of the year:

Merchandise inventory, December 31 (FIFO)	\$1,008,000
Current liabilities	720,000
Net sales	2,520,000
Operating expenses	774,000
Current assets	1,890,000
Total assets (operating)	2,880,000
Cost of goods sold	1,458,000

If the switch to LIFO takes place, the December 31 merchandise inventory would be USD 900,000.

- a. Compute the current ratio, inventory turnover ratio, and rate of return on operating assets assuming the company continues using FIFO.
- b. Repeat (a) assuming the company adjusts its accounts to the LIFO inventory method.

Beyond the numbers – Critical thinking

Business decision case A The comparative balance sheets of the Darling Corporation for 2011 December 31, and 2010 follow:

**Darling Corporation
Comparative balance sheets
2011 December 31, and 2010
(USD millions)**

	2011	2010
Assets		
Cash	\$ 480,000	\$ 96,000
Accounts receivable, net	86,400	115,200
Merchandise inventory	384,000	403,200
Plant and equipment, net	268,800	288,000
Total assets	\$ 1,219,200	\$902,400
Liabilities and stockholders' equity		
Accounts payable	\$ 96,000	\$ 96,000
Common stock	672,000	672,000
Retained earnings	451,200	134,400
Total liabilities and stockholders' equity	\$1,219,200	\$902,400

Based on your review of the comparative balance sheets, determine the following:

- a. What was the net income for 2011 assuming there were no dividend payments?
- b. What was the primary source of the large increase in the cash balance from 2010 to 2011?
- c. What are the two main sources of assets for Darling Corporation?
- d. What other comparisons and procedures would you use to complete the analysis of the balance sheet?

Business decision case B As Miller Manufacturing Company's internal auditor, you are reviewing the company's credit policy. The following information is from Miller's annual reports for 2008, 2009, 2010, and 2011:

	2008	2009	2010	2011
Nets accounts receivable	\$ 1,080,000	\$ 2,160,000	\$ 2,700,000	\$ 3,600,000
Net sales	10,800,000	13,950,000	17,100,000	19,800,000

Management has asked you to calculate and analyze the following in your report:

- a. If cash sales account for 30 per cent of all sales and credit terms are always 1/10, n/60, determine all turnover ratios possible and the number of days' sales in accounts receivable at all possible dates. (The number of days' sales in accounts receivable should be based on year-end accounts receivable and net credit sales.)

b. How effective is the company's credit policy?

Business decision case C Wendy Prince has consulted you about the possibility of investing in one of three companies (Apple, Inc., Baker Company, or Cookie Corp.) by buying its common stock. The companies' investment shares are selling at about the same price. The long-term capital structures of the companies alternatives are as follows:

	Apple, Inc.	Baker Company	Cookie Corp.
Bonds with a 10% interest rate			\$2,400,000
Preferred stock with an 8% dividend rate		\$2,400,000	
Common stock, \$10 par value	\$4,800,000	2,400,000	2,400,000
Retained earnings	384,000	384,000	384,000
Total long-term equity	\$5,184,000	\$5,184,000	\$5,184,000
Number of common shares outstanding	480,000	240,000	240,000

Prince has already consulted two investment advisers. One adviser believes that each of the companies will earn USD 300,000 per year before interest and taxes. The other adviser believes that each company will earn about USD 960,000 per year before interest and taxes. Prince has asked you to write a report covering these points:

a. Compute each of the following, using the estimates made by the first and second advisers.

(a) Earnings available for common stockholders assuming a 40 per cent tax rate.

(b) EPS of common stock.

(c) Rate of return on total stockholders' equity.

b. Which stock should Prince select if she believes the first adviser?

c. Are the stockholders as a group (common and preferred) better off with or without the use of long-term debt in the companies?

Annual Report analysis D The following selected financial data excerpted from the annual report of Appliance Corporation represents the summary information which management presented for interested parties to review:

Appliance Corporation					
Selected Financial Data					
(USD thousands except per share data)					
	2010	2009	2008	2007	2006
Net sales	\$3,049,524	\$3,372,515	\$2,987,054	\$3,041,223	\$2,970,626
Cost of sales	2,250,616	2,496,065	2,262,942	2,339,406	2,254,221
Income taxes	74,800	90,200	38,600	15,900	44,400
Income (loss) from continuing operations	(14,996)	151,137	51,270	(8,254)	79,017
Per cent of income (loss) from continuing operations to net sales	(0.5%)	4.5%	1.7%	(0.3%)	2.7%
Income (loss) from continuing operations per share	\$ (0.14)	1.42	0.48	(0.08)	\$ 0.75
Dividends paid per share	0.515	0.50	0.50	0.50	0.50
Average shares outstanding (in thousands)	107,062	106,795	106,252	106,077	105,761
Working capital	\$ 543,431	\$ 595,703	\$ 406,181	\$452,626	\$ 509,025
Depreciation of property, plant and equipment	102,572	110,044	102,459	94,032	83,352
Additions to property, plant and equipment	152,912	84,136	99,300	129,891	143,372
Total assets	2,125,066	2,504,327	2,469,498	2,501,490	2,535,068
Long-term debt	536,579	663,205	724,65	789,232	809,480
Total debt to capitalization	45.9%	50.7%	60.0%	58.7%	45.9%
Shareowners' equity per share of					

common stock \$ 6.05 \$ 6.82 \$ 5.50 \$ 9.50

a. As a creditor, what do you believe management's objectives should be? Which of the preceding items of information would assist a creditor in judging management's performance?

b. As an investor, what do you believe management's objectives should be? Which of the preceding items of information would assist an investor in judging management's performance?

c. What other information might be considered useful?

Group project E Choose a company the class wants to know more about and obtain its annual report. In groups of two or three students, calculate either the liquidity, equity, profitability, or market test ratios. Each group should select a spokesperson to tell the rest of the class the results of the group's calculations. Finally, the class should decide whether or not to invest in the corporation based on the ratios they calculated.

Group project F In a group of two or three students, go to the library and attempt to locate Dun & Bradstreet's Industry Norms and Key Business Ratios. You may have to ask the reference librarian for assistance to see if this item is available at your institution. If it is not available at your institution, ask if it is available through an interlibrary loan. (Obviously, if you cannot obtain this item, you cannot do this project.) Then select and obtain the latest annual report of a company of your choice. Determine the company's SIC Code (a code that indicates the industry in which that company operates). SIC Codes for specific companies are available on COMPACT DISCLOSURE, an electronic source that may be available at your library. As an alternative, you could call the company's home office to inquire about its SIC Code. The annual report often contains the company's phone number. From the annual report, determine various ratios for the company, such as the current ratio, debt to equity ratio, and net income to net sales. Then compare these ratios to the industry norms for the company's SIC Code as given in the Dun & Bradstreet source. Write a report to your instructor summarizing the results of your investigation.

Group project G In a group of two or three students, obtain the annual report of a company of your choice. Identify the major sections of the annual report and the order in which they appear. Would you recommend the order be changed to emphasize the most useful and important information? If so, how? Then describe some specific useful information in each section. Comment on your perceptions of the credibility that a reader of the annual report could reasonably assign to each section of the report. For instance, if such a discussion appears in the annual report you select, would you assign high credibility to everything that appears in the Letter to Stockholders regarding the company's future prospects? Write a report to your instructor summarizing the results of your investigation.

Using the Internet—A view of the real world

Visit the following website for Eastman Kodak Company:

<http://www.kodak.com>

By following choices on the screen, locate the income statements and balance sheets for the latest two years. Calculate all of the ratios illustrated in the chapter for which the data are available. Compare the ratios to those shown for Synotech as presented in the chapter. Write a report to your instructor showing your calculations and comment on the results of your comparison of the two companies.

Visit the following website for General Electric Company:

<http://www.ge.com>

By following choices on the screen, locate the income statements and balance sheets for the latest two years. Calculate all of the ratios illustrated in the chapter for which the data are available. Compare the ratios to those shown for Synotech as presented in the chapter. Write a report to your instructor showing your calculations and comment on the results of your comparison of the two companies.

Answers to self-test

True-false

True. Financial statement analysis consists of applying analytical tools and techniques to financial statements and other relevant data to obtain useful information.

False. Horizontal analysis provides useful information about the changes in a company's performance over several periods by analyzing comparative financial statements of the same company for two or more successive periods.

False. Common-size statements show only percentage figures, such as percentages of total assets and percentages of net sales.

True. Liquidity ratios such as the current ratio and acid-test ratio indicate a company's short-term debt-paying ability.

True. The accrual net income shown on the income statement is not cash basis income and does not indicate cash flows.

True. Analysts must use comparable data when making comparisons of items for different periods or different companies.

Multiple-choice

b. Current assets: USD 136,000 + USD 64,000 + USD 184,000 + USD 244,000 + USD 12,000 = USD 640,000

Current liabilities: USD 256,000 + USD 64,000 = USD 320,000

Current ratio: $\frac{\text{USD } 640,000}{\text{USD } 320,000} = 2:1$

c. Quick assets:

USD 136,000 + USD 64,000 + USD 184,000 = USD 384,000

Current liabilities:

256,000 + USD 64,000 = USD 320,000

Acid-test ratio: $\frac{\text{USD } 384,000}{\text{USD } 320,000} = 1.2:1$

a. Net sales:

USD 4,620,000

Average accounts receivable: $\frac{(\text{USD } 720,000 + \text{USD } 960,000)}{2} = \text{USD } 840,000$

Accounts receivable turnover: $\frac{\text{USD } 4,620,000}{\text{USD } 840,000} = 5.5$

c. Cost of goods sold:

USD 3,360,000

Average inventory:

$$\frac{\text{USD } 900,000 + \text{USD } 1,020,000}{2} = \text{USD } 960,000$$

Inventory turnover: $\frac{\text{USD } 3,360,000}{\text{USD } 960,000} = 3.5$

b. Income before interest and taxes, USD 720,000

Interest on bonds, 192,000

Times interest earned ratio: $\text{USD } 720,000 / \text{USD } 192,000 = 3.75$ times

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