2. Standardized financial statements. We explained that differences in size make it difficult to compare financial statements, and we discussed how to form common-size and common–base period statements to make comparisons easier.
3. Ratio analysis. Evaluating ratios of accounting numbers is another way of comparing financial statement information. We therefore defined and discussed a number of the most commonly reported and used financial ratios. We also discussed the famous Du Pont identity as a way of analyzing financial performance.
4. Using financial statements. We described how to establish benchmarks for comparison purposes and discussed some of the types of information that are available. We then examined some of the potential problems that can arise.

After you have studied this chapter, we hope that you will have some perspective on the uses and abuses of financial statements. You should also find that your vocabulary of business and financial terms has grown substantially.

Chapter Review and Self-Test Problems

3.1 **Sources and Uses of Cash** Consider the following balance sheets for the Philippe Corporation. Calculate the changes in the various accounts and, where applicable, identify the change as a source or use of cash. What were the major sources and uses of cash? Did the company become more or less liquid during the year? What happened to cash during the year?

PHILIPPE CORPORATION
Balance Sheets as of December 31, 2001 and 2002
($ in millions)

	2001	**2002**
Assets		
Current assets		
Cash	$ 210	$ 215
Accounts receivable	355	310
Inventory	507	328
Total	$1,072	$ 853
Fixed assets		
Net plant and equipment	$6,085	$6,527
Total assets	$7,157	$7,380
Liabilities and Owners' Equity		
Current liabilities		
Accounts payable	$ 207	$ 298
Notes payable	1,715	1,427
Total	$1,922	$1,725
Long-term debt	$1,987	$2,308
Owners' equity		
Common stock and paid-in surplus	$1,000	$1,000
Retained earnings	2,248	2,347
Total	$3,248	$3,347
Total liabilities and owners' equity	$7,157	$7,380

3.2 **Common-Size Statements** Below is the most recent income statement for Philippe. Prepare a common-size income statement based on this information. How do you interpret the standardized net income? What percentage of sales goes to cost of goods sold?

PHILIPPE CORPORATION
2002 Income Statement
($ in millions)

Sales		$4,053
Cost of goods sold		2,780
Depreciation		550
Earnings before interest and taxes		$ 723
Interest paid		502
Taxable income		$ 221
Taxes (34%)		75
Net income		$ 146
Dividends	$47	
Addition to retained earnings	99	

3.3 **Financial Ratios** Based on the balance sheets and income statement in the previous two problems, calculate the following ratios for 2002:

Current ratio	________
Quick ratio	________
Cash ratio	________
Inventory turnover	________
Receivables turnover	________
Days' sales in inventory	________
Days' sales in receivables	________
Total debt ratio	________
Long-term debt ratio	________
Times interest earned ratio	________
Cash coverage ratio	________

3.4 **ROE and the Du Pont Identity** Calculate the 2002 ROE for the Philippe Corporation and then break down your answer into its component parts using the Du Pont identity.

Answers to Chapter Review and Self-Test Problems

3.1 We've filled in the answers in the following table. Remember, increases in assets and decreases in liabilities indicate that we spent some cash. Decreases in assets and increases in liabilities are ways of getting cash.

Philippe used its cash primarily to purchase fixed assets and to pay off short-term debt. The major sources of cash to do this were additional long-term borrowing, reductions in current assets, and additions to retained earnings.

PHILIPPE CORPORATION Balance Sheets as of December 31, 2001 and 2002 ($ in millions)	2001	2002	Change	Source or Use of Cash
Assets				
Current assets				
Cash	$ 210	$ 215	+$ 5	
Accounts receivable	355	310	− 45	Source
Inventory	507	328	− 179	Source
Total	$1,072	$ 853	−$219	
Fixed assets				
Net plant and equipment	$6,085	$6,527	+$442	Use
Total assets	$7,157	$7,380	+$223	
Liabilities and Owners' Equity				
Current liabilities				
Accounts payable	$ 207	$ 298	+$ 91	Source
Notes payable	1,715	1,427	− 288	Use
Total	$1,922	$1,725	−$197	
Long-term debt	$1,987	$2,308	+$321	Source
Owners' equity				
Common stock and paid-in surplus	$1,000	$1,000	+$ 0	—
Retained earnings	2,248	2,347	+ 99	Source
Total	$3,248	$3,347	+$ 99	
Total liabilities and owners' equity	$7,157	$7,380	+$223	

The current ratio went from $1,072/1,922 = .56 to $853/1,725 = .49, so the firm's liquidity appears to have declined somewhat. Overall, however, the amount of cash on hand increased by $5.

3.2 We've calculated the common-size income statement below. Remember that we simply divide each item by total sales.

PHILIPPE CORPORATION 2002 Common-Size Income Statement		
Sales		100.0%
Cost of goods sold		68.6
Depreciation		13.6
Earnings before interest and taxes		17.8
Interest paid		12.3
Taxable income		5.5
Taxes (34%)		1.9
Net income		3.6%
Dividends	1.2%	
Addition to retained earnings	2.4%	

Net income is 3.6 percent of sales. Because this is the percentage of each sales dollar that makes its way to the bottom line, the standardized net income is the firm's profit margin. Cost of goods sold is 68.6 percent of sales.

3.3 We've calculated the following ratios based on the ending figures. If you don't remember a definition, refer back to Table 3.8.

Current ratio	$853/$1,725	= .49 times
Quick ratio	$525/$1,725	= .30 times
Cash ratio	$215/$1,725	= .12 times
Inventory turnover	$2,780/$328	= 8.48 times
Receivables turnover	$4,053/$310	= 13.07 times
Days' sales in inventory	365/8.48	= 43.06 days
Days' sales in receivables	365/13.07	= 27.92 days
Total debt ratio	$4,033/$7,380	= 54.6%
Long-term debt ratio	$2,308/$5,655	= 40.8%
Times interest earned ratio	$723/$502	= 1.44 times
Cash coverage ratio	$1,273/$502	= 2.54 times

3.4 The return on equity is the ratio of net income to total equity. For Philippe, this is $146/$3,347 = 4.4%, which is not outstanding.

Given the Du Pont identity, ROE can be written as:

$$\begin{aligned} \text{ROE} &= \text{Profit margin} \times \text{Total asset turnover} \times \text{Equity multiplier} \\ &= \$146/\$4{,}053 \times \$4{,}053/\$7{,}380 \times \$7{,}380/\$3{,}347 \\ &= 3.6\% \times .549 \times 2.20 \\ &= 4.4\% \end{aligned}$$

Notice that return on assets, ROA, is 3.6% × .549 = 1.98%.

Concepts Review and Critical Thinking Questions

1. **Current Ratio** What effect would the following actions have on a firm's current ratio? Assume that net working capital is positive.
   a. Inventory is purchased.
   b. A supplier is paid.
   c. A short-term bank loan is repaid.
   d. A long-term debt is paid off early.
   e. A customer pays off a credit account.
   f. Inventory is sold at cost.
   g. Inventory is sold for a profit.
2. **Current Ratio and Quick Ratio** In recent years, Dixie Co. has greatly increased its current ratio. At the same time, the quick ratio has fallen. What has happened? Has the liquidity of the company improved?
3. **Current Ratio** Explain what it means for a firm to have a current ratio equal to .50. Would the firm be better off if the current ratio were 1.50? What if it were 15.0? Explain your answers.
4. **Financial Ratios** Fully explain the kind of information the following financial ratios provide about a firm:

a. Quick ratio
b. Cash ratio
c. Capital intensity ratio
d. Total asset turnover
e. Equity multiplier
f. Long-term debt ratio
g. Times interest earned ratio
h. Profit margin
i. Return on assets
j. Return on equity
k. Price-earnings ratio

5. **Standardized Financial Statements** What types of information do common-size financial statements reveal about the firm? What is the best use for these common-size statements? What purpose do common–base year statements have? When would you use them?

6. **Peer Group Analysis** Explain what peer group analysis means. As a financial manager, how could you use the results of peer group analysis to evaluate the performance of your firm? How is a peer group different from an aspirant group?

7. **Du Pont Identity** Why is the Du Pont identity a valuable tool for analyzing the performance of a firm? Discuss the types of information it reveals as compared to ROE considered by itself.

8. **Industry-Specific Ratios** Specialized ratios are sometimes used in specific industries. For example, the so-called book-to-bill ratio is closely watched for semiconductor manufacturers. A ratio of .93 indicates that for every $100 worth of chips shipped over some period, only $93 worth of new orders were received. In January 2001, the North American semiconductor equipment industry's book-to-bill ratio declined to .81, compared to .99 during the month of December. The ratio fell for six consecutive months and was down from 1.23 in August 2000. The three-month average of worldwide bookings in January 2001 was down 21 percent from the December 2000 level, while the three-month average of worldwide shipments was down 2 percent from the December 2000 level. What is this ratio intended to measure? Why do you think it is so closely followed?

9. **Industry-Specific Ratios** So-called "same-store sales" are a very important measure for companies as diverse as McDonald's and Sears. As the name suggests, examining same-store sales means comparing revenues from the same stores or restaurants at two different points in time. Why might companies focus on same-store sales rather than total sales?

10. **Industry-Specific Ratios** There are many ways of using standardized financial information beyond those discussed in this chapter. The usual goal is to put firms on an equal footing for comparison purposes. For example, for auto manufacturers, it is common to express sales, costs, and profits on a per-car basis. For each of the following industries, give an example of an actual company and discuss one or more potentially useful means of standardizing financial information:

a. Public utilities
b. Large retailers
c. Airlines
d. On-line services
e. Hospitals
f. College textbook publishers

Questions and Problems

Basic
(Questions 1–17)

1. **Calculating Liquidity Ratios** SDJ, Inc., has net working capital of $1,050, current liabilities of $4,300, and inventory of $1,300. What is the current ratio? What is the quick ratio?
2. **Calculating Profitability Ratios** Music Row, Inc. has sales of $32 million, total assets of $43 million, and total debt of $9 million. If the profit margin is 7 percent, what is net income? What is ROA? What is ROE?
3. **Calculating the Average Collection Period** Stargell Lumber Yard has a current accounts receivable balance of $392,164. Credit sales for the year just ended were $2,105,620. What is the receivables turnover? The days' sales in receivables? How long did it take on average for credit customers to pay off their accounts during the past year?
4. **Calculating Inventory Turnover** Golden Corporation has ending inventory of $423,500, and cost of goods sold for the year just ended was $2,365,450. What is the inventory turnover? The days' sales in inventory? How long on average did a unit of inventory sit on the shelf before it was sold?
5. **Calculating Leverage Ratios** Paulette's Plants, Inc., has a total debt ratio of .62. What is its debt-equity ratio? What is its equity multiplier?
6. **Calculating Market Value Ratios** Bethesda Co. had additions to retained earnings for the year just ended of $275,000. The firm paid out $150,000 in cash dividends, and it has ending total equity of $6 million. If Bethesda currently has 125,000 shares of common stock outstanding, what are earnings per share? Dividends per share? Book value per share? If the stock currently sells for $95 per share, what is the market-to-book ratio? The price-earnings ratio?
7. **Du Pont Identity** If Roten Rooters, Inc., has an equity multiplier of 1.90, total asset turnover of 1.20, and a profit margin of 8 percent, what is its ROE?
8. **Du Pont Identity** Finley Fire Prevention Corp. has a profit margin of 7 percent, total asset turnover of 1.94, and ROE of 23.70 percent. What is this firm's debt-equity ratio?
9. **Sources and Uses of Cash** Based only on the following information for Sweeney Corp., did cash go up or down? By how much? Classify each event as a source or use of cash.

Decrease in inventory	$500
Decrease in accounts payable	310
Decrease in notes payable	820
Increase in accounts receivable	940

10. **Calculating Average Payables Period** For 2002, BDJ, Inc., had a cost of goods sold of $10,432. At the end of the year, the accounts payable balance was $2,120. How long on average did it take the company to pay off its suppliers during the year? What might a large value for this ratio imply?
11. **Cash Flow and Capital Spending** For the year just ended, Wallin Frozen Yogurt shows an increase in its net fixed assets account of $490. The company took $160 in depreciation expense for the year. How much did Wallin spend on new fixed assets? Is this a source or use of cash?

Basic *(continued)*

12. **Equity Multiplier and Return on Equity** Haselden Fried Chicken Company has a debt-equity ratio of 1.10. Return on assets is 8.4 percent, and total equity is $440,000. What is the equity multiplier? Return on equity? Net income?

Just Dew It Corporation reports the following balance sheet information for 2001 and 2002. Use this information to work Problems 13 through 17.

JUST DEW IT CORPORATION
Balance Sheets as of December 31, 2001 and 2002

	2001	2002		2001	2002
Assets			**Liabilities and Owners' Equity**		
Current assets			Current liabilities		
Cash	$ 9,201	$ 9,682	Accounts payable	$ 71,802	$ 56,382
Accounts receivable	28,426	29,481	Notes payable	36,108	50,116
Inventory	54,318	63,682	Total	$107,910	$106,498
Total	$ 91,945	$102,845	Long-term debt	$ 50,000	$ 35,000
Fixed assets			Owners' equity		
Net plant and equipment	$296,418	$327,154	Common stock and paid-in surplus	$ 75,000	$ 75,000
			Retained earnings	155,453	213,501
			Total	$230,543	$288,501
Total assets	$388,363	$429,999	Total liabilities and owners' equity	$388,363	$429,999

13. **Preparing Standardized Financial Statements** Prepare the 2001 and 2002 common-size balance sheets for Just Dew It.
14. **Preparing Standardized Financial Statements** Prepare the 2002 common–base year balance sheet for Just Dew It.
15. **Preparing Standardized Financial Statements** Prepare the 2002 combined common-size, common–base year balance sheet for Just Dew It.
16. **Sources and Uses of Cash** For each account on this company's balance sheet, show the change in the account during 2002 and note whether this change was a source or use of cash. Do your numbers add up and make sense? Explain your answer for total assets as compared to your answer for total liabilities and owners' equity.
17. **Calculating Financial Ratios** Based on the balance sheets given for Just Dew It, calculate the following financial ratios for each year:
    - **a.** Current ratio
    - **b.** Quick ratio
    - **c.** Cash ratio
    - **d.** NWC to total assets ratio
    - **e.** Debt-equity ratio and equity multiplier
    - **f.** Total debt ratio and long-term debt ratio

Intermediate (Questions 18–30)

18. **Using the Du Pont Identity** Y3K, Inc., has sales of $2,300, total assets of $1,020, and a debt-equity ratio of 1.00. If its return on equity is 18 percent, what is its net income?
19. **Sources and Uses of Cash** If accounts payable on the balance sheet decreases by $10,000 from the beginning of the year to the end of the year, is this a source or a use of cash? Explain your answer.

Intermediate
(*continued*)

20. Ratios and Fixed Assets The Alcala Company has a long-term debt ratio of 0.65 and a current ratio of 1.30. Current liabilities are $900, sales are $4,680, profit margin is 9.5 percent, and ROE is 22.4 percent. What is the amount of the firm's net fixed assets?

21. Profit Margin In response to complaints about high prices, a grocery chain runs the following advertising campaign: "If you pay your child 50 cents to go buy $25 worth of groceries, then your child makes twice as much on the trip as we do." You've collected the following information from the grocery chain's financial statements:

	(millions)
Sales	$550.0
Net income	5.5
Total assets	140.0
Total debt	90.0

Evaluate the grocery chain's claim. What is the basis for the statement? Is this claim misleading? Why or why not?

22. Using the Du Pont Identity The Raggio Company has net income of $52,300. There are currently 21.50 days' sales in receivables. Total assets are $430,000, total receivables are $59,300, and the debt-equity ratio is 1.30. What is Raggio's profit margin? Its total asset turnover? Its ROE?

23. Calculating the Cash Coverage Ratio Tommy Badfinger Inc.'s net income for the most recent year was $8,175. The tax rate was 34 percent. The firm paid $2,380 in total interest expense and deducted $1,560 in depreciation expense. What was Tommy Badfinger's cash coverage ratio for the year?

24. Calculating the Times Interest Earned Ratio For the most recent year, ICU Windows, Inc., had sales of $380,000, cost of goods sold of $110,000, depreciation expense of $32,000, and additions to retained earnings of $41,620. The firm currently has 30,000 shares of common stock outstanding, and the previous year's dividends per share were $1.50. Assuming a 34 percent income tax rate, what was the times interest earned ratio?

25. Ratios and Foreign Companies Prince Albert Canning PLC had a 2002 net loss of £10,418 on sales of £140,682 (both in thousands of pounds). What was the company's profit margin? Does the fact that these figures are quoted in a foreign currency make any difference? Why? In dollars, sales were $1,236,332. What was the net loss in dollars?

Some recent financial statements for Smolira Golf Corp. follow. Use this information to work Problems 26 through 30.

Intermediate (*continued*)

SMOLIRA GOLF CORP.
Balance Sheets as of December 31, 2001 and 2002

	2001	2002		2001	2002
Assets			**Liabilities and Owners' Equity**		
Current assets			Current liabilities		
Cash	$ 650	$ 710	Accounts payable	$ 987	$ 1,215
Accounts receivable	2,382	2,106	Notes payable	640	718
Inventory	4,408	4,982	Other	90	230
Total	$ 7,440	$ 7,798	Total	$ 1,717	$ 2,163
Fixed assets			Long-term debt	$ 4,318	$ 4,190
Net plant and equipment	$13,992	$18,584	Owners' equity		
			Common stock and paid-in surplus	$10,000	$10,000
			Retained earnings	5,397	10,029
			Total	$15,397	$20,029
Total assets	$21,432	$26,382	Total	$21,432	$26,382

SMOLIRA GOLF CORP.
2002 Income Statement

Sales		$28,000
Cost of goods sold		11,600
Depreciation		2,140
Earnings before interest and taxes		$14,260
Interest paid		980
Taxable income		$13,280
Taxes (35%)		4,648
Net income		$ 8,632
Dividends	$4,000	
Addition to retained earnings	4,632	

26. Calculating Financial Ratios Find the following financial ratios for Smolira Golf Corp. (use year-end figures rather than average values where appropriate):

Short-term solvency ratios

a. Current ratio ________________________

b. Quick ratio ________________________

c. Cash ratio ________________________

Asset utilization ratios

d. Total asset turnover ________________________

e. Inventory turnover ________________________

f. Receivables turnover ________________________

Long-term solvency ratios

g. Total debt ratio ________________________

h. Debt-equity ratio ________________________

i. Equity multiplier ________________________

j. Times interest earned ratio ________________________

k. Cash coverage ratio ________________________

Intermediate
(*continued*)

Profitability ratios

l. Profit margin ____________

m. Return on assets ____________

n. Return on equity ____________

27. **Du Pont Identity** Construct the Du Pont identity for Smolira Golf Corp.

28. **Calculating the Interval Measure** For how many days could Smolira Golf Corp. continue to operate if its cash inflows were suddenly suspended?

29. **Statement of Cash Flows** Prepare the 2002 statement of cash flows for Smolira Golf Corp.

30. **Market Value Ratios** Smolira Golf Corp. has 1,250 shares of common stock outstanding, and the market price for a share of stock at the end of 2002 was $63. What is the price-earnings ratio? What are the dividends per share? What is the market-to-book ratio at the end of 2002?

S&P Problems

STANDARD & POOR'S

1. **Equity Multiplier** Use the balance sheets for Amazon.com (AMZN), Bethlehem Steel (BS), American Electric Power (AEP), and Pfizer (PFE) to calculate the equity multiplier for each company over the most recent two years. Comment on any similarities or differences between the companies and explain how these might affect the equity multiplier.

2. **Inventory Turnover** Use the financial statements for Dell Computer Corporation (DELL) and Boeing Company (BA) to calculate the inventory turnover for each company over the past three years. Is there a difference in inventory turnover between the two companies? Is there a reason the inventory turnover is lower for Boeing? What does this tell you about comparing ratios across industries?

3. **SIC Codes** Find the SIC codes for Papa Johns' International (PZZA) and Darden Restaurants (DRI) on each company's home page. What is the SIC code for each of these companies? What does the business description say for each company? Are these companies comparable? What does this tell you about comparing ratios for companies based on SIC codes?

4. **Calculating the Du Pont Identity** Find the annual income statements and balance sheets for Anheuser-Busch (BUD) and Gateway (GTW). Calculate the Du Pont identity for each company for the most recent three years. Comment on the changes in each component of the Du Pont identity for each company over this period and compare the components between the two companies. Are the results what you expected? Why or why not?

5. **Ratio Analysis** Look under "Valuation" and download the "Profitability" spreadsheet for Southwest Airlines (LUV) and Continental Airlines (CAL). Find the ROA (Net ROA), ROE (Net ROE), PE ratio (P/E-High and P/E-low), and the market-to-book ratio (Price/Book-high and Price/Book-low) for each company. Since stock prices change daily, PE and market-to-book ratios are often reported as the highest and lowest values over the year, as is done in this instance. Look at these ratios for both companies over the past five years. Do you notice any trends in these ratios? Which company appears to be operating at a more efficient level based on these four ratios? If you were going to invest in an airline, which one (if either) of these companies would you choose based on this information? Why?

What's On the Web?

3.1 Du Pont Identity You can find financial statements for Walt Disney Company on the "Investor" link at Disney's home page, www.disney.com. For the three most recent years, calculate the Du Pont identity for Disney. How has ROE changed over this period? How have changes in each component of the Du Pont identity affected ROE over this period?

3.2 Ratio Analysis You want to examine the financial ratios for Dell Computer Corporation. Go to www.marketguide.com and type in the ticker symbol for the company (DELL). Next, go to the comparison link. You should find financial ratios for Dell and the industry, sector, and S&P 500 averages for each ratio.

a. What do TTM and MRQ mean?

b. How do Dell's recent profitability ratios compare to their values over the past five years? To the industry averages? To the sector averages? To the S&P 500 averages? Which is the better comparison group for Dell: the industry, sector, or S&P 500 averages? Why?

c. In what areas does Dell seem to outperform its competitors based on the financial ratios? Where does Dell seem to lag behind its competitors?

d. Dell's inventory turnover ratio is much larger than that for all comparison groups. Why do you think this is?

3.3 Standardized Financial Statements Go to the "Investor" link for Enron located at www.enron.com and locate the income statement and balance sheet for the two most recent years.

a. Prepare the common-size income statements and balance sheets for the two years.

b. Prepare the common-year income statement and balance sheet for the most recent year.

c. Prepare the common-size, common-base year income statement and balance sheet for the most recent year.

3.4. Sources and Uses of Cash Find the two most recent balance sheets for 3M at the "Investor Relations" link on the web site www.mmm.com. For each account in the balance sheet, show the change during the most recent year and note whether this was a source or use of cash. Do your numbers add up and make sense? Explain your answer for total assets as compared to your answer for total liabilities and owners' equity.

3.5. Asset Utilization Ratios Find the most recent financial statements for Kmart at www.bluelight.com and Boeing at www.boeing.com. Calculate the asset utilization ratio for these two companies. What does this ratio measure? Is the ratio similar for both companies? Why or why not?

Spreadsheet Templates 3–3, 3–7, 3–13, 3–14, 3–16