

2 financial statements and analysis

Learning goals

1. Review the contents of the shareholders' report and the procedures for consolidating international financial statements.
2. Understand who uses financial ratios, and how.
3. Use ratios to analyse a firm's liquidity and activity.
4. Discuss the relationship between debt and financial leverage and the ratios used to analyse a firm's debt.
5. Use ratios to analyse a firm's profitability, its market value and cash adequacy.
6. Use a summary of financial ratios and the DuPont system of analysis to perform a complete ratio analysis.

Why this chapter matters to you

In your professional life

- **Accounting:** You need to understand the shareholders' report and preparation of the four key financial statements; how firms consolidate international financial statements; and how to calculate and interpret financial ratios for decision-making.
- **Information systems:** You need to understand what data are included in the firm's financial statements in order to design systems that will supply such data to those who prepare the statements and to those in the firm who use the data for ratio calculations.
- **Management:** You need to understand what parties are interested in the annual report and why; how the financial statements will be analysed by those both inside and outside the firm to assess various aspects of performance; the caution that should be exercised in using financial ratio analysis; and how the financial statements affect the value of the firm.
- **Marketing:** You need to understand the effects your decisions will have on the financial statements, particularly the income statement and the statement of cash flows, and how analysis of ratios, especially those involving sales figures, will affect the firm's decisions about levels of inventory, credit policies and pricing decisions.
- **Operations:** You need to understand how the costs of operations are reflected in the firm's financial statements and how analysis of ratios, particularly those involving assets, cost of goods sold or inventory, may affect requests for new equipment or facilities.
- **Human resource management:** You need to understand the effects your decisions will have on income and cash flows, especially payroll effects, and how ratio analysis will affect the firm's decisions about employee levels and remuneration policies.

In your personal life

A routine step in personal financial planning is to prepare and analyse personal financial statements, so that you can monitor progress towards your financial goals. Also, you need to understand and analyse corporate financial statements to build and monitor your investment portfolio.

case study

Assisting shareholder understanding

Shareholders are assisted in their review of corporate activity by financial summaries and key outcomes. The key financial results for QBE Insurance Group are disclosed by the CEO's report.

The 2008 underwriting result and insurance profit were solid technical results in a year of increased frequency of large individual risk and catastrophic claims. Volatility in financial markets had an adverse effect on equity markets and reduced interest yields. QBE's results benefited from foreign exchange gains and profit on the repurchase of debt securities. Shareholders were rewarded with a strong return on shareholders' funds and a dividend payout up 11% on an increased number of shares.

In this chapter you will become familiar with the published financial statements used by regulators, stakeholders and shareholders, and the ratio analyses used to review financial results such as those of QBE.

GROSS WRITTEN PREMIUM

\$13 142 million

Up **6%** from last year

INSURANCE PROFIT MARGIN

19.7%

Compared with **22%** last year

GROUP KEY RATIOS

		Half year to 30 JUN 2008	Half year to 31 DEC 2008	Full year to 31 DEC 2008	Half year to 30 JUN 2007	Half year to 31 DEC 2007	Full year to 31 DEC 2007
Gross written premium	\$M	6 603	6 539	13 142	6 520	5 886	12 406
Gross earned premium	\$M	5 958	6 895	12 853	5 751	6 610	12 361
Net earned premium	\$M	5 108	5 979	11 087	4 749	5 461	10 210
Claims ratio	%	54.7	60.1	57.6	55.7	53.2	54.3
Commission ratio	%	17.2	17.2	17.2	18.2	18.7	18.5
Expense ratio	%	13.9	13.5	13.7	12.3	13.7	13.1
Combined operating ratio	%	85.8	90.8	88.5	86.2	85.6	85.9
Insurance profit to net earned premium	%	21.8	17.7	19.7	22.2	22.1	22.2
Return on average shareholders' funds	%	19.9	22.0	20.9	28.1	24.8	26.1

GEOGRAPHIC SEGMENTS

	2008	2007
Gross earned premium	%	%
Australia	21.8	20.4
Asia Pacific	4.9	4.6
European operations	37.0	41.7
The Americas	35.7	32.2
Equator region	0.6	1.1

QBE Annual Report 2008, p. 6.

2.1 The annual report

Every corporation has many and varied uses for the standardised records and reports of its financial activities. Periodically, reports must be prepared for regulators, creditors (lenders), owners and management. Regulators enforce the proper and accurate disclosure of corporate financial data. Creditors use financial data to evaluate the firm's ability to meet scheduled debt payments. Owners use corporate financial data in assessing the firm's financial condition and in deciding whether to buy, sell or hold its shares. Management is concerned with regulatory compliance, satisfying creditors and owners, and monitoring the firm's performance.

The guidelines used to prepare and maintain financial records and reports are known as **generally accepted accounting principles (GAAP)**. These accounting practices and procedures are largely embodied in accounting standards. Standards come from the Australian equivalents to International Financial Reporting Standards (AIFRS), other authoritative pronouncements of the Australian Accounting Standards Board (AASB) and the *Corporations Act 2001*. **Publicly held corporations** are those whose shares are traded on an organised securities exchange. These corporations are required by law to provide their shareholders with an annual report which is also available in a concise format and at designated websites. This report, which summarises and documents the firm's financial activities during the past year, begins with a report to the shareholders from the firm's managing director or chief executive and/or chairman of the board, followed by the key financial statements. In addition, other information about the firm's strategies, operations, employees and shareholders is included.

generally accepted accounting principles (GAAP)

The practice and procedure guidelines used to prepare and maintain financial records and reports.

publicly held corporations

Corporations whose shares are traded on an organised securities exchange.

The report to shareholders

The chairperson's and chief executive's reports to shareholders are the primary communication from management to the firm's owners. Typically, in this first element of the annual report, they describe the events considered to have had the greatest impact on the firm during the year. In addition, they generally discuss management philosophy, strategies and actions, as well as plans for the coming year and their anticipated effects on the firm's financial condition.

The key financial statements

In the report to shareholders are key financial statements. These statements are (1) the income statement, (2) the balance sheet and (3) the cash flow statement. The annual report must contain statements for the previous year's operations. Historical summaries of key operating statistics and ratios for past years (normally five or ten years) are also included with the financial statements. The financial statements from the 2011 report of Bartlett Company, a manufacturer of metal fasteners, are presented below and briefly discussed. A *fourth statement, Statement of recognised income and expenses, or Statement of changes in equity, is also presented but is not used in the analysis in this chapter*. It is likely you have studied these statements in an accounting course so the purpose of looking at them here is to refresh your memory of the basics, rather than to provide an exhaustive review.

Income statement

The income statement provides a financial summary of the firm's operating results during a specified period, commonly a one-year period ending 30 June or 31 December.

Many large firms, however, operate on a 12-month financial cycle, or *fiscal year*, that ends at a time other than 30 June or 31 December. In addition, monthly income statements are typically prepared for use by management, and quarterly statements must be made available to the shareholders of publicly owned companies.

Table 2.1 presents Bartlett Company's income statements for the years ended 31 December 2011 and 2010. The 2011 statement begins with *sales revenue*—the total dollar amount of sales during the

Hint

Some firms, such as retailers and agricultural firms, end their fiscal year at the end of their operating cycle rather than at the end of the calendar year—for example, retailers at the end of January and agricultural firms at the end of April.

period—from which the *cost of goods sold* is deducted. The resulting *gross profits* of \$986 000 represent the amount remaining to satisfy operating, financial and tax costs. Next, *operating expenses*, which include selling expense, general and administrative expense, lease expense and depreciation expense, are deducted from gross profits. The resulting *operating profits* of \$418 000 represent the profits earned from producing and selling products; this amount does not consider financial and tax costs. (Operating profit is often called *earnings before interest and taxes*, or *EBIT*.) Next, the financial cost—*interest expense*—is subtracted from operating profits to find *net profits* (or *earnings*) *before taxes*. After subtracting \$93 000 in 2011 interest, Bartlett Company had \$325 000 of net profits before taxes.

Next, taxes are calculated at the appropriate tax rates and deducted to determine *net profits* (or *earnings*) *after taxes*. Bartlett Company’s net profits after taxes for 2011 were \$231 000. Any preference share dividends must be subtracted from net profits after taxes to arrive at *earnings available for ordinary shareholders*. This is the amount earned by the firm on behalf of the ordinary shareholders during the period.

Dividing earnings available for ordinary shareholders by the number of shares issued results in *earnings per share* (*EPS*). EPS represents the number of dollars earned during the period on behalf of each issued ordinary share. In 2011, Bartlett Company earned \$221 000 for its ordinary shareholders, which represents \$2.90 for each issued share. The actual cash **dividend per share (DPS)**, which is the dollar amount of cash distributed during the period on behalf of each issued share, paid in 2011 was \$1.29.

dividend per share (DPS)

The dollar amount of cash distributed during the period on behalf of each issued share.

table 2.1

Bartlett Company income statements (\$000)

	For the years ended December 31	
	2011	2010
Sales revenue	\$3074	\$2567
Less Cost of goods sold	2088	1711
Gross profits	\$986	\$856
Less Operating expenses		
Selling expense	\$100	\$108
General and administrative expenses	194	187
Lease expense	35	35
Depreciation expense	239	223
Total operating expense	\$568	\$553
Operating profits	\$418	\$303
Less Interest expense	93	91
Net profits before taxes	\$325	\$212
Less Taxes (rate = 29%) ^a	94	64
Net profits after taxes	\$231	\$148
Less Preference dividends	10	10
Net profit available for ordinary shareholders	\$221	\$138
Earnings per share ^b	\$2.90	\$1.81
Dividends per share	\$1.29	\$0.75

^a The 29% tax rate for 2011 results from the fact that the firm has certain special tax write-offs that do not show up directly on its income statement.

^b Calculated by dividing the earnings available by the number of shares—76 262 in 2011 and 76 244 in 2010. EPS in 2011: (\$221 000/76 262 = \$2.90); in 2010: (\$138 000/76 244 = \$1.81).



Personal finance example

Jan and Jon Smith, a mid-30s married couple with no children, prepared a personal income and expense statement. A condensed version of their income and expense statement appears below and includes cash transactions only.

Jan and Jon Smith
Income and expense statement
for the year ended 31 December 2011

Income	
Salaries (incl. sales commissions)	\$72 725
Interest received	195
Dividends received	120
(1) Total income	<u>\$73 040</u>
Expenses	
Mortgage payments	\$16 864
Car payments	2 520
Utilities (incl. cable)	2 470
Home repairs & maintenance	1 050
Food (incl. dining out)	5 825
Car expenses	2 265
Health care and insurance	1 505
Clothes, shoes, accessories	1 700
Insurance (homeowner's, car & life)	1 380
Taxes	16 430
Appliance and furniture payments	1 250
Recreation and entertainment	4 630
Tuition and books for Jan	1 400
Personal care & other items	2 415
(2) Total expenses	<u>\$61 704</u>
(3) Cash surplus (or deficit)	
[(1) – (2)]	\$11 336

This statement varies from an income statement, which includes non-cash income and non-cash expenses.

FOCUS ON ETHICS

Back to school on ethics

*Academics who have toiled thanklessly in the field of business ethics now see their appearance on campus. Part of the appetite for ethics courses has grown because of the embarrassment felt throughout the business school community following the exposure of accounting frauds at **HIH, Enron, Tyco, WorldCom**, and elsewhere. Business schools now do more to teach ethics in the classroom.*

While the fraud scandals are old news, the topic of ethical corporate cultures has taken on a life of its own. If you are a student at university, you may have taken the new course which focuses entirely on financial fraud. In many Australian universities courses in forensic accounting have now emerged. Today you may enrol in classes showing how accounting numbers can be altered by manipulation. Such courses may help deter future accounting fiascos. To know which accounting and finance practices are proper is key to keeping companies honest, as is the personal integrity of accounting and financial managers.

One issue under debate is whether ethics should be integrated into the curriculum or covered in a dedicated ethics course. One view is that learning ethics theory requires at least one dedicated course in addition to the integration of ethics into traditional business courses. Doing so would allow students to apply the concepts they learn in the dedicated ethics course.

Investors should welcome the increased emphasis on ethics in business schools. More accurate and truthful information will reduce the uncertainty of the information flow that investors use in valuing shares.

- What are some innovative approaches that can be used to teach ethics?

Balance sheet

The **balance sheet** presents a summary statement of the firm's financial position at a given point in time. The statement balances the firm's *assets* (what it owns) against its financing, which can be either *debt* (what it owes) or *equity* (what was provided by owners). Bartlett Company's balance sheets as of 31 December 2011 and 2010 are presented in Table 2.2. They show a variety of asset, liability (debt) and equity accounts.

An important distinction is made between short-term and non-current assets and liabilities. **Current assets** and **current liabilities** are *short-term* assets and liabilities. This means that they are expected to be converted into cash (current assets) or paid (current liabilities) within one year. All other assets and liabilities, along with shareholders' equity, which is assumed to have an infinite life, are considered *long term*, because they are expected to remain on the firm's books for more than one year.

As is customary, the assets are listed from the most liquid—*cash*—down to the least liquid. *Marketable securities* are very liquid short-term investments, such as Treasury bills or certificates of deposit, held by the firm. Because they are highly liquid, marketable securities are viewed as a form of cash ('near cash'). *Accounts receivable* represent the total monies owed to the firm by its customers on credit sales made to them. *Inventories* include raw materials, work in process (partially finished goods) and finished goods held by the firm. The entry for *gross non-current assets* is the original cost of all non-current assets owned by the firm. *Net non-current assets* represent the difference between gross non-current assets and *accumulated depreciation*—the total expense recorded for the depreciation of non-current assets. (The net value of non-current assets is called their *book value*.)

Like assets, the liabilities and equity accounts are listed from short term to long term. Current liabilities include *accounts payable*, amounts owed for credit purchases by the firm; *notes payable*, outstanding short-term loans, typically from commercial banks; and *accruals*, amounts owed for services for which a bill may not or will not be received. (Examples of accruals include taxes due to the government and wages due to employees.) **Non-current debt** represents debt for which payment is not due in the current year.

Shareholders' equity represents the owners' claims on the firm. The *preference share* entry shows the historical proceeds from the sale of preference shares (\$200 000 for Bartlett Company). Next, the amount paid by the original purchasers of ordinary shares is shown. Finally, **retained earnings** represent the cumulative total of all earnings, net of dividends, that have been retained and reinvested in the firm since its inception. It is important to recognise that retained earnings *are not cash* but rather have been utilised to finance the firm's assets.

Bartlett Company's balance sheets in Table 2.2 show that the firm's total assets increased from \$3 270 000 in 2010 to \$3 597 000 in 2011. The \$327 000 increase was due primarily to the \$219 000 increase in current assets. The asset increase in turn appears to have been financed primarily by an increase of \$193 000 in total liabilities. Better insight into these changes can be derived from the statement of cash flows, which we discuss below.

balance sheet

Summary statement of the firm's financial position at a given point in time.

current assets

Short-term assets, expected to be converted into cash within one year.

current liabilities

Short-term liabilities, expected to be paid within one year.

non-current debt

Debts for which payment is not due in the current year.

retained earnings

The cumulative total of all earnings, net of dividends, that have been retained and reinvested in the firm since its inception.

Hint

Another interpretation of the balance sheet is that on one side are the assets that have been purchased to be used to increase the profit of the firm. The other side indicates how these assets were acquired, either by borrowing or by investing the owner's money.

table 2.2**Bartlett Company balance sheets (\$000)**

Assets	31 December	
	2011	2010
Current assets		
Cash	\$363	\$288
Marketable securities	68	51
Accounts receivable	503	365
Inventories	289	300
Total current assets	\$1223	\$1004
Non-current assets (at cost)^a		
Land and buildings	\$2072	\$1903
Machinery and equipment	1866	1693
Furniture and fixtures	358	316
Vehicles	275	314
Other (includes financial leases)	98	96
Total gross non-current assets (at cost)	\$4669	\$4322
Less Accumulated depreciation	2295	2056
Net non-current assets	\$2374	\$2266
Total assets	\$3597	\$3270
Liabilities and shareholders' equity		
Current liabilities		
Accounts payable	\$382	\$270
Notes payable	79	99
Accruals	159	114
Total current liabilities	\$620	\$483
Non-current debt (includes financial leases)^b	\$1023	\$967
Total liabilities	\$1643	\$1450
Shareholders' equity		
Preference shares—cumulative 5%, \$100, 2000 shares issued ^c	\$200	\$200
Ordinary shares—Shares issued 2011: 76 262; in 2010: 76 244	619	608
Retained earnings	1135	1012
Total shareholders' equity	\$1954	\$1820
Total liabilities and shareholders' equity	\$3597	\$3270

^a In 2011, the firm has a six-year financial lease requiring annual beginning-of-year payments of \$35 000. Four years of the lease have yet to run.

^b Annual principal repayments on a portion of the firm's total outstanding debt amount to \$71 000.

^c The annual preference share dividend would be \$5 per share (5% × \$100), or a total of \$10 000 annually (\$5 per share × 2000 shares).



Personal finance example

The following personal balance sheet for **Jan and Jon Smith**—the couple introduced earlier, who are married, in their mid-30s, and have no children.

**Jan and Jon Smith
Balance Sheet
31 December 2011**

Assets		Liabilities and net worth	
<i>Liquid:</i>		<i>Current:</i>	
Cash on hand	\$ 90	Credit card balances	\$ 665
Cheque accounts	575	Utility bills	120
Savings accounts	760	Medical bills	75
Money market funds	800	Other current liabilities	45
Total liquid assets	<u>\$ 2 225</u>	Total current liabilities	<u>\$ 905</u>
<i>Investments:</i>		<i>Long-term:</i>	
Shares	\$ 2 250	Real estate mortgage	\$ 92 000
Managed funds	1 500	Car loans	4 250
Super funds	<u>\$ 2 000</u>	Education loan	3 800
Total investments	<u>\$ 5 750</u>	Personal loan	4 000
<i>Personal property:</i>		Furniture loan	800
Real estate	\$120 000	Total long-term liabilities	<u>\$104 850</u>
Cars	14 000	Total liabilities	<u>\$105 755</u>
Household furnishings	3 700	Net worth (N/W)	<u>\$ 41 420</u>
Jewellery & artwork	<u>\$ 1 500</u>	Total liabilities & N/W	<u>\$147 175</u>
Total personal property	<u>\$139 200</u>		
Total assets	<u>\$147 175</u>		

The Smiths have total assets of \$147 175 and total liabilities of \$105 755. Personal net worth (N/W) is a 'plug figure'—the difference between total assets and total liabilities—which in the case of Jan and Jon Smith is \$41 420.

Cash flow statement

The **cash flow statement** provides a summary of the cash flows over the period of concern, typically the year just ended. The statement provides insight into the firm's operating, investing and financing cash flows, and reconciles them with changes in its cash and marketable securities during the period of concern. Bartlett Company's cash flow statement for the year ended 31 December 2011 is presented in Table 2.3. Further insight into this statement is provided by the discussion of cash flow in Chapter 3.

cash flow statement
Provides a summary of the firm's operating, investing and financing cash flows, and reconciles them with changes in its cash and marketable securities during the period.

Statement of recognised income and expenses (Statement of changes in equity)

This statement is prepared by companies to show how profit for the year is adjusted by gains and losses on financial instruments (especially hedging gains and losses). The resultant amount, after adjustment, is called *total recognised income for the year*. In assessing accounting numbers, analysts can now see the consequences of having assets and liabilities that are derivative financial instruments and of other financial exposures to interest rates, commodity prices and exchange rates. The analysis in this text will, however, focus on the profit shown in the income statement.

notes to the financial statements
Footnotes detailing information on the accounting policies, procedures, calculations and transactions underlying entries in the financial statements.

Notes and reports accompanying the financial statements

Accompanying the published financial statements are explanatory notes and commentary to the accounts and data in the statements. These **notes to the financial statements** provide detailed

table 2.3

Bartlett Company cash flow statement (\$000) for the year ended 31 December 2011

Cash flow from operating activities		
Net profits after taxes	\$231	
Depreciation	239	
Increase in accounts receivable	(138) ^a	
Decrease in inventories	11	
Increase in accounts payable	112	
Increase in accruals	<u>45</u>	
Cash provided by operating activities		\$500
Cash flow from investing activities		
Payments for gross non-current assets	(\$347)	
Change in business interests	<u>0</u>	
Cash provided by investing activities		(347)
Cash flow from financing activities		
Paid notes payable	(\$20)	
Proceeds from non-current debts	56	
Proceeds from shares issued	11	
Dividends paid	(108)	
Cash provided by financing activities		<u>(61)</u>
Net increase in cash and marketable securities		<u>\$92</u>

^a As is customary, parentheses are used to denote a negative number, which in this case is a cash outflow.

information on the accounting policies, procedures, calculations and transactions underlying entries in the financial statements. Common issues addressed by these notes include revenue recognition, asset impairment, income taxes, breakdowns of non-current asset accounts, debt and lease terms and contingencies. Professional securities analysts use the data in the statements and notes to develop estimates of the value of securities that the firm issues, and these estimates influence the actions of investors and therefore the firm's share value.

It is also critical to review the accompanying reports when considering the financial results. Of importance are the corporate governance report, directors' report, remuneration report and the independent audit report.

Consolidating international financial statements

So far, we've discussed financial statements involving only one currency, the Australian dollar. The issue of how to consolidate a company's foreign and domestic financial statements has bedevilled the accounting profession for many years. Current policy mandates that companies translate their foreign-currency-denominated assets and liabilities into dollars, for consolidation with the parent company's financial statements. This is done by using a technique called the **current rate (translation) method**, under which all the parent company's foreign-currency-denominated assets and liabilities are converted into dollar values using the exchange rate prevailing at the financial year ending date (the current rate). Income statement items are treated similarly. Equity accounts, on the other hand, are translated into dollars by using the exchange rate that prevailed when the parent's equity investment was made (the historical rate). Retained earnings are adjusted to reflect each year's operating profits or losses. Further details on this procedure can be found on the book's website at <www.pearson.com.au/myfinancelab> or in a corporate accounting text.

current rate (translation) method

Technique used by companies to translate their foreign-currency-denominated assets and liabilities into dollars, for consolidation with the parent company's financial statements, using the exchange rate prevailing at the financial year ending date (the current rate).

FOCUS ON PRACTICE

Fair value accounting—fair?

Fair value accounting or asset impairment accounting has been introduced to financial reports. In Australia and elsewhere companies now have regular independent value comparisons of their assets with the value they would fetch if sold in the market. Any unrealised value loss is charged to profit. In the turbulent periods of 2008–2009 many companies earned little profit after absorbing these unrealised value losses. Both profits and balance sheets (and equity) have nosed-dived. Companies wiped off millions or even billions in 2008–2009—for example, Leighton wiped off \$239 million, Westfield \$3 billion and Lend Lease \$290 million. And consequently dividends are cut with these profit slumps. Of course, companies can show profits, before impairment write-downs. Impairment accounting does have a positive side. It forces companies to emphasise their cash flow performance rather than profit, and sizeable write-downs could indicate past poor purchasing decisions and inefficient asset utilisation by companies. Continuing corporate lobbying to modify impairment accounting can be expected here and elsewhere.

- Check out the AASB website for changes to impairment accounting.

Review questions

- 2-1 Describe the purpose of each of the three main financial statements and indicate the significance of AIFRSs.
- 2-2 Why are the notes to the financial statements important to professional securities analysts?
- 2-3 What are the effects of accounting for asset impairment?

2.2 Using financial ratios

The information contained in financial statements is of major significance to shareholders, creditors and managers, all of whom regularly need to have relative measures of the company's operating efficiency and condition. *Relative* is the key word here, since the analysis of financial statements is based on the knowledge and use of *ratios* or *relative values*. **Ratio analysis** involves the methods of calculating and interpreting financial ratios in order to assess the firm's performance and status. The basic inputs to ratio analysis are the firm's income statement and balance sheet for the periods to be examined.

Interested parties

Ratio analysis of a firm's financial statements is of interest to shareholders, creditors and the firm's own management. Both present and prospective shareholders are interested in the firm's current and future level of risk and return, which directly affect share price. The firm's creditors are primarily interested in the short-term liquidity of the company and in its ability to make interest and principal payments. A secondary concern of creditors is the firm's profitability; they want assurance that the business is healthy and will continue to be successful. Management, like shareholders, must be concerned with all aspects of the firm's financial situation. Thus, it attempts to operate in a manner that will result in financial ratios that will be considered favourable by both owners and creditors. In addition, management uses ratios to monitor the firm's performance from period to period.

Types of ratio comparisons

Ratio analysis does not merely involve the application of a formula to financial data in order to calculate a given ratio. More important is the *interpretation* of the ratio value. To answer the

learning goal 2

ratio analysis

Involves the methods of calculating and interpreting financial ratios in order to assess the firm's performance.

Hint

Management should be the most interested party of this group. They not only have to worry about the financial situation of the firm, but are also critically interested in what these other interest groups think about the firm.

questions—Is the value too high or too low? Is it good or bad?—a meaningful standard or basis for comparison is needed. Two types of ratio comparisons can be made: cross-sectional and time-series.

Cross-sectional analysis

cross-sectional analysis

The comparison of different firms' financial ratios at the same point in time; it involves comparing the firm's ratios to those of an industry leader or to industry averages.

benchmarking

A type of cross-sectional analysis in which the firm's ratio values are compared to those of a key competitor or group of competitors, primarily to isolate areas of opportunity for improvement.

Cross-sectional analysis involves the comparison of different firms' financial ratios at the same point in time. The typical business is interested in how well it has performed in relation to its competitors. (If the competitors are also companies, their reported financial statements should be available for analysis.) Frequently, a firm will compare its ratio values to those of a key competitor or group of competitors that it wishes to emulate. This type of cross-sectional analysis, called **benchmarking**, has become very popular in recent years. By comparing its ratios to those of the *benchmark company* (or *companies*), a firm can isolate areas in which it excels and, more importantly, isolate areas of opportunity for improvement. Another popular type of comparison is with industry averages. These figures and those of individual firms can be found in *Market Comparative Analysis* (Australian Securities Exchange), *Smart Investor*, *Business Review Weekly* (Top 1000), Dun and Bradstreet and other sources such as industry association publications.¹ A valuable source of comparative analysis are the expert reports that are issued when mergers, acquisitions and flotations of companies take place. Table 2.4 shows comparative analysis from Dun & Bradstreet.

Many people mistakenly believe that, in the case of ratios for which higher values are preferred, as long as the firm being analysed has a value in excess of the industry average, it can be viewed favourably. However, this 'bigger is better' viewpoint can be misleading. Quite often a ratio value that has a large but positive deviation from the norm can be indicative of problems. On more careful analysis, these problems may turn out to be more severe than if the ratio had been below the industry average. It is therefore important for the analyst to investigate significant *deviations to either side* of the industry standard.

table 2.4

Industry average ratios for selected lines of business^a

Line of business (number of concerns reporting) ^b	Current ratio (X)	Quick ratio (X)	Sales to inventory (X)	Collection period (days)	Total assets to sales (%)	Total liabilities to net worth (%)	Return on sales (%)	Return on total assets (%)	Return on net worth (%)
Department stores (143)	4.9	1.4	6.6	1.8	32.0	25.1	2.8	6.8	16.2
	2.6	0.6	4.6	6.1	43.8	76.6	1.0	2.3	4.5
	1.6	0.2	3.5	21.2	64.9	176.9	0.1	0.1	0.2
Electronic computers (76)	2.3	1.5	31.6	27.4	24.6	54.3	3.4	7.3	20.6
	1.6	0.9	11.3	40.9	58.9	114.3	0.5	1.3	4.6
	1.2	0.7	6.8	68.5	104.1	238.3	(9.7)	(10.4)	(20.6)
Grocery stores (455)	2.6	1.0	29.6	1.1	15.3	48.5	2.2	9.4	24.8
	1.6	0.5	19.6	2.9	21.3	105.2	1.0	4.4	10.0
	1.1	0.2	13.9	6.9	31.2	277.3	0.3	1.4	3.5
Motor vehicles (42)	2.9	1.1	11.4	16.1	27.8	56.4	4.2	10.3	26.9
	1.7	0.7	8.3	24.1	37.4	150.8	1.5	4.1	9.6
	1.2	0.5	5.5	40.5	47.3	357.2	0.2	0.8	1.2

^a These values are given for each ratio for each line of business. The centre value is the median, and the values immediately above and below it are the upper and lower quartiles, respectively.

^b Standard Industrial Classification (SIC) codes for the lines of business shown are, respectively: SIC #5311, SIC #3571, SIC #5411, SIC #3711.

Source: 'Industry Norms and Key Business Ratios', Dun & Bradstreet, Inc., 2009. © Dun & Bradstreet. Reprinted with permission.

In early 2010 Mary Boyle, the chief financial analyst at **Caldwell Manufacturing**—a manufacturer of heat exchangers—gathered data on the firm’s financial performance during 2010, the year just ended. She calculated a variety of ratios and obtained industry averages for use in making comparisons. One ratio she was especially interested in was inventory turnover, which reflects the speed with which the firm moves its inventory from raw materials through production into finished goods and to the customer as a completed sale. Generally, higher values of this ratio are preferred, since they indicate a quicker turnover of inventory. Caldwell Manufacturing’s calculated inventory turnover for 2010 and the industry average inventory turnover are shown below.

example

Hint

Industry averages are not particularly useful when analysing firms with multi-product lines. In the case of multi-product firms, it is difficult to select the appropriate benchmark industry.

Inventory turnover, 2010	
Caldwell Manufacturing	14.8
Industry average	9.7

Mary’s initial reaction to these data was that the firm had managed its inventory significantly better than the average firm in the industry. The turnover was in fact nearly 53% faster than the industry average. On reflection, however, she felt there could be a problem, since a very high inventory turnover could also mean very low levels of inventory. In turn, the consequence of low inventory could be excessive stockouts (insufficient inventory). Mary’s review of other ratios and discussions with people in the manufacturing and marketing departments did, in fact, uncover such a problem. The firm’s inventories during the year were extremely low as a result of numerous production delays that hindered its ability to meet demand and resulted in lost sales. What had initially appeared to reflect extremely efficient inventory management was actually the symptom of a major problem.

Time-series analysis

Time-series analysis is applied when a financial analyst evaluates performance over time. Comparison of current with past performance, using ratio analysis, allows the firm to determine whether it is progressing as planned. Developing trends can be seen by using multi-year comparisons. As in cross-sectional analysis, any significant year-to-year changes can be evaluated to assess whether they are symptomatic of a major problem.

time-series analysis
Evaluation of the firm’s financial performance over time, utilising financial ratio analysis.

Combined analysis

The most informative approach to ratio analysis is one that combines cross-sectional and time-series analyses. A combined view permits assessment of the trend in the behaviour of the ratio in

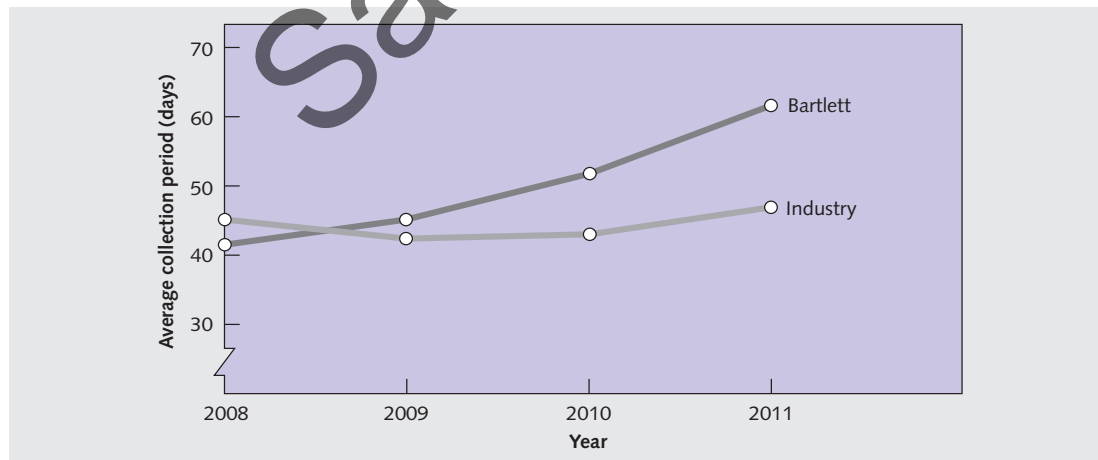


Figure 2.1 Combined cross-sectional and time-series view of Bartlett Company’s average collection period, 2008–11

relation to the trend for the industry. Figure 2.1 depicts this type of approach using the average collection period ratio of Bartlett Company, a manufacturer, over the years 2008–11. Generally, lower values of this ratio, which reflects the average amount of time it takes the firm to collect bills, are preferred. A look at the figure quickly discloses that (1) Bartlett’s effectiveness in collecting its receivables is poor in comparison with the industry average, and (2) there is a trend towards longer collection periods. Clearly, Bartlett needs to shorten its collection period.

Cautions about using ratio analysis

Before discussing specific ratios, we should consider the following cautions about their use.

- 1 Ratios with large deviations from the norm only indicate *symptoms* of a problem. Additional analysis is typically needed to isolate the *causes* of the problem. The fundamental point is this: ratio analysis merely directs attention to potential areas of concern; it does not provide conclusive evidence as to the existence of a problem.
- 2 A single ratio does not generally provide sufficient information from which to judge the *overall* performance of the firm. Only when a group of ratios is used can reasonable judgments be made. However, if an analysis is concerned only with certain *specific* aspects of a firm’s financial position, one or two ratios may be sufficient.
- 3 The ratios being compared should be calculated using financial statements dated at the same point in time during the year. If they are not, the effects of *seasonality* may produce erroneous conclusions and decisions. For example, comparison of the inventory turnover of a toy manufacturer at the end of June with its end-of-December value can be misleading. Clearly, the seasonal impact of the December holiday selling season would skew any comparison of the firm’s inventory management.
- 4 It is preferable to use *audited financial statements* for ratio analysis. If the statements have not been audited, the data contained in them may not reflect the firm’s true financial condition.
- 5 The financial data being compared should have been developed in the same way. The use of differing accounting treatments—especially relative to inventory and depreciation—can distort the results of ratio analysis, regardless of whether cross-sectional or time-series analysis is used. And inconsistency in practice (e.g. impairment value write-downs) can distort results dramatically.
- 6 Results can be distorted by *inflation* and *deflation*, which can cause the book values of inventory and depreciable assets to differ greatly from their true (replacement) values. Additionally, inventory costs and depreciation write-offs can differ from their true values, thereby distorting profits. Without adjustment, inflation, for example, tends to cause older firms (older assets) to appear more efficient and profitable than newer firms (newer assets). Clearly, in using ratios, care must be taken when comparing older firms with newer firms or a firm with itself over a long period of time.

Categories of financial ratios

Financial ratios can be divided into five basic categories: liquidity ratios, activity ratios, debt ratios, profitability ratios and market ratios. Liquidity, activity and debt ratios primarily measure risk; profitability ratios measure return. Market ratios capture both risk and return.

As a rule, the necessary inputs to an effective financial analysis include, at a minimum, the income statement and the balance sheet. We use the 2010 and 2011 financial statements for Bartlett Company, presented earlier in Tables 2.1 and 2.2, to demonstrate ratio calculations. Note that the ratios presented in the remainder of this chapter are ‘conventional’ ratios that can be applied to nearly any company. Of course, many companies in different industries use ratios that focus on aspects peculiar to their industry.



To test your mastery of the content covered in this chapter and to create your own personalised study plan go to <www.pearson.com.au/myfinancelab>.

Summary

Focus on value

Financial managers review and analyse the firm's financial statements periodically, both to uncover developing problems and to assess the firm's progress towards achieving its goals. These actions are aimed at **preserving and creating value for the firm's owners**. Financial ratios enable financial managers to monitor the pulse of the firm and its progress towards its strategic goals. Although financial statements and financial ratios rely on accrual concepts, they can provide useful insights into important aspects of risk and return (cash flow) that affect share price.

Review of learning goals

learning goal 1 **Review the contents of the shareholders' report and the procedures for consolidating international financial statements.** The annual shareholders' report, which publicly owned companies are required to provide to shareholders, documents the firm's financial activities during the past year. It includes the chairman's report and various subjective and factual information, as well as three key financial statements: the income statement, the balance sheet and the cash flow statement. Notes describing the technical aspects of the financial statements follow them, accompanied by various reports. Financial statements of companies that have operations whose cash flows are denominated in one or more foreign currencies must be translated into Australian dollars.

learning goal 2 **Understand who uses financial ratios, and how.** Ratio analysis enables present and prospective shareholders and lenders and the firm's management to evaluate the firm's financial performance. It can be performed on a cross-sectional or a time-series basis. Benchmarking is a popular type of cross-sectional analysis. Users of ratios should understand the cautions that apply to their use.

learning goal 3 **Use ratios to analyse a firm's liquidity and activity.** Liquidity, or ability of the firm to pay its bills as they come due, can be measured by the current ratio and the quick (acid-test) ratio. Activity ratios measure the speed with which accounts are converted into sales or cash—inflows or outflows. The activity of inventory can be measured by its turnover, that of accounts receivable by the average collection period, and that of accounts payable by the average payment period. Total asset turnover measures the efficiency with which the firm uses its assets to

generate sales. Formulas for these liquidity and activity ratios are summarised in Table 2.7.

learning goal 4 **Discuss the relationship between debt and financial leverage and the ratios used to analyse a firm's debt.** The more debt a firm uses, the greater its financial leverage, which magnifies both risk and return. Financial debt ratios measure both the degree of indebtedness and the ability to service debts. A common measure of indebtedness is the debt ratio. The ability to pay fixed charges can be measured by times interest earned and fixed-payment coverage ratios.

learning goal 5 **Use ratios to analyse a firm's profitability, its market value and cash adequacy.** The common-size income statement, which shows all items as a percentage of sales, can be used to determine gross profit margin, operating profit margin and net profit margin. Other measures of profitability include earnings per share, return on total assets and return on common equity. Market ratios include the price/earnings ratio and the market/book ratio. Cash ratios include coverage ratios to assess cash adequacy for expenses and liabilities.

learning goal 6 **Use a summary of financial ratios and the DuPont system of analysis to perform a complete ratio analysis.** A summary of all ratios—liquidity, activity, debt, profitability and market—as shown in Table 2.7 can be used to perform a complete ratio analysis using cross-sectional and time-series analysis approaches. The DuPont system of analysis, summarised in Figure 2.2, is a diagnostic tool used to find the key areas responsible for the firm's financial performance. It enables the firm to break the return on common equity into three components: profit on sales, efficiency of asset use and use of leverage.

Self-test problems

(Solutions are on MyFinanceLab <www.pearson.com.au/myfinancelab>)

ST2-1 (Ratio formulas and interpretations) Without referring to the text, indicate for each of the following ratios the formula for its calculation and the kinds of problems, if any, the firm is likely to be having if these ratios are too high relative to the industry average. What if they are too low relative to the industry? Create a table similar to that shown below and fill in the empty blocks.

Ratio	Too high	Too low
Current ratio =		
Inventory turnover =		
Times interest earned =		
Gross profit margin =		
Return on total assets =		

ST2-2 (Balance sheet completion using ratios) Complete the 2011 balance sheet for O'Keefe Industries using the information that follows it.

Balance sheet O'Keefe Industries 31 December 2011			
Cash	\$30 000	Accounts payable	\$120 000
Marketable securities	25 000	Notes payable	
Accounts receivable		Accruals	20 000
Inventories		Total current liabilities	
Total current assets		Non-current debt	
Net non-current assets		Shareholders' equity	600 000
Total assets		Total liabilities and shareholders' equity	

The following financial data for 2010 are also available:

- Sales totalled \$1.8 million.
- The gross profit margin was 25%.
- Inventory turnover was 6.0.
- There are 365 days in the year.
- The average collection period was 40 days.
- The current ratio was 1.60.
- The total asset turnover ratio was 1.20.
- The debt ratio was 60%.

learning goals 3

4 5

learning goals 3

4 5

Problems

learning goal 1

2-1 (Preparing income statement) Prepare a simple income statement using the accounts below.

E

	Accounts (\$000)
Depreciation	25
General and administrative expenses	22
Sales	345
Sales expenses	18
Cost of goods sold	255
Lease expense	4
Interest expense	3

- Arrange the accounts into a well-labelled income statement. Make sure you label and solve for gross profits, operating profits and net profits before taxes.
- Using a 35% tax rate, calculate taxes paid and net profit after taxes.
- Assuming a dividend of \$1.10 per share with 425 000 shares issued, calculate EPS.

learning goal 1

2-2 (Explaining statements) Explain why the income statement can also be called a 'profit and loss statement'. What exactly does the word 'balance' mean in the title of the balance sheet? Why do we balance the two halves?

E

learning goal 1

2-3 (Calculating retained earnings) Cooper Industries began 2011 with retained earnings of \$25.32 million. During the year it paid four quarterly dividends of \$0.35 per share to 2.75 million ordinary shareholders. Preference shareholders, holding 500 000 shares, were paid two semi-annual dividends of \$0.75 per share. The firm had a net profit after taxes of \$5.15 million. Calculate retained earnings for the year ended 31 December 2011.

E

learning goal 1

2-4 (Reviewing basic financial statements) The income statement for the year ended 31 December 2011, the balance sheets for 31 December 2011 and 2010 and a calculation of retained earnings for the year ended 31 December 2011 for Technica Limited are shown below. Briefly discuss the form and informational content of each of these statements.

M

**Income statement
Technica Limited
for the year ended 31 December 2011**

Sales revenue		\$600 000
Less Cost of goods sold		<u>460 000</u>
Gross profits		\$140 000
Less Operating expenses		
General and administrative expense	\$30 000	
Depreciation expense	30 000	
Total operating expenses		<u>60 000</u>
Operating profits		\$80 000
Less Interest expense		<u>10 000</u>
Net profits before taxes		\$70 000
Less Taxes		<u>27 100</u>
Earnings available for ordinary shareholders		<u>\$42 900</u>
Earnings per share		\$2.15

Balance sheets
Technica Limited

	31 December	
	2011	2010
<i>Assets</i>		
Cash	\$15 000	\$16 000
Marketable securities	7 200	8 000
Accounts receivable	34 100	42 200
Inventories	<u>82 000</u>	<u>50 000</u>
Total current assets	<u>\$138 300</u>	<u>\$116 200</u>
Land and buildings	\$150 000	\$150 000
Machinery and equipment	200 000	190 000
Furniture and fixtures	54 000	50 000
Other	<u>11 000</u>	<u>10 000</u>
Total non-current assets	\$415 000	\$400 000
Less Accumulated depreciation	<u>145 000</u>	<u>115 000</u>
Net non-current assets	<u>\$270 000</u>	<u>\$285 000</u>
Total assets	<u><u>\$408 300</u></u>	<u><u>\$401 200</u></u>
<i>Liabilities and shareholders' equity</i>		
Accounts payable	\$57 000	\$49 000
Notes payable	13 000	16 000
Accruals	<u>5 000</u>	<u>6 000</u>
Total current liabilities	<u>\$75 000</u>	<u>\$71 000</u>
Non-current debt	<u>\$150 000</u>	<u>\$160 000</u>
<i>Shareholders' equity</i>		
Ordinary share equity (20 000 shares issued)	\$120 000	\$120 000
Retained earnings	<u>63 300</u>	<u>50 200</u>
Total shareholders' equity	<u>\$183 300</u>	<u>\$170 200</u>
Total liabilities and shareholders' equity	<u><u>\$408 300</u></u>	<u><u>\$401 200</u></u>

Retained earnings
Technica Limited
for the year ended 31 December 2011

Retained earnings balance (1 January 2011)	\$50 200
Plus Net profits after taxes (for 2011)	42 900
Less Cash dividends (paid during 2011)	<u>(29 800)</u>
Retained earnings balance (31 December 2011)	<u><u>\$63 300</u></u>

learning goal 1

2-5 (Financial statement account identification) Mark each of the accounts listed in the table below as follows:

- a** In column (1) indicate in which statement—income statement (IS) or balance sheet (BS)—the account belongs.
- b** In column (2) indicate whether the account is a current asset (CA), current liability (CL), expense (E), non-current asset (NA), non-current debt (ND), revenue (R) or shareholders' equity (SE).

Account name	(1) Statement	(2) Type of account
Accounts payable	_____	_____
Accounts receivable	_____	_____
Accruals	_____	_____
Accumulated depreciation	_____	_____
Administrative expense	_____	_____
Buildings	_____	_____
Cash	_____	_____
Cost of goods sold	_____	_____
Depreciation	_____	_____
Equipment	_____	_____
General expense	_____	_____
Interest expense	_____	_____
Inventories	_____	_____
Land	_____	_____
Non-current debts	_____	_____
Machinery	_____	_____
Marketable securities	_____	_____
Notes payable	_____	_____
Operating expense	_____	_____
Ordinary shares	_____	_____
Preference shares	_____	_____
Preference share dividends	_____	_____
Retained earnings	_____	_____
Sales revenue	_____	_____
Selling expense	_____	_____
Taxes	_____	_____
Vehicles	_____	_____

learning goal 1

2-6 (Income statement preparation) Cathy Chen, a self-employed certified public accountant (CPA), completed her first full year in business on 31 December 2011. During the year she billed \$160 000 in business. She had two employees, a bookkeeper and a clerical assistant. In addition to her *monthly salary* of \$3500, she paid annual salaries of \$22 000 and \$16 000, respectively, to the bookkeeper and the clerical assistant. Employment taxes and benefit costs for health insurance, etc. for Cathy and her employees totalled \$15 800 for the year. Expenses for office supplies, including postage, totalled \$4800 for the year. In addition, Cathy spent \$7500 on travel and entertainment associated with client visits and new business development. Lease payments for the office space rented (a tax-deductible expense) were \$1250 *per month*. Depreciation expense on the office furniture and fixtures was \$7200 for the year. During the year, Cathy paid interest of \$7500 on the \$55 000 borrowed to start the business. She paid an average tax rate of 30% during 2011.

- a** Prepare an income statement for Cathy Chen, CPA, for the year ended 31 December 2011.
- b** How much cash flow from operations did Cathy realise during 2011?
- c** Evaluate her 2011 financial performance.

Personal finance problem

2-7 (Income statement preparation) Adam and Arin Adams have collected their personal income and expense information and have asked you to put together an income and expense statement for the year ended 31 December 2011. The following information is received from the Adams family.

M

Adam's salary	\$45 000	Utilities	\$ 3 200
Arin's salary	30 000	Groceries	2 200
Interest received	500	Medical	1 500
Dividends received	150	Rates	1 659
Car insurance	600	Income tax	13 000
Home insurance	750	Clothes & accessories	2 000
Car payment	3 300	Petrol	2 100
Mortgage payment	14 000	Entertainment	2 000

- a Create a personal *income and expense statement* for the period ended 31 December 2011.
- b Did the Adams family have a cash surplus or cash deficit?

2-8 (Calculation of earnings per share and retained earnings) Philagem Limited ended 2011 with net profits *before taxes* of \$218 000. The company is subject to a 40% tax rate and must pay \$32 000 in preference dividends prior to distributing any earnings on the 85 000 ordinary shares currently issued.

E

- a Calculate Philagem's 2011 earnings per share (EPS).
- b If the firm paid ordinary share dividends of \$0.80 per share, how many dollars would go to retained earnings?

2-9 (Balance sheet preparation) Use the *appropriate items* from those listed below to prepare in good form Owen Davis Company's balance sheet at 31 December 2011.

M

learning goal 1

learning goal 1

Item	Value (\$000) at 31 December 2011
Accounts payable	\$220
Accounts receivable	450
Accruals	55
Accumulated depreciation	265
Buildings	225
Cash	215
Cost of goods sold	2500
Depreciation expense	45
Equipment	140
Furniture and fixtures	170
General expense	320
Inventories	375
Land	100
Non-current debts	420
Machinery	420
Marketable securities	75
Notes payable	475
Ordinary shares	450
Preference shares	100
Retained earnings	210
Sales revenue	3600
Vehicles	25

2-10 (Impact of net income on a firm's balance sheet) Conrad Air Limited reported net income of \$1 365 000 for the year ended 31 December 2011. Show the effect of these funds on the firm's balance sheet (given overleaf) in each of the following scenarios.

C

learning goal 1

Balance sheet (\$000) Conrad Air Limited 31 December 2011			
<i>Assets</i>		<i>Liabilities and shareholders' equity</i>	
Cash	\$120	Accounts payable	\$70
Marketable securities	35	Short-term notes	<u>55</u>
Accounts receivable	45	Current liabilities	125
Inventories	<u>130</u>	Non-current debt	<u>2700</u>
Current assets	<u>\$330</u>	Total liabilities	<u>\$2825</u>
Equipment	\$2970	Ordinary shares	\$500
Buildings	<u>1600</u>	Retained earnings	<u>1575</u>
Non-current assets	<u>\$4570</u>	Shareholders' equity	<u>\$2075</u>
Total assets	<u>\$4900</u>	Total liabilities and equity	<u>\$4900</u>

- a Conrad paid no dividends during the year and invested the funds in marketable securities.
- b Conrad paid dividends totalling \$500 000 and used the balance of the net income to retire (pay off) long-term debt.
- c Conrad paid dividends totalling \$500 000 and invested the balance of the net income in building a new hangar.
- d Conrad paid out the whole \$1 365 000 as dividends to its shareholders.

Personal finance problem

learning goal 1

2-11 (Balance sheet preparation) Adam and Ann Adams have collected their personal asset and liability information and have asked you to put together a balance sheet as of 31 December 2011. The following information is received from the Adams family.

M

Cash	\$ 300	Super fund	\$ 2 000
Cheque a/c	3 000	2008 Holden	15 000
Savings	1 200	2007 Toyota	8 000
IBM shares	2 000	Money market funds	1 200
Car loan	8 000	Jewellery & artwork	3 000
Mortgage	100 000	Net worth	76 500
Medical bills payable	250	Household furnishings	4 200
Utility bills payable	150	Credit card balance due	2 000
Real estate	150 000	Personal loan	3 000

- a Create a personal balance sheet as of 31 December 2011. It should be similar to a corporate balance sheet.
- b What must the total assets of the Adams family be equal to by 31 December 2011?

learning goal 1

2-12 (Financial statement preparation) The balance sheet for Rogers Industries for 31 December 2010 is given below. Information relevant to Rogers Industries' 2011 operations is given following the balance sheet. Using the data presented:

M

- a Prepare an income statement for Rogers Industries for the year ended 31 December 2011. Be sure to show EPS.
- b Prepare a balance sheet for Rogers Industries for 31 December 2011.

Balance sheet (\$000)			
Rogers Industries			
31 December 2010			
<i>Assets</i>		<i>Liabilities and shareholders' equity</i>	
Cash	\$40	Accounts payable	\$50
Marketable securities	10	Notes payable	80
Accounts receivable	80	Accruals	<u>10</u>
Inventories	<u>100</u>	Total current liabilities	<u>\$140</u>
Total current assets	<u>\$230</u>	Non-current debt	<u>\$270</u>
Non-current assets	\$890	Preference shares	40
Less Accumulated depreciation	<u>240</u>	Ordinary shares	
Net non-current assets	<u>\$650</u>	(80 000 shares)	320
Total assets	<u>\$880</u>	Retained earnings	<u>110</u>
		Total shareholders' equity	<u>\$470</u>
		Total liabilities	
		and shareholders' equity	<u>\$880</u>

Relevant information	
Rogers Industries	
1	Sales in 2011 were \$1.2 million.
2	Cost of goods sold equals 60% of sales.
3	Operating expenses equal 15% of sales.
4	Interest expense is 10% of the total beginning balance of notes payable and non-current debts.
5	The firm pays 40% taxes on ordinary income.
6	Preference dividends of \$4000 were paid in 2011.
7	Cash and marketable securities are unchanged.
8	Accounts receivable equals 8% of sales.
9	Inventory equals 10% of sales.
10	The firm acquired \$30 000 of additional non-current assets in 2011.
11	Total depreciation expense in 2011 was \$20 000.
12	Accounts payable equals 5% of sales.
13	Notes payable, non-current debt, preference shares and ordinary shares remain unchanged.
14	Accruals are unchanged.
15	Cash dividends of \$119 000 were paid to ordinary shareholders in 2011.

- 2-13 (Calculating retained earnings)** Hayes Enterprises began 2011 with a retained earnings balance of \$928 000. During 2011 the firm earned \$377 000 after taxes. From this amount, preference shareholders were paid \$47 000 in dividends. At year-end 2011 the firm's retained earnings totalled \$1 048 000. The firm had 140 000 ordinary shares during 2011.
- a Calculate retained earnings for the year ended 31 December 2011 for Hayes Enterprises. (Note: Be sure to calculate and include the amount of ordinary dividends paid in 2011.)
 - b Calculate the firm's 2011 EPS.
 - c How large a per share cash dividend did the firm pay on ordinary shares during 2011?

learning goal 1

Personal finance problem

- 2-14 (Ratio comparisons)** Blue Metals is a metal fabrication firm which manufactures prefabricated metal parts for customers in a variety of industries. The CEO of Blue recently held a board meeting during which he extolled the virtues of the corporation. The company, he stated confidently, had the

learning goal 3

capability to build any product and could do so using a lean manufacturing model. The firm would soon be profitable, claimed the CEO, because the company used state of the art technology to build a variety of products while keeping inventory levels low. As a business press reporter, you have calculated some ratios to analyse the financial health of the firm. Blue's current ratios and quick ratios for the past six years are shown in the table below.

	2006	2007	2008	2009	2010	2011
Current ratio	1.2	1.4	1.3	1.6	1.8	2.2
Quick ratio	1.1	1.3	1.2	0.8	0.6	0.4

What do you think of the CEO's claim that the firm is lean and soon to be profitable? (*Hint: Is there a possible warning sign in the relationship between the two ratios?*)

learning goals 2
3 4
5

2-15 (Ratio comparisons) Roger recently inherited a share portfolio from his uncle. Wishing to learn more about the companies that he now has investments in, Roger performs a ratio analysis on each one and decides to compare them with each other. Some of his ratios are listed.

	Energy Electric	Burger Heaven	Fink Software	Roland Motors
Current ratio	1.10	1.3	6.8	4.5
Quick ratio	0.90	0.82	5.2	3.7
Debt ratio	0.68	0.46	0	0.35
Net profit margin	6.2%	14.3%	28.5%	8.4%

Assuming that his uncle was a wise investor who assembled the portfolio with care, Roger finds the wide differences in these ratios confusing. Help him out.

- What problems might Roger encounter in comparing these companies with one another on the basis of their ratios?
- Why might the current and quick ratios for the electricity and the fast-food shares be so much lower than the same ratios for the other companies?
- Why might it be all right for the electricity firm to carry a large amount of debt, but the same not be true for the software company?
- Why wouldn't investors invest all their money in software companies instead of less profitable companies? (Focus on risk and reward.)

learning goal 3

2-16 (Liquidity management) Bauman Company's total current assets, net working capital and inventory for each of the past four years are given below.

Item	2008	2009	2010	2011
Total current assets	\$16 950	\$21 900	\$22 500	\$27 000
Net working capital	7 950	9 300	9 900	9 600
Inventory	6 000	6 900	6 900	7 200

- Calculate the firm's current and quick ratios for each year. Compare the resulting time series of each measure of liquidity (i.e. net working capital, the current ratio and the quick ratio).
- Comment on the firm's liquidity over the 2008–2011 period.
- If you were told that Bauman Company's inventory turnover for each year in the 2008–2011 period and the industry averages were as follows, would this support or conflict with your evaluation in part **b**? Why?

Inventory turnover	2008	2009	2010	2011
Bauman Company	6.3	6.8	7.0	6.4
Industry average	10.6	11.2	10.8	11.0

2-17 (Liquidity management) Gulf's total current assets, net working capital and inventory for each of the past five years are as follows:

learning goal 3

Financial statement item	2007	2008	2009	2010	2011
Total current assets	\$27 000	\$24 000	\$22 000	\$17 000	\$16 500
Net working capital	9 600	9 900	9 300	7 950	7 550
Inventory	7 200	6 900	6 900	6 000	6 100

- a Calculate the firm's liquidity ratios for each year. Compare the resulting time-series of each measure of liquidity (i.e. current ratio and quick ratio).
- b Comment on the firm's liquidity over the period.
- c Do the following inventory turnover ratios for Gulf each year in the period and the industry average support or conflict with your evaluation in part b? Why?

Inventory turnover rates	2007	2008	2009	2010	2011
Gulf	11.1	10.8	11.2	10.6	10.8
Industry average	6.4	7.0	6.8	6.3	6.1

2-18 (Inventory management) Ello Manufacturing has sales of \$4 million and a gross profit margin of 40%. Its *end-of-quarter inventories* are as follows:

learning goal 3

Quarter	Inventory
1	\$400 000
2	800 000
3	1 200 000
4	200 000

- a Find the average quarterly inventory and use it to calculate the firm's inventory turnover and the average age of inventory.
- b Assuming the company is in an industry with an average inventory turnover of 2.0, how would you evaluate the activity of Ello's inventory?

Personal finance problem

2-19 (Accounts receivable management) An evaluation of the books of Bill's Supplies, shown in the following table, gives the end-of-year accounts receivable balance, which is believed to consist of amounts originating in the months indicated. Bill had annual sales of \$2.4 million. He grants 30-day credit terms.

learning goal 3

Month of origin	Accounts receivable
July	\$3 875
August	2 000
September	34 025
October	15 100
November	52 000
December	193 000
Year-end accounts receivable	<u>\$300 000</u>

- a Use the year-end total to evaluate Bill's collection system.
- b If the peak selling season is from July to December, would this affect the validity of your conclusion above? Explain.