

# Chapter 2

## Financial statements and analysis

### ■ Instructor's resources

#### Overview

This chapter examines four key components of the shareholders' report: the statement of comprehensive income, statement of financial position, statement of retained earnings, and the statement of cash flows. On the statement of comprehensive income and statement of financial position, the major accounts/balances are reviewed for the student. The rules for consolidating a company's foreign and domestic financial statements (FASB No. 52) are described. Following the financial statement coverage the chapter covers the evaluation of financial statements using the technique of ratio analysis. Ratio analysis is used by prospective shareholders, creditors, and the firm's own management to measure the firm's operating and financial health. Three types of comparative analysis are defined: cross-sectional analysis, time-series analysis and combined analysis. The ratios are divided into five basic categories: liquidity, activity, debt, profitability, and market. Each ratio is defined and calculated using the financial statements of the Bartlett Company. A brief explanation of the implications of deviation from industry standard ratios is offered, with a complete (cross-sectional and time-series) ratio analysis of Bartlett Company ending the chapter. The DuPont system of analysis is also integrated into the example. The importance of understanding financial statements is highlighted through discussions of how such knowledge will help the student be a more efficient business manager and more effectively make personal financial decisions.

#### Study Guide

Suggested **Study Guide** examples for classroom presentation:

Example	Topic
1	Basic ratio calculation
2	Ordinary-size Statement of Comprehensive Income
3	Evaluating ratios

### ■ Suggested answer to chapter opening critical thinking question

**What are the benefits of having no long-term debt? Are there any negatives?**

A company with zero debt has the capacity to obtain debt financing to expand current operations or pursue new strategies. Zero debt also allows a company to take on debt, if necessary, during a downturn in the business cycle.

On the other hand, by not maintaining long-term debt in its capital structure, a company has not established any credit history. Thus, carrying some debt allows the lender to evaluate a company's ability to make timely payments and allows the company management team to establish a working relationship with the lender. In addition, a pure-equity capital structure normally does not provide the most optimal capital

structure. Having some debt financing is less expensive than all-equity financing due to the tax advantages of debt financing.

## ■ Answers to Review Questions

1. The role of the Accounting Practices Board (APB) in the financial reporting of businesses is highly significant. The general accepted accounting standards that firms must comply with and the procedures in monitoring those standards are referred to as generally accepted accounting procedures (GAAP) and are established primarily by the APB. Both the process of monitoring the accountants and the use of GAAP in financial reporting are necessary to restore and maintain public confidence in the financial information distributed to the public.

2. The purpose of each of the four major financial statements are:

*Statement of Comprehensive Income* – The purpose of the statement of comprehensive income is to provide a financial summary of the firm’s operating results during a specified time period. It includes both the sales for the firm and the costs incurred in generating those sales. Other expenses, such as taxes, are also included on this statement.

*Statement of Financial Position* – The purpose of the statement of financial position is to present a summary of the assets owned by the firm, the liabilities owed by the firm, and the net financial position of the owners as of a given point in time. The assets are often referred to as investments and the liabilities and owner’s equity as financing.

*Statement of changes in equity* – This statement reconciles the net income earned during the year, and any cash dividends paid, with the change in retained earnings during the year.

*Statement of Cash Flows* – This statement provides a summary of the cash inflows and the cash outflows experienced by the firm during the period of concern. The inflows and outflows are grouped into the cash flow areas of operations, investment, and financing.

3. The notes to the financial statements are important because they provide detailed information not directly available in the financial statements. The footnotes provide information on accounting policies, procedures, calculation, and transactions underlying entries in the financial statements.
5. Current and prospective shareholders place primary emphasis on the firm’s current and future level of risk and return as measures of profitability, while creditors are more concerned with short-term liquidity measures of debt. Shareholders are, therefore, most interested in statement of comprehensive income measures, and creditors are most concerned with statement of financial position measures. Management is concerned with all ratio measures, since they recognise that shareholders and creditors must see good ratios in order to keep the share price up and raise new funds.

6. *Cross-sectional* comparisons are made by comparing similar ratios for firms within the same industry, or to an industry average, as of some point in time. *Time-series* comparisons are made by comparing similar ratios for a firm measured at various points in time. *Benchmarking* is the term used to describe this cross-sectional comparison with competitor firms.
7. The analyst should devote primary attention to any significant deviations from the norm, whether above or below. Positive deviations from the norm are not necessarily favourable. An above-normal inventory turnover ratio may indicate highly efficient inventory management but may also reveal excessively low inventory levels resulting in stockouts. Further examination into the deviation would be required.
8. Comparing financial statements from different points in the year can result in inaccurate and misleading analysis due to the effects of seasonality. Levels of current assets can fluctuate significantly, depending on a company's business, so statements from the same month or year-end should be used in the analysis to ensure valid comparisons of performance.
9. The current ratio proves to be the better liquidity measure when all of the firm's current assets are reasonably liquid. The quick ratio would prove to be the superior measure if the inventory of the firm is considered to lack the ability to be easily converted into cash.
10. Additional information is necessary to assess how well a firm collects receivables and meets payables. The average collection period of receivables should be compared to a firm's own credit terms. The average payment period should be compared to the creditors' credit terms.
11. *Financial leverage* is the term used to describe the magnification of risk and return introduced through the use of fixed-cost financing, such as debt and preference share.
12. The debt ratio and the debt-equity ratio may be used to measure the firm's degree of indebtedness. The times-interest-earned and the fixed-payment coverage ratios can be used to assess the firm's ability to meet fixed payments associated with debt.
13. Three ratios of profitability found on a ordinary-size statement of comprehensive income are: (1) the gross profit margin, (2) the operating profit margin, and (3) the net profit margin.
14. Firms that have high gross profit margins and low net profit margins have high levels of expenses other than cost of goods sold. In this case, the high expenses more than compensate for the low cost of goods sold (i.e., high gross profit margin) thereby resulting in a low net profit margin.
15. The owners are probably most interested in the *return on equity (ROE)* since it indicates the rate of return they earn on their investment in the firm. ROE is calculated by taking earnings available to ordinary shareholders and dividing by shareholders' equity.
16. The *price-earnings ratio (P/E)* is the market price per share of ordinary share divided by the earnings per share. It indicates the amount the investor is willing to pay for each rand of earnings. It is used to assess the owner's appraisal of the value of the firm's earnings. The level of the *P/E* ratio indicates the degree of confidence that investors have in the firm's future. The *market/book (M/B)* ratio is the market price per of ordinary share divided by the firm's book value per share. Firms with high *M/B* ratios are expected to perform better than firms with lower relative *M/B* values.

17. *Liquidity ratios* measure how well the firm can meet its current (short-term) obligations when they come due.
- Activity ratios* are used to measure the speed with which various accounts are converted (or could be converted) into cash or sales.
- Debt ratios* measure how much of the firm is financed with other people's money and the firm's ability to meet fixed charges.
- Profitability ratios* measure a firm's return with respect to sales, assets, or equity.
- Market ratios* give insight into how well investors in the marketplace feel the firm is doing in terms of return and risk.
- The liquidity and debt ratios are most important to present any prospective creditors.
18. The analyst may approach a complete ratio analysis on either a cross-sectional or time-series basis by summarising the ratios into their five key areas: liquidity, activity, debt, profitability, and market. Each of the key areas could then be summarised, highlighting specific ratios that should be investigated.
19. The *DuPont system* of analysis combines profitability (the net profit margin), asset efficiency (the total asset turnover) and leverage (the debt ratio). The division of ROE among these three ratios allows the analyst to segregate the specific factors that are contributing to the ROE into profitability, asset efficiency, or the use of debt.

## ■ Suggested answer to critical thinking question for Focus on Ethics

### What are some innovative approaches that can be used to teach ethics at the university level?

Below is a list of innovative ideas that may be considered:

- Learning the stories of white-collar criminals and their ideas on how to avoid ethics problems.
- Required community-service activities to help students interact with future stakeholders and learn how business decisions affect them.
- Self-assessment surveys to make students aware of their values.
- Full integration of ethics into mainstream courses.
- Trips abroad to learn about international ethical approaches (or presentations from visiting international scholars and students).
- Ethics coverage for specialised fields, such as accounting or marketing.
- Simulations to practice ethical decision-making skills.
- Interviewing executives to learn how they navigate ethical issues.
- Using works of literature and theater to understand ethics from a fictional perspective.
- Support for student organisations, lectures, and conferences that have ethics themes.
- Student and faculty codes of ethical behaviour to assist faculty and students in understanding what is deemed acceptable behavior.

## ■ Answers to Warm-up exercises

E2-1. Prepare a Statement of Comprehensive Income.

**Answer:**

a.

<b>Name of Company</b>	
<b>Statement of Comprehensive Income (R000,000)</b>	
Sales revenue	R345.0
Less: Cost of goods sold	<u>155.0</u>
Gross profits	R190.0
Less: Operating expenses	
Sales expense	R 18.0
General and administrative expenses	22.0
Lease expense	4.0
Depreciation expense	<u>25.0</u>
Total operating expense	<u>R 69.0</u>
Operating profits (EBIT)	R 121.0
Less: Interest expense	<u>3.0</u>
Net profit before taxes	R 118.0
Less: Taxes (rate = 35%)	<u>41.3</u>
Net profits after taxes	R 76.7
Less preference share dividend	<u>4.675</u>
Earnings available for ordinary shareholders	<u><u>R 72.025</u></u>

b. See statement of comprehensive income

c. Additions to retained earnings =  $(R2.75 - R1.10) 4,250,000 = R7,012.500$ 

E2-2. Statement of comprehensive income and statement of financial position

**Answer:** From the table in a, the reader can see that the calculations begin with sales revenue and end with net profits after taxes. Had there been a loss for the year, the final result would have been a net loss after taxes.

The statement of financial position balances the firm's assets against its financing, which can be either debt or equity. The total value of all of the firm's assets should equal the sum of its short- and long-term debt plus shareholder's equity including preference share, ordinary share at par value, paid in capital in excess of par on ordinary share and retained earnings from previous profitable years in which some of the earnings were held back and not paid out as dividends.

E2-3. Statement of changes in equity

**Answer:**

**Statement of changes in equity for the year ended 31 December 2009 - Cooper Industries**

	Preference share capital	Ordinary share capital	Share premium	Retained earnings	Revaluation surplus	Total
Balance @ 31 December 2008	R 0	R 0	R 0	R 25,320	R 0	R 25,320
Shares issued	0	0	0	0	0	0
Total comprehensive income for the year	0	0	0	5,150	10	5,150
Preference share dividend	0	0	0	(750)	0	(750)
Ordinary share dividend	0	0	0	(3,850)	0	(3,850)
Balance @ 31 December 2009	R 0	R 0	R 0	R 25,870	R 0	R25,870

E2-4. Current ratios and quick ratios

**Answer:** The current ratio is increasing but the quick ratio is declining. Since inventory is included in the calculation of the current ratio, but not in the quick ratio, the ratios indicate that inventory is increasing and Bluestone is not operating in a lean manufacturing mode. As with any analysis using ratios, you should investigate other financial ratios for Bluestone to further assess its financial health.

E2-5. The Dupont method of calculating ROE

**Answer:**  $ROE = 4.5\% \times 0.72 \times 1.43 = 4.63\%$

The advantage of using the Dupont system to calculate ROE over the direct calculation of earnings available for ordinary shareholders  $\div$  ordinary share equity is that ROE, the most ordinary measure for shareholders, is broken into three distinct components. Starting at the right we see how financial leverage has increased assets over the owners' original equity. Next, moving to the left, we see how efficiently the firm used its assets to generate sales. Finally, the net profit margin shows the measure of profitability on sales. Each component can be compared

with industry standards to see if the firm is underperforming or over performing in any one of the three areas.

## ■ Solutions to Problems

P2-1. LG 1: Reviewing basic financial statements

### Basic

**Statement of comprehensive income:** In this one-year summary of the firm's operations, Technica, Ltd showed a net profit for 2009 and the ability to pay cash dividends to its shareholders.

**Statement of financial position:** The financial condition of Technica, Ltd at December 31, 2008 and 2009 is shown as a summary of assets and liabilities. Technica, Ltd has an excess of current assets over current liabilities, demonstrating liquidity. The firm's non-current assets represent over one-half of total assets (R270,000 of R408,300). The firm is financed by short-term debt, long-term debt, ordinary share, and retained earnings. It appears that it repurchased 500 shares of ordinary share in 2009.

**Statement of changes in equity:** Technica, Ltd earned a net profit of R42,900 in 2009 and paid out R20,000 in cash dividends. The reconciliation of the retained earnings account from R50,200 to R73,100 shows the net amount (R22,900) retained by the firm.

## P2-2. LG 1: Financial statement account identification

**Basic**

<b>Account name</b>	<b>(a) Statement</b>	<b>(b) Type of account</b>
Trade and other payables	BS	CL
Trade receivables	BS	CA
Current portion of long-term borrowing	BS	CL
Accumulated depreciation	BS	NCA *
Administrative expense	IS	E
Buildings	BS	NCA
Cash	BS	CA
Ordinary share capital (at par)	BS	SE
Cost of goods sold	IS	E
Depreciation	IS	E
Equipment	BS	NCA
General expense	IS	E
Finance cost	IS	E
Inventories	BS	CA
Land	BS	NCA
Long-term debt	BS	LTD
Machinery	BS	NCA
Marketable securities	BS	CA
Short-term borrowings	BS	CL
Operating expense	IS	E
Share premium	BS	SE
Preference share capital	BS	SE
Preference share dividends	IS	E
Retained earnings	BS	SE
Sales revenue	IS	R
Selling expense	IS	E
Taxes	IS	E
Vehicles	BS	NCA

\* This is really not a non-current asset, but a charge against a non-current asset, better known as a contra-asset.



## P2-3. LG 1: Statement of comprehensive income preparation

**Intermediate**

a.

<b>Cathy Claasen</b>	
<b>Statement of Comprehensive Income</b>	
<b>for the year ended December 31, 2009</b>	
Sales revenue	R360,000
Less: Operating expenses	
Salaries	180,000
Employment taxes and benefits	34,600
Supplies	10,400
Travel & entertainment	17,000
Lease payment	32,400
Depreciation expense	<u>15,600</u>
Total operating expense	<u>290,000</u>
Operating profits	R 70,000
Less: Interest expense	<u>15,000</u>
Net profits before taxes	R 55,000
Less: Taxes (30%)	<u>16,500</u>
Net profits after taxes	<u>R 38,500</u>

b. In her first year of business, Cathy Claasen covered all her operating expenses and earned a net profit of R38,500 on revenues of R360,000.

## P2-4. Personal finance: statement of comprehensive income preparation

a.

<b>Income</b>	<b>R</b>
Salaries	750,000
Interest received	5,000
Dividends received	1,500
<b>Total income</b>	<b>756,500</b>
<b>Expenses</b>	
Mortgage payment	120,000
Vehicle finance payment	96,000
Home insurance	30,000
Vehicle insurance	16,800
Utilities (incl. Security)	38,000
Groceries	26,000
Medical aid	18,000
Rates and taxes	24,000
Income tax	190,000
Petrol and maintenance	36,000
Clothes and accessories	24,000
Entertainment	24,000
<b>Total expenses</b>	<b>642,800</b>
<b>Cash surplus</b>	<b>113,700</b>

- b. Since income exceeds expenses, the Mtsepe's have a cash surplus.
- c. The cash surplus can be used for a variety of purposes. In the short-term, they may replace their car, buy better furniture, or more quickly pay off their home. Alternatively, they may purchase shares and bonds, or increase their savings for future needs. Investments in the share market are generally designed to increase an individual's future wealth, the purchase of bonds typically allows one to at least retain their purchasing power, while investment in savings accounts provide liquidity.

P2-5. LG 1: Calculation of EPS and retained earnings

**Intermediate**

a. **Earnings per share:**

Net profit before taxes	R218,000
Less: Taxes at 40%	<u>87,200</u>
Net profit after tax	R130,800
Less: Preference share dividends	32,000
Earnings available to ordinary shareholders	<u>R 98,800</u>

EPS = Earnings available for ordinary shareholders/total shares issued

$$= R98,800/85,000 = R1,162$$

b. **Amount to retained earnings:**

85,000 shares × R0.80 = R68,000 ordinary share dividends	
Earnings available to ordinary shareholders	R98,800
Less: Ordinary share dividends	<u>68,000</u>
To retained earnings	<u>R30,800</u>

P2-6. LG 1: Statement of Comprehensive Income preparation

**Intermediate**

**Owen Davis Company  
Statement of Financial Position  
December 31, 2009**

**Assets**

Non-current assets:

Land and buildings	R 325,000
Machinery and equipment	560,000
Furniture and fixtures	170,000
Vehicles	25,000
Accumulated depreciation	<u>(265,000)</u>
Total non-current assets	R815,000

Current assets

Inventory	R 375,000
Trade receivables	<u>450,000</u>

Cash & cash equivalents	<u>290,000</u>
Total current assets	R1,115,000
<b>Total assets</b>	<b><u>R1,930,000</u></b>
<b>Equity and liabilities</b>	
Equity attributable to owners	
Ordinary share capital	R 90,000
Preference share capital	100,000
Share premium	360,000
Retained earnings	<u>210,000</u>
Total equity	R 760,000
Non-current liabilities	
Long-term borrowings	<u>R 420,000</u>
Total non-current liabilities	R 420,000
Current liabilities	
Trade and other payables	R 220,000
Short-term borrowings	475,000
Current portion of long-term borrowings	55,000
Total current liabilities	<u>R 750,000</u>
Total liabilities	<u>R 1,170,000</u>
<b>Total equity and liabilities</b>	<b><u>R1,930,000</u></b>

P2-7. LG 1: Personal finance: statement of financial position preparation

**Basic**

**Alpheus and Promise Mtsepe - Statement of Financial Position - December 2009**

<b>Assets</b>	<b>R</b>
<b>Non-current assets</b>	
Real estate	1,500,000
Vehicles	370,000
Household furnishings	150,000
Jewellery and artwork	50,000
Shares	120,000
Retirement funds	350,000
<b>Total non-current assets</b>	<b>2,540,000</b>
<b>Current assets</b>	
Cash	4,000
Cheque account	3,000
Savings account	15,000
Money market funds	80,000
<b>Total current assets</b>	<b>102,000</b>
<b>Total assets</b>	<b>2,642,000</b>
<b>Non-current liabilities</b>	
Mortgage bond	700,000
Vehicle finance	350,000
Personal loan	25,000
<b>Total non-current liabilities</b>	<b>1,075,000</b>

**Current liabilities**

Medical bills payable	250
Utility bills payable	150
Credit card balance	8,000
<b>Total current liabilities</b>	<b>8,400</b>
<b>Total liabilities</b>	<b>1,083,400</b>
Net worth	1,558,600
<b>Total liabilities and net worth</b>	<b>2,642,000</b>

- Total assets of the Mtsepe family must equal its debt plus the extent to which it has either experienced a gain in value or paid the cost of an asset (its net worth).
- Total assets of the Mtsepe family must equal its debt plus the extent to which it has either experienced a gain in value or paid the cost of an asset (its net worth).
- Working Capital = Total Liquid Assets – Total Current Liabilities  
Working Capital = R102,000 – R8,400 = R93,600

P2-8. LG 1: Impact of net income on a firm's Statement of Financial Position

**Basic**

	<b>Account</b>	<b>Beginning value</b>	<b>Change</b>	<b>Ending value</b>
a.	Cash equivalents	R 35,000	+R1,365,000	R1,400,000
	Retained earnings	R1,575,000	+R1,365,000	R2,940,000
b.	Long-term debt	R2,700,000	–R 865,000	R1,835,000
	Retained earnings	R1,575,000	+R 865,000	R2,440,000
c.	Buildings	R1,600,000	+R 865,000	R2,465,000
	Retained earnings	R1,575,000	+R 865,000	R2,440,000
d.	No net change in any accounts			

P2-9 LG 1: Initial sale price of ordinary share

**Basic**

Initial sales price = Par value of ordinary shares + Share premium / Number of ordinary shares outstanding

$$= \frac{R225,000 + R2,625,000}{300,000} = R9,50 \text{ per share}$$

P2-10. LG 1: Statement of retained earnings

**Intermediate**

- Cash dividends paid on ordinary share = Net profits after taxes – preference dividends – change in retained earnings  

$$= R377,000 - R47,000 - (1,048,000 - R928,000)$$

$$= R210,000$$

**Statement of changes in equity for the year ended 31 December 2009 (R'000)**

	<b>Preference share capital</b>	<b>Ordinary share capital</b>	<b>Share premium</b>	<b>Retained earnings</b>	<b>Revaluation surplus</b>	<b>Total</b>
Balance @ 31 December 2008	R 0	R 0	R 0	R928	R 0	R 928
Shares issued	0	0	0	0	0	0
Total comprehensive income for the year	0	0	0	377	0	377
Preference share dividend	0	0	0	(47)	0	(47)
Ordinary share dividend	0	0	0	(210)	0	(210)
Balance @ 31 December 2009	R 0	R 0	R 0	R 1,048	R 10	R1,048

$$b. \text{ Earnings per share} = \frac{\text{Net profit after tax} - \text{Preferred dividends (EACS}^*)}{\text{Number of common shares outstanding}}$$

$$\text{Earnings per share} = \frac{\text{R}377,000 - \text{R}47,000}{140,000} = \text{R}2.36$$

\*Earnings available to ordinary shareholders

$$c. \text{ Cash dividend per share} = \frac{\text{Total cash dividend}}{\# \text{ shares}}$$

$$\text{Cash dividend per share} = \frac{\text{R}210,000 \text{ (from part (a))}}{140,000} = \text{R}1.50$$

P2-11. LG 1: Changes in shareholders' equity

**Intermediate**

a. Net income for 2009 = change in retained earnings + dividends paid  
 Net income for 2009 = (R1,500,000 – R1,000,000) + R200,000 = R700,000

b. New shares issued = issued share 2009 – issued shares 2008  
 New shares issued = 1,500,000 – 500,000 = 1,000,000

$$c. \text{ Average issuance price} = \frac{\Delta \text{Paid-in-capital} + \Delta \text{Common stock}}{\Delta \text{ shares outstanding}}$$

$$\text{Average issuance price} = \frac{\text{R}4,000,000 + \text{R}1,000,000}{1,000,000} = \text{R}5.00$$

$$d. \text{ Original issuance price} = \frac{\text{Paid-in-capital} + \text{Common stock}}{\text{Number of shares issued}}$$

$$\text{Original issuance price} = \frac{\text{R}500,000 + \text{R}500,000}{500,000} = \text{R}2.00$$

P2-12. LG 2, 3, 4, 5: Ratio comparisons

**Basic**

- The four companies are in very different industries. The operating characteristics of firms across different industries vary significantly resulting in very different ratio values.
- The explanation for the lower current and quick ratios most likely rests on the fact that these two industries operate primarily on a cash basis. Their Trade receivables balances are going to be much lower than for the other two companies.
- High level of debt can be maintained if the firm has a large, predictable, and steady cash flow. Providers tend to meet these cash flow requirements. The software firm will have very uncertain and changing cash flow. The software industry is subject to greater competition resulting in more volatile cash flow.
- Although the software industry has potentially high profits and investment return performance, it also has a large amount of uncertainty associated with the profits. Also, by placing all of the money in one share, the benefits of reduced risk associated with diversification are lost.

## P2-13. LG 3: Liquidity management

**Basic**

a.

	2006	2007	2008	2009
Current ratio	1.88	1.74	1.79	1.55
Quick ratio	1.22	1.19	1.24	1.14
Net working capital	R7,950	R9,300	R9,900	R9,600

- b. The pattern indicates a deteriorating liquidity position. The decline is most pronounced for the current ratio that includes inventory.
- c. The low inventory turnover suggests that liquidity is even worse than the declining liquidity measures indicate. Slow inventory turnover may indicate obsolete inventory.

## P2-14. LG 3: Personal finance: Liquidity ratio

$$a. \text{ Liquidity ratio} = \frac{\text{Total liquid assets}}{\text{Total current debts}} = \frac{R3,200 + R1,000 + R800}{R1,200 + R900} = \frac{R5,000}{R2,100} = 2.38$$

- b. Since Josh's liquidity ratio exceeds 1.8, Josh has more liquidity than his friends.

## P2-15. LG 3: Inventory management

**Basic**

a. Sales	R4,000,000	100%
Less: Gross profit	<u>R1,600,000</u>	<u>40%</u>
Cost of goods sold	R2,400,000	60%

$$\text{Average inventory} = \frac{R400,000 + R800,000 + R1,200,000 + R200,000}{4} = R650,000$$

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}} = \frac{R2,400,000}{R650,000} = 3.69 \text{ times}$$

$$\text{Average age of inventory} = \frac{365}{3.69} = 98.9 \text{ days}$$

- b. The Wilkins Manufacturing inventory turnover ratio significantly exceeds the industry. Although this may represent efficient inventory management, it may also represent low inventory levels resulting in stockouts.

## P2-16. LG 3: Trade receivables management

**Basic**

- a. Average collection period = Trade receivables ÷ average sales per day

Average collection period =  $3,000,000/24,000,000/365 = 3,000,000/65,753.42 = 45.62$  days

Since the average age of receivables is over 15 days beyond the net date, attention should be directed to Trade receivables management.

- b. This may explain the lower turnover and higher average collection period. The December Trade receivables balance of R3,000,000 may not be a good measure of the average Trade receivables, thereby causing the calculated average collection period to be overstated. It also suggests the November figure (0–30 days overdue) is not a cause for great concern. However, 13% of all trade receivables (those arising in July, August and September) are sixty days or more overdue and may be a sign of poor receivables management.

P2-17. LG 3: Interpreting liquidity and activity ratios

**Intermediate**

- a. Bluegrass appears to be holding excess inventory relative to the industry. This fact is supported by the low inventory turnover and the low quick ratio, even though the current ratio is above the industry average. This excess inventory could be due to slow sales relative to production or possibly from carrying obsolete inventory.
- b. The trade receivables of Bluegrass appear to be high due to the large number of days of sales issued (73 versus the industry average of 52 days). An important question for internal management is whether the company's credit policy is too lenient or customers are just paying slowly – or potentially not paying at all.
- c. Since the firm is paying its trade and other payables in 31 days versus the industry norm of 40 days, Bluegrass may not be taking full advantage of credit terms extended to them by their suppliers. By having the receivables collection period over twice as long as the payables payment period, the firm is financing a significant amount of current assets, possibly from long-term sources.
- d. The desire is that management will be able to curtail the level of inventory either by reducing production or encouraging additional sales through a stronger sales programme or discounts. If the inventory is obsolete, then it must be written off to gain the income tax benefit. The firm must also push to try to get their customers to pay earlier. Payment timing can be increased by shortening credit terms or providing a discount for earlier payment. Slowing down the payment of trade and other payables would also reduce financing costs.

Carrying out these recommendations may be difficult because of the potential loss of customers due to stricter credit terms. The firm would also not want to increase their costs of purchases by delaying payment beyond any discount period given by their suppliers.

P2-18. LG 4: Debt analysis

**Basic**

Ratio	Definition	Calculation	Bushbuck	Industry
Debt	Debt	R36,500,000	0.73	0.51
	Total assets	R50,000,000		
Times	EBIT	R3,000,000	3.00	7.30
Interest earned	Interest	R1,000,000		

Because Bushbuck Enterprises has a much higher degree of indebtedness and much lower ability to service debt than the average firm in the industry, the loan should be rejected.



## P2-19. LG 5: Ordinary-size statement analysis

**Intermediate**

<b>Bushbuck Enterprises</b>				
<b>Ordinary-size Statement of Comprehensive Income</b>				
<b>for the years ended December 31, 2008 and 2009</b>				
		<b>2009</b>		<b>2008</b>
Sales revenue		100.0%		100.0%
Less: Cost of goods sold		<u>70.0%</u>		<u>65.9%</u>
Gross profits		30.0%		34.1%
Less: Operating expenses:				
Selling	10.0%		12.7%	
General	6.0%		6.3%	
Lease expense	0.7%		0.6%	
Depreciation	<u>3.3%</u>	<u>20.0%</u>	<u>3.6%</u>	<u>23.2%</u>
Operating profits		10.0%		10.9%
Less: Interest expense		<u>3.3%</u>		<u>1.5%</u>
Net Profits before taxes		6.7%		9.4%
Less: Taxes		<u>2.7%</u>		<u>3.8%</u>
Net profits after taxes		<u>4.0%</u>		<u>5.6%</u>

Sales have declined and cost of goods sold has increased as a percentage of sales, probably due to a loss of productive efficiency. Operating expenses have decreased as a percentage of sales; this appears favourable unless this decline has contributed toward the fall in sales. The level of interest as a percentage of sales has increased significantly; this is verified by the high debt measures in Problem 2-18, and suggests that the firm has too much debt.

Further analysis should be directed at the increased cost of goods sold and the high debt level.

## P2-20. LG 4, 5: The relationship between financial leverage and profitability

**Challenge**

a. (1) Debt ratio =  $\frac{\text{total liabilities}}{\text{total assets}}$

$$\text{Debt ratio}_{\text{Pelican}} = \frac{\text{R}1,000,000}{\text{R}10,000,000} = 0.10 = 10\%$$

$$\text{Debt ratio}_{\text{Timberland}} = \frac{\text{R}5,000,000}{\text{R}10,000,000} = 0.50 = 50\%$$

(2) Times interest earned =  $\frac{\text{earning before interest and taxes}}{\text{interest}}$

$$\text{Times interest earned}_{\text{Pelican}} = \frac{\text{R}6,250,000}{\text{R}100,000} = 62.5$$

$$\text{Times interest earned}_{\text{Timberland}} = \frac{\text{R}6,250,000}{\text{R}500,000} = 12.5$$

Timberland has a much higher degree of financial leverage than does Pelican. As a result Timberland's earnings will be more volatile, causing the ordinary share owners to face greater risk. This additional risk is supported by the significantly lower times interest earned ratio of

Timberland. Pelican can face a very large reduction in net income and still be able to cover its interest expense.

$$b. (1) \text{ Operating profit margin} = \frac{\text{operating profit}}{\text{sales}}$$

$$\text{Operating profit margin}_{\text{Pelican}} = \frac{R6,250,000}{R25,000,000} = 0.25 = 25\%$$

$$\text{Operating profit margin}_{\text{Timberland}} = \frac{R6,250,000}{R25,000,000} = 0.25 = 25\%$$

$$(2) \text{ Net profit margin} = \frac{\text{Earnings available for ordinary shareholders}}{\text{sales}}$$

$$\text{Net profit margin}_{\text{Pelican}} = \frac{R3,690,000}{R25,000,000} = 0.1476 = 14.76\%$$

$$\text{Net profit margin}_{\text{Timberland}} = \frac{R3,450,000}{R25,000,000} = 0.138 = 13.80\%$$

$$(3) \text{ Return on total assets} = \frac{\text{Earnings available for ordinary shareholders}}{\text{total assets}}$$

$$\text{Return on total assets}_{\text{Pelican}} = \frac{R3,690,000}{R10,000,000} = 0.369 = 36.9\%$$

$$\text{Return on total assets}_{\text{Timberland}} = \frac{R3,450,000}{R10,000,000} = 0.345 = 34.5\%$$

$$(4) \text{ Return on common equity} = \frac{\text{Earnings available for ordinary shareholders}}{\text{Common stock equity}}$$

$$\text{Return on common equity}_{\text{Pelican}} = \frac{R3,690,000}{R9,000,000} = 0.41 = 41.0\%$$

$$\text{Return on common equity}_{\text{Timberland}} = \frac{R3,450,000}{R5,000,000} = 0.69 = 69.0\%$$

Pelican is more profitable than Timberland, as shown by the higher operating profit margin, net profit margin, and return on assets. However, the return on equity for Timberland is higher than that of Pelican.

- c. Even though Pelican is more profitable, Timberland has a higher ROE than Pelican due to the additional financial leverage risk. The lower profits of Timberland are due to the fact that interest expense is deducted from EBIT. Timberland has R500,000 of interest expense to Pelican's R100,000. Even after the tax shield from the interest tax deduction ( $R500,000 \times 0.40 = R200,000$ ) Timberland's profits are less than Pelican's by R240,000. Since Timberland has a higher relative amount of debt, the shareholders' equity is proportionally reduced, resulting in the higher return to equity than that obtained by Pelican. The higher ROE brings with it higher levels of financial risk for Timberland equity holders.

## P2-21. LG 6: Ratio proficiency

**Basic**

- a. Gross profit = sales  $\times$  gross profit margin  
 Gross profit = R40,000,000  $\times$  0.8 = R32,000,000
- b. Cost of goods sold = sales – gross profit  
 Cost of goods sold = R40,000,000 – R32,000,000 = R8,000,000
- c. Operating profit = sales  $\times$  operating profit margin  
 Operating profit = R40,000,000  $\times$  0.35 = R14,000,000
- d. Operating expenses = gross profit – operating profit  
 Operating expenses = R32,000,000 – R14,000,000 = R18,000,000
- e. Earnings available for common shareholders  
 = sales  $\times$  net profit margin = R40,000,000  $\times$  0.08 = R3,200,000
- f. Total assets =  $\frac{\text{sales}}{\text{total asset turnover}} = \frac{\text{R40,000,000}}{2} = \text{R20,000,000}$
- g. Total common equity =  $\frac{\text{earnings available for common shareholders}}{\text{ROE}}$   
 Total common equity =  $\frac{\text{R3,200,000}}{0.20} = \text{R16,000,000}$
- h. Accounts receivable = average collection period  $\times \frac{\text{sales}}{365}$   
 Accounts receivable = 62.2 days  $\times \frac{\text{R40,000,000}}{365} = 62.2 \times \text{R109,589.041} = \text{R6,816,438.36}$

## P2-22. LG 6: Cross-sectional ratio analysis

**Intermediate**

a.

<b>Fox Manufacturing Company</b>		
<b>Ratio analysis</b>		
	<b>Industry average 2009</b>	<b>Actual 2009</b>
Current ratio	2.35	1.84
Quick ratio	0.87	0.75
Inventory turnover	4.55 times	5.61 times
Average collection period	35.8 days	20.5 days
Total asset turnover	1.09	1.47
Debt ratio	0.30	0.55
Times interest earned	12.3	8.0
Gross profit margin	0.202	0.233
Operating profit margin	0.135	0.133
Net profit margin	0.091	0.072
Return on total assets	0.099	0.105
Return on ordinary equity	0.167	0.234

Earnings per share	R3.10	R2.15
--------------------	-------	-------

**Liquidity:** The current and quick ratios show a weaker position relative to the industry average.

**Activity:** All activity ratios indicate a faster turnover of assets compared to the industry. Further analysis is necessary to determine whether the firm is in a weaker or stronger position than the industry. A higher inventory turnover ratio may indicate low inventory, resulting in shareouts and lost sales. A shorter average collection period may indicate extremely efficient receivables management, an overly zealous credit department, or credit terms that prohibit growth in sales.

**Debt:** The firm uses more debt than the average firm, resulting in higher interest obligations that could reduce its ability to meet other financial obligations.

**Profitability:** The firm has a higher gross profit margin than the industry, indicating either a higher sales price or a lower cost of goods sold. The operating profit margin is in line with the industry, but the net profit margin is lower than industry, an indication that expenses other than cost of goods sold are higher than the industry. Most likely, the damaging factor is high interest expenses due to a greater than average amount of debt. The increased leverage, however, magnifies the return the owners receive, as evidenced by the superior ROE.

- b. Fox Manufacturing Company needs improvement in its liquidity ratios and possibly a reduction in its total liabilities. The firm is more highly leveraged than the average firm in its industry and, therefore, has more financial risk. The profitability of the firm is lower than average but is enhanced by the use of debt in the capital structure, resulting in a superior ROE.

P2-23. LG 6: Financial statement analysis

**Intermediate**

a.

<b>Zach Industries Ratio analysis</b>			
	<b>Industry average</b>	<b>Actual 2008</b>	<b>Actual 2009</b>
Current ratio	1.80	1.84	1.04
Quick ratio	0.70	0.78	0.38
Inventory turnover	2.50	2.59	2.33
Average collection period	37.5 days	36.5 days	57 days
Debt ratio	65%	67%	61.3%
Times interest earned	3.8	4.0	2.8
Gross profit margin	38%	40%	34%
Net profit margin	3.5%	3.6%	4.1%
Return on total assets	4.0%	4.0%	4.4%
Return on ordinary equity	9.5%	8.0%	11.3%
Market/book ratio	1.1	1.2	1.3

- b. **Liquidity:** Zach Industries' liquidity position has deteriorated from 2008 to 2009 and is inferior to the industry average. The firm may not be able to satisfy short-term obligations as they come due.

**Activity:** Zach Industries' ability to convert assets into cash has deteriorated from 2008 to 2009. Examination into the cause of the 20.5-day increase in the average collection period is warranted. Inventory turnover has also decreased for the period under review and is fair compared to industry. The firm may be holding slightly excessive inventory.

**Debt:** Zach Industries' debt position has improved since 2008 and is below average. Zach Industries' ability to service interest payments has deteriorated and is below the industry average.

**Profitability:** Although Zach Industries' gross profit margin is below its industry average, indicating high cost of goods sold, the firm has a superior net profit margin in comparison to average. The firm has lower than average operating expenses. The firm has a superior return on investment and return on equity in comparison to the industry and shows an upward trend.

**Market:** Zach Industries' increase in their market price relative to their book value per share indicates that the firm's performance has been interpreted as more positive in 2009 than in 2008 and it is a little higher than the industry.

Overall, the firm maintains superior profitability at the risk of illiquidity. Investigation into the management of Trade receivables and inventory is warranted.

P2-24. LG 6: Integrative – complete ratio analysis

**Challenge**

<b>Sterling Company Ratio analysis</b>						
<b>Ratio</b>	<b>Actual 2007</b>	<b>Actual 2008</b>	<b>Actual 2009</b>	<b>Industry average 2009</b>	<b>TS: CS:</b>	<b>Time-series Cross-sectional</b>
Current ratio	1.40	1.55	1.67	1.85	TS: CS:	Improving Fair
Quick ratio	1.00	0.92	0.88	1.05	TS: CS:	Deteriorating Poor
Inventory turnover	9.52	9.21	7.89	8.60	TS: CS:	Deteriorating Fair
Average collection period	45.6 days	36.9 days	29.2 days	35.5 days	TS: CS:	Improving Good
Average payment period	59.3 days	61.6 days	53.0 days	46.4 days	TS: CS:	Unstable Poor
Total asset turnover	0.74	0.80	0.83	0.74	TS: CS:	Improving Good
Debt ratio	0.20	0.20	0.35	0.30	TS: CS:	Increasing Fair
Times interest earned	8.2	7.3	6.5	8.0	TS: CS:	Deteriorating Poor
Gross profit margin	0.30	0.27	0.25	0.25	TS: CS:	Deteriorating Average
Operating profit margin	0.12	0.12	0.13	0.10	TS: CS:	Improving Good
Net profit margin	0.062	0.062	0.061	0.053	TS: CS:	Stable Good
Return on total assets	0.045	0.050	0.051	0.040	TS: CS:	Improving Good
Return on ordinary Equity	0.061	0.067	0.090	0.066	TS: CS:	Improving Good
Earnings per share (EPS)	R1.75	R2.20	R3.05	R1.50	TS: CS:	Improving Good
Price/earnings (P/E)	12.0	10.5	13.0	11.2	TS: CS:	Unstable Good
Market/book ratio (M/B)	1.20	1.05	1.01	1.10	TS: CS:	Deteriorating Fair

**Liquidity:** Sterling Company's overall liquidity as reflected by the current ratio and quick ratio appears to be following different trends, but is below the industry average.

**Activity:** The activity of Trade receivables has improved, but inventory turnover has deteriorated and is currently below the industry average. The firm's average payment period appears to have speeded up from 2007, although the firm is still paying more slowly than the average company.

**Debt:** The firm's debt ratios have increased from 2007 and are very close to the industry averages, indicating currently acceptable values but an undesirable trend.

**Profitability:** The firm's gross profit margin, while in line with the industry average, has declined, probably due to higher cost of goods sold. The operating and net profit margins have been stable and are also above industry averages. Both the ROA and the ROE appear to have improved slightly and are better than the industry averages. EPS made a significant increase in 2008 and 2009. The P/E ratio indicates an increasing degree of investor confidence in the firm's future earnings potential.

**Market:** The firm's P/E ratio was good in 2007 but has fell significantly in 2008 but recovered in 2009. The ratio is now above the industry average. The market to book ratio initially showed signs of weakness in 2008 and 2009. The markets interpretation of Sterling's earning ability indicates a lot of uncertainty. The fluctuation in the M/B ratio also shows signs of uncertainty.

In summary, the firm needs to attend to inventory and Trade and other payables and should not incur added debts until its leverage and fixed-charge coverage ratios are improved. Other than these indicators, the firm appears to be doing well – especially in generating return on sales. The market seems to have some lack of confidence in the stability of Sterling's future.

P2-25. LG 6: DuPont system of analysis

**Intermediate**

a.

	<b>Margin(%)</b>	<b>×</b>	<b>Turnover</b>	<b>=</b>	<b>ROA(%)</b>	<b>×</b>	<b>FL Multiple</b>	<b>=</b>	<b>ROE(%)</b>
<b>2009</b>									
Johnson	4.9	×	2.34	=	11.47	×	1.85	=	21.21
Industry	4.1	×	2.15	=	8.82	×	1.64	=	14.46
<b>2008</b>									
Johnson	5.8	×	2.18	=	12.64	×	1.75	=	22.13
Industry	4.7	×	2.13	=	10.01	×	1.69	=	16.92
<b>2007</b>									
Johnson	5.9	×	2.11	=	12.45	×	1.75	=	21.79
Industry	5.4	×	2.05	=	11.07	×	1.67	=	18.49

- b. **Profitability:** Industry net profit margins are decreasing; Johnson's net profit margins have fallen less.  
**Efficiency:** Both industry's and Johnson's asset turnover have increased.  
**Leverage:** Only Johnson shows an increase in leverage from 2008 to 2009, while the industry has had less stability. Between 2007 and 2008, leverage for the industry increased, while it decreased between 2008 and 2009.  
As a result of these changes, the ROE has fallen for both Johnson and the industry, but Johnson has experienced a much smaller decline in its ROE.
- c. Areas that require further analysis are profitability and debt. Since the total asset turnover is increasing and is superior to that of the industry, Johnson is generating an appropriate sales level for the given level of assets. But why is the net profit margin falling for both industry and Johnson? Has there been increased competition causing downward pressure on prices? Is the cost of raw materials, labor, or other expenses rising? An ordinary-size statement of comprehensive income could be useful in determining the cause of the falling net profit margin.  
*Note:* Some management teams attempt to magnify returns through the use of leverage to offset declining margins. This strategy is effective only within a narrow range. A high leverage strategy may actually result in a decline in share price due to the increased risk.

P2-26. LG 6: Complete ratio analysis, recognising significant differences

**Intermediate**

a.

<b>Home Health, Ltd</b>				
<b>Ratio</b>	<b>2008</b>	<b>2009</b>	<b>Difference</b>	<b>Proportional difference</b>
Current ratio	3.25	3.00	– 0.25	– 7.69%
Quick ratio	2.50	2.20	– 0.30	– 12.00%
Inventory turnover	12.80	10.30	– 2.50	– 19.53%
Average collection period	42.6 days	31.4 days	– 11.2 days	– 26.29%
Total asset turnover	1.40	2.00	+ 0.60	+ 42.86%
Debt ratio	0.45	0.62	+ 0.17	+ 37.78%
Times interest earned	4.00	3.85	– 0.15	– 3.75%
Gross profit margin	68%	65%	– 3%	– 4.41%
Operating profit margin	14%	16%	+ 2%	+14.29%
Net profit margin	8.3%	8.1%	– 0.2%	– 2.41%
Return on total assets	11.6%	16.2%	+ 4.6%	+ 39.65%
Return on ordinary equity	21.1%	42.6%	+ 21.5%	+ 101.90%
Price/earnings ratio	10.7	9.8	– 0.9	– 8.41%
Market/book ratio	1.40	1.25	– 0.15	– 10.71%

b.

Ratio	Proportional difference	Company's favour
Quick ratio	- 12.00%	No
Inventory turnover	- 19.53%	No
Average collection period	- 26.29%	Yes
Total asset turnover	+ 42.86%	Yes
Debt ratio	+ 37.78%	No
Operating profit margin	+ 14.29%	Yes
Return on total assets	+ 39.65%	Yes
Return on equity	+ 101.90%	Yes
Market/book ratio	- 10.71%	No

- c. The most obvious relationship is associated with the increase in the ROE value. The increase in this ratio is connected with the increase in the ROA. The higher ROA is partially attributed to the higher total asset turnover (as reflected in the DuPont model). The ROE increase is also associated with the slightly higher level of debt as captured by the higher debt ratio.

## ■ Case

### Assessing Martin Manufacturing's current financial position

Martin Manufacturing Company is an integrative case study addressing financial analysis techniques. The company is a capital-intensive firm that has poor management of trade receivables and inventory. The industry average inventory turnover can fluctuate from 10 to 100 depending on the market.

#### a. Ratio calculations

Financial ratio	2009
Current ratio	$R1,531,181 \div R616,000 = 2.5\%$
Quick ratio	$(R1,531,181 - R700,625) \div R616,000 = 1.3\%$
Inventory turnover (times)	$R3,704,000 \div R700,625 = 5.3\%$
Average collection period (days)	$R805,556 \div (R5,075,000 \div 365) = 58.0\%$
Total asset turnover (times)	$R5,075,000 \div R3,125,000 = 1.6\%$
Debt ratio	$R1,781,250 \div R3,125,000 = 57\%$
Times interest earned	$R153,000 \div R93,000 = 1.6\%$
Gross profit margin	$R1,371,000 \div R5,075,000 = 27\%$
Net profit margin	$R33,000 \div R5,075,000 = 0.65\%$
Return on total assets	$R33,000 \div R3,125,000 = 1.06\%$
Return on equity	$R33,000 \div R1,293,750 = 2.55\%$

Historical Ratios Martin Manufacturing Company				
Ratio	Actual 2007	Actual 2008	Actual 2009	Industry average
Current ratio	1.7	1.8	2.5	1.5
Quick ratio	1.0	0.9	1.3	1.2
Inventory turnover (times)	5.2	5.0	5.3	10.2
Average collection period (days)	50.7	55.8	58.0	46.0
Total asset turnover (times)	1.5	1.5	1.6	2.0



Debt ratio	45.8%	54.3%	57%	24.5%
Times interest earned	2.2	1.9	1.6	2.5
Gross profit margin	27.5%	28.0%	27.0%	26.0%
Net profit margin	1.1%	1.0%	0.65%	1.2%
Return on total assets	1.7%	1.5%	1.06%	2.4%
Return on equity	3.1%	3.3%	2.55%	3.2%
Price/earnings ratio	33.5	38.7	34.48	43.4
Market/book	1.0	1.1	0.89	1.2

- b. **Liquidity:** The firm has sufficient current assets to cover current liabilities. The trend is upward and is much higher than the industry average. This is an unfavourable position, since it indicates too much inventory.

**Activity:** The inventory turnover is stable but much lower than the industry average. This indicates the firm is holding too much inventory. The average collection period is increasing and much higher than the industry average. These are both indicators of a problem in collecting payment.

The total asset turnover ratio is stable but significantly lower than the industry average. This indicates that the sales volume is not sufficient for the amount of committed assets.

**Debt:** The debt ratio has increased and is substantially higher than the industry average. This places the company at high risk. Typically industries with heavy capital investment and higher operating risk try to minimise financial risk. Martin Manufacturing has positioned itself with both heavy operating and financial risk. The times-interest-earned ratio also indicates a potential debt service problem. The ratio is decreasing and is far below the industry average.

**Profitability:** The gross profit margin is stable and quite favourable when compared to the industry average. The net profit margin, however, is deteriorating and far below the industry average. When the gross profit margin is within expectations but the net profit margin is too low, high interest payments may be to blame. The high financial leverage has caused the low profitability.

**Market:** The market price of the firm's ordinary share shows weakness relative to both earnings and book value. This result indicates a belief by the market that Martin's ability to earn future profits faces more and increasing uncertainty as perceived by the market.

- c. Martin Manufacturing clearly has a problem with its inventory level, and sales are not at an appropriate level for its capital investment. As a consequence, the firm has acquired a substantial amount of debt that, due to the high interest payments associated with the large debt burden, is depressing profitability. These problems are being picked up by investors as shown in their weak market ratios.

## ■ Spreadsheet Exercise

The answer to Chapter 2's Dayton, Ltd., financial statements spreadsheet problem is located in the Instructor's Resource Center at [www.prenhall.com/irc](http://www.prenhall.com/irc).

## ■ Group exercises

This chapter focuses solely on the group's shadow firm. Groups are asked to investigate and describe their firm's latest 10-K and the attached letter to shareholders. From the filing the groups are asked to calculate the basic ratios as done in the text, and discuss each ratio's importance. This leads to a comparison of these ratios over the most recent years. The number of years is up to the instructor's discretion. A shorter number of years is probably most desirable since this often can be accomplished from the single 10-K filing. The conclusion of this assignment is calculation of the DuPont analysis for their shadow firm. This exercise shouldn't require much assistance, particularly if students have made a good choice for their firm in Chapter 1.

Modifications could include dropping the intertemporal analysis and focusing solely on the most recent year. Alternatively, groups could be asked to compare the ratios from their shadow firm with the ratios from another firm within the same industry.

## Integrative Case 2: Encore International

This case focuses on the valuation of a firm. The student explores various methods of valuation, including the price/earnings multiple, book value, no growth, constant growth, and variable growth models. Risk and return are integrated into the case with the addition of the security market line and the capital asset pricing model. The student is asked to compare stock values generated by various models, discuss the differences, and select the one that best represents the true value of the firm.

a. Book value per share =  $\frac{\text{R } 60,000,000}{2,500,000} = \text{R } 24$

b.  $P/E$  ratio =  $\frac{\text{R } 40}{\text{R } 6.25} = 6.4$

[R1]c.1.  $r_s = R_F + [b_j \times (r_m - R_F)]$

$$r_s = 6\% + [1.10 \times (14\% - 6\%)]$$

$$r_s = 6\% + 8.8\%$$

$$r_s = 14.8\%$$

$$\text{Required return} = 14.8\%$$

$$\text{Risk premium} = 8.8\%$$

2.  $r_s = 6\% + [1.25 \times (14\% - 6\%)]$

$$r_s = 6\% + 10\%$$

$$r_s = 16\%$$

$$\text{Required return} = 16\%$$

$$\text{Risk premium} = 10\%$$

3. As beta rises, the risk premium and required return also rise.

d. Zero growth:

$$P_0 = \frac{D_1}{r_s}$$

$$P_0 = \frac{\text{R } 4.00}{0.16} = \text{R } 25 \quad [\text{R2}]$$