CHAPTER 25

Analysis and interpretation of financial statements

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ADDITIONAL PROBLEMS

Problem 25.1 Horizontal and vertical analysis

The comparative financial statements of Corella Ltd are shown below.

CORELLA LTD
Comparative Statements of Financial Performance
for the years ended 30 June 2002 and 2001
(000 omitted)

	2002	2001
Sales revenue	$10 500	$9 300
Less: Cost of goods sold	6 000	5 900
GROSS PROFIT	4 500	3 400
Selling expenses	1 300	1 220
Administrative expenses	1 250	990
	2 550	2 210
OPERATING PROFIT BEFORE INCOME TAX	1 950	1 190
Less: Income tax expense	680	415
OPERATING PROFIT AFTER INCOME TAX	$ 1 270	$ 775

CORELLA LTD
Comparative Statements of Financial Position
as at 30 June 2002 and 2001
(000 omitted)

	2002	2001
ASSETS		
Cash at bank	$ 50	$ 60
Accounts receivable	250	210
Inventory	510	475
Long-term investments	90	100
Plant and equipment	2 200	1 850
	$3 100	$2 695
LIABILITIES AND SHAREHOLDERS' EQUITY		
Accounts payable	$ 260	$ 235
Bills payable	70	80
Non-current liabilities	1 150	1 150
Paid-up capital	1 000	850
Retained profits	620	380
	$3 100	$2 695

Required:

A. Calculate the changes in the financial statements from 2001 to 2002 in both dollar amounts and percentages.
B. Prepare common size financial statements for 2001 and 2002.
C. Comment on any relationships revealed by the horizontal and vertical analyses.

Solution

A.

CORELLA LTD
Statement of Financial Performance Horizontal Analysis
for the years ended 30 June 2002 and 2001

	Change during the year	
	Dollar amount (000 omitted)	Percentage
Sales revenue	$1 200	12.9%
Cost of goods sold	(100)	(1.7)
Gross profit	1 100	32.3
Selling expenses	80	6.6
Administrative expenses	260	26.3
	340	15.4
Operating profit before income tax	760	63.9
Income tax expense	265	63.9
Operating profit after income tax	$495	63.9

CORELLA LTD
Statement of Financial Position Horizontal Analysis
as at 30 June 2002 and 2001

	Change during the year	
	Dollar amount (000 omitted)	Percentage
Assets:		
Cash at bank	$(10)	(16.7)%
Accounts receivable	40	19.0
Inventory	35	7.4
Long-term investments	(10)	(10.0)
Plant and equipment	350	18.9
	405	15.0
Liabilities and shareholders' equity:		
Accounts payable	12	10.6
Bills payable	(10)	(12.5)
Non-current liabilities	0	0.0
Paid up capital	150	17.6
Retained profits	240	63.2
	405	15.0

B.

CORELLA LTD
Comparative Common-size Statements of Financial Performance
for the years ended 30 June 2002 and 2001

	Per cent of net sales	
	2002	2001
Sales revenue	100.0%	00.0%
Less: Cost of goods sold	57.1	63.4
Gross profit	42.9	36.6
Selling expenses	12.4	13.1
Administrative expenses	11.9	10.7
	24.3	23.8
Operating profit before income tax	18.6	12.8
Income tax expense	6.5	4.5
Operating profit after income tax	12.1	8.3

(*continued*)

CORELLA LTD
Comparative Common-size Statements of Financial Position
as at 30 June 2002 and 2001

	Per cent of total assets	
Asset	2002	2001
Cash at bank	1.6 %	2.2 %
Accounts receivable	8.0	7.8
Inventory	16.5	17.6
Long-term investments	2.9	3.7
Plant and equipment	71.0	68.7
	100.0	100.0
Liabilities and shareholders' equity		
Accounts payable	8.4	8.7
Bills payable	2.3	3.0
Non-current liabilities	37.1	42.7
Paid-up capital	32.2	31.5
Retained profits	20.0	14.1
	100.0	100.0

C.

Corella Ltd appears to be doing well. Sales have increased while the cost of goods sold has decreased. Although total expenses as a percentage of sales have increased slightly, the dollar amount of operating profit after income tax has nearly doubled.

Corella Ltd has invested in additional plant and equipment, apparently using funds obtained from the sale of ordinary shares and from the 2002 operating profit after income tax.

Problem 25.2 Trend analysis

The comparative statements of financial performance and statements of financial position of Quokka Ltd are shown below:

QUOKKA LTD
Comparative Statements of Financial Performance
for the years ended 31 December 1999–2004
(000 omitted)

	1999	2000	2001	2002	2003	2004
Sales revenue	$250	$263	$262	$270	$325	$348
Less: Cost of goods sold	152	156	153	157	180	215
GROSS PROFIT	98	107	109	113	145	133
Operating expenses	68	71	69	84	94	95
OPERATING PROFIT	$ 30	$ 36	$ 40	$ 29	$ 51	$ 38

QUOKKA LTD
Comparative Statements of Financial Position
as at 31 December 1999–2004
(000 omitted)

	1999	2000	2001	2002	2003	2004
ASSETS						
Cash at bank	$ 15	$ 16	$ 15	$ 22	$ 21	$ 12
Trade debtors	21	25	23	36	43	62
Inventory	62	70	74	98	125	133
Plant and equipment	150	162	173	290	286	283
	$248	$273	$285	$446	$475	$490
LIABILITIES AND SHAREHOLDERS' EQUITY						
Trade creditors	$ 53	$ 65	$ 70	$ 96	$116	$126
Non-current liabilities	60	58	55	125	121	119
Paid-up capital	100	100	100	150	150	150
Retained profits	35	50	60	75	88	95
	$248	$273	$285	$446	$475	$490

Required:

A. Prepare a trend analysis of the data.

B. Comment on any significant trends revealed by the analysis.

Solution

A.

QUOKKA LTD
Comparative Statements of Financial Performance Trend Analysis
for the years ended 31 December 1999-2005

	1999	2001	2002	2003	2004	2005
Sales revenue	100	105	105	108	130	139
Cost of goods sold	100	103	101	103	118	141
Gross profit	100	109	111	115	148	138
Operating expenses	100	104	110	124	138	140
Operating profit	100	120	133	97	170	127

QUOKKA LTD
Comparative Statements of Financial Position Trend analysis
as at 31 December 1999-2005

	1999	2001	2002	2003	2004	2005
Assets						
Cash at bank	100	107	100	147	140	80
Trade debtors	100	119	110	171	205	295
Inventory	100	113	119	158	202	215
Plant & equipment	100	108	115	193	191	189
Total assets	100	110	115	180	192	198

	1999	2001	2002	2003	2004	2005
Liabilities and shareholders equity						
Trade creditors	100	123	132	181	219	238
Non-current liabils.	100	97	92	208	202	198
Paid-up capital	100	100	100	150	150	150
Retained profits	100	143	171	214	251	271
Total liabs and shareholders equity	100	110	115	180	192	198

B.

From 1999 to 2003 sales revenue increased at a faster rate than cost of goods sold, resulting in increased gross profit. The reversal in these items in 2004 should be analysed. The wide fluctuations in operating profit is an unfavourable situation indicates instability and requires further investigation.

During 2002, the company financed investments in plant and equipment and other assets by issuing non-current liabilities and ordinary shares. The large increase in sales during 2003 was probably a result of this investment. The increase in retained profits indicates that the company is financing part of its growth internally.

The substantial increase in operating profit between 2002 and 2003, as shown in the trend figures, is misleading because of the relative size of the absolute dollar amounts.

Problem 25.3 Effect of transactions on ratios

Numbat Ltd completed the transactions listed below in the left-hand column.

Transaction	Ratio
1.Redeemed debentures by issuing ordinary shares	Rate of return on ordinary shareholders' equity
2.Purchased inventory on credit	Quick ratio
3.Sold inventory for cash	Current ratio
4.Issued additional ordinary shares for cash	Debt ratio
5.Declared a cash dividend on ordinary shares	Dividend payout
6.Paid the cash dividend	Dividend yield
7.Wrote off bad debt against Allowance for Doubtful Debts	Current ratio
8.Collected an account receivable	Receivables turnover
9.Paid accounts payable	Rate of return on total assets
10.Sold obsolete inventory at cost	Profit margin
11.Issued a share dividend on ordinary shares	Earnings per share
12.Sold inventory on account	Inventory turnover

Required:

State whether each transaction would cause the ratio listed opposite it to increase, decrease or remain unchanged.

Solution

NUMBAT LTD

1. Decrease
2. Decrease
3. Remain unchanged if sales price is equal to cost.
   Increase if sales price is greater than cost.
4. Decrease
5. Increase
6. Remain unchanged
7. Remain unchanged
8. Increase
9. Increase
10. Decrease — will increase sales and cost of goods sold by the same amount resulting in a zero change in operating profit.
11. Decrease
12. Increase

Problem 25.4 Ratio analysis

You are presented with the following summarised information:

JABIRU LTD
Statement of Financial Performance
for the year ended 30 September 2000

Net sales revenue	$567 000
Less: Cost of goods sold	378 000
GROSS PROFIT	189 000
Less: Operating expenses (including tax and interest)	126 000
OPERATING PROFIT AFTER INCOME TAX	$ 63 000

JABIRU LTD
Statement of Financial Position
as at 30 September 2000

CURRENT ASSETS			
Cash at bank		$ 25 200	
Accounts receivable	$199 500		
Less: Allowance for doubtful debts	12 600	186 900	
Inventory		168 000	$380 100
NON-CURRENT ASSETS			
Land		42 000	
Building	126 000		
Less: Accumulated depreciation	25 200	100 800	
Store equipment	31 500		
Less: Accumulated depreciation	14 700	16 800	159 600
			$539 700
CURRENT LIABILITIES			
Provision for preference dividends		$ 2 520	
Provision for ordinary dividends		16 800	
Accounts payable		180 600	
Accrued expenses		8 400	$208 320
NON-CURRENT LIABILITIES			
10% mortgage payable			42 000
SHAREHOLDERS' EQUITY			
Share capital:			
6% preference shares		42 000	
Ordinary shares		168 000	
		210 000	
Retained profits		79 380	289 380
			$539 700

Additional information

1. The balances of certain accounts at the *beginning* of the year are:

Accounts receivable	$210 000
Allowance for doubtful debts	(18 900)
Inventory	147 000

2. Total assets and total shareholders' equity at the beginning of the year were $504 000 and $245 700 respectively.
3. Income tax expense for the year is $42 000. Interest expense is $4200.

(continued)

Required:

A. Name the ratios that a financial analyst might calculate to give some indication of the following:
   1. a company's earning power
   2. the extent to which internal sources have been used to finance acquisitions of assets
   3. rapidity with which accounts receivable are collected
   4. the ability of a business to meet quickly unexpected demands for working capital
   5. the ability of the entity's earnings to cover its interest commitments
   6. the length of time taken by the business to sell its inventory.

B. Calculate and briefly discuss the suitability of the ratios mentioned for *each* of the above cases.

Solution

A.

JARIBU LTD

1. Rate of return on assets, and rate of return on ordinary shareholders' equity.
2. Equity ratio, as well as comparative statement analysis, especially horizontal and vertical analysis.
3. Average collection period for receivables.
4. Quick ratio.
5. Times interest earned.
6. Inventory turnover, or average days per turnover.

B.

1. Rate of return on assets $= \dfrac{63\,000 + 42\,000 + 4\,200}{(539\,700 + 504\,000)/2} = 20.9\%$

   This ratio measures the return earned by management through use of the assets in the firm's operations, ie. before financing and tax costs are considered. The ratio depends heavily on the accuracy of the figures used, and the method of measurement, eg. fluctuations may occur depending on the accounting methods used for inventory, depreciation, etc. Trends across time should be considered.
   The rate of return to ordinary shareholders, although subject to the same problems of measurement, shows the net return that the company is earning for its shareholders after consideration of tax, interest and preference dividends.

   Rate of return on ordinary shareholders equity: $= \dfrac{63\,000 - 2\,500}{(247\,380 + 203\,700)/2} = 26.8\%$

   (Ord. shareholders' equity at beginning \$245 700 – \$42 000 = \$203 700)
   Comparison of the two ratios indicates that Jabiru Ltd has favourable leverage or gearing.

2. Equity ratio $= \dfrac{289\,380}{539\,700} = 53.6\%$

   This ratio is limited in that it shows the percentage of total assets being financed by total equity including preference and ordinary shareholders' equity. A vertical analysis (common size statements) will reveal the percentage of assets financed by internal sources, viz. retained profits.

   Total assets = \$539 700 = 100%
   Retained profits = 79 380 = 14.7%

   Horizontal analysis and vertical analysis across time will show whether purchases of assets and increases in retained profits are changing in proportion to each other.

3. Average collection period $= \dfrac{(186\,900 + 191\,100)/2 \times 365}{567\,000}$

$= 121.7$ days

This ratio assumes that all sales were made on credit and is therefore limited by the assumption. It further assumes that average receivables (net) can be determined using a simple average for the year. If gross receivables are used in the calculation (which provides a better measure of turnover), the average collection period

$$= \frac{(199\,500 + 210\,000)/2 \times 365}{567\,000} = 131.8 \text{ days}$$

Comparisons with the firm's stated collection policy, trends over time, and comparisons with industry averages are desirable.

4. Quick ratio $= \dfrac{25\,200 + 186\,900}{208\,320} = 1.02{:}1$

The quick ratio measures the firm's ability to cover its short-term commitments. The ratio may be influenced by management which can cause its value to rise near the end of the period, eg. by paying short term creditors, giving short term creditors a long term bill in settlement of their accounts.

5. Times interest earned $= \dfrac{63\,000 + 42\,000 + 4\,200}{4\,200} = 26$ times

This ratio is a general guide to the long-term stability of the company in that it indicates how many times earnings for the year have covered interest commitments. The size of the ratio over time is important information. The ratio depends on accounting methods assumed in the calculation of operating profit.

6. Average turnover period $= \dfrac{365 \text{ days}}{\text{Inventory turnover}}$

$= 365 \div \dfrac{378\,000}{(168\,000 + 147\,000)/2}$

$= 152.1$ days

The ratio varies depending on the inventory method used.
The ratio should be determined on a consistent basis over time to examine trends.

Problem 25.5 Ratio analysis comparing two entities

The financial statements below are for two entities, Bandicoot Ltd and Rat Ltd.

Statements of Financial Position
as at 30 June 2003

	Bandicoot Ltd	Rat Ltd
CURRENT ASSETS		
Cash at bank	$ 12 000	$ 9 600
Accounts receivable (net)	52 800	38 400
Bills receivable (trade)	4 800	4 200
Inventory	48 600	34 200
Prepaid expenses	1 200	1 800
	119 400	88 200
NON-CURRENT ASSETS		
Plant and equipment (net)	198 600	167 400
	$318 000	$255 600
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities	$ 48 000	$ 36 000
Non-current liabilities	72 000	60 000
Share capital	120 000	120 000
Retained profits	78 000	39 600
	$318 000	$255 600

Additional information

1. The statements of financial performance for the two entities for the year ended 30 June 2003 reveal the following:

	Bandicoot Ltd	Rat Ltd
Sales revenue	$456 000	$345 600
Cost of goods sold	305 520	230 040
Operating profit after income tax	34 800	20 400

2. The balances of certain accounts as at 1 July 2002 were:

Inventory	$ 45 000	$ 30 600
Total assets	306 000	248 400
Retained profits	70 800	32 400
Accounts receivable (net)	48 000	36 000
Bills receivable	4 800	3 600

Required:

A. Calculate the following ratios for both companies:
   1. current ratio
   2. quick ratio
   3. inventory turnover
   4. average collection period for receivables.

   State which company you think is the better short-term credit risk. Give reasons.

B. Calculate the following ratios for both companies (ignore income tax):
   1. rate of return on total assets
   2. rate of return on shareholders' equity.

   Which company do you think is the better investment? Why?

C. What other analysis may be carried out to help in decision making?

Solution

BANDICOOT LTD AND RAT LTD

A.

Bandicoot Ltd

1. Current Ratio $\frac{119\,400}{48\,000} = 2.5{:}1$

2. Quick ratio $\frac{12\,000 + 52\,8000 + 4\,800}{48\,000} = 1.5{:}1$

3. Inventory turnover $\frac{305\,520}{(48.600 + 45\,000)/2} = 6.5$ times

4. Av. collection period $\frac{(57\,600 + 52\,800)/ \times 365}{456\,000} = 44.2$ days

Rat Ltd

1. Current ratio $\frac{88\,200}{36\,000} = 2.5{:}1$

2. Quick ratio $\frac{9\,600 + 38\,400 + 4\,200}{36\,000} = 1.5{:}1$

3. Inventory turnover $\frac{230\,040}{(34\,200 + 30600)/2} = 7.1$ times

4. Av. collection period $\frac{(42\,600 + 39600)/2 \times 365}{345\,600} = 43.4$ days

There appears to be very little grounds for choosing which company is the better short term credit risk. Although the current and quick ratios are equal, Rat Ltd appears to be slightly superior in terms of inventory and receivables turnover, but the differences between the two companies are small.

B.

Bandicoot Ltd

1. Rate of return on total assets (after interest) $\frac{34\,800}{(318\,000 + 306\,000)/2} = 11.2\%$

2. Rate of return on shareholders' equity $\frac{34\,800}{(198\,000 + 190\,800)/2} = 17.9\%$

Rat Ltd

1. Rate of return on total assets (after interest) $\frac{20\,400}{(255\,600 + 248\,400)/2} = 8.1\%$

2. Rate of return on shareholders' equity $\frac{20\,400}{(159\,600 + 152\,400)/2} = 13.1\%$

Bandicoot Ltd appears to be the better investment owing to its superior rates of return on assets and shareholders' equity. However, these differences may arise entirely through the use of different accounting methods. Hence no decision can be made without further information.

C.

Horizontal trend and vertical analysis, analysis of stability, e.g. debt ratio, times interest earned, determination of earnings yield, dividend yield, and dividend payout.