Chapter 3—Working with financial statements: Solutions to questions and problems

1 Inventory turnover = 221 014/31 450 = 7.03 times

Days' sales in inventory = 365/7.03 = 52 days

2 27 = 365/Inventory turnover

Inventory turnover = 13.52 times

13.52 = COGS/55 000

COGS = $743 600

3 A decrease in accounts payable is a use of cash; this caused cash to decrease by $25 000. A decrease in inventory is a source of cash; this caused cash to increase by $15 000. An increase in accounts receivable is a use of cash; this caused cash to decrease by $27 000. An increase in borrowings is a source of cash; this caused cash to increase by $65 000.

Change in cash = -25 000 + 15 000 – 27 000 + 65 000 = $28 000.
So cash increased by $28 000.

4 1 = (Total assets – 5)/5

Total assets = $10m

0.1 = Net profit/10m

Net profit = $1m

ROE = 1/5 = 0.2 = 20%

Equity multiplier = 1 + D/E = 1 + 1 = 2 times

5

Receivables turnover	= 645 964/33 842	= 19.09 times
Average collection period	= 365/19.09	= 19 days
Payables turnover	= 439 870/62 403	= 7.05 times
Payables period	= 365/7.05	= 52 days

It takes Woolly an average of 19 days to collect on credit sales and an average of 47 days to pay creditors.

6 Short-term solvency ratios

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Current ratio for 200X	= (600 + 1 950 + 3135)/(1 500 + 2 271)	= 1.51 times
Current ratio for 200X+1	= (1 509 + 2 064 + 2 100)/(1 590 + 1 929)	= 1.61 times
Quick ratio for 200X	= (600 + 1 950)/ (1 500 + 2 271)	= 0.68 times
Quick ratio for 200X+1	= (1 509 + 2 064)/ (1 590 + 1 929)	= 1.02 times

Asset management ratios

Total asset turnover	= 4 200/10 740	= 0.391 times
Inventory turnover (using ending figure)	= 2 100/2 100	= 1 time
Inventory turnover (using average)	= 2 100/[2 100 + 3 135]/2	
	= 2 100/2 617.5 = 0.80 times	
Receivables turnover (using ending figure)	= 4 200/2 064	= 2.03 times
Receivables turnover (using average)	= 4 200/[2 064 + 1 950]/2	
= 4 200/2 007	= 2.09 times	

Long-term solvency ratios

Debt/Equity ratio for 200X	= 7 062/3 093	= 2.28
Debt/Equity ratio for 200X+1	= 7 071/3 669	= 1.93
Equity multiplier for 200X	= 2.28 + 1	= 3.28
Equity multiplier for 200X+1	= 1.93 + 1	= 2.93
Net interest cover ratio	= 1 500/450	= 3.33 times

Profitability ratios

Profit margin	= 639/4 200	= 0.1521	= 15.21%
ROA	= 639/10 740	= 0.0595	= 5.95%
ROE	= 639/3 669	= 0.1742	= 17.42%

7 Du Pont identity: ROE = PM × TAT × EM = 0.1521 × 0.391 × 2.93 = 17.42%

8

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Cash flow statement for the period ended 30 June 200X+1

Operating activities	
Receipts from Customers	4 086
Payments to Suppliers	–975
Payment of interest	–450
Income tax paid	–411
Cash flow from operating activities	2 250
Investing activities	
Acquisition of Plant	–1 197
Cash flow from investing activities	–1 197
Financing activities	
Repayment of borrowings	–81
Issue of shares	390
Payment of dividends	–453
Cash flow from financing activities	–144
Net cash flows	909

9 Inventory turnover = 2 100/2 100 = 1

Days' sales in inventory = 365/1 = 365 days

Bumpy Enterprises could operate for 365 days, or one year.

10

EPS = 639/2000 = $0.32

P/E = 4.58/.32 = 14.31 times

Book value per share = 3 669/2 000 = 1.835

Market-to-book ratio = 4.58/1.835 = 2.496

11

a Reducing the short-term debt with cash increases the current ratio (assuming that it exceeds 1.0).

b If inventory is purchased with cash, then there is no change in the current ratio. If inventory is purchased on credit, then there is a decrease in the current ratio (assuming that it exceeds 1.0).

c Reducing accounts payable with cash increases the current ratio (assuming that it exceeds 1.0).

d As long-term debt approaches maturity, both the principal payment and the interest obligations become current liabilities. Thus, if the debt is paid with cash, then the current ratio will increase (assuming that it exceeds 1.0).

e A reduction in accounts receivable from a cash payment causes no change in the current ratio.

f If inventory items are sold for cash at book value, then there is no change in the current ratio; it will

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increase if the inventory is sold for an amount in excess of book.

12 Taxable income = 21 000/(1 – 0.30) = \$30 000
EBIT = 30 000 + 20 000 = \$50 000
Net interest cover = 50 000/20 000 = 2.5 times

13 Wright Ltd has increased inventory relative to other current assets. While the current ratio has increased, the increase is due to inventory which is the least liquid current asset.

14 ROA = 16 299/200 655 = 0.0812 = 8.12%
Profit margin = 16 299/160 640 = 10.1%

15

$D/E = 0.43$

therefore $D = 0.43E$

$V = E + D$

$= E + .43E$

$= 1.43E$

Equity multiplier = 1.43

16 Quick ratio = (100 000 – 22 000)/(55 000 – 33 000) = 3.5 times

17 Gladi Ltd spent 1 310 + 750 + 460 = \$ 2520 on non-current assets. This is a use of cash.

18 ROA = .06(2) = 12%

ROE = .06(2)(1 + 0.6) = 19.2%

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19

Redgant Company

Common-size Balance Sheet

30 June 200X+2

Assets	*Common-size 200X+2*	*Liabilities and OE*	*Common-size 200X+2*
Current assets		Current liabilities	
Cash	3.65%	Accounts payable	6.01%
Accounts receivable	7.23%	Borrowings	10.48%
Inventory	4.98%	Total	16.49%
Total	15.86%	Long-term debt	9.31%
Non-current assets	84.14%	Owners' equity	
		Capital	30.91%
		Retained earnings	43.29%
		Total	74.20%
Total assets	100.00%	Total liabilities and OE	100.00%

20 ($53 408 – 56 354) – $1 250 = ($4 196). The cash flow from investing activities was negative $4 196. Redgant increased its investment in plant and equipment during the period.

21a Current ratio for 200X = 13 330/16 518 = 0.81
Current ratio for 200X+1 = 14 212/17 358 = 0.82

b Quick ratio for 200X = (13 330 – 8 402)/16 518 = 0.30
Quick ratio for 200X+1 = (14 212 – 8 430)/17 358 = 0.33

c

Net Debt/Equity ratio for 200X	= (7 633 + 6 764 – 1 482)/43 456	= 0.30
Net Debt/Equity ratio for 200X+1	= (8 355 + 4 356 – 1 553)/48 852	= 0.23
Debt/Equity ratio for 200X	= (66 738 – 43 456)/43 456	= 0.54
Debt/Equity ratio for 200X+1	= (70 566 – 48 852)/48 852	= 0.44
Equity multiplier for 200X	= 1 +0.54	= 1.54
Equity multiplier for 200X+1	= 1 + 0.44	= 1.44

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22 45 = 365/Receivables turnover

Receivables turnover = 8.111 times

8.111 = Sales/210 000

Sales = $1 703 310

Profit margin = 620 000/1 703 310 = .364 =36.4%

Total assets turnover = 1 703 310/3 000 000 = 0.568 times

0.4 = (3 000 000 – Equity)/Equity

Equity = $2 142 857

ROE = 620 000/2 142 857= 0.2893 = 28.93%

23

Receivables turnover	= 267 830/35 839	= 7.47 times
Days' sales in receivables	= 365/7.47	= 49 days

The average collection period is similar to the days' sales in receivables, so the average collection period is 49 days.

24

Profit margin (child)	= 0.25/10	= 0.025	= 2.5%
Profit margin (store)	= 2.5% x 0.5	= X/1 450	
X	= $18.125 million		
Total asset turnover	= 1 450/160	= 9.0625 times	
ROA	= 18.125/160	= 0.1138	= 11.38%
ROE	= 18.125/(160 – 70)	= 0.2013	= 20.13%

The store does have a profit margin equal to half of the child's profit. However, relatively narrow profit margins are characteristic of grocery stores. Turnover, on the other hand, is quite high. As a result, in this case, the store's return on assets is 11.38% and its return on equity is 20.13%. Therefore, the claim is not necessarily inaccurate, but it is arguably misleading.

25

Debt	= Total assets – Equity
	= $20m – Equity
Debt /Equity	= 1.0 = [$20m – Equity]/Equity
Equity	= $5m
ROE	= 0.2 = Net Profit/$5m
Net profit	= $1m
Profit margin	= $1m/$20m = 0.05 or 5%

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MINICASE SOLUTIONS

1 The calculations for the ratios listed are:

Current ratio = $2 186 520/$2 919 000

Current ratio = 0.75 times

Quick ratio = ($2 186 250 – 1 037 120)/$2 919 000

Quick ratio = 0.39 times

Cash ratio = $441 000/$2 919 000

Cash ratio = 0.15 times

Total asset turnover = $30 499 420/$18 308 920

Total asset turnover = 1.67 times

Inventory turnover = $22 224 580/$1 037 120

Inventory turnover = 21.43 times

Receivables turnover = $30 499 420/$708 400

Receivables turnover = 43.05 times

Total debt ratio = ($18 308 920 – 10 069 920)/$18 308 920

Total debt ratio = 0.45 times

Debt-equity ratio = ($2 919 000 + 5 320 000)/$10 069 920

Debt–equity ratio = 0.82 times

Equity multiplier = $18 308 920/$10 069 920

Equity multiplier = 1.82 times

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Times interest earned = $3 040 660/$478 240

Times interest earned = 6.36 times

Cash coverage = ($3 040 660 + 1 366 680)/$478 420

Cash coverage = 9.22 times

Profit margin = $1 537 452/$30 499 420

Profit margin = 5.04%

Return on assets = $1 537 452/$18 308 920

Return on assets = 8.40%

Return on equity = $1 537 452/$10 069 920

Return on equity = 15.27%

2 Boeing is probably not a good aspirant company. Even though both companies manufacture aeroplanes, S&S Air manufactures small aeroplanes, while Boeing manufactures large commercial aircraft. These are two different markets. Additionally, Boeing is heavily involved in the defence industry, as well as Boeing Capital, which finances aeroplanes.

Bombardier is a Canadian company that builds business jets, short-range airliners and fire-fighting amphibious aircraft and also provides defence-related services. It is the third largest commercial aircraft manufacturer in the world. Embraer is a Brazilian manufacturer than manufactures commercial, military and corporate aeroplanes. Additionally, the Brazilian government is a part owner of the company. Bombardier and Embraer are probably not good aspirant companies because of the diverse range of products and manufacture of larger aircraft.

Cirrus is the world’s second largest manufacturer of single-engine, piston-powered aircraft. Its SR22 is the world’s best-selling plane in its class. The company is noted for its innovative small aircraft and is a good aspirant company.

Cessna is a well-known manufacturer of small aeroplanes. The company produces business jets, freight- and passenger-hauling utility caravans, personal and small-

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business single engine pistons. It may be a good aspirant company; however, its products could be considered too broad and diversified since S&S Air produces only small personal aeroplanes.

3 S&S is below the median industry ratios for the current and cash ratios. This implies that the company has less liquidity than the industry in general. However, both ratios are above the lower quartile, so there are companies in the industry with lower liquidity ratios than S&S Air. The company may have more predictable cash flows, or more access to short-term borrowing. If you created an Inventory to Current liabilities ratio, S&S Air would have a ratio that is lower than the industry median. The current ratio is below the industry median, while the quick ratio is above the industry median. This implies that S&S Air has less inventory to current liabilities than the industry median. S&S Air has less inventory than the industry median, but more accounts receivable than the industry since the cash ratio is lower than the industry median.

The turnover ratios are all higher than the industry median; in fact, all three turnover ratios are above the upper quartile. This may mean that S&S Air is more efficient than the industry.

The financial leverage ratios are all below the industry median, but above the lower quartile. S&S Air generally has less debt than comparable companies, but still within the normal range.

The profit margin, ROA and ROE are all slightly below the industry median; however, not dramatically lower. The company may want to examine its cost structure to determine if costs can be reduced or prices can be increased.

Overall, S&S Air's performance seems good, although the liquidity ratios indicate that a closer look may be needed in this area.

Below is a list of possible reasons it may be good or bad that each ratio is higher or lower than the industry. Note that the list is not exhaustive, but merely one possible explanation for each ratio.

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Ratio	Good	Bad
Current ratio	Better at managing current accounts.	May be having liquidity problems.
Quick ratio	Better at managing current accounts.	May be having liquidity problems.
Cash ratio	Better at managing current accounts.	May be having liquidity problems.
Total asset turnover	Better at utilising assets.	Assets may be older and depreciated, requiring extensive investment soon.
Inventory turnover	Better at inventory management, possibly due to better procedures.	Could be experiencing inventory shortages.
Receivables turnover	Better at collecting receivables.	May have credit terms that are too strict. Decreasing receivables turnover may increase sales.
Total debt ratio	Less debt than industry median means the company is less likely to experience credit problems.	Increasing the amount of debt can increase shareholder returns. Especially notice that it will increase ROE.
Debt-equity ratio	Less debt than industry median means the company is less likely to experience credit problems.	Increasing the amount of debt can increase shareholder returns. Especially notice that it will increase ROE.
Equity multiplier	Less debt than industry median means the company is less likely to experience credit problems.	Increasing the amount of debt can increase shareholder returns. Especially notice that it will increase ROE.
TIE	Higher quality materials could be increasing costs.	The company may have more difficulty meeting interest payments in a downturn.
Cash coverage	Less debt than industry median means the company is less likely to experience credit problems.	Increasing the amount of debt can increase shareholder returns. Especially notice that it will increase ROE.
Profit margin	The PM is slightly below the industry median. It could be a result of higher quality materials or better manufacturing.	Company may be having trouble controlling costs.

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ROA	Company may have newer assets than the industry.	Company may have newer assets than the industry.
ROE	Lower profit margin may be a result of higher quality.	Profit margin and EM are lower than industry, which results in the lower ROE.

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