MBA in Food & Agribusiness

Financial Management

Financial Statement Analysis with Ratios

7.1 In the chapter it was mentioned that ratios help to eliminate some of the problems of comparing businesses of different sizes. Does this mean that size is irrelevant when interpreting and analysing the position and performance of different businesses?

Size may well be an important factor when comparing businesses:

- Larger businesses may be able to generate economies of scale in production and distribution to an extent not available to smaller businesses.
- Larger businesses may be able to raise finance more cheaply, partly through economies of scale (for example, borrowing larger amounts) and partly through being seen as less of a risk to the lender.
- Smaller businesses may be able to be more flexible and 'lighter on their feet' than can the typical larger business.

These and other possible factors may lead to differences in performance and position between larger and smaller businesses.

7.2 Two businesses operate in the same industry. One has an inventories turnover period that is longer than the industry average. The other has an inventories turnover period that is shorter than the industry average. Give three possible explanations for each business's inventories turnover period ratio.

Three possible reasons for a long inventories turnover period are:

- poor inventories controls, leading to excessive investment in inventories;
- inventories hoarding in anticipation of price rises, shortages or increased future sales;
- to be able to offer customers a wide range of products or to be able to supply promptly at all times.

A short inventories turnover period may be due to:

- tight inventories controls, reducing excessive investment in inventories and/or the amount of obsolete and slow-moving inventories;
- an inability to finance the required amount of inventories to meet sales demand;
- a difference in the mix of inventories carried by similar businesses (for example, greater investment in perishable goods which are held for a short period only).

These are not exhaustive lists; you may have thought of other reasons.

7.4 Identify and discuss three reasons why the P/E ratios of two businesses operating within the same industry may differ.

The P/E ratio may vary between businesses within the same industry for the following reasons:

- *Accounting policies.* Differences in the methods used to compute profit (for example, inventories valuation and depreciation) can lead to different profit figures and, therefore, different P/E ratios.
- *Different prospects.* One business may be regarded as having a much brighter future due to factors such as the quality of management, the quality of products, or location. This will affect the market price investors are prepared to pay for the share and hence will also affect the P/E ratio.
- *Different asset structure.* The business's underlying asset base may be much higher and this may affect the market price of the shares.

7.1 Set out below are ratios relating to three different businesses. Each business operates within a different industrial sector.

Ratio	*A plc*	*B plc*	*C plc*
Operating profit margin	3.6%	9.7%	6.8%
Sales to capital employed	2.4 times	3.1 times	1.7 times
Average inventories turnover period	18 days	N/A	44 days
Average settlement period for trade receivables	2 days	12 days	26 days
Current ratio	0.8 times	0.6 times	1.5 times

Required:

State, with reasons, which one of the three businesses is:

(a) a holiday tour operator;

(b) a supermarket chain;

(c) a food manufacturer.

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Three businesses

A plc operates a supermarket chain. The grocery business is highly competitive and, in order to generate high sales volumes, it is usually necessary to accept low operating profit margins. Thus, we can see that the operating profit margin of A plc is the lowest of the three businesses. The inventories turnover period of supermarket chains also tend to be quite low. They are often efficient in managing inventories, and most supermarket chains have invested heavily in inventories control and logistical systems over the years. The average settlement period for receivables is very low as most sales are for cash, although, when a customer pays by credit card, there is usually a small delay before the supermarket receives the amount due. A low inventories turnover period and a low average settlement period for receivables usually mean that the investment in current assets is low. Hence, the current ratio (current assets/current liabilities) is also low.

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B plc is the holiday tour operator. We can see that the sales to capital employed ratio is the highest of the three. This is because tour operators do not usually require a large investment of capital: they do not need a large asset base in order to conduct their operations. The inventories turnover period ratio does not apply to B plc. It is a service business, which does not hold inventories for resale. We can see that the average settlement period for receivables is low. This may be because customers are invoiced near to the holiday date for any amounts outstanding and must pay before going on holiday. The lack of inventories held and low average settlement period for receivables leads to a very low current ratio.

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period for receivables leads to a very low current ratio.

C plc is the food manufacturing business. We can see that the sales to capital employed ratio is the lowest of the three. This is because manufacturers tend to invest heavily in both current and non-current assets. The inventories turnover period is the highest of the three. Three different kinds of inventories – raw materials, work in progress and finished goods – are held by manufacturers. The average receivables settlement period is also the highest of the three. Manufacturers tend to sell to other businesses rather than to the public and their customers will normally demand credit. A one-month credit period for customers is fairly common for manufacturing businesses, although customers may receive a discount for prompt payment. The relatively high investment in inventories and receivables usually results in a high current ratio.

7.2 Amsterdam Ltd and Berlin Ltd are both engaged in retailing, but they seem to take a different approach to it according to the following information:

Ratio	*Amsterdam Ltd*	*Berlin Ltd*
Return on capital employed (ROCE)	20%	17%
Return on ordinary shareholders' funds (ROSF)	30%	18%
Average settlement period for trade receivables	63 days	21 days
Average settlement period for trade payables	50 days	45 days
Gross profit margin	40%	15%
Operating profit margin	10%	10%
Average inventories turnover period	52 days	25 days

Required:

Describe what this information indicates about the differences in approach between the two businesses. If one of them prides itself on personal service and one of them on competitive prices, which do you think is which and why?

Amsterdam Ltd and Berlin Ltd are both engaged in retailing, but they seem to take a different approach to it according to the following information:

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The ratios for Amsterdam Ltd and Berlin Ltd reveal that the average settlement period for trade receivables for Amsterdam Ltd is three times that for Berlin Ltd. Berlin Ltd is therefore much quicker in collecting amounts outstanding from customers. On the other hand, there is not much difference between the two businesses in the time taken to pay trade payables.

It is interesting to compare the difference in the trade receivables and payables settlement periods for each business. As Amsterdam Ltd allows an average of 63 days' credit to its customers, yet pays suppliers within 50 days, it will require greater investment in working capital than Berlin Ltd, which allows an average of only 21 days to its customers but takes 45 days to pay its suppliers.

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Amsterdam Ltd has a much higher gross profit margin than Berlin Ltd. However, the operating profit margin for the two businesses is identical. This suggests that Amsterdam Ltd has much higher overheads (as a percentage of sales revenue) than Berlin Ltd. The average inventories turnover period for Amsterdam Ltd is more than twice that of Berlin Ltd. This may be due to the fact that Amsterdam Ltd maintains a wider range of inventories in an attempt to

meet customer requirements. The evidence therefore suggests that Amsterdam Ltd is the business that prides itself on personal service. The higher average settlement period for trade receivables is consistent with a more relaxed attitude to credit collection (thereby maintaining customer goodwill) and the high overheads are consistent with incurring the additional costs of satisfying customers' requirements. Amsterdam Ltd's high inventories levels are consistent with maintaining a wide range of inventories, with the aim of satisfying a range of customer needs.

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Berlin Ltd has the characteristics of a more price-competitive business. Its gross profit margin is much lower than that of Amsterdam Ltd, that is, a much lower gross profit for each £1 of sales revenue. However, overheads have been kept low, the effect being that the operating profit margin is the same as Amsterdam Ltd's. The low average inventories turnover period and average settlement period for trade receivables are consistent with a business that wishes to minimise investment in current assets, thereby reducing costs.

7.3 The directors of Helena Beauty Products Ltd have been presented with the following abridged financial statements:

Helena Beauty Products Ltd
Income statement for the year ended 30 September

	2018		*2019*	
	£000	*£000*	*£000*	*£000*
Sales revenue		3,600		3,840
Cost of sales				
Opening inventories	320		400	
Purchases	2,240		2,350	
	2,560		2,750	
Closing inventories	(400)	(2,160)	(500)	(2,250)
Gross profit		1,440		1,590
Expenses		(1,360)		(1,500)
Profit		80		90

Statement of financial position as at 30 September

	2018	*2019*
	£000	*£000*
ASSETS		
Non-current assets		
Property, plant and equipment	1,900	1,860
Current assets		
Inventories	400	500
Trade receivables	750	960
Cash at bank	8	4
	1,158	1,464
Total assets	3,058	3,324
EQUITY AND LIABILITIES		
Equity		
£1 ordinary shares	1,650	1,766
Retained earnings	1,018	1,108
	2,668	2,874
Current liabilities	390	450
Total equity and liabilities	3,058	3,324

Required:
Using six ratios, comment on the profitability (three ratios) and efficiency (three ratios) of the business.

Helena Beauty Products Ltd

	2018	2019
Profitability ratios		
Operating profit margin	$\frac{80}{3,600} \times 100\% = 2.2\%$	$\frac{90}{3,840} \times 100\% = 2.3\%$
Gross profit margin	$\frac{1,440}{3,600} \times 100\% = 40\%$	$\frac{1,590}{3,840} \times 100\% = 41.4\%$
ROCE	$\frac{80}{2,668} \times 100\% = 3.0\%$	$\frac{90}{2,874} \times 100\% = 3.1\%$
Efficiency ratios		
Inventories turnover period	$\frac{(320+400)/2}{2,160} \times 365 = 61$ days	$\frac{(400+500)/2}{2,250} \times 365 = 73$ days
Trade receivables settlement period	$\frac{750}{3,600} \times 365 = 76$ days	$\frac{960}{3,840} \times 365 = 91$ days
Sales revenue/capital employed	$\frac{3,600}{2,668} = 1.3$	$\frac{3,840}{2,874} = 1.3$

These ratios reveal, what seems to be, a low operating profit margin in each year. The gross profit margin, however, is quite high in each year, suggesting that the business has high overheads. There was a slight increase of 1.4 percentage points in the gross profit margin during 2019, but this appears to have been largely swallowed up by increased overheads. As a result, the operating profit margin increased by only 0.1 percentage points in 2019. The low operating profit margin is matched by, what seems to be, a rather low sales revenue to capital employed ratio in both years. The combined effect is a low ROCE in both years. The ROCE for each year is lower than might be expected from investment in risk-free government securities. This must be unsatisfactory since investing in a business can be quite risky.

Helena Beauty Products Ltd

	2018	2019
Profitability ratios		
Operating profit margin	$\frac{80}{3,600} \times 100\% = 2.2\%$	$\frac{90}{3,840} \times 100\% = 2.3\%$
Gross profit margin	$\frac{1,440}{3,600} \times 100\% = 40\%$	$\frac{1,590}{3,840} \times 100\% = 41.4\%$
ROCE	$\frac{80}{2,668} \times 100\% = 3.0\%$	$\frac{90}{2,874} \times 100\% = 3.1\%$
Efficiency ratios		
Inventories turnover period	$\frac{(320+400)/2}{2,160} \times 365 = 61 \text{ days}$	$\frac{(400+500)/2}{2,250} \times 365 = 73 \text{ days}$
Trade receivables settlement period	$\frac{750}{3,600} \times 365 = 76 \text{ days}$	$\frac{960}{3,840} \times 365 = 91 \text{ days}$
Sales revenue/capital employed	$\frac{3,600}{2,668} = 1.3$	$\frac{3,840}{2,874} = 1.3$

The inventories' turnover period and settlement period for trade receivables have both increased significantly over the period. The settlement period seems to be high and should be a cause for concern. Although (in absolute terms) sales revenue increased during 2019, operating profit fell quite sharply. The directors should be concerned at the low level of profitability and efficiency of the business. In particular, an investigation of the high level of overheads and the higher investment in inventories and trade receivables should be undertaken.

7.4 Conday and Co. Ltd has been in operation for three years and produces antique reproduction furniture for the export market. The most recent set of financial statements for the business is set out as follows:

Statement of financial position as at 30 November

	£000
ASSETS	
Non-current assets	
Property, plant and equipment (cost less depreciation)	
Land and buildings	228
Plant and machinery	762
	990
Current assets	
Inventories	600
Trade receivables	820
	1,420
Total assets	2,410
EQUITY AND LIABILITIES	
Equity	
Ordinary shares of £1 each	700
Retained earnings	365
	1,065
Non-current liabilities	
Borrowings – 9% loan notes (Note 1)	200
Current liabilities	
Trade payables	665
Taxation	48
Short-term borrowings (all bank overdraft)	432
	1,145
Total equity and liabilities	2,410

Income statement for the year ended 30 November

	£000
Revenue	2,600
Cost of sales	(1,620)
Gross profit	980
Selling and distribution expenses (Note 2)	(408)
Administration expenses	(194)
Operating profit	378
Finance expenses	(58)
Profit before taxation	320
Taxation	(95)
Profit for the year	225

Notes:

1. The loan notes are secured on the land and buildings.
2. Selling and distribution expenses include £170,000 in respect of bad debts.
3. A dividend of £160,000 was paid on the ordinary shares during the year.
4. The directors have invited an investor to take up a new issue of ordinary shares in the business at £6.40 each making a total investment of £200,000. The directors wish to use the funds to finance a programme of further expansion.

Required:

(a) Analyse the financial position and performance of the business and comment on any features that you consider significant.

(b) State, with reasons, whether or not the investor should invest in the business on the terms outlined.

(a) *Return on capital employed*

$$\frac{\text{Operating profit}}{\text{Equity + long-term borrowings}} \times 100\%$$

$$\frac{378}{1,265} \times 100\%$$ 29.9%

Return on ordinary shareholders' funds

$$\frac{\text{Profit for the year}}{\text{Share capital + reserves}} \times 100\%$$

$$\frac{225}{1,065} \times 100\%$$ 21.1%

Gross profit margin

$$\frac{\text{Gross profit}}{\text{Sales revenue}} \times 100\%$$

$$\frac{980}{2,600} \times 100\%$$ 37.7%

Operating profit margin

$$\frac{\text{Operating profit}}{\text{Sales revenue}} \times 100\%$$

$$\frac{378}{2,600} \times 100\%$$ 14.5%

Sales revenue to capital employed

$$\frac{\text{Sales revenue}}{\text{Equity + non-current liabilities}}$$

$$\frac{2,600}{1,065 + 200}$$ 2.1 times

Settlement period for trade receivables

$$\frac{\text{Trade receivables}}{\text{Credit sales revenue}} \times 365 \text{ days}$$

$$\frac{820}{2,600} \times 365 \text{ days}$$ 115 days

Inventories turnover period

$$\frac{\text{Inventories held}}{\text{Cost of sales}} \times 365 \text{ days}$$

$$\frac{600}{1,620} \times 365 \text{ days}$$ 135 days

The above ratios reveal that Conday and Co Ltd is profitable. In particular, the return on ordinary shareholders' funds and ROCE ratios seem to be high in relation to the returns achieved by more secure forms of investment such as government securities. However, whether this level of return is sufficient to compensate for the risks involved is difficult to judge from the information available.

The settlement period for trade receivables seems very high, which may be due to the nature of the business. However, this high ratio, combined with the fact that the bad debts of the business account for more than 6% of total sales revenue, suggests that some tightening of credit control procedures may be required. The inventories turnover period also seems high. The business is carrying more than four months' inventories. This may indicate a need also to improve inventories control procedures. At present, the business has a large bank overdraft and so major improvements in inventories control and credit control procedures may have a significant effect on both the liquidity and the profitability of the business.

Given the high level of bank borrowing, it is difficult to understand why such a high proportion of the profit for the year was distributed in the form of dividend. This is not a very prudent policy. The sales revenue to capital employed ratio seems quite low. This is due, at least in part, to the high levels of inventories and trade receivables that are being carried.

(b) Although the business is profitable, there are some doubts as to the quality of its management. The business has high levels of inventories and trade receivables and a large overdraft. It is possible that better management would not have allowed this situation to arise. It is also possible that better management of existing assets would remove the need for external sources of funds for expansion. It is interesting to speculate how £200,000 received from the issue of shares might be used by the managers. Would it be used to finance even higher levels of inventories and trade receivables without there being a corresponding increase in sales revenue?

The share price of £6.40 is much higher than the net asset value of the shares. At present, the net assets (assets less liabilities) have a statement of financial position value of £1,065,000 and there are 700,000 shares in issue. This gives a net asset value per share of £1.52. To justify paying £6.40, the investor would have to be convinced that the business would generate high profits in the future.

7.5 Threads Limited manufactures nuts and bolts, which are sold to industrial users. The abbreviated financial statements for 2018 and 2019 are as follows:

Income statements for the year ended 30 June

	2018	2019
	£000	£000
Revenue	1,180	1,200
Cost of sales	(680)	(750)
Gross profit	500	450
Operating expenses	(200)	(208)
Depreciation	(66)	(75)
Operating profit	234	167
Interest	(–)	(8)
Profit before taxation	234	159
Taxation	(80)	(48)
Profit for the year	154	111

Statements of financial position as at 30 June

	2018	2019
	£000	£000
ASSETS		
Non-current assets		
Property, plant and equipment	702	687
Current assets		
Inventories	148	236
Trade receivables	102	156
Cash	3	4
	253	396
Total assets	955	1,083
EQUITY AND LIABILITIES		
Equity		
Ordinary share capital (£1 shares, fully paid)	500	500
Retained earnings	256	295
	756	795
Non-current liabilities		
Borrowings – bank loan	–	50
Current liabilities		
Trade payables	60	76
Other payables and accruals	18	16
Taxation	40	24
Short-term borrowings (all bank overdraft)	81	122
	199	238
Total equity and liabilities	955	1,083

Dividends were paid on ordinary shares of £70,000 and £72,000 in respect of 2018 and 2019 respectively.

Required:

(a) Calculate the following financial ratios for *both* 2018 and 2019 (using year-end figures for statement of financial position items):

1. return on capital employed
2. operating profit margin
3. gross profit margin
4. current ratio
5. acid test ratio
6. settlement period for trade receivables
7. settlement period for trade payables
8. inventories turnover period.

(b) Comment on the performance of Threads Limited from the viewpoint of a business considering supplying a substantial amount of goods to Threads Limited on usual trade credit terms.

(a)

	2018		2019	
ROCE	234/756	= 31.0%	167/845	= 19.8%
Operating profit margin	234/1180	= 19.8%	167/1200	= 13.9%
Gross profit margin	500/1180	= 42.4%	450/1200	= 37.5%
Current ratio	253/199	= 1.3:1	396/238	= 1.7:1
Acid test ratio	105/199	= 0.5:1	160/238	= 0.7:1
Settlement – trade receivables	102/1180 × 365	= 32 days	156/1200 × 365	= 47 days
Settlement – trade payables	60/680* × 365	= 32 days	76/750* × 365	= 37 days
Inventories turnover	148/680 × 365	= 79 days	236/750 × 365	= 115 days

*The credit purchases figure is not available, so the cost of sales figure has been used. This only provides a rough approximation of the settlement period for trade payables.

(b) A supplier seeking to sell a substantial amount of goods to the business will be concerned with both liquidity and longer-term viability (where there is a continuing relationship) as measured by profitability ratios. The supplier will also be interested in the average time taken by the business to pay its current suppliers.

- The liquidity ratios reveal an apparent improvement over the two years. However, for a manufacturing business, the liquidity ratios seem low and the supplier may have some concern. The increase in inventories over the period has led to a greater improvement in the current ratio than in the liquid (acid test) ratio. The improvement in the acid test ratio has not been significant, and some concern over the business's liquidity position must remain.

- The settlement period for credit customers (trade receivables) has increased substantially in 2019. This may be a deliberate policy. However, if this is the case, the effect of a more liberal credit policy has not proved to be very successful as there has only been a slight increase in sales revenue in 2019. The credit period increase may be due, on the other hand, to other factors such as poor credit control or particular customers experiencing financial difficulties. The effect of this change in the trade receivables ratio should be carefully noted by the supplier as the increase in trade receivables outstanding seems to be partly financed by an increase in the average settlement period for trade payables.

- The inventories' turnover period has increased significantly in 2019. This might be due to inventories building in anticipation of future sales revenue. However, it might indicate that certain products are not selling as well as expected and are therefore remaining in inventories.

- The gross profit margin and operating profit margins are both lower in 2019. Lower margins have, in turn, led to a lower return on capital employed. The lower operating profit margins, the increase in the average credit period allowed to trade receivables and the increase in the inventories turnover period may suggest that the business has a product range that is becoming unattractive and therefore more difficult to sell. It might, however, also suggest a more competitive business environment.

The ratios calculated above do not indicate any serious problems for the business. However, it is clear that 2019 proved to be a more difficult year than 2018. Nevertheless, things may well improve in the future. At this point, however, the supplier would be well advised to be cautious in its dealings with the business. Certainly, the supplier should not rely too heavily on Threads Ltd for future sales revenue.

7.6 Genesis Ltd was incorporated three years ago and has grown rapidly since then. The rapid rate of growth has created problems for the business, which the directors have found difficult to deal with. Recently, a firm of management consultants has been asked to help the directors to overcome these problems.

In a preliminary report to the board of directors, the management consultants state: 'Most of the difficulties faced by the business are symptoms of an underlying problem of overtrading.'

The most recent financial statements of the business are set out below.

Statement of financial position as at 31 October

	£000	£000
ASSETS		
Non-current assets		
Property, plant and equipment		
Land and buildings at cost	530	
Accumulated depreciation	(88)	442
Fixtures and fittings at cost	168	
Accumulated depreciation	(52)	116
Motor vans at cost	118	
Accumulated depreciation	(54)	64
		622
Current assets		
Inventories		128
Trade receivables		104
		232
Total assets		854
EQUITY AND LIABILITIES		
Equity		
Ordinary £0.50 shares		60
General reserve		50
Retained earnings		74
		184
Non-current liabilities		
Borrowings – 10% loan notes (secured)		120
Current liabilities		
Trade payables		184
Taxation		8
Short-term borrowings (all bank overdraft)		358
		550
Total equity and liabilities		854

Income statement for the year ended 31 October

	£000	£000
Revenue		1,640
Cost of sales:		
Opening inventories	116	
Purchases	1,260	
	1,376	
Closing inventories	(128)	(1,248)
Gross profit		392
Selling and distribution expenses		(204)
Administration expenses		(92)
Operating profit		96
Interest payable		(44)
Profit before taxation		52
Taxation		(16)
Profit for the year		36

All purchases and sales were on credit.
A dividend was paid during the year on ordinary shares of £4,000.

Required:

(a) Calculate and discuss five financial ratios that might be used to establish whether the business is overtrading. Do these five ratios suggest that the business is overtrading?

(b) State the ways in which a business may overcome the problem of overtrading.

7.6 Genesis Ltd

(a)

$$\text{Current ratio} = \frac{232}{550} = 0.42 : 1$$

$$\text{Acid test ratio} = \frac{104}{550} = 0.19 : 1$$

$$\text{Inventories turnover period} = \frac{128}{1,248} \times 365 = 37 \text{ days}$$

$$\text{Average settlement period for trade receivables} = \frac{104}{1,640} \times 365 = 23 \text{ days}$$

$$\text{Average settlement period for trade payables} = \frac{184}{1,260} \times 365 = 53 \text{ days}$$

It is difficult to make a judgement in the absence of any basis for comparison, but there is some suggestion that the business is overtrading. Both of the liquidity ratios look weak. The acid test ratio should probably be around 1:1. Customers are paying more than twice as quickly as suppliers are being paid. This suggests that pressure may be being applied to the former to pay quickly, perhaps with adverse results. It may also imply that payments to suppliers are being delayed because of a lack of available finance.

(b) Overtrading must be dealt with either by increasing the level of funding to match the level of activity, or by reducing the level of activity to match the funds available. The latter option may result in a reduction in operating profit in the short term but may be necessary to ensure long-term survival.

7.7 The financial statements for Harridges Ltd are given below for the two years ended 30 June 2018 and 2019. Harridges Limited operates a department store in the centre of a small town.

Income statements for the years ended 30 June

	2018	2019
	£000	£000
Sales revenue	2,600	3,500
Cost of sales	(1,560)	(2,350)
Gross profit	1,040	1,150
Wages and salaries	(320)	(350)
Overheads	(260)	(200)
Depreciation	(150)	(250)
Operating profit	310	350
Interest payable	(50)	(50)
Profit before taxation	260	300
Taxation	(105)	(125)
Profit for the year	155	175

Statement of financial position as at 30 June

	2018	2019
	£000	£000
ASSETS		
Non-current assets		
Property, plant and equipment	1,265	1,525
Current assets		
Inventories	250	400
Trade receivables	105	145
Cash at bank	380	115
	735	660
Total assets	2,000	2,185
EQUITY AND LIABILITIES		
Equity		
Share capital: £1 shares fully paid	490	490
Share premium	260	260
Retained earnings	350	450
	1,100	1,200
Non-current liabilities		
Borrowings – 10% loan notes	500	500
Current liabilities		
Trade payables	300	375
Other payables	100	110
	400	485
Total equity and liabilities	2,000	2,185

Dividends were paid on ordinary shares of £65,000 and £75,000 in respect of 2018 and 2019, respectively.

Required:

(a) Choose and calculate eight ratios that would be helpful in assessing the performance of Harridges Ltd. Use end-of-year values and calculate ratios for both 2018 and 2019.

(b) Using the ratios calculated in (a) and any others you consider helpful, comment on the business's performance from the viewpoint of a prospective purchaser of a majority of shares.

Harridges Ltd

(a)

	2018	2019
ROCE	$\frac{310}{1,600} = 19.4\%$	$\frac{350}{1,700} = 20.6\%$
ROSF	$\frac{155}{1,100} = 14.1\%$	$\frac{175}{1,200} = 14.6\%$
Gross profit margin	$\frac{1,040}{2,600} = 40\%$	$\frac{1,150}{3,500} = 32.9\%$
Operating profit margin	$\frac{310}{2,600} = 11.9\%$	$\frac{350}{3,500} = 10\%$
Current ratio	$\frac{735}{400} = 1.8$	$\frac{660}{485} = 1.4$
Acid test ratio	$\frac{485}{400} = 1.2$	$\frac{260}{485} = 0.5$
Trade receivables settlement period	$\frac{105}{2,600} \times 365 = 15$ days	$\frac{145}{3,500} \times 365 = 15$ days
Trade payables settlement period	$\frac{300}{1,560^{*}} \times 365 = 70$ days	$\frac{375}{2,350^{*}} \times 365 = 58$ days
Inventories turnover period	$\frac{250}{1,560} \times 365 = 58$ days	$\frac{400}{2,350} \times 365 = 62$ days
Gearing ratio	$\frac{500}{1,600} = 31.3\%$	$\frac{500}{1,700} = 29.4\%$

* Used because the credit purchases figure is not available.

(b) There has been a considerable decline in the gross profit margin during 2019. This fact, combined with the increase in sales revenue by more than a third, suggests that a price-cutting policy has been adopted in an attempt to stimulate sales. The resulting increase in sales revenue, however, has led to only a small improvement in ROCE and ROSF.

Despite a large cut in the gross profit margin, the operating profit margin has fallen by less than 2 per cent. This suggests that overheads may have been more tightly controlled during 2019. Certainly, overheads have not risen in proportion to sales revenue.

The current ratio has fallen a little and the acid test ratio has fallen by more than half. Although liquidity ratios tend to be lower in retailing than in manufacturing, the liquidity of the business should now be a cause for concern. However, this may be a passing problem. The business is investing heavily in non-current assets and is relying on internal funds to finance this growth. When this investment ends, the liquidity position may improve quickly.

The trade receivables period has remained unchanged over the two years, and there has been no significant change in the inventories turnover period in 2019. The gearing ratio seems quite low and provides no cause for concern given the profitability of the business.

Overall, the business appears to be financially sound. Although there has been rapid growth during 2019, there is no real cause for alarm provided the liquidity of the business can be improved in the near future. In the absence of information concerning share price, it is not possible to say whether an investment should be made.

Exercise 1:

Compute four ratios that measure the ability to earn profits for Harmon Decor Inc., whose comparative income statements follow:

Harmon Decor Inc.		
Comparative Income Statements Years Ended Dec 31, 2010 and 2009		
In $ amounts		
	2010	2009
Net Sales	100.000	90.000
COS	53.000	46.000
Gross Profit	47.000	44.000
Selling & General Expenses	20.000	18.000
Income from operations	27.000	26.000
Interest Expense	3.000	2.000
Income beofre income taxes	24.000	24.000
Income tax expense	8.000	7.000
Net Income	16.000	17.000

Additional Data			
	2010	2009	2008
Total Assets ($)	104.000	100.000	83.000
Ordinary Sahreholders Equity ($)	72.000	70.000	69.000
Preference Dividends ($)	3.000	2.000	1.000
Ordinary shares outstanding			
duing the year (no)	10.000	9.000	4.000

Did the company's performance improve or deteriorate during 2010?

Solution

(Dollars in thousands)

a. Rate of return on net sales:

2010: $\frac{\$16,000}{\$100,000} = 0.160$ 2009: $\frac{\$17,000}{\$90,000} = 0.189$

b. Rate of return on total assets:

2010: $\frac{\$16,000 + \$3,000}{\$102,000*} = 0.186$ 2009: $\frac{\$17,000 + \$2,000}{\$91,500**} = 0.208$

*($104,000 + $100,000) / 2 = $102,000.

**($100,000 + $83,000) / 2 = $91,500.

c. Rate of return on ordinary shareholders' equity:

2010: $\frac{\$16,000 - \$3,000}{\$71,000***} = 0.183$ 2009: $\frac{\$17,000 - \$2,000}{\$69,500****} = 0.216$

***($72,000 + $70,000) / 2 = $71,000.

****($70,000 + $69,000) / 2 = $69,500.

d. Earnings per share of ordinary share:

2010 $\frac{\$16,000 - \$3,000}{10,000} = \$1.30$ 2009: $\frac{\$17,000 - \$2,000}{9,000} = \$1.67$

The company's operating performance declined during 2010. All four profitability measures decreased.

Exercise 2:

Net Sales, net income and total assets for Amble Shipping Inc., for a five-year period follow:

(In $ thousands)	2010	2009	2008	2007	2006
Net Sales	902	800	492	313	303
Net Income	42	39	15	39	33
Total Assets	305	268	256	221	203

1. Compute trend percentages for each item for 2007 through 2010. Use 2006 as the base year and round to the nearest percent.
2. Compute the rate of return on net sales for 2008 through 2010, rounding to three decimal places.
3. How does Amble Shipping's return on net sales compare with that of the industry? In the shipping industry, rates above 5% are considered good and rates above 7% are outstanding

Solution

Req. 1

Amble Shipping, Inc.
Trend Percentages

	2010	2009	2008	2007	2006
Net sales	298%	264%	162%	103%	100%
Net income	127	118	45	118	100
Total assets	150	132	126	109	100

Req. 2 Dollar amounts in thousands

	2010	2009	2008
$\frac{\text{Net income}}{\text{Net Sales}}$	$\frac{\$42}{\$902} = 4.66\%$	$\frac{\$39}{\$800} = 4.88\%$	$\frac{\$15}{\$492} = 3.05\%$

Req. 3

Evaluation: Amble Shipping's rate of return on net sales compares unfavorably with the industry. Return on sales has never exceeded 5% which is considered a satisfactory return by the industry.

Exercise 3:

Top Managers of McDonough Products Inc., have asked you for your help in comparing the company's profit performance and financial position with the average for the industry. The accountant has given you the company's income statement and balance sheet and also the following data for the industry:

McDonough Products, Inc.		
Income Statement Compared with Industry Average		
Year Ended Dec. 31, 2010		
	McDonough	Industry Average
(In $)	2010	2009
Net Sales	700.000	100,0%
COS	490.000	57,3%
Gross Profit	210.000	42,7%
Operating Expenses	175.000	29,4%
Operating Income	35.000	13,3%
Other Expenses	7.000	2,5%
Net Income	28.000	10,8%

McDonough Products, Inc.

Income Statement Compared with Industry Average

Year Ended Dec. 31, 2010

	McDonough	Industry Average
In ($)		
Current Assets	471.200	72,1%
Net PPE	114.700	19,0%
Net Intangible Assets	21.080	4,8%
Other Assets	13.020	4,1%
	620.000	100,0%
Current Liabilities	240.560	47,2%
Long Term Liabilities	135.160	21,0%
Shareholders' Equity	244.280	31,8%
Total	620.000	100,0%

Requirements:

1.Prepare a common size income statement and balance sheet for McDonough Products. The first column of each statement should present McDonough Product's common size statement, and the second column should show the industry averages.

2.For the profitability analysis, compute McDonough Products' a) ratio of gross profit to net sales, b) ratio of operating income to net sales, and c) ratio of net income to net sales. Compare these figures with the industry averages. Is McDonough Products' profit performance better of worse than the average in the industry?

3.For the analysis of financial position, compute McDonough Products' a) ratio of current assets and current liabilities to total assets and b) ratio of shareholders' equity to total assets. Compare these ratios with the industry averages. Is McDonough Products' financial position better or worse than the average for the industry?

Solution

Req. 1

McDonough Products, Inc.
Common-Size Income Statement Compared to Industry Average
Year Ended December 31, 2010

	McDonough Products	INDUSTRY AVERAGE
Net sales	100.0%	100.0%
Cost of goods sold	70.0	57.3
Gross profit	30.0	42.7
Operating expenses	25.0	29.4
Operating income	5.0	13.3
Other expenses	1.0	2.5
Net income	4.0%	10.8%

McDonough Products, Inc.
Common-Size Balance Sheet Compared to Industry Average
December 31, 2010

	McDonough PRODUCTS	INDUSTRY AVERAGE
Current assets	76.0%	72.1%
Fixed assets, net	18.5	19.0
Intangible assets, net	3.4	0.8
Other assets	2.1	9.1
Total assets	100.0%	100.0%
Current liabilities	38.8%	47.2%
Long-term liabilities	21.8	21.0
Shareholders' equity	39.4	31.8
Total liabilities and shareholders' equity	100.0%	100.0%

Solution (cont)

Req. 2

McDonough Products' common-size income statement shows that its ratios of gross profit to net sales, operating income to net sales and net income to net sales are all *worse* than the industry averages. Overall, McDonough Products' profit performance is *worse* than average for the industry.

Req. 3

McDonough Products' common-size balance sheet shows that its ratios of current assets, current liabilities, and shareholders' equity to total assets are *better* than the industry averages. Overall, the company's financial position is *better* than average for companies in its industry.

Exercise 4:

Financial statement data of GreatLand Engineering include the following items:

in $				
Cash	25.000		Accounts payable	101.000
Short term investments	38.000		Accrued Liabilities	37.000
Accounts Receivable, Net	82.000		Long Term Notes payable	160.000
Inventories	149.000		Other Long Term laibilities	37.000
Prepaid Expenses	6.000			
Total Assets	674.000		Net Income	96.000
Short term notes payable	41.000			
			Number of ordinary shares outstanding	52.000

Requirements

1.Compute GreatLand's current ratio, debt ratio and EPS.

2. Compute the three ratios after evaluating the effect of each transaction that follows. Consider each transaction separately

a.Borrowed $135.000 on a long term note payable

b.Issued 40.000 ordinary shares, receiving cash of $360.000

c.Paid Short term notes payable $28.000

d.Purchased inventory of $44.000 on crrdit

e.Received cash from debtors $16.000

Solution

Req. 1 (ratios before the transactions)

(Dollar Amounts and Share Quantities in Thousands)

Current Ratio	Debt Ratio	Earnings per share
$\frac{\$25 + \$38 + \$82 + \$149 + \$6 \; (\$300)}{\$41 + \$101 + \$37 \; (\$179)} = 1.68$	$\frac{\$179 + \$160 + \$37 \; (\$376)}{\$674} = 0.56$	$\frac{\$96}{52} = \$1.85^*$

*Not in thousands.

Req. 2 (ratios after the transactions)

(Dollar Amounts and Share Quantities in Thousands)

Trans-action	Current Ratio	Debt Ratio	Earnings per Share
a.	$\frac{\$300 + \$135}{\$179} = 2.43$	$\frac{\$376 + \$135}{674 + \$135} = 0.63$	No effect*
b.	$\frac{\$300 + \$360}{\$179} = 3.69$	$\frac{\$376}{\$674 + \$360} = 036$	$\frac{\$96}{52 + 40} = \$1.04^{**}$
c.	$\frac{\$300 - \$28}{\$179 - \$28} = 1.80$	$\frac{\$376 - \$28}{\$674 - \$28} = 0.54$	No effect
d.	$\frac{\$300 + \$44}{\$179 + \$44} = 1.54$	$\frac{\$376 + \$44}{\$674 + \$44} = 0.58$	No effect
e.	No effect	No effect	No effect

* EPS may go down if interest on the long term note payable is considered

** Not in thousands.

Exercise 5:

Assume that you are considering purchasing shares as an investment. You have narrowed the choice to DVR.com and Express Shops and have asembled the following data.

Selected Income Statement Data for the Current Year		
(in $)	DVR	Express
Net Sales (all on credit)	602.000	517.000
COS	449.000	382.000
Income from Operations	88.000	73.000
Interest Expense	Nil	16.000
Net Income	61.000	39.000

Selected Balance Sheet and market price date at the end of current year		
(in $)	DVR	Express
Current Assets		
Cash	22.000	38.000
Short Term Investments	10.000	14.000
Current receivables, net	182.000	167.000
Inventories	210.000	181.000
Prepaid expenses	21.000	8.000
Total current assets	445.000	408.000
Total Assets	981.000	935.000
Total Current Liabilities	362.000	333.000
Total Liabilites	673.000	700.000
Preference Shares, 5% $150 par		30.000
Ordinary shares, $1 par (100.000 shares)	100.000	
$5 par (15.000 shares)		75.000
Total Shareholders' equity	308.000	235.000
Market price per ordinary share ($)	6,10	55,00

Selected Balance Sheet at beginning of current year		
(in $)	DVR	Express
Current receivables, net	144.000	195.000
Inventories	205.000	199.000
Total Assets	853.000	908.000
Long Term Debt	Nil	299.000
Preference Shares, 5% $150 par		30.000
Ordinary shares, $1 par (100.000 shares)	100.000	
$5 par (15.000 shares)		75.000
Total Shareholders' equity	260.000	221.000

Your strategy is to invest in companies that have low price/earnings ratios but appear to be in good shape financially. Assume that you have analysed all other factors and that your decision depends on the results of ratio analysis.

Requirements

Compute the following ratios for both companies for the current year and decide which company's shares better fits your investment strategy

a)Acid-test ratio

b)Inventory turnover

c)Receivables resident period

d)Debt ratio

e)Times interest earned ratio

Solution

	DVR		Express	
a. Acid-test ratio:	$\frac{\$22 + \$10 + \$182}{\$362}$	= 0.59	$\frac{\$38 + \$14 + \$167}{\$333}$	= 0.66
b. Inventory turnover:	$\frac{\$449}{(\$210 + \$205) / 2}$	= 2.16	$\frac{\$382}{(\$181 + \$199) / 2}$	= 2.01
c. Days' sales in average receivables:	$\frac{(\$182 + \$144) / 2}{\$602 / 365}$	= 99	$\frac{(\$167 + \$195) / 2}{\$517 / 365}$	= 128
d. Debt ratio:	$\frac{\$673}{\$981}$	= 0.69	$\frac{\$700}{\$935}$	= 0.75
e. Times-interest-earned ratio:	Ratio is not meaningful because DVR has no interest expense.		$\frac{\$73}{\$16}$	= 4.56
f. Return on ordinary shareholders' equity:	$\frac{\$61}{(\$308 + \$260) / 2}$	= 21.5%	$\frac{\$39 - (\$30 \times .05)}{[(\$235 - \$30) + (\$221 - \$30)] / 2}$	= 18.9%
g. Earnings per share of ordinary share:	$\frac{\$61}{100}$	= \$0.61*	$\frac{\$39 - (\$30 \times .05)}{15}$	= \$2.50
h. Price/earnings ratio:	$\frac{\$6.10^*}{\$.61^*}$	= 10.0	$\frac{\$55.00^*}{\$2.50^*}$	= 22.0

*Not in thousands.

Solution (cont)

Decision:

The ordinary share of DVR seems to fit the investment strategy better. Its price/earnings ratio is than half of that of Express, and DVR appears to be in slightly better shape financially than Express. On several of the ratios, the two companies are relatively close. The ratios that tip the decision in favor of DVR are days' sales in receivables, the debt ratio, and the return on ordinary shareholders' equity.