THE USE OF
COMPARISONS IN

RELEVANT TO ACCA QUALIFICATION PAPER F8

In the Paper F8 exam you may be asked to compute and interpret the key ratios used in analytical procedures at both the audit planning stage and when collecting audit evidence. Ratios and comparisons can be used to identify where the accounts might be wrong, and where additional auditing effort should be spent.

Calculating a ratio is easy, and usually is little more than dividing one number by another. Indeed, the calculations are so basic that they can be programmed into a spreadsheet. The real skill comes in interpreting the results and using that information to carry out a better audit. Saying that a ratio has increased because the top line in the calculation has increased (or the bottom line decreased) is rather pointless: this is simply translating the calculation into words. Use the mnemonic **RATIO** to remind yourself to keep asking the following questions:

- **R**eason – why has this change occurred?
- **A**ccident – is the change real or simply an accident of timing?
- **T**est – what can be done to test our conclusions? What other work should we do?
- **I**mplications – what does this change mean? Liquidity crisis? Poor management etc?
- **O**ther information – is this consistent with other information?

You should not write this out in the answer as this will waste time and will not gain you marks, but the five classes of question should always be at the back of your mind.

There is a huge variety of businesses and this diversity will be reflected in their financial statements. To judge whether a figure or ratio is worth investigating, it is *absolutely necessary* to compare it to its equivalent in either the same company in the previous period, or other companies in the same industry. Comparisons provide benchmarks.

To look at some of the techniques and interpretations, we will use the financial statements of Ocset Co, shown on **page 7**.

COMPARISON OF TWO CONSECUTIVE YEARS

Perhaps the first thing to do is simply to compare the two sets of financial statements. Here we have results from 2009 and 2008. Look down the figures, comparing like with like, and see what queries or hypotheses you might be able to generate. The mnemonic RATIO will be used formally for the first comparison. Here are some first thoughts:

Non-current assets: intangible	Substantial increase in goodwill. **R**eason: acquisition? Is it real or an **a**ccident of timing? How can the amount be checked, verified, and **t**ested? **I**mplications: What was bought? How was it paid for? What type of business? When is the year-end of the business aquired? Who are the auditors? Is this consistent with **o**ther information, such as additional non-current assets, increased finance and so on?

RATIOS AND
AUDITING

Non-current assets: tangible	Substantial increase. Some might result from the acquisition, some might be organic (or true growth). How were they paid for? How can we test it?
Inventory	Relatively small increase. Will be interesting to compare to sales.
Receivables	Relatively small increase. Will be interesting to compare to sales.
Cash	Large increase. Why? Where has that come from?
Trade payables	About a 15–20% increase. Why? Large compared to receivables and cash. Compare to cost of sales later. How can we verify these liabilities?
Short-term borrowings	Doubled, but could be brought back to 2008 levels by using some of the cash. Why have cash and an overdraft at the same time?
Current assets compared to liabilities	(Current assets less current liabilities.) About the same both years. Alarmingly, both years show net current liabilities. However, the business has survived a year like this.
Share capital	No material change.
Retained earnings	Increased, presumably by retained profit.
Long-term liabilities	Substantial increase. Presumably, this is a major source of funding for non-current assets. Expect an increase in financing costs. Need to verify that the liabilities are indeed long-term.

RATIO ANALYSIS IS USEFUL BECAUSE IT ALLOWS YOU TO SEE IF TWO FIGURES HAVE MOVED CONSISTENTLY WITH ONE ANOTHER. YOU SHOULD BE CONCERNED IF THEY HAVEN'T.

Revenue	Very substantial increase (around 15%). How much is organic (or true growth) and how much because of acquisition? We would expect changes in inventory and payables.
Cost of sales	An increase roughly in line with the increase in sales.
Commercial and administrative costs	Substantial increase. Perhaps temporary after the takeover and before rationalisation. Might indicate poor cost control.
Tax	Fairly consistent.

If you were now told that the financial statements are modelled on a supermarket business, then you might be able to make more sense of some of the figures – particularly the net current liabilities. Supermarkets have low receivables and low inventory (much of it is perishable) yet can squeeze their suppliers hard. They can, therefore, survive well on large trade payables, confident that inventory will steadily turn into cash. However, now that we know we are dealing with a supermarket, we should be interested in why they have substantial receivables at all.

RATIO ANALYSIS
Ratio analysis is useful because it allows you to see if two figures have moved consistently with one another. You should be concerned if they haven't.

There are three main groups of ratios: profitability, liquidity, and risk.

PROFITABILITY RATIOS

		2009	2008
Gross profit percentage	$\dfrac{\text{Gross profit}}{\text{Sales revenue}} \times 100$	$\dfrac{4{,}218 \times 100}{54{,}327} = 7.8\%$	$\dfrac{3{,}230 \times 100}{47{,}198} = 6.8\%$

Comments on gross profit percentage

This is a significant increase (15%) and an impressive performance in recessionary times. Apart from accounting errors, possible explanations include:
- a different sales mix (possibly because of the acquisition implied by the increase in goodwill)
- squeezing better prices from suppliers (test by looking at correspondence?)
- better inventory management and less wastage (test inventories carefully).

Net profit percentage	$\dfrac{\text{Operating profit}}{\text{Sales revenue}} \times 100$	$\dfrac{3{,}206 \times 100}{54{,}327} = 5.9\%$	$\dfrac{2{,}450 \times 100}{47{,}198} = 5.2\%$

Comments on net profit percentage

Reasonably good cost control has been maintained despite the substantial increase in sales. To test this, it is worth comparing the commercial and administrative costs to sales.

Operating expenses to sales	$\dfrac{\text{Operating expenses}}{\text{Sales}} \times 100$	$\dfrac{1{,}012 \times 100}{54{,}327} = 1.86\%$	$\dfrac{780 \times 100}{47{,}198} = 1.65\%$

Comments on operating expenses

These costs are low compared to revenue. Does that make sense, or should we worry about expenses being understated? Supermarkets rely on high volumes and low margins and this could explain the relatively low operating costs:revenue ratio, indicating that huge volumes of sales are efficiently pushed through the business.

However, efficiency of the operation has deteriorated and it is important to try to determine why this has happened. Obvious causes are:
- the operations of the acquired business are not as efficient as the holding company's
- disruption costs arising from the takeover
- overstretched management.

These theories need to be tested. There might be other implications too. If management hopes to reduce operating expenses, are they, for example, planning warehouse closures and redundancies? Is some sort of provision needed?

Return on capital employed (ROCE)	$\dfrac{\text{Operating profit}}{\text{Capital employed}} \times 100$	$\dfrac{3{,}206 \times 100}{27{,}165} = 11.8\%$	$\dfrac{2{,}450 \times 100}{20{,}417} = 12.0\%$

Comments on ROCE (capital employed is the total equity plus long-term borrowing)

It is important to realise that this is the first ratio we have calculated that makes use of a figure from the statement of financial position. Such figures are taken at only one point in time, and this can lead to distortions in the ratios. Changes might be little more than accidents of timing. Compare a company where capital was raised and an expansion took place in the first month of the period, to one where this happened

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in the last month of the year. The final capital of both companies will include the additional finance, but only the first company is likely to enjoy a significant increase in its operating profit. The second company's ROCE is likely to show a decline from one year to the next.

   This effect may have caused the decrease in ROCE seen in Ocset Co, and it would be useful to know when any expansion or acquisition took place.

		2009	2008
Asset turnover	$\frac{\text{Sales revenue}}{\text{Capital employed}}$ x 100	$\frac{54,327}{27,165}$ = 2.0	$\frac{47,198}{20,417}$ = 2.3

Comments on asset turnover
This shows how many $ of sales are generated by each $ of assets. It's sometimes described as 'how hard the organisation works its assets'. The decline in the ratio shows that although capital (and therefore assets) have increased, sales have not increased proportionately – but that could simply be an accident caused by the date of the asset increase.

Note: ROCE = Net profit% x Asset turnover   11.8% = 5.9% x 2.0   12.0 = 5.2% x 2.3

LIQUIDITY RATIOS

		2009	2008
Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	$\frac{9,209}{12,582}$ = 0.73	$\frac{5,889}{9,362}$ = 0.63

Comments on the current ratio
Normally, current assets are used to pay current liabilities. A current ratio of less than one is often considered alarming as there might be going concern worries, but you have to look at the type of business before drawing conclusions. In a supermarket business, inventory will probably turn into cash in a stable and predictable manner, so there will always be a supply of cash available to pay the liabilities. The company survived 12 months from the date of the 2008 statement of financial position until the present one (and the current ratio has improved), so there should be no particular alarm.

Quick (or acid test) ratio	$\frac{\text{Current assets (minus inventory)}}{\text{Current liabilities}}$	$\frac{9,209 - 2,669}{12,582}$ = 0.52	$\frac{5,889 - 2,430}{9,362}$ = 0.37

Comments on the quick ratio
The quick ratio is useful when inventory is turned over slowly, as the payment of current liabilities will depend on receivables and cash. A quick ratio of less than one is often worrying, but it again depends on the business and comparatives. Here, the quick ratio is much more generous on the 2009 statement of financial position than on the 2008 one. Why? Has interest income increased too?

THE QUICK RATIO IS USEFUL WHEN INVENTORY IS TURNED OVER SLOWLY, AS THE PAYMENT OF CURRENT LIABILITIES WILL DEPEND ON RECEIVABLES AND CASH. A QUICK RATIO OF LESS THAN ONE IS OFTEN WORRYING, BUT IT AGAIN DEPENDS ON THE BUSINESS AND COMPARATIVES.

Receivable collection period	Receivables / Sales/day	$\dfrac{1{,}798}{54{,}327/365} = 12$	$\dfrac{1{,}311}{47{,}198/365} = 10$

Comments on the receivables collection period

In a supermarket, most sales are for cash, and comparing receivables to sales that have no impact on receivables is rather pointless. It would be much better if sales could be split into cash and credit sales and the true collection period for credit sales worked out.

However, there does seem to have been a disproportionate increase in the collection period. Possible reasons are:

- a different sales approach – perhaps offering customers credit facilities
- a different range of products – perhaps offering customers a credit card (look at board minutes)
- poor management so that credit control deteriorates
- economic problems causing customers to pay more slowly, and presumably an increased risk of bad debts (there might be implications for bad debt provision).

We should check other information too. For example, if customers are taking longer to pay (or a credit card is offered), is the company earning interest on the balances? A receivables circularisation will be important to test the accuracy of the receivables figure.

Payables payment period	Payables / Cost of sales/day	$\dfrac{8{,}522}{50{,}109/365} = 62$	$\dfrac{7{,}277}{43{,}968/365} = 60$

Comments on the payables payment period

There's nothing remarkable here. The increase could be evidence of pressurising suppliers and could be consistent with the improvement in gross profit percentage. We should check that there will be no future supply difficulties, by looking at correspondence and board minutes.

Days of inventory	Inventory / Cost of sales/day	$\dfrac{2{,}669}{50{,}109/365} = 19$	$\dfrac{2{,}430}{43{,}968/365} = 20$

Comments on the days of inventory

This is a 5% fall and would appear to suggest tight inventory control. However, always go through (at least in your mind) the RATIO list:

- Reason – accidental or deliberate? How was the decrease achieved?
- It could be an accident of timing, for example, where a weekend falls with respect to the year end.
- Inventory always needs to be carefully verified – existence, quantity valuation etc.
- Implications. If there are fewer days of inventory, are customer service levels being adversely affected? If so, could there be going concern implications if customers were to take their business elsewhere. Going concern doesn't seem to be a serious issue within this company, but the auditor should always be aware of the risk – even if only to dismiss it quickly. Is inventory wastage reduced?
- Other information. For example, has the company invested in new IT systems which allow better inventory control? Has the distribution system changed? Have more trucks been bought to allow the company to operate with lower inventory?

IN A SUPERMARKET, MOST SALES ARE FOR CASH, AND COMPARING RECEIVABLES TO SALES THAT HAVE NO IMPACT ON RECEIVABLES IS RATHER POINTLESS. IT WOULD BE MUCH BETTER IF SALES COULD BE SPLIT INTO CASH AND CREDIT SALES AND THE TRUE COLLECTION PERIOD FOR CREDIT SALES WORKED OUT.

RISK RATIOS

A company's indebtedness is obvious from its financial statements, so the risk analysed by external users is normally the risk related to borrowing – the gearing risk. Borrowing causes risk because interest has to be paid irrespective of profits made. A rise in interest rates, or a fall in profits, can make the payment of interest very difficult, and lead a business into receivership and liquidation (going concern difficulties). Risk from borrowing can also arise when capital repayment is required, either on demand (in the case of overdrafts) or at the end of a fixed term. It is very important to understand how any repayment could be financed.

		2009	2008
The gearing ratio	$\dfrac{\text{Long-term loan finance}}{\text{Equity finance}} \times 100$	$\dfrac{14{,}170 \times 100}{12{,}995} = 109\%$	$\dfrac{8{,}602 \times 100}{11{,}815} = 73\%$

Comments on the gearing ratio

The gearing ratio can also be defined in other ways, particularly by comparing long-term loan finance to total finance. As gearing increases so does the risk that the interest can't be paid. But it is difficult to define a 'safe' level of gearing. For example, a property company with properties leased to tenants will have fairly predictable rental income. Such a company can probably safely sustain substantial borrowings (though it could be in trouble if interest rates increased significantly). A company with volatile streams of income would have to keep its gearing lower as it must ensure that interest can be paid during the lean times.

Supermarkets could be expected to have reasonably predictable income: people have to keep eating, so will keep buying food. The gearing ratio calculation shows that there is a large increase in the company's gearing. You should ask the following questions:
▫ Reason: deliberate financial planning or problems?
▫ Is there any reason to suppose that the effect is temporary or an accident of timing?
▫ Loan agreements need to be verified for term and security.
▫ If the loan period is relatively short, how will it be repaid?
▫ We would expect the amount of interest paid to increase (unless the additional loan was taken out very close to year end).

Interest cover	$\dfrac{\text{Operating profit before interest}}{\text{Interest}}$	$\dfrac{3{,}206}{478} = 6.7$	$\dfrac{2{,}450}{250} = 9.8$

Comments on interest cover

Interest cover shows how many times interest can be paid out of earnings. Neither of these ratios would give cause for concern. The fall from 2008 to 2009 is consistent with the rise in borrowing that was identified earlier. The interest amounts would have to be tested to see that they were reasonable, given interest rates and when the additional borrowings were made.

CONCLUSION

Ratio analysis and comparison are invaluable tools which help auditors understand what might have happened in a business. However, the initial calculation of ratios and percentage changes is easy and mechanical. The real skill comes in interpreting the results, and nearly always the results should give rise to more queries than they answer. Turn the page for the Ocset Co statement of financial position and statement of comprehensive income.

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RATIO ANALYSIS AND COMPARISON ARE INVALUABLE TOOLS WHICH HELP AUDITORS UNDERSTAND WHAT MIGHT HAVE HAPPENED IN A BUSINESS. HOWEVER, THE INITIAL CALCULATION OF RATIOS AND PERCENTAGE CHANGES IS EASY AND MECHANICAL.

TABLE 1: OCSET CO STATEMENT OF FINANCIAL POSITION

	30/9/2009 $m	30/9/2008 $m
Assets		
Non-current assets		
Intangible – goodwill	4,027	2,336
Tangible	26,511	21,554
	30,538	23,890
Current assets		
Inventory	2,669	2,430
Receivables	1,798	1,311
Cash and cash equivalents	4,742	2,148
	9,209	5,889
Total assets	**39,747**	**29,779**
Equity and liabilites		
Share capital	395	393
Reserves	12,600	11,422
Total equity	12,995	11,815
Non-current liabilities – long-term borrowings	14,170	8,602
Total non-current liabilities	14,170	8,602
Current liabilities		
Trade payables	8,522	7,277
Short-term borrowings	4,060	2,085
Total current liabilites	12,582	9,362
Total liabilities	26,752	17,964
Total equity and liabilities	**39,747**	**29,779**

TABLE 2: OCSET CO STATEMENT OF COMPREHENSIVE INCOME

	Y/e 30/9/2009 $m	Y/e 30/9/2008 $m
Revenue	54,327	47,198
Cost of sales	50,109	43,968
Gross profit	4,218	3,230
Commercial and administrative costs	(1,012)	(780)
Operating profit before financing	3,206	2,450
Financing income	116	187
Finance costs	(478)	(250)
(Loss)/profit before tax	2,844	2,387
Income tax expense	(780)	(670)
(Loss)/profit after tax	2,064	1,717
Total comprehensive income for the year	**2,064**	**1,717**

CALCULATING A RATIO IS EASY, AND USUALLY IS LITTLE MORE THAN DIVIDING ONE NUMBER BY ANOTHER. INDEED, THE CALCULATIONS ARE SO BASIC THAT THEY CAN BE PROGRAMMED INTO A SPREADSHEET. THE REAL SKILL COMES IN INTERPRETING THE RESULTS AND USING THAT INFORMATION TO CARRY OUT A BETTER AUDIT.