

Two years too old

**‘Insolvencies are not our fault,’
says Euler chief****David Jetuah**

The CEO of Britain’s biggest credit insurer has dismissed accusations that companies have been driven into administration by the withdrawal of cover from suppliers, and warned that businesses can no longer rely on statutory accounts for their credit ratings.

Fabrice Desnos, CEO of Euler Hermes UK, said: ‘it’s got nothing to do with us. If anything, it proves how difficult it is to analyse credit risk based on statutory accounts, because some statements in the public domain are not as strong as they first look.

‘Historical accounts are getting too old to be meaningful. In a time of crisis, you can’t rely on performance figures on a period two years in the past.’

Desnos’s remarks follow claims that companies would be forced out of business because insurers were beginning to withdraw trade credit insurance if management accounts were not made available instead of statutory accounts lodged with Companies House.

Desnos said he was not unsympathetic to the plight of companies in the current climate, and the most timely set of figures could only help companies secure cover,

‘Not disclosing information to the credit insurer means you don’t think your suppliers need to know up to date information about the company.’

He added: ‘Companies have to realise that when they are sharing this information with the credit insurer they are sharing it confidentially.’

Source: Accountancy Age, 7 May 2009.

Source: Reproduced with permission from Incisive Media Ltd.

Questions relating to this news story can be found on page 241 ➡

About this chapter

In this chapter we cover what accountants call the ‘interpretation of accounts’. In essence, all that this means is that you dig behind the figures shown in the financial statements in order to make more sense of them and to put them into context. You will often see, for example, a newspaper screaming in large headlines that Company X has made a profit of (say) £50 million. In absolute terms £50 million is certainly a lot of money but what does it mean? Is it a lot compared with what it took to make it? Is it a lot compared with other similar companies? How does it compare with previous years? And is it up to expectations?

These questions cannot always be answered directly from the financial statements themselves. The figures may have to be reworked and then compared with other similar data. So interpreting accounts is a type of detective work: you look for the evidence, you analyse it and then you give your verdict.

This chapter explains how you do the detective work. There are various ways of going about it but we will be concentrating on *ratio analysis*. This is one of the most common methods used in interpreting accounts and we shall be spending a lot of time on it.

Learning objectives

By the end of this chapter you should be able to:

- define what is meant by the 'interpretation of accounts';
- outline why it is needed;
- summarize the procedure involved in interpreting a set of accounts;
- explain the usefulness and importance of ratio analysis;
- calculate 15 main accounting ratios;
- explore the relationship between those ratios.

Why this chapter is important

For non-accountants this chapter is one of the most important in the book. In your professional life you could rely entirely on your accountants to present you with any financial information that *they* think you might find useful. In time and with some experience you might understand most of it. The danger is that you might take the figures at their face value, just as you might when you read an eye-catching newspaper headline.

You could be misled by such headlines and then take what might turn out to be a most unwise decision, e.g. buying or selling shares or perhaps even making a takeover bid for a company! For example, an alleged £15 billion profit might be a record but how can we be certain that it is significant? The short answer is that we can't unless we relate it to something else, such as what sum of money it took to earn that profit or what profit other similar companies have made.

Accountants refer to the explanation process as the *interpretation of accounts*. After working your way through the chapter you too will be able to interpret a set of accounts so that when you read a story in the newspaper or you come across some financial statements you can make much more sense of the information and you can put it into context, i.e. compare it with something meaningful. This is sometimes referred to as 'reading between the lines of the balance sheet'. We hope that by the end of the chapter you too can read between these lines, and for that matter between the lines of all the other financial statements as well. Such a skill is vital if you are to become a *really* effective manager.

Nature and purpose

News clip

Distortion fear

The recession has increased pressure to distort earnings figures. According to a survey of 1000 internal auditors from 25 countries, 86% of them believe that there is now a greater risk of 'inappropriate earnings management and other misconduct'.

Source: Adapted from www.accountancyage.com/news, 9 July 2009.

In this section we explain what accountants mean when they talk about interpreting a set of accounts, why such an exercise is necessary and who might have need of it.

Definition

The verb 'to interpret' has several different meanings. Perhaps the most common is 'to convert' or 'to translate' the spoken word of one language into another, but it also has other meanings such as 'to construe', 'to define' or 'to explain'. We will use the latter meaning. Our definition of what we mean by the *interpretation of accounts* may then be expressed as follows:

A detailed explanation of the financial performance of an entity incorporating data and other quantitative and qualitative information extracted from both internal and external sources.

Limited information

By this stage of your accounting studies you will no doubt have realized that the amount of information contained in a set of accounts prepared for *internal* purposes is considerable. Even published accounts can be quite detailed. The 2008 annual report and accounts of Cairn Energy plc, for example, an oil and gas exploration and production company, covers 136 pages. You would think that accounts of this length would provide you with all the information that you would ever want to know about the company but unfortunately this is not necessarily the case. There are three main reasons why this may not be so.

- *Structural.* Financial accounts are prepared on the basis of a series of accounting rules. Even financial accounts prepared for internal purposes contain a restricted amount of information and this is especially the case with published accounts. Only information that can be translated easily into quantitative financial terms is usually included, and also some highly arbitrary assessments have to be made about the treatment of certain matters such as stock valuation, depreciation and bad debts. Furthermore financial accounts are also usually prepared on a historical basis so they may be out-of-date by the time that they become available, the details may relate at best to one or two accounting periods and probably no allowance will have been made for inflation.

- *Absolute.* The monetary figures are presented almost solely in absolute terms. For example, Cairn's revenue for 2008 was \$299.3 million and its profit before tax was \$440.9 million. So how, you might ask, can the profit be higher than the sales revenue? Exactly. This is a good example of why we need to dig behind the figures; it's why we need to *interpret* them.
- *Contextual.* Even if you could grasp the size and significance of what sales of \$300 million and profits of \$440 million meant, in isolation they do not tell us very much. In order to make them more meaningful they need to be put in context perhaps by comparing them with previous years' results or with companies in the same industry.

Users

Company law concentrates almost exclusively on shareholders but as we explained in Chapter 2, there are many other user groups. We reproduce the seven main user groups listed in that chapter in Table 10.1. Beside each group we have posed a question that a user in each particular group may well ask.

The questions in Table 10.1 cannot always be answered directly from the financial statements. For example, investors asking the question 'What's the dividend like?' will find that the annual report and accounts gives them the dividend per share for the current and the previous year in *absolute* amounts. Somewhere within the annual report and accounts the percentage increase may be given but that still does not really answer the question. Investors will probably want to know how their dividend relates to what they have invested in the company (what accountants call the 'yield'). As most investors probably paid different amounts for their shares it would be impossible to show each individual shareholder's yield in the annual account, so investors have to calculate it for themselves.

Table 10.1 Users of financial accounts and their questions

User group	Questions asked
Customers	How do its prices compare with its competitors?
Employees	Has it enough money to pay my wages?
Governments and their agencies	Can the company pay its taxes?
Investors	What's the dividend like?
Lenders	Will I get my interest paid?
Public	Is the company likely to stay in business?
Suppliers and other creditors	Will we get paid what we are owed?

Activity 10.1

Taking the seven user groups listed in Table 10.1, what other questions do you think that each user group would ask? List each user group and all the questions that you think each would ask. Then insert:

- where the basic information could be found in the annual report and accounts to answer each question; and
- what additional information would be required to answer each question fully.

Procedure

In this section we outline the basic procedure involved in interpreting a set of accounts. The scale and nature of your investigation will clearly depend on its purpose so we can only point you in the right direction. For example, if you were working for a large international company proposing to take over a foreign company, you would need a vast amount of information and it might take months before you had completed your investigation. By contrast, if you were a private individual proposing to invest £1000 in Tesco plc, you might just spend part of Saturday morning reading what the city editor of your favourite newspaper had to say about the company (although we would recommend you to do much more than that).

In essence an exercise involving the interpretation of accounts involves four main stages:

- collecting the information;
- analysing it;
- interpreting it;
- reporting the findings.

Collecting the information

This stage involves you first conducting a fairly general review of the international economic, financial, political and social climate and a more specific one of the *country* in which the entity operates. In broad terms, you are looking to see whether it is politically and socially stable with excellent prospects for sound and continuing economic growth. Then you should look at the particular *industry* in which it operates. Ask yourself the following questions.

- Is the government supportive of the industry?
- Is there an expanding market for its products?
- Is there sufficient land and space available for development?
- Is there a reliable infrastructure, e.g. utility supplies and a transport network?
- Are there grants and loans available for developing enterprises?
- Is there an available and trained labour force near by?

Once you have got all this macro and micro information you will need to obtain as much information about the *entity* as you can get. This will involve finding out about its history, structure, management, operations, products, markets, labour record and financial performance. These days you should be able to obtain much of this information from the Internet but don't forget about old-fashioned sources such as the company's interim and annual reports and accounts, press releases, trade circulars and analysts' reviews.

By the end of this early stage of your investigation you will probably already have a 'feel' or a strong impression about the entity but your work is not yet over. Indeed, there is still a great deal more work to do.

Analysing the information

Analysing the information involves putting together all the information you have collected and making sense of it. In this book as we are primarily concerned with the

accounting aspects of business so we will concentrate on how you can begin to make sense of the *financial* information that you have collected.

The main source of such information will normally be the entity's annual report and accounts. In order to make our explanation easier to follow we will assume that we are dealing primarily with public limited liability companies (although you will find that much of what we have to say is relevant when dealing with other types of entities).

There are four main techniques that you can use in interpreting a set of financial statements: horizontal analysis, trend analysis, vertical analysis and ratio analysis. Figure 10.1 depicts a diagrammatic representation of these different types of analyses. A brief description of each one is outlined below.

- 1 *Horizontal analysis*. This technique involves making a line-by-line comparison of the company's accounts for each accounting period chosen for the investigation. You may

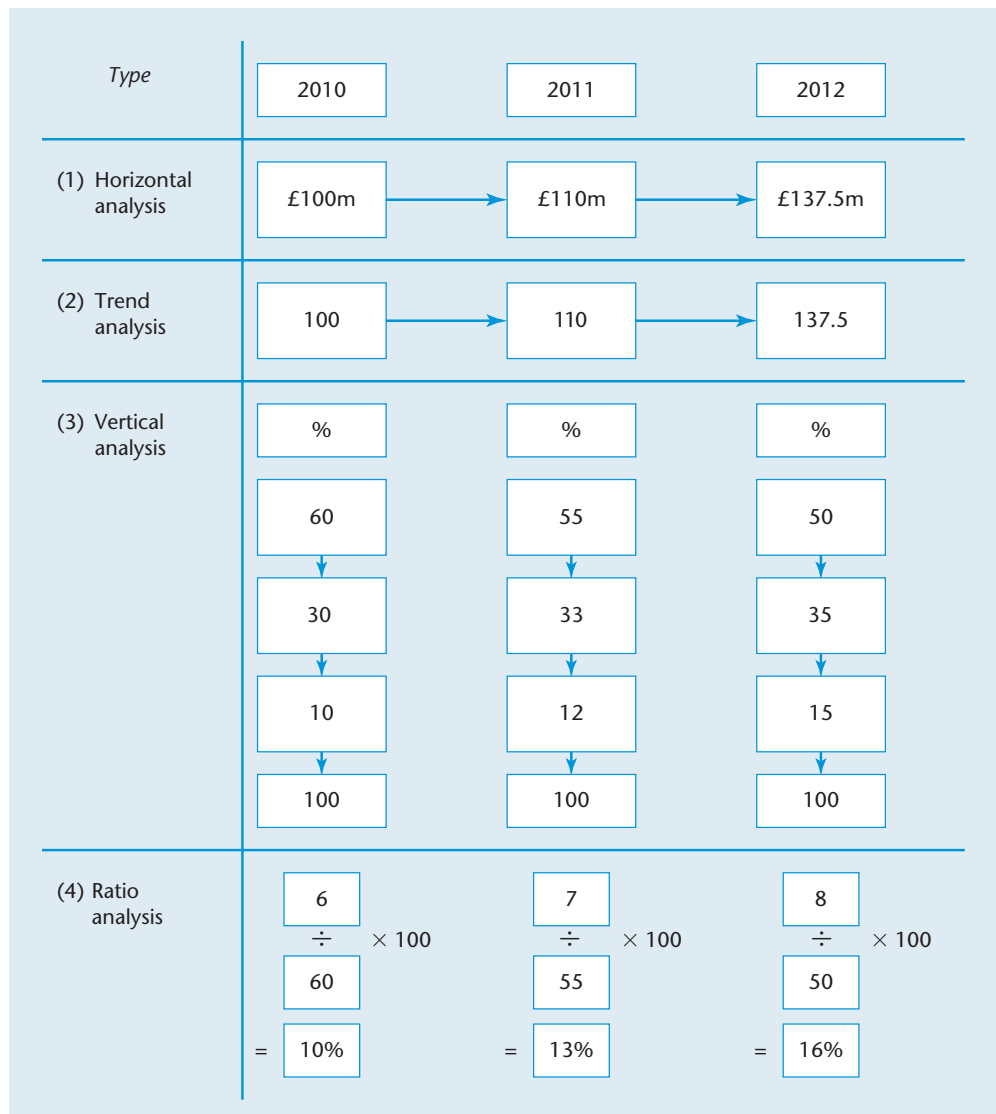


Figure 10.1 Interpreting accounts: main analytical techniques

have noted, for example, that the sales for the year 2010 were £100m, £110m in 2011 and £137.5m in 2012 and so on. This type of comparison across a row of figures is something that we do naturally but such a casual observation is not very effective when we are faced with a great many detailed figures. In order to grasp what they mean, at the very least we would need to calculate the changes from one year to the next. Even then their significance might still be hard to take in. So we would probably have to calculate the *percentage* increases year-by-year (10% for 2011 and 25% in 2012 in the above example) and this could involve an awful lot of work with a pen, paper and a calculator, or preferably a spreadsheet.

- 2 *Trend analysis.* This is similar to horizontal analysis except that all the figures in the first set of accounts in a series are given a base line of 100 and the subsequent sets of accounts are converted to that base line. So if the sales for 2010 were £50m, £70 for 2011 and £85m for 2012, the sales of £50m for 2010 would be given a base line of 100; the 2011 sales would then become 140 ($70 \times 100/50$) and the 2012 sales 170 ($85 \times 100/50$). This method enables us to grasp much more easily the changes in the absolute costs and values shown in the financial statements. For example, if we told you that the sales were £202,956,000 for 2011 and £210,161,000 in 2012 it is not too difficult to calculate that they have gone up by about £7m but the figures are still too big for most of us to absorb. The changes that have taken place would be much easier to take in if they are all related to a base line of 100. In this example, the sales for 2011 would then be given a value of 100, with 103 ($210\ 161 \times 100/202\ 956$) for 2012, an increase of about 3% (it's actually 3.6%). The figures then begin to mean something because by converting in this way they relate more to our experience of money terms and values in our everyday life.
- 3 *Vertical analysis.* This technique requires the figures in each financial statement (usually restricted to the profit and loss account and the balance sheet) to be expressed as a percentage of the total amount. For example, assume that a company's trade debtors were £10m in 2011 and the balance sheet total was £50m; in 2012 the trade debtors were £12m and the balance sheet total was £46m. Trade debtors would then be shown as representing 20% of the balance sheet total ($10 \times 100/50$) in 2011 and 26% in 2012 ($12 \times 100/46$). This would be considered quite a large increase so the reasons for it would need to be investigated. The modern practice of using lots of sectionalized accounts and subtotals means that it is not always easy to decide what *is* the total of a particular financial statement. If you come across this difficulty we suggest that you use the sales revenue figure for the total of the profit and loss account and the total of net assets (or shareholders' funds, it should be the same figure!) for the total of the balance sheet.
- 4 *Ratio analysis.* A ratio is simply the division of one arithmetical amount by another arithmetical amount expressed as a percentage or as a factor. Ratio analysis is a most useful means of comparing one figure with another because it expresses the relationship between lots of amounts easily and simply. If the cost of sales for 2011 was £12m, for example, and the sales revenue was £20m, we would express the relationship as 60% ($12 \times 100/20$) sales or 0.6 to 1 ($12/20$). Ratio analysis is such an important technique in the interpretation of accounts that we will be dealing with it in some detail a little later in the chapter.

Activity 10.2

State whether the following assertions are true or false:

- | | |
|--|-------------------|
| (a) Ratio analysis is only one form of analysis that can be used in interpreting accounts. | <i>True/false</i> |
| (b) Ratio analysis aims to put the financial results of an entity into perspective. | <i>True/false</i> |
| (c) Ratio analysis helps to establish whether or not an entity is a going concern. | <i>True/false</i> |

Interpreting the information

This is the third stage in a broad interpretative exercise. By this stage of your investigation you would have collected a great deal of information about the company you are investigating and you would have put that information into context by subjecting it to a whole battery of analyses. Now you have to use all the information that you have before you to interpret or to *explain* what has happened. Some of the questions you might ask yourself include the following.

- What does it tell me about the company's performance?
- Has the company done well compared with other financial periods?
- How does it compare with other companies in the same sector of the economy?
- Are the world economic, political and social circumstances favourable to trade generally?
- What are they like for this company's industry?
- What are the prospects for the region in which this company does its business?

Asking and answering such questions might seem a formidable task but like anything else, the more practice you get, the easier it becomes. In any case, by this time your initial research and your various analyses will have given you a strong indication about the company's progress and its future prospects. You will have realized that there are a number of obvious strengths and weaknesses and a variety of positive and negative factors and trends.

When you have come to a conclusion based on the evidence and the analysis that you have framed, you have one further task: report it to whoever asked you to do the study in the first place.

Reporting the findings

In most interpretive exercises of the type described in this chapter you will probably have to write a written report. Many people are fearful of having to commit themselves to paper and they find this part of the exercise very difficult. However, having to write something down helps you to think more clearly and logically. It may also throw up gaps in your argument, so regard this part of the exercise as more of an opportunity than a threat.

The format of your report will depend on its purpose but basically it should be broken down into three main sections. Your first section should be an *introduction* in which you outline the nature and purpose of your report including a brief outline of its structure. The second part should contain your *discussion* section in which you present your evidence and your assessment of what the evidence means. In the third *concluding* section summarize briefly the entire study, list your conclusions and state your recommendations.

In the next section we consider in much more detail one of the analytical techniques mentioned earlier in the chapter: *ratio analysis*.

Ratio analysis

We are now going to spend the rest of the chapter dealing with ratio analysis in some detail. Before we begin you should note the following points.

- There are literally hundreds of ratios that we could produce but most accountants have just a few favourites.
- Always check the definition of a particular ratio you come across because while the name may be familiar to you, the definition could be different from the one that you use.
- There is no standard system for grouping ratios into representative categories.
- Strictly limit the number of ratios you adopt. If you use 20 different types of ratio, for example, and you are covering a five-year period, you have 100 ratios to calculate *and* to incorporate in your analysis. That's a lot to handle!

In this book we are going to limit the number of accounting ratios that we cover to just 15. In order to simplify our discussion, we will also group them into four broad categories (although there is some overlap between them):

- liquidity ratios;
- profitability ratios;
- efficiency ratios;
- investment ratios.

A diagrammatic representation of this classification and the names of the ratios included in each grouping are shown in Figure 10.2.

We start our detailed study with what we call *liquidity* ratios.

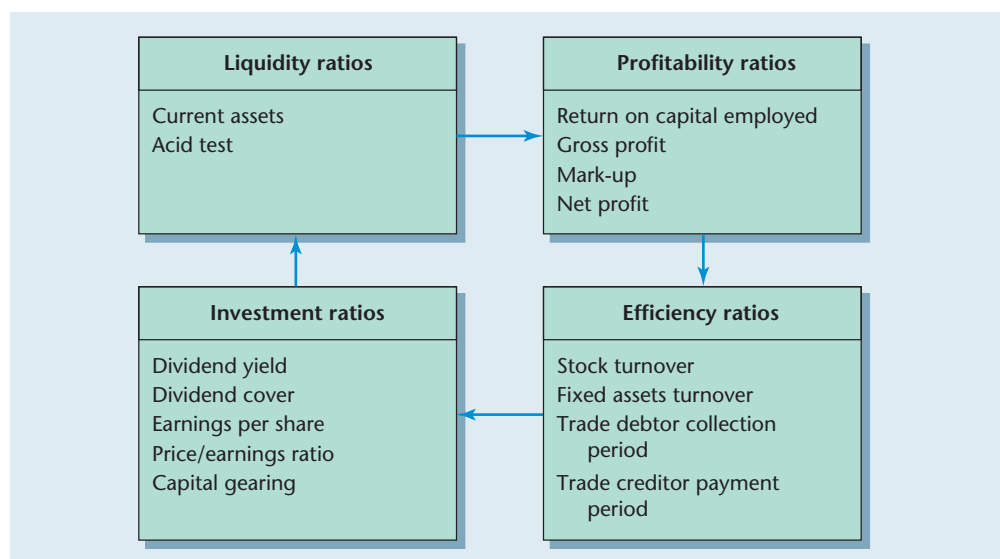


Figure 10.2 Accounting ratios: classification

Liquidity ratios

News clip

Insolvencies soar

Liquidations went up by 56% in the first quarter of 2009 compared with the same period in 2008. The recession is blamed as backers of companies do not want to throw more good money after bad. As a result companies are experiencing some severe liquidity problems.

Source: Adapted from www.accountancyage.com/articles/print/2241538, 1 May 2009.

Liquidity ratios measure the extent to which assets can be turned into cash quickly. In other words, they try to assess how much cash the entity has available in the short term (this usually means within the next twelve months). For example, it is easy to extract the total amount of trade debtors and trade creditors from the balance sheet, but are they too high? We cannot really tell until we put them into context. We can do this by calculating two liquidity ratios known as the *current assets ratio* and the *acid test ratio*.

Current assets ratio

The *current assets ratio* is calculated as follows:

$$\frac{\text{current assets}}{\text{current liabilities}}$$

It is usually expressed as a factor, e.g. 3 to 1, or 3 : 1 although you will sometimes see it expressed as a percentage (300% in our example, i.e. $\frac{3}{1} \times 100$).

The term 'current' means receivable or payable within the next twelve months. The entity may not always have to settle all of its current liabilities within the next week or even the next month. Be careful before you assume that a factor of (say) 1 : 2 suggests that the company will be going into immediate liquidation. Some creditors, such as tax and dividends, may not have to be paid for several weeks. In the meantime, the company may receive regular receipts of cash from its debtors and it may be able to balance these against what it has to pay to its creditors. In other instances, some entities (such as supermarkets) may have a lot of cash trade, and it is possible that they then may have a current assets ratio of less than 2 : 1. This is not likely to be a problem for them because they are probably collecting sufficient amounts of cash daily through the checkouts. In some cases, however, a current assets ratio of less than 2 : 1 may signify a serious financial position, especially if the current assets consist of a very high proportion of stocks. This leads us on to the second liquidity ratio, the *acid test ratio*.

Acid test ratio

It may not be easy to dispose of stocks in the short term as they cannot always be quickly turned into cash. In any case, the entity would then be depriving itself of those very

assets that enable it to make a trading profit. It seems sensible, therefore, to see what would happen to the current ratio if stocks were not included in the definition of current assets. This ratio is called the acid test (or quick) ratio. It is calculated as follows:

$$\frac{\text{current assets} - \text{stocks}}{\text{current liabilities}}$$

Like the current ratio, the acid test ratio is usually expressed as a factor (or occasionally as a percentage). It is probably a better measure of an entity's immediate liquidity position than the current assets ratio because it may be difficult to dispose of the stocks in the short term. Do not assume, however, that if current assets less stocks are less than current liabilities, the entity's cash position is vulnerable. As we explained above, some of the current liabilities may not be due for payment for some months. Some textbooks suggest that the acid test ratio must be at least 1 : 1, but again there is no evidence to support this assertion so use it only as a guide.

Activity 10.3

Fill in the blanks in the following equations.

- (a) $\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\pounds 65\,500}{\text{-----}} = 1.60$
- (b) $\frac{\text{Current assets} - \text{-----}}{\text{Current liabilities}}$

Profitability ratios

News clip

Spotting trouble

A number of UK firms are running for unrealistic cash flow forecasts and summer schools in order to help junior other forecasts as well as covenant and auditors spot companies facing financial financing arrangements that might cause difficulties. They will be trained to look problems.

Source: Adapted from www.accountancyage.com/2223899, 14 August 2008.

Users of accounts will want to know how much profit a business has made, and then to compare it with previous periods or with other entities. The absolute level of accounting profit will not be of much help, because it needs to be related to the size of the entity and how much capital it has invested in it. There are four main profitability ratios. We examine each of them below.

Return on capital employed ratio

The best way of assessing profitability is to calculate a ratio known as the *return on capital employed* (ROCE) ratio. It can be expressed quite simply as

$$\frac{\text{profit}}{\text{capital}} \times 100$$

This ratio is usually expressed as a percentage and it is one of the most important. Even so, there is no common agreement about how it should be calculated. The problem is that both 'profit' and 'capital' can be defined in several different ways. As a result, a variety of ROCE ratios can be produced merely by changing the definitions of either profit or capital. For our purposes you need to be aware of only four definitions of ROCE. They are as follows.

$$(1) \quad \frac{\text{net profit before taxation}}{\text{shareholders' funds}} \times 100$$

This definition measures the pre-tax profit against what the shareholders have invested in the entity. Use it if you want to know how profitable the entity has been as a whole.

$$(2) \quad \frac{\text{net profit after taxation}}{\text{shareholders' funds}} \times 100$$

This definition is similar to the previous one except that it measures post-tax profit against the shareholders' investment in the company. Taxation is normally regarded as an *appropriation* of profit and not as an expense. The tax payable will be based on the profit for the year and a company has no option other than to pay it. The distinction between tax as an appropriation and tax as a profit is blurred, and some accountants prefer to use this definition as a measure of overall profitability. However, bear in mind that the taxation charge in the accounts can be subject to various accounting adjustments so you would have to be careful using this definition in comparing one company with another company.

$$(3) \quad \frac{\text{net profit after taxation and preference dividends}}{\text{shareholders' funds} - \text{preference dividends}} \times 100$$

This definition should be used if you want to assess how profitable the company has been from an *ordinary* shareholder's point of view. It measures how much profit could be distributed to ordinary shareholders as a proportion of what they have invested in the business.

$$(4) \quad \frac{\text{profit before taxation and interest}}{\text{shareholders' funds} + \text{long-terms loans}} \times 100$$

This definition measures what profit has been earned in relation to what has been used to *finance* the entity in total. Interest is a cost of borrowing money so it is added back to the profit made. Similarly long-term loans are added to the shareholders' funds because that gives us the *total* financial investment in the entity. Use this definition if you want to know how profitable the entity has been in relation to what it has taken to finance it.

The above definitions use the closing shareholders' funds but sometimes a simple average, is adopted, e.g. (opening + closing shareholders funds) ÷ 2.

Activity 10.4

There are many other ways of calculating ROCE other than the four listed above. Divide a page into two broad columns. In the left-hand column list all the various levels of profit that you would find in a published profit and loss account (e.g. operating profit). In the right-hand column list all the various levels or types of capital shown in a published balance sheet (e.g. total assets). Then try to relate each definition of profit to a compatible definition of capital.

Remember that what you are trying to do is to find how much profit (however defined) has been earned for the particular level or type of capital invested. So the numerator (profit) has got to be compatible with the denominator (the capital employed).

Gross profit ratio

The *gross profit ratio* enables us to judge how successful the entity has been at trading. It is calculated as follows:

$$\frac{\text{gross profit}}{\text{sales}} \times 100$$

The gross profit ratio measures how much profit the entity has earned in relation to the amount of sales that it has made. The definition of gross profit does not usually cause any problems. Most entities adopt the definition we have used in this book, namely sales less the cost of goods sold [the cost of sales being (opening stock + purchase) – closing stock] and so meaningful comparisons can usually be made between different entities. However, if you are using published accounts, sales may be described as 'turnover' and the cost of sales may well include production costs (which are not usually disclosed). Be wary, therefore, if you are using published accounts to make comparisons between different companies.

Mark-up ratio

The gross profit ratio complements another main trading ratio, which we will refer to, for convenience, as the *mark-up ratio*. This is calculated as follows:

$$\frac{\text{gross profit}}{\text{cost of goods sold}} \times 100$$

Mark-up ratios measure the amount of profit added to the cost of goods sold. The cost of goods sold plus profit equals the sales revenue. The mark-up may be reduced to stimulate extra sales activity, but this will have the effect of reducing the gross profit. However, if extra goods are sold there may be a greater volume of sales and this will help to compensate for the reduction in the mark-up on each unit.

Net profit ratio

Owners sometimes like to compare their net profit with the sales revenue. This can be expressed in the form of the *net profit ratio*. It is calculated as follows:

$$\frac{\text{net profit before taxation}}{\text{sales}} \times 100$$

It is difficult to compare the net profit ratio for different entities fairly. Individual operating and financing arrangements vary so much that entities are bound to have different levels of expenditure no matter how efficient one entity is compared with another. So it may only be realistic to use the net profit ratio in making *internal* comparisons. Over a period of time a pattern may emerge and it might then be possible to establish a trend. If you use the net profit ratio to make intercompany comparisons, make sure you allow for different circumstances.

In published accounts you might also want to substitute 'operating profit' or 'profit on ordinary activities before tax' for net profit.

Efficiency ratios

News clip

Late payment problems

Three in five businesses are being affected by late payments according to a survey done by Tenon Recovery. Its national head said that cash flow is fundamental to business survival and late payments are part of it. He argued that businesses must adopt a responsible attitude to avoid the domino effect of businesses collapsing. They should also have clear payment terms, credit control procedures, chase slow-paying customers and make their own payments on time.

Source: Adapted from www.accountancyage.com/articles/print2240410, 15 April 2009.

Traditional accounting statements do not tell us how *efficiently* an entity has been managed, i.e. how well its resources have been looked after. Accounting profit may, to some extent, be used as a measure of efficiency. However, as we have explained in earlier chapters, it is subject to a great many arbitrary adjustments and in this context it can be misleading. What we need to do is to make comparisons between different periods and with other similar companies.

There are very many different types of ratios that we can use to measure the efficiency of a company, but in this book we will cover only the more common ones.

Stock turnover ratio

The stock turnover ratio may be calculated as follows:

$$\frac{\text{cost of goods sold}}{\text{closing stock}}$$

The stock turnover ratio is normally expressed as a number (e.g. 5 or 10 times) and not as a percentage.

Instead of using the cost of goods sold, sometimes it is necessary to substitute sales revenue. This should be avoided if at all possible as the sales revenue will include a profit loading. As this may be subject to change, the stock turnover will become distorted so making it difficult to make meaningful comparisons.

As far as the closing stock is concerned some accountants prefer to use an average, often a simple average, i.e. opening stock + closing stock/2, especially if trade is seasonal or the year end falls during a quiet period.

The greater the turnover of stock, the more efficient the entity would appear to be in purchasing and selling goods. A stock turnover of 2 times, for example, would suggest that the entity has about six months of sales in stock. In most circumstances this would appear to be a high relative volume, whereas a stock turnover of (say) 12 times would mean that the entity had only a month's normal sales in stock.

Fixed assets turnover ratio

Another important area to examine, from the point of view of efficiency, relates to fixed assets. Fixed assets (such as plant and machinery) enable the business to function more efficiently, and so a high level of fixed assets ought to generate more sales. We can check this by calculating a ratio known as the fixed asset turnover ratio. This may be done as follows:

$$\frac{\text{sales}}{\text{fixed assets at net book value}}$$

The more times that the fixed assets are covered by the sales revenue, the greater the recovery of the investment in fixed assets. The fixed assets turnover ratio may also be expressed as a percentage.

This ratio is really only useful if it is compared with previous periods or with other companies. In isolation it does not mean very much. For example, is a turnover of 5 good and one of 4 poor? All we can suggest is that if the trend is upwards, then the investment in fixed assets is beginning to pay off, at least in terms of increased sales. Note also that the ratio can be strongly affected by the company's depreciation policies. There is a strong argument, therefore, for taking the *gross* book value of the fixed assets and not the *net* book value.

Activity 10.5

A company has a turnover of £4,000,000 for the year to 31 December 2012. At that date the gross book value of its fixed assets was £22,000 and the net book value £12,000. When measuring the efficiency with which it uses its fixed assets, is it more meaningful to use the gross book value in relation to turnover or the net book value? Give your reasons.

Gross book value

Net book value

Reason: _____

Trade debtor collection period ratio

Investing in fixed assets is all very well but there is not much point in generating extra sales if the customers do not pay for them. Customers might be encouraged to buy more by a combination of lower selling prices and generous credit terms. If the debtors are slow at paying, the entity might find that it has run into cash flow problems. So it is important for it to watch the trade debtor position very carefully. We can check how successful it has been by calculating the *trade debtor collection period*. The ratio may be calculated as follows:

$$\frac{\text{closing trade debtors}}{\text{credit sales}} \times 365$$

The average trade debtors term is sometimes used instead of the closing trade debtors, i.e. $\frac{1}{2}$ (opening trade debtors + closing trade debtors).

It is important to relate trade debtors to *credit* sales if at all possible and so cash sales should be excluded from the calculation. The method shown above for calculating the ratio would relate the closing trade debtors to *x* days' sales, but it would be possible to substitute weeks or months for days. It is not customary to express the ratio as a percentage.

An acceptable debtor collection period cannot be suggested as much depends on the type of trade in which the entity is engaged. Some entities expect settlement within 28 days of delivery of the goods or on immediate receipt of the invoice. Other entities might expect settlement within 28 days following the end of the month in which the goods were delivered. On average this adds another 14 days (half a month) to the overall period of 28 days. If this is the case, a company would appear to be highly efficient in collecting its debts if the average debtor collection period was about 42 days. The United Kingdom experience is that the *median* debtor collection period is about 50 days.

Like most of the other ratios, it is important to establish a trend. If the trend is upwards, then it might suggest that the company's credit control procedures have begun to weaken.

Activity 10.6

A company's sales for 2012 were £4452 million and its trade debtors for that year were £394 million. Assuming that all the sales were made on credit terms, do you think that its debtor collection was efficient?

Yes No

Reason: _____

Trade creditor payment period

A similar ratio can be calculated for the trade creditor payment period. The formula is as follows:

$$\frac{\text{closing trade creditors}}{\text{total credit purchases}} \times 365$$

Average trade creditors may be substituted for the closing trade creditors like the trade debtor collection period ratio and this may be a simple average (opening trade debtors +

closing trade debtors/2) or a more complex one. The trade creditors should be related to credit purchases (although this information will often not be available), and weeks or months may be substituted for the number of days. Again, like the trade debtor collection period, it is not usual to express this ratio as a percentage.

In published accounts you might have to calculate the purchases figure for yourself. The accounts should disclose the opening and closing stock figures and the cost of sales. By substituting them in the equation [(opening stock + purchases) – closing stock = cost of sales] you can calculate the purchases. Other expenses may have been included in the cost of sales but unless these have been disclosed you will just have to accept the cost of sales figure shown in the accounts.

An upward trend in the average level of trade creditors would suggest that the entity is having some difficulty in finding the cash to pay its creditors. Indeed, it might be a sign that it is running into financial difficulties.

Investment ratios

News clip

Football clubs face financial meltdown

According to *The Observer* British football clubs face financial meltdown as a result of excessive debt and massive wages paid to players. The paper reports that there will be some insolvencies since in the summer clubs do not earn much income while they have the same overhead expenditure. Those clubs that are highly geared both financially and operationally face particular difficulties as season ticket sales, sponsorship earnings and corporate box deals all begin to drop.

Source: Adapted from *The Observer*, 5 April 2009, p. 6 Business.

The various ratios examined in the previous sections are probably of interest to all users of accounts, such as creditors, employees and managers, as well as to shareholders. There are some other ratios that are primarily (although not exclusively) of interest to prospective investors. These are known as *investment ratios*.

Dividend yield

The first investment ratio that you might find useful is the *dividend yield*. It usually applies to ordinary shareholders and it may be calculated as follows:

$$\frac{\text{dividend per share}}{\text{market price per share}} \times 100$$

The dividend yield measures the rate of return that an investor gets by comparing the cost of his shares with the dividend receivable (or paid). For example, if an investor buys 100 £1 ordinary shares at a market rate of 200p per share, and the dividend was 10p per

share, the yield would be 5 per cent ($10/200 \times 100$). While he may have invested £200 ($100 \times £2$ per share), as far as the company is concerned he will be registered as holding 100 shares at a nominal value of £1 each ($100 \text{ shares} \times £1$). He would be entitled to a dividend of £10 ($10\text{p} \times 100 \text{ shares}$) but from his point of view he will only be getting a return of 5 per cent, i.e. £10 for his £200 invested.

Dividend cover

Another useful investment ratio is called *dividend cover*. It is calculated as follows:

$$\frac{\text{net profit} - \text{taxation} - \text{preference dividend}}{\text{ordinary dividends}}$$

This ratio shows the number of times that the ordinary dividend could be paid out of current earnings. The dividend is usually described as being x times covered by the earnings. So if the dividend is covered twice, the company would be paying out half of its earnings as an ordinary dividend.

Earnings per share

Another important investment ratio is that known as *earnings per share* (EPS). This ratio enables us to put the profit into context and to avoid looking at it in simple absolute terms. It is usually looked at from the ordinary shareholder's point of view. The following formula is used to calculate what is called the *basic earnings per share*:

$$\frac{\text{net profit} - \text{preference shares}}{\text{number of ordinary shares}}$$

In published accounts you will sometimes see other definitions of the EPS. The calculations involved in obtaining them are often highly complex. We recommend you to stick to the above definition, i.e. basically, net profit less preference dividends divided by the number of ordinary shares.

EPS enables a fair comparison to be made between one year's earnings and another by relating the earnings to something tangible, i.e. the number of shares in issue.

Price to earnings ratio

Another common investment ratio is the *price to earnings ratio* (P/E). It is calculated as follows:

$$\frac{\text{market price per share}}{\text{earnings per share}}$$

The P/E ratio enables a comparison to be made between the earnings per share (as defined above) and the market price. It tells us that the market price is x times the earnings. It means that it would take x years before we recovered the market price paid for the shares out of the earnings (assuming that they remained at that level and that they were all distributed). So the P/E ratio is a multiple of earnings. A high or low ratio can only be judged in relation to other companies in the same sector of the market.

A high P/E ratio means that the market thinks that the company's future is a good one. The shares are in demand, so the price of the shares will be high. Of course it would take you a long time to get your 'earnings' back (even if the company paid them all out as dividends) but the expectation is that the company will be able to increase its earnings and that sometime in the future it will be able to pay out a higher dividend. As a result the shares are a good buy from that point of view.

Activity 10.7

At 5 October 2009 Dawson's P/E ratio was 88.2 while Experian's was 2.4. Both are grouped in the 'support services' sector of the economy. What do these P/E ratios tell you about the market's perception of these two companies?

Capital gearing ratio

The last ratio that we are going to consider is the *capital gearing ratio*. As we saw in Chapter 5, companies are financed out of a mixture of share capital, retained profits and loans. Loans may be long-term (such as debentures) or short-term (such as credit given by trade creditors). In addition, the company may have set aside all sorts of provisions (e.g. for taxation) which it expects to meet sometime in the future. These may also be regarded as a type of loan. From an ordinary shareholder's point of view, even preference share capital can be classed as a loan because the preference shareholders may have priority over ordinary shareholders both in respect of dividends and upon liquidation. So if a company finances itself from a high level of loans, there is obviously a higher risk in investing in it. This arises for two main reasons:

- the higher the loans, the more interest the company will have to pay; that may affect the company's ability to pay an ordinary dividend;
- if the company cannot find the cash to repay its loans then the ordinary shareholders may not get any money back if the company goes into liquidation.

There are many different ways of calculating capital gearing but we prefer the following formula.

$$\frac{\text{preference shares} + \text{long-term loans}}{\text{shareholders' funds} + \text{long-term loans}} \times 100$$

A company that has financed itself out of a high proportion of loans (e.g. in the form of a combination of preference shares and long-term loans) is known as a highly-g geared company. Conversely, a company with a low level of loans is regarded as being low-g geared. Note that 'high' and 'low' in this context are relative terms. A highly-g geared company is potentially a higher risk investment as it has to earn sufficient profit to cover the interest payments and the preference dividend before it can pay out any ordinary dividend. This should not be a problem when profits are rising but if they are falling then they may not be sufficient to cover even the preference dividend.

We have now reviewed 15 common accounting ratios. There are many others that could have been included. However, the 15 selected are enough for you to be able to interpret a set of accounts. Many of the ratios are not particularly helpful if they are used in isolation but as part of a detailed analysis they can be invaluable.

Activity 10.8

Company A has a capital gearing of 10%, Company B 40%, and Company C 60%. What effect will such gearing ratios have on each company's reported profits when they are (a) rising steeply; (b) or falling sharply?

Company	Effect on profits	
	<i>Rising</i>	<i>Falling</i>
A		
B		
C		

For your convenience a summary of the 15 ratios is included in an appendix at the end of this chapter (see pages 247–248). We will now show how they can be used to interpret the accounts of a small company.

An illustrative example

In this section we bring together much of the material that we have covered so far in this chapter in the form of a practical example. The example is meant to provide you with a framework for interpreting accounts. We have tried to make it as simple as possible and to reduce the arithmetic involved.

When you are faced with having to interpret a set of accounts in your work or in your private life you will probably be faced with a huge amount of additional information. And yet some information that you will probably need will be missing. For example, published accounts almost certainly only give you the 'cost of sales' and not the 'cost of goods sold' as defined in this book. This means that you will not be able to calculate the gross profit using the conventional formula. Besides some missing information much of what is available will be highly complex and technical and you will have to sort it out for yourself using the notes attached to the accounts.

All of this may seem that you will face an almost impossible task. This is not so. With the guidance specifically provided in this chapter and more generally throughout the rest of the book, you should soon be able to interpret a set of accounts. Here goes.

**Example
10.1****Interpreting company accounts**

You are presented with the following information relating to Gill Limited.

Gill Limited		
Profit and loss account for the year to 31 March 2012		
	<i>2011</i>	<i>2012</i>
	<i>£000</i>	<i>£000</i>
Sales	160	200
Cost of goods sold	<u>(96)</u>	<u>(114)</u>
Gross profit	64	86
Operating expenses	(30)	(34)
Debenture interest	<u>(5)</u>	<u>(5)</u>
Net profit before tax	29	47
Tax	<u>(9)</u>	<u>(12)</u>
Net profit after tax	<u>20</u>	<u>35</u>
Dividends paid		
Preference shares	(2)	(2)
Ordinary shares	<u>(8)</u>	<u>(10)</u>
	<u>(10)</u>	<u>(12)</u>
Retained profit	<u>10</u>	<u>23</u>

Balance sheet at 31 March 2012		
	<i>2011</i>	<i>2012</i>
	<i>£000</i>	<i>£000</i>
Fixed assets (at net book value)	<u>300</u>	<u>320</u>
Current assets		
Stocks	15	20
Trade debtors	40	50
Cash and bank	<u>3</u>	<u>1</u>
	<u>58</u>	<u>71</u>
Current liabilities		
Trade creditors	<u>(25)</u>	<u>(35)</u>
Net current liabilities	<u>33</u>	<u>36</u>
	<u>333</u>	<u>356</u>
Capital and reserves		
Share capital (£1 ordinary shares)	200	200
Preference shares (£1 shares; 8%)	25	25
Retained earnings	<u>58</u>	<u>81</u>
	<u>283</u>	<u>306</u>
Long-term liabilities		
Debentures (10%)	<u>50</u>	<u>50</u>
	<u>333</u>	<u>356</u>

Example 10.1
continued

Additional information:

- 1 All sales and all purchases are on credit terms.
- 2 The opening stock at 1 April 2010 was £20,000.
- 3 There were no accruals or prepayments at the end of either 2011 or 2012.
- 4 Assume that both the tax and the dividends had been paid before the end of the year.
- 5 The market price of the ordinary shares at the end of both years was estimated to be 126p and 297p respectively.

Required:

- (a) Calculate appropriate liquidity, profitability, efficiency and investment ratios for both 2011 and 2012.
- (b) Comment briefly on the company's financial performance for the year to 31 March 2012.

Answer to
Example 10.1**(a) Significant accounting ratios**

Gill Limited		
	2011	2012
Liquidity ratios		
<i>Current assets:</i>		
Current assets	<u>58</u>	<u>71</u>
Current liabilities	<u>25</u>	<u>35</u>
	<u>= 2.3</u>	<u>= 2.0</u>
<i>Acid test:</i>		
Current assets – stock	<u>58 – 15</u>	<u>71 – 20</u>
Current liabilities	<u>25</u>	<u>35</u>
	<u>= 1.7</u>	<u>= 1.5</u>
Profitability ratios		
<i>Return on capital employed:</i>		
Net profit before tax	<u>29</u>	<u>47</u>
Shareholders' funds	<u>283</u>	<u>306</u>
	<u>= 10.2%</u>	<u>= 15.4%</u>
Net profit after tax	<u>20</u>	<u>35</u>
Shareholders' funds	<u>283</u>	<u>306</u>
	<u>= 7.1%</u>	<u>= 11.4%</u>
Profit after tax and preference dividend	<u>18</u>	<u>33</u>
Shareholders' funds – preference shares	<u>283 – 25</u>	<u>306 – 25</u>
	<u>= 7.0%</u>	<u>= 11.7%</u>
Profit before tax and interest	<u>29 + 5</u>	<u>47 + 5</u>
Shareholders' funds + long-term loans	<u>333</u>	<u>356</u>
	<u>= 10.2%</u>	<u>= 14.6%</u>

Gross profit ratio:

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

$$\frac{64}{160} \times 100$$

$$= 40\%$$

$$\frac{86}{200} \times 100$$

$$= 43\%$$

Mark-up ratio:

$$\frac{\text{Gross profit}}{\text{Cost of goods sold}} \times 100$$

$$\frac{64}{96} \times 100$$

$$= 66.7\%$$

$$\frac{86}{114} \times 100$$

$$= 75.4\%$$

Net profit ratio:

$$\frac{\text{Net profit before tax}}{\text{Sales}} \times 100$$

$$\frac{29}{160} \times 100$$

$$= 18.1\%$$

$$\frac{47}{200} \times 100$$

$$= 23.5\%$$

Efficiency ratios*Stock turnover:*

$$\frac{\text{Cost of goods sold}}{\text{Stock}}$$

$$\frac{96}{15}$$

$$= 6.4 \text{ times}$$

$$\frac{114}{20}$$

$$= 5.7 \text{ times}$$

Fixed assets turnover:

$$\frac{\text{Sales}}{\text{Fixed assets (NBV)}}$$

$$\frac{160}{300}$$

$$= 0.5 \text{ times}$$

$$\frac{200}{320}$$

$$= 0.6 \text{ times}$$

Trade debtor collection period:

$$\frac{\text{Trade debtors}}{\text{Credit sales}} \times 365$$

$$\frac{40}{160} \times 365$$

$$= 92 \text{ days}$$

$$\frac{50}{200} \times 365$$

$$= 92 \text{ days}$$

Trade creditor payment period:

$$\frac{\text{Trade creditors}}{\text{Purchases}} \times 365$$

$$\frac{25}{91} \times 365$$

$$= 101 \text{ days}$$

$$\frac{35}{119} \times 365$$

$$= 108 \text{ days}$$

Purchases:

$$\text{Opening stock} +$$

$$\text{Purchases}^*$$

$$20$$

$$91$$

$$15$$

$$119$$

$$111$$

$$134$$

$$- \text{Closing stock} =$$

$$15$$

$$20$$

$$\text{Cost of goods sold}$$

$$96$$

$$114$$

* by deduction

Investment ratios*Dividend yield:*

$$\frac{\text{Dividend per share}}{\text{Market price per share}} \times 100$$

$$\frac{4^*}{126} \times 100$$

$$= 3.2\%$$

$$\frac{5^*}{297} \times 100$$

$$= 1.7\%$$

**Dividend per share:*

$$\frac{\text{Dividends}}{\text{Issued share capital}}$$

$$\frac{8}{200} \times 100$$

$$= 4\text{p}$$

$$\frac{10}{200} \times 100$$

$$= 5\text{p}$$



**Answer to
Example 10.1
continued**

Dividend cover:

Net profit after tax and preference dividend	$\frac{20 - 2}{8}$	$\frac{35 - 2}{10}$
Ordinary dividends	$= 2.25 \text{ times}$	$= 3.3 \text{ times}$

Earnings per share:

Net profit after tax and preference dividend	$\frac{20 - 2}{200}$	$\frac{35 - 2}{200}$
Number of shares	$= 9\text{p}$	$= 16.5\text{p}$

Price/earnings:

Market price per share	126	297
Earnings per share	$\frac{9}{14}$	$\frac{16.5}{18}$

Capital gearing:

$\frac{\text{Preference shares} + \text{long-term loans}}{\text{Shareholders' funds} + \text{long-term loans}} \times 100$	$\frac{25 + 50}{333} \times 100$	$\frac{25 + 50}{356} \times 100$
	$= 22.5\%$	$= 21.1\%$

(b) Comments on the company's financial performance for the year to 31 March 2012

In answering Part (b) of the question we will confine our comments to just a few brief points.

Liquidity

Cash flow

The company had a small cash balance at the end of each year (£3000 and £1000 respectively). We have not been provided with a cash flow statement but it is possible to prepare a simple one for 2012.

Cash flow statement for the year to 31 March 2012

	<i>£000</i>
Net profit before debenture interest and taxation (47 + 5)	52
Increase in stock	(5)
Increase in trade debtors	(10)
Increase in trade creditors	10
Increase in fixed assets	(20)
Interest paid	(5)
Tax paid	(12)
Dividends paid	(12)
<i>Decrease in cash during the year</i>	<u>(2)</u>
Cash at 1.4.11	3
Cash at 31.3.12	<u>1</u>

- Increases in stock and trade debtor balances of £15,000 were offset by a smaller increase in trade creditors of £10,000. An increase in fixed assets and tax paid was largely responsible for a decrease in the cash position at the end of 2012.
- Both the current assets and the acid test ratios were well within the generally accepted ranges.

Profitability

- All measures of profit show a healthy return on capital employed in both years with an increase in 2012.
- We do not, however, know how the ROCE ratios compare with other companies. The increases may have been partly due to a significant increase in mark-up on sales. If this is so, this would suggest that the company is selling in an elastic market and that it has been able to increase its selling prices without any great difficulty resulting in an increase in sales of 25% (from £160,000 to £200,000).
- The gross profit ratio showed a reasonable increase in 2012.
- Similarly the net profit ratio shows a healthy increase indicating that operational expenses are under control despite the company being busier.

Efficiency

- The stock turnover ratio has fallen from 6.4 times to 5.7 times. In other words the stock is not being used in production quite as quickly in 2012 as it was in 2011. This needs to be investigated. It may well be that the company has purchased more stock than was needed to meet the 25% increase in sales.
- The fixed assets turnover is very low in both years although it did increase slightly in 2012. Indeed it would appear that the company is not recovering in sales what it has invested in fixed assets. Perhaps this is because there is a long time-lag between the installation of plant and machinery and the expected upturn in sales. Again this is something that needs further investigation.
- The trade debtor position is very high (92 days in each year). This may be the industrial sector norm but it still needs investigation. The company could run into cash flow problems if its customers are slow to pay. This ratio may be related to the even higher trade creditor payment period (101 days and 108 days respectively). If the company is not receiving cash from its debtors it will not have the cash to pay its creditors. There is, therefore, a danger that it could possibly be going to run into a severe cash flow problem.

Investment

- This is a private company so it is difficult to read too much into the investment ratios. The dividend yield has fallen by nearly half but the dividend cover shows a healthy increase.
- The increase in the earnings per share is much more than healthy: it increased by over 83% in 2012.
- The market appears to view the prospects for the company favourably as the price/earnings ratio increased from 14 to 18.
- At just over 20% the capital gearing is sufficiently low to satisfy the ordinary shareholders that if future profits increase their dividends are likely to grow without any problems arising. Similarly if profits fall, the payments to both debenture holders and preference shareholders will not swallow up a huge proportion of whatever profits are made, leaving the ordinary dividend fairly safe.

Conclusion

- There are a few caveats: (1) we don't have any information about the overall environment in which the company operates; (2) we are provided with only limited internal data; (3) we only have the accounts for a two-year period; and (4) we don't know how this company compares with other private companies in the same industry.
- The company appears to be profitable, generally efficient and not a huge investments risk. There is a peculiar relationship between the fixed assets and the sales and



**Answer to
Example 10.1
continued**

the underlying cash flow position is weak because the company is not chasing up its debtors fast enough. As a result it is not able to pay its creditors very quickly. This means that if they begin to demand quicker payment the company could find itself facing great financial difficulties. If it cannot obtain the necessary credit then there may even be questions about whether it is able to continue as a going concern and it might then have to go into liquidation.

! Questions you should ask

As far as this chapter is concerned, there are two situations in which you might find yourself: either with a set of financial accounts that will have been interpreted for you or some that you might have to interpret for yourself. Irrespective of which situation you find yourself in, you might find it useful to ask (or ask yourself) the following questions.

- How reliable is the basic accounting information underpinning this information in front of me?
- Have consistent accounting policies been adopted throughout the period covered?
- If not, has each year's results been adjusted on to the same accounting basis?
- Were there any unusual items in any year that may have distorted a comparative analysis?
- Was the rate of inflation significant in any year covered by the report?
- If so, should the basic accounting data be adjusted to allow for it?
- What are the three or four most significant changes in these accounts during the period they cover?
- Are there any apparent causal links between them, such as greater efficiency resulting in a higher level of profitability or higher profits causing cash flow problems?
- What are the most important factors that this report tells me about the company's progress during the period in question and its prospects for the future?

Conclusion

This chapter has explained how you can examine the financial performance of a company (or other entity) over a certain period of time. If a detailed examination is required it may be necessary to examine the general business environment and economic sector in which it operates. Much information will also be collected about the company itself. One of the main sources of information will be its annual report and accounts.

While a great deal of information may be found in the annual reports and accounts that information has to be put into context as the absolute numbers disclosed are often large, do not mean much in isolation, and are often difficult to understand. This means that the accounts need to be analysed. There are four main types of analysis:

- horizontal analysis, involving a line-by-line inspection across the various time periods;
- trend analysis, in which all the data are indexed to a base of 100;
- vertical analysis, where each period's data is expressed as a percentage of a total;
- ratio analysis, which requires a comparison to be made of one item with another item expressing the relationship as either a percentage or a factor.

All of these four types of analyses rely primarily on the accounting data. Such data are subject to a number of reservations, such as the accounting policies and the methods used in preparing the accounts. These reservations must be allowed for when interpreting a set of accounts, especially when a comparison is made with other companies since accounting policies and methods are often different.

Ratio analysis is the most important of the four types of analyses. There are literally hundreds of ratios that could be calculated, plus some highly specialist ones that relate to particular industries. In this chapter we have selected just 15 common but important ratios and grouped them under four headings:

- liquidity ratios, which help to decide whether an entity has enough cash to continue as a going concern;
- profitability ratios, which measure the profit an entity has made;
- efficiency ratios, which ratios show how well the entity has used its resources;
- investment ratios, which help to consider the investment potential of an entity.

Irrespective of the category into which they fall, ratios should only be regarded as a signpost: in themselves they do not actually *interpret* the accounts for you. They are merely an arithmetical device that points you in the right direction and help you to assess what *has* happened and to predict what *might* happen. They provide you with the evidence, but you have to use that evidence to come to a verdict.

Key points

- 1 The interpretation of accounts involves examining financial accounts in some detail so as to be able to explain what has happened and to predict what is likely to happen.
- 2 The examination can be undertaken by using a number of techniques, such as horizontal analysis, trend analysis, vertical analysis and ratio analysis.
- 3 Ratio analysis is a common method of interpreting accounts. It involves comparing one item in the accounts with another closely related item. Ratios are normally expressed in the form of a percentage or a factor. There are literally hundreds of recognized accounting ratios (excluding those that relate to specific industries) but we have restricted our study to just 15.
- 4 Not all of the ratios covered in this chapter will be relevant for non-manufacturing, non-trading or not-for-profit entities. It is necessary to be selective in your choice of ratios.
- 5 When one item is related to another item in the form of a ratio, it is important to make sure that there is a close and logical correlation between the two items.
- 6 In the case of some ratios, different definitions can be adopted. This applies particularly to ROCE and capital gearing. In other cases annual averages are used instead of year end balances. This applies especially to ratios relating to stocks, debtors and creditors.
- 7 Assessing trends and calculating ratios is not the same as interpreting a set of financial accounts. Interpretation involves using a wide range of information sources as well as the incorporation of various types of analyses into a cohesive appraisal of an entity's past performance and its future prospects.

Check your learning

The answers to these questions can be found within the text.

- 1 What is meant by the term 'interpretation of accounts'?
- 2 Give three reasons why the absolute data shown in financial accounts may need to be interpreted.
- 3 List the users of accounts and suggest one piece of information that each user group may require from a set of financial accounts.
- 4 What is the difference between (a) horizontal analysis, (b) trend analysis?
- 5 What is vertical analysis?
- 6 What is (a) a ratio, (b) ratio analysis?
- 7 What four main categories may be used for classifying accounting ratios?
- 8 What does 'ROCE' mean and how may it be calculated?
- 9 What is the difference between the gross profit ratio and the mark-up ratio?
- 10 Why might it be misleading to compare the net profit ratio of one entity with that of another entity?
- 11 Why is liquidity important and what two ratios may be used for assessing it?
- 12 How would you assess whether stock turnover and fixed asset turnover ratios were good or bad?
- 13 What is meant by the 'trade debtor collection period'. Is a 60-day period worrying?
- 14 What is meant by the 'trade creditor payment period'. Is a 100-day period worrying?
- 15 Which two investment ratios take market prices into account?
- 16 Explain why there may be a difference between the dividend payable and its yield.
- 17 What is meant by 'EPS' and where might you find it in a set of published accounts?
- 18 What is the P/E ratio, and what is its importance?
- 19 What is capital gearing and how might it be calculated?
- 20 What is a possible link between the following ratios: (a) profitability and efficiency; (b) profitability and liquidity; (c) profitability and investment, and (d) efficiency and liquidity?
- 21 Outline the main steps you would take if you were asked to appraise the financial performance of a company using its annual report and accounts.

News story quiz

Remember the news story at the beginning of this chapter? Go back to that story and reread it before answering the following questions.

This is an interesting news story suggesting that historical accounts are too old to be meaningful when times are difficult and that management accounts would be much more useful. We shall be moving on shortly to examine management accounting in some detail but for the moment you might need to refer back to Chapter 1 to give you a brief reintroduction to its nature and purpose.

Questions

- 1 What performance measures might indicate that ‘some statements in the public domain are not as strong as they first look’?
- 2 Why might historical accounts relating to two years in the past be ‘too old to be meaningful’?
- 3 Why do you think that Fabrice Desnos believes that ‘management accounts’ would be any better than financial accounts in assessing performance?

Tutorial questions

The answers to questions marked with an asterisk may be found in Appendix 4.

- 10.1 ‘Accounting ratios are only as good as the data on which they are based.’ Discuss.
- 10.2 How far do you accept the argument that the return on capital employed ratio can give a misleading impression of an entity’s profitability?
- 10.3 Is ratio analysis useful in understanding how an entity has performed?
- 10.4* The following information has been extracted from the books of account of Betty for the year to 31 January 2011:

Trading and profit and loss account for the year to 31 January 2011

	£000	£000
Sales (all credit)		100
<i>Less:</i> Cost of goods sold:		
Opening stock	15	
Purchases	65	
	80	
<i>Less:</i> Closing stock	10	70
<i>Gross profit</i>		30
Administrative expenses		16
<i>Net profit</i>		14

Balance sheet at 31 January 2011

	£000	£000
<i>Fixed assets</i> (net book value)		29
<i>Current assets</i>		
Stock	10	
Trade debtors	12	
Cash	3	
<i>Less: Current liabilities</i>	<u>25</u>	
Trade creditors	6	<u>19</u>
		<u>48</u>
<i>Financed by:</i>		
Capital at 1 February 2010		40
<i>Add:</i> Net profit	14	
<i>Less:</i> Drawings	<u>6</u>	<u>8</u>
		<u>48</u>

Required:

Calculate the following accounting ratios:

- (a) gross profit
- (b) net profit
- (c) return on capital employed
- (d) current ratio
- (e) acid test
- (f) stock turnover
- (g) debtor collection period.

10.5* You are presented with the following summarized accounts:

James Ltd
Profit and loss account for the year to 28 February 2012

	£000
Sales (all credit)	1 200
Cost of sales	<u>600</u>
<i>Gross profit</i>	600
Administrative expenses	(500)
Debenture interest payable	<u>(10)</u>
Profit on ordinary activities	90
Taxation	<u>(30)</u>
	60
Dividends	<u>(40)</u>
Retained profit for the year	<u>20</u>

James Ltd
Balance sheet at 28 February 2012

	£000	£000	£000
<i>Fixed assets</i> (net book value)			685
<i>Current assets</i>			
Stock		75	
Trade debtors		200	
		<u>275</u>	
<i>Less: Current liabilities</i>			
Trade creditors	160		
Bank overdraft	10		
Taxation	30		
Proposed dividend	40	240	35
		<u>240</u>	<u>35</u>
			<u>720</u>
<i>Capital and reserves</i>			
Ordinary share capital			600
Profit and loss account			20
			<u>620</u>
<i>Shareholders' funds</i>			<u>620</u>
<i>Loans:</i>			
10% debentures			100
			<u>720</u>
			<u>720</u>

Required:

Calculate the following accounting ratios

- (a) return on capital employed
- (b) gross profit
- (c) mark-up
- (d) net profit
- (e) acid test
- (f) fixed assets turnover
- (g) debtor collection period
- (h) capital gearing.

10.6 You are presented with the following information relating to three companies:

Profit and loss accounts for the year to 31 March 2009

	<i>Mark Limited</i>	<i>Luke Limited</i>	<i>John Limited</i>
	£000	£000	£000
Profit before tax	<u>64</u>	<u>22</u>	<u>55</u>

Balance sheet (extracts) at 31 March 2009

	<i>Mark Limited</i> £000	<i>Luke Limited</i> £000	<i>John Limited</i> £000
<i>Capital and reserves</i>			
Ordinary share capital of £1 each	100	177	60
Cumulative 15% preference shares of £1 each	–	20	10
Share premium account	–	70	20
Profit and loss account	<u>150</u>	<u>60</u>	<u>200</u>
<i>Shareholders' funds</i>	<u>250</u>	<u>327</u>	<u>290</u>
<i>Loans</i>			
10% debentures	–	–	100
	<u>250</u>	<u>327</u>	<u>390</u>

Required:

Calculate the following accounting ratios:

- (a) return on capital employed
- (b) capital gearing.

10.7 The following information relates to Helena Limited:

Trading account year to 30 April

	<i>2008</i> £000	<i>2009</i> £000	<i>2010</i> £000	<i>2011</i> £000	<i>2012</i> £000
Sales (all credit)	<u>130</u>	<u>150</u>	<u>190</u>	<u>210</u>	<u>320</u>
<i>Less: Cost of goods sold:</i>					
Opening stock	20	30	30	35	40
Purchases (all in credit terms)	<u>110</u>	<u>110</u>	<u>135</u>	<u>145</u>	<u>305</u>
	130	140	165	180	345
<i>Less: Closing stock</i>	<u>30</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>100</u>
	<u>100</u>	<u>110</u>	<u>130</u>	<u>140</u>	<u>245</u>
Gross profit	<u>30</u>	<u>40</u>	<u>60</u>	<u>70</u>	<u>75</u>
Trade debtors at 30 April	<u>45</u>	<u>40</u>	<u>70</u>	<u>100</u>	<u>150</u>
Trade creditors at 30 April	<u>20</u>	<u>25</u>	<u>25</u>	<u>30</u>	<u>60</u>

Required:

Calculate the following accounting ratios for each of the five years from 30 April 2008 to 2012 inclusive:

- (a) gross profit
- (b) mark-up
- (c) stock turnover
- (d) trade debtor collection period
- (e) trade creditor payment period.

10.8 You are presented with the following information relating to Hedge public limited company for the year to 31 May 2011:

- 1 The company has an issued and fully paid share capital of £500,000 ordinary shares of £1 each. There are no preference shares.
- 2 The market price of the shares at 31 May 2011 was £3.50.
- 3 The net profit after taxation for the year to 31 May 2011 was £70,000.
- 4 The directors are proposing a dividend of 7p per share for the year to 31 May 2011.

Required:

Calculate the following accounting ratios:

- (a) dividend yield
- (b) dividend cover
- (c) earnings per share
- (d) price/earnings ratio.

10.9 The following information relates to Style Limited for the two years to 30 June 2011 and 2012 respectively:

Trading and profit and loss accounts for the years

	2011		2012	
	£000	£000	£000	£000
Sales (all credit)		1 500		1 900
<i>Less: Cost of goods sold:</i>				
Opening stock	80		100	
Purchases (all on credit terms)	995		1 400	
	1 075		1 500	
<i>Less: Closing stock</i>	100	975	200	1 300
<i>Gross profit</i>		525		600
<i>Less: Expenses</i>		420		495
<i>Net profit</i>		105		105

Balance sheet at 30 June

	2011		2012	
	£000	£000	£000	£000
<i>Fixed assets</i> (net book value)		685		420
<i>Current assets</i>				
Stock	100		200	
Trade debtors	375		800	
Bank	25		–	
	500		1 000	
<i>Less: Current liabilities</i>				
Bank overdraft	–		10	
Trade creditors	80		200	
	80	420	210	790
		1 105		1 210
<i>Capital and reserves</i>				
Ordinary share capital		900		900
Profit and loss account		205		310
<i>Shareholders' funds</i>		1 105		1 210

Required:

- (a) Calculate the following accounting ratios for the two years 2011 and 2012 respectively:
- 1 gross profit
 - 2 mark-up
 - 3 net profit
 - 4 return on capital employed
 - 5 stock turnover
 - 6 current ratio
 - 7 acid test
 - 8 trade debtor collection period
 - 9 trade creditor payment period.
- (b) Comment on the company's performance for the year to 30 June 2012.

Further practice questions, study material and links to relevant sites on the World Wide Web can be found on the website that accompanies this book. The site can be found at www.pearsoned.co.uk/dyson

Appendix: Summary of the main ratios

Liquidity ratios

$$\text{Current assets ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

$$\text{Acid test ratio} = \frac{\text{current assets} - \text{stocks}}{\text{current liabilities}}$$

Profitability ratios

$$\text{ROCE} = \frac{\text{net profit before taxation}}{\text{shareholders' funds}} \times 100$$

$$\text{ROCE} = \frac{\text{net profit after taxation}}{\text{shareholders' funds}} \times 100$$

$$\text{ROCE} = \frac{\text{net profit after taxation and preference dividends}}{\text{shareholders' funds} - \text{preference shares}} \times 100$$

$$\text{ROCE} = \frac{\text{profit before taxation and interest}}{\text{shareholders' funds} + \text{long-term loans}} \times 100$$

$$\text{Gross profit ratio} = \frac{\text{gross profit}}{\text{sales}} \times 100$$

$$\text{Mark-up ratio} = \frac{\text{gross profit}}{\text{cost of goods sold}} \times 100$$

$$\text{Net profit ratio} = \frac{\text{net profit before taxation}}{\text{sales}} \times 100$$

Efficiency ratios

$$\text{Stock turnover} = \frac{\text{cost of goods sold}}{\text{stock}}$$

$$\text{Fixed assets turnover} = \frac{\text{sales}}{\text{fixed assets at net book value}}$$

$$\text{Trade debtor collection period} = \frac{\text{trade debtors}}{\text{credit sales}} \times 365 \text{ days}$$

$$\text{Trade creditor payment period} = \frac{\text{trade creditors}}{\text{total credit purchases}} \times 365 \text{ days}$$

Investment ratios

$$\text{Dividend yield} = \frac{\text{dividend per share}}{\text{market price per share}} \times 100$$

$$\text{Dividend cover} = \frac{\text{net profit} - \text{taxation} - \text{preference dividend}}{\text{paid and proposed ordinary dividends}}$$

$$\text{Earnings per share} = \frac{\text{net profit}}{\text{number of ordinary shares}}$$

$$\text{Price/earnings ratio} = \frac{\text{market price per share}}{\text{earnings per share}}$$

$$\text{Capital gearing} = \frac{\text{preference shares} + \text{long-term loans}}{\text{shareholders' funds} + \text{long-term loans}} \times 100$$