

Robert Leach

Ratios MADE SIMPLE

A beginner's guide to the
key financial ratios



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Ratios Made Simple

A beginner's guide to the key financial ratios

Robert Leach FCCA ACA

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About the Author

Robert Leach FCCA ACA is a chartered accountant, lecturer and author of more than 40 books, mainly on financial topics. His books include *The Investor's Guide to Understanding Accounts*. For two years he was a judge of the Stock Exchange Awards for best published accounts. He has written encyclopaedias on tax and payroll, and also writes for newsletters, magazines, newspapers and anyone else who will pay him.

Introduction

What is a ratio?

A ratio is simply one number divided by another. In financial terms, an accounting ratio is (usually) one figure from a set of accounts divided by another figure.

As even the simplest balance sheet and profit and loss (P&L) account is likely to contain at least 50 figures, there is a potential to produce 2500 ratios just from these two financial statements. This is before we look at other statements and the notes to the accounts. However, many of these ratios would be meaningless. Only a few ratios produce a number which will assist an investor.

This book lists the main ratios in categories of what they are indicating. These categories are listed in approximate order of relevance to the investor. Each ratio is defined and explained, before comment is given on how an investor should use it. Where alternatives to the ratios (or variations on them) exist these are indicated throughout the text.

Calculating ratios from company accounts

When calculating any ratio, make sure that you use the group accounts or consolidated accounts of the company. (These have the same meaning.) Almost all companies now operate as a group of companies. That means there is a holding company which itself owns shares in other companies known as subsidiaries. Often these subsidiaries have their own subsidiaries, known as sub-subsidiaries. This creates a family tree which can often have more than 100 companies in it. This is known as a group of companies. By law, the holding company must publish a separate set of accounts, but these are of no interest to the investor and should be ignored.

Copies of the accounts of a listed public company are usually put on the company's website, which can easily be found by typing the company's name into Google or any other search engine. The website may have a section for investors which includes all annual accounts for several years, with half-yearly reports and other announcements. Published accounts may also be requested from the company directly. Many companies also offer their accounts through the free Annual Reports Service, based in Surbiton: www.orderannualreports.com Ratios may generally be applied to smaller private companies. The accounts of smaller firms are not so readily available as those of larger firms, except that they must be filed at Companies House from where they are available to the public for a fee. In practice, if you are invited to invest in a private company, the existing shareholders will provide you with the accounts and much extra information also.

When ratios are calculated, figures are taken from the balance sheet or P&L account. In addition, many ratios require you to know other figures such as the share price, which can be found from the *Financial Times* or from many other publications and websites.

The accounts include other financial statements, such as cash flow statements, in addition to narrative reports and notes to the accounts. These are all important to the investor, but are little use in calculating ratios.

Understanding a ratio

A ratio by itself is usually a meaningless number. Knowing that the working capital ratio of a company is 1.3 tells you nothing about whether the company is a good investment or not. It does not even tell you whether a company is financially sound. Such a ratio means different things in different sectors.

A ratio must almost always be compared with other companies, or a trend must be reviewed, for it to be useful. A *comparison* is usually made with similar-sized companies in the same general industry. A *trend* is observed by looking at the same ratio for the same company

in different years; an investor may sometimes plot the same ratio for the same company in different years to detect a trend.

Observing trends in this way is fine for established companies, but can be a problem for young companies. It is generally impossible to establish any trend for the first three years of a company's existence. Even after that, a young company's ratios can be volatile, as small changes in performance can lead to large changes in ratio figures.

Each ratio is intended to assist the process of identifying some aspect of a company, such as its profitability, efficiency or liquidity. Calculating all the possible ratios for all companies is likely to be tedious. Even if all the ratios are calculated for a company, many will not reveal anything of significance.

In calculating a ratio, you must remember that almost all accounts have an element of opinion. Someone will have had to provide estimated answers to questions such as:

- What is the value of this property?
- How many years will this machinery last?
- Will this debtor pay their bill?

All of these opinions are reflected in the accounts you use. If the directors' (or their accountants') opinions are wrong, your accounting ratios will similarly be wrong.

As mentioned above, accounting ratios rely heavily on the principle of comparability of different companies and of single companies through time. Changes in accounting standards, such as the widespread adoption of fair value accounting, can have the effect of distorting comparability.

If you are looking at a ratio, ensure you make use of what it tells you. Ratios can be effective as early indicators of problems. The company will always be able to spin a story as to why this is not a problem. Remember that the spin doctor has a motive; your calculator does not.

How investors should use ratios

In all cases, before investing in a company the investor must know what that company does. Never invest in anything you do not understand. If you do not know what a hedge fund or reinsurance company does, do not even consider investing in one until you find out. Understanding the company's activity is an essential prerequisite to understanding accounting ratios and to other aspects of investment policy-making.

There is no ratio that tells you whether a company is a good investment.

It is not possible to perform a calculation which tells you how good the company is as an investment. Ratios may indicate that a company is profitable, growing, pays good dividends, is saving enough, is well-managed and so on. This can all be useful information, but none of these factors indicate that the company is a good investment.

Be wary about thinking that accounting ratios will help you discover some investment opportunity that everyone else has overlooked. The large companies have their accounts and other data (not all of which is readily accessible to the private investor) scrutinised by experienced analysts using sophisticated computer systems. It is unlikely that you will discover anything that they have not. For small companies, there is much more scope for such a discovery, but that must be offset against the fact that small companies are usually under the control of a few directors and shareholders who can dictate a change of policy easily.

There is also a danger of over-analysing accounts. An investor can become a *ratio junkie* who spends more time analysing company accounts than investing in companies. Many successful investors ignore ratios completely, or only use a few. Conversely, many analysts

make poor investments. Understand the limitations of ratios. They are never more than just one tool in the investor's toolbox.

For the sake of completeness, most investment ratios likely to be encountered are included in this book. This does not mean that they are all recommended for use by private investors. Also bear in mind that many ratios are capable of different interpretations. So it is usually necessary for more than one ratio to be considered at a time.

A final point to remember is that a good company does not always mean a good investment.

A good investment is a company which you think will perform better than the market does.

A good investment may actually be a poorly performing company. If the market thinks a company will perform worse than you think it will, that is a good investment.

Every investor must determine their investment strategy. This is likely to include:

- In what sectors will I invest?
- Am I looking primarily for dividend income or capital growth?
- How much time will I spend monitoring my investments?
- How much risk am I prepared to take? How far can I diversify away my risk?
- Am I looking for long-term growth or shorter-term gains?

There are no correct answers to any of these questions. Each investor must prepare their own investment strategy based on their own circumstances, abilities and finances.

Accounting ratios will assist you in meeting your investment strategy, but they are only ever part of the answer.

1

Profitability Ratios

1.1

Earnings Per Share (EPS)

Basic information and calculating the ratio

Definition

$$\text{Earnings per share (EPS)} = \frac{\text{Net profit}}{\text{number of issued shares}}$$

Net profit is the company's profit after payments of interest, tax and minority interests, but before payment of dividends to ordinary shareholders. In other words, the figure used for net profit is what is available to the holders of the company's ordinary shares from that year's profits.

If the company has made a loss during the accounting period, EPS is shown as a negative figure.

Interest includes all forms of payment on loans, preference shares and all other forms of borrowing or debt equity.

Tax means corporation tax that is or will be payable by the company on its profits for that period. Under tax law, some of that tax may not be payable until a future year. For accounting purposes, tax is calculated regardless of when it is payable, as that money is not otherwise available to the company and so needs to be set aside.

Minority interests means that part of the company's subsidiaries which it does not own. Suppose you own shares in *Company A* which

owns 90% of the shares of *Company B*. This means that *Company B* is a subsidiary of *Company A*. However, 10% of *Company B* is not owned by your company. This 10% is reflected in the accounts as minority interest.

Number of shares means the weighted average of issued ordinary shares for the accounting period. The number of shares which a company is authorised to issue is not relevant.

Suppose a company had 1 million issued shares for the first two months of the accounting period, and 1.1 million shares for the remaining ten months. The weighted average is:

$$1 \text{ million} \times 2 \text{ months} = 2 \text{ million}$$

$$1.1 \text{ million} \times 10 \text{ months} = 11 \text{ million}$$

$$2 \text{ million} + 11 \text{ million} = 13 \text{ million}$$

Therefore:

$$\text{Weighted average} = 13 \text{ million} \div 12 \text{ months} = 1.083 \text{ million}$$

This figure is used even though there was no point in the year when the company had 1.083 million issued shares. The first two months' profits were earned by holders of 1 million shares, whereas the last ten months' profits were earned by holders of 1.1 million shares. Provided the profits were earned fairly evenly throughout the accounting period, the weighted average gives a fair approximation of the amount earned by each share.

Additional complications of the number of shares figure

The example given above is when additional shares were issued by the company during the year, such as in an equity issue, rights issue or conversion of another financial instrument. It is possible for the number of shares to reduce during the year, such as where a company buys back its shares. The weighted average of the number of shares is still used in these circumstances.

Where the value of shares changes in a bonus issue, share split or share consolidation, the weighted average is not used. Suppose a company has 2 million shares, each of which has a value of £48. The company may decide to split the shares so that there are 20 million shares with a value of £4.80 each. A weighted average here would give a meaningless figure and so the EPS is calculated on the basis that there were 20 million shares throughout the whole period.

This principle is followed even when the bonus issue, share split or share consolidation happened *after* the date of the balance sheet. EPS is calculated on the *number* of shares at the balance sheet date, but the *size* of the share when the accounts are subsequently published.

Diluted EPS

Diluted EPS is a second figure which is sometimes given. This recalculates the EPS on the basis that anything which may become an ordinary share has done so.

Suppose a company has 10 million issued ordinary shares. It has also issued share options and convertible preference shares. If all the options were exercised and all the preference shares converted, the company would have 12 million issued ordinary shares. This will reduce the value of earnings per share.

When is diluted EPS stated?

Under accounting standard FRS 14 (explained below), diluted EPS only needs to be stated if it differs from the normal EPS by 5% or more. (This 5% rule does not apply to IAS 33, so accounts produced under International Accounting Standards must always show diluted EPS, however small the difference.)

EPS is a factual figure; diluted EPS is a hypothetical figure.

Calculation of EPS can be performed from figures in the published balance sheet. However, the investor does not have to do this

calculation. The EPS is the one accounting ratio which the company itself is required to calculate and publish in its accounts.

The duty to publish derives from Financial Reporting Standard FRS 14, which has legal force under company law. FRS 14 only applies to shares which are (or are due to be) publicly traded.

FRS 14 applies for all accounting periods which ended after 22 December 1998. Prior to this, EPS was calculated according to Statement of Standard Accounting Practice SSAP 3, introduced in 1972. This standard was amended in 1974 to reflect a change in the tax system, and in 1993 (by FRS 3) which in effect abolished extraordinary items in accounts. In 1997, International Accounting Standard IAS 33 was published on the subject of EPS. After consultation, the Accounting Standards Board decided broadly to implement this standard in the UK as FRS 14.

It should be noted that EPS is not readily comparable between companies because accounting practice allows considerable latitude to company directors and accountants on what they include in net profit.

Internationally, the issue of IAS 33 and UK adoption of FRS 14 has brought some harmonisation between UK and other national accounting standards on EPS. It has also narrowed the differences between UK and US calculations. However, there are still some differences between countries on how EPS is calculated.

FRS 14 and IAS 33, like all accounting standards, only state the *minimum* disclosure that a company must make. A company may make further disclosures and should do so if this would help users of the accounts. There may be other items in the profit and loss account which a company wishes to state as *so much per share*. A company may do this, but must make it clear that this is not the statutory EPS figure, and must produce a reconciliation of how this other figure equates to the statutory EPS.

Understanding EPS

EPS indicates the profitability of the company from the shareholders' perspective. It is a figure widely used in financial analysis. EPS is also part of the widely used price-to-earnings (P/E) ratio, as explained below.

Unlike almost all other accounting ratios, EPS is an amount of money and not just a number. If a company has net profit of £20 million and has 2 million issued shares, the EPS is £10.

The net profit wholly belongs to the ordinary shareholders of the company. It is calculated on the basis that everyone else has been paid: all taxes, interest on bank loans, dividends on preference shares, creditors and so on. What is left of the net profit is there to reward the ordinary shareholders for their investment.

It is possible for the company to pay the whole of this amount to the shareholders. In our example, each share would pay a dividend of £10. In practice, this is unlikely. The company will almost always want some **retained profit** to fund its future activities, such as buying more machinery and more stock, and paying for more marketing.

It may also want to put aside some money into **reserves**. These are funds where cash is squirrelled away for a specific purpose, such as to acquire new businesses, to develop new products or to replace existing plant. It may also want some money to buy back its own shares. Any sensible business also wishes to keep some money as general security, as a buffer against the uncertainties of commercial activity.

How a company decides to share out its net profit between dividends, retained profit, or reserves is a matter of commercial judgment for the directors. Whether that share-out is wise is a matter of investor judgment for you.

But EPS ignores all these considerations. Whatever a company decides to do with the net profit should be for the financial benefit of the ordinary shareholders. The dividends provide an immediate cash

benefit; retained profit is used to help the company make future profits from which future dividends are paid and which maintain the value of the share. EPS makes no distinction between these two forms of benefit to the shareholder.

EPS looks to the past, not to the future

The backward-looking nature of EPS was considered by the Accounting Standards Board when writing FRS 14. For example, the calculations for diluted EPS use the average ordinary share price for the accounting period rather than the period-end market price. The ASB did consider introducing an element of the future into EPS (mainly in relation to diluted EPS) but concluded that it was not possible to satisfy the dual function of a forward-looking objective with historic data.

How to use EPS as an investor

EPS has three main uses for the investor. It is used to:

1. indicate return on investment
2. indicate a company's retained profit, and
3. calculate the profit-to-earnings (P/E) ratio.

By itself, EPS is a fairly meaningless figure. Knowing that an ordinary share has an EPS of £1.37 for an accounting period tells you nothing about how well the company is doing. Nor does it tell you whether it is a good investment. As with most ratios, EPS only has meaning when compared to another figure, such as the share's value, how much you paid for it or how much dividend you receive.

Suppose you spent £4 buying a share which has an EPS of 60p. This means that your £4 investment has earned you 60p, or 15%, that year. You may only receive perhaps 20p in cash as a dividend, but that means that the other 40p is being used by the business. Another way of looking at it is that you have earned 60p, of which 20p is paid

to you immediately and the other 40p is reinvested in the business for you.

So the first use of EPS is to indicate **return on investment**. Chapter 1 explains that dividend yield looks at how much *dividend* you receive for your investment. In the example above, the dividend yield is 5%, namely 20p on a £4 purchase. EPS looks at the dividend in addition to the amount you have earned that has been reinvested on your behalf to keep the business going. In our example, this is 15% (60p out of £4).

In this example the EPS is 10% larger than the dividend yield. The additional 10% is in effect received by the shareholder in terms of the share's value. If the company has retained all those 40p amounts per shareholder, the company is worth more and has a greater ability to earn future dividends. If the company makes no profit in one year, part of that 40p could be used to pay a dividend.

This is not the traditional method of calculating return on investment, which considers only the amounts of actual cash that change hands. Seeing EPS as total return does introduce an element of future prospects, which is the main concern of any investor. It is always possible for the company to waste the other 40p of non-dividend earnings. That is a matter of judgment for the investor to form about the company. The EPS alerts you to the need to make such a judgment.

The second use of EPS is to indicate **retained profit**. This can be done by comparing dividend with EPS. In our example, the company distributed just one-third of its available profit and retained the other two-thirds. This indicates a commitment to long-term growth, in the absence of any indicators to the contrary.

An investor usually looks for either long-term growth or short-term gain, or an appropriate mixture. In general, the lower the dividend is relative to EPS, the more likely it is that the share represents long-term growth.

This is a sweeping generalisation of what really requires a much deeper analysis. A company in severe difficulties may pay a small dividend relative to its EPS because it desperately needs the cash to get itself out of trouble. This is exactly the situation of several banks in 2009. However, this generalisation is convenient as it involves a simple calculation of two readily available figures. In many cases, it will give the right answer, and in other cases it will indicate when further analysis is required.

The third use of EPS is in **calculating the P/E ratio**, as explained in section 1.2.

Significance of a negative EPS

If a company makes a **loss**, its EPS is negative. This figure is only of significance for an established company. For a new start-up business which is still on *cash burn* of its original funding (see section 6.3), a negative EPS can be calculated, but the figure has no real meaning. There are other ratios which are more appropriate for start-ups.

Undiluted or diluted EPS

An investor needs to decide whether to use **diluted EPS** or the undiluted figure. Generally, use the undiluted figure unless the company is about to issue additional shares.

A significant difference between the two figures for EPS is itself significant. This is only likely to happen to smaller companies. An investor should ask why the company has issued so much convertible stock or so many share options. Convertible preference shares give the holders the best of both worlds – fixed returns when profits are uncertain, and the right to high returns if good profits are sustained. As these holders did not participate in the risk during periods of

uncertain profits, their conversion rights are to the detriment of the ordinary shareholders who did participate in that risk. An ordinary shareholder should ask why a company needed to borrow so much money in terms which are disadvantageous to its owners.

Smoothing out of EPS by a company

An investor should be aware that a company has some scope for smoothing out the EPS. Methods include:

- changing the amounts in provisions
- changing the policy on writing down old stock
- including intangible assets on the balance sheet
- revaluation of assets
- changing the depreciation policy, and
- repatriating foreign profits.

Variation of EPS over time

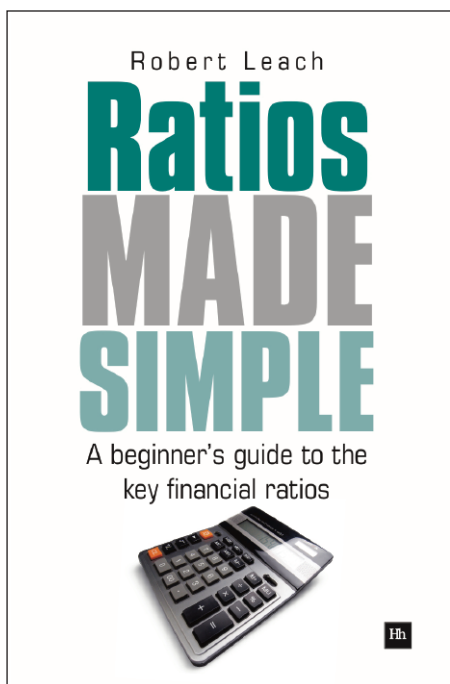
An investor should always be wary of accounts where the EPS shows less variation than other investment and profit ratios. Points to look out for are:

- Changes in accounting policy which are not explained or where the explanation lacks credibility.
- Any indication (from the accounts or from other sources) that the company could face an unwelcome takeover – all financial reports become suspect in a hostile takeover.
- Reporting a profit slightly above the previous year. This may indicate that the profits have been massaged by using reserves and similar methods. In such a case, the profits are likely to plunge in the following year.

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