An Introduction to Understanding Financial Ratios

Business Information Factsheet
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Introduction

The financial position of any business can be determined from three key financial statements: the balance sheet, the profit and loss account and the cash flow statement.

In addition to examining the detailed information in these financial statements, calculating a few simple financial ratios can help you to assess how well a business is performing and provide early indications of financial problems:

- Ratios can be used to set targets, and to provide early warning signs of any financial issues that need attention.
- Ratios can be compared against other firms operating in a similar sector, giving an idea of relative performance.

This factsheet introduces the key financial ratios, explains how to calculate them and suggests typical values for a healthy business. It also includes hints and tips and sources of further information.

While not essential, some familiarity with the three financial statements mentioned above will make it easier to understand this factsheet. See BIF 8, A Guide to Understanding Profit and Loss Accounts; BIF 7, A Guide to Understanding Balance Sheets; and BIF 58, How to Forecast Cash Flow, for more information.

Different financial ratios

A ratio is simply a relationship between two numbers and is normally expressed numerically (although can sometimes be expressed as a percentage). Within a business, ratios are generally used to assess the following important financial indicators:

- Profitability - whether the business is performing well.
- Liquidity - the amount of working capital that is available to the business.
- Solvency - how easily the business can pay its debts as they fall due.
- Efficiency - how effective or efficient the management and business processes are.

The information required to calculate ratios is derived from the key financial statements. Most ratios require information from the balance sheet, but some also require information from the profit and loss (P&L) account or cash flow statement.

The ratios explained in this factsheet are:

Profitability ratios

- Gross profit margin.
- Net profit margin.
- Return on capital employed.
- Return on equity.

Liquidity ratios

- Current ratio.
- Quick ratio.
- Defensive interval.

Solvency ratios

- Gearing.
- Interest cover.

Efficiency ratios

- Debtors' turnover ratio.
- Average collection periods.
- Creditors' turnover ratio.
- Stock turnover ratio.
- Asset turn.

Profitability ratios

The most important objectives for a business and, arguably, therefore, the most important ratios, are those concerned with profitability.

Gross profit margin

The gross profit margin is simply gross profit expressed as a percentage of sales:

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

A business needs to ensure that its gross profit (that is, the sales income less the direct costs) is sufficient to cover all its overhead costs and to generate a net profit. This profit can be used to distribute to the owners of the business, retained within the business to reinvest, or used to provide additional working capital or repay outstanding loans.

It is sensible to set targets for gross profit in absolute terms and also as a margin. This is a good figure to compare with other firms operating in the same sector.

If the gross profit margin starts to drop, it might mean that the business is paying too much for its raw materials, or it may have had to discount its sales price too much to achieve sales, or its scrap rate (waste rate) might be increasing.

Net profit margin

The net profit in a business is what is left after all the costs (except interest and tax) have been deducted from income. The net profit margin is the net profit (using profit before interest and tax - PBIT) expressed as a percentage of sales.

$$\text{Net profit margin} = \frac{\text{Profit before interest and tax}}{\text{Sales}} \times 100\%$$

When comparing net profit margins you need to be aware that sole traders and partnerships show net profit before drawings, whereas companies show net profits after directors' salaries. To make a valid comparison you must therefore either deduct drawings or add back directors' salaries to the PBIT figure and use this figure to calculate the ratio on the same basis for different firms.

The published accounts of competitor firms can reveal a great deal about their performance. While it is often difficult to determine their gross profit margin, it is relatively easy to discover their net profit margin. This can be used to benchmark performance. It should be noted that bankers may prefer to use profit after tax in calculating this ratio. Remember, therefore, that it is important to know exactly which figures have been used to calculate the net profit margin if you expect to compare ratios from different sources.

Return on capital employed

Return on capital employed (RoCE) shows the ability of a business to generate returns on the funds that have been invested in the business.

$$\text{Return on capital employed} = \frac{\text{Profit before interest and tax}}{\text{Total capital employed}} \times 100\%$$

The figure for capital employed is found on the balance sheet and is usually defined as equity plus long-term debt. However, for a small business where the proportion of short-term debt is high, the figure for capital employed should include all debt finance - that is, equity plus long-term debt plus short-term debt.

Remember that a balance sheet is like a snapshot of the financial position of a business at a particular point in time, so the average figure for the period to which the PBIT relates should be used.

Capital employed is calculated by taking the total assets of the business minus the current liabilities.

Accountants and banks, depending on their preferences, may look at return on equity (RoE), return on capital employed (RoCE), return on invested capital (RoIC), or return on total assets (RoTA). While these are all slightly different ratios, they are all, in some way, looking at the return on assets. It is important to be clear which figures have been used to derive the ratio, and to be consistent, or comparisons will be meaningless.

Return on equity

Consideration of return on equity (RoE) gives business owners the opportunity to compare their return on their cash investment in the business with what they might achieve if they invested their money elsewhere. For example, what would the return have been if the same sum of money had been put into a building society account or invested on the stock market, rather than being invested in the business?

$$\text{Return on equity} = \frac{\text{Profit after tax}}{\text{Net worth}} \times 100\%$$

It is normal to use profit after tax (PAT) to calculate RoE. The net worth is capital contributed by the shareholders together with retained earnings.

Liquidity ratios

A business should always have sufficient current assets (such as stock, work in progress, debtors and cash in the bank) to cover its current liabilities (such as bank overdraft and creditors). Liquidity ratios indicate the ability of a business to meet its liabilities with the current assets available.

Current ratio

The current ratio shows the relationship of current assets to current liabilities.

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

This ratio should normally be between 1.5 and 2. Some people argue that the current ratio should be at least 2, on the basis that half the assets might be stock. A ratio of less than 1 (that is, where current liabilities exceed current assets) could mean that the business is unable to meet its debts as they fall due, in which case the business is insolvent. A high current ratio could indicate that too much money is tied up in current assets, for example, having a high level of debtors due to giving customers too much credit.

Quick ratio

A stricter test of liquidity is the quick ratio, also known as the 'acid test'.

$$\text{Quick ratio} = \frac{\text{Current assets - stock}}{\text{Current liabilities}}$$

This ratio measures a firm's ability to meet its short-term liabilities from liquid assets such as cash. Some current assets, such as work in progress and stock, may be difficult to turn into cash quickly. Deducting these from the current assets gives the quick ratio.

The quick ratio should normally be around 0.7 to 1. To be absolutely safe, it should be at least 1, which indicates that quick assets exceed current liabilities.

Defensive interval

Some financiers and banks in particular, find it helpful to calculate the defensive interval. This is the best measure of impending insolvency and shows the number of days a business can exist if no more cash flows into it.

$$\text{Defensive interval (days)} = \frac{\text{Current assets - stock}}{\text{Daily operating expenses}}$$

The daily operating expenses are best determined from the cash flow statement:

- Calculate the total payments for the year and divide by 365 - as you are interested in how long the business can survive based on its need to spend cash. If the cash flow figure is not easily available, you can make an approximation by taking figures from the P&L account.
- Take total expenditure.
- Add interest.
- Deduct depreciation.
- Make an attempt at adding net loan repayments estimated from the balance sheet.

As a guide, the defensive interval should be between 30 and 90 days, although this depends on the sector in which the business operates.

Solvency ratios

If the net worth of a business becomes negative - that is, the total liabilities exceed total assets - the business has become insolvent. In other words, if the business closed down it would not be possible to repay all the people who are owed money. Allowing a limited company to become insolvent is an offence under the Companies Act 2006 and the Insolvency Act 1986 (as amended), and can lead to proceedings being taken against the directors under the Company Directors Disqualification Act 1986. It is important to review the figures regularly if the net worth of the business is low.

Gearing

One ratio that gives an indication of solvency is the gearing. Many businesses, as they grow larger, set a gearing objective and banks prefer to lend to firms that have a low gearing.

$$\text{Gearing} = \frac{\text{Total debt}}{\text{Capital employed}}$$

Gearing is normally defined as the ratio of debt (i.e. loans from all sources including debentures, term loans and overdraft) to the capital employed. The higher the proportion of debt, the higher the gearing.

Although capital employed is a balance sheet figure, it is the gearing at a specific time that is important. The assets and liability figures should therefore be taken from the most recent balance sheet.

Equity investors will want gearing to be as high as possible to benefit from the leverage effect of the return on capital employed being higher than the cost of borrowing money. Conversely,

lenders, worried about the opposite leverage effect and the ability of a business to pay its interest charges, will want gearing to be as low as possible.

Ideally the gearing ratio should not be greater than 50%, although it often is, particularly for new small firms. Banks frequently include the level of overdraft facility that is available to a business, rather than the actual level of overdraft being used, when they calculate gearing. This has the effect of making the gearing ratio appear higher than it actually is.

Interest cover

In addition to considering gearing, banks want to be satisfied that a business will be able to pay the interest due on its loans. They will pay particular attention to how many times the profit exceeds or covers the interest.

$$\text{Interest cover} = \frac{\text{Profit before interest and tax}}{\text{Interest}}$$

A business with low interest cover may be unable to meet future payments if profits were to fall or interest rates were to rise. Interest cover of more than 4 is very good, but less than 2 is regarded as rather low.

Efficiency ratios

Efficiency ratios provide a measure of how much working capital is tied up in a business, indicate how quickly a business collects outstanding debts and pays its creditors, and show the effectiveness of a business in 'sweating' its assets (maximising the profit generated by its assets). They are also a measure of the effectiveness of the management processes within the business.

Debtors' turnover ratio

The debtors' turnover ratio helps to monitor how quickly debtors pay the business what they owe.

$$\text{Debtors' turnover ratio} = \frac{\text{Sales}}{\text{Average debtors (excl. VAT)}}$$

As with other balance sheet items, the ideal is to use the average debtors figure for the period. Remember that the sales figure on the P&L account is quoted exclusive of VAT, so the figure used for average debtors also needs exclude VAT. The debtors figure is quoted inclusive of VAT on the balance sheet because the VAT is part of the money owed to you, so to get the net debtor figure divide the debtors figure by 1.2 if the VAT rate charged is 20%.

If you don't have a debtors figure for the start of the period, an approximation can be calculated by dividing the sales figure by the debtors figure, at the end of the period.

Average collection periods

Knowing how long it takes to collect any monies owed is helpful, particularly if a business has a target of 30 days for invoices to be paid. Dividing the debtors' turnover ratio by the number of days of the year gives the average collection period in days.

$$\text{Average collection period} = \frac{365 \times \text{debtors (excl. VAT)}}{\text{Sales}}$$

Tight credit control is essential in any business and the average collection period should be kept as short as possible. Many firms aim to operate a 30-day average collection period, but more typically will achieve between 45 and 60 days.

Creditors' turnover ratio

Monitoring how long it takes a business to pay its suppliers is as important as knowing how long customers take to pay their bills. If suppliers have to wait too long to be paid, they may withdraw their credit facilities, or withdraw their service entirely.

$$\text{Creditors' turnover ratio} = \frac{\text{Cost of sales}}{\text{Average creditors (excl. VAT)}}$$

Average payment period

It is normal to use cost of sales (direct costs) when calculating the average payment period. If that figure is not easily available for competitors, it is possible to estimate an approximate value by using the sales figure.

$$\text{Average payment period} = \frac{365 \times \text{creditors (excl. VAT)}}{\text{Cost of sales}}$$

Stock turnover ratio

The level of stock in a business can change for all sorts of reasons. Stock will increase in times of expansion and decrease in times of contraction.

To keep staff employed and to even out production, some firms may manufacture for stock, even if they haven't got firm orders. The danger here is that too much working capital is tied up in stock, which then may not be sold.

For some firms, such as wholesalers and most retailers, a high stock turnover ratio is essential in order to make a profit. A low stock turnover could indicate the presence of slow-moving stock, which may be a problem that needs to be addressed.

$$\text{Stock turnover ratio} = \frac{\text{Cost of sales}}{\text{Average stock}}$$

The ideal stock holding period is entirely dependent on the nature of the business. A fruit shop, for example, would expect an average stockholding period of no more than a couple of days - otherwise the fruit would deteriorate and sales would be lost. A bookshop, on the other hand, might have a stock turnover ratio of just 3 to 4 days and a holding period of around 90 to 120 days. This is because it needs to carry a high level of stock in order to give sufficient choice to its customers. Holding stock for too long, however, has serious implications for the amount of money that the business has tied up in stock.

$$\text{Average stockholding period} = \frac{365 \times \text{stock}}{\text{Cost of sales}}$$

Asset turn

A measure of how hard the assets of a business are being made to work is given by the asset turn or capital turnover ratio. Ideally, the average total assets for the period should be used when calculating asset turn.

$$\text{Asset turnover ratio} = \frac{\text{Sales}}{\text{Average total assets}}$$

Some accountants use net assets when calculating this ratio and some use current assets, so take particular care when other people are quoting asset turn. A profitable business would typically have an asset turn of 1.3 to 1.5. Note that net profit margin x asset turn = return on total assets, so a net profit margin of around 10%, combined with an asset turn of 1.4, would give a return on total assets of 14%.

Hints and tips

- Remember, an understanding of all the financial statements is important for maintaining effective control of a business.
- Using ratios to set targets and then to monitor performance will assist in determining the financial position of a business.
- Ratios can be used to monitor whether a business is on target and are also useful in making comparisons with competitors and with previous performance.
- Not every business will wish to use all the ratios described, but all firms will benefit from keeping a close eye on gross profit margin, net profit margin and quick ratio. If a business achieves these, it will almost certainly keep within cost targets and achieve return on capital targets.
- Monitoring payment days, collection days and stock turn will help to monitor working capital requirements which, in turn, will help a business stay within its bank borrowing limits.

Further information

BIF 7 A Guide to Understanding Balance Sheets
BIF 8 A Guide to Understanding Profit and Loss Accounts
BIF 40 Sources of Finance for Starting a Business
BIF 58 How to Forecast Cash Flow
BIF 67 A Guide to Establishing a Trade Credit Policy
BIF 115 A Guide to Recovering an Unpaid Debt
BIF 236 How to Forecast Sales
BIF 387 A Guide to Avoiding Cash Flow Problems

Books

'Ratios Made Simple'
Robert Leach
2010
Harriman House Publishing

'Key Management Ratios'
Ciaran Walsh
2008
Financial Times Prentice Hall

'Interpreting Company Reports and Accounts'
Geoffrey Holmes, Alan Sugden and Paul Gee
2008
Financial Times Prentice Hall

'Financial Ratios: How To Use Financial Ratios To Maximise Value and Success For Your Business'
Richard Bull
2007
CIMA Publishing

Useful contacts

The Institute of Chartered Accountants in England and Wales (ICAEW) is a membership organisation for accountants. It has a searchable directory of accountants on its website.
Tel: (01908) 248250
Website: www.icaew.com

The Institute of Chartered Accountants of Scotland (ICAS) is a membership organisation for accountants in Scotland. It maintains a strict Code of Ethics for members and its website includes a directory of Chartered Accountants in Scotland.
Tel: (0131) 347 0100
Website: www.icas.org.uk

Chartered Accountants Ireland represents accountants in Northern Ireland and offers a 'find a member/firm' facility on its website.
Tel: (028) 9043 5840 (Northern Ireland Office)
Website: www.charteredaccountants.ie

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