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The second round will be more advanced in the fields of financial analysis and mathematics of finance. You need to study the first round learning guide and this guide in order to succeed with the second round.

Questions will be of a more practical nature, but the paper will not entirely be just practical application. You need to know your theory!

Thank you very much for your collaboration and hard work for the FIMO!

We hope to see you at the University of Johannesburg in the future.

This learning guide was provided for use for the Finance and Investment Management Olympiad by Paul Newton, who is the author of this book.

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# Assessing Financial Performance

## Financial Skills

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ISBN 978-1-62620-957-2

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## Preface

This eBook explains how to use key financial ratios to help you make informed management decisions about the financial status of other organizations.

You will learn:

- How key ratios can be derived from readily available financial statements
- How to tell if a business is solvent by using the current ratio and the quick ratio
- How to tell if a business is profitable and to put any profit into perspective by looking at ratios that compare profit as a percentage of sales or assets
- How to look at individual parts of the business to gain insight into their individual profitability and efficiency
- How to assess the investment potential and overall health of an organization

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## Introduction

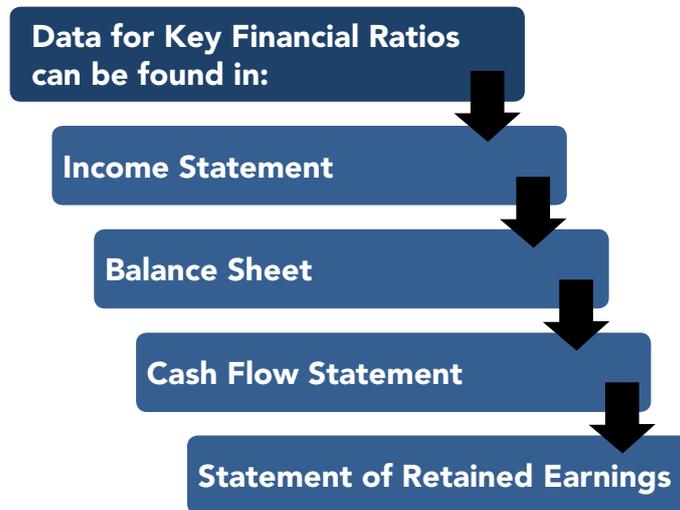
The ability to evaluate the financial position of another organization is a valuable skill for any manager to have, whether you are choosing a supplier, considering a strategic partnership, or trying to work out how much credit to extend to a customer. Many organizations can appear successful despite deep structural problems with the way they are financed and managed. Just think for a moment about the consequences of working with a supplier or partner organization who goes bust, or who, despite appearing credible, never seems able to deliver on their promises because of hidden financial problems within their own organization.

Very few managers take the time and trouble to learn how to make a simple financial assessment of another organization, even though doing so is straightforward and the necessary information can usually be obtained online either free of charge or for only a few dollars.

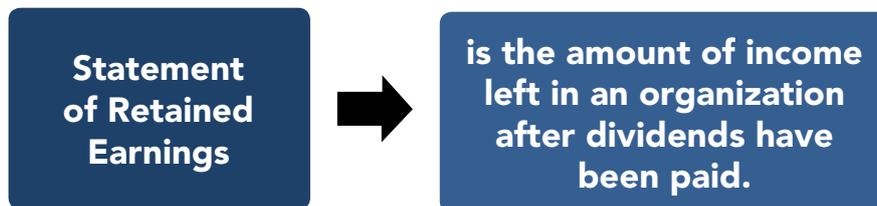
This eBook explains the tools used to assess the financial performance of an organization. These are known as 'key financial ratios' and they help you interpret financial information in a way that can aid you in making the right decisions when choosing who to work with or sell to. This information can also give you a valuable insight into how well an organization is managed at the highest level.



A key financial ratio is calculated by comparing certain values taken from an organization's financial statements, including the income statement, balance sheet, and cash flow statement. Before you can fully understand financial ratios you must have a clear and accurate appreciation of how each of these statements is derived and what it can tell you. If you are not already familiar with these statements then please visit our website so that you can download and study the relevant eBooks.



The purpose of the statement of retained earnings is to explain the changes in the retained earnings account and in dividends over a period of time.



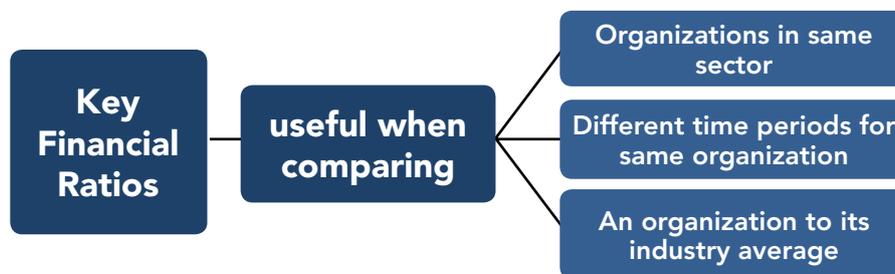
Generally speaking, financial ratios are not useful unless they are benchmarked against something else, for example past performance or another organization in the same business area. Whilst you can compare the ratios of organizations in different industries, this is usually of limited value because of differences in market conditions, capital requirements, and competition.



Key financial ratios allow for useful comparisons between:

- Organizations in the same industry sector
- Different time periods for the same organization
- An organization and its industry average

Comparing ratios for different industries can be interesting from a purely academic point of view or can help with investment decisions, but is of limited use to you as a manager. However, comparing ratios for potential suppliers, partners, acquisitions, or competitors can provide you with useful data to help with decision making.

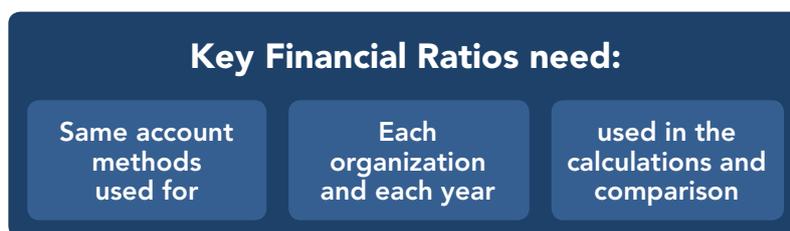


## KEY POINTS

- ✓ The ability to evaluate the financial position of another organization is a valuable skill for any manager to have.
- ✓ It is straightforward, and the necessary information can usually be obtained online either free of charge or for only a few dollars.
- ✓ These 'key financial ratios' can be derived from information in the organization's income statement, balance sheet, cash flow statement, and statement of retained earnings.
- ✓ They are most useful when they are benchmarked against past performance or another organization in the same business area.

## Interpreting Key Financial Ratios

Key financial ratios may not be directly comparable between organizations that use different accounting methods. Most public organizations are required by law to use generally accepted accounting principles for their home countries, but private organizations, partnerships, and sole proprietorships generally have more freedom in reporting their accounts.



Before you start your calculations you will need to make sure that the accounting treatments are the same when making comparisons. This is not only between the organizations you wish to compare but also for each year you wish to compare. For example:

**An organization may change policy and decide:**

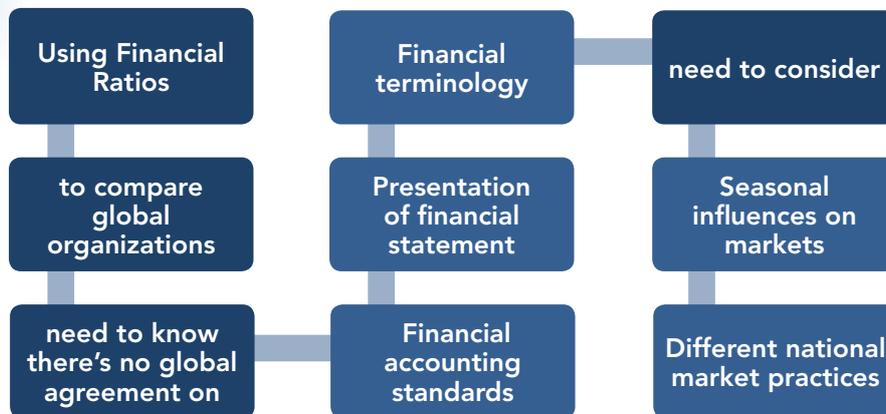
*To capitalize research and development, holding it in the balance sheet as having a long-term value*

*or*

*It may consider development costs as overheads as soon as they are incurred.*

Either treatment is perfectly reasonable, but comparing figures that have been arrived at in these two different ways would be pointless.

When you need to make comparisons with global organizations it is important to remember that there is no international standard. How an organization calculates the summary data presented in all financial statements, as well as the terminology used, is not always consistent between organizations, industries, countries, and time periods.



If you are trying to make global comparisons then you need to appreciate how operational differences within each industry or country can impact the validity of such a comparison. These differences include such things as seasonal conditions and traditional industry practices.

For example:

*Travel organizations operate under seasonal conditions that are mainly influenced by educational, religious, and constitutional holidays.*

*Car manufacturers in the United Kingdom have two annual registrations of new vehicles. These events cause two large peaks in car sales.*

Ensure your investigation in this area is thorough, as such operational differences are so predictable that people in these industries take them as read and rarely mention them. If you remain ignorant of such issues then your ratios will give you misleading information.

For example:

*If you were investigating the European car industry then you would need to be aware that in the United Kingdom new vehicle sales peak in March and September. In fact, there are typically five times as many cars sold in March as in the previous month. If you did not allow for this, because you were not aware of the operational practices of the UK automotive industry, then some of your calculations could be meaningless.*

Anyone who did not know about the sales variations in the UK's automotive industry could draw the wrong conclusion if they compared accounting ratios for February, March, and April. An automotive dealership would appear to have too much capital tied up in stock in February and far too little in April, when in fact this is simply a reflection of the market that it is operating in.

This example illustrates why it is important to know something about how an organization operates and what the accepted practices are within that industry before drawing conclusions from key financial ratios.

### KEY POINTS

- ✓ When using key financial ratios, you need to be sure that you are comparing like with like.
  - ✓ You need to appreciate how operational differences within each industry or region can impact the validity of any comparisons.
-

## Purpose and Types of Key Financial Ratios

There are several different key financial ratios and they are categorized according to the financial characteristic they measure. These are:

- Solvency
- Profitability
- Performance
- Investment

### **Solvency**

An organization is considered to be solvent when it can pay its debts as they fall due. In day-to-day terms, this means that an organization has enough working capital to pay its suppliers.



### **Profitability**

These ratios measure the organization's use of its assets and control of its expenses to generate an acceptable rate of return. You can see if an organization is profitable simply by looking at an income statement, but you need to put that profit into perspective.

To do this you need to ask yourself:

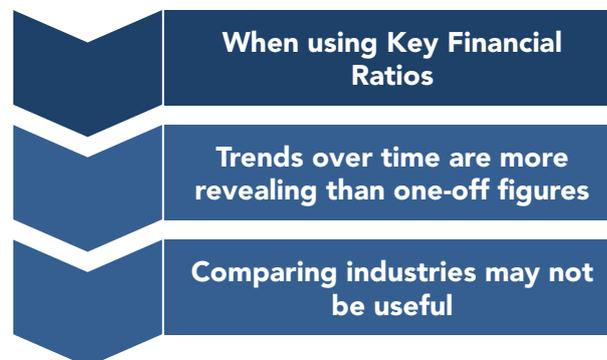
- Is the profit growing in proportion to the size of the organization?
- Is the organization making as much profit on new sales as on existing sales?
- Is the organization as profitable as others in the same sector?

### Performance

Is the organization making the sort of profit that it has in the past or that others in the same sector are making? By looking at individual parts of the organization you can gain more insight into their profitability and efficiency.

### Investment

These ratios measure investor response to owning an organization's stock and also the cost of issuing stock. They are concerned with the return on investment for shareholders, and with the relationship between return and the value of an investment in an organization's shares.



Remember that with most of these measures, the trend over time is often more revealing than one figure in isolation, and that comparisons between industries may not be very useful.

### KEY POINTS

- ✓ There are several different key financial ratios that can be classified by the characteristic they measure: for example, solvency, profitability, performance, and investment history.
- ✓ The trend over time is often more revealing than any one figure in isolation.

## Is an Organization Solvent?

An organization is considered to be solvent when it has sufficient working capital to pay its debts as they become due.

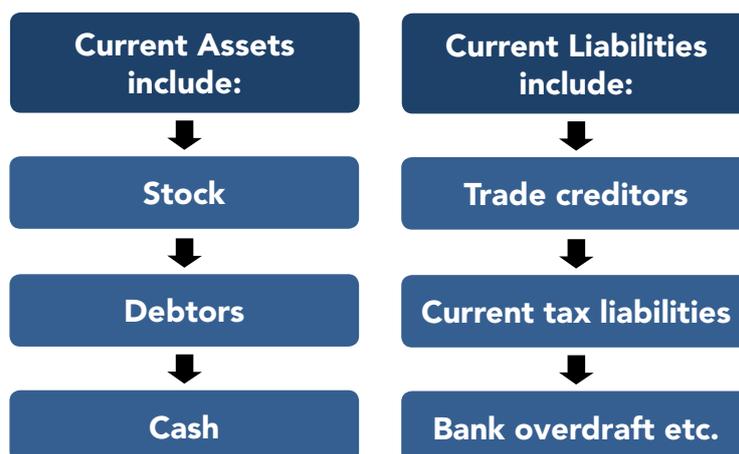


There are two key ratios that can help you to determine whether an organization is solvent:

- Current ratio
- Quick ratio

### *Current Ratio*

The current ratio looks at the relationship between current assets and current liabilities. The word 'current' implies short-term assets or liabilities, which are payable or receivable within one year.



These figures are always shown on the balance sheet. To calculate this ratio you would divide current assets by current liabilities.



For example:

*An organization has:*

- *Current assets of \$200,000*
- *Current liabilities of \$100,000*

*Its current ratio calculation would be \$200,000 ÷ \$100,000*

*The current ratio would be expressed as 2:1*

This ratio of 2:1 would be considered a healthy result as it shows that the organization has sufficient current assets to pay its current liabilities as soon as they are due.

### Quick Ratio

The quick ratio, or acid test ratio, measures liquidity more precisely than the current ratio. It does not include the value of stock within current assets because turning stock into cash takes time since payment terms are usually anything between 30 and 90 days.

You can calculate the quick ratio by dividing current assets (excluding stock) by current liabilities. You can find the stock or inventory figure on the balance sheet.



For example:

*An organization has:*

- *Current assets of \$200,000*
- *Stock worth \$80,000*

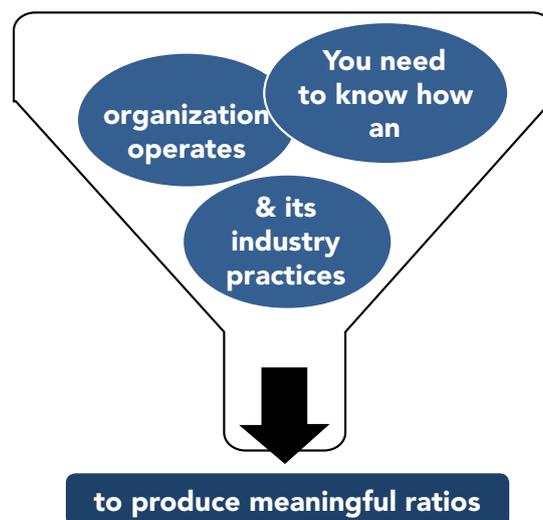
- *Current assets (less stock) of \$120,000*
- *Current liabilities of \$100,000*

*Its current ratio calculation would be  $\$120,000 \div \$100,000$*

*The current ratio would be expressed as 1.2:1*

This example shows that an apparently healthy level of current assets might hide the fact that a large proportion of the current assets is made up of stock. Whilst this can usually be turned into cash, it will take time and to do it quickly might require heavy discounting.

When you need to review the liquidity of an organization, it is common practice to calculate both the current ratio and quick ratio. This is so that you are aware of the extent to which stock held influences its current assets. These calculations will quickly show you if the level of stock an organization holds is too great and also whether it matches your expectations of the industry.



You must always be careful when drawing conclusions from these ratios. It is quite possible that an organization may appear to be desperately short of working capital, but if it sells goods for cash and purchases with a long credit line, then it may be that it is being very well managed.

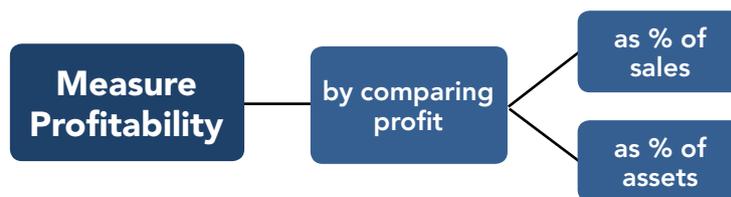
**It is vital that you understand what the organization actually does and the industry it operates in before you draw any conclusions from these ratios.**

## KEY POINTS

- ✓ The current ratio and quick ratio can help you to determine whether an organization is solvent.
- ✓ The quick ratio does not include the value of stock within current assets and is therefore a better indication of liquidity.

## How Profitable is an Organization?

You can see if an organization is profitable by looking at the income statement, but you need to put that profit into perspective. This can be done by looking at various ratios that compare profit as a percentage of sales or assets.



There are three ways this can be achieved:

- Gross profit margin
- Net profit margin
- Return on assets

### Gross Profit Margin

One of the most commonly used ratios is the gross profit margin, which looks at gross profit as a percentage of turnover (sales). You will find both of these figures in the income statement.



The formula used is gross profit divided by turnover, multiplied by a hundred to turn it into a percentage.

For example:

*An organization's*

- *Gross profit is \$300,000*
- *Sales/Revenue were \$1,200,000*

*Its percentage gross profit margin would be  $(\$300,000 \div \$1,200,000) \times 100 = 25\%$*

*This means that for every \$1 of sales the organization achieves, profit (after taking off the costs of production) is 25 cents.*

Many people are often confused by the terms 'gross profit margin' and 'mark-up.' The definition of each term shows how they differ and also shows that you use a different formula to arrive at a figure for each.

- **Gross profit margin**—expresses gross profit as a percentage of total sales.
- **Mark-up**—is the figure or percentage added by management to cover the cost of goods and the required profit margin for a product or service.

From these definitions you can see that the key difference is that management have control over and define what they require as a mark-up, whereas gross profit is dependent on how many sales are made and their value, which management can set targets for, but cannot control directly.

Industries often have what is considered an acceptable range for their mark-up, without which an organization would not be able to operate. You should investigate whether the sector you are interested in has such a range.

The formula for calculating mark-up is:

$$\text{Mark-up} = (\text{total revenue} - \text{cost of sales}) / \text{cost of sales}$$

This is then multiplied by 100 to give a percentage.

$$\text{Mark-up } 33\% = \frac{\text{Income less Cost of Sale } \$1.2\text{m}-\$900\text{k} = \$300\text{k}}{\text{Cost of Sale } \$900\text{k}}$$

For example:

*An organization's*

- Sales/Income was \$1,200,000
- Cost of Sales is \$900,000

*Its percentage mark-up would be  $(\$1,200,000 - \$900,000) \div \$900,000 = 0.33 \times 100 = 33\%$*

This means that to maintain their profitability the organization needs to mark-up by a third.

### *Net Profit Margin*

This ratio is similar to the gross profit margin but looks at net profit as a percentage of turnover. Net profit is shown on the income statement and is defined as follows:

*Net profit is the figure left after all operating and non-operating expenses have been deducted from total revenue or income.*

To calculate the net profit margin of an organization as a percentage you would divide net profit by total revenue or income and multiply the answer by a hundred to turn it into a percentage.

$$\text{Net Profit Margin } 10\% = \frac{\text{Net Profit } \$120\text{k}}{\text{Total Sales } \$1.2\text{m}}$$

For example:

***An organization's***

- ***Sales/Revenue was \$1,200,000***
- ***Net Profit is \$120,000***

***Its percentage net profit would be =  $(\$120,000 \div \$1,200,000) \times 100 = 10\%$***

You need to be mindful that your net profit is calculated after taking account of all costs and therefore can be affected by a variety of things, such as:

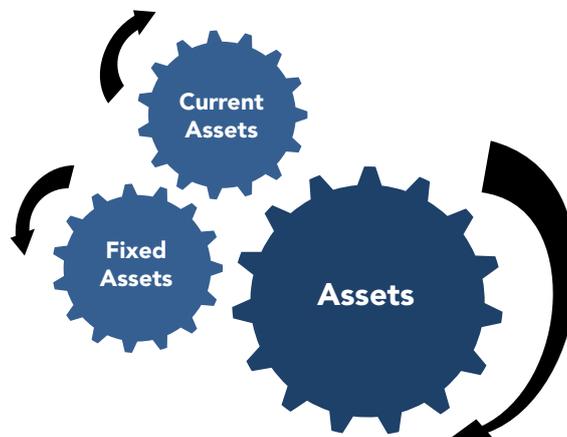
- Declining gross profit
- Increased selling
- Rising administration costs

If your net profit percentage is declining it is worth looking at your costs on an individual basis to see what you can do about those that have increased the most as a proportion of sales.

It is important to look at the trend that emerges over several accounting periods, as opposed to individual figures. The ratios can be used to measure periods other than a full year, as long as you have the relevant income statements.

***Return on Assets***

You can also measure the level of profit compared to the value of net assets invested in an organization. The assets are the major items that need to be in place for the organization to operate.



These include such items as:

- Fixed assets
  - Buildings
  - Plant
  - Vehicles
  - Computers, etc.
- Current assets
  - Stock
  - Debtors
  - Cash

The organization's total net assets are calculated by taking total liabilities from total assets. This represents the amount of capital invested in the organization. Your net assets figure can be taken directly from the balance sheet. You can therefore look at the net profit as a percentage of capital employed.



The return that an organization can expect depends on the industry sector and the economic cycle. However, it remains a good measure of operational efficiency for an organization.

The ratio is calculated by dividing net profit by net assets and then multiplying it by a hundred to turn it into a percentage, as this is the usual way it is expressed.



You would find the net profit figure on the income statement and the net assets would be shown on the corresponding balance sheet.

For example:

***An organization's***

- ***Net Profit is \$120,000***
- ***Net Assets are \$60,000***

***Its return on assets would be  $(\$60,000 \div \$120,000) \times 100 = 50\%$***

When calculating this ratio you can chose to express it using figures before or after tax.

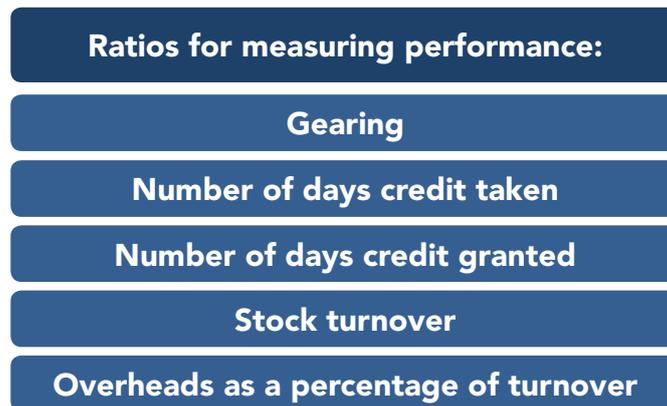
Capital employed is the net amount invested in your organization by its investors or owners and is taken from the balance sheet. Many people consider this the most important ratio overall and it is useful to compare the results with a return that can be obtained outside of the organization—for example, a low-risk investment in government bonds. The organization's return on assets can be improved either by increasing profitability or decreasing the capital employed.

### KEY POINTS

- ✓ Gross profit margin expresses gross profit as a percentage of total sales.
  - ✓ Mark-up is the percentage added by management to cover the cost of goods and the required profit margin for a product or service.
  - ✓ Net profit margin represents the net profit as a percentage of turnover.
  - ✓ It is useful to compare the return on capital employed with a return that can be obtained outside of the organization.
-

## Is an Organization Performing?

There are several ratios that you can use to measure how an organization is performing in terms of both profitability and efficiency.



The ratios for measuring performance are:

- Gearing
- Number of days credit granted
- Number of days credits taken
- Stock turnover
- Overheads as a percentage of turnover

### *Gearing*

This ratio looks at total borrowings divided by net worth of the business. Ideally, equity should be significantly higher than debt.



If an organization's net worth (as shown in the balance sheet) was \$60,000 and the borrowings came to \$20,000 (made up of a bank loan and overdraft), then the borrowing

ratio would be 1:3. In this example the equity is higher than its debt, but to understand the implications of this you would need to look at the expected gearing figure within the industry.

The purpose of this ratio is to compare the finance provided by lenders with the finance invested by shareholders. Generally speaking, banks do not like to see the amount of debt exceed the amount of equity. The ratio is usually expressed as a proportion (as in 1 to 1), although it can sometimes appear as a percentage. Gearing is said to be high when borrowing is high in relation to equity.

### *Number of Days Credit Granted*

This ratio is used to measure the effectiveness of an organization's debt collection. It sets out the relationship between debtors and the sales that have been made on credit, and also shows how quickly customers are paying their invoices.

$$\text{No. of days Credit Granted} = \frac{\text{Trade Debtors} \div \text{Annual Sales}}{\text{365 days}}$$

The calculation for this ratio is trade debtors (this figure is taken from the balance sheet) divided by annual sales and then multiplied by 365 days. This ratio gives a rather broad-brush calculation.

If you wanted to use a more detailed calculation you would look at how many days' turnover it took to make up the debtor total.

For example:

#### *An organization's*

- *Current debtors = \$50,000*
- *Sales in current month = \$30,000*
- *Sales in previous month = \$40,000*

*The current debtors (\$50,000) therefore represent all of the current month's sales (\$30,000) and half of the previous month's sales (\$20,000).*

*Therefore the number of debtor days in this example is calculated by adding debtor days from the current month (31 days) and the previous month (30 days).*

- *Current month has 31 days*
- *Balance from previous month:  $\$20k \div \$40k \times 30 \text{ days} = 15 \text{ days}$*
- *Total debtor days = 31 days + 15 days = 46 days*

If this figure began to increase you would need to look carefully at the debt collection routines of the organization. The sort of queries you would want answered are:

- Are customers taking longer to pay?
- Are a few customers building up a large debt?

Either of these factors may give cause for concern because the older a debt becomes, the more likely it is to go bad.

The figure for trade debtors normally comes from the closing balance sheet and care should be taken that it is typical for the whole year. If sales taxes are included in this, they must be included in both the turnover figure and the trade debtors figure.

### *Number of Days Credit Taken*

This ratio sets out the number of days the organization takes to pay its suppliers. This is arguably less important than the 'debtor day' figure, as in this case the control over payment of suppliers is in the organization's own hands.

When assessing another organization—for example one that is asking you for increased credit—this ratio can give a useful pointer as to whether the organization is operating within the accepted norms of the industry and (using historic data) whether or not it is taking increasingly longer to pay people.

This ratio is calculated by dividing the figure for trade creditors by the annual purchases and then multiplying this answer by 365 days. The figure for trade creditors normally comes from the closing balance sheet and care should be taken that it is typical for the whole year.



These calculations give a profile of the organization to potential suppliers looking for details about how efficiently the business is being run.

### *Stock Turnover*

This ratio looks at how quickly the organization turns over stock into sales, and is therefore another good measure of efficiency. The higher the stock turned the more efficiently the business is being run. It is important that the terms are completely understood and there are no abnormal factors. Normally the definition of stock includes all of the following:

- Finished goods
- Work in process
- Raw materials.

The stock value would usually be taken from the closing balance sheet but you need to consider if it is a typical figure. For example, an organization involved in the retail industry may have a seasonal influence on its operations so you may need to make allowance for this.



The stock turnover ratio is calculated by dividing the cost of goods sold by the stock value.

For example:

*If the cost of goods sold is \$500,000, and the average stock held during the year is \$100,000*

- *Stock turnover is \$500k ÷ \$100k = 5*

*Stock has been 'turned over' five times during the year.*

A quick turnover suggests that the organization is efficient in holding the minimum stock used within its operation. Again, this ratio is most informative when looked at over time. If the stock turn is slowing, this may highlight a problem with slow-moving lines that require discounting to sell through.

### *Operating Expenses as a Percentage of Turnover*

Examples of operating expenses are:

- Rent
- Utility bills
- Wages, etc.

This is a useful tool in assessing whether or not this area of expense is growing more rapidly than the turnover. This ratio is calculated by dividing operating expenses (overheads) by turnover and then multiplying by a hundred to make the figure into a percentage.



The calculation has little meaning on its own, but when reviewed over several periods it can provide useful information on the trend over that time span.

As an organization grows this percentage should fall. If it doesn't, then the organization needs to review its operating expenses carefully to understand why this is happening and see what management can do to correct it.

### KEY POINTS

- ✓ Ratios for measuring performance include: gearing, number of days credit granted, number of days credit taken, stock turnover, and overheads as a percentage of turnover.
- ✓ Gearing compares the finance provided by lenders with the finance invested by shareholders.

- ✓ Number of days credit granted is used to measure the effectiveness of an organization's debt collection.
- ✓ Number of days credit taken sets out the number of days the organization takes to pay its suppliers.
- ✓ Stock turnover shows how quickly the organization turns over stock into sales.
- ✓ Operating expenses as a percentage of turnover should be reviewed over time so that any trends can be seen.

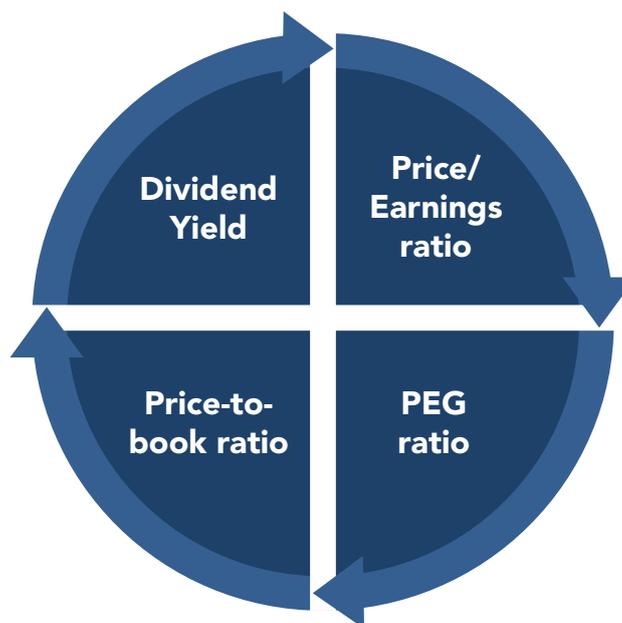
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### Does an Organization Have Investment Potential?

The accounting ratios that focus on the investment potential an organization offers include:

- Price/earnings ratio
- Price-to-book ratio (P/B)
- PEG (price/earnings to growth) ratio
- Dividend yield

These ratios are most useful when the data behind them is from regularly produced management accounts. They are concerned with the return on investment for shareholders, and with the relationship between return and the value of an investment in a company's shares.



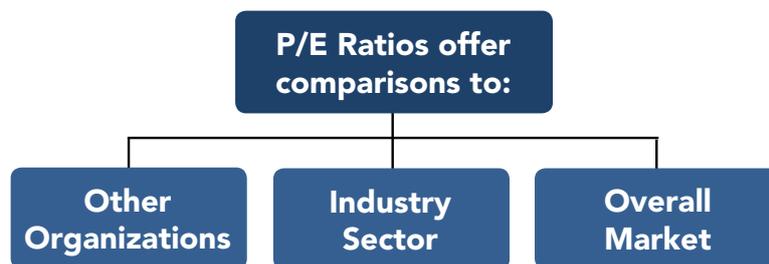
These figures are a constant focus of senior management's attention, which is a good reason for understanding how they are derived and what they mean.

### *Price/Earnings (P/E) Ratio*

This is one of the most helpful of the investment ratios and is often abbreviated to P/E ratio. It can be used to compare an organization to:

- Other organizations
- Industry sector
- Overall market e.g. S&P 500, FTSE 100, etc.

This ability to make such comparisons is one of the reasons it is widely used by management. It also offers the flexibility to use either quarterly or annual data. Many management teams use sites such as Reuters' comparison tables to help with this activity.



In commercial organizations a significant proportion of management personnel receive stock or options on stock as part of their benefits package and this drives their personal interest in the P/E ratio. The belief is that by aligning the interests of management with the interests of other stock holders the former are more committed to the organization.

A P/E ratio can be thought of as how long a stock will take to pay back the investment if there is no change in the business. Whilst stock can go up in value without significant earnings increases, it is the P/E ratio that decides if it can stay up. Without earnings to back up the price, a stock will eventually fall back in value.

The P/E ratio can be calculated by dividing the current share (stock) price by the earnings per share (often referred to as EPS) for the previous 12 months.



For example:

*An organization's*

- *Stock is trading at \$10 per share*
- *Its earnings per share = \$1*

*Its P/E Ratio =  $10 \div 1 = 10$*

This figure of '10' is sometimes seen as meaning that you will make your money back in ten years' time if nothing changes.

There are key issues that must be acknowledged when using a P/E ratio and they are that this ratio:

- **Uses historic earnings.** This is because of the nature of how EPS is calculated using the previous 12-month earnings. (In most cases, the four most recent reported quarterly net earnings per share are totaled.)
- **Only provides a snapshot** based on the current share price. The very nature of stocks means that their value is constantly fluctuating. (P/E ratio rises with share price and vice versa.)

It is possible to calculate a forward P/E ratio using the projected earnings for the coming year, but this can be inaccurate because actual earnings may be significantly different to the estimates.



The following table shows the P/E ratios for ten different industry sectors and shows the wide variation that exists. To add further clarity, the far right column contains a rough explanation of how the recognized ratio bands are interpreted.

P/E Ratio	Industry	Guideline Explanation
10	Computers Wholesale	<b>P/E 0-10</b> Either the stock is undervalued or the company's earnings are thought to be in decline. Alternatively, current earnings may be substantially above historic trends or the organization may have profited from selling assets.
15 17	Electric Utilities Application Software	<b>P/E 10-17</b> For many organizations this is considered fair value.
20 22 24	Insurance Brokers Gas Utilities Metal Fabrication	<b>P/E 17-25</b> Either the stock is overvalued or the organization's earnings have increased since the last earnings figure was published. The stock may also be a growth stock with earnings expected to rise substantially in the future.
28 32 55 82	Specialty Eateries Heavy Construction Staffing & Outsourcing services Internet Software & Services	<b>P/E 25+</b> Either the organization has high expected future growth in earnings, or this year's earnings are considered to be exceptionally low. Or the stock may be the subject of a speculative bubble.

In the case where an organization has no earnings, or is making a loss (negative earnings), they are treated as having an undefined P/E ratio, shown as 'N/A' (not applicable), even though a negative P/E ratio can be mathematically determined.

The P/E ratio can be interpreted in various ways, but it is not an exact science. In common with most financial ratios, it should not be used in isolation. There are several different factors that can affect this ratio and some of the most common are:

- P/E ratio is highly dependent on how much debt the organization has.
- Stock prices rise in one of two ways:
  - Improved earnings
  - An improved multiple that the market assigns to those earnings. (In turn, the primary drivers for multiples are through higher and more sustained earnings growth rates.)

- Managers have strong incentives to boost earnings per share, which can influence the organization's decisions. For example:
  - Low P/E ratio organizations:

May look to make an acquisition, seeking organizations that have a higher P/E ratio than its own, as they often prefer to pay in cash or debt rather than in stock.

May seek to acquire small, high-growth businesses they can 'rebrand' and use to burnish their image as growth stocks to raise their rating.
  - Higher P/E ratio organizations:

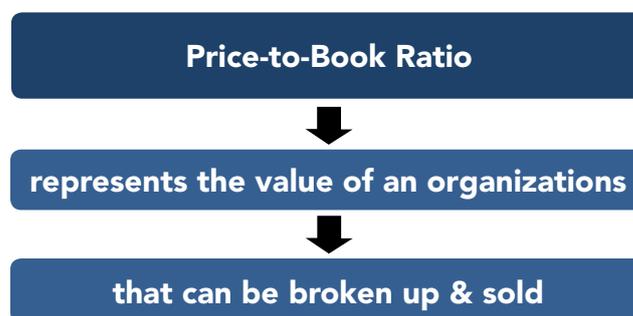
With volatile earnings may desire to create a conglomerate to find ways to smooth earnings and diversify risk.

May look to acquire other organizations with lower P/E ratios, using their stock as a means of payment.

Where there is a risk of bankruptcy forcing up the cost of debts (higher leverage), or where profits decline substantially (reducing the P/E ratio), the indebted firm will have a higher P/E ratio than an unleveraged firm.

### *The Price-to-Book (P/B) Ratio*

The price-to-book (P/B) ratio represents the value of the company if it is broken up and sold. The book value usually includes equipment, buildings, land, and anything else that can be sold, including stock holdings and bonds.



To calculate this ratio the market price of an organization's shares (share price) is divided by its book value of equity. The latter is also known as the 'price-equity ratio' and is found

on the balance sheet by subtracting the book value of liabilities from the book value of assets.



For example:

*If an organization has:*

- *Total assets of \$200 million*
- *Of which \$150 million made up from intangible assets and liabilities*
- *25 million shares outstanding*
- *A market share price of \$6*

*Then its book value of equity is  $(\$200m - \$150m) = \$50m \div 25m = \$2$*

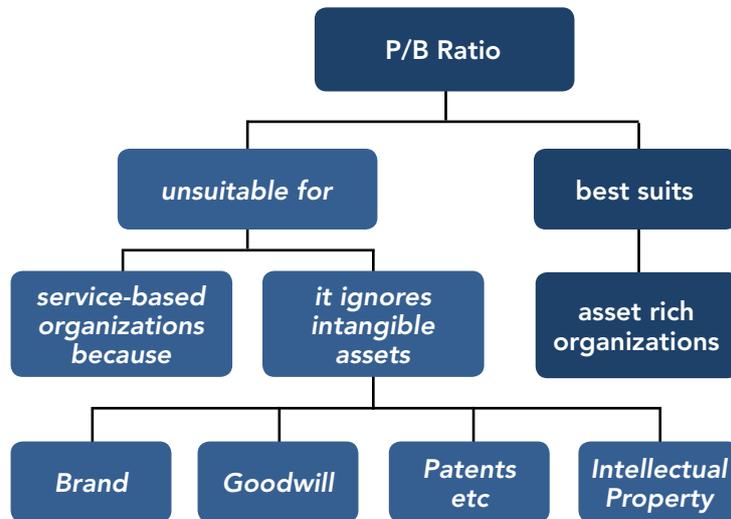
Where an organization has a very high share price relative to its asset value it is likely that it has been earning a very high return on its assets.

You may also find instances where an organization is trading for less than its book value ( $P/B < 1$ ) and this tells an investor that either:

- **The asset value is overstated**—meaning there is a chance that the asset value will face a downward correction by the market, leaving investors with negative returns.
- **Return on assets is genuinely poor**—indicating that new management or a new operating environment will prompt a turnaround in prospects and give strong positive returns.

Or a new owner can break up its asset value, earning a profit for shareholders.

The P/B ratio is really only useful when you are looking at capital-intensive businesses or financial businesses with plenty of assets on the books.



It is not meaningful for service-based organizations because due to accounting rules intangible assets such as intellectual property (brand name, goodwill, patents, and trademarks) are ignored in calculating the book value of equity.

*The PEG (Price/Earnings to Growth) Ratio*

This ratio illustrates the relationship between stock price, earning per share, and an organization’s expected growth rate. This ratio is often used in management discussions, especially those where strategic growth is being considered.

PEG is a widely used indicator of a stock’s potential value. Many people favor it over the price/earnings ratio because it also accounts for growth. Similar to the P/E ratio, a lower PEG means that the stock is more undervalued.



The PEG ratio is calculated by dividing the Price to Earnings (P/E) ratio by an organization’s annual EPS (Earnings per Share) growth. The growth rate is expressed as a percentage, and should use real growth only, to correct for inflation.

*For example, if an organization is growing annually at 30% and has a P/E of 30 then its PEG would be '1.'*

It is assumed that by dividing the P/E ratio by the earnings growth rate, the resulting ratio is better for comparing companies with different growth rates.

In general, the P/E ratio is higher for a company with a higher growth rate. Using just the P/E ratio would make high-growth companies appear overvalued relative to others and this is why the PEG ratio is more widely used.

A lower ratio is cheaper and a higher ratio is more expensive. For example, it is considered that an organization with:

- PEG < 1 is undervalued
- PEG around 1 is fairly valued
- PEG > 1 is overvalued.

The P/E ratio used in the calculation may be projected or trailing, and the annual growth rate may be the expected growth rate for the next year or the next five years.

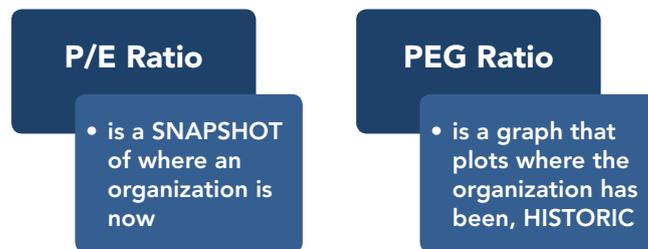


There are many variations using earnings from different time periods (for example, one year versus five years) and you should be clear about which one your source is using so that you can make valid comparisons.

By comparing two stocks using the PEG, you can see how much you're paying for growth in each case.

- PEG of 1—means you're breaking even if growth continues as it has in the past.
- PEG of 2—means you're paying twice as much for projected growth when compared to a stock with a PEG of 1.

This is speculative because there is no guarantee that growth will continue as it has in the past. The P/E ratio is a snapshot of where an organization is and the PEG ratio is a graph plotting where it has been.



Armed with this information, an investor or a management team has to decide whether the organization is likely to continue in its present direction. Management have to assess whether their current strategy needs to be altered in order to maintain their desired growth.

### *Dividend Yield*

The dividend yield is used to calculate the earning on investment (shares) considering only the returns in the form of total dividends declared by an organization during the year. By dividing the stock's annual dividend by the stock's price and multiplying by a hundred, you get a percentage.

You can think of that percentage as the interest on your money, with the additional chance at growth through the appreciation of the stock.



For example:

*If an organization has:*

- *A stock with a value of \$5*
- *And it pays an annual dividend of \$0.50*

*Then it has a dividend yield of  $0.5 \div 5 = 0.1$*

*Expressed as a percentage, this is 10%.*

Dividends are declared and paid quarterly and a dividend increase is announced in advance. This makes the stock more valuable or desirable to equity income investors, who start buying the stock in anticipation of the higher dividend. This in turn pushes the stock price up, so that when the higher dividend is actually paid, the stock price is likely to be higher and the dividend yield will remain the same.

If a good dividend stock drops in price, the increased dividend yield will attract equity income and value investors, whose stepped-up purchases will push the stock price back up and the dividend yield down. If, however, a higher dividend yield fails to attract investors, it may be an indication of financial problems that are too serious to be offset by a higher dividend.

Where an organization has a low dividend yield compared to others in its sector, it can mean one of two things:

1. The share price is high because the market believes that the organization has exciting prospects and that the future increase in share price will more than compensate for a lack of dividend payments.

Or

2. The organization is in trouble and cannot afford to pay reasonable dividends.

At the same time, however, a high dividend yield can signal a 'sick' organization with a depressed share price.

Dividend yield fell out of favor during the 1990s because of an increasing emphasis on price appreciation over dividends as the main form of return on investments. Dividends also vary by industry, with utilities and some banks paying a lot, whereas technological firms invest almost all their earnings back into the organization to fuel growth and protect their technological advantage.

## KEY POINTS

- ✓ Accounting ratios that focus on the investment potential an organization offers include: Price/earnings ratio (P/E), Price-to-book ratio (P/B), PEG (Price/earnings to growth) ratio, and Dividend yield.
  - ✓ A P/E ratio can be thought of as the length of time a stock will take to pay back the investment if there is no change in the business.
  - ✓ The price-to-book (P/B) ratio represents the value of the company if it is broken up and sold.
  - ✓ The PEG (Price/earnings to growth) ratio illustrates the relationship between stock price, earning per share, and an organization's expected growth rate.
  - ✓ The dividend yield is used to calculate the earnings on investment (shares) considering only the returns in the form of total dividends declared by an organization during the year.
-

## Summary

The more you know about how an organization is performing financially, the easier it will be for you to make informed management decisions about it. Key financial ratios can help you to find out:

- Is an organization solvent?
- Is it profitable?
- How well is it managed?

Making a simple financial assessment of another organization is straightforward and the necessary information is readily available. This means that you can compare the performance of the organization with its previous track record and with the performance of other similar organizations. You can also make comparisons to see how profitable the business is, how efficiently it is performing, and whether it is able to pay its bills on time.

This ability to evaluate the financial position of another organization is a valuable skill for any manager to have, whether you are choosing a supplier, considering a strategic partnership, or deciding how much credit to extend to a customer.

Remember, the ability to communicate in the language of finance becomes more of an asset the higher you progress up through the levels of management, even if accounting and finance is not your specialty.

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## References

Mason, Roger (2012), *Finance for Non-Financial Managers in a Week*, Hodder Education & The McGraw-Hill Companies Inc.

Shoffner G.H., Shelly S., and Cooke R.A. (2011). *The McGraw-Hill 36-hour Course Finance for Non-financial Managers*, 3rd edn, The McGraw-Hill Companies Inc.

Siciliano, Gene (2003), *Finance for Non-Financial Managers*, The McGraw-Hill Companies Inc.



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