



Interpretation of Financial Statements

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This article is designed to assist students in preparing for questions on the interpretation of financial statements on the P1 Corporate Reporting paper. It is also likely to be of benefit to students of P2 Advanced Corporate Reporting and F2 Financial Accounting.

Introduction:

Interpretation of financial statements can seem to be more straightforward than it actually is. Many students feel it is sufficient to learn off selected ratios and apply them mechanically to financial statements in order to calculate their values. Whilst this is not incorrect, it will grow increasingly insufficient as one climbs the ladder towards the professional levels.

The reason for this is that professional exams are designed to test your professional skills. Learning ratios off by heart and applying them blindly is not a professional skill. The professional approaches the task of analysis like a detective investigating a case. S/he reviews the available information, selects appropriate tools of analysis, applies them to the information given and interprets the results carefully. Ratios constitute one category of analytical tools. The professional analyst uses existing knowledge to form theories, then tests those theories hoping to draw measured conclusions from the results. S/he is always alert for distorting events which may lead the investigator down the wrong path.

This article will review key ratios, but more importantly, will attempt to teach the reader how to raise the standard of analysis. It is important to apply the tool to the information given in an intelligent way, demonstrating that you understand what the information is and is not saying. Examiners will reward the candidates who prove that they have the professional skills to do this. Throughout the article, contrast will be drawn between a basic non-professional answer, and one that would meet the standard demanded by today's profession.

There is an inherent contradiction in the use of ratios for analysis. The information used is generally historic, yet those using ratios almost always want to try and form a view of what the future might hold. Hence in the analysis of ratios it is rarely sufficient to state what happened in the past. We must make an effort to project what this means for the future. Obviously we cannot be definite about the future, but business strategy is often dependent on assessing the probabilities and making measured decisions based on these assessments. Hence a good analyst will analyse the implication of his/her analysis for future decisions. We are not crystal ball gazing, but merely analysing information to improve future vision.

Financial Ratios:

Figures are only meaningful when compared to something. You must judge everything against some benchmark, otherwise it doesn't tell you anything. For example is 64% a good mark to achieve in an accounting exam? It is impossible to give an intelligent answer without knowing at least some important information for comparison, such as:

- What is the pass mark?
- What is the average mark for the group being assessed?
- What was the best / worst mark attained by other students?
- What were last year's marks like?

We can judge figures against standards, against similar numbers for prior periods, or against similar figures for other companies. Only then may we gain useful information from them.

Financial ratios may be divided into five main categories. These are:

- (i) Profitability
- (ii) Liquidity
- (iii) Gearing
- (iv) Activity (Operating)
- (v) Investor

It is vital that the most important ratios are learned, and that intelligent comment can be made on the results.

We will consider the categories one by one. Detailed examples are given in the case of profitability and liquidity. Due to space limitations it has not proven possible to provide further examples. The reader is referred to the P1 Corporate Reporting August 2012 Question 2 and its published solution for a further example.

(I) Profitability:

The key issue here is the amount of profit the business is making. Is it enough considering the volume of goods sold? Is it enough to justify the amount of capital invested in the business? How does it compare with prior periods? How does it compare with other firms in the same industry? There are several measures of profit used in analysis. It is important to be intelligent in your choice of measure.

The main profitability ratios are as follows. Sometimes different formulae are used. It is less important which formula is used than it is to be consistent in application and analysis. For example if your net margin formula is based on profit before interest and tax (as below) you should not cite an increase in the tax rate as a reason for a decline in the net margin!!

$$(a) \quad \text{Gross Margin} = \frac{\text{Gross Profit}}{\text{Revenue}} * 100$$

$$(b) \quad \text{Net Margin} = \frac{\text{Net Profit before Interest and Tax}}{\text{Revenue}} * 100$$

$$(c) \quad \text{Return on Capital Employed} = \frac{\text{Profit Before Interest, Tax and Dividends}}{\text{Total Capital Employed [incl. interest bearing debt]}} * 100$$

$$(d) \quad \text{Return on Equity} = \frac{\text{Profit After Interest, Tax and Pref. Divs.} * 100}{\text{Equity Capital [Ord. Shares + Reserves]}}$$

Please attempt the following example before reviewing the suggested solution.

Example 1: Profitability ratios

The following summarised figures relate to Tulla Ltd, a business operating in the retail sector.

	2014	2013
Revenue	35,000	32,000
Gross Profit	6,000	5,800
Operating expenses	(2,850)	(2,300)
Interest on debenture debt	(500)	(500)
Taxation	(1,100)	(1,400)
Profit after tax	1,550	1,600
Equity capital plus reserves at year end	17,500	17,000
Debentures in issue throughout the period	6,250	6,250

Note: Some equipment was sold in 2014 at a loss of €300. This loss was included in operating expenses. No such transaction occurred in 2013.

Required: Analyze the profitability of the above business in as much detail as the information permits.

Commentary:

I recommend reading the requirement first, then reading the information with the requirement in mind. As you read, try and notice the key points. Some of these might be as follows:

- Revenue has increased from 2013 to 2014.
- Gross profit has also increased, probably by a smaller percentage.
- Net profit has reduced. This is unusual as we normally expect more profit if we sell more goods.
- Operating expenses have increased significantly.

Check if there is any additional information that might affect your analysis. Let's take the increase in operating expenses. A simple analysis might suggest that the company was less efficient in 2014 than in 2013. But consider the effect of the disposal of equipment in 2014, with a material loss on disposal included in expenses. It would be useful to recalculate the figures without the one-off item to see if underlying performance was actually that different.

Then calculate some appropriate ratios to assist your analysis. Finally, proceed to analyse the profitability of the company in accordance with the requirement.

There is no "correct" figure for Gross Margin or Net Margin. Usually, the higher the better. The normal levels vary from one industry to another. Useful comparisons can be made from one period to the next or against the industry average. Pay particular attention to trends. It is important to know the difference between margin and mark-up. Mark-up is always based on cost prices whereas margin is based on selling prices.

ROCE is a very powerful ratio when used correctly. In general, investing in a business is riskier than bank deposits, so the business should earn a ROCE sufficiently in excess of the return available from deposit accounts to compensate for the risk being taken. In addition, if a business has borrowings, the ROCE should exceed the cost of borrowing.

ROE is a narrower way of assessing profitability. It takes profit attributable to equity shareholders divided by the equity investment in the firm. This excludes preference shares and interest bearing debt (which is why the top line excludes interest and preference dividends), therefore it is more relevant for shareholders. We often take closing equity as the denominator, whereas an average equity figure could be more accurate. However as long as the formula is consistent, comparisons and trends should remain valid.

Suggested solution:

Ratio calculation	2014	2013
Gross margin	$6,000/35,000$ 17.1%	$5,800/32,000$ 18.1%
Net margin	$\frac{(1,550 + 1,100 + 500)}{35,000}$ 9.0%	$\frac{(1,600 + 1,400 + 500)}{32,000}$ 10.9%
Return on Capital Employed	$\frac{(1,550 + 1,100 + 500)}{(17,500 + 6,250)}$ 13.3%	$\frac{(1,600 + 1,400 + 500)}{(17,000 + 6,250)}$ 15.1%
Return on Equity	$\frac{1,550}{17,500}$ 8.9%	$\frac{1,600}{17,000}$ 9.4%

Weak analysis of profitability ratios (not adequate for professional level)

- Gross margin and net margin have both declined, although not by much. The company should watch out in case these ratios decline further.
- ROCE and ROE have also declined. Again, the decline is not massive but if it continues the company will find itself unable to continue in business.
- Overall the company is quite profitable, although profitability according to every measure is declining marginally.
- I recommend the company look at improving cost control to improve profits.

[This answer is typical of what is presented by some candidates at professional level, but offers almost no value added. The ratio calculation, if correct, would win the bulk of marks awarded here. The last point is the best, as it offers some concrete analysis of the reason for the profit decline (costs have risen disproportionately) and a potential solution (control costs better).]

Better analysis of profitability (professional level)

- Overall it appears the profitability of this business has declined year on year, despite a 9.4% sales increase from €32,000 to €35,000. To ascertain the likely cause of this let us examine some popular profitability ratios.
- Gross margin has declined from 18.1% to 17.1% while gross profit itself increased by 3.4%. As gross profit is made up of sales less cost of sales, this must mean either that sales prices fell or cost of sales (essentially purchase prices) increased relative to each other from 2013 to 2014. It seems highly possible that the company's management engaged in price cutting strategies to increase sales. If so, they succeeded in increasing sales (by 9.4%), but the additional margin contributed by the extra sales was almost outweighed by the lost margin over the total goods sold, resulting in a much smaller increase in gross profit (3.4%).
- This could still be good business strategy, as it is the total profit that counts at the end of the day. However we need to consider if the increased activity level (higher sales) caused any other costs (e.g. overheads). If the extra sales caused no extra overheads, then we are €200 better off.
- The net margin analyses the net profit from operations only (excluding interest and tax). Here we see the net profit % has declined from 10.9% to 9%, and the actual expenses figure is up from €2,300 to €2,850. This suggests that the extra sales activity may have cost €550 in extra overheads. The €200 in extra gross profit does not compensate for this, therefore the strategy would appear to have failed. Note that we do not know what the operating costs would have been in 2014 had sales remained unchanged. We are assuming they would have been similar to 2013.
- However, we are informed that the expenses figure in 2014 was increased by a loss on disposal of €300. This distorts the comparison with 2013. Recalculating the net margin excluding the one-off loss gives a figure of 9.9%, and a PBIT of €3,450. This is still a disimprovement on 2013 but not as bad as superficial analysis suggests. Crucially, the operating expenses would have been €2,550 in 2014 had this loss not occurred. Hence the decision to cut prices and increase volume (if indeed this was the case) nearly broke even.
- ROCE declined marginally from 15.1% to 13.3%. If the one-off loss on disposal were excluded the ROCE in 2014 would have been 14.5% ($3,450 / 23,750$), a much lesser decline.
- ROCE should be adequate to reward the investor for investing their money in a risky business over playing it safer with bonds or deposits. On this basis, 14.5% is still a respectable pre-tax return on money invested. However this should be judged in the context of the riskiness of the business. There is little means of assessing this risk given in the question.
- ROE is an alternative, narrower, measure of return. It focuses on equity holders only, and gives an after-tax return on equity. The decline from 9.4% to 8.9% is within normal business fluctuations, and would not be considered alarming. However the longer term trend in both ratios should be observed and if the decline has persisted for a few years, remedial action should be considered.
- The exclusion of the one-off expense in 2014 would affect the ROE ratio, but it is difficult to quantify this. The reason for the difficulty is that the loss on disposal is likely to have had an effect on the tax charge. It is not possible to assess this from the information given. As ROE is an after-tax calculation, it is meaningless to adjust the expenses figure without also adjusting the tax figure. ROCE is based on profit before tax, therefore this issue does not arise.
- It is relevant to note that the cost of debt appears to be 8% ($500/6,250$). It is important that the ROCE exceeds the cost of debt. There is, after all, little sense in borrowing money at 8% if the return on capital is only 6%. In this case, the ROCE comfortably exceeds the cost of debt. Both are assessed on a pre-tax basis so are comparable.

[The above answer contains several points of analysis, explained beyond exam standard in many cases. It would not be possible to give them all in an examination setting, and it should not be assumed that all these would be required to gain full marks. However, they do give a flavour of the depth of analysis expected. It is important to demonstrate a thorough understanding of the information presented in the accounts, the information given by the ratios, and the limitations of this information. Note also the use of terms like “it appears” and “It is likely that” rather than statements of fact. The use of reasonable hypothesis and opinion is acceptable, but do not present a statement as fact unless it is fact. It is important to acknowledge that financial analysis is an imperfect science, and not to claim otherwise.]

(II) Liquidity:

In business, the word liquidity relates to the amount of cash available to the business. To assess liquidity we usually look at the cash position of the firm. In addition we look at the likely future cash position by comparing short term assets (which should translate into cash relatively soon) with short term liabilities (which will require cash to settle them relatively soon).

The main liquidity ratios are as follows:

(a) Current Ratio = Current Assets : Current Liabilities

(b) Acid Test Ratio = (Current Assets – Inventory) : Current Liabilities

Example 2: Liquidity ratios

The following summarised figures relate to Feakle Ltd, a business operating in the retail sector.

	2014	2013
Revenue	45,000	32,000
Profit after tax	1,550	1,600
Current assets (total)	5,600	4,400
Current liabilities (total)	5,100	2,900
Inventories	5,100	2,750
Receivables	200	100
Cash	0	1,550
Payables	3,500	1,500
Tax due	1,100	1,400
Overdraft	500	0

Note: The company opened a third store during 2014.

Required: Analyze the liquidity of the above business in as much detail as the information permits.

Commentary:

Some key points worth noting at first glance:

- Revenue has increased substantially.
- Profit has declined.
- Cash position has deteriorated significantly.
- Inventory shows an increase higher than would be justified by the increased revenue.

The ideal level for the current ratio is often said to be in the region of 2:1. A ratio between 1.5 and 2.5 would be considered normal. At this level current assets are around twice current liabilities. This gives good assurance that the cash will be there to meet current liabilities as they fall due. Any lower and we run the risk of not being able to pay our debts on time with the consequent loss of goodwill.

An excessive current ratio means that money is sitting in current assets (receivables, inventory or cash) earning very poor returns. This is an inefficient use of capital. It may be better invested in more productive assets, used to pay down debt, or returned to shareholders.

If the current ratio appears to be problematic we should analyse the situation further to ascertain the reason for the problem. Possible causes could be excessive inventory levels (poor policy, slow moving goods, obsolete stock etc.), poor trade receivable control (leading to increased bad debt risk), or excessive cash levels.

The acid test ratio (also called the quick ratio) is a stricter test of liquidity as it excludes the effect of inventory from current assets. This is because inventory is the least liquid of current assets. An ideal level for this ratio is 1:1 or thereabouts. This level means short term assets are sufficient to meet short term liabilities without needing to sell any more inventory. Inventory is the least liquid current asset as there are two steps required to turn it into cash: (1) sell it, and (2) get paid.

Adverse liquidity ratios may indicate **overtrading**. This is where a firm is carrying on a volume of business for which it doesn't have the capital. Requirement to purchase inventory is increasing faster than cash is coming in from sales. Trade payables and bank overdrafts are bridging the gap. This cannot continue, as lenders and suppliers will call a halt. At that stage the firm will not be able to meet its payments and so will collapse.

Suggested solution:

Ratio calculation	2014	2013
Current Ratio	$5,600/5,100$ 1.1:1	$4,400/2,900$ 1.52:1
Acid Test Ratio	$(5,600 - 5,100)/5,100$ 0.098:1	$(4,400 - 2,750)/2,900$ 0.57:1

Weak analysis might contain the following points:

- Current ratio has declined from 1.52:1 to 1.1:1 from 2013 to 2014. This figure should be 2:1. Therefore it is inadequate in both years.
- Acid test ratio has declined from 0.57:1 to 0.098:1. This is extremely poor as it should be 1:1.
- Overall the liquidity of this company is terrible.

Better analysis might consider the following:

- It is clear that both liquidity ratios have declined significantly year on year.
- As the company is in the retail trade, and trade receivables are insignificant, it would appear that most of its sales are for cash, with little sales on credit.
- This would normally mean liquidity ratios could be maintained more tightly than the normal 2:1 for the current ratio and 1:1 for the acid test.
- However the present levels of 1.1:1 and 0.098:1 respectively are at crisis levels and are indicative of a severe liquidity problem with this company.
- In addition to the ratios, the actual cash position has deteriorated from positive €1,550 to negative €500.
- The questions are: what is the cause and what needs to be done to rectify it.
- We are informed that the company opened a third retail outlet during the year 2014. This is likely to be the cause of the revenue increasing by 41% from €32,000 to €45,000.

- However profitability has actually declined by €50 after tax. This indicates that there are problems turning the extra revenues into profits. This may be due to one-off costs in opening the new store. Further investigation may reveal if this is the case.
- The most obvious symptom of the trouble is the increase in inventory levels from €2,750 to €5,100, an increase of 85%. Normally an increase in line with turnover would be reasonable, or even 50% increase as the number of outlets increased by 50%. An 85% inventory increase on a revenue increase of 41% indicates a problem.
- The cause of this could be inventory obsolescence. In other words we may be experiencing difficulty selling the inventory we are carrying. If this is the case, a large write-down could be required in the future. This would cause a large loss, plus it would have a detrimental effect on the already poor current ratio (it would of course have no effect on the acid test ratio).
- Alternatively the build-up could be caused by bulk buying at a discount. If this is the case, the excess inventory should unwind over time.
- Meanwhile, current liabilities need to be paid, and it seems unlikely that the inventory can be sold quickly enough to achieve this.
- It is possible that we may be able to negotiate longer credit terms with our suppliers. However there is usually a hidden cost to this in terms of higher purchase prices. In any case, tax creditors will not countenance extensions to payment dates without hefty interest charges.
- Hence, it would seem that the company needs to raise some longer term finance, either through bank loans or additional equity.

(III) Gearing:

Gearing refers to the way the company is financed. It is concerned with two types of financing, namely Debt (borrowings) and Equity (shareholders' funds). Gearing can be understood as long term liquidity. There are three main ratios used to assess gearing:

$$\begin{aligned}
 \text{(a) Debt / Equity Ratio} &= \frac{\text{Total interest bearing debt}}{\text{Total Equity}} \\
 \text{(b) Debt / Total Capital} &= \frac{\text{Total interest bearing debt}}{\text{Debt} + \text{Equity}} \\
 \text{(c) Interest Cover} &= \frac{\text{Profit before interest and tax}}{\text{Interest payable}}
 \end{aligned}$$

Interpretation of gearing ratios:

The first two ratios essentially measure the same thing, but express it in different ways. The higher the gearing ratios, the higher the debt level of the business. This can be good or bad. A certain level of debt is good because it leverages the equity. This means a given level of equity can be used to finance a much greater level of investment. The shareholders gain from this provided the return earned by the extra investment exceeds the cost of borrowing.

However, too much borrowing increases the risk of the company not being able to meet its repayments as they fall due. If this happens the company will be put into receivership and may well be wound up. The higher the level of borrowing, the less able the company is to withstand a downturn in business (as it must meet contractual interest and capital payments regardless).

The interest cover gives an indication of how far profits can fall before the company is in danger of not being able to meet its interest payments. The higher the interest cover the safer is the business.

In general a Debt / Equity Ratio of 100% (or its equivalent Debt / Total Capital Ratio of 50%) is seen as the threshold of dangerous territory.

(IV) Activity / Efficiency:

Activity ratios try to assess how well the business utilises the resources at its disposal. The main areas of concern are as follows:

- | | | |
|--|---|---|
| (a) Asset turnover | = | $\frac{\text{Sales revenue}}{\text{Total assets less current liabilities}}$ |
| (b) Stock turnover | = | $\frac{\text{Cost of sales}}{\text{Average inventory}}$ |
| (c) Trade receivables collection period
(in days) | = | $\frac{\text{Trade receivables} * 365}{\text{Credit Sales}}$ |
| (d) Trade payables payment period
(in days) | = | $\frac{\text{Trade creditors} * 365}{\text{Credit Purchases}}$ |
| (e) Expenses as % of sales | = | $\frac{\text{Total expenses} * 100}{\text{Sales}}$ |
| (f) Operating Cycle | = | $\text{Inventory days} + \text{receivables days} - \text{payables days}$ |

Interpretation of activity / efficiency ratios:

The resources of the business are used to generate sales and profits. The more efficiently these resources can be used the more profit can be made. Asset Turnover is a measure of how efficiently the net assets of the business are generating sales. The higher this ratio is the better. If the ratio is dropping, it can be an early warning of falling efficiency. Taken with the Net Margin, the combination of ratios is equivalent to ROCE (Asset Turnover * Net Margin = ROCE). A problem with ROCE can be analysed by examining Asset Turnover and Net Margin.

Inventory turnover is a measure of how many times the average inventory level is sold each year. The higher this ratio, the more efficient is the firm at minimising stock levels. Lower inventory levels (provided sales do not drop) lead to higher profits because of lower storage, insurance and obsolescence costs. Be aware that different businesses have different natural levels of inventory turnover. For this reason, you must be careful when comparing inventory turnover across different businesses.

Trade receivables collection period measures the average number of days it takes customers to pay the business. The lower this period is the better as money tied up in trade receivables is not earning any profit for the business, and may be costing it a considerable sum in overdraft interest or lost deposit interest.

Trade payables payment period gives the same information for suppliers. If this is too low, we may not be availing of full credit terms. This costs money in interest if we are borrowing. If the period is too high, it may indicate difficulty in paying on time. If this continues, the relationship with suppliers may be damaged. There may be a relationship between the payment period and the price paid for goods. For this reason, a longer payment period may be saving us interest, but costing us more in lost goodwill and higher product prices. Likewise, a shorter payment period may be a result of strong price negotiations, especially if the business has surplus cash.

The operating cycle is a measure of the length of time the business must finance goods itself. In other words, we purchase goods, hold them in inventory for x days, then sell them and wait y days to be paid. suppliers finance a portion of this, the rest must be financed by the business. This generates no return, so the shorter the operating cycle is the better.

In each case, if an adverse ratio is spotted, look for a logical reason for the ratio's value. Look for reasons consistent with other observations you have made, and attempt to corroborate your opinion with further information or ratios.

(V) Investor Ratios:

These ratios are especially relevant to investors, especially in quoted companies which have a verifiable share value. The most important ones are as follows:

- | | | |
|--------------------------|---|---|
| (a) Earnings per share | = | $\frac{\text{Profit attributable to ordinary shareholders}}{\text{No. of Ordinary Shares}}$ |
| (b) Price earnings ratio | = | $\frac{\text{Price per share}}{\text{Earnings per share}}$ |
| (c) Earnings yield | = | $\frac{\text{Earnings per share} * 100}{\text{Price per share}}$ |
| (d) Dividend per share | = | $\frac{\text{Total ordinary dividend for year}}{\text{No. of ordinary Shares}}$ |
| (e) Dividend yield | = | $\frac{\text{Dividend per share} * 100}{\text{Price per share}}$ |
| (f) Dividend cover | = | $\frac{\text{Earnings per share}}{\text{Dividends per share}}$ |

Interpretation of investment ratios

It is important to realise that the ratio is only as good as the figures inputted into it. It is vital that the correct definitions of profits, dividends, etc. are used.

Profit attributable to ordinary shareholders must be calculated after tax, interest and preference dividends. The higher EPS is the better. It is useful to express profits in this way because it takes account of the impact of share issues on the share of the profit any individual shareholder is entitled to.

The P/E ratio gives a measure of the market's view of the value of the company in terms of its earnings. The higher the P/E, the higher the share is valued by the market. This could be due to good growth prospects (expectations of higher earnings in the future), or market forces (demand for the share outstripping supply). It could also indicate overvaluation and the risk of future price falls. A low P/E may represent a buying opportunity, but there could be a reason for the poor rating.

Dividends represent the income on a share. The amount per share and the yield give an indication of the value of the dividend to the shareholder. The dividend yield could be compared with the deposit rate to assess the performance of the share from the investor's viewpoint. The dividend cover gives a measure of how likely the dividend is to be sustained or to grow into the future. A high dividend cover indicates a high likelihood that the rate of dividend will be maintained or increased. However be careful if only one or two years' figures are used for analysis. They may not be representative of the figures over the longer term.

Conclusion:

The key purpose of this article was to raise awareness among professional students regarding the calibre of answer required in questions on the topic of interpretation of financial statements. The topic lends itself very well to testing understanding of accounting concepts, as it is difficult to learn answers or formats off by heart. It is essential that an effort is made to use and add value to the information given in the question. Take every opportunity to demonstrate your understanding of any ratios used in your analysis. Be aware of the limitations of ratio analysis generally and those of individual ratios. Common sense rules in this topic more so than in any other topic in accounting.