DP IB Business Management: HL

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3.5 Profitability & Liquidity Ratio Analysis

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Profitability Ratios

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An Introduction to Ratio Analysis

- Ratio analysis involves **extracting information from financial accounts** to assess **business performance** and answer key questions including
  - Why is one business more **profitable** than another in the same industry?
  - Is a business **growing**?
  - How effectively is a business **using assets and capital** invested?
  - What **returns on investment** are expected?
  - How **risky** is the **financial structure** of the business?

Information Extracted from the Profit & Loss Account and Balance Sheet for Ratio Analysis

Statement of Profit or Loss	Statement of Financial Position
▪ Revenue ▪ Cost of Sales ▪ Gross Profit ▪ Operating Profit ▪ Profit for the Year (Net profit)	▪ Current Assets ▪ Current Liabilities ▪ Inventory (stock) ▪ Trade Receivables ▪ Trade Payables ▪ Long-term liabilities ▪ Capital & Reserves

- Ratio analysis supports evidence-based decision making, as it **provides measurable data** that can be used to **support judgements** and **compare performance** against objectives

Diagram: the ratio analysis process

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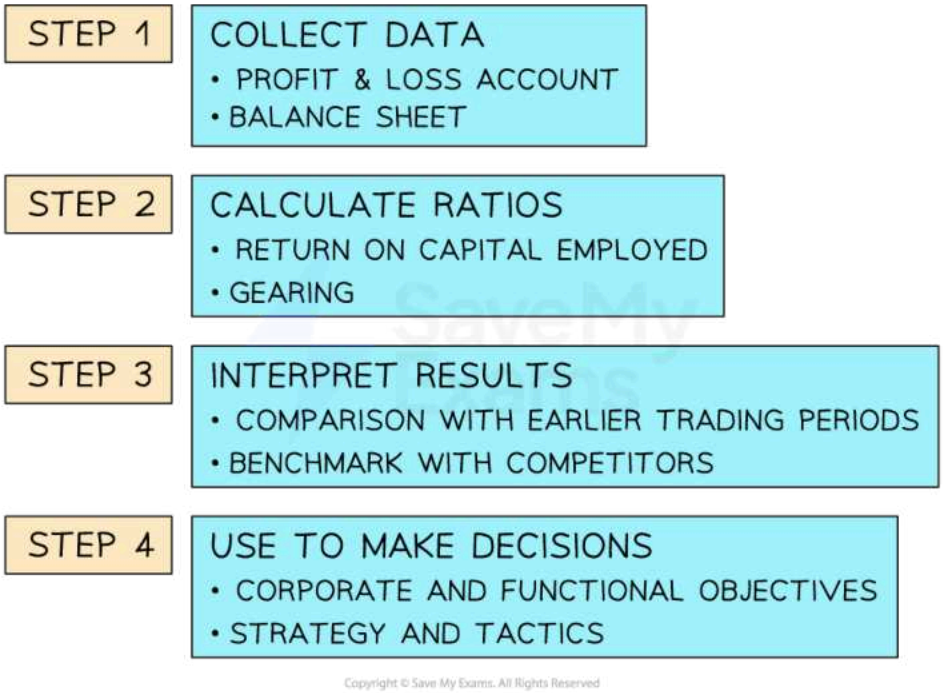

The Ratio Analysis Process

- The three main **profitability ratios** are
  - The Gross Profit Margin
  - The Profit Margin
  - Return on Capital Employed (RoCE)
- The two main **liquidity ratios** are
  - The Current Ratio
  - The Acid Test Ratio

Profit Margins

- A profit margin measures the **proportion of revenue that is converted into profit**
- Profit margins can be **compared to previous years** to better understand business performance
  - **Higher and increasing profit margins are preferable,** as it means that more revenue is being converted to profit

Gross profit margin

- This shows the **proportion of revenue** that is turned into gross profit and is expressed as a percentage
  - It is calculated using the formula below

$$\frac{\text{Gross Profit}}{\text{Sales Revenue}} \times 100$$

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Worked Example

Head to Toe Wellbeing's revenue in 2022 was £124,653. Its gross profit was £105,731.

Calculate *Head to Toe Wellbeing Ltd's* Gross Profit Margin in 2022. [2]

Answer:

Step 1: Substitute the values into the formula

$$\frac{\text{Gross Profit}}{\text{Sales Revenue}} \times 100$$

$$= \frac{£105,731}{£124,653}$$ **[1 mark]**

$$= 0.8482$$

Step 2: Multiply the outcome by 100 to find the percentage

0.8482×100

$= 84.82\%$ **[1 mark]**

84.82% of *Head to Toe Wellbeing's* revenue was converted into gross profit during 2022

Profit margin

- The **Profit Margin** shows the proportion of revenue that is turned into profit before interest and tax
- It is calculated using the formula below and is expressed as a percentage

$$\frac{\text{Profit before Interest \& Tax}}{\text{Sales Revenue}} \times 100$$

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Worked Example

Head to Toe Wellbeing's revenue in 2022 was £124,653. Its profit before interest and tax was £65,864.

Calculate *Head to Toe Wellbeing Ltd's* Profit Margin in 2022. [2]

Answer:

Step 1: Substitute the values into the formula

$$\frac{\text{Profit before Interest \& Tax}}{\text{Revenue}} \times 100 = \frac{£\ 65{,}864}{£\ 124{,}653} = 0.5284$$ [1 mark]

Step 2: Multiply the outcome by 100 to find the percentage

0.5284 x 100

= 52.84% **[1 mark]**

In 2022 52.84% of Head to Toe Wellbeing's revenue was converted into profit before interest and tax.

Return on Capital Employed

- The Return on Capital Employed is also known as the **Primary Ratio**
- It compares the **profit** made by a business to the amount of **capital invested** in the business
- It is a measure how **effectively a business uses the capital invested** in the business **to generate profit**
- Return on Capital Employed is a **key performance indicator** that can be **compared over time** and also with **competitors** and **other potential capital investments**
- Return on Capital Employed is expressed as a percentage and can be **calculated using the formula**

$$\text{Return on Capital Employed} = \frac{\text{Profit before interest \& tax}}{\text{Capital Employed}} \times 100$$

- **Capital employed** is usually provided for you
- If required, it is calculated using the formula

$$\text{Capital Employed} = \text{Non} - \text{current Liabilities} + \text{Equity}$$

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Worked Example

The table shows an extract from the company accounts of *Keals Cosmetics*.

Non-current Liabilities	£1.5 million
Revenue	£7 million
Equity	£15.4 million
Profit before Interest & Tax	£2.2 million

Calculate Keals Cosmetics' Return on Capital Employed. [3 marks]

Answer:

Step 1: Calculate the capital employed

$$\text{Capital employed} = \textit{Non-current Liabilities} + \textit{Equity}$$

$$\text{Capital employed} = £1.5\text{m} + £15.4\text{m}$$ **[1 mark]**

$$\text{Capital employed} = £16.9\text{m}$$

Step 2: Divide Operating Profit by Capital Employed

$$\text{Return on Capital Employed} = \frac{\text{Profit before interest \& tax}}{\text{Capital Employed}} \times 100$$

$$\text{Return on Capital Employed} = \frac{£2.2\text{m}}{£16.9\text{m}}$$ **[1 mark]**

$$\text{Return on Capital Employed} = 0.13$$

Step 3: Multiply the result by 100 and express the outcome as a percentage

0.13 x 100 = 13% **[1 mark]**

The capital employed in Keals Cosmetics has generated a return of 13%

Improving Profitability Ratios

- Businesses aim to improve their profit margins over time

- Whilst **profit margins may fall as a result of external factors** (for example, the cost of raw materials may rise as a result of poor weather damaging raw materials) there are a number of internal steps a business can take to improve its profit margins


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Improving the gross profit margin

- The **gross profit margin** can be improved in two ways
  - They can increase their sales revenue
  - They can reduce their direct costs

How to Increase the Gross Profit Margin

Method	Explanation
Increase Sales Revenue	<u>Increase the value of sales</u> **1. Raise prices** ▪ If costs remain the same, this will improve profitability as the **difference between the selling price and costs is now greater** **2. Sell premium products** ▪ If customers are willing to spend money on these goods the business could earn more profit per item sold <u>Increase the volume of sales</u> **1. Price tactics** ▪ Use price tactics to encourage higher quantity or more frequent purchases ▪ E.g. 'buy one get one half price' doubles the number of items a customer purchases, increasing revenue **2. Increase marketing activities** ▪ Engage in more marketing activities to increase sales volume
Reduce Direct Costs	<u>Reduce variable costs</u> 1. This may involve purchasing cheaper/alternative resources, negotiating with suppliers or **purchasing in bulk** 2. Businesses must ensure that reducing variable costs will not have an adverse effect on the quality or desirability of products

	3. Buying stock in greater quantities may require investment in increased storage space which will reduce the impact of the cost savings made ▪ Businesses may also be able to reduce **wastage** of raw materials and components


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Improving the profit margin

- The **profit margin** can be improved in two ways
  - Increasing the gross profit margin (see above)
  - Reducing overhead costs

Reduce Overhead Costs

- Reducing staffing levels, relocating to cheaper premises or changing utility companies can reduce expenses
  - Reducing staffing levels may affect staff morale and negatively affect **productivity**
  - **Relocation costs** can outweigh some benefits of moving to a cheaper location
  - Replacing inefficient or outdated equipment may require staff training

Understanding return on capital employed (RoCE)

- RoCE **differs between industries** so comparison across sectors is not recommended
  - However, RoCE can be compared with other forms of return such as **interest rates on savings in a bank account,** and with other businesses within the **same industry**
- RoCE can be used to support **strategic decisions** (e.g. investment or divestment decisions) to determine the most profitable option given the level of capital employed
- With RoCE **the higher the rate the better** as it indicates that the business is **profitable** and **using its capital efficiently**
  - Investors prefer businesses with **stable and rising** levels of RoCE as this indicates **low-risk growth** is being achieved
  - A ROCE of **at least 20 per cent** is usually a good sign that the company is in a good financial position
- To increase the RoCE level a business can
  - **Increase the level of profit** generated **without introducing new capital** into the business

- **Maintain the level of profit** generated **whilst reducing the amount of capital** in the business

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Worked Example

Faced with increasing costs *Kent & Medway Properties Ltd* is looking to close one of its three high street estate agency branches.

The table below shows some key data for each of the branches.

Branch	Capital Employed	Profit Before Interest & Tax
Sevenoaks	£2.4m	£0.37m
Whitstable	£3.1m	£0.57m
Rochester	£2.9m	£0.51m

Calculate the Return on Capital Employed (RoCE) for each branch and recommend which branch, on profitability terms, should close. [5 marks]

Answer:

Step 1: Apply the formula to calculate the RoCE for each branch

$$\text{Return on Capital Employed} = \frac{\text{Profit before Interest \& tax}}{\text{Capital Employed}} \times 100$$

$$\text{Return on Capital Employed Sevenoaks} = \frac{£0.37\text{m}}{£2.4\text{m}} \times 100 = 15.42\% \ \textbf{(1 mark)}$$

$$\text{Return on Capital Employed Whitstable} = \frac{£0.57\text{m}}{£3.1\text{m}} \times 100 = 18.39\% \ \textbf{(1 mark)}$$

$$\text{Return on Capital Employed Rochester} = \frac{£0.51\text{m}}{£2.9\text{m}} \times 100 = 17.59\% \ \textbf{(1 mark)}$$

Step 2: Identify the least profitable branch for closure

Sevenoaks is the least profitable branch with a RoCE of 15.42% and should be the branch selected for closure. **(2 marks)**

Examiner Tips and Tricks

When calculating financial ratios, check that you are using the correct units.

In some cases, financial data is presented as raw figures (e.g. £14,520) but in most cases, you will be working in thousands (£000) or millions (£m).

- Ensure that you convert correctly, e.g. £0.39m is equal to £390,000 and £34.9 (000) is equal to £34,900
- Make sure the decimal place is in the correct place
- Calculate to two decimal places unless stated otherwise

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Liquidity Ratios

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Ways to Measure Liquidity

- Liquidity refers to the cash and other current assets businesses have available to quickly pay bills and meet short-term business/financial obligations
- The liquidity of a business can be measured using two ratios, the **current ratio** and the **acid test ratio**

1. The current ratio

- The Current Ratio is a **quick way** to measure liquidity and the outcome is **expressed as a ratio**
- All of the current asset are included in calculating this ratio
- The current ratio is an effective liquidity measure for businesses that **hold little stock**
- The result indicates how many **£s of current assets** it has available to **cover each £1 of short term debt**
- It is calculated using the formula

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

$$= \ ? : 1$$

Worked Example

Packer Sports Ltd has current assets of £15,545, current liabilities of £5,060 and an inventory figure of £8,250.

Calculate *Packer Sports Ltd's* current ratio. [2]

Answer:

Step 1: Substitute the values into the equation

£15,545 ÷ £5,060 = 3.07 **[1 mark]**

Step 2: Express the outcome as a ratio

= 3.07: 1 **[1 mark]**

In this example, Packer Sports Ltd has £3.07 of current assets to cover each £1 of short-term debt

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2. The acid test ratio

- The acid test ratio is a precise way to measure liquidity and is **expressed as a ratio**
- The acid test ratio is also known as the **liquid capital ratio**
- The **least liquid** form of current assets (stock) is deducted so the acid test ratio provides a more realistic measure of the businesses ability to **meet short-term debts quickly**
  - It may take some time to sell stock, so it is excluded
- The acid test ratio is a particularly **important measure of liquidity** for businesses that **hold a large amount of stock**
- It is calculated using the formula

$$\frac{\text{Current assets} - \text{stock}}{\text{Current liabilities}} = ? : 1$$

Worked Example

Packer Sports Ltd has current assets of £15,545, current liabilities of £5,060 and a stock figure of £8,250.

Calculate *Packer Sports Ltd's* acid test ratio. [3]

Answer:

Step 1: Subtract stock from current assets

£15,545 - £8,250 = £7,295 **[1 mark]**

Step 1: Substitute the values into the equation

£7,295 ÷ £5,060 = 1.44 **[1 mark]**

Step 2: Express the outcome as a ratio

= 1.44:1 **[1 mark]**

In this example, Packer Sports Ltd has £1.44 of the most liquid current assets to cover each £1 of short-term debt

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Ways to improve liquidity

- The best way to improve liquidity is to **manage the business better**
  - Use **cash flow forecasts** to identify potential cash flow issues before they arise - and take appropriate action
  - **Budget** effectively and consider adopting **zero budgeting** to carefully control spending
  - Set clear **financial objectives** and look for ways to **reduce costs** and **increase income** wherever possible

Methods to Improve Liquidity

Method	Explanation
Reduce the credit period offered to customers	▪ Collecting money owed from customers more quickly will **increase the level of current assets** in the business ▪ **Customers may move to competing businesses** that offer better **credit terms**
Ask suppliers for an extended repayment period e.g an extension from 60 to 90 days	▪ Current liabilities **will not be reduced** ▪ The business can use cash it would have paid to suppliers for other purposes ▪ Suppliers may be **unwilling** to extend credit terms
Make use of Overdraft facilities or short-term loans	▪ Current liabilities will **increase** ▪ The business can spend **more money than it has in its bank account** ▪ Banks may be reluctant to lend to businesses with cash-flow problems
Sell off excess stock	▪ Less liquid current assets will be reduced and **converted into more liquid forms of current asset** (e.g. cash)

	▪ Storage and security **costs may also be reduced** ▪ Stock may need to be **sold at a low price** to attract sales
Sell assets and lease fixed assets instead (e.g. sale and leaseback)	▪ Both **current assets and current liabilities will increase** ▪ The business will continue to **have the use of assets** but must make regular payments to the leasing company
Introduce new capital and reduce drawings out of the business	▪ Current assets will be **increased** ▪ New capital may be **introduced by the owner** or from **additional investors** ▪ This may result in a **dilution of control** over the business


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