

3.6 a and b) Efficiency ratios (AO2, AO4) and Possible strategies to improve these ratios (AO3)



Efficiency ratios are used by managers and other decision makers to measure how well the resources of a business are used in order to generate income from the firm's capital. In other words, efficiency ratios examine the use of an organization's resources in terms of its assets and liabilities.

There are four efficiency ratios specified in the IB DP Business Management syllabus:

- Stock turnover ratio (or inventory turnover ratio)
- Debtor days ratio
- Creditor days ratio
- Gearing ratio

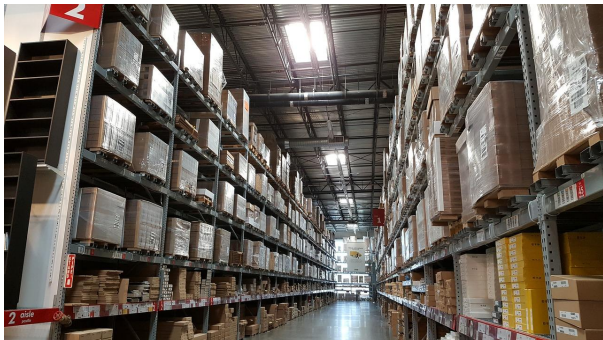
These four efficiency ratios are used to measure how well a business uses its financial resources. Such ratio analysis can to a business to improve its operational efficiency, including:

- looking at ways to reduce the time it takes the business to collect cash payments from its customers (debtors days ratio)
- improving its inventory control (stock control ratio)
- improving its relationship with suppliers and trade creditors (creditor days ratio), and
- managing its level of affordable debt (the gearing ratio).

It is important for managers to be in control of their operational efficiency as this directly affects their costs and hence level of profitability. For example, businesses need to manage their level of stocks (inventories), although this will differ in different industries. For instance, batteries and candles sold at IKEA are likely to require replenishing at a faster rate than for large furniture items such as beds, wardrobes and sofas. IB Mathematics, **Theory of Knowledge**, and **Extended Essay** textbooks published by Hodder Education are likely to need replenishing at a faster rate than for **IB Economics** or IB Geography. Large supermarket chains, such as Walmart and Carrefour will have very high stock turnover, so operational efficiency is essential for these businesses.

Essentially, when businesses are efficient in their use of resources, they become more competitive, profitable, and successful.

1. Stock turnover (AO2, AO4)



The **stock turnover ratio** is an efficiency ratio that measures the number of days it takes a business to sell its stock (inventory), i.e. how quickly the stock is sold and needs to be replenished.

Alternatively, the stock turnover ratio can show the number of times during any given period of time (usually a year) that the business needs to restock or replace its inventory.

The stock (inventory) turnover ratio is calculated by using one of two formulae:

$$\text{Stock turnover (number of times)} = \frac{\text{cost of sales}}{\text{average stock}}$$

or

$$\text{Stock turnover (number of days)} = \frac{\text{average stock}}{\text{cost of sales}} \times 365$$

So, for example, it can be concluded that a business with \$10,000 of average stock levels during the year and with total cost of sales (COS) valued at \$200,000 has essentially sold its inventory twenty times over, i.e. $\$200,000 / \$10,000 = 20$ times.

Another way to view situation is this is that it takes an average of 18.25 days (or 19 days to the nearest whole number) for the business to sell its average level of stocks (inventories), i.e. $(\$10,000 / \$200,000) \times 365 = 18.25$ days.

Note that if the value of a firm's average stock level is not explicitly stated, this can be found by using the formula:

$$\frac{\text{Opening stock} + \text{Closing stock}}{2}$$

The stock turnover ratio will vary between businesses and industries. For example, we would expect the inventory turnover ratio (number of times) to be much higher for large supermarket chains, such as Target and Tesco, than high-end jewellery makers such as Tiffany & Co. or De Beers Jewellers.

By contrast, businesses that sell perishable goods (such as fresh milk or fresh flowers) rely on a high stock turnover rate (number of times). This is because any unsold stocks cannot be stored so need to be disposed as when their sell-by date has expired.

A third scenario is businesses that do not hold much if any inventory. Examples include online learning platforms (such as private online tuition services), insurance companies, and online media companies with digital content only (such as Netflix or Spotify). For these businesses, the stock turnover ratio is less relevant as a financial ratio because they do not need to hold any stocks for sale, i.e. the services providers do not hold physical stocks as their businesses are predominantly based on selling intangible products.

Exam Practice Question 1

Ayad Construction Co. has cost of sales (COS) valued at \$60,000. The company started the trading year with stocks valued at \$50,000. It had closing stock at the end of the trading year valued at \$20,000.

Calculate *Ayad Construction Co.*'s stock turnover ratio. [2 marks]



Teacher only box

Answer

- Average stock = (Opening stock + Closing stock) ÷ 2 = (\$50,000 + \$20,000) / 2 = \$35,000
- Stock turnover ratio = \$60,000 ÷ \$35,000 = 1.71 times
- Alternatively, stock turnover ratio = [(\$50,000 + \$20,000) / 2] / \$60,000 = (\$35,000 / \$60,000) × 365 = (\$50,000 / \$25,000) × 365 = **212.92 days** (accept answers that show **213 days**)

As an efficiency ratio, the stock (inventory) turnover ratio helps managers to monitor the effectiveness of their stock control. Managers can improve the stock turnover ratio in various ways, including:

- Getting rid of obsolete (outdated) inventory in order to reduce the firm's stock levels
- Supplying a narrower range of products, thereby simplifying the amount of stocks that the firm needs to hold and control
- Implementing a just-in-time (JIT) stock control system, which means the firm does not need to hold any stocks (of raw materials and component parts) as these are ordered and delivered only when needed.

2. Debtor days (AO2, AO4)



The **debtor days ratio** is an efficiency ratio that measures the average number of days an organization takes to collect debts from its customers (as they have bought goods and services on trade credit but have yet to pay for these). The debtor days ratio measures the average debt collection period for a business. This means the time it takes, on average, for the firm to collect money owed from its customers who have bought products on credit terms.

The debtor days ratio is calculated by using the formula:

$$\text{Debtor days ratio (number of days)} = \frac{\text{debtors}}{\text{total sales revenue}} \times 365$$

The ratio enables managers to gauge how efficient a business has been in managing the credit that it gives to customers. Effective credit control is important for a business to control its **cash flow** and **liquidity position**.

As a general rule, the lower the value of the debtor days ratio the better it is for the firm. This is because a low debtors day ratio shows that the firm is efficient in getting debtors to pay on time. This helps to improve the firm's working capital cycle.

By contrast, a high debtor days ratio means that customers are being given more credit than the firm can afford, given that this delays cash inflow for the firm. This is because credit sales account for a larger proportion of the firm's sales revenue.

There are numerous ways for a business to improve its debtor days ratio. These essentially involve getting paid earlier and/or having better control over which customers qualify for credit. These methods include:

- Creating incentives for customers to pay by cash rather than credit, such as giving customers a discount if they pay by cash and/or charging customers interest if they pay using credit terms.
- Shortening the credit period given to customers. For example, by reducing the credit period from 60 days to 30 means customers have to pay one month earlier than before. This helps to reduce the debtor days ratio, i.e. the business receives payment from customers at an earlier date.
- Improved credit control by using stricter criteria for those wanting to purchase products using trade credit. For example, the business might choose to offer credit only to customers with a proven track record of having paid their invoices in a timely manner.

Exam Practice Question 3

Cabinets Limited sells 1,500 units of output at a unit price of \$60. The company has debtors valued at \$20,000. Calculate *Cabinets Limited's* debtor days ratio. [2 marks]



Teacher only box

Answer

Sales revenue = Price × Units sold = \$60 × 1,500 = \$90,000

Using the debtor days ratio, the average debt collection period = $(\$20,000 \div \$90,000) \times 365 = 81.11 \text{ days}$

Accept answers that state **82 days**

Award [1 mark] for the correct answer, and [1 mark] for showing suitable working out.

3. Creditor days (AO2, AO4)



The **creditor days ratio** is an efficiency ratio that measures the average number of days an organization takes to repay its creditors (suppliers who the business has bought products from using trade credit, so have yet to pay for these).

The creditor days ratio calculates the length of time it takes a business, on average, to pay its suppliers for items that have been bought on credit. The formula for calculating this is:

$$\text{Creditor days ratio (number of days)} = \frac{\text{creditors}}{\text{cost of sales}} \times 365$$

As a general rule, a business that can delay making payment of its outstanding invoices plus any short term debts can improve its own cash flow position. However, in the long term, interest charges for late payments or imposed on the loans can be costly. Hence, it is important for businesses to have effective credit control, which is why the creditor days ratio is important.

There are numerous ways for a business to improve its creditor days ratio. These methods include:

- Negotiating an extended credit period with the firm's suppliers
- Looking for different suppliers who offer preferential trade credit agreements
- Using cash to pay for inventories (cost of sales), instead of over-relying on trade credit.

Exam Practice Question 4

Explain how an increase in the value of a firm's trade creditors is likely to affect its creditor days ratio. [2 marks]



Teacher only box

Answer

An increase in the value of trade creditors will tend to increase the creditor days ratio. This is because the firm has bought more items (cost of sales) using trade credit and/or the timing of payments to its creditors has been deferred. Hence, the firm takes longer to pay its trade creditors.

Award [1 mark] for suggesting that the creditor days ratio is likely to increase. Award a further [1 mark] for the explanation.

Exam Practice Question 5

Wok Express sold inventory valued at \$240,000. The restaurant has trade creditors valued at \$25,000.

Calculate the creditor days ratio for *Wok Express*. [2 marks]



Teacher only box

Answer

- Cost of sales (COS) = \$240,000
- Creditor days ratio = $(\$25,000 \div \$240,000) \times 365 = 38.02 \text{ days} = \mathbf{39 \text{ days}}$ (accept answers that state 38 days, although 38.02 means the 39th day in practice)

Award [1 mark] for the correct answer and [1 mark] for showing appropriate working out.

4. Gearing ratio (AO2, AO4)



The **gearing ratio** is an efficiency ratio that measures the extent to which an organization is financed by external sources of finance. In other words, it is loan capital expressed as a percentage of the firm's total capital employed. The gearing ratio is measured by using the formula:

$$\text{Gearing ratio} = \frac{\text{non-current liabilities}}{\text{capital employed}} \times 100$$

where:

- Non-current liabilities refers to loan capital, and is recorded on the balance sheet.
- Capital employed is the sum of non-current liabilities and equity (also shown on the balance sheet).

It is not uncommon for businesses to rely on using external sources of finance (such as medium to long term loans to fund its operations, growth, and evolution. However, debts need to be managed efficiently. As an efficiency ratio, the gearing ratio indicates the degree of financial risk that a business can afford to take by measuring the extent to which the firm's capital employed is financed by external borrowing.

Firms with a high gearing ratio are usually at risk should interest rates in the economy increase. This is because higher interest rates increase the cost of borrowing, and firms with existing loans are likely to have to pay higher interest repayments to the lender. Essentially, this is because

businesses with a high gearing ratio are generally extremely dependent on borrowing so incur long-term debts.

- A lower ratio suggests a lower financial risk and greater stability. Generally, a lower gearing ratio is considered more favorable as it suggests a lower level of financial risk and indicates that the company relies less on debt financing.
- A commonly suggested range for a **healthy debt-to-equity ratio is around 0.5 to 1**. (50 to 100%)

Exam Practice Question 6

Cost Less Grocers has an existing mortgage of \$1.5 million. The company has share capital valued at \$2.5m and retained earnings of \$0.5 million. Calculate the gearing ratio for *Cost Less Grocers*. [3 marks]



Teacher only box

Answer

- Capital employed = Retained earnings + Share capital + Long term liabilities, i.e. the sum of internal and external sources of finance
- Capital employed = 0.5m + \$2.5m + \$1.5m = \$4.5 million
- Gearing ratio = (Loan capital / Capital employed) × 100
- Gearing ratio = \$1.5m ÷ \$4.5m = **33.33%**

Award [1 mark] for the correct calculation of *Costless Grocers's capital* employed.

Award [1 mark] for the correct gearing ratio, and [1 mark] for the correct working out of the gearing ratio.

Apply the *own figure rule* (OFR), or error carried forward, where appropriate.

There are numerous ways for a business to improve its gearing ratio. These methods include:

- Paying off some of the firm's long-term liabilities (loan capital), such as making additional mortgage payments.
- Enhancing the firm's working capital (liquidity position) by improving its stock control, giving incentives for customers to pay earlier / on time, and/or reducing the credit period given to customers. An improved working capital position (or working capital cycle) enables the business to use additional funds to pay off debts, thereby reducing its level of gearing.
- Trying to use or rely more on internal sources of finance, such as retained profits or share capital, instead of external finance (which incurs interest charges).

Key terms

The **creditor days ratio** is an efficiency ratio that measures the average number of days an organization takes to repay its creditors (suppliers who the business has bought products from using trade credit).

The **debtor days ratio** is an efficiency ratio that measures the average number of days an organization takes to collect debts from its customers (those who have bought goods and services on trade credit).

Efficiency ratios are used to measure how well the resources of a business are used in order to generate income.

The **gearing ratio** is an efficiency ratio that measures the extent to which an organization is financed by external sources of finance.

The **stock turnover ratio** is an efficiency ratio that measures the number of days it takes a business to sell its stock (inventory).