3.6 Efficiency ratio analysis (HL)

Efficiency ratios

Efficiency ratios measure how well a business is managing its operations in the working capital cycle. This section examines efficiency ratios related to stock turnover, debtor days, creditor days and gearing (which refers to debt levels).

Stock turnover ratio

The stock turnover ratio (also known as the inventory ratio) measures the number of times, on average, that a company sells and therefore replenishes its stock within a period of time, usually a year. In the case of a manufacturing enterprise, it can also refer to the rate at which a company uses its stock. Usually, the more frequently a stock is 'turned over' or sold, the more efficient the business; the business is able to turn stock into sales revenue quickly.

The stock turnover ratio is an average. This is because sales, and therefore stock turnover, often varies over the course of a year. This may be due to seasonal changes such as climate changes or holiday periods. The stock turnover ratio is calculated using either of the following formulas, depending on how the number is represented:

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

or

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

The cost of sales can be obtained from the statement of profit or loss (income statement or profit and loss account). Average stock is calculated as follows:

$$\textbf{Average stock} = \frac{\textbf{opening stock} + \textbf{closing stock}}{\textbf{2}}$$

For example, suppose that the cost of sales for the Riz and Javi supermarket is $300 million per year and that its opening stock is $60 million and closing stock $40 million. The stock turnover ratio is calculated as follows:

$$\text{Average stock} = \frac{\$60 \text{ million} + \$40 \text{ million}}{2} = \$50 \text{ million}$$

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

$$= \frac{\$300 \text{ million}}{\$50 \text{ million}}$$

= 6 times per year

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

$$= \frac{\$50 \text{ million}}{\$300 \text{ million}} \times 365$$

= 60.83 days

This means that the Riz and Javi supermarket sold out of its stock six times per year, or every 60.83 days. This can be measured against other supermarkets to see how well it compares. By comparing with other businesses in the same industry, the business can evaluate its own efficiency. The business could also make comparisons with its own stock turnover ratio from previous years, to see whether it is becoming more or less

efficient. A low inventory turnover ratio could indicate slow sales due to poor quality or range of goods, inadequate promotion, overstocking or other factors related to sales. A low inventory turnover ratio could also raise storage costs for the business.

It is important to note that businesses in different industries have different stock turnover ratios. For example, supermarkets have fast-moving stock and thus a higher stock turnover ratio. Businesses that sell carpets or cars have slow-moving stock, with a low stock turnover ratio. Therefore, generally, stock turnover ratios in different industries should not be compared.

Manufacturers also have slower stock turnover because it takes time to process raw materials. Businesses that provide services (such as banks, insurance or travel agents) do not have a lot of stock, and therefore this ratio is not a very useful measure for those businesses.

Exam tip

You will receive a formula sheet for the exam. All of the formulas in this subtopic are included on the formula sheet, so you do not need to memorise them. However, you do need to know which financial account provides the information and how to use the formulas to answer exam questions. You should also be able to interpret the results.

Debtor days

Some businesses are able to attract customers by selling goods on credit. This is especially true of businesses selling long-term consumer goods (such as cars, refrigerators and washing machines) and producer goods (such as machinery and delivery trucks). When selling goods on credit, the business must collect its money at a later time from these customers, or debtors as they are called. And it is important for businesses to collect their debts promptly. If it takes too long to collect the money from these debtors, the business could face cash flow problems (Subtopic 3.7 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39317)) and a disruption to the working capital cycle.

The debtor days ratio measures the average number of days it takes the business to collect its debts. Typically, credit periods can be 30, 60 or 90 days. The shorter the period, the better for the business. The debtor days ratio is calculated using the following formula:

$$\textbf{Debtor days} = \frac{\textbf{debtors}}{\textbf{sales revenue}} \times \textbf{365}$$

The value for debtors is taken from the statement of financial position (balance sheet). The sales revenue is obtained from the statement of profit or loss.

The example of the Riz and Javi supermarket, which also sells some durable consumer products, can be used again. Suppose the supermarket has a debtor value of $34 million and a total sales revenue of $500 million. The supermarket's debtor days is calculated as:

$$\text{Debtor days} = \frac{\text{debtors}}{\text{sales revenue}} \times 365$$

$$= \frac{\$34 \text{ million}}{\$500 \text{ million}} \times 365$$

= 24.82 (25) days

This is probably a good debtor days figure for the supermarket. A credit period longer than 30 days would impact a supermarket's cash flow negatively, as it needs to restock regularly. Generally, businesses should avoid high debtor days figures. However, if the debtor days are too low, the business could lose customers who need a bit longer to pay for the products. So a good balance needs to be found.

Figure 1. Supermarkets aim for low debtor days to ensure sufficient cash flow for replenishing stock.

Credit: triloks, Getty Images

Activity

Learner profile: Knowledgeable
Approaches to learning: Thinking skills (transfer)

Sadia Limited sells 3000 units of output at a unit price of $120. The company has debtors valued at $40 000.

- Calculate Sadia Limited's debtor days ratio.

Creditor days

Figure 2. Businesses often buy resources from suppliers on credit.

Credit: Clerkenwell, Getty Images

The creditor days ratio is an indicator of the average number of days it takes a business to pay its debts. It is fairly common for businesses to buy resources on credit, with a payment period of 30, 60 or 90 days, depending on the amount and the trust between the business and the supplier.

The creditor days ratio is calculated using the formula below:

$$\textbf{Creditor days} = \frac{\textbf{creditors}}{\textbf{cost of sales}} \times \textbf{365}$$

The creditors figure comes from the statement of financial position (balance sheet). The cost of sales figure comes from the statement of profit or loss (income statement or profit and loss account).

The longer the creditor days, the better for the business. A longer payment period means that the business does not have to spend cash in the working capital cycle as quickly. It reduces the pressure of the working capital cycle for the business. A shorter period, however, may reduce the cash available for the business in its operations.

Assume the Riz and Javi Supermarket has a creditors value of $45 million and its cost of sales, as in the earlier example, is $300 million. Then its creditor days ratio can be calculated as follows:

$$\text{Creditor days} = \frac{\text{creditors}}{\text{cost of sales}} \times 365$$

$$= \frac{\$45 \text{ million}}{\$300 \text{ million}} \times 365$$

= 54.75 (55) days

This is probably an acceptable creditor days period for the supermarket. It is not uncommon for suppliers to give credit terms of 30 to 60 days.

If Riz and Javi supermarket's debtor days are 31 days, and its creditor days are 55 days, the business is likely in a good position to deal with the delays that come between the collection of money from their debtors and the payment of what they owe to their own creditors. Generally, businesses will try to arrange a shorter period for debtor days and a longer period for creditor days, as this makes it easier to manage the working capital cycle. However, in all cases, the business needs to maintain good relationships with those with which it trades. So a balance needs to be found between the business's own interests and the interests of its customers (debtors) and suppliers (creditors).

International Mindedness

You should be aware of terminology used in different countries. The term 'debtors', used in the UK, is referred to as 'accounts receivable' in the US. And the term 'creditors', used in the UK, is referred to as 'accounts payable' in the US.

Gearing ratio

The gearing ratio measures how much of the business's capital employed is financed by long-term debt, such as non-current liabilities. The higher the gearing ratio, the more of the business's operations are funded by long-term debt. This is risky and may not be positive for the business because, if interest rates increase, then loan payments could rise and undermine profits and dividends to shareholders.

A gearing ratio of 25% is generally considered low. A gearing ratio of 25% to 50% would be considered normal for many businesses, especially those that are well-established. A gearing ratio above 50% is considered high.

The gearing ratio is calculated as follows:

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

$$\textbf{Capital employed} = \textbf{non-current liabilities} + \textbf{equity}$$

Assume the Riz and Javi supermarket has non−current liabilities of $240 million and a capital employed of $625 million. Both values required in the formula can be obtained from the statement of financial position (balance sheet). The gearing ratio for the Riz and Javi supermarket is calculated as follows:

$$\text{Gearing ratio} = \frac{\$240 \text{ million}}{\$625 \text{ million}} \times 100$$

$$= 38.4\ \%$$

This means that 38.4% of the company's operations are financed by long-term loans. This is within a normal range. However, the business may also want to find out what the average gearing ratio is in their industry to see how their business compares with other similar businesses.

Theory of Knowledge

When businesses analyse their gearing ratio, they should be able to put their financial calculations in the context of their organisational culture and the market in which they are operating.

High gearing ratios might be acceptable for multinational companies selling to mass markets. They may not, however, be as acceptable for a smaller business that sells in a niche market. The context also includes considerations of the social, economic and political environment in which a business operates. Countries and cultures will differ in their tolerance of debt and risk. The stability of the economic and political environment also plays a role in how a business might interpret its debt levels.

- To what extent should culture and the time period be incorporated into the evaluation of efficiency ratios?

Table 1. Summary of efficiency ratio formulas.

Type	Formula
Stock turnover ratio	$\text{Stock turnover ratio (number of times)} = \frac{\text{cost of sales}}{\text{average stock}}$ or $\text{Stock turnover (number of days)} = \frac{\text{average stock}}{\text{cost of sales}} \times 365$
Debtor days	$\text{Debtor days} = \frac{\text{debtors}}{\text{sales revenue}} \times 365$
Creditor days	$\text{Creditor days} = \frac{\text{creditors}}{\text{cost of sales}} \times 365$
Gearing ratio	$\text{Gearing ratio} = \frac{\text{non-current liabilities}}{\text{capital employed}} \times 100$ $\text{Capital employed} = \text{non-current liabilities} + \text{equity}$

Case study

Apple is an American multinational technology company that specialises in consumer electronics, software and online services. However, is Apple financially efficient?

Figure 3. An Apple store.
Source: "Apple Store (https://commons.wikimedia.org/wiki/File:Applemorumbi.jpg)" by Diegogo08 is licensed under CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0/)

Look at the data in **Table 2** and answer the questions that follow:

Table 2. Apple's financial data in the quarter ending 25 December 2021.
Sources: Apple Newsroom (https://www.apple.com/newsroom/2022/01/apple-reports-first-quarter-results/) a
(https://www.macrotrends.net/stocks/charts/AAPL/apple/inventory#:~:text=Apple%20inventory%20for%20the%20quarter,a%203.

Sales revenue	
Cost of sales	
Average stock	
Debtors	
Creditors	
Non-current liabilities	
Equity	

Questions

1. Calculate Apple's stock turnover ratio. [2 marks]
2. Calculate Apple's debtor days. [2 marks]
3. Calculate Apple's creditor days. [2 marks]
4. Calculate Apple's gearing ratio. [2 marks]