3.5 Profitability and liquidity ratio analysis

Profitability ratios I: Gross profit margin and profit margin

Profitability ratios show a company's profit in relation to other financial figures. For example, profits can be compared as a ratio to sales revenue or to the value of capital used in the business. Businesses are interested in profitability ratios because they help the business understand how well it is using the spending on resources to generate profit. Profitability ratios are also important for helping investors decide whether or not to invest in the business. High profitability may mean higher dividends for shareholders.

Concept

Sustainability (economic)

Businesses/entrepreneurs are risk-takers and seek to make a profit and to continue their businesses. Sustaining business activity is especially important when businesses are providing for human needs, supporting the wellbeing of varied stakeholders in the community, and providing tax revenue to support public services.

Ratio analysis helps a business understand its financial performance more clearly, so it can take steps to sustain its business into the future.

Gross profit margin (GPM)

Making connections

Businesses use the statement of profit or loss (Subtopic 3.4 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39045)) for the data needed to calculate gross profit margin and net profit margin.

You will remember from Subtopic 3.4 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39045) that gross profit is the revenue remaining after a business has subtracted the cost of sales. The gross profit margin (GPM) compares the gross profit to the sales revenue. It is calculated with the following formula and is expressed as a percentage:

$$\textbf{Gross profit margin} = \frac{\textbf{gross profit}}{\textbf{sales revenue}} \times \textbf{100}$$

The statement of profit or loss for the fictional company Pap-Pie Ltd (**Table 1**) can be used to find the gross profit margin for the business. This is the same data you saw in Subtopic 3.4 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39045), without the details on cost of sales and expenses.

Table 1 . Statement of profit or loss for Pap-Pie Ltd for the year ending 31 December 2021.

	$
Sales revenue	1000000
1 000 000	(450000)
Gross profit	550000
Expenses	(240000)
Profit before interest and tax	310000
Interest	(10000)
Profit before tax	300000
Tax (15%)	(45000)
Profit for the period	255000
Dividends	150000
Retained profit	105000

The gross profit margin for Pap-Pie Ltd is calculated as follows:

$$\text{GPM} = \frac{\$550\ 000}{\$1\ 000\ 000} \times 100$$

$$= 55\%$$

This means that every \$100 of sales revenue generates a gross profit of \$55. This is the excess revenue over the cost of sales; the margin or difference between the sales revenue and the cost of sales. Therefore, the higher the GPM figure, the better for Pap-Pie Ltd. In the event that the figure is low, the business may consider strategies to increase it.

Strategies to improve GPM

To increase its gross profit margin, a business can use a combination of strategies that either increase sales revenue or reduce its cost of sales. These are outlined in **Table 2** and **Table 3**.

Table 2. Benefits and limitations of strategies to improve sales revenue.

Strategies	Benefits	Limitations
Diversification (products and markets)	Different products may have higher gross profit margins. This can also reduce risk for the business.	Can be costly and risky (Section 1.5.7 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/tool-ansoff-matrix-id-36539)).

Strategies	Benefits	Limitations
Lowering prices	Can increase sales and sales revenue (HL Section 4.5.4 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/further-pricing-methods-id-39008)).	Only works if the business achieves economies of scale to lower costs of production. May not be possible for small businesses.
Increasing prices	Can increase sales revenue, especially where the product has little competition and/or loyal customers (HL Section 4.5.4 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/further-pricing-methods-id-39008)).	In a competitive market, increasing prices may cause sales to decline significantly, lowering sales revenue and GPM.

Table 3. Benefits and limitations of strategies to decrease cost of sales.

Strategies	Benefits	Limitations
Economies of scale	Purchasing economies of scale would reduce the unit costs and result in higher profit margins.	Economies of scale may only be available to large companies. May not be possible for small businesses.

Strategies	Benefits	Limitations
Using lower cost suppliers	Lower cost suppliers would reduce cost of sales.	Could threaten the quality of products and harm revenues.
Reducing direct labour costs	Productivity can be improved and costs can be reduced either by hiring fewer workers who are directly involved in production, or by using non-financial motivation strategies (Subtopic 2.4 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39054)).	Pressure on production workers could increase labour turnover, increasing costs of recruiting and training (and affecting other profitability ratios).

Activity

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

Figure 1. Ed Supplies is an educational supplies business.
Credit: Morsa Images, Getty Images

Ed Supplies (*ES*) is an educational supplies business in the United Arab Emirates (UAE). Its head office is located in an expensive area in Dubai. The managing director and head of sales each receive large annual bonuses and special allowances such as free housing.

ES orders supplies mainly from relatively expensive suppliers in the United Kingdom (UK). But ES has been charging a relatively low price for its products, even though the market is not very competitive. It has 10 employees and has a warehouse to store the products. In 2021, it had sales revenue of 40 million AED. It also had an annual gross profit of 20 million AED. Its expenses were 15 million AED.

Questions

1. Calculate the gross profit margin of ES. [2 marks]
2. Explain two strategies that ES could use to improve its gross profit margin. [4 marks]

Profit margin (PM)

The profit margin (PM) shows the profit before income and tax as a percentage of sales revenue. It is an important ratio as it shows how well managers can control indirect costs, also known as overheads or expenses. These are costs not directly related to the production of a good or service. They include costs such as rent, administrative staff salaries, insurance, promotion and other costs.

The formula for the profit margin is:

$$\textbf{Profit margin} = \frac{\textbf{profit before interest and tax}}{\textbf{sales revenue}} \times \textbf{100}$$

Exam tip

The profit before interest and tax in the numerator of the profit margin formula is often called 'earnings before interest and tax' (EBIT) or simply 'operating profit'.

From the statement of profit or loss of Pap-Pie Ltd in **Table 1**, the profit before interest and tax is \$310 000 and the sales revenue \$1 000 000. The profit margin is therefore calculated as:

$$\text{PM} = \frac{\$310\ 000}{\$1\ 000\ 000} \times 100$$

$$= 31\%$$

This indicates that out of every \$100 in sales revenue, \$31 is the company's profit after the cost of sales and all expenses have been deducted.

The profit margin is a better measure of profitability than the gross profit margin. The profit margin takes into account both the direct costs of producing the products and the indirect costs or expenses.

For-profit commercial enterprises often aim for high and increasing profit margins. A business may also compare their profit margin with that of its competitors as a way of evaluating financial performance. These businesses may use strategies to improve the profit margin ratio. Any steps to improve gross profit margin, such as raising revenue through higher prices or reducing cost of sales, will also improve the profit margin for a business. However, if the business also reduces its expenses, the profit margin can improve even more. It may be possible for a business to reduce the following expenses:

- **Rent.** This could be achieved by negotiating a lower rental payment for existing premises, or by relocating to new premises. The disadvantage of moving may be that the new location is less convenient for customers or has lower quality facilities.
- **Electricity.** This could be achieved by monitoring and lowering electricity use, or by using alternative, lower-cost sources of

energy. The business must ensure, however, that lower electricity use does not result in a lower quality product.

- **Stationery.** A business could aim to lower paper use by relying more on digital communication. However, this could also increase energy use, causing higher expenses elsewhere.
- **Administration costs.** This could be achieved through reducing administrative staffing or by lowering salaries or perks. However, the business must be careful not to damage staff motivation by taking these measures (Subtopic 2.4 (/study/app/y12-business-management-a-hl-may-2024/sid-351-cid-174702/book/the-big-picture-id-39054)).

For-profit social enterprises may interpret gross profit margin and profit margins differently from for-profit commercial enterprises. If a for-profit social enterprise is offering its socially or environmentally beneficial products at an affordable price to increase positive impact, then it could be that profitability is lower. Likewise, it could be that paying workers a living and fair wage, working to regenerate ecosystems, or engaging in other ways to distribute value to more stakeholders will result in higher costs and lower gross profit margin and profit margin. This doesn't mean that the business is doing poorly, just that the value it is generating is realised and distributed in other ways.

Thus, it is important to understand that profitability, as measured through these relatively narrow profitability metrics, is not the only way to judge the value that a business is generating, or even how efficient it is.

Theory of Knowledge

You have already learned that changes in the external environment can have an impact on business operations. Recent changes in environmental, sociocultural and economic factors are causing businesses and their stakeholders to reassess their interpretations of profitability ratios.

Given the rapid degradation of the natural environment and threats of climate change, as well as rising economic inequality, society has begun to question the business goals of maximising profit and delivering value to a narrow group of shareholders.

- How does this sociocultural change, influenced by changes to the natural environment and economic conditions, impact our understanding and interpretation of profitability ratios, as well as business objectives related to those ratios?

Activity

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

Use the information given in the previous activity about Ed Supplies (*ES*) to answer the questions below.

In 2021, *ES* had sales revenue of 40 million AED. It also had an annual gross profit of 20 million AED. Its expenses were 15 million AED.

Questions

1. Calculate *ES*'s profit margin. [2 marks]
2. Explain two strategies that *ES* could take to improve its profit margin. [4 marks]

Activity

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

Examine the financial data for Company A in **Table 2** and answer the questions below.

Table 2. Partial statement of profit or loss for Company A (in thousands of $)

	2020	2021
Sales revenue	2000	2400
Cost of sales	1200	1480
Gross profit	800	920
Expenses	600	600

	2020	2021
Profit before income and tax	200	320

Questions

1. Calculate the GPM and PM in 2020 and 2021.
2. Why did the GPM decrease from 2020 to 2021, but the PM increase?