3.3 Ratio analysis

Name: _____ Class: _____ Date: _____ **Total: 30 marks**

KEY WORDS gross profit margin • return on capital employed • current ratio • acid-test ratio • gearing • liquidity

Objective

Build the skills to answer exam questions on **ratio analysis** : profitability and liquidity ratios, and at HL efficiency ratios and gearing, and strategies to improve them.

You must be able to:

- calculate and interpret the gross profit margin, profit margin and ROCE
- calculate and interpret the current ratio and the acid-test ratio
- suggest strategies to improve profitability and liquidity
- calculate and interpret inventory turnover, debtor days, creditor days and gearing

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1 Key knowledge and worked examples

■ Ratio analysis

ratio	formula	what it shows
gross profit margin	$\frac{\text{gross profit}}{\text{sales revenue}} \times 100$	how well the firm controls direct costs and sets prices
profit margin	$\frac{\text{profit before interest and tax}}{\text{sales revenue}} \times 100$	how well it controls all its costs
return on capital employed (ROCE)	$\frac{\text{profit before interest and tax}}{\text{capital employed}} \times 100$	profit made on the money invested; capital employed = non-current liabilities + equity
current ratio	$\frac{\text{current assets}}{\text{current liabilities}}$	can it pay short-term debts? about 1.5–2 is often thought healthy
acid-test (quick) ratio	$\frac{\text{current assets} - \text{inventories}}{\text{current liabilities}}$	the same without stock, which may be hard to sell quickly; about 1 is often thought healthy

Improving profitability: raise prices (if demand is price-inelastic), find cheaper suppliers, cut waste and expenses, improve productivity, market higher-margin products. **Improving liquidity:** sell surplus stock, collect debts faster, delay payments to suppliers, sale and leaseback, a long-term loan to replace an overdraft.

Ratios must be **compared**: with past years, with competitors, with the industry. Limits: they use past data, ignore non-financial factors, and depend on how the accounts were prepared.

AHL – efficiency and gearing:

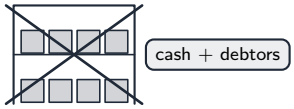
- **inventory turnover** (times) $= \frac{\text{cost of sales}}{\text{average stock}}$, or in days $= \frac{\text{average stock}}{\text{cost of sales}} \times 365$;
- **debtor days** $= \frac{\text{trade receivables}}{\text{sales revenue}} \times 365$: how long customers take to pay;
- **creditor days** $= \frac{\text{trade payables}}{\text{cost of sales}} \times 365$: how long the firm takes to pay suppliers;
- **gearing** $= \frac{\text{non-current liabilities}}{\text{capital employed}} \times 100$: over 50% is usually high, so the firm is at risk if interest rates rise.

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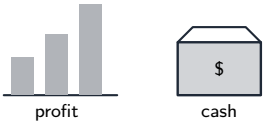
Answer shapes: formula → substitute → answer with units (%, : 1, days) → interpret against a benchmark → one strategy with a drawback.

2 Practice

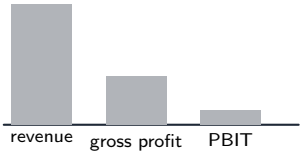
2.1 State the formula for the acid-test ratio, and explain why it leaves out inventories. [2]



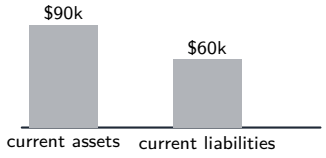
2.2 Distinguish between profitability and liquidity. [2]



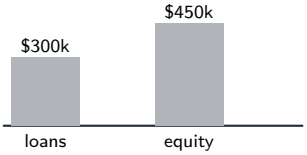
2.3 A firm has sales revenue of $400,000, gross profit of $160,000 and profit before interest and tax of $48,000. Calculate its gross profit margin and its profit margin. [4]



2.4 A shop has current assets of $90,000 and current liabilities of $60,000. Calculate its current ratio and comment on the result. [2]



2.5 A firm has non-current liabilities of $300,000 and equity of $450,000. Its trade receivables are $50,000 and its sales revenue is $365,000. Calculate (a) its gearing ratio and (b) its debtor days. [4]



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3 Exam-style questions

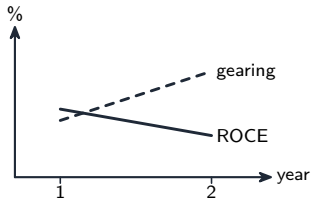
3.1 Nimbus Accessories sells phone cases and chargers. Its ratios for two years are shown. In year 2 it bought a large amount of stock of a new charger, which has sold slowly.

Using the data, discuss strategies Nimbus could use to improve its profitability and liquidity. [10]

ratio	year 1	year 2
gross profit margin	45%	38%
profit margin	15%	9%
current ratio	1.6	1.1
acid-test ratio	1.0	0.6

3.2 Over the same period, Nimbus's ROCE fell from 18% to 11% and its gearing rose from 30% to 55%.

Explain the risks this creates for Nimbus, and evaluate **one** strategy to reduce its gearing. [6]



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Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

(current assets − inventories) ÷ current liabilities; inventories may be hard to sell quickly for cash, so the ratio gives a stricter test of liquidity

2.2

profitability: the ability to make profit from sales or capital; liquidity: the ability to pay short-term debts as they fall due

2.3

$160\,000 \div 400\,000 \times 100 = \mathbf{40}\%$; $48\,000 \div 400\,000 \times 100 = \mathbf{12}\%$

2.4

$90\,000 \div 60\,000 = \mathbf{1.5}$ (or 1.5 : 1); within the range often seen as healthy: it can cover its short-term debts

2.5

(a) capital employed $= 300\,000 + 450\,000 = 750\,000$; gearing $= 300\,000 \div 750\,000 \times 100 =$ **40**%; (b) $50\,000 \div 365\,000 \times 365 =$ **50** days

3.1

award up to [10]: profitability fell: gross profit margin 45% to 38% and profit margin 15% to 9%; possible causes: higher supplier costs or price cuts / rising expenses; liquidity fell: current ratio 1.6 to 1.1, acid-test 1.0 to 0.6, the gap shows much cash tied up in stock; strategies: sell slow charger stock at a discount: improves cash, but lowers margins further; negotiate better supplier prices or switch suppliers: improves GPM, but may affect quality; cut expenses (marketing, rent); delay payments to suppliers / collect debts faster; better stock control to avoid over-buying; judgement: liquidity is the urgent problem (acid-test 0.6), so clear the stock first

3.2

gearing above 50% means the firm is highly dependent on long-term loans; interest payments are a fixed burden; rising interest rates raise costs; lenders may refuse further loans; shareholders face more risk; falling ROCE means less profit to cover interest; strategy, e.g. issue new shares / use retained profit to repay loans / sell unused assets; evaluated: e.g. new shares lower gearing but dilute ownership and control

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