

Homework — Diagnosing a Business with Ratios

Optional. Worked solutions are on the website

Practice problems

2.1

- Over three years a company's revenue grows 60%, its receivables grow 55%, its inventory grows 140%, and its payables grow 58%. Which line deserves investigation, and what are two possible explanations?
- A company's operating overhead is 22% of sales in Year 1 and 17% of sales in Year 3, while revenue doubles. Is this good news? Give one reading that is good news and one that is bad news.
- Explain in three sentences why comparing the raw cedi value of two companies' inventory is almost never informative, and what you would compare instead.

2.2

- Firm A has a 6% profit margin, 1.5 asset turnover, and 2.0 leverage. Firm B has a 3% margin, 3.0 turnover, and 2.0 leverage. Compute ROE for each. Describe in two sentences what kind of business each is likely to be.
- A company's ROE rises from 14% to 19% over two years. Its profit margin falls from 5.0% to 4.2% and its asset turnover falls from 1.8 to 1.6. Compute the leverage figure in each year. What should a lender conclude?
- Adom's asset turnover fell from 2.667 to 2.353 between Year 1 and Year 3. Using Year 3 revenue of GH¢80M, calculate how much smaller Adom's total assets would have been in Year 3 if it had maintained Year 1 turnover. Comment on the size of that figure relative to Adom's GH¢16.5M of total debt.

2.3

- A company has revenue of GH¢28M, cost of goods sold of GH¢19.6M, overhead of GH¢4.2M, depreciation of GH¢1.1M, interest of GH¢900K, and a 25% tax rate. Compute all three margins and both gaps.
- A distributor's gross margin falls from 18% to 14% over two years while its operating margin is unchanged at 6%. What must have happened to overhead as a share of sales? Give one benign explanation and one worrying one.
- Adom's Year 3 interest expense is GH¢1.2M. Opening debt was GH¢9.4M; debt closed the year at GH¢16.5M. Compute the implied average interest rate using opening debt. Then compute what Adom's net income would be if that rate rose by four percentage points with everything else unchanged.

2.4

1. A colleague computes days inventory outstanding as $\text{inventory} \times 365 / \text{revenue}$ and gets 34 days for a firm with a 40% gross margin. Compute the correct figure and explain the direction and size of the error.
2. A firm's DSO rises from 38 to 52 days while revenue is flat at GH¢60M. How much additional cash is tied up in receivables?
3. A supermarket chain reports DSO of 3 days, DIO of 28 days, and DPO of 45 days. A construction contractor reports DSO of 95 days, DIO of 60 days, and DPO of 50 days. Explain the difference in business terms, and say which of the two is more likely to need a bank overdraft.

2.5

1. A firm has DIO of 44 days, DSO of 51 days, and DPO of 38 days. Compute the cash conversion cycle, and describe in one sentence what it means in terms of a single cedi moving through the business.
2. Explain why the cash conversion cycle subtracts days payable rather than adding it, and why a company might choose not to stretch its payables even when it could.
3. Adom's CCC is 69.8 days against a peer norm of 19 days. Using Year 3 cost of goods sold of GH¢68M as a rough daily-cost base, estimate the cash impact of closing half the gap. Compare your answer with the GH¢10.41M figure computed in the video and explain why the two methods differ.

2.6

1. Compute times interest earned, the current ratio, and the quick ratio for a firm with operating income of GH¢3.6M, interest of GH¢1.1M, cash of GH¢400K, receivables of GH¢5.2M, inventory of GH¢4.4M, and current liabilities of GH¢6.8M. Interpret each in one sentence.
2. Explain why a company with a current ratio of 2.0 might be in worse shape than a company with a current ratio of 1.2. Give two specific circumstances.
3. A firm has a times-interest-earned ratio of 4.5 and has just missed a scheduled loan repayment. Give two explanations that are fully consistent with both facts.
4. Write a six-sentence diagnosis, in the style used in the video, for a firm with the following pattern: gross margin down from 32% to 24%; overhead flat at 14% of sales; DSO steady at 41 days; DIO up from 55 to 95 days; DPO steady at 40 days; debt-to-assets steady at 30%; TIE down from 6.0 to 2.8. Include one operational recommendation and one financing recommendation.