

# Examples of Questions on Ratio Analysis

## A: Multiple Choice Questions

1. Which of the following is considered a profitability measure?
  - a. Days sales in inventory
  - b. Fixed asset turnover
  - c. Price-earnings ratio
  - d. Cash coverage ratio
  - e. Return on Assets
  
2. Firm A has a Return on Equity (ROE) equal to 24%, while firm B has an ROE of 15% during the same year. Both firms have a total debt ratio (D/V) equal to 0.8. Firm A has an asset turnover ratio of 0.9, while firm B has an asset turnover ratio equal to 0.4. From this we know that
  - a. Firm A has a higher profit margin than firm B
  - b. Firm B has a higher profit margin than firm A
  - c. Firm A and B have the same profit margin
  - d. Firm A has a higher equity multiplier than firm B
  - e. You need more information to say anything about the firm's profit margin
  
3. If a firm has \$100 in inventories, a current ratio equal to 1.2, and a quick ratio equal to 1.1, what is the firm's Net Working Capital?
  - a. \$0
  - b. \$100
  - c. \$200
  - d. \$1,000
  - e. \$1,200
  
4. To measure a firm's solvency as completely as possible, we need to consider
  - a. The firm's relative proportion of debt and equity in its capital structure
  - b. The firm's capital structure and the liquidity of its current assets
  - c. The firm's ability to use Net Working Capital to pay off its current liabilities
  - d. The firm's leverage and its ability to make interest payments on its long-term debt
  - e. The firm's leverage and its ability to turn its assets over into sales

## B: Problem Solving Questions

You have been hired as an analyst for Mellon Bank and your team is working on an independent assessment of Daffy Duck Food Inc. (DDF Inc.) DDF Inc. is a firm that specializes in the production of freshly imported farm products from France. Your assistant has provided you with the following data for Flipper Inc and their industry.

| Ratio                      | 1999  | 1998  | 1997  | 1999-<br>Industry<br>Average |
|----------------------------|-------|-------|-------|------------------------------|
| Long-term debt             | 0.45  | 0.40  | 0.35  | 0.35                         |
| Inventory Turnover         | 62.65 | 42.42 | 32.25 | 53.25                        |
| Depreciation/Total Assets  | 0.25  | 0.014 | 0.018 | 0.015                        |
| Days' sales in receivables | 113   | 98    | 94    | 130.25                       |
| Debt to Equity             | 0.75  | 0.85  | 0.90  | 0.88                         |
| Profit Margin              | 0.082 | 0.07  | 0.06  | 0.075                        |
| Total Asset Turnover       | 0.54  | 0.65  | 0.70  | 0.40                         |
| Quick Ratio                | 1.028 | 1.03  | 1.029 | 1.031                        |
| Current Ratio              | 1.33  | 1.21  | 1.15  | 1.25                         |
| Times Interest Earned      | 0.9   | 4.375 | 4.45  | 4.65                         |
| Equity Multiplier          | 1.75  | 1.85  | 1.90  | 1.88                         |

- a. In the annual report to the shareholders, the CEO of Flipper Inc wrote, "1997 was a good year for the firm with respect to our ability to meet our short-term obligations. We had higher liquidity largely due to an increase in highly liquid current assets (cash, account receivables and short-term marketable securities)." Is the CEO correct? Explain and use only relevant information in your analysis.
- b. What can you say about the firm's asset management? Be as complete as possible given the above information, but do not use any irrelevant information.
- c. You are asked to provide the shareholders with an assessment of the firm's solvency and leverage. Be as complete as possible given the above information, but do not use any irrelevant information.

## ANSWERS:

Answer 1: e

Answer 2: b (Profit margin of firm A=5.33% and for firm B=7.5% - use Du Pont Identity)

Answer 3:  $CA/CL=1.2$  and  $(CA-100)/CL=1.1 \Rightarrow$  solve and find  $CL=1,000$  and  $CA=1,200 \Rightarrow$  answer c

Answer: d

## ANSWERS TO PROBLEM: (note that these are just examples of a good answer)

- a. The answer should be focused on using the current and quick ratios. While the current ratio has steadily increased, it is to be noted that the liquidity has not resulted from the most liquid assets as the CEO proposes. Instead, from the quick ratio one could note that the increase in liquidity is caused by an increase in inventories. For a fresh food firm one could argue that inventories are relatively liquid when compared to other industries. Also, given the information, the industry-benchmark can be used to derive that the firm's quick ratio is very similar to the industry level and that the current ratio is indeed slightly higher - again, this seems to come from inventories.
- b. Inventory turnover, days sales in receivables, and the total asset turnover ratio are to be mentioned here. Inventory turnover has increased over time and is now above the industry average. This is good - especially given the fresh food nature of the firm's industry. In 1999 it means for example that every  $365/62.65 = 5.9$  days the firm is able to sell its inventories as opposed to the industry average of 6.9 days. Days' sales in receivables has gone down over time, but is still better than the industry average. So, while they are able to turn inventories around quickly, they seem to have more trouble collecting on these sales, although they are doing better than the industry. Finally, total asset turnover is went down over time, but it is still higher than the industry average. It does tell us something about a potential problem in the firm's long term investments, but again, they are still doing better than the industry.
- c. Solvency and leverage is captured by an analysis of the capital structure of the firm and the firm's ability to pay interest. Capital structure: Both the equity multiplier and the debt-to-equity ratio tell us that the firm has become less levered. To get a better idea about the proportion of debt in the firm, we can turn the D/E ratio into the D/V ratio: 1999: 43%, 1998: 46%, 1997:47%, and the industry-average is 47%. So based on this, we would like to know why this is happening and whether this is good or bad. From the numbers it is hard to give a qualitative judgement beyond observing the drop in leverage. In terms of the firm's ability to pay interest, 1999 looks pretty bad. However, remember that times interest earned uses EBIT as a proxy for the ability to pay for interest, while we know that we should probably consider cash flow instead of earnings. Based on a relatively large amount of depreciation in 1999 (see info), it seems that the firm is doing just fine.