

Chapter 17: Financial Statement Analysis

1. [Note: On page 477 in the text, End of Year Total current assets in the Balance Sheet at the bottom of the page should be 4,336 rather than the figure in the text which is 4,366.]

a. Long-term debt ratio = $\frac{8,632}{8,632 + 11,960} = 0.42$

b. Total debt ratio = $\frac{5,897 + 8,632 + 7,599}{34,088} = 0.65$

c. Times interest earned = $\frac{3,156}{843} = 3.74$

d. Cash coverage ratio = $\frac{3,156 + 3,097}{843} = 7.42$

e. Current ratio = $\frac{4,336}{5,897} = 0.74$

f. Quick ratio = $\frac{109 + 2,930}{5,897} = 0.52$

g. Operating profit margin = $\frac{1,612 + 843}{16,277} = 0.151 = 15.1\%$

h. Inventory turnover = $\frac{4,994}{(231 + 293) / 2} = 19.06$

i. Days sales in inventory = $\frac{(231 + 293) / 2}{4,994 / 365} = 19.15$ days

j. Average collection period = $\frac{(2,930 + 3,063) / 2}{16,277 / 365} = 67.19$ days

$$k. \quad \text{Return on equity} = \frac{1,612}{(11,960 + 11,218)/2} = 0.139 = 13.9\%$$

$$l. \quad \text{Return on assets} = \frac{1,612 + 843}{(34,088 + 33,828)/2} = 0.072 = 7.2\%$$

$$m. \quad \text{Payout ratio} = \frac{1,175}{1,612} = 0.73$$

$$3. \quad \text{Earnings per share} = \text{€}1,612 \text{ million}/195 \text{ million} = \text{€}8.27$$

$$\text{Price-earnings ratio} = \text{€}22.3 \text{ billion}/\text{€}1.612 \text{ billion} = 13.8$$

$$4. \quad a. \quad \text{ROE} = \frac{1,612}{(11,960 + 11,218)/2} = \frac{1,612}{11,589} = 0.1391 = 13.91\%$$

$$b. \quad \frac{\text{Assets}}{\text{Equity}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Net income} + \text{interest}}{\text{Sales}} \times \frac{\text{Net income}}{\text{Net income} + \text{interest}} =$$

$$\frac{33,958}{11,589} \times \frac{16,277}{33,958} \times \frac{1,612 + 843}{16,277} \times \frac{1,612}{1,612 + 843} = 0.1391 = 13.91\%$$

(Notice that we have used average assets and average equity in this solution.)

$$5. \quad \text{ROA} = \frac{\text{Net income} + \text{interest}}{\text{Average total assets}} = \frac{1,612 + 843}{33,958} = 0.0723 = 7.23\%$$

$$\text{Asset turnover} = \frac{\text{Sales}}{\text{Average total assets}} = \frac{16,277}{33,958} = 0.4793 = 47.93\%$$

$$\text{Operating profit margin} = \frac{\text{Net income} + \text{interest}}{\text{Sales}} = \frac{1,612 + 843}{16,277} = 0.1508 = 15.08\%$$

$$\text{Asset turnover} \times \text{Operating profit margin} = 0.4793 \times 0.1508 = 0.0723 = \text{ROA}$$

6. Balance sheets for MedPhone Corp:

	Dollar amounts		Common-size (% amounts)	
	End of year	Start of year	End of year	Start of year
<u>Assets</u>				
Cash & marketable securities	€ 109	€ 194	0.32%	0.57%
Receivables	2,930	3,063	8.60%	9.05%
Inventories	231	293	0.68%	0.87%
Other current assets	<u>1,066</u>	<u>1,146</u>	<u>3.13%</u>	<u>3.39%</u>
Total current assets	4,336	4,696	12.72%	13.88%
Net property, plant, and equipment	24,567	24,495	72.07%	72.41%
Other long-term assets	<u>5,185</u>	<u>4,637</u>	<u>15.21%</u>	<u>13.71%</u>
Total assets	€34,088	€33,828	100.00%	100.00%
<u>Liabilities and Shareholder's Equity</u>				
Payables	€3,154	€3,739	9.25%	11.05%
Short-term debt	1,745	1,935	5.12%	5.72%
Other current liabilities	<u>998</u>	<u>968</u>	<u>2.93%</u>	<u>2.86%</u>
Total current liabilities	5,897	6,642	17.30%	19.63%
Long-term debt and leases	8,632	8,405	25.32%	24.85%
Other long-term liabilities	7,599	7,563	22.29%	22.36%
Shareholders' equity	<u>11,960</u>	<u>11,218</u>	<u>35.09%</u>	<u>33.16%</u>
Total Liabilities & Shareholders' equity	€34,088	€33,828	100.00%	100.00%

10. a. Current ratio will be unaffected. Inventories are replaced with either cash or accounts receivable, but total current assets are unchanged.
- b. Current ratio will be unaffected. Accounts due are replaced with the bank loan, but total current liabilities are unchanged.
- c. Current ratio will be unaffected. Receivables are replaced with cash, but total current assets are unchanged.
- d. Current ratio will be unaffected. Inventories replace cash, but total current assets are unchanged.

14. Annual cost of goods sold = \$10,000 × 365/30 = \$121,667

$$\text{Inventory turnover} = \frac{121,667}{10,000} = 12.167 \text{ times per year}$$

25. ***Income Statement***

	<u>Millions of dollars</u>
Net sales	\$199.93
Cost of goods sold	120.00
Selling, general & administrative expenses	10.00
Depreciation	<u>20.00</u>
EBIT	49.93
Interest expense	<u>6.27</u>
Income before tax	43.66
Tax	<u>30.13</u>
Net income	\$ 13.53

Balance Sheet

	<u>Millions of dollars</u>	
	<u>This year</u>	<u>Last year</u>
Assets		
Cash and marketable securities	\$ 11	\$ 20
Receivables	44	34
Inventories	<u>22</u>	<u>26</u>
Total current assets	77	80
Net property, plant, equipment	<u>38</u>	<u>25</u>
Total assets	\$115	\$105
Liabilities & Shareholders' Equity		
Accounts payable	\$ 25	\$ 20
Notes payable	<u>30</u>	<u>35</u>
Total current liabilities	55	55
Long-term debt	24	20
Shareholders' equity	<u>36</u>	<u>30</u>
Total liabilities & Shareholders' equity	\$115	\$105

Solution Procedure:

1. Total current liabilities = $25 + 30 = 55$
2. Total current assets = $55 \times 1.4 = 77$
3. Cash = $55 \times 0.2 = 11$
4. Accounts receivable + cash = $55 \times 1.0 = 55$
5. Accounts receivable = $55 - \text{cash} = 55 - 11 = 44$
6. Inventories = $77 - 11 - 44 = 22$
7. Total assets = Total liabilities and Shareholders' equity = 115
8. Net Property, plant, equipment = $115 - 77 = 38$
9. Cost of goods sold = Inventory turnover \times Avg. inventory = $5.0 \times (22 + 26)/2 = 120$
10. Sales = (365/Collection period) \times Average receivables
= $(365/71.2) \times [(44 + 34)/2] = 199.93$
11. EBIT = $199.93 - 120 - 10 - 20 = 49.93$
12. Net income + interest = EBIT - tax = ROA \times Average total assets =
 $0.18 \times (115 + 105)/2 = 19.8$
13. Tax = $49.93 - 19.8 = 30.13$
14. LT Debt + equity = $115 - \text{Current liabilities} = 115 - 55 = 60$
15. LT debt = LT debt ratio \times 60 = $0.4 \times 60 = 24$
16. Shareholders' equity = $60 - 24 = 36$
17. Net income = ROE \times Average equity = $0.41 \times [(36+30)/2] = 13.53$
18. Income before tax = $30.13 + 13.53 = 43.66$
19. Interest expense = EBIT - Income before taxes = $49.93 - 43.66 = 6.27$