FIN104 Tutorial Questions - Week 4

1. Market Value Added. Here is a simplified balance sheet for Locust Farming (CH4.Q1):

Current assets	\$42,524	Current liabilities	\$29,755
Long-term assets	46,832	Long-term debt	27,752
		Other liabilities	14,317
		Equity	17,532
Total	\$89,356	Total	\$89,356

Locust has 657 million shares outstanding with a market price of \$83 a share.

a. Calculate the company's market value added.
b. Calculate the market-to-book ratio.
c. How much value has the company created for its shareholders as a percent of shareholders' equity, that is, as a percent of the net capital contributed by shareholders)?

Answers:

a. Market value = 657 mil × \$83 = \$54,531 million

Market value added = 54,531 – 17,532 = \$36,999 million

b. Market / book = 54,531 / 17,532 = 3.11

c.The company has increased the value of the equity investment by \$36,999 million, which is 211% of shareholders' equity on the balance sheet.

2. Financial Ratios. Here are simplified financial statements for Phone Corporation in 2017(CH4.Q7):

INCOME STATEMENT (Figures in $ millions)	
Net sales	$13,193
Cost of goods sold	4,060
Other expenses	4,049
Depreciation	2,518
Earnings before interest and taxes (EBIT)	$ 2,566
Interest expense	685
Income before tax	$ 1,881
Taxes (at 35%)	658
Net income	$ 1,223
Dividends	856

BALANCE SHEET (Figures in $ millions)	End of Year	Start of Year
Assets		
Cash and marketable securities	$ 89	$ 158
Receivables	2,382	2,490
Inventories	187	238
Other current assets	867	932
Total current assets	$ 3,525	$ 3,818
Net property, plant, and equipment	19,973	19,915
Other long-term assets	4,216	3,770
Total assets	$27,714	$27,503
Liabilities and shareholders' equity		
Payables	$ 2,564	$ 3,040
Short-term debt	1,419	1,573
Other current liabilities	811	787
Total current liabilities	$ 4,794	$ 5,400
Long-term debt and leases	7,018	6,833
Other long-term liabilities	6,178	6,149
Shareholders' equity	9,724	9,121
Total liabilities and shareholders' equity	$27,714	$27,503

Calculate the following financial ratios for Phone Corporation

using the methodologies listed for each part:

a. Return on equity (use average balance sheet figures)

b. Return on assets (use average balance sheet figures)

c. Return on capital (use average balance sheet figures)

d. Days in inventory (use start-of-year balance sheet figures)

e. Inventory turnover

f. Average collection period (use start-of-year balance sheet figures)

g. Operating profit margin

h. Long-term debt ratio (use end-of-year balance sheet figures)

i. Total debt ratio (use end-of-year balance sheet figures)

j. Time's interest earned

k. Cash coverage ratio

l. Current ratio (use end-of-year balance sheet figures)

m. Quick ratio (use end-of-year balance sheet figures)

Answers:

a. Return on equity $= \frac{1{,}223}{(9{,}724 + 9{,}121)/2} = 0.129796 = 13\%$

b. Return on assets $= \frac{1{,}223 + 685 \times (1 - .35)}{(27{,}714 + 27{,}503)/2} = 0.0604 = 6.04\%$

c. Return on capital $= \frac{1{,}223 + 685\ ´\ (1 - .35)}{[(7{,}018 + 9{,}724) + (6{,}833 + 9{,}121)]/2} = 0.1020 = 10.20\%$

d. Days sales in inventory $= \frac{238}{4{,}060/365} = 21.40 \text{ days}$

e. Inventory turnover $= \frac{4,060}{(187 + 238)/2} = 19.11$

f. Average collection period $= \frac{2,490}{13,193/365} = 68.89 \text{ days}$

g. Operating profit margin $= \frac{1,223 + 685 \times (1 - .35)}{13,193} = 0.1264 = 12.64\%$

h. Long-term debt ratio $= \frac{7,018}{7,018 + 9,724} = 0.42$

i. Total debt ratio $= \frac{4,794 + 7,018 + 6,178}{27,714} = 0.65$

j. Times interest earned $= \frac{2,566}{685} = 3.75$

k. Cash coverage ratio $= \frac{2,566 + 2,518}{685} = 7.42$

l. Current ratio $= \frac{3,525}{4,794} = 0.74$

m. Quick ratio $= \frac{89 + 2,382}{4,794} = 0.52$

3. Financial Ratios. Consider this simplified balance sheet for Geomorph Trading (CH4.Q8):

Current assets	$100	Current liabilities	$60
Long-term assets	500	Long-term debt	280
		Other liabilities	70
		Equity	190
Total	$600	Total	$600

a. What is the company’s debt-equity ratio?
b. What is the ratio of total long-term debt to total long-term capital?
c. What is its net working capital?

d. What is its current ratio?

Answers:

a. Debt / equity = 410/190 = 2.58
b. Total long- term debt / total long- term capital = 280/(280 + 190) = .60
c. Net working capital = 100 – 60 = 40
d. Current ratio = 100/60 = 1.67

4. Du Pont Analysis. Keller Cosmetics maintains an operating profit margin of 5% and asset turnover ratio of 3. (CH4.Q26).

a. What is its ROA?

b. If its debt-equity ratio is 1, its interest payments and taxes are each \$8,000, and EBIT is \$20,000, what is its ROE?

Answers:

a. ROA = asset turnover × operating profit margin = 3 × 0.05 = 0.15 = 15%

b. Using Equation 4.2 for ROE, modified to include ROA from above

$$\text{ROE} = \frac{\text{assets}}{\text{equity}} \times \text{ROA} \times \frac{\text{net income}}{\begin{array}{c}\text{Aftertax}\\ \text{operating income}\end{array}}$$

If debt/equity = 1, then debt = equity, so total assets are twice equity.

Net income = EBIT – interest – taxes = 20,000 - 8,000 - 8,000 = 4,000

$$\text{Tax rate} = \frac{\text{taxes}}{\text{EBT}} = \frac{8{,}000}{20{,}000 - 8{,}000} = .66 \text{ or } 66\%$$

$$\text{ROE} = \frac{2}{1} \times .15 \times \frac{4{,}000}{4{,}000 + 8{,}000 \times (1 - .66)} = .18 \text{ or } 18\%$$