1.

a. Market value = 657 million × $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 equity investment by $36,999 million, which is 211% of shareholders' equity on the balance sheet.

Est time: 06–10
Market Value Ratios

2. a. The market value added will fall, because market value falls while book value of stockholders' equity is unchanged.

b. Based on the decline in market value added, you probably will downgrade your evaluation of the success of firm management.

c. Target actually did *better* than the rest of the market. Perhaps the whole economy was struggling, and Target was able to manage the recession better than most other firms. This would be an important factor indicating *successful* management.

d. The lesson is that when we look at increments to market value added, it can be useful to take as a benchmark the performance of the broad market. We might want to see the firm's performance *relative* to that of the broad market in which it operates.

Est time: 06–10
Market Value Ratios

3. Here we derive a tax rate of 21% from Taxes/Income Before Taxes:

a. EVA = after-tax interest + net income − (cost of capital × total capitalization)
$\text{EVA} = (1 - 0.21) \times 12 + 77 - (.085 \times [256 + 121]) = 54.44$

b. $\text{ROC} = \frac{(1-0.21)\times 12+77}{256+121} = 0.2294$

c. $\text{ROE} = \frac{77}{256} = .3008$

d. Yes. The EVA indicates the firm is producing value in excess of the cost of capital. Thus, it is producing value. The ROC and ROE are also consistent with this conclusion.

Est time: 06–10
Market Value Ratios

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4. EVA_{Target} = after-tax interest + net income − (cost of capital × total capitalization)
   $EVA_{Target} = (1 - 0.21) \times \$477 + \$3{,}281 - (0.10 \times \$21{,}520) = \$1{,}506$

Est time: 06–10
Market Value Ratios

5. ROC = after-tax operating income/equity, or

   After-tax operating income = ROC × equity

   EVA = after-tax operating income – (cost of equity × equity), substituting

   EVA = (ROC × equity) – (cost of equity × equity), or

   EVA = equity × (ROC – cost of equity)

   Thus, EVA is positive if ROC exceeds the cost of equity.

Est time: 06–10
Profitability Ratios

6. Since Microlimp does not raise any new money during the year, the proper approach is to use the start-of-year capital. The profits for the year were generated from the start-of -year capital and not any other source of financing. If the debt issue occurs anytime during the year, the profits are based upon the new capital, in addition to the starting capital. Thus, it would be better to use an average for the year.

Est time: 01–05
Profitability Ratios

7.

a. Return on equity $= \dfrac{\$1{,}486}{(\$9{,}724 + \$9{,}121)/2} = 0.1577 = 15.77\%$

b. Return on assets $= \dfrac{\$1{,}486 + \$685 \times (1 - 0.21)}{(\$27{,}714 + \$27{,}503)/2} = 0.0734 = 7.34\%$

c. Return on capital $= \dfrac{\$1{,}486 + \$685 \times (1 - 0.21)}{([\$7{,}018 + \$9{,}724] + [\$6{,}833 + \$9{,}121])/2} = 0.1240 = 12.40\%$

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

e. Inventory turnover $= \dfrac{\$4{,}060}{\$238} = 17.06$

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

g. Operating profit margin $= \dfrac{\$1,486 + \$685 \times (1-.21)}{\$13,193} = 0.1537 = 15.37\%$

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

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

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

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

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

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

Est time: 11–15
Profitability Ratios

8.

a. Debt/equity = ($60 + 280 + 70)/$190 = 2.58

b. Total long-term debt/total long-term capital = $280/($280 + 190) = 0.60

c. Net working capital = $100 – 60 = $40

d. Current ratio = $100/$60 = 1.67

Est time: 01–05
Profitability Ratios

9. Average collection period equals receivables divided by average daily sales:

Average collection period $= \dfrac{\$6,333}{\$9,800/365 \text{ days}} = 236$ days

Est time: 01–05
Short-Term Solvency Ratios

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10. Days sales in inventories $= \dfrac{\$400}{\$73,000/365} = 2$ days

Est time: 01–05
Short-Term Solvency Ratios

11. EBIT = revenues – COGS – depreciation
= $3,000,000 – $2,500,000 – $200,000 = $300,000

Interest = 8% of face value = $80,000

Times interest earned = $300,000/$80,000 = 3.75

Est time: 01–05
Profitability Ratios

12.

a. Interest expense = 0.08 × $10 million = $800,000
Times interest earned = $1,000,000/$800,000 = 1.25

b. Cash coverage ratio $= \dfrac{\$1,000,000 + \$200,000}{\$800,000} = 1.5$

Est time: 01–05
Liquidity

13.

a. Long-term debt–equity ratio $= \dfrac{\text{long-term debt}}{\text{equity}}$

b. Return on equity $= \dfrac{\text{net income}}{\text{average equity}}$

c. Operating profit margin $= \dfrac{\text{net income} + \text{after-tax interest}}{\text{sales}}$

d. Inventory turnover $= \dfrac{\text{cost of goods sold}}{\text{inventory at start of year}}$

e. Current ratio $= \dfrac{\text{current assets}}{\text{current liabilities}}$

f. Average collection period $= \dfrac{\text{receivables at start of year}}{\text{average daily sales}}$

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g. $\text{Quick ratio} = \dfrac{\text{cash + marketable securities + receivables}}{\text{current liabilities}}$

Est time: 01–05
Short-Term Solvency Ratios

14.

a. The consulting firm has relatively few assets. The major "asset" is the know-how of its employees. The consulting firm has the higher asset turnover ratio.

b. The Catalog Shopping Network generates far more sales relative to assets since it does not have to sell goods from stores with high expenses and probably can maintain relatively lower inventories. The Catalog Shopping Network has the higher asset turnover ratio.

c. The supermarket has a far higher ratio of sales to assets. The supermarket itself is a simple building and the store sells a high volume of goods with relatively low markups (profit margins). Standard Supermarkets has the higher asset turnover.

Est time: 06–10
Short-Term Solvency Ratios

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

b. Inventory turnover $= \dfrac{121{,}667}{10{,}000} = 12.167$ times per year

The turnover rate can also be calculated as:

Inventory turnover = days in year/days' sales in inventory
= 365/30
= 12.167

Est time: 01–05
Asset Management Ratios

16. Debt–equity ratio $= \dfrac{\text{long-term debt}}{\text{equity}}$

$0.4 = \dfrac{\text{long-term debt}}{\$1{,}000{,}000} \Rightarrow$ long-term debt = 0.4 × \$1,000,000 = \$400,000

$\dfrac{\text{Current assets}}{\text{Current liabilities}} = 2.0$ and current assets = \$200,000

Therefore, current liabilities = \$200,000/2 = \$100,000 = notes payable

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Total liabilities = $500,000

Total assets = total liabilities + equity = $500,000 + $1,000,000 = $1,500,000

Total debt ratio = $500,000/$1,500,000 = 0.33

Est time: 06–10
Long-Term Solvency Ratios

17. $\frac{\text{Book debt}}{\text{Book equity}} = 0.5$

$\frac{\text{Market equity}}{\text{Book equity}} = 2$

$\frac{\text{Book debt}}{\text{Market equity}} = \frac{0.5}{2} = 0.25$

Est time: 01–05
Market and Book Values

18. The current ratio will be unaffected. Inventories replace cash, but total current assets are unchanged. The quick ratio falls, however, since inventories are not included in the most liquid assets.

Est time: 01–05
Short-Term olvency Ratios

19.

a. No change: Inventory is a current asset as is the proceeds from a sale of inventory.

b. Increase: A new bank loan is an increase in a long-term liability. In this case, it is being used to reduce a current liability.

c. No change: Unless used, the existence of a line of credit does not impact the balance sheet.

d. No change: An overdue accounts receivable, unless already written off, is a current asset. The payment of a receivable is trading one current asset for another.

e. No change: Cash and inventory are both current assets. Thus, trading one for the other has no impact.

Est time: 01–05
Short-Term Solvency Ratios

20.

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a. False: A number below 1 implies debt is less than equity and that may not always be the case.

b. False: For example, if a firm only has cash, marketable securities, and receivables in its current assets, then the quick ratio will equal the current ratio. While many firms carry inventory, others do not.

c. False: The ROE uses net income, while the ROA uses after-tax operating income. Thus, both the numerator and denominator are different, allowing the possibility of a higher ROE. Also, if a firm has no debt and no interest expense, then ROE must equal ROA.

Est time: 01–05
Profitability Ratios

21.

a. The shipping company, which has more tangible assets, will tend to have the higher debt–equity ratio.

b. The paper mill will have higher sales per dollar of assets. It is less capital-intensive (i.e., has less capital per dollar of sales) than the integrated firm.

c. The discount outlet sells many of its goods for cash. The power company bills monthly and usually gives customers a month to pay bills and therefore will have the longer collection period.

Est time: 06–10
Asset Management Ratios

22.

Income statement:

	$ Millions
Net sales	$170.00
Cost of goods sold	130.00
Selling, general, & administrative expenses	10.00
Depreciation	20.00
EBIT	10.00
Interest expense	1.25
Income before tax	8.75
Tax	3.0625
Net income	$5.6875

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Balance sheet:

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

Solution procedure:

1. Total current liabilities = 25 + 30 = 55
2. Total current assets = 55 × 1.4 = 77
3. Cash = 55 × 0.2 = 11
4. Accounts receivable + cash = 55 × 1.0 = 55
5. Accounts receivable = 55 – 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. Sales = (365/avg. collection period) × beginning receivables
   = (365/73) × 34 = 170
10. Cost of goods sold = inventory turnover × beginning inventory
    = 5.0 × 26 = 130
11. EBIT = 170 – 130 – 10 – 20 = 10
12. Interest = EBIT/times interest earned = 10/8 = 1.25
13. Tax = (EBIT – interest) × 0.35 = (10 – 1.25) × 0.35 = 3.0625
14. Net income = EBIT – interest – tax = 10 – 1.25 – 3.0625 = 5.6875
15. LT debt = LT debt ratio × (total assets – current liabilities)
    = 0.4 × (115 – 55) = 0.4 × 60 = 24
16. Shareholders' equity = 60 – 24 = 36

Est time: 16–20
Financial Statement Analysis

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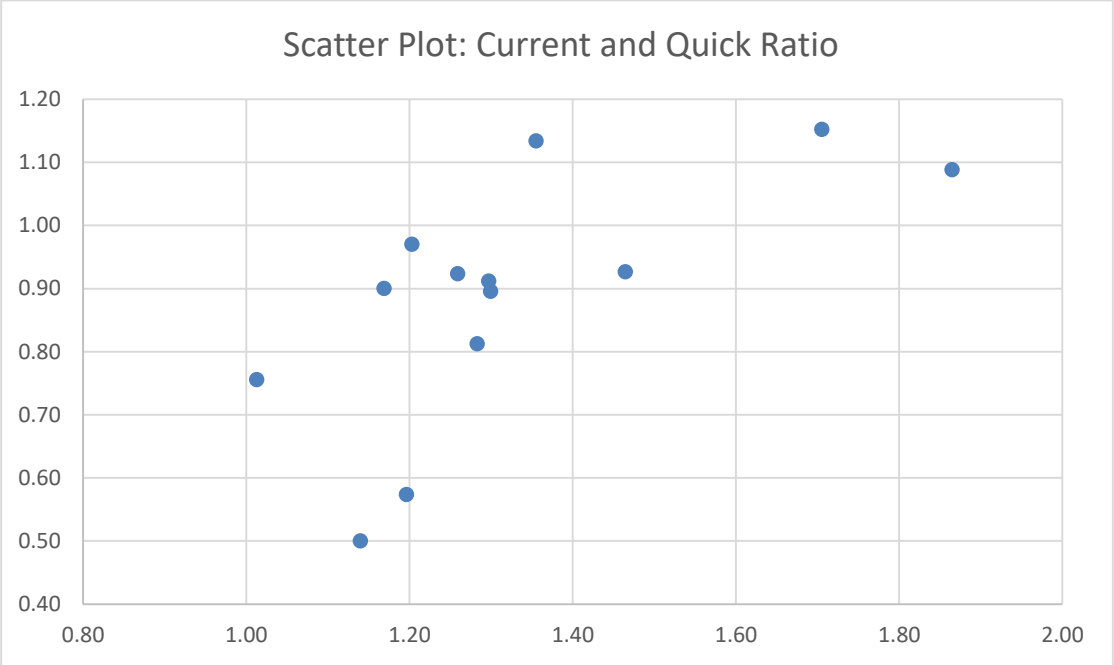
23.



These two measures of liquidity appear to move together. Higher quick ratios are associated with higher current ratios. You may conclude that once you know one of these ratios there is little to be gained by calculating the other. However, analysts should use caution as some firms may have a high current ratios but the result may be due to a high level of illiquid assets, such as old inventory.

Est time: 11–15
Financial Statement Analysis

24. $\text{ROA} = \frac{\text{sales}}{\text{assets}} \times (\text{operating profit margin})$

$.15 = \frac{100}{150} \times \text{OPM}$

$\text{OPM} = .2250$

Est time: 01–05
DuPont Identity

25. Total sales = \$3,000 × 365/20 = \$54,750
Asset turnover ratio = \$54,750/\$75,000 = 0.73
ROA = asset turnover × operating profit margin = 0.73 × 0.05 = 0.0365 = 3.65%

Est time: 01–05
DuPont Identity

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26.

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

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

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

$$\text{Tax rate} = \frac{\text{taxes}}{\text{EBT}} = \frac{8{,}000}{20{,}000 - 8{,}000} = 0.66 \text{ or } 66\%$$

$$\text{ROE} = \frac{2}{1} \times 0.15 \times \frac{4{,}000}{4{,}000 + 8{,}000 \times (1 - 0.66)} = 0.18 \text{ or } 18\%$$

Est time: 06–10

DuPont Identity

27. The firm has less debt relative to equity than the industry average, but its ratio of EBIT plus depreciation to interest expense is lower. Perhaps the firm has a lower ROA than its competitors and is therefore generating less EBIT per dollar of assets. Perhaps the firm pays a higher interest rate on its debt. Or perhaps its depreciation charges are lower because it uses less capital or older capital.

Est time: 01–05

DuPont Identity

28. *Answers will vary.* Leverage ratios are of interest to banks or other investors lending money to the firm. They want to be assured that the firm is not borrowing more than it can reasonably be expected to repay.

Liquidity ratios are also of interest to creditors who prefer that a firm's current assets are well in excess of its current liabilities. Liquidity ratios are especially important to those who lend to the firm for short periods, for example, by extending trade credit. If a firm buys goods on credit, the seller wants to know that, when the bill comes due, the firm will have enough cash on hand to pay it.

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Efficiency ratios might be of interest to stock market analysts who want to know how well the firm is being run. These ratios are also of great concern to the firm's own management, which needs to know if it is running as tight a ship as its competitors.

Est time: 06–10

DuPont Identity

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