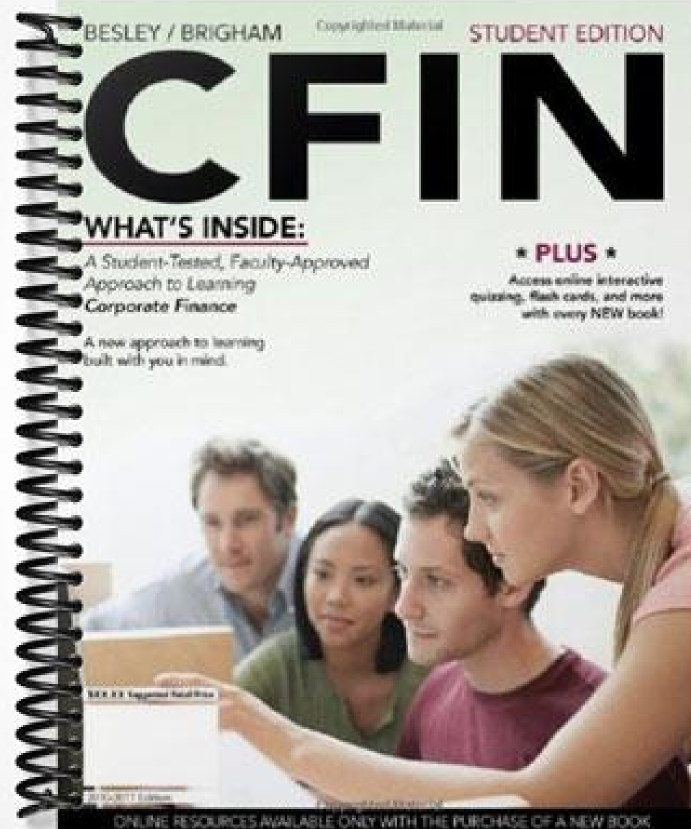
# SOLUTIONS MANUAL



# CHAPTER 2

2-1

$$\frac{\text{Present}}{\text{current ratio}} = \frac{\$1{,}312{,}500}{\$525{,}000} = 2.5\times$$

$$\frac{\text{Minimum}}{\text{current ratio}} = \frac{\$1{,}312{,}500 + \Delta NP}{\$525{,}000 + \Delta NP} = 2.0\times$$

$$\$1{,}312{,}500 + \Delta NP = \$1{,}050{,}000 + 2\Delta NP$$

$$\Delta NP = \$262{,}500.$$

Short-term debt can increase by a maximum of $262,500 without violating a 2-to-1 current ratio, assuming that the entire increase in notes payable is used to increase current assets. Because we assumed that the additional funds would be used to increase inventory, the inventory account will increase to $637,500 = $375,000 + $262,500, and current assets will total $1,575,000.

Quick ratio = ($1,575,000 - $637,500)/$787,500
= $937,500/$787,500
= 1.19x

2-2

(1) $$\frac{\text{Current assets}}{\text{Current liabilities}} = 3.0\times$$

$$\frac{\$810{,}000}{\text{Current liabilities}} = 3.0\times$$ Current liabilities = $270,000

(2) $$\frac{\text{Current assets - Inventories}}{\text{Current liabilities}} = 1.4\times$$

$$\frac{\$810{,}000 - \text{Inventories}}{\$270{,}000} = 1.4\times$$ Inventories = $432,000

(3) Current assets = Cash + Marketable securities + Accounts receivable + Inventories

$810,000 = $120,000 + Accounts receivable + $432,000

Accounts receivable = $258,000

(4) $$\frac{\text{Cost of goods sold}}{\text{Inventory}} = 5.0\times$$

$$\frac{\text{CGS}}{\$432{,}000} = 5.0\times$$ CGS = $2,160,000

(5) CGS = 0.86 (Sales) $$\text{Sales} = \frac{\$2{,}160{,}000}{0.86} = \$2{,}511{,}628$$

$$(6)\ \text{DSO} = \frac{\text{Accounts receivable}}{\text{Sales}/360} = \frac{\$258{,}000}{\$2{,}511{,}628/360} = 37\ \text{days}$$

2-3 TIE = EBIT/INT, so find EBIT and INT

Interest = $500,000 x 0.1 = $50,000

Net income = $2,000,000 x 0.05 = $100,000

Taxable income (EBT) = $100,000/(1 - T) = $100,000/0.8 = $125,000

EBIT = $125,000 + $50,000 = $175,000

TIE = $175,000/$50,000 = 3.5 x

2-4 ROE = NI/Equity

Now we need to determine the inputs for the equation from the data that were given. On the left we set up an income statement, and we put numbers in it on the right:

| | |
|---|---|
| Sales (given) | $10,000 |
| - Cost | na |
| EBIT (given) | $ 1,000 |
| - INT (given) | ( 300) |
| EBT | $ 700 |
| - Taxes (30%) | ( 210) |
| NI | $ 490 |

Now we can use some ratios to get some more data:

Total assets turnover = 2.0 = Sales/TA; TA = Sales/2 = $10,000/2 = $5,000

Debt/TA = 60%; so Equity/TA = 40%; therefore, Equity = TA x Equity/TA
= $5,000 x 0.40 = $2,000

Alternatively, Debt = TX x Debt/TA = $5,000 x 0.6 = $3,000; Equity = TA – Debt = $5,000 - $3,000 = $2,000

ROE = NI/E = $490/$2,000 = 24.5%, and ROA = NI/TA = $490/$5,000 = 9.8%

2-5 Net cash flow = $180,000 + $50,000 = $230,000

2-6 a. NI = (Sales – Operating costs – Interest expense)(1-T)
$650,000 = (Sales - $1,500,000 - $300,000 – 0)(1 – 0.35)

$$\text{Sales} = \frac{\$650{,}000}{0.65} + (\$1{,}500{,}000 + \$300{,}000) = \$2{,}800{,}000$$

b. Net cash flow = $650,000 + $300,000 = $950,000

2-7 We are given ROA = 3% and Sales/Total assets = 1.5x

| From DuPont equation: | ROA | = | Profit margin x Total assets turnover |
|---|---|---|---|
| | 3% | = | Profit margin (1.5) |
| | Profit margin | = | 3%/1.5 = 2%. |

We can also calculate Zumwalt's debt ratio in a similar manner, given the facts of the problem. We are given ROA, which is NI/A and ROE, which is NI/Equity; if we use the reciprocal of ROE we have the following equation:

$$\frac{\text{Equity}}{\text{Assets}} = \frac{\text{NI}}{\text{Assets}} \times \frac{\text{Equity}}{\text{NI}} = 3.0\% \times \frac{1}{0.05} = 0.60 = 60\%$$

Debt/Assets = 1 - Equity/Assets = 1 - 0.60 = 0.40 = 40.0%

Thus, Zumwalt's profit margin = 2% and its debt ratio = 40%.