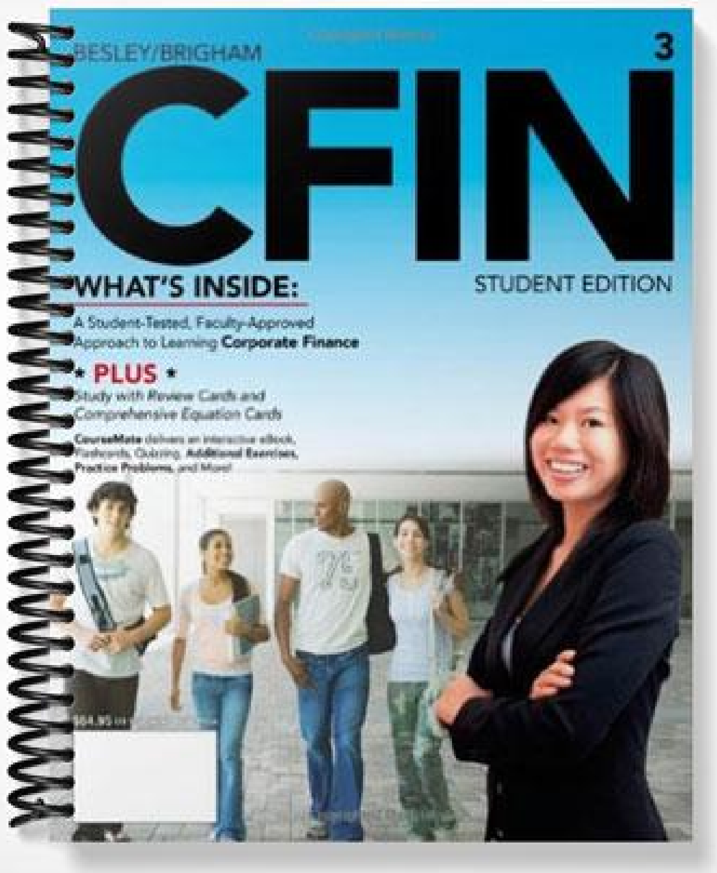
SOLUTIONS MANUAL



CHAPTER 2

2-1 $\begin{matrix}\text{Present}\\ \text{current ratio}\end{matrix} = \dfrac{\$1{,}312{,}500}{\$525{,}000} = 2.5\times$

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

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

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

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) $\dfrac{\text{Current assets}}{\text{Current liabilities}} = 3.0\times$

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

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

$\dfrac{\$810{,}000 - \text{Inventories}}{\$270{,}000} = 1.4\times$ 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) $\dfrac{\text{Cost of goods sold}}{\text{Inventory}} = 5.0\times$

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

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

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

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%.

2-8 a. Current ratio = CA/CL = 3.5, thus CL = CA/3.5

CA = $73,500

CL = $73,500/3.5 = $21,000

b. Quick ratio = (CA – Inventory)/CL = 3.0, thus Inventory = CA – 3CL

Inventory = $73,500 – 3($21,000) = $10,500

2-9 TA = $500,000

ROA = 6.0%

ROE = 8.0%

a. ROA = NI/TA =NI/$500,000 = 0.06, thus NI = 0.06($500,000) = $30,000

b. ROE = NI/CE = $30,000/CE = 0.08, thus CE = $30,000/0.08 = $375,000

2-10 TA turnover = 3.0

Net profit margin = 4.0%

ROE = 15.0%

a. ROA = NI/TA = NI/Sales x Sales/TA = Net profit margin x Total assets turnover

ROA = 4.0% x 3.0 = 12.0%

b. ROE = ROA x Equity multiplier = 12.0% x Equity multiplier = 15.0%

Equity multiplier = 15.0%/12.0% = 1.25

Equity multiplier = TA/CE, which is the inverse of the proportion of the firm that is financed with common equity. Thus, the portion of total assets that is financed with equity is 1/1.25 = 0.8 = 80.0%

2-11 Debt ratio = 60% = TL/TA

Total assets turnover = 1.8x = Sales/TA

Days sales outstanding = 40 days = AR/[Sales/360]

Return on Equity (ROE) = 20.0% = NI/CE

Return on Assets (ROA) = 8.0% = NI/TA

TL = $90,000

Based on the information provided in the problem, we can compute the following:

(1) TA = TL/0.60 = $90,000/0.60 = $150,000

(2) Common equity = CE = TA – TL = $150,000 - $90,000 = $60,000

(3) Sales = 1.8(TA) = 1.8 x $150,000 = $270,000

(4) Net income = NI = TA x 0.08 = $150,000 x 0.08 = $12,000

Alternatively, NI = CE x 0.2 = $60,000 x 0.2 = $12,000

(5) 40 = AR/[Sales/360] = AR/[$270,000/360]

AR = 40 x [$270,000/360] = 40 x 750 = $30,000

2-12 Currently, ROE is ROE_1 = $9,200/$90,000 = 0.102 = 10.2%

The current ratio will be set such that 2.0 = CA/CL. CL is $27,500, and it will not change, so we can solve to find the new level of current assets: CA = 2.0(CL) = 2.5($27,500) = $55,000. This is the level of current assets that will produce a current ratio of 2.0x.

At present, current assets amount to $110,000, so they can be reduced by $55,000 = $110,000 – $55,000. The reduction in current assets will be achieved by selling $55,000 in inventories.

If the $55,000 generated is used to retire common equity, then the new common equity balance will be $90,000 – $55,000 = $35,000.

Assuming that net income is unchanged, the new ROE will be ROE_2 = $9,200/$35,000 = 0.263 = 26.3%. Therefore, ROE will increase by 16.1% = 26.3% – 10.2%.