CHAPTER 3

i. Cannon Company has enjoyed a rapid increase in sales in recent years, following a decision to sell on credit. However, the firm has noticed a recent increase in its collection period. Last year, total sales were $1 million, and $250,000 of these sales were on credit. During the year, the accounts receivable account averaged $41,096. It is expected that sales will increase in the forthcoming year by 50 percent, and, while credit sales should continue to be the same proportion of total sales, it is expected that the days sales outstanding will also increase by 50 percent. If the resulting increase in accounts receivable must be financed externally, how much external funding will Cannon need? Assume a 365-day year.

a. $ 41,096
b. $ 51,370
c. $ 47,359
d. $106,471
e. $ 92,466

ii. A fire has destroyed a large percentage of the financial records of the Carter Company. You have the task of piecing together information in order to release a financial report. You have found the return on equity to be 18 percent. If sales were $4 million, the debt ratio was 0.40, and total liabilities were $2 million, what would be the return on assets (ROA)?

a. 10.80%
b. 0.80%
c. 1.25%
d. 12.60%
e. Insufficient information.

iii. Selzer Inc. sells all its merchandise on credit. It has a profit margin of 4 percent, days sales outstanding equal to 60 days, receivables of $150,000, total assets of $3 million, and a debt ratio of 0.64. What is the firm's return on equity (ROE)? Assume a 365-day year.

a. 7.1%
b. 33.4%
c. 3.4%
d. 71.0%
e. 8.1%

iv. A firm has a debt/equity ratio of 50 percent. Currently, it has interest expense of $500,000 on $5,000,000 of total debt outstanding. Its tax rate is 40 percent. If the firm's ROA is 6 percent, by how many percentage points is the firm's ROE greater than its ROA?

a. 0.0%
b. 3.0%
c. 5.2%
d. 7.4%
e. 9.0%

v. Alumbat Corporation has $800,000 of debt outstanding, and it pays an interest rate of 10 percent annually on its bank loan. Alumbat's annual sales are $3,200,000, its average tax rate is 40 percent, and its net profit margin on sales is 6 percent. If the company does not maintain a TIE ratio of at least 4 times,

its bank will refuse to renew its loan, and bankruptcy will result. What is Alumbat's current TIE ratio?

a. 2.4
b. 3.4
c. 3.6
d. 4.0
e. 5.0

vi. Peterson Packaging Corp. has $9 billion in total assets. The company's basic earning power (BEP) ratio is 9 percent, and its times-interest-earned ratio is 3.0. Peterson's depreciation and amortization expense totals $1 billion. It has $0.6 billion in lease payments and $0.3 billion must go towards principal payments on outstanding loans and long-term debt. What is Peterson's EBITDA coverage ratio?

a. 2.06
b. 1.52
c. 2.25
d. 1.10
e. 2.77

vii. Vance Motors has current assets of $1.2 million. The company's current ratio is 1.2, its quick ratio is 0.7, and its inventory turnover ratio is 4. The company would like to increase its inventory turnover ratio to the industry average, which is 5, without reducing its sales. Any reductions in inventory will be used to reduce the company's current liabilities. What will be the company's current ratio, assuming that it is successful in improving its inventory turnover ratio to 5?

a. 1.33
b. 1.67
c. 1.22
d. 0.75
e. 2.26

Stock price **Answer: b Diff: T**

viii. XYZ's balance sheet and income statement are given below:

Balance Sheet:

Cash	$ 50	Accounts payable	$ 100
A/R	150	Notes payable	0
Inventories	300	Long-term debt (10%)	700
Fixed assets	500	Common equity (20 shares)	200
Total assets	$1,000	Total claims	$1,000

Income Statement:

Sales		$1,000
Cost of goods sold	855	
EBIT		$ 145
Interest	70	
EBT		$ 75
Taxes (33.333%)		25
Net income		$ 50

The industry average inventory turnover is 5, the interest rate on the firm's long-term debt is 10 percent, 20 shares are outstanding, and the stock sells at a P/E of 8.0. If XYZ changed its inventory methods so as to operate at the industry average inventory turnover, if it used the funds generated by this change to buy back common stock at the current market price and thus to reduce common equity, and if sales, the cost of goods sold, and the P/E ratio remained constant, by what dollar amount would its stock price increase?

a. $ 3.33
b. $ 6.67
c. $ 8.75
d. $10.00
e. $12.50

ix. Rainier Inc. has $2 million in current assets, its current ratio is 1.6, and its quick ratio is 1.2. The company plans to raise funds as additional notes payable and to use these funds to increase inventories. By how much can Rainier's short-term debt (notes payable) increase without pushing its quick ratio below 0.8?

a. $625,000
b. $556,000
c. $333,000
d. $278,000
e. $178,000

x. Vance Motors has current assets of $1.2 million. The company's current ratio is 1.2, its quick ratio is 0.7, and its inventory turnover ratio is 4. The company would like to increase its inventory turnover ratio to the industry average, which is 5, without reducing its sales. Any reductions in inventory will be used to reduce the company's current liabilities. What will be the company's current ratio, assuming that it is successful in improving its inventory turnover ratio to 5?

a. 1.33
b. 1.67
c. 1.22
d. 0.75
e. 2.26

SOLUTIONS CHAPTER 3

i. Receivables increase **Answer: b Diff: M R**

DSO = $41,096/($250,000/365) = 60 days.
New A/R = [($250,000)(1.5)/(365)](60)(1.5) = $92,466.
Hence, increase in receivables = $92,466 - $41,096 = $51,370.

ii. ROA **Answer: a Diff: M**

Equity multiplier = 1/(1 - D/A) = 1/(1 - 0.4) = 1.67.
ROE = ROA × Equity multiplier
18% = (ROA)(1.67)
ROA = 10.8%.

iii. ROE **Answer: c Diff: M R**

(Sales per day)(DSO) = A/R
(Sales/365)(60) = $150,000
Sales = $912,500.

Profit margin = Net income/Sales.
Net income = 0.04($912,500) = $36,500.
Debt ratio = 0.64 = Total debt/$3,000,000.
Total debt = $1,920,000.
Total equity = $3,000,000 - $1,920,000 = $1,080,000.
ROE = $36,500/$1,080,000 = 3.38% ≈ 3.4%.

iv. ROE **Answer: b Diff: M**

Total equity = ($5,000,000)(2) = $10,000,000.
Total assets = $5,000,000 + $10,000,000 = $15,000,000.
Net income = (0.06)($15,000,000) = $900,000.
ROE = $900,000/$10,000,000 = 9%.
ROE - ROA = 9% - 6% = 3%.

v. TIE ratio **Answer: e Diff: M**

TIE = EBIT/I, so find EBIT and I.
Interest = $800,000 × 0.1 = $80,000.
Net income = $3,200,000 × 0.06 = $192,000.
Pre-tax income = $192,000/(1 - T) = $192,000/0.6 = $320,000.
EBIT = $320,000 + $80,000 = $400,000.
TIE = $400,000/$80,000 = 5.0×.

vi. EBITDA coverage ratio **Answer: a Diff: M N**

TA = $9,000,000,000; EBIT/TA = 9%; TIE = 3; DA = $1,000,000,000; Lease payments = $600,000,000; Principal payments = $300,000,000; EBITDA coverage = ?

EBIT/$9,000,000,000 = 0.09
EBIT = $810,000,000.

3 = EBIT/INT
3 = $810,000,000/INT
INT = $270,000,000.

EBITDA = EBIT + DA
= $810,000,000 + $1,000,000,000
= $1,810,000,000.

$$\text{EBITDA coverage ratio} = \frac{\text{EBITDA + Lease payments}}{\text{INT + Princ. pmts + Lease pmts}}$$
$$= \frac{\$1,810,000,000 + \$600,000,000}{\$270,000,000 + \$300,000,000 + \$600,000,000}$$
$$= \frac{\$2,410,000,000}{\$1,170,000,000} = 2.0598 \approx 2.06.$$

vii. Current ratio **Answer: c Diff: T**

Step 1: Solve for the current inventory level: CA/CL = 1.2 and CA = $1,200,000, so CL = $1,000,000.

Step 2: Solve for current level of inventories: Since QR = 0.7, ($1,200,000 - Inv)/$1,000,000 = 0.7, Inv = $500,000.

Step 3: Next we find the sales level using the old inventory turnover ratio:
Sales/$500,000 = 4. So sales are $2,000,000.

Step 4: Using the current sales level and the new target inventory turnover ratio of 5, we can solve for the new inventory level:
$2,000,000/$Inv_{New}$ = 5. Inv_{New} = $400,000.

Step 5: Solve for the new current ratio:
DInv = $400,000 - $500,000 = -$100,000. So, our new CR = ($1,200,000 - $100,000)/($1,000,000 - $100,000) = 1.222.

viii. Stock price **Answer: b Diff: T**

Here are some data on the initial situation:
EPS = $50/20 = $2.50.
Stock price = $2.50(8) = $20.

If XYZ had the industry average inventory turnover, its inventory balance would be:

$$\text{Turnover} = 5 = \frac{\text{Sales}}{\text{Inv.}} = \frac{\$1,000}{\text{Inv.}}$$

Inv = $1,000/5 = $200.
Therefore, inventories would decline by $100.

The income statement would remain at the initial level. However, the company could now repurchase and retire 5 shares of stock:

$$\frac{\text{Funds available}}{\text{Price/ share}} = \frac{\$100}{\$20} = 5 \text{ shares.}$$

Thus, the new EPS would be:

$$\text{New EPS} = \frac{\text{Net income}}{\text{Shares outstanding}} = \frac{\$50}{20 - 5} = \$3.33.$$

The new stock price would be:
New price = New EPS(P/E) = $3.33(8) = $26.67.
Stock price increase = $26.67 - $20.00 = $6.67.

ix. Quick ratio **Answer: a Diff: T N**

Step 1: Calculate the current level of current liabilities:
CA/CL = 1.6; CA = $2 million.
$2,000,000/CL = 1.6
CL = $1,250,000.

Step 2: Calculate the current level of inventory:
(CA - Inv)/CL = 1.2
($2,000,000 - Inv)/$1,250,000 = 1.2
$2,000,000 - Inv = $1,500,000
Inv = $500,000.

Step 3: Determine by how much notes payable can increase:
Let the amount of new notes payable be X. Therefore, notes payable goes up by X. This amount X is used to increase Inv, so Inv goes up by X. If Inv goes up by X, CA will go up by X

(inventories are part of current assets). In addition, we want to keep the quick ratio above 0.8.

$$0.8 = [(CA + X) - (Inv + X)]/(CL + X)$$

$$0.8 = \frac{(\$2{,}000{,}000 + X - \$500{,}000 - X)}{(\$1{,}250{,}000 + X)}$$

$$0.8 = \frac{\$1{,}500{,}000}{(\$1{,}250{,}000 + X)}$$

$$\$1{,}000{,}000 + 0.8X = \$1{,}500{,}000$$

$$X = \$625{,}000.$$

x. Current ratio **Answer: c Diff: T**

Step 1: Solve for the current inventory level: CA/CL = 1.2 and CA = $1,200,000, so CL = $1,000,000.

Step 2: Solve for current level of inventories: Since QR = 0.7, ($1,200,000 - Inv)/$1,000,000 = 0.7, Inv = $500,000.

Step 3: Next we find the sales level using the old inventory turnover ratio: Sales/$500,000 = 4. So sales are $2,000,000.

Step 4: Using the current sales level and the new target inventory turnover ratio of 5, we can solve for the new inventory level: $2,000,000/$Inv_{New}$ = 5. Inv_{New} = $400,000.

Step 5: Solve for the new current ratio: DInv = $400,000 - $500,000 = -$100,000. So, our new CR = ($1,200,000 - $100,000)/($1,000,000 - $100,000) = 1.222.