Midterm Exam Answer

Financial Management (1560, Fall 2019)
National Chiao Tung University

Part I (50 points; 2 points each)

1.	E
2.	E
3.	C
4.	E
5.	B
6.	E
7.	B
8.	D
9.	C
10.	E
11.	B
12.	A
13.	B
14.	C
15.	D
16.	C
17.	A
18.	C
19.	A
20.	D
21.	D
22.	D
23.	B
24.	A
25.	A

Part II (50 points)

1. (11 points)

A (5 points) Sales/average total assets = 2.0

$2.0 \times 1.25/1.1 = 2.27$

B (6 points)

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = 3 = \frac{1{,}800}{\text{Current liabilities}}$$

So, current liabilities = \$600

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} = 1.5 = \frac{1{,}800 - \text{Inventory}}{600}$$

So, inventory = \$900

$$\text{Inventory turnover ratio} = \frac{\text{Costs of goods sold}}{\text{Inventory}} = \frac{5{,}000}{900} = 5.56$$

2. (8 points)

Last year:

ROE = profit margin × asset turnover × leverage ratio

0.15 = 0.08 × 1.25 × Leverage ratio

Leverage ratio = 1.5

If assets are 1.5 times equity, then equity is 67% of assets, which means total debt is 33% of assets. Thus, the total debt ratio for last year is 33%.

This year:

ROE = 0.20 = 0.08 × 1.25 × Leverage ratio

Leverage ratio = 2

If assets are 2 times equity, then equity is 50% of assets, which means that total debt is 50% of assets. Thus, the total debt ratio for this year is 50%. Since the previous debt ratio was 33%, this represents an increase in debt by 17% of total assets.

3. (6 points)

The firm must compensate for its below-average profit margin with an above-average turnover ratio. Remember that ROA is the product of operating margin and asset turnover.

4. (6 points)

$PV = FV/(1 + r)^t$

$PV = \$1{,}000/[1 + (0.07/2)]^{20 \times 2}$

$PV = \$252.57$

5. (6 points)

$FV = PV\ (1 + r)^t$

$\$9{,}848.21 = \$5{,}000\ [1 + (r/2)]^{10 \times 2}$

$r/2 = (FV/PV)^{1/t} - 1 = (9{,}848.21/5{,}000)^{0.05} - 1$

$r = 6.89\%$

6. (6 points)

$\$691.72 = \$1{,}000/(1 + r)^5$

$r = 0.0765$

Price (3 tears later) $= \$1{,}000/1.0765^2 = \$862.92$

7. (7 points)

Price $= (.06 \times \$1{,}000)\ \{(1/.075) - [1/.075(1.075)^{10}]\} + \$1{,}000/1.075^{10}$

$$\text{Price} = \text{Coupon} \cdot \left[\frac{1 - \frac{1}{(1+\text{r})^{\text{t}}}}{\text{r}}\right] + \frac{\text{Par}}{(1+\text{r})^{\text{t}}} = 60 \cdot \left[\frac{1 - \frac{1}{1.075^{10}}}{0.075}\right] + \frac{1000}{1.075^{10}}$$

Price = $897.04