

# CHAPTER 31:

## A FINAL REVIEW

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### 31-1

a. The stock price is determined by expectations. If the earnings did not increase as much as expected, the stock price can go down.

b. If the management is responsible for the reduction in earnings growth - rather than industry factors or just the size of the firm - it should be held accountable for the price drop.

### 31-2

a. No. If this is a profitable sector, using the average returns on equity made by the peer group can result in too high a hurdle rate, resulting in the rejection of some projects that should not have been rejected.

b. Cost of Equity =  $6\% + 0.8 * 5.5\% = 10.40\%$

c. The cost is that it will reject some projects that make between 10.4% and 20% that it should be accepting. This, in turn, will lead to a loss in firm value.

### 31-3

a. Cost of Equity =  $6\% + 1.10 (5.5\%) = 12.05\%$

Cost of Capital =  $12.05\% (.75) + 7\% (1-.36) (.25) = 10.16\%$

b. Yes. Its internal rate of return exceeds its cost of capital.

c. Cost of Equity based upon comparable businesses =  $6\% + 1.8(5.5\%) = 15.90\%$

Cost of Capital =  $15.9\% (.75) + 7\% (1-.36) (.25) = 13.05\%$

Yes. I would now reject the project.

### 31-4

Cost of Equity =  $7\% + .9(5.5\%) = 11.95\%$

Cost of Capital = 11.95%

a. Value of Firm at existing debt ratio =  $\$100 (1-.4)(1.05)/(.1195-.05) = \$997.12$

b. Cost of Capital at optimal debt ratio =  $11.95\% - 1.50\% = 10.45\%$

Value of Firm at Optimal Debt Ratio =  $\$100 (1-.4) (1.05)/(.1045-.05) = \$1,155.96$

c. As the debt ratio goes up, the firm's default risk will rise. This might affect operating income. As the debt ratio goes up, the firm will also face more covenants and less flexibility to take actions.

**31-5**

- a. If it is under bankruptcy threat, it should try to reduce its debt ratio quickly.
- b. If the firm is not under bankruptcy threat and if the default risk is not affect operations, it can afford to pay down the debt gradually.

**31-6**

- a. Cost of Equity = 6% + 1.15 (5.5%) = 12.33%  
The firm's marginal projects are earning less than the cost of equity. It should not withhold the cash.
- b. I would recommend buying back stock. The stockholders in this firm are probably not attracted by dividends.

**31-7**

- a. Expected Growth Rate = b (ROE) = 0.8 (20%) = 16%
- b. Terminal Payout Ratio =  $1 - 0.06 / (0.14 + 0.25(0.14 - 0.048)) = 63.19\%$   
Expected Earnings per Share in 4 years =  $2.00 (1.16)^3 (1.06) = \$3.31$   
Expected Dividends per Share in 4 years =  $\$3.31 (0.6319) = \$2.09$   
Beta in Terminal Year =  $0.80 (1 + 0.6 * 0.25) = 0.92$   
Cost of Equity in Terminal Year = 11.06%  
Terminal Price =  $\$2.09 / (.1106 - .06) = \$41.30$

c. Expected DPS and Terminal Price

	<b>1</b>	<b>2</b>	<b>3</b>
<b>EPS</b>	\$2.32	\$2.69	\$3.12
<b>DPS</b>	\$0.46	\$0.54	\$0.62
<b>Terminal Price</b>			\$41.30
<b>PV at 14.25%</b>	\$0.41	\$0.41	\$28.11

Cost of Equity during high growth phase = 6% + 1.5 (5.5%) = 0.1425  
Value per Share = \$28.93

d. The value would go up. The expected growth rate would be 19.2% during the high growth period.

	<b>1</b>	<b>2</b>	<b>3</b>
<b>EPS</b>	\$2.38	\$2.84	\$3.39
<b>DPS</b>	\$0.48	\$0.57	\$0.68
<b>Terminal Price</b>			\$44.84

<b>PV at 14.25%</b>	\$0.42	\$0.44	\$30.52
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Cost of Equity during high growth phase =  $6\% + 1.5(5.5\%) = 0.14$

Value per Share = \$31.37 and New Terminal Price = \$44.84

e. Both the expected growth rate and the beta will increase during the high growth period.

New growth rate =  $0.8(0.20 + 0.25(0.20 - 0.048)) = 19.04\%$

New Beta =  $1.5(1 + 0.6 \cdot 0.25) = 1.73$

	<b>1</b>	<b>2</b>	<b>3</b>
<b>EPS</b>	\$2.38	\$2.83	\$3.37
<b>DPS</b>	\$0.48	\$0.57	\$0.67
<b>Terminal Price</b>			\$44.66
<b>PV at 15.49%</b>	\$0.41	\$0.42	\$29.43

Cost of Equity during high growth phase =  $6\% + 1.725(5.5\%) = 0.15$

Value per Share = \$30.27

New Terminal Price = \$44.66

f. Expected Growth rate and terminal price would be lower.

Expected Growth =  $0.6(20\%) = 12\%$

	<b>1</b>	<b>2</b>	<b>3</b>
<b>EPS</b>	\$2.24	\$2.51	\$2.81
<b>DPS</b>	\$0.45	\$0.50	\$0.56
<b>Terminal Price</b>			\$37.20
<b>PV at 14.25%</b>	\$0.39	\$0.38	\$25.32

Cost of Equity during high growth phase =  $6\% + 1.5(5.5\%) = 0.14$

Value per Share = \$26.09

New Terminal Price = \$37.20

### 31-8

Managerial incentive systems can be designed to give managers a greater equity stake in the business and make them think more like stockholders. Examples would be the issue of stock or warrants in the firm to managers.

### 31-9

Net income will not be an appropriate measure of cash flows to the firm when

- there is leverage; net income is an equity measure
- there are net capital expenditures, which reduce cash flows
- there are working capital investments to be made.

### 31-10

If the firm is a privately owned firm, where the owner has the bulk of his or her wealth invested in the firm, all risk may be relevant, including diversifiable risk.

**31-11**

If debt is underutilized, the cost of capital will be higher than it should be and the firm value will be lower. From a practical standpoint, this firm may also have trouble raising funds to finance projects because of its dependence on internal equity. (Firms are reluctant to use new stock issues) If debt is overutilized, the firm runs the risk of bankruptcy and its associated costs.

**31-12**

Default risk increases any time a firm chooses to mismatch the cash flows on its assets and the cash flows on its debt.