

# ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

## CHAPTER 2

2. \$218,400  
 7. Average rate = 32.43%  
 Marginal rate = 39%  
 10. -\$70  
 14. a. \$66,535  
 b. \$17,400  
 c. \$6,200  
 d. \$635  
 18. a.  $\text{Tax}_{\text{Growth}} = \$14,090$   
 22. a. 2010 = \$2,325  
 2011 = \$2,999  
 b. \$31  
 c. Fixed assets sold = \$88  
 Cash flow from assets = \$2,653  
 d. Debt retired = \$252  
 Cash flow to creditors = \$168

## CHAPTER 3

2. Net income = \$1,440,000  
 ROA = 9.23%  
 ROE = 15.48%  
 6. EPS = \$3.79  
 DPS = \$1.21  
 BVPS = \$33.10  
 Market-to-book ratio = 2.39 times  
 PE ratio = 20.83 times  
 P/S ratio = 2.44 times  
 10. 65.33 days  
 18. \$151.94  
 22. Firm A: 16.36%  
 Firm B: 18.46%  
 26. a. 1.32 times; 1.24 times  
 b. .78 times; .73 times  
 c. .51 times; .45 times  
 d. .85 times  
 e. 9.32 times  
 f. 24.09 times  
 g. .33 times; .34 times  
 h. .49 times; .52 times  
 i. 1.49 times; 1.52 times  
 j. 5.71 times  
 k. 7.96 times

- l. 11.93%  
 m. 10.13%  
 n. 15.44%

## CHAPTER 4

2. -\$575  
 5. \$786.90  
 12. 5.54%  
 16. 8.70%  
 19. 1.36 times  
 21. Sustainable growth rate = 12.09%  
 New borrowing = \$8,219.78  
 Internal growth rate = 4.85%

## CHAPTER 5

2. \$8,630.69; \$15,999.00; \$373,155.46;  
 \$292,942.90  
 6. 8.87%  
 10. \$154,256,258  
 14. 10.74%  
 18. \$547,651.21; \$192,874.26

## CHAPTER 6

2. @ 5%:  $\text{PV}_x = \$33,608.71$   
 $\text{PV}_y = \$31,605.18$   
 @ 15%:  $\text{PV}_x = \$23,334.07$   
 $\text{PV}_y = \$24,470.73$   
 6. \$348,058.92  
 10. \$517,241.38  
 14. First National EAR = 14.03%  
 First United EAR = 13.96%  
 18. \$21,354.60  
 22. APR = 1,733.33%  
 EAR = 313,916,515.69%  
 26. \$38,446.08  
 30. 6.77% semiannual  
 3.33% quarterly  
 1.10% monthly  
 38. \$2,966,204  
 42. \$401,039.60

46. Profit = \$7,931.22  
Break-even = 15.67%
50. \$47,823.03
54. \$1,554.38
58. PV of lease payments = \$15,780.17  
PV of purchase = \$19,219.83  
Break-even resale price = \$22,136.63
60. EAR = 14.94%
64. Refundable fee:  
APR = 5.64%  
EAR = 5.79%  
Nonrefundable fee:  
APR = 5.50%  
EAR = 5.64%
70. 8.87%
74. 16.67%

### CHAPTER 7

4. 5.45%
8. 6.50%
12. 6.75%
26. a. 45,000 coupon bonds; 265,122 zeroes  
b. \$46,350,000; \$265,122,140  
c. Coupon bonds = \$1,755,000 outflow  
Zero coupon = \$959,175 inflow
28. \$13,010.95

### CHAPTER 8

2. 9.97%
6. \$3.08
10. \$9,600,048
14. \$48.54
18. \$63.30
20. \$64.46

### CHAPTER 9

4. 1.98 years; 2.57 years; 3.55 years
8. @ 11%: NPV = \$3,028.55  
@ 25%: NPV = -\$3,168.00
12. a.  $IRR_A = 18.56\%$   
 $IRR_B = 17.42\%$   
b.  $NPV_A = \$4,042.42$   
 $NPV_B = \$5,008.56$   
c. Crossover rate = 14.83%
16. a.  $PI_1 = 1.205$   
 $PI_2 = 1.340$   
b.  $NPV_1 = \$13,092.41$   
 $NPV_2 = \$6,122.46$
22. a.  $C = I/N$   
b.  $C > I/PVIFA_{R\%,N}$   
c.  $C > 2.0 * I/PVIFA_{R\%,N}$

### CHAPTER 10

2. \$397,700,000
8. \$1,213,928
12.  $CF_0 = -\$3,000,000$   
 $CF_1 = \$1,163,218.50$   
 $CF_2 = \$1,268,302.50$   
 $CF_3 = \$1,494,729.00$   
NPV = \$113,589.51
16. -\$116,176.80
22. \$.03644

### CHAPTER 11

2. Total costs = \$8,308,000  
Marginal cost = \$54.65  
Average cost = \$69.23  
Minimum revenue = \$273,250
8.  $D = 195,200$   
 $P = \$53.36$   
 $VC = \$31.57$
12. OCF = \$60,130  
DOL = 3.495
18. DOL = 1.4967  
 $DOL_A = 2.7143$
22.  $\Delta NPV/\Delta P = \$160,657.82$   
 $\Delta NPV/\Delta Q = \$1,256.05$
30. DOL = 1.2079  
 $\Delta OCF = +4.83\%$

### CHAPTER 12

2.  $R_D = 1.67\%$   
 $R_C = 9.72\%$
6.  $r_G = 2.72\%$ ;  $r_C = 3.01\%$
16.  $R_A = 9.53\%$   
 $R_G = 8.35\%$
20. 11.48%; 11.22%; 10.68%

### CHAPTER 13

2. 9.67%
6. 10.60%
10. a. 9.96%  
b.  $\sigma_p^2 = .01848$   
 $\sigma_p = 13.59\%$
14. .76
18. Slope of SML = .0696
24.  $C = \$336,046.51$   
 $R_F = \$128,953.49$
26.  $\beta_1 = 1.21$   
 $\sigma_1 = 8.62\%$   
 $\beta_{II} = .75$   
 $\sigma_{II} = 24.40\%$

## CHAPTER 14

2. 12.24%
4.  $R_A = 9.36\%$ ;  $R_G = 9.35\%$
8. Book value = \$95,000,000  
Market value = \$75,750,000  
Aftertax cost = 5.13%
12. a.  $E/V = .2932$   
 $D/V = .7068$
- b.  $E/V = .8106$   
 $D/V = .1894$
16. a.  $D/V = .3305$   
 $P/V = .0489$   
 $E/V = .6206$
- b. 9.87%
20. Break-even cost = \$20,454,545

## CHAPTER 15

2. a. \$48; anything greater than \$0  
b. 697,674; 5.59  
c. \$47.24; \$.76
6. 5,835,598
8. No change;  
declines by \$.44;  
declines by \$1.17
14. \$36,516.49

## CHAPTER 16

2. a. \$1.74; \$2.49; \$2.99  
b. \$2.02; \$3.30; \$4.15
6. a. \$3.90; \$3.71; \$4.00  
b. \$54,000; \$54,000  
c. \$54,000  
d. \$2.34; \$2.23; \$2.40  
\$54,000; \$54,000; \$54,000
10. \$1,440,000
12. a. 17.14%  
b. 11.39%  
c. 19.05%; 15.22%; 11.39%
16. \$482,113.64

## CHAPTER 17

2. a. 4,000 new shares  
b. 10,000 new shares
4. a. \$48.00  
b. \$69.57  
c. \$56.14  
d. \$140.00  
e. 708,333; 488,750; 605,625; 242,857
8. Shares outstanding = 442,750  
Capital surplus = \$3,271,500
10.  $P_0 = \$45.47$ ;  $D = \$27.97$

## CHAPTER 18

2. Cash = \$1,450  
Current assets = \$7,285
4. a.  $I, I$   
b.  $I, N$   
c.  $D, D$   
d.  $D, D$   
e.  $D, N$   
f.  $I, I$
6. Operating cycle = 80.11 days  
Cash cycle = 41.09 days
8. a. \$261.00; \$249.00; \$279.00; \$272.55  
b. \$237.00; \$261.00; \$249.00; \$279.00  
c. \$245.00; \$257.00; \$259.00; \$276.85
10. a. \$180,000  
b. \$168,571.43  
c. \$187,464.29; \$204,035.71; \$226,950
14. a. 4.27%  
b. 7.91%  
c. 7.82%
18. 10.47%

## CHAPTER 19

2. a. \$48,000  
-\$46,000  
\$2,000
- b. \$48,000  
-\$23,000  
\$25,000
6. a. \$25,016  
b. 2.54 days  
c. \$25,016  
d. \$4.64  
e. \$14,787
10. NPV = \$4,950,000  
Net savings = \$123,750

## APPENDIX 19A

- 19A.2 \$3,366.50
- 19A.4 a. Opportunity cost = \$30  
Trading cost = \$350  
b. \$5,123.48
- 19A.10 2.38%

## CHAPTER 20

2. \$3,539,726
6. Sales = \$467,863.64  
Accounts receivable turnover = 11.0606 times
10. NPV = \$107,265.79
12. Carrying cost = \$5,700  
Order cost = \$3,900

$$\text{EOQ} = 248.15$$

$$\text{Orders} = 62.86 \text{ per year}$$

16. Net savings = \$4,050

## APPENDIX 20A

20A.2 a. 1/20, net 30

b. \$240,000

d. NPV = -\$2,477,600

Break-even price = \$108.42

Break-even discount = 8.68%

20A.4 b. \$70.45

c. NPV = \$151,131.30

## CHAPTER 21

6. Great Britain: 1.57%

Japan: 1.21%

Switzerland: 1.22%

10. b. Krone 5.8347

12. b. U.S. 2.4% greater