APPENDIX

C

>>Answers to Selected End-of-Chapter Problems

Chapter 2

2.2 Net income = $126,100

2.6 Taxes = $89,720

2.10 Change in NWC = −$120

2.14 **a.** OCF = $41,260
b. Cash flow to creditors = $21,500
c. Cash flow to stockholders = $2,250
d. Change in NWC = $5,510

2.18 **a.** Tax_{growth} = $17,150
Tax_{income} = $2,890,000
b. $3,400

2.22 **a.** Owners' equity:
2003 = $1,785
2004 = $2,095
b. Change in NWC = $30
c. Fixed assets sold = $200
Cash flow from assets = $1,918
d. Debt retired = $80
Cash flow to creditors = −$4

2.26 Cash flow from assets = $301.12
Cash flow to creditors = −$867.00
Cash flow to stockholders = $1,168.12

Chapter 3

3.2 Net income = $2.61 million
ROA = 7.05%
ROE = 10.88%

3.6 EPS = $2.61
DPS = $0.89
BVPS = $36.11
Market-to-book ratio = 2.16 times
PE ratio = 29.87 times

3.10 82.19 days

3.18 Net income = $94.80

3.22 Firm A ROE = 50.00%
Firm B ROE = 50.00%

3.26 **a.** 4.33 times; 3.59 times
b. 1.78 times; 1.47 times
c. .45 times; .39 times
d. 1.22 times
e. 3.87 times
f. 13.35 times
g. .29; .26
h. .40; .36
i. 1.40; 1.36
j. 25.82 times
k. 29.90 times
l. 23.41%
m. 28.53%
n. 38.80%

Chapter 4

4.2 EFN = −$1,035

4.6 Internal growth rate = 5.15%

4.12 Internal growth rate = 8.70%

4.16 Maximum sales growth = 17.65%

4.20 TAT = 1.47 times

4.22 Sustainable growth rate = 22.50%
New borrowing = $19,125
Internal growth rate = 7.20%

4.28 Maximum sustainable growth rate = 14.33%

Chapter 5

5.2 $13,761
$25,320
$169,152
$315,796

5.6 10.27%

5.10 $130,258,959

5.14 $0.10

5.18 $145,781
$56,205

Chapter 6

6.2 @ 5%: PV_x = $28,431.29
PV_y = $25,976.86
@ 22%: PV_x = $15,145.14
PV_y = $17,181.84

6.6 PV = $456,262.25

6.10 PV = $187,500

6.14 1st National: EAR = 12.91%
1st United: EAR = 12.78%

6.18 $12,405.67

6.22 APR = 1,733.33%
EAR = 313,916,515.69%

6.26 PV = $18,407.91

6.30 7.70% semiannual
3.78% quarterly
1.24% monthly

6.38 G: 11.20%
H: 12.06%

6.42 Balloon payment = $356,387.10

6.46 Profit = $7,700.77
Break-even = 16.89%

6.50 PV = $29,700.29

6.54 $1,361.82

6.58 PV of lease payments = $14,361.31
PV of purchase = $16,893.14
Break-even resale price = $26,216.03

6.60 EAR = 13.64%

6.64 Refundable fee:
APR = 7.58%
EAR = 7.85%
Nonrefundable fee:
APR = 7.50%
EAR = 7.76%

6.70 10.57%

6.74 C = $21,623.50

Chapter 7

7.4 11.09%

7.8 9.16%

7.12 8.52%

7.26 **a.** 15,000 coupon bonds; 114,181 zeroes
b. $16,050,000; $114,181,000

7.28 P: Current yield = 9.26%
Capital gains yield = −1.26%
D: Current yield = 6.52%
Capital gains yield = 1.48%

Chapter 8

8.2 11.46%

8.6 $3.96

8.10 $38.04

8.14 $2.75

8.18 Close = $72.80
Net income = $133,928,571

8.22 $59.51

Chapter 9

9.4 **a.** 1.32 years
b. 2.20 years
c. 3.14 years

9.8 @ 11%: NPV = $7,423.84
@ 30%: NPV = −$1,324.53

9.12 **a.** IRR_A = 16.60%
IRR_B = 15.72%
b. NPV_A = $3,491.88
NPV_B = $4,298.06
c. Crossover rate = 13.75%

9.16 **a.** PI_I = 1.243
PI_{II} = 1.393
b. NPV_I = $7,302.78
NPV_{II} = $1,963.19

9.20 **a.** $C = I/N$
b. $C > I/\text{PVIFA}_{R\%, N}$
c. $C = 2.0*I/\text{PVIFA}_{R\%, N}$

Chapter 10

10.2 Annual sales = $366.5 million

10.8 $1,927,464

10.12 CF_0 = −$3,000,000
CF_1 = $1,250,968.50
CF_2 = $1,355,958.00
CF_3 = $1,582,573.50
NPV = $153,665.62

10.16 −$97,646.27

10.22 $0.03614

Chapter 11

11.2 Total costs = $5,997,500
Marginal cost = $34.65
Average cost = $39.98
Minimum revenue = $346,500

11.8 D = $612,200
P = $88.22
VC = $56.62

11.12 OCF = $68,750
DOL = 3.18

11.18 DOL = 1.3371
DOL_A = 2.8095

11.22 $\Delta NPV/\Delta P$ = $141,514
$\Delta NPV/\Delta Q$ = $977.73

11.28 DOL = 1.4327
ΔOCF = +3.5817%

Chapter 12

12.2 R_d = +2.73%; R_c = +12.50%

12.6 2.72%; 3.11%

12.16 $R_A = 11.13\%$
$R_G = 10.62\%$

12.20 27.16%

Chapter 13

13.2 $E(R_P) = 14.06\%$

13.6 $E(R_I) = 12.50\%$

13.10 **a.** $E(R_P) = 13.29\%$
b. $\sigma_P^2 = .03171$
$\sigma_P = 17.81\%$

13.14 $\beta_i = 1.67$

13.18 Slope = .0846

13.24 $C = \$343,333$
$R_F = \$206,667$

13.26 $\beta_I = 3.07$
$\sigma_I = 12.15\%$
$\beta_{II} = 0.65$
$\sigma_{II} = 20.39\%$

Chapter 14

14.4 **a.** $13.96
b. $2.31

14.8 **a.** $D_0 = \$912.82$
b. $E_0 = \$419.55$

14.12 Warrant price = $4.09

14.16 **a.** $1,309,942.84
b. $1,072,212.80

Chapter 15

15.2 14.25%

15.4 $R_A = 15.14\%$; $R_G = 14.86\%$

15.8 Book value = $100 million
Market value = $68 million
Aftertax cost = 5.48%

15.12 **a.** $E/V = 0.2603$
$D/V = 0.7397$
b. $E/V = 0.7978$
$D/V = 0.2022$

15.16 **a.** $D/V = 0.2431$
$P/V = 0.0904$
$E/V = 0.6665$
b. 13.58%

15.20 Break-even cost = $42,385,321

Chapter 16

16.2 **a.** $40; anything > 0
b. 1,428,571; 3.64
c. $39.82; $1.08

16.6 804,348

16.8 No change;
Declines by $0.83;
Declines by $3.33

16.14 $12,711

Chapter 17

17.2 **a.** EPS = $1.46; $3.64; $4.73
b. EPS = $1.13; $4.77; $6.59

17.6 **a.** EPS = $7.59, $8.06, $7.14
b. EBIT = $7,700
c. EBIT = $7,700
d. EBIT = $7,700

17.10 $4.55 million

17.12 **a.** 18.30%
b. 15.19%
c. 20.40%, 16.20%, 12.00%

17.16 $V = \$187,000$

Chapter 18

18.4 **a.** $39.00
b. $56.52
c. $45.61
d. $113.75
e. 250,000; 172,500; 213,750; 85,714

18.8 Shares outstanding = 392,000
Capital surplus = $2,448,000

18.12 **a.** $720,000
b. No dividend paid

18.18 **a.** D
b. $.72D$
c. $1.0625D$
d. Price drop = $1.377D$

Chapter 19

19.4 **a.** *I*, *I*
b. *I*, *N*
c. *D*, *D*
d. *D*, *D*
e. *D*, *N*
f. *I*, *I*

19.8 **a.** $189.00; $213.00; $235.50; $186.30
b. $162.00; $189.00; $213.00; $235.50
c. $171.00; $197.00; $220.50; $219.10

19.10 **a.** $106,666.67
b. $117,142.86
c. $136,928.57
$160,021.43
$183,200.00

19.16 **a.** 5.523%
b. 5.538%

Chapter 20

20.2 **a.** $100,000
−$80,000
$20,000
b. −$40,000
$60,000

20.6 **a.** $23,083
b. 2.43 days
c. $23,083
d. $4.28
e. $14,250

20.10 NPV = $7.9 million
Net savings = $395,000

Appendix 20A

20A.2 $1,195.23

20A.4 **a.** Opportunity cost = $9.00
Trading cost = $333.33
b. $1,825.74

20A.10 8.68%

Chapter 21

21.2 $8,547,945

21.6 Sales = $322,885
Accounts receivable turnover = 7.019

21.10 NPV = $473,458.33

21.12 Carrying cost = $4,590
Order cost = $7,800
EOQ = 234.65
Orders = 39.89 per year

21.16 2,953.57

Appendix 21A

21A.2 **a.** 2/10, net 30
b. $270,000
d. NPV = −$2,473,200
Break-even price = $101.00
Break-even discount = 10.89%

21A.4 **b.** $58.80
c. NPV = −$353,701.09

Chapter 22

22.6 Great Britain: 4.06%
Japan: 1.54%
Switzerland: 1.90%

22.10 **b.** Krone 6.5257

22.12 **b.** −4.61%

Chapter 23

23.2 Loss = $1,315.00
Profit = $1,635.00

Chapter 24

24.2 $7,633.79

24.6 3.89%

24.10 Call delta = 0.64
Put delta = −0.36

24.14 $3.22

24.16 $5.98

24.20 Equity = $5,930.64
Debt = $16,069.36
Cost of debt = 21.88%

24.22 **a.** $11,876,514.69
b. $10,123,485.31
c. 10.86%
d. $12,481,437.06
e. 10.72%

24.24 **a.** $44,449.09
b. $15,697.93
c. $28,751.16; 14.71%
d. $25,111.66; 17.42%
e. Bondholders lose $3,639.51
Stockholders gain $3,639.51

24.30 One

Chapter 25

25.8 EPS = $4.875
PE = 16.15 times

Chapter 26

26.2 NAL = −$20,187.17

26.6 −$4,787.24