

Answers to Selected Problems

Chapter 2

- B1. \$5,257.41
B3. a. \$11,000; \$10,000
b. \$12,000; \$10,909.09
c. \$11,000; \$9,166.67
B5. Sell it as is.
C1. a. 20%; 100%; -100%
b. -15%; -100%; 200%

Chapter 3

- B1. a. \$305 million; \$350 million
b. \$140 million; \$210 million
c. \$165 million
d. \$300 million
e. \$5 million; \$250 million
f. \$65 million; \$(300) million;
\$235 million
B2. a. \$10,200 thousand
b. \$1,700 thousand
c. \$8,500 thousand
C1. \$750,000; Economic income includes changes in market values of assets.

Chapter 4

- B1. a. \$6,710.08
b. \$9,818.15
c. \$12,233.48
d. \$12,494.32
e. \$12,500.00
B3. 1.0000%; 12.0000%
B5. a. \$3,178.27
b. \$6,009.08
B7. a. \$1,091.15
b. \$1,530.39
c. \$2,146.46
B9. a. \$1,261.81
b. \$1,781.15
c. \$1,375.37
B11. a. 19.5618%
b. \$4,782.47
c. \$8,173.91
B13. \$3,815.29
B15. a. 16.0755%
b. 9.3807%
B17. a. 0.5833%
b. 7.0000%
c. 7.2290%

- B19. \$12,940.88
B21. \$9,883.47
B23. \$13,302.21
B25. 12.0000%
B27. a. 17.67 periods
b. 8.04 periods
c. 4.96 periods
B29. \$13,022.81
B31. a. 1.0000%
b. 12.0000%
c. 12.6825%
B33. \$6,035.23
B35. \$5,425.23
B37. 8.0005%; 0.6434%
B39. \$320.65
B41. \$624.15
B43. Special-financing price is \$196.60 lower
B45. 0.0185% per day
B47. 3.7289% per 197 days
B49. \$123,365.14
B51. b. \$119,787.38 (10th payment)
C1. \$169.79
C3. \$47,912.81
C5. \$725.65
C7. \$1,093.60
C9. 5.9463%
C11. a. \$5,358.92
b. 29.1587%
C13. \$594,244.09

Chapter 5

- B1. 7.5 years
B3. 9.4539%; 9.6773%
B5. a. 9.3351%
b. \$1,208.29
c. 9.4389%
B7. 4.7681%
B9. 12.1356%
B11. 3.33%
B14. a. \$1,010.61; \$1,059.42; \$1,097.27
b. \$1,020.18; \$1,116.03; \$1,195.42
c. \$1,001.17; \$1,006.39; \$1,010.18
d. Interest-rate risk is higher for longer maturity bonds.
B16. a. -5.6666% APY
b. 23.3185% APY
B17. a. \$31.50
b. 12.12%
B19. \$28.43

- B21. \$5.13
 B23. 3.10%
 C1. a. 13.4175%; 13.876%
 b. 13.3996%; 13.8485%
 c. 13.3999%; 13.8488%
 C3. -\$0.1066
 C5. 18.24%; 12.00%; Risk; Diversification
 C7. a. 16.20%
 b. 16.20%

Chapter 6

- B1. \$32.62
 B3. 8%; 16%
 B5. a. project 1: 15.2%; 12.16; 3.49%
 a. project 2: 14.4%; 31.84; 5.64%
 a. project 3: 10%; 1.6; 1.26%
 b. project 1 offers the lowest risk-return ratio
 B7. \$21.00
 B9. a. 0.40
 b. \$50,000
 c. 22.5%
 B11. a. 16.8%
 b. 15.4%
 C1. a. 3, 1, 2, 7
 b. 7
 c. Invest 60.24% in risk free asset and
 39.76% in portfolio 7; 11.63%
 d. Borrow 19.02% at risk free rate and
 invest 119.02% in portfolio 7; 14.88%

Chapter 7

- B1. 14.14%
 B3. 25.90%
 B5. 1.25; 10%
 B7. 1.60; 8.67%
 B9. 22.88%
 B11. 3.92
 B13. 13.125%
 C1. a. 9.75%; 15.00%
 b. 1.49
 c. 11.59%
 C3. 8.80% (DUCCA); 12.93% (LINCOLN)

Chapter 8

- B1. 24.60%
 B3. 14.25%
 B5. 47.62%; 52.38%
 B7. 13.77%
 B9. 23.33%

- B11. 15.2%
 B13. a. 4.53%; b. 15.60%; c. 12.22%
 B15. 12.50%
 B17. Project A, which has the larger positive NPV
 C1. a. 0.835; b. 15.01%; c. 14.2%
 C3. 1.53

Chapter 9

- B1. a. 3.16 years
 b. \$7.6684
 c. 20.0265%
 B3. no, NPV = -\$785.12
 B5. \$2.57 million
 B6. a. -\$10.11 million
 b. -\$3.37 per share
 B9. a. R2
 b. Size difference
 c. 13.07%
 B11. a. \$39,456.29
 b. -\$518.50
 B13. a. \$87.75; Yes
 b. -31.12%; Yes
 c. 0
 d. Select the project with the highest NPV
 B15. Yes, positive \$4,878.83 NPV
 B17. a. \$58,881.52; \$25,815.74
 b. 44.51%; 28.65%
 c. Take A
 C1. a. \$0.31; 15.1275%; \$2.51; 16.9700%
 b. Both
 c. both
 d. B

Chapter 10

- B1. \$681.91
 B3. a. \$500,000; \$70,000; \$500,000
 b. \$122,891.34
 c. \$4,622,891.34
 B5. -\$15,276
 B7. \$13,254.32
 B9. a. -\$360,000
 b. \$114,000
 c. \$75,000
 d. \$93,501.50
 B11. \$4,159,983
 B13. \$155,260.29
 B15. \$52,000; \$50,809.52; \$49,960.73; \$51,585.22
 B17. -\$670,201.41
 B20. A; it has a lower EAC (\$658.14)
 B22. -\$9,493.80

- C1. Japanese, lower EAC (\$165,417)
 C3. \$34,496
 C5. a. -\$38,388.43; -\$22,119.05;
 -\$51,912.10; -\$20,874.62;
 -\$66,801.79; -\$21,074.01;
 -\$83,256.20; -\$21,962.78
 b. every 3 years

Chapter 11

- B1. \$43,579
 B3. Process B, higher NPV (\$1,126,283.72)
 B5. a. \$200,000
 b. \$350,000
 B7. \$33,333.33
 B9. a. No
 b. \$10,000,000
 c. \$5,703,281.15
 B11. a. A, higher NPV (\$8,509.03)
 b. B higher NPV (\$8,293.87)
 B13. b. 12.4%
 c. \$3,506
 C1. $TR = (2,538,000 \times Q_D^2)^{1/3}$;
 MR = MC = \$0.387
 P = \$0.5805
 C3. a. \$106.81
 b. Rational for 2nd outcome; \$123.82

Chapter 12

- B1. a. \$1,080
 b. \$230
 c. \$0; No
 B3. -2.78%; -100.00%
 4.17%; -100.00%
 11.11%; -100.00%
 11.11%; 66.67%
 11.11%; 233.33%
 B5. \$952.38
 B7. \$103,286.38
 B10. a. \$20; \$15
 b. \$5; \$0
 c. \$25; \$25
 C1. a. \$2.36
 b. \$3.30
 c. \$3.11
 d. The simple option model calculated a higher put price than did put-call-parity.
 C2. a. \$1,000
 b. \$1,000
 c. 11.11%

Chapter 13

- B1. a. \$11.61
 b. \$47.89
 B3. \$0.88
 B5. a. \$3.74
 b. \$3.60
 c. \$2.40
 d. \$3.07
 B7. \$3.35
 B9. a. \$1.54; \$1.54; \$0
 b. \$3.83; \$1.83; \$2.00
 c. \$5.50; \$1.50; \$4.00
 B10. a. \$3.50
 b. \$3.12
 c. \$2.74
 B13. a. \$2.48
 b. \$2.66
 c. \$2.84
 B15. a. Yes.
 b. No
 c. Yes
 B17. a. Buy an interest rate cap
 b. 8.5%; 7.75%; 9.5%; 10%; 10%; 10%; 10%; 8.5%
 c. \$0; \$0; \$0; \$3,125,000; \$6,250,000;
 \$8,125,000; \$1,875,000; \$0
 B20. a. -\$120,000; -\$240,000; \$120,000;
 \$300,000; \$60,000; -\$240,000
 b. -\$120,000; \$60,000; \$240,000;
 \$600,000; \$960,000; \$1,140,000
 c. -\$120,000; -\$60,000; -\$240,000;
 -\$660,000; -\$720,000; -\$1,080,000
 C1. Trial and error with a spreadsheet

Chapter 14

- B1. a. no effect on any of them; after-tax cash outlay = \$1,000,000
 b. decreases \$1,000,000; decreases \$400,000; decreases \$600,000; after-tax cash outlay = \$600,000
 B3. a. \$10 million; \$100 million
 b. \$0; \$70 million
 c. -\$10 million; \$80 million
 d. \$2.5 million; \$77.5 million
 e. Asset substitution
 B3. \$437,000
 B5. a. \$160,000; \$15,000
 b. \$300,000; \$300,000
 c. \$80,000; \$20,000;
 \$150,000; \$400,000

- d. both favor the first plan
- B7. a. \$100
b. \$80
- C1. a. \$20 million
b. \$17.14 million
- C3. a. \$6,000; \$4,000; \$0; \$0; \$5,880;
\$3,920
b. \$6,000; \$3,000; \$6,000; \$4,000
c. \$120; -\$900; Debtholders

Chapter 15

- B1. a. \$24,000
b. 10.67%
c. 11.94%
- B3. \$2.25
- B4. a. \$80,000
b. -\$70,000
c. \$1.60

Chapter 16

- B2. a. \$40,625
b. \$47,734.38
- B3. The choice does not matter; both have WACC = 16.28%. Taxes are approximately symmetric.
- B5. 18.17%
- B7. a. \$6,000
b. \$3,900
c. \$3,354
- B9. a. 16.10%
b. 12.67%
c. 13.372%
d. 1.5032
- C1. a. buy 5% of B, using 44% debt
b. buy 10% of A, using 10.67% debt
- C3. If the risk-free rate is greater than 15.82% APY

Chapter 17

- B1. a. 3.40 - 4.30; 55 - 65; 25 - 30
- B3. a. 2.50
b. \$50; 2.00
c. \$108; 2.16
- B5. 12.96%
- B7. a. 14.16%
b. 14.38%
- B9. 16.73%
- B11. \$243,486.99
- B13. a. 23.6%

- b. 13.9955%
c. 15.0728%
d. 1.384
- B15. a. \$613,702.06
b. 0.2785
c. 23.8138%
d. 24.9485%

Chapter 18

- B1. a. 33.86%
b. \$1.75 the first year, followed by a \$0.20 increase each year
- B3. a. Yes; It is now \$0.50 per pre-split share
b. Stock price increase
- B5. a. \$2.05; 27.33%
b. low growth in cyclical industries
- B7. a. \$29.44
expropriated some of their wealth
- B9. \$1.52
- C1. a. half the taxes paid (\$6 million) with a share repurchase
b. If shareholders do not have any other investment opportunities such that $r \times (1-T) > r_f$

Chapter 19

- B1. a. 8.3265%
b. 8.3995%
c. 8.405%
- B3. \$30.11
- B5. a. N=15 (nearest integer to 15.23); \$21.43
b. \$0.1047
c. The firm does not have broad market appeal or has highly concentrated ownership.
d. Time to complete and lack of new investors
- B7. 7.26%
- B9. a. \$1 increase
b. 50,000
c. \$10,000 increase
d. No
- B11. a. 5%
b. Buy 60,000 shares
- B13. a. \$19,600,000; \$1.96
b. \$25,360,000; \$1.95
c. \$23,920,000; \$1.71

Chapter 20

- B1. 9.1 years
 B3. a. 6.27% APY
 b. 12.735% APY
 c. the rate would be between the answers for a and b; and depend on particulars such as loss carryforward rules.
 B5. b. 10.45%
 c. 6.90%
 B7. a. APYs: 5.4650%; 5.6686%; 5.5030%
 b. U.S. Public offering
 B9. a. \$375,000
 b. \$2,211,077
 B13. b. 11.78% APY
 B17. a. \$4,006,673
 b. 9.18%
 C1. a. 8.077% APY
 b. 8.418% APY
 C3. a. \$11,996,650.11
 b. decrease by \$300,000

Chapter 21

- B1. \$0.46 million
 B5. \$17,279.03
 B7. a. (i) \$29,017.85; (ii) \$28,637.38
 b. (i) \$49,482.41; (ii) \$48,000
 B9. b. \$20,505.72
 B12. a. \$1,130,211
 b. \$4,393,938
 B14. a. 9.86%
 b. yes
 B16. \$212,582
 C1. \$5,168.00

Chapter 22

- B1. \$92,857.14; \$107,142.86; \$14,285.72
 B5. \$3,700
 B7. a. yes
 b. -\$2,000 before tax
 c. compensating balance
 B9. 23.6984% APY
 B11. a. 15.87%
 b. 17.65%
 c. 17.74%
 d. 18.56%
 B14. b. 11.2672% APR; 11.7522% APY
 C1. a. \$725,000
 b. 1.93 days
 c. \$21.125

- C3. a. 8.89%
 b. 8.22%
 c. 7.11%

Chapter 23

- B1. Current policy
 B3. \$42,298.50
 B3. \$10,940.08
 B5. Proposed Policy
 B7. a. \$29,000
 b. 17.66 rolls; \$17,663.52
 c. \$17,666.67; \$17,676.47; 18 rolls
 B9. 33 days
 B11. a. \$2,000
 b. 500; \$1,000.00
 c. order 1000; \$1,500
 B13. a. 16 units
 b. 26 units
 B15. reorder point is 30; safety stock is 10
 C1. a. 27; Grant credit
 b. 10; Deny credit

Chapter 24

- B1. a. \$110,000
 B5. No additional financing is needed.
 B7. a. \$6,000 available for investment
 b. \$38,000 additional external financing needed

Chapter 25

- B1. a. $\frac{1}{2}$ of Beatrice for 1 of Nuts4U
 b. $\frac{5}{8}$ of Beatrice for 1 of Nuts4U
 c. down 10%
 B3. 42.86%
 B5. a. \$15.0469
 b. 22.8315%
 c. 4.86 years
 d. yes; positive NPV
 B7. a. \$115 million; \$100 million
 b. \$215 million; \$50 million;
 \$165 million
 c. No
 B8. \$125 million
 B9. a. 15; 12; 14; 10.7; 11; 10;
 8.4; 7.5; 6.2; 8.0; 8.0; 8.3;
 6.1; 6.0; 6.2; 6.2; 6.3; 5.9
 b. Multiple of EBITDA
 c. \$590 - \$630 million; Differences in interest and depreciation expenses

- B11. a. 17.21% \$10.78
 b. \$292.69 million c. \$6.68 million
 c. \$159.87 million C1. 6.01% for six months
- B13. \$250 - \$267 million would satisfy all four multiples
- B15. Net APV = -\$28.98 million
- C1. a. \$300 million
 b. 23.33%
 c. \$0.10 / share

Chapter 26

- B1. Trade creditors receive \$2,000,000
 Banks receive \$500,000
 Mortgage holders receive \$500,000
- B2. 71%
- B5. Secured debt holders receive \$4 million
 Unsecured debt holders receive \$6 million
- B7. Trade creditors receive \$150
 Banks receive \$750
 Mortgage holders receive \$1,650
- B9. a. Trade creditors
 b. Yes
- B11. Gray; Likely; Gray; Gray; Gray; Likely
- C1. a. Yes
 b. Trade creditors receive \$14.7
 Banks receive \$24.5
 Mortgage holders receive \$20
 Senior debenture holders receive \$9.8

Chapter 27

- B3. a. 6.47%
 b. 7.10%
 c. Domestic; Lower issuance costs, lower coupon
- B5. a. \$0.76
 b. Covered interest arbitrage
 c. \$1.45 / \$100 (3 mos.);
 SF 1.88 / SF 133.33 (3 mos.)
- B7. a. \$1.50 / £
 b. Buy NY gold; Sell London gold
 c. \$41.90 / oz; £24.65 / oz
- B9. a. SF 1 = CD 1.30
 b. No; Yes
 c. Yes; No
- B11. 4.5% per month (30 days)
- B13. a. \$0.6113 / SF; \$0.6227 / SF;
 \$0.6285 / SF; \$0.6343 / SF;
 \$0.6343 / SF
 b. \$30; \$9.17; \$10.59; \$12.57; \$12.69;