

# Principles of Managerial Finance Solution

Lawrence J. Gitman

## APPENDIX C ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

- 1-1 a. Ms. Harper has unlimited liability: \$60,000  
c. Ms. Harper has limited liability

- 1-2 a. \$160,000  
b. \$150,000

- 1-5 a. \$19,700  
b. \$72,800  
c. 21.3%

- 1-8 e. Total tax liability: \$206,400

- 1-9 a. Earnings after tax: \$18,000

- 1-10 b. Asset X: \$100  
Asset Y: \$2,000

- 2-3 a. Net profit after tax: \$19,250

- 2-4 a. Earnings per share: \$1.162

- 2-7 Initial sales price: \$9.50

- 2-8 b. Earnings per share: \$2.36  
c. Cash dividend per share: \$1.50

- 2-15
- |                       | <u>Creek</u> | <u>Industry</u> |
|-----------------------|--------------|-----------------|
| Debt ratio            | .73          | .51             |
| Times interest earned | 3.00         | 7.30            |

- 2-20 a.
- |                            | <u>Actual</u><br><u>2003</u> |
|----------------------------|------------------------------|
| Current Ratio:             | 1.04                         |
| Average collection period: | 56 days                      |
| Debt ratio:                | 61.3%                        |
| Net profit margin:         | 4.1%                         |
| Return on equity:          | 11.3%                        |

- 2-22 a. 2003 Johnson ROE = 21.21%  
Industry ROE = 14.46%

- 2-23 a.
- |                         | <u>Actual</u><br><u>2003</u> |
|-------------------------|------------------------------|
| Quick ratio:            | 2.20                         |
| Total asset turnover    | 2.00                         |
| Times interest earned   | 3.85                         |
| Operating profit margin | 16.0%                        |
| Price earnings ratio    | 9.8                          |

- 3-3 a. \$16,000  
c. \$305,240

- 3-6 b. \$13.367  
c. \$10,537

- 3-14 a. To retained earnings: \$146,600  
b. To retained earnings: \$157,400

- 3-18 a. To retained earnings: \$32,500  
c. \$11,250

- 4-3 C: 3 years < n < 4 years

- 4-4 A: \$530.60  
D: \$78.450

- 4-6 a. (1) \$15,456

- 4-8 a. 8% < i < 9%

- 4-11 B: \$6,020  
D \$80,250

- 4-18 a. (1) A: \$36,217.50  
(2) A: \$39,114.90

- 4-19 a. (1) C: \$2,821.70  
(2) C: \$3,386.04

- 4-23 b. \$30,950.64

- 4-25 b. B: \$1,000,000

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- D: \$1,200,000
- 4-27 a. A: \$3,862.50
- 4-29 b. B: \$26,039
- 4-32 a. \$22,215
- 4-34 a. (1) Annual: \$8,810  
Semiannual: \$8,955  
Quarterly: \$9,030
- 4-35 b. B: 12.6%  
D: 17.0%
- 4-40 B: \$2,439.32
- 4-43 a. \$60,000  
b. \$3,764.82
- 4-45 A: \$4,656.58  
B: \$10,619.47  
C: \$7,955.87
- 4-49 a. A:  $12\% < i < 13\%$   
Calculator solution 12.47%  
C:  $2\% < i < 3\%$   
Calculator solution 2.50%
- 4-51 a. B:  $8\% < i < 9\%$   
Calculator solution 8.02%  
D:  $10\% < i < 11\%$   
Calculator solution 10.03%
- 4-56 A:  $17 < n < 18$   
Calculator solution 17.79  
D:  $18 < n < 19$   
Calculator solution 18.68
- 5-1 a.. X: 12.50%  
Y: 12.36%
- 5-2 A: 25%
- 5-4 a. A: 8%  
B: 20%
- 5-5 a. R: 10%  
S: 20%  
b. R: 25%  
S: 25.5%
- 5-9 a. (4) Project 257 CV: .368  
Project 432 CV: .354
- 5-10 a. F: 4%  
b. F: 13.38%  
c. F: 3.345
- 5-12 b. Portfolio return: 15.5%  
c. Standard deviation: 1.511%
- 5-15 a. 20.73%  
c. 12.89%
- 5-18 a. 18% increase  
b. 9.6% decrease  
c. No change
- 5-22 A: 8.9%  
D: 15%
- 5-24 b. 10%
- 5-27 b. 12.4%  
c. 10.4%
- 6-1 3.5%
- 6-5 a. 20 year bond = 11.5%  
5 year bond = 10.5%
- 6-8 a. A: 9%  
B: 12%
- 6-10 b. \$175,000  
c. \$113,750

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- 6-12 b. \$8,791.40  
6-13 C: \$16,660.00  
D: \$9,717.00  
6-15 a. \$1,156.88  
6-19 a (1) \$1,120.23  
(2) \$1,000.00  
(3) \$896.01  
6-22 a A: approximate: 12.36%  
calculator: 12.71%  
C: approximate: 10.38%  
calculator: 10.22%  
E: approximate: 8.77%  
calculator: 8.95%  
6-25 A: \$1,152.35  
C: \$464.72  
E: \$76.11

7-4

- a. \$1,156.88  
7-5 A: \$1,149.66  
D: \$450.80  
**7-9 a. 12.69%**  
7-11 \$841.15  
7-15 a. \$68.82  
b. \$7.87

## APPENDIX F ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

- 7-17 a. \$37.75  
b. \$60.40  
7-18 \$81.18  
7-19 a. \$34.12  
b. \$20.21  
c. \$187.87  
7-24 2.67  
7-25 a. 14.8%  
b. \$29.55  
8-1 a. Current expenditure  
d. Current expenditure  
f. Capital expenditure  
**8-5** A: \$275,500  
B: \$26,800  
**8-8** a. Total tax: \$49,600  
d. Total tax: (\$6,400)  
**8-10** Initial investment \$22,680  
**8-11** a. Initial investment: \$18,240  
c. Initial investment: \$23,100  
**8-13** c. Cash inflow, Year 3: \$584,000  
**8-15** b. Incremental cash flow, Year 3: \$1,960  
**8-17** Terminal cash flow: \$76,640  
**8-21** a. Initial investment, Asset B: \$51,488  
b. Incremental cash flow, Year 2, Hoist A: \$8,808  
c. Terminal cash flow, Hoist B: \$18,600  
9-2 a. Machine 1: 4 years, 8 months  
Machine 2: 5 years, 3 months  
9-4 a. (1) \$2,675  
(2) Accept  
9-6 a. NPV = (\$320): reject  
9-8 a. Project A: 3.08 years: Project C: 2.38 years

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- b. Project C: NPV = \$5,451
- 9-9 Project A: 17%  
Project D: 21%
- 9-12 a. NPV = \$1,222  
b. IRR = 12%  
c. Accept
- 9-14 a. Project A  
NPV = \$15,245  
b. Project B  
IRR = 18%

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## APPENDIX F ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

- 9-17 a. Initial Investment: \$1,480,000  
b. 

<u>Year</u>	<u>Cash Flow</u>
1	\$656,000
2	761,600
3	647,200
4	585,600
5	585,600
6	44,000

  
c. 2.1 years  
d. NPV = \$959,289  
IRR = 35%
- 9-20 a. Range A: \$1,600  
Range B: \$200
- 9-23 a. NPV = \$22,320  
b. NPV = (\$5,596)
- 9-25 a. Project E: NPV = \$2,130  
Project F: NPV = \$1,678  
Project G: NPV = \$1,144  
c. Project E: NPV = \$834  
Project F: NPV = \$1,678  
Project G: NPV = \$2,138
- 9-29 b. X: \$920.04  
Y: \$1,079.54  
Z: \$772.80
- 9-31 b. Projects C, F, and G
- 10-2 b. 12.4%
- 10-3 a. \$980  
c. 12.31%  
d. Before-tax: 12.26%; after-tax: 7.36%
- 10-4 A: 5.66%  
E: 7.10%
- 10-8 c. 15.91%  
d. 16.54%
- 10-11 a. Weighted cost: 8.344%  
b. Weighted cost: 10.854%
- 10-14 a.  $k_i = 5.2%$ ;  $k_p = 8.4%$ ;  $k_n = 15.0%$ ;  $k_r = 13.8%$   
b. (1) \$200,000  
(2) 10.1%  
(3) 10.7%
- 10-15 b. \$500,000 and \$800,000  
c. WACC over \$800,000: 16.2%
- 11-4 a. 21,000 CDs  
d. \$10,500
- 11-7 a.  $Q = 8,000$  units  
e. DOL = 5.00
- 11-9 a. EPS = \$0.375
- 11-11 a. DFL = 1.5
- 11-12 a. (1) 175,000 units  
d. DTL = 2.40
- 11-14 

<u>Debt ratio</u>	<u>Debt</u>	<u>Equity</u>
40%	\$400,000	\$600,000

## APPENDIX F ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

- 11-20 a. EBIT: \$60,000; \$240,000; \$420,000  
d. At 15% debt ratio, EPS = \$0.85, \$4.02, \$7.20  
e. (1) At 15% debt ratio, expected EPS = \$4.03

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- g.  $\$0 < \text{EBIT} < \$100,000$ ; choose 0%  
 $\$100,000 < \text{EBIT} < \$198,000$ ; choose 30%  
 $\$198,000 < \text{EBIT} < \infty$ ; choose 60%
- h. At 15% debt ratio, share price = \$38.38
- i. Maximum EPS at 60% debt ratio  
Maximize share value at 30% debt ratio
- 12-1 Bond A: a. Discount; b. \$400,000  
c. \$16,000 d. \$320,000 e. \$128,000
- 12-3 b. Bond B: \$20,000
- 12-4 a. Bond A: \$40,000  
b. Bond A: \$16,000
- 12-5 a. \$80,000  
b. \$8,000  
f. \$1,016,216
- 12-6 a. \$1,294,000  
b. \$178,933  
c. NPV of refunding: \$237,666;  
bond refunding should be initiated.
- 12-8 \$3.60 per share spread
- 13-1 a. Common stock (10,000 shares  
@ \$1 par) \$ 10,000  
Paid in capital in excess of par 120,000  
\$130,000
- 13-3 a. Majority A, B, C, D, E: (.54 X 1,000 = 540)  
b. Majority can elect 3, minority can elect 2
- 13-6 Case E: (1) With rights: \$1.11  
(2) Ex-rights: \$1.11
- 13-8 a. 24,000 shares  
b. 12.5 rights  
c. 3,840 shares  
d. (1)  $R_w = \$0.296$   
(2)  $M_e = \$28.704$   
 $R_e = \$0.296$
- 13-11 a. \$4.75 per share  
b. \$50.40 per share  
d. A decrease in retained earnings and hence  
stockholder's equity by \$80,000
- 13-14 a. **1995** = \$0.60  
b. **1995** = \$0.50  
c. **1995** = \$0.62  
d. **1995** = \$0.62
- 13-15 a. Retained earnings = \$85,000  
b. (1) Retained earnings = \$70,000  
(2) Retained earnings = \$40,000
- 13-17 a. EPS = \$2.00  
b. 1%  
c. 1%; Stock dividends do not have a real value.

## APPENDIX F ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

- 14-3 a. Preferred dividends = \$14.88/share  
Common dividends = \$15.88/share  
c. Preferred dividends = \$10.00/share  
Common dividends = \$0.00/share
- 14-7 b. Lease: PV = \$42,934  
Purchase: PV = \$43,733
- 14-9 

Lease	Capitalized value
A	\$272,560
B	\$596,160
E	\$374,261

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- 14-12 a. \$1,250  
 b. \$525  
 c. \$1,050
- 14-16 a. \$832.75  
 b. At \$9: \$720  
 c. At \$9: \$832.75
- 14-17 Bond A: \$6.46 per warrant
- 14-20 a. 160 shares, 400 warrants  
 b. 20%  
 c. 125%
- 14-23 a. \$800 profit  
 b. \$400 **profit**  
 c. \$6/share

15-3

	Feb.	Mar.	Apr.
	(in \$000)		
a. Ending cash	\$37	\$67	(\$22)
b. Required total financing			\$37
Excess cash balance	\$22	\$52	

- c. Line of credit should be at least \$37,000 to cover borrowing needs for the month of April.
- 15-6 a. Net profit after taxes: \$216,600  
 b. Net profit after taxes: \$227,400
- 15-8 a. Accounts receivable **\$1,440,000**  
 Net fixed assets \$4,820,000  
 Total current liabilities \$2,260,000  
 External funds required \$775,000  
 Total assets \$9,100,000
- 15-9 a. Net profit after taxes \$67,500  
 b.
- |                         | <u>Judgemental</u> |
|-------------------------|--------------------|
| Total assets            | \$697,500          |
| External funds required | \$ 11,250          |
- 16-1 b. (1) \$36,000  
 (2) \$10,333
- 16-2 Annual loan cost: \$1,200
- 16-5 c. January 9

## APPENDIX F ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

- 16-7 Effective interest rate = 31.81%
- 16-9 \$1,300,000
- 16-14 a. 9.0%  
 b. 13.06%
- 16-17 Total \$886,900
- 16-18 a. Interest: \$1,173
- 17-1** a. OC = 150 days  
 b. CCC = 120 days  
 c. \$10,000,000
- 17-2** b. CCC = 35 days  
 c. \$97,222
- 17-4** Plan E
- 17-7** a. 7 days  
 b. **Opportunity cost** = \$21,450
- 17-9** a. Maximum savings = \$3,850  
 Minimum savings = \$1,100
- 17-14** \$22,500 annual savings

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- 18-1 a. Credit scoring applicant B: 81.5
- 18-2 b. \$75,000
  - c. \$9,000
- 18-4 a. Present plan: \$20,000
  - Proposed plan: \$48,000
- 18-6 The credit standards should not be relaxed, since the proposed plan results in a loss of **\$4,721**
- 18-7 Net profit on the proposal: \$20,040
- 18-9 a. \$14,000 additional profit contribution
  - b. \$36,432 marginal investment in accounts receivable
- 18-11 b. \$52,000 net savings
- 18-14 c. 4,000 units
- 18-17 a. 200 units
  - b. 123 units
  - c. 33 units
- 19-1 a. Total tax liability = \$1,680,000
  - b. Tax liability: Year 1 = \$0
    - Year 2 = \$0
    - Year 3 = \$16,000
    - Year 4-15 = \$112,000/year
- 19-3 a. Total tax advantage = \$320,000;
  - Years 1-4 = \$80,000/year
  - b. Total tax advantage = \$320,000
  - c. Reilly Investment Group: \$228,400
    - Webster Industries: \$205,288
- 19-5 a. Yes, the NPV = \$42,150
  - b. **No, the NPV for the equipment = \$101,000**
- 19-6 a. EPS merged firm = \$1.029
  - b. EPS Maria's = \$1.00
  - b. EPS Victory = \$2.139

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## APPENDIX F ANSWERS TO SELECTED END-OF-CHAPTER PROBLEMS

19-8 Ratio of exchange: (1) of shares; (2) market price

A: 0.60; 1.20

D: 0.25; 1.25

E: 1.00; 1.25

19-10 a. 1.125

b. Henry Co.:  $EPS = \$2.50$ ,  $P/E = 18$

c. 16.89

19-15 Case II:

Unpaid balance of 2nd mortgage \$150,000

Accounts payable \$ 75,000

Notes payable \$ 75,000

Unsecured bonds \$150,000

19-16 b. (1) 1st mortgage \$ 61,539

2nd mortgage \$246,154

Unsecured bonds \$184,615

20-1 a. Net funds available \$152,425

20-3 Effective rate, Euromarket

US\$ 5.0%

DM 8.0%

Sf 7.2%