

■ Solutions to Problems

P3-1. LG 1: Depreciation

Basic

Depreciation Schedule			
Year	Cost (1)	Percentages from Table 3.2 (2)	Depreciation [(1) × (2)] (3)
Asset A			
1	\$17,000	33%	\$ 5,610
2	\$17,000	45	7,650
3	\$17,000	15	2,550
4	\$17,000	7	1,190
Asset B			
1	\$45,000	20%	\$ 9,000
2	\$45,000	32	14,400
3	\$45,000	19	8,550
4	\$45,000	12	5,400
5	\$45,000	12	5,400
6	\$45,000	5	2,250

P3-2. LG 2: Accounting cash flow

Basic

Earnings after taxes	\$50,000
Plus: Depreciation	28,000
Plus: Amortization	<u>2,000</u>
Cash flow from operations	<u>\$80,000</u>

P3-3. LG 1, 2: Depreciation and accounting cash flow

Intermediate

a. Cash flow from operations:

Sales revenue	\$400,000
Less: Total costs before depreciation, interest, and taxes	290,000
Depreciation expense	34,200
Interest expense	<u>15,000</u>
Net profit before taxes	\$ 60,800
Less: Taxes at 40%	<u>24,000</u>
Net profit after taxes	\$ 36,480
Plus: Depreciation	<u>34,200</u>
Cash flow from operations	<u>\$ 70,680</u>

b. Depreciation and other noncash charges serve as a tax shield against income, increasing annual cash flow.

P3-4. LG 2: Classifying inflows and outflows of cash

Basic

Item	Change (\$)	I/O	Item	Change (\$)	I/O
Cash	+100	O	Accounts receivable	-700	I
Accounts payable	-1,000	O	Net profits	+600	I
Notes payable	+500	I	Depreciation	+100	I
Long-term debt	-2,000	O	Repurchase of stock	+600	O
Inventory	+200	O	Cash dividends	+800	O
Fixed assets	+400	O	Sale of stock	+1,000	I

P3-5. LG 2: Finding operating and free cash flows

Intermediate

- a. Cash flow from operations = net profits after taxes + depreciation
 Cash flow from operations = \$1,400 + 1,600
 Cash flow from operations = \$3,000

- b. $\text{NOPAT} = \text{EBIT} \times (1 - t)$
 $\text{NOPAT} = \$2,700 \times (1 - 0.40) = \$1,620$

- c. $\text{OCF} = \text{EBIT} - \text{taxes} + \text{depreciation}$
 $\text{OCF} = \$1,620 - \$933 + \$1,600$
 $\text{OCF} = \$3,220$

- d. $\text{FCF} = \text{OCF} - \text{net fixed asset investment}^* - \text{net current asset investment}^{**}$
 $\text{FCF} = \$3,220 - \$1,400 - \$1,400$
 $\text{FCF} = \$420$

*Net fixed asset investment = change in net fixed assets + depreciation

Net fixed asset investment = $(\$14,800 - \$15,000) + (\$14,700 - \$13,100)$

Net fixed asset investment = $-\$200 + \$1,600 = \$1,400$

**Net current asset investment = change in current assets - change in
 (accounts payable and accruals)

Net current asset investment = $(\$8,200 - \$6,800) - (\$100 - \$100)$

Net current asset investment = $\$1,400 - 0 = \$1,400$

- e. Keith Corporation has positive cash flows from operating activities. The accounting cash flows are a little less than the operating and free cash flows (FCF). The FCF value is very meaningful since it shows that the cash flows from operations are adequate to cover both operating expense plus investment in fixed and current assets.

P3-6. LG 4: Cash receipts

Basic

	April	May	June	July	August
Sales	\$65,000	\$60,000	\$70,000	\$100,000	\$100,000
Cash sales (0.50)	\$32,500	\$30,000	\$35,000	\$ 50,000	\$ 50,000
Collections:					
Lag 1 month (0.25)		16,250	15,000	17,500	25,000
Lag 2 months (0.25)			<u>16,250</u>	<u>15,000</u>	<u>17,500</u>
Total cash receipts			\$66,250	\$ 82,500	\$ 92,500

P3-7. LG 4: Cash disbursement schedule

Basic

	February	March	April	May	June	July
Sales						
Disbursements	\$500,000	\$500,000	\$560,000	\$610,000	\$650,000	\$650,000
Purchases (0.60)	\$300,000	\$336,000	\$366,000	\$390,000	\$390,000	
Cash			36,600	39,000	39,000	
1 month delay (0.50)			168,000	183,000	195,000	
2 month delay (0.40)			120,000	134,400	146,400	
Rent			8,000	8,000	8,000	
Wages & salary						
Fixed			6,000	6,000	6,000	
Variable			39,200	42,700	45,500	
Taxes					54,500	
Fixed assets			75,000			
Interest					30,000	
Cash dividends			<u>12,500</u>			
Total						
Disbursements			<u>\$465,300</u>	<u>\$413,100</u>	<u>\$524,400</u>	

P3-8. LG 4: Cash budget–basic

Intermediate

	March	April	May	June	July
Sales	\$50,000	\$60,000	\$70,000	\$80,000	\$100,000
Cash sales (0.20)	\$10,000	\$12,000	\$14,000	\$16,000	\$ 20,000
Lag 1 month (0.60)			36,000	42,000	48,000
Lag 2 months (0.20)			10,000	12,000	14,000
Other income			<u>2,000</u>	<u>2,000</u>	<u>2,000</u>
Total cash receipts			\$62,000	\$72,000	\$ 84,000
Disbursements					
Purchases			\$50,000	\$70,000	\$ 80,000
Rent			3,000	3,000	3,000
Wages & salaries			6,000	7,000	8,000
Dividends				3,000	
Principal & interest				4,000	
Purchase of new equipment					6,000
Taxes due				<u>6,000</u>	
Total cash disbursements			\$59,000	\$93,000	\$ 97,000
Total cash receipts			\$62,000	\$72,000	\$ 84,000
Total cash disbursements			<u>59,000</u>	<u>93,000</u>	<u>97,000</u>
Net cash flow			\$ 3,000	(\$21,000)	(\$ 13,000)
Add: Beginning cash			<u>5,000</u>	<u>8,000</u>	<u>(13,000)</u>
Ending cash			\$ 8,000	(\$13,000)	(\$ 26,000)
Minimum cash			<u>5,000</u>	<u>5,000</u>	<u>5,000</u>
Required total financing (notes payable)				\$18,000	\$ 31,000
Excess cash balance (marketable securities)			\$ 3,000	0	0

The firm should establish a credit line of at least \$31,000.

P3-9. LG 4: Personal finance: Preparation of cash budget
Basic

Sam and Suzy Sizeman				
Personal Budget				
for the Period October–December 2010				
		October	November	December
Income				
Take-home pay		<u>\$4,900</u>	<u>\$4,900</u>	<u>\$4,900</u>
Expenses				
	<u>Percent</u>			
Housing	30.0%	\$1,470	\$1,470	\$1,470
Utilities	5.0%	245	245	245
Food	10.0%	490	490	490
Transportation	7.0%	343	343	343
Medical/Dental	0.5%	25	25	25
Clothing	3.0%	147	147	440
Property taxes	11.5%		564	
Appliances	1.0%	49	49	4
Personal care	2.0%	98	98	98
Entertainment	6.0%	294	294	1,500
Savings	7.5%	368	368	368
Other	5.0%	245	245	245
Excess cash	4.5%	<u>221</u>	<u>221</u>	<u>221</u>
Total expenses		<u>\$3,994</u>	<u>\$4,557</u>	<u>\$5,493</u>
Cash surplus or (deficit)		<u>\$ 907</u>	<u>\$ 343</u>	<u>\$ (593)</u>
Cumulative cash surplus or (deficit)		<u>\$ 907</u>	<u>\$1,250</u>	<u>\$ 657</u>

P3-10. LG 4: Cash budget–advanced

Challenge

a.

Xenocore, Inc.								
(\$000)								
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
Forecast Sales	\$210	\$250	\$170	\$160	\$140	\$180	\$200	\$250
Cash sales (0.20)			\$ 34	\$ 32	\$ 28	\$ 36	\$ 40	\$ 50
Collections								
Lag 1 month (0.40)			100	68	64	56	72	80
Lag 2 months (0.40)			84	100	68	64	56	72
Other cash receipts			_____	_____	15	27	15	12
Total cash receipts			\$218	\$200	\$175	\$183	\$183	\$214
Forecast Purchases	\$120	\$150	\$140	\$100	\$ 80	\$110	\$100	\$ 90
Cash purchases			\$ 14	\$ 10	\$ 8	\$ 11	\$ 10	\$ 9
Payments								
Lag 1 month (0.50)			75	70	50	40	55	50
Lag 2 months (0.40)			48	60	56	40	32	44
Salaries & wages			50	34	32	28	36	40
Rent			20	20	20	20	20	20
Interest payments					10			10
Principal payments								30
Dividends					20			20
Taxes								80
Purchases of fixed assets			_____	25	_____	_____	_____	_____
Total cash disbursements			\$207	\$219	\$196	\$139	\$153	\$303
Total cash receipts			\$218	\$200	\$175	\$183	\$183	\$214
Less: Total cash disbursements			<u>207</u>	<u>219</u>	<u>196</u>	<u>139</u>	<u>153</u>	<u>303</u>
Net cash flow			11	(19)	(21)	44	30	(89)
Add: Beginning cash			<u>22</u>	<u>33</u>	<u>14</u>	<u>(7)</u>	<u>37</u>	<u>67</u>
Ending cash			33	14	(7)	37	67	(22)
Less: Minimum cash balance			15	15	15	15	15	15
b. Required total financing (notes payable)					1	22		37
Excess cash balance (marketable securities)			18			22	52	

c. The line of credit should be at least \$37,000 to cover the maximum borrowing needs for the month of April.

P3-11. LG 4: Cash flow concepts

Basic

Note to instructor: There are a variety of possible answers to this problem, depending on the assumptions the student might make. The purpose of this question is to have a chance to discuss the difference between cash flows, income, and assets.

Transaction	Cash Budget	Pro Forma Income Statement	Pro Forma Balance Sheet
Cash sale	X	X	X
Credit sale	X	X	X
Accounts receivable are collected	X		X
Asset with a five-year life is purchased	X		X
Depreciation is taken		X	X
Amortization of goodwill is taken		X	X
Sale of common stock	X		X
Retirement of outstanding bonds	X		X
Fire insurance premium is paid for the next three years	X		X

P3-12. LG 4: Multiple cash budgets—scenario analysis

Intermediate

a. and b.

Brownstein, Inc.									
Multiple Cash Budgets(\$000)									
	1st Month			2nd Month			3rd Month		
	Pessi- mistic	Most Likely	Opti- mistic	Pessi- mistic	Most Likely	Opti- mistic	Pessi- mistic	Most Likely	Opti- mistic
Sales	\$ 80	\$100	\$120	\$ 80	\$100	\$120	\$80	\$100	\$120
Sale of asset							8	8	8
Purchases	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)	(60)
Wages	(14)	(15)	(16)	(14)	(15)	(16)	(14)	(15)	(16)
Taxes	(20)	(20)	(20)						
Purchase of fixed asset	—			(15)	(15)	(15)			
Net cash flow	\$(14)	\$ 5	\$ 24	\$ (9)	\$ 10	\$ 29	\$14	\$ 33	\$ 52
Add:									
Beginning cash	<u>0</u>	<u>0</u>	<u>0</u>	<u>(14)</u>	<u>5</u>	<u>24</u>	<u>(23)</u>	<u>15</u>	<u>53</u>
Ending cash:	\$(14)	\$ 5	\$ 24	\$(23)	\$ 15	\$ 53	\$(9)	\$ 48	\$105

- c. Considering the extreme values reflected in the pessimistic and optimistic outcomes allows Brownstein, Inc. to better plan its borrowing or investment requirements by preparing for the worst case scenario.

P3-13. LG 5: Pro forma income statement

Intermediate

a.

Pro Forma Income Statement Metroline Manufacturing, Inc. for the Year Ended December 31, 2010 (percent-of-sales method)	
Sales	\$1,500,000
Less: Cost of goods sold ($0.65 \times$ sales)	<u>975,000</u>
Gross profits	\$ 525,000
Less: Operating expenses ($0.086 \times$ sales)	<u>129,000</u>
Operating profits	\$ 396,000
Less: Interest expense	<u>35,000</u>
Net profits before taxes	\$ 361,000
Less: Taxes ($0.40 \times$ NPBT)	<u>144,400</u>
Net profits after taxes	\$ 216,600
Less: Cash dividends	<u>70,000</u>
To retained earnings	<u><u>\$ 146,600</u></u>

b.

Pro Forma Income Statement Metroline Manufacturing, Inc. for the Year Ended December 31, 2010 (based on fixed and variable cost data)	
Sales	\$1,500,000
Less: Cost of goods sold	
Fixed cost	210,000
Variable cost ($0.50 \times$ sales)	<u>750,000</u>
Gross profits	\$ 540,000
Less: Operating expense:	
Fixed expense	36,000
Variable expense ($0.06 \times$ sales)	<u>90,000</u>
Operating profits	\$ 414,000
Less: Interest expense	<u>35,000</u>
Net profits before taxes	\$ 379,000
Less: Taxes ($0.40 \times$ NPBT)	<u>151,600</u>
Net profits after taxes	\$ 227,400
Less: Cash dividends	<u>70,000</u>
To retained earnings	<u><u>\$ 157,400</u></u>

- c. The pro forma income statement developed using the fixed and variable cost data projects a higher net profit after taxes due to lower cost of goods sold and operating expenses. Although the percent-of-sales method projects a more conservative estimate of net profit after taxes, the pro forma income statement that classifies fixed and variable cost is more accurate.

P3-14. LG 5: Pro forma balance sheet—basic

Intermediate

a.

Pro Forma Balance Sheet	
Leonard Industries	
December 31, 2010	
Assets	
Current assets	
Cash	\$ 50,000
Marketable securities	15,000
Accounts receivable	300,000
Inventories	<u>360,000</u>
Total current assets	\$ 725,000
Net fixed assets	<u>658,000¹</u>
Total assets	<u>\$1,383,000</u>

Pro Forma Balance Sheet	
Leonard Industries	
December 31, 2010	
Liabilities and stockholders' equity	
Current liabilities	
Accounts payable	\$ 420,000
Accruals	60,000
Other current liabilities	<u>30,000</u>
Total current liabilities	\$ 510,000
Long-term debts	<u>350,000</u>
Total liabilities	\$ 860,000
Common stock	200,000
Retained earnings	<u>270,000²</u>
Total stockholders' equity	\$ 470,000
External funds required	<u>53,000³</u>
Total liabilities and stockholders' equity	<u>\$1,383,000</u>

¹Beginning gross fixed assets \$ 600,000

Plus: Fixed asset outlays 90,000

Less: Depreciation expense (32,000)

Ending net fixed assets \$ 658,000

²Beginning retained earnings (Jan. 1, 2010) \$ 220,000

Plus: Net profit after taxes (\$3,000,000 × 0.04) 120,000

Less: Dividends paid (70,000)

Ending retained earnings (Dec. 31, 2010) \$ 270,000

³Total assets \$1,383,000

Less: Total liabilities and equity 1,330,000

External funds required \$ 53,000

- b. Based on the forecast and desired level of certain accounts, the financial manager should arrange for credit of \$53,000. Of course, if financing cannot be obtained, one or more of the constraints may be changed.
- c. If Leonard Industries reduced its 2010 dividend to \$17,000 or less, the firm would not need any additional financing. By reducing the dividend, more cash is retained by the firm to cover the growth in other asset accounts.

P3-15. LG 5: Pro forma balance sheet

Intermediate

a.

Pro Forma Balance Sheet	
Peabody & Peabody	
December 31, 2011	
Assets	
Current assets	
Cash	\$ 480,000
Marketable securities	200,000
Accounts receivable	1,440,000
Inventories	<u>2,160,000</u>
Total current assets	\$4,280,000
Net fixed assets	<u>4,820,000¹</u>
Total assets	<u>\$9,100,000</u>
Liabilities and stockholders' equity	
Current liabilities	
Accounts payable	\$1,680,000
Accruals	500,000
Other current liabilities	<u>80,000</u>
Total current liabilities	\$2,260,000
Long-term debts	<u>2,000,000</u>
Total liabilities	\$4,260,000
Common equity	4,065,000 ²
External funds required	<u>775,000</u>
Total liabilities and stockholders' equity	<u>\$9,100,000</u>
¹ Beginning gross fixed assets (January 1, 2011)	\$4,000,000
Plus: Fixed asset outlays	1,500,000
Less: Depreciation expense	<u>(680,000)</u>
Ending net fixed assets (December 31, 2011)	<u>\$4,820,000</u>
² Note: Common equity is the sum of common stock and retained earnings.	
Beginning common equity (January 1, 2010)	\$3,720,000
Plus: Net profits after taxes (2010)	330,000
Net profits after taxes (2011)	360,000
Less: Dividends paid (2010)	(165,000)
Dividends paid (2011)	<u>(180,000)</u>
Ending common equity (December 31, 2011)	<u>\$4,065,000</u>

- b. Peabody & Peabody must arrange for additional financing of at least \$775,000 over the next two years based on the given constraints and projections.

P3-16. LG 5: Integrative–pro forma statements

Challenge

a.

Pro Forma Income Statement Red Queen Restaurants for the Year Ended December 31, 2010 (percent-of-sales method)	
Sales	\$900,000
Less: Cost of goods sold ($0.75 \times$ sales)	<u>675,000</u>
Gross profits	\$225,000
Less: Operating expenses ($0.125 \times$ sales)	<u>112,500</u>
Net profits before taxes	\$112,500
Less: Taxes ($0.40 \times$ NPBT)	<u>45,000</u>
Net profits after taxes	\$ 67,500
Less: Cash dividends	<u>35,000</u>
To Retained earnings	<u>\$ 32,500</u>

b.

Pro Forma Balance Sheet Red Queen Restaurants December 31, 2010 (Judgmental Method)			
Assets		Liabilities and Equity	
Cash	\$ 30,000	Accounts payable	\$112,500
Marketable securities	18,000	Taxes payable	11,250
Accounts receivable	162,000	Other current liabilities	<u>5,000</u>
Inventories	<u>112,500</u>	Current liabilities	\$128,750
Current assets	\$322,500	Long-term debt	200,000
Net fixed assets	<u>375,000</u>	Common stock	150,000
		Retained earnings	207,500*
		External funds required	<u>11,250</u>
		Total liabilities and	
Total assets	<u>\$697,500</u>	stockholders' equity	<u>\$697,500</u>
*Beginning retained earnings (January 1, 2010)		\$175,000	
Plus: Net profit after taxes		67,500	
Less: Dividends paid		<u>(35,000)</u>	
Ending retained earnings (December 31, 2010)		<u>\$207,500</u>	

- c. Using the judgmental approach, the external funds requirement is \$11,250.

P3-17. LG 3: Ethics problem

Intermediate

Investors welcome increased transparency, accountability, and integrity. It is probable that investors will appreciate dissemination of negative information, although we would expect the stock price to drop immediately. Reputation effects should help the company, and possibly its stock price, in the long run. Any information release such as this would likely be seen as signaling an ethical stance on the part of the company, especially in light of the fact that the stock price would likely fall. We shall return to this issue in the ethics focus on practice box in Chapter 7.

■ Case

Preparing Martin Manufacturing's 2010 Pro Forma Financial Statements

In this case, the student prepares pro forma financial statements, using them to determine whether Martin Manufacturing will require external funding in order to embark on a major expansion program.

1.

Martin Manufacturing Company Pro Forma Income Statement for the Year Ended December 31, 2010		
Sales revenue	\$6,500,000	(100%)
Less: Cost of goods sold	<u>4,745,000</u>	(0.73 × sales)
Gross profits	\$1,755,000	(0.27 × sales)
Less: Operating expenses		
Selling expense and general and administrative expense	\$1,365,000	(0.21 × sales)
Depreciation expense	<u>185,000</u>	
Total operating expenses	<u>\$1,550,000</u>	
Operating profits	\$ 205,000	
Less: Interest expense	<u>97,000</u>	
Net profits before taxes	\$ 108,000	
Less: Taxes (40%)	<u>43,200</u>	
Total profits after taxes	<u>\$ 64,800</u>	

Note: Calculations “driven” by cost of goods sold and operating expense (excluding depreciation, which is given) percentages.

2.

Martin Manufacturing Company
Pro Forma Balance Sheet
December 31, 2010

Assets	
Current assets	
Cash	\$ 25,000
Accounts receivable	890,411 ¹
Inventories	<u>677,857</u>
Total current assets	\$1,593,268
Gross fixed assets	\$2,493,819
Less: Accumulated depreciation	<u>685,000</u>
Net fixed assets	<u>\$1,808,819</u>
Total assets	<u><u>\$3,402,087</u></u>
Liabilities and stockholders' equity	
Current liabilities	
Accounts payable	\$ 276,000
Notes payable	311,000
Accruals	<u>75,000</u>
Total current liabilities	\$ 662,000
Long-term debts	<u>1,165,250</u>
Total liabilities	\$1,827,250
Stockholders' equity	
Preferred stock	\$ 50,000
Common stock (at par)	400,000
Paid-in capital in excess of par	593,750
Retained earnings	<u>344,800²</u>
Total stockholders' equity	<u>\$1,388,550</u>
Total	\$3,215,800
External funds required	<u>186,287</u>
Total liabilities and stockholders' equity	<u><u>\$3,402,087</u></u>

¹\$6,500,000/365 × 50 days = \$890,411

² Beginning retained earnings (January 1, 2010)	\$300,000
Plus: Net profits	64,800
Less: Dividends paid	<u>(20,000)</u>
Ending retained earnings (December 31, 2010)	<u><u>\$344,800</u></u>

3. Based on the pro forma financial statements prepared above, Martin Manufacturing will need to raise about \$200,000(\$186,287) in external financing in order to undertake its construction program.

■ Spreadsheet Exercise

The answer to Chapter 3's ACME Company spreadsheet problem is located in the Instructor's Resource Center at www.prenhall.com/irc.

■ A Note on Web Exercises

A series of chapter-relevant assignments requiring Internet access can be found at the book's Companion Website at <http://www.prenhall.com/gitman>. In the course of completing the assignments students access information about a firm, its industry, and the macro economy, and conduct analyses consistent with those found in each respective chapter.

