The final plan will therefore implicitly contain different goals in different areas and also satisfy many constraints. For this reason, such a plan need not be a dispassionate assessment of what we think the future will bring; it may instead be a means of reconciling the planned activities of different groups and a way of setting common goals for the future.

CONCEPT QUESTIONS

4.5a What are some important elements that are often missing in financial planning models?

4.5b Why do we say planning is an iterative process?

4.6 SUMMARY AND CONCLUSIONS

Financial planning forces the firm to think about the future. We have examined a number of features of the planning process. We described what financial planning can accomplish and the components of a financial model. We went on to develop the relationship between growth and financing needs, and we discussed how a financial planning model is useful in exploring that relationship.

Corporate financial planning should not become a purely mechanical activity. If it does, it will probably focus on the wrong things. In particular, plans all too often are formulated in terms of a growth target with no explicit linkage to value creation, and they frequently are overly concerned with accounting statements. Nevertheless, the alternative to financial planning is stumbling into the future. Perhaps the immortal Yogi Berra (the baseball catcher, not the cartoon character) put it best when he said, "Ya gotta watch out if you don't know where you're goin'. You just might not get there."[2]

Chapter Review and Self-Test Problems

4.1 Calculating EFN Based on the following information for the Skandia Mining Company, what is EFN if sales are predicted to grow by 10 percent? Use the percentage of sales approach and assume the company is operating at full capacity. The payout ratio is constant.

SKANDIA MINING COMPANY
Financial Statements

Income Statement

Sales	$4,250.0
Costs	3,875.0
Taxable income	$ 375.0
Taxes (34%)	127.5
Net income	$ 247.5
Dividends	$ 82.6
Addition to retained earnings	164.9

Balance Sheet

Assets		Liabilities and Owners' Equity	
Current assets	$ 900.0	Current liabilities	$ 500.0
Net fixed assets	2,200.0	Long-term debt	1,800.0
Total	$3,100.0	Owners' equity	800.0
		Total liabilities and owners' equity	$3,100.0

[2] We're not *exactly* sure what this means either, but we like the sound of it.

4.2 **EFN and Capacity Use** Based on the information in Problem 4.1, what is EFN, assuming 60 percent capacity usage for net fixed assets? Assuming 95 percent capacity?

4.3 **Sustainable Growth** Based on the information in Problem 4.1, what growth rate can Skandia maintain if no external financing is used? What is the sustainable growth rate?

Answers to Chapter Review and Self-Test Problems

4.1 We can calculate EFN by preparing the pro forma statements using the percentage of sales approach. Note that sales are forecasted to be $4,250 × 1.10 = $4,675.

SKANDIA MINING COMPANY
Pro Forma Financial Statements

Income Statement

Sales	$4,675.0	Forecast
Costs	4,262.7	91.18% of sales
Taxable income	$ 412.3	
Taxes (34%)	140.2	
Net income	$ 272.1	
Dividends	$ 90.8	33.37% of net income
Addition to retained earnings	181.3	

Balance Sheet

Assets			Liabilities and Owners' Equity		
Current assets	$ 990.0	21.18%	Current liabilities	$ 550	11.76%
Net fixed assets	2,420.0	51.76%	Long-term debt	1,800.0	n/a
Total assets	$3,410.0	72.94%	Owners' equity	981.3	n/a
			Total liabilities and owners' equity	$3,331.3	n/a
			EFN	$ 78.7	n/a

4.2 Full-capacity sales are equal to current sales divided by the capacity utilization. At 60 percent of capacity:

$4,250 = .60 × Full-capacity sales
$7,083 = Full-capacity sales

With a sales level of $4,675, no net new fixed assets will be needed, so our earlier estimate is too high. We estimated an increase in fixed assets of $2,420 − 2,200 = $220. The new EFN will thus be $78.7 − 220 = 2$141.3, a surplus. No external financing is needed in this case.

At 95 percent capacity, full-capacity sales are $4,474. The ratio of fixed assets to full-capacity sales is thus $2,200/4,474 = 49.17%. At a sales level of $4,675, we will thus need $4,675 × .4917 = $2,298.7 in net fixed assets, an increase of $98.7. This is $220 − 98.7 = $121.3 less than we originally predicted, so the EFN is now $78.7 − 121.3 = 2$42.6, a surplus. No additional financing is needed.

4.3 Skandia retains $b = 1 - .3337 = 66.63\%$ of net income. Return on assets is \$247.5/3,100 = 7.98%. The internal growth rate is:

$$\frac{\text{ROA} \times b}{1 - \text{ROA} \times b} = \frac{.0798 \times .6663}{1 - .0798 \times .6663} = 5.62\%$$

Return on equity for Skandia is \$247.5/800 = 30.94%, so we can calculate the sustainable growth rate as:

$$\frac{\text{ROE} \times b}{1 - \text{ROE} \times b} = \frac{.3094 \times .6663}{1 - .3094 \times .6663} = 25.97\%$$

Concepts Review and Critical Thinking Questions

1. **Sales Forecast** Why do you think most long-term financial planning begins with sales forecasts? Put differently, why are future sales the key input?
2. **Long Range Financial Planning** Would long-range financial planning be more important for a capital intensive company, such as a heavy equipment manufacturer, or an import-export business? Why?
3. **External Financing Needed** Testaburger, Inc., uses no external financing and maintains a positive retention ratio. When sales grow by 15 percent, the firm has a negative projected EFN. What does this tell you about the firm's internal growth rate? How about the sustainable growth rate? At this same level of sales growth, what will happen to the projected EFN if the retention ratio is increased? What if the retention ratio is decreased? What happens to the projected EFN if the firm pays out all of its earnings in the form of dividends?
4. **EFN and Growth Rates** Broslofski Co. maintains a positive retention ratio and keeps its debt-equity ratio constant every year. When sales grow by 20 percent, the firm has a negative projected EFN. What does this tell you about the firm's sustainable growth rate? Do you know, with certainty, if the internal growth rate is greater than or less than 20 percent? Why? What happens to the projected EFN if the retention ratio is increased? What if the retention ratio is decreased? What if the retention ratio is zero?

Use the following information to answer the next six questions: A small business called The Grandmother Calendar Company began selling personalized photo calendar kits in 1992. The kits were a hit, and sales soon sharply exceeded forecasts. The rush of orders created a huge backlog, so the company leased more space and expanded capacity, but it still could not keep up with demand. Equipment failed from overuse and quality suffered. Working capital was drained to expand production, and, at the same time, payments from customers were often delayed until the product was shipped. Unable to deliver on orders, the company became so strapped for cash that employee paychecks began to bounce. Finally, out of cash, the company ceased operations entirely in January 1995.

5. **Product Sales** Do you think the company would have suffered the same fate if its product had been less popular? Why or why not?
6. **Cash Flow** The Grandmother Calendar Company clearly had a cash flow problem. In the context of the cash flow analysis we developed in Chapter 2, what was the impact of customers' not paying until orders were shipped?

7. **Product Pricing** The firm actually priced its product to be about 20 percent less than that of competitors, even though the Grandmother calendar was more detailed. In retrospect, was this a wise choice?
8. **Corporate Borrowing** If the firm was so successful at selling, why wouldn't a bank or some other lender step in and provide it with the cash it needed to continue?
9. **Cash Flow** Which is the biggest culprit here: too many orders, too little cash, or too little production capacity?
10. **Cash Flow** What are some of the actions that a small company like The Grandmother Calendar Company can take if it finds itself in a situation in which growth in sales outstrips production capacity and available financial resources? What other options (besides expansion of capacity) are available to a company when orders exceed capacity?

Questions and Problems

Basic
(Questions 1–15)

1. **Pro Forma Statements** Consider the following simplified financial statements for the Lafferty Ranch Corporation (assuming no income taxes):

Income Statement		Balance Sheet			
Sales	$15,000	Assets	$4,300	Debt	$2,800
Costs	11,000			Equity	1,500
Net income	$ 4,000	Total	$4,300	Total	$4,300

Lafferty Ranch has predicted a sales increase of 10 percent. It has predicted that every item on the balance sheet will increase by 10 percent as well. Create the pro forma statements and reconcile them. What is the plug variable here?

2. **Pro Forma Statements and EFN** In the previous question, assume Lafferty Ranch pays out half of net income in the form of a cash dividend. Costs and assets vary with sales, but debt and equity do not. Prepare the pro forma statements and determine the external financing needed.
3. **Calculating EFN** The most recent financial statements for Bradley's Bagels, Inc., are shown here (assuming no income taxes):

Income Statement		Balance Sheet			
Sales	$3,800	Assets	$13,300	Debt	$ 9,200
Costs	1,710			Equity	4,100
Net income	$2,090	Total	$13,300	Total	$13,300

Assets and costs are proportional to sales. Debt and equity are not. No dividends are paid. Next year's sales are projected to be $5,320. What is the external financing needed?

4. **EFN** The most recent financial statements for Schism, Inc., are shown here:

Basic
(*continued*)

Income Statement		Balance Sheet			
Sales	$19,200	Assets	$93,000	Debt	$20,400
Costs	15,550			Equity	72,600
Taxable income	$ 3,650	Total	$93,000	Total	$93,000
Taxes (34%)	1,241				
Net income	$ 2,409				

Assets and costs are proportional to sales. Debt and equity are not. A dividend of $1,445.40 was paid, and Schism wishes to maintain a constant payout ratio. Next year's sales are projected to be $24,000. What is the external financing needed?

5. EFN The most recent financial statements for 2 Doors Down, Inc., are shown here:

Income Statement		Balance Sheet			
Sales	$3,100	Current assets	$4,000	Current liabilities	$ 750
Costs	2,600	Fixed assets	3,000	Long-term debt	1,250
Taxable income	$ 500			Equity	5,000
Taxes (34%)	170	Total	$7,000	Total	$7,000
Net income	$ 330				

Assets, costs, and current liabilities are proportional to sales. Long-term debt and equity are not. 2 Doors Down maintains a constant 50 percent dividend payout ratio. Like every other firm in its industry, next year's sales are projected to increase by exactly 16%. What is the external financing needed?

6. Calculating Internal Growth The most recent financial statements for Barely Heroes Co. are shown here:

Income Statement		Balance Sheet			
Sales	$6,475	Current assets	$ 9,000	Debt	$22,000
Costs	3,981	Fixed assets	25,000	Equity	12,000
Taxable income	$2,494	Total	$34,000	Total	$34,000
Taxes (34%)	848				
Net income	$1,646				

Assets and costs are proportional to sales. Debt and equity are not. Barely Heroes maintains a constant 20 percent dividend payout ratio. No external equity financing is possible. What is the internal growth rate?

7. Calculating Sustainable Growth For the company in the previous problem, what is the sustainable growth rate?

8. Sales and Growth The most recent financial statements for Tool Co. are shown here:

Basic
(*continued*)

Income Statement		Balance Sheet			
Sales	$46,000	Net working capital	$ 21,000	Long-term debt	$ 60,000
Costs	30,400	Fixed assets	100,000	Equity	61,000
Taxable income	$15,600	Total	$121,000	Total	$121,000
Taxes (34%)	5,304				
Net income	$10,296				

Assets and costs are proportional to sales. Tool Co. maintains a constant 30 percent dividend payout ratio and a constant debt-equity ratio. What is the maximum increase in sales that can be sustained assuming no new equity is issued?

9. Calculating Retained Earnings from Pro Forma Income Consider the following income statement for the Heir Jordan Corporation:

HEIR JORDAN CORPORATION
Income Statement

Sales		$24,000
Costs		13,500
Taxable income		$10,500
Taxes (34%)		3,570
Net income		$ 6,930
Dividends	$2,426	
Addition to retained earnings	4,504	

A 20 percent growth rate in sales is projected. Prepare a pro forma income statement assuming costs vary with sales and the dividend payout ratio is constant. What is the projected addition to retained earnings?

10. Applying Percentage of Sales The balance sheet for the Heir Jordan Corporation follows. Based on this information and the income statement in the previous problem, supply the missing information using the percentage of sales approach. Assume that accounts payable vary with sales, whereas notes payable do not. Put "n/a" where needed.

HEIR JORDAN CORPORATION
Balance Sheet

Assets	$	Percentage of Sales	Liabilities and Owners' Equity	$	Percentage of Sales
Current assets			Current liabilities		
Cash	$ 3,525	_____	Accounts payable	$ 3,000	_____
Accounts receivable	7,500	_____	Notes payable	7,500	_____
Inventory	6,000	_____	Total	$10,500	_____
Total	$17,025	_____	Long-term debt	$19,500	_____
Fixed assets			Owners' equity		
Net plant and equipment	$30,000	_____	Common stock and paid-in surplus	$15,000	_____
			Retained earnings	2,025	_____
Total assets	$47,025	_____	Total	$17,025	_____
			Total liabilities and owners' equity	$47,025	_____

Basic (*continued*)

11. EFN and Sales From the previous two questions, prepare a pro forma balance sheet showing EFN, assuming a 15 percent increase in sales and no new external debt or equity financing.

12. Internal Growth If Highfield Hobby Shop has a 12 percent ROA and a 25 percent payout ratio, what is its internal growth rate?

13. Sustainable Growth If the Hlinka Corp. has an 18 percent ROE and a 30 percent payout ratio, what is its sustainable growth rate?

14. Sustainable Growth Based on the following information, calculate the sustainable growth rate for Kovalev's Kickboxing:

Profit margin	= 9.2%
Capital intensity ratio	= .60
Debt-equity ratio	= .50
Net income	= $23,000
Dividends	= $14,000

What is the ROE here?

15. Sustainable Growth Assuming the following ratios are constant, what is the sustainable growth rate?

Total asset turnover	= 1.60
Profit margin	= 7.5%
Equity multiplier	= 1.95
Payout ratio	= 40%

Intermediate (Questions 16–25)

16. Full-Capacity Sales Straka Mfg., Inc., is currently operating at only 75 percent of fixed asset capacity. Current sales are $425,000. How fast can sales grow before any new fixed assets are needed?

17. Fixed Assets and Capacity Usage For the company in the previous problem, suppose fixed assets are $310,000 and sales are projected to grow to $620,000. How much in new fixed assets are required to support this growth in sales?

18. Growth and Profit Margin Lang Co. wishes to maintain a growth rate of 8 percent a year, a debt-equity ratio of .45, and a dividend payout ratio of 60 percent. The ratio of total assets to sales is constant at 1.60. What profit margin must the firm achieve?

19. Growth and Debt-Equity Ratio A firm wishes to maintain a growth rate of 11.5 percent and a dividend payout ratio of 50 percent. The ratio of total assets to sales is constant at .8, and profit margin is 9 percent. If the firm also wishes to maintain a constant debt-equity ratio, what must it be?

20. Growth and Assets A firm wishes to maintain a growth rate of 9 percent and a dividend payout ratio of 40 percent. The current profit margin is 12 percent and the firm uses no external financing sources. What must total asset turnover be?

21. Sustainable Growth Based on the following information, calculate the sustainable growth rate for Corbet, Inc.:

Profit margin	= 9.0%
Total asset turnover	= 1.60
Total debt ratio	= .60
Payout ratio	= 55%

What is the ROA here?

Intermediate (*continued*)

22. Sustainable Growth and Outside Financing You've collected the following information about Hedberg's Cranberry Farm, Inc.:

Sales	= $110,000
Net income	= $15,000
Dividends	= $4,800
Total debt	= $65,000
Total equity	= $32,000

What is the sustainable growth rate for Hedberg's Cranberry Farm, Inc.? If it does grow at this rate, how much new borrowing will take place in the coming year, assuming a constant debt-equity ratio? What growth rate could be supported with no outside financing at all?

23. Calculating EFN The most recent financial statements for Moose Tours, Inc., follow. Sales for 2003 are projected to grow by 20 percent. Interest expense will remain constant; the tax rate and the dividend payout rate will also remain constant. Costs, other expenses, current assets, and accounts payable increase spontaneously with sales. If the firm is operating at full capacity and no new debt or equity is issued, what is the external financing needed to support the 20 percent growth rate in sales?

MOOSE TOURS, INC.
2002 Income Statement

Sales		$980,000
Costs		770,000
Other expenses		14,000
Earnings before interest and taxes		$196,000
Interest paid		23,800
Taxable income		$172,200
Taxes (35%)		60,270
Net income		$111,930
Dividends	$44,772	
Addition to retained earnings	67,158	

MOOSE TOURS, INC.
Balance Sheet as of December 31, 2002

Assets		Liabilities and Owners' Equity	
Current assets		Current liabilities	
Cash	$ 28,000	Accounts payable	$ 70,000
Accounts receivable	49,000	Notes payable	7,000
Inventory	84,000	Total	$ 77,000
Total	$161,000	Long-term debt	$168,000
Fixed assets		Owners' equity	
Net plant and equipment	$385,000	Common stock and paid-in surplus	$ 21,000
		Retained earnings	280,000
		Total	$301,000
Total assets	$546,000	Total liabilities and owners' equity	$546,000

Intermediate (*continued*)

24. Capacity Usage and Growth In the previous problem, suppose the firm was operating at only 80 percent capacity in 2002. What is EFN now?

25. Calculating EFN In Problem 23, suppose the firm wishes to keep its debt-equity ratio constant. What is EFN now?

Challenge (Questions 26–30)

26. EFN and Internal Growth Redo Problem 23 using sales growth rates of 25 and 30 percent in addition to 20 percent. Illustrate graphically the relationship between EFN and the growth rate, and use this graph to determine the relationship between them. At what growth rate is the EFN equal to zero? Why is this internal growth rate different from that found by using the equation in the text?

27. EFN and Sustainable Growth Redo Problem 25 using sales growth rates of 30 and 35 percent in addition to 20 percent. Illustrate graphically the relationship between EFN and the growth rate, and use this graph to determine the relationship between them. At what growth rate is the EFN equal to zero? Why is this sustainable growth rate different from that found by using the equation in the text?

28. Constraints on Growth Lander's Recording, Inc., wishes to maintain a growth rate of 12 percent per year and a debt-equity ratio of .40. Profit margin is 4.5 percent, and the ratio of total assets to sales is constant at 1.75. Is this growth rate possible? To answer, determine what the dividend payout ratio must be. How do you interpret the result?

29. EFN Define the following:

S = Previous year's sales
A = Total assets
D = Total debt
E = Total equity
g = Projected growth in sales
PM = Profit margin
b = Retention (plowback) ratio

Show that EFN can be written as:

$$EFN = -PM(S)b + (A - PM(S)b) \times g$$

Hint: Asset needs will equal $A \times g$. The addition to retained earnings will equal $PM(S)b \times (1 + g)$.

30. Growth Rates Based on the result in Problem 29, show that the internal and sustainable growth rates are as given in the chapter. Hint: For the internal growth rate, set EFN equal to zero and solve for g.

S&P Problems

STANDARD &POOR'S

1. Calculating EFN Find the income statements and balance sheets for Huffy Corporation (HUF), the bicycle manufacturer. Assuming sales grow by 10 percent, what is the EFN for Huffy next year? Assume non-operating income/expense and special items will be zero next year. Assets, costs, and current liabilities are proportional to sales. Long-term debt and equity are not. Huffy will have the same tax rate next year as it does in the current year.

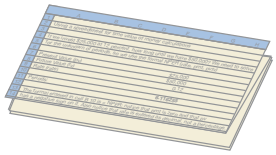
2. Internal and Sustainable Growth Rates Look up the financial statements for Emerson Electric (EMR) and Wal-Mart (WMT). For each company, calculate

the internal growth rate and sustainable growth rate over the past two years. Are the growth rates the same for each company for the two years? Why or why not?

4.1 Growth Rates Go to quote.yahoo.com and enter the ticker symbol "IP" for International Paper. When you get the quote, follow the "Research" link. What is the projected sales growth for International Paper for next year? What is the projected earnings growth rate for next year? For the next five years? How do these earnings growth projections compare to the industry, sector, and S&P 500 index?

4.2 Applying Percentage of Sales Locate the most recent annual financial statements for Du Pont at www.dupont.com under the "Investor Center" link. Locate the annual report. Using the growth in sales for the most recent year as the projected sales growth for next year, construct a pro forma income statement and balance sheet.

4.3 Growth Rates You can find the home page for Caterpillar, Inc., at www.caterpillar.com. Go to the web page, select "Cat Stock," and find the most recent annual report. Using the information from the financial statements, what is the internal growth rate for Caterpillar? What is the sustainable growth rate?



Spreadsheet Templates 4–5, 4–6, 4–21, 4–23, 4–26, 4–27