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Chapter 2
Review of Accounting

Discussion Questions

2-1. Discuss some financial variables that affect the price-earnings ratio.
The price-earnings ratio will be influenced by the earnings and sales growth of the firm, the risk or volatility in performance, the debt-equity structure of the firm, the dividend payment policy, the quality of management, and a number of other factors. The ratio tends to be future-oriented, and the more positive the outlook, the higher it will be.

2-2. What is the difference between book value per share of common stock and market value per share? Why does this disparity occur?
Book value per share is arrived at by taking the cost of the assets and subtracting out liabilities and preferred stock and dividing by the number of common shares outstanding. It is based on the historical cost of the assets. Market value per share is based on the current assessed value of the firm in the marketplace and may bear little relationship to original cost. Besides the disparity between book and market value caused by the historical cost approach, other contributing factors are the growth prospects for the firm, the quality of management, and the industry outlook. To the extent these are quite negative or positive; market value may differ widely from book value.

2-3. Explain how depreciation generates actual cash flows for the company.
The only way depreciation generates cash flows for the company is by serving as a tax shield against reported income. This non-cash deduction may provide cash flow equal to the tax rate times the depreciation charged. This much in taxes will be saved, while no cash payments occur.

2-4. What is the difference between accumulated depreciation and depreciation expense? How are they related?
Accumulated depreciation is the sum of all past and present depreciation charges, while depreciation expense is the current year's charge. They are related in that the sum of all prior depreciation expense should be equal to

accumulated depreciation (subject to some differential related to asset write-offs).

2-5. How is the income statement related to the balance sheet?

The earnings (less dividends) reported in the income statement is transferred to the ownership section of the balance sheet as retained earnings. Thus, what we earn in the income statement becomes part of the ownership interest in the balance sheet.

2-6. Comment on why inflation may restrict the usefulness of the balance sheet as normally presented.

The balance sheet is based on historical costs. When prices are rising rapidly, historical cost data may lose much of their meaning—particularly for plant and equipment and inventory.

2-7. Explain why the statement of cash flows provides useful information that goes beyond income statement and balance sheet data.

The income statement and balance sheet are based on the accrual method of accounting, which attempts to match revenues and expenses in the period in which they occur. However, accrual accounting does not attempt to properly assess the cash flow position of the firm. The statement of cash flows fulfills this need.

2-8. What are the three primary sections of the statement of cash flows? In what section would the payment of a cash dividend be shown?

The sections of the statement of cash flows are:

Cash flows from operating activities
Cash flows from investing activities
Cash flows from financing activities

The payment of cash dividends falls into the financing activities category.

2-9. What is free cash flow? Why is it important to leveraged buyouts?

Free cash flow is equal to cash flow from operating activities:

Minus: Capital expenditures required to maintain the productive capacity of the firm.

Minus: Dividends (required to maintain the payout on common stock and to cover any preferred stock obligation).

The analyst or banker normally looks at free cash flow to determine whether there are sufficient excess funds to pay back the loan associated with the leveraged buyout.

2-10. Why is interest expense said to cost the firm substantially less than the actual expense, while dividends cost it 100 percent of the outlay?

Interest expense is a tax deductible item to the corporation, while dividend payments are not. The net cost to the corporation of interest expense is the amount paid multiplied by the difference of one minus the applicable tax rate.

For example, \$100 of interest expense costs the company \$65 after taxes when the corporate tax rate is 35 percent—for example, \$100 × (1 – 0.35) = \$65.

Chapter 2

Problems

1. **Income Statement (LO1)** Frantic Fast Foods had earnings after taxes of \$420,000 in the year 20X1 with 309,000 shares outstanding. On January 1, 20X2, the firm issued 20,000 new shares. Because of the proceeds from these new shares and other operating improvements, earnings after taxes increased by 30 percent.
   a. Compute earnings per share for the year 20X1.
   b. Compute earnings per share for the year 20X2.

2-1. Solution:

Frantic Fast Foods

a. Year 20X1

$$\text{Earnings per share} = \frac{\text{Earnings after taxes}}{\text{Shares outstanding}}$$

$$= \frac{\$420{,}000}{309{,}000} = \$1.36$$

b. Year 20X2

$$\text{Earnings after taxes} = \$420{,}000 \times 1.30 = \$546{,}000$$
$$\text{Shares outstanding} = 309{,}000 + 20{,}000 = 329{,}000$$

$$\text{Earnings per share} = \frac{\$546{,}000}{329{,}000} = \$1.66$$

2. **Income statement (LO1)** Sosa Diet Supplements had earnings after taxes of $800,000 in the year 20X1 with 200,000 shares of stock outstanding. On January 1, 20X2, the firm issued 50,000 new shares. Because of the proceeds from these new shares and other operating improvements, earnings after taxes increased by 30 percent.

   a. Compute earnings per share for the year 20X1.
   b. Compute earnings per share for the year 20X2.

2-2. Solution:

Sosa Diet Supplements

a. Year 20X1

$$\text{Earnings per share} = \frac{\text{Earnings after taxes}}{\text{Shares outstanding}}$$

$$= \frac{\$800{,}000}{200{,}000} = \$4.00$$

b. Year 20X2

$$\text{Earnings after taxes} = \$800{,}000 \times 1.30 = \$1{,}040{,}000$$
$$\text{Shares outstanding} = 200{,}000 + 50{,}000 = 250{,}000$$
$$\text{Earning per share} = \frac{\$1{,}040{,}000}{250{,}000} = \$4.16$$

3. *a.* **Gross profit (LO1)** Swank Clothiers had sales of $383,000 and cost of goods sold of $260,000. What is the gross profit margin (ratio of gross profit to sales)?

   b. If the average firm in the clothing industry had a gross profit of 25 percent, how is the firm doing?

2-3. Solution:

Swank Clothiers

a. Sales..	$383,000
Cost of goods sold................................	260,000
Gross Profit	$123,000

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Sales}} \quad \frac{\$123{,}000}{\$383{,}000} = 32\%$$

b. With a gross profit of 32 percent, the firm is outperforming the industry average of 25 percent.

4. **Operating profit (LO1)** A-Rod Fishing Supplies had sales of $2,500,000 and cost of goods sold of $1,710,000. Selling and administrative expenses represented 10 percent of sales. Depreciation was 6 percent of the total assets of $4,680,000. What was the firm's operating profit?

2-4. Solution:

A-Rod Fishing Supplies

Sales	$2,500,000
Cost of goods sold	1,710,000
Gross Profit	790,000
Selling and administrative expense*	250,000
Depreciation expense**	280,800
Operating profit	$ 259,200

* 10% × $2,500,000 = $250,000

** 6% × $4,680,000 = $280,800

5. **Income statement (LO1)** Arrange the following income statement items so they are in the proper order of an income statement:

Taxes
Shares outstanding
Interest expense
Depreciation expense
Preferred stock dividends
Operating profit
Sales
Gross profit
Earnings per share
Earnings before taxes
Cost of goods sold
Earnings after taxes
Earnings available to common stockholders
Selling and administrative expense

2-5. Solution:

Sales
– Cost of goods sold
Gross profit
– Selling and administrative expense
– Depreciation expense
Operating profit
– Interest expense
Earnings before taxes
– Taxes
Earnings after taxes
– Preferred stock dividends

Earnings available to common stockholders
Shares outstanding
Earnings per share

6. **Income statement (LO1)** Given the following information, prepare an income statement for the Dental Drilling Company.

Selling and administrative expense	$ 112,000
Depreciation expense	73,000
Sales	489,000
Interest expense	45,000
Cost of goods sold	156,000
Taxes	47,000

2-6. Solution:

Dental Drilling Company

Income Statement

Sales	$ 489,000
Cost of goods sold	$ 156,000
Gross profit	$ 333,000
Selling and administrative expense	$ 112,000
Depreciation expense	$ 73,000
Operating profit	$ 148,000
Interest expense	$ 45,000
Earnings before taxes	$ 103,000
Taxes	$ 47,000
Earnings after taxes	$ 56,000

7. **Income statement (LO1)** Given the following information, prepare in good form an income statement for Jonas Brothers Cough Drops.

Selling and administrative expense	$ 328,000
Depreciation expense	195,000
Sales	1,660,000
Interest expense	129,000
Cost of goods sold	560,000
Taxes	171,000

2-7. Solution:

Jonas Brothers Cough Drops
Income Statement

Sales		$1,660,000
Cost of goods sold		560,000
Gross profit		1,100,000
Selling and administrative expense	328,000	
Depreciation expense		195,000
Operating profit		577,000
Interest expense	129,000	
Earnings before taxes	448,000	
Taxes	171,000	
Earnings after taxes		$ 277,000

8. **Determination of profitability (LO1)** Prepare in good form an income statement for Franklin Kite Co. Inc. Take your calculations all the way to computing earnings per share.

Sales	$900,000
Shares outstanding	50,000
Cost of goods sold	400,000
Interest expense	40,000
Selling and administrative expense	60,000
Depreciation expense	20,000
Preferred stock dividends	80,000
Taxes	50,000

2-8. Solution:

Franklin Kite Company
Income Statement

Sales		$900,000
Cost of goods sold		400,000
Gross profit		500,000
Selling and administrative expense	60,000	
Depreciation expense		20,000
Operating profit		$420,000
Interest expense		40,000
Earnings before taxes		$390,000
Taxes		120,000
Earnings after taxes		$270,000
Preferred stock dividends		80,000
Earnings available to common stockholders.		190,000
Shares outstanding		50,000
Earnings per share		$3.80

9. **Determination of profitability (LO1)** Prepare an income statement for Virginia Slim Wear. Take your calculations all the way to computing earnings per share.

Sales	$1,360,000
Shares outstanding	104,000
Cost of goods sold	700,000
Interest expense	34,000
Selling and administrative expense	49,000
Depreciation expense	23,000
Preferred stock dividends	86,000
Taxes	100,000

2-9. Solution:

Virginia Slim Wear
Income Statement

Sales	$1,360,000
Cost of goods sold	700,000
Gross profit	660,000
Selling and administrative expense	49,000
Depreciation expense	23,000
Operating profit	588,000
Interest expense	34,000
Earnings before taxes	554,000
Taxes	100,000
Earnings after taxes	454,000
Preferred stock dividends	86,000
Earnings available to common stockholders	$ 368,000
Shares outstanding	104,000
Earnings per share	$ 3.54

10. **Income statement (LO1)** Precision Systems had sales of $820,000, cost of goods of $510,000, selling and administrative expense of $60,000, and operating profit of $103,000.

What was the value of depreciation expense? Set this problem up as a partial income statement, and determine depreciation expense as the plug figure.

2-10. Solution:

Precision Systems

Sales	$820,000
Cost of goods sold	510,000
Gross profit	310,000
Selling and administrative expense	60,000
Depreciation (plug figure)	**147,000**
Operating profit	$103,000

11. **Depreciation and earnings (LO1)** Stein Books Inc. sold 1,900 finance textbooks for $250 each to High Tuition University in 20X1. These books cost $210 to produce. Stein Books spent $12,200 (selling expense) to convince the university to buy its books.

    Depreciation expense for the year was $15,200. In addition, Stein Books borrowed $104,000 on January 1, 20X1, on which the company paid 12 percent interest. Both the interest and principal of the loan were paid on December 31, 20X1. The publishing firm's tax rate is 30 percent.

    Did Stein Books make a profit in 20X1? Please verify with an income statement presented in good form.

2-11. Solution:

Stein Books Inc.

Income Statement

For the Year Ending December 31, 20X1

Sales (1,900 books at $250 each)	$475,000
Cost of goods sold (1,900 books at $210 each)	399,000
Gross profit	76,000
Selling expense	12,200
Depreciation expense	15,200
Operating profit……	$ 48,600
Interest expense ($104,000 × 12%)	12,480
Earnings before taxes	36,120

Taxes @ 30%	10,836
Earnings after taxes	$ 25,284

12. **Determination of profitability (LO1)** Lemon Auto Wholesalers had sales of $1,000,000 last year and cost of goods sold represented 78 percent of sales. Selling and administrative expenses were 12 percent of sales. Depreciation expense was $11,000 and interest expense for the year was $8,000. The firm's tax rate is 30 percent.

a. Compute earnings after taxes.

b. Assume the firm hires Ms. Carr, an efficiency expert, as a consultant. She suggests that by increasing selling and administrative expenses to 14 percent of sales, sales can be increased to $1,050,900. The extra sales effort will also reduce cost of goods sold to 74 percent of sales. (There will be a larger markup in prices as a result of more aggressive selling.) Depreciation expense will remain at $11,000. However, more automobiles will have to be carried in inventory to satisfy customers, and interest expense will go up to $15,800. The firm's tax rate will remain at 30 percent. Compute revised earnings after taxes based on Ms. Carr's suggestions for Lemon Auto Wholesalers. Will her ideas increase or decrease profitability?

2-12. Solution:

Lemon Auto Wholesalers
Income Statement

a.	Sales	$1,000,000
	Cost of goods sold (78% of sales)	$ 780,000
	Gross profit	$ 220,000
	Selling and administrative expense (12% of sales)	$ 120,000
	Depreciation	$ 11,000
	Operating profit	$ 89,000
	Interest expense	$ 8,000
	Earnings before taxes	$ 81,000
	Taxes @ 30%	$ 24,300
	Earnings after taxes	$ 56,700

2-12. (Continued)

b.

Sales	$1,050,900
Cost of goods sold (74% of sales)	$ 777,666
Gross profit	$ 273,234
Selling and administrative expense (14% of sales)	$ 147,126
Depreciation	$ 11,000
Operating profit	$ 115,108
Interest expense	$ 15,800
Earnings before taxes	$ 99,308
Taxes @ 30%	$ 29,792
Earnings after taxes	$ 69,516

Ms. Carr's ideas will increase profitability.

13. **Balance sheet (LO3)** Classify the following balance sheet items as current or noncurrent:

Retained earnings	Bonds payable
Accounts payable	Accrued wages payable
Prepaid expenses	Accounts receivable
Plant and equipment	Capital in excess of par
Inventory	Preferred stock
Common stock	Marketable securities

2-13. Solution:

Retained earnings – noncurrent
Accounts payable – current
Prepaid expense – current
Plant and equipment – noncurrent
Inventory – current
Common stock – noncurrent
Bonds payable – noncurrent
Accrued wages payable – current
Accounts receivable – current
Capital in excess of par – noncurrent

Preferred stock – noncurrent
Marketable securities – current

14. **Balance sheet and income statement classification (LO1 & 3)** Fill in the blank spaces with categories 1 through 7:

1. Balance sheet (BS)
2. Income statement (IS)
3. Current assets (CA)
4. Fixed assets (FA)
5. Current liabilities (CL)
6. Long-term liabilities (LL)
7. Stockholders' equity (SE)

Indicate Whether Item Is on Balance Sheet (BS) or Income Statement (IS)	If on Balance Sheet, Designate Which Category	Item
______	______	Accounts receivable
______	______	Retained earnings
______	______	Income tax expense
______	______	Accrued expenses
______	______	Cash
______	______	Selling and administrative expenses
______	______	Plant and equipment
______	______	Operating expenses
______	______	Marketable securities
______	______	Interest expense
______	______	Sales
______	______	Notes payable (6 months)
______	______	Bonds payable, maturity 2019
______	______	Common stock
______	______	Depreciation expense
______	______	Inventories
______	______	Capital in excess of par value
______	______	Net income (earnings after taxes)
______	______	Income tax payable

2-14. Solution:

1. Balance Sheet (BS)
2. Income Statement (IS)
3. Current Assets (CA)

4. Fixed Assets (FA)
5. Current Liabilities (CL)
6. Long-Term Liabilities (LL)
7. Stockholders Equity (SE)

2-14. (Continued)

Indicate Whether Item is on Income Statement or Balance Sheet	***If Item Is on Balance Sheet, Designate Which Category***	***Item***
BS	CA	Accounts Receivable
BS	SE	Retained Earnings
IS		Income Tax Expense
BS	CL	Accrued Expenses
BS	CA	Cash
IS		Selling and Administrative expenses
BS	FA	Plant & Equipment
IS		Operating Expenses
BS	CA	Marketable Securities
IS		Interest Expense
IS		Sales
BS	CL	Notes Payable (6 Months)
BS	LL	Bonds Payable (Maturity 2019)
BS	SE	Common Stock
IS		Depreciation Expense
BS	CA	Inventories

BS	SE	Capital in Excess of Par Value
IS		Net Income (Earnings after Taxes)
BS	CL	Income Tax Payable

15. **Development of balance sheet (LO3)** Arrange the following items in proper balance sheet presentation:

Accumulated depreciation...........................	$309,000
Retained earnings...	187,000
Cash..	14,000
Bonds payable..	136,000
Accounts receivable................................	54,000
Plant and equipment—original cost.....................................	775,000
Accounts payable..................................	35,000
Allowance for bad debts............................	9,000
Common stock, $1 par, 100,000 shares outstanding.....	100,000
Inventory.......................................	70,000
Preferred stock, $59 par, 1,000 shares outstanding...	59,000
Marketable securities..............................	24,000
Investments.....................................	20,000
Notes payable..	34,000
Capital paid in excess of par (common stock).........	88,000

2-15. Solution:

Assets

Current Assets:		
Cash..		$ 14,000
Marketable securities...................		24,000
Accounts receivable	$ 54,000	
Less: Allowance for bad debts	9,000	45,000
Inventory		70,000
Total current assets		$153,000
Other Assets:		
Investments		20,000
Fixed Assets:		

Plant and equipment	$775,000	
Less: Accumulated depreciation	309,000	
Net plant and equipment		466,000
Total assets..............................		$ 639,000

2-15. (Continued)

Liabilities and Stockholders' Equity

Current Liabilities:	
Accounts payable..	$ 35,000
Notes payable..	34,000
Total current liabilities..	$ 69,000
Long-term liabilities..	
Bonds payable..	136,000
Total liabilities..	$205,000
Stockholders' equity:	
Preferred stock, $59 par, 1,000 shares outstanding ..	59,000
Common stock, $1 par, 100,000 shares outstanding	100,000
Capital paid in excess of par (common stock)	88,000
Retained earnings..	187,000
Total stockholders' equity	$434,000
Total liabilities and stockholders' equity	$639,000

16. **Earnings per share and retained earnings (LO1 and 3)** Elite Trailer Parks has an operating profit or $200,000. Interest expense for the year was $10,000; preferred dividends paid were $18,750; and common dividends paid were $30,000. The tax was $61,250. The firm has 20,000 shares of common stock outstanding.

    a. Calculate the earnings per share and the common dividends per share for Elite Trailer Parks.

    b. What was the increase in retained earnings for the year?

2-16. Solution:

Elite Trailer Parks

a.

Operating profit (EBIT)	$200,000
Interest expense	10,000
Earnings before taxes (EBT)	$190,000
Taxes	61,250
Earnings after taxes (EAT)	$128,750
Preferred dividends	18,750
Available to common stockholders	$110,000
Common dividends	30,000
Increase in retained earnings	$80,000

$$\frac{\text{Earnings Available to Common Stockholders}}{\text{Number of Shares of Com. Stock Outstanding}}$$

= $110,000/20,000 shares

= $5.50 per share

Dividends per share = $30,000/20,000 shares

= $1.50 per share

b. Increase in retained earnings = $80,000

17. **Earnings per share and retained earnings (LO1 and 3)** Quantum Technology had $669,000 of retained earnings on December 31, 20X2. The company paid common dividends of $35,500 in 20X2 and had retained earnings of $576,000 on December 31, 20X1. How much did Quantum Technology earn during 20X2, and what would earnings per share be if 47,400 shares of common stock were outstanding?

2-17. Solution:

Quantum Technology

Retained earnings, December 31, 20X2	$669,000
Less: Retained earnings, December 31, 20X1	576,000

Change in retained earnings	$93,000
Add: Common stock dividends	35,500
Earnings available to common stockholders	$128,500

Earnings per share

$$= \frac{\$128,500}{47,400 \text{ shares}} = \$2.71 \text{ per share}$$

18. **Price/earning ratio (LO2)** Botox Facial Care had earnings after taxes of $370,000 in 20X1 with 200,000 shares of stock outstanding. The stock price was $31.50. In 20X2, earnings after taxes increased to $436,000 with the same 200,000 shares outstanding. The stock price was $42.00.
    a. Compute earnings per share and the P/E ratio for 20X1.
    (The P/E ratio equals the stock price divided by earnings per share.)
    b. Compute earnings per share and the P/E ratio for 20X2.
    c. Give a general explanation of why the P/E ratio changed.

2-18. Solution:

Botox Facial Care

a. EPS (20X1) $= \frac{\$370,000}{200,000} = \$1.85$

P/E ratio (20X1) = Price/EPS $= \frac{\$31.50}{\$1.85} = 17.03x$

b. EPS (20X2) $= \frac{\$436,000}{200,000} = \$2.18$

P/E ratio (20X2) = Price/EPS = $\frac{\$42.00}{\$2.18}$ = $19.27x$

c. The stock price increased by 33.33% while EPS only increased 17.84%.

19. **Price/earning ratio (LO2)** Stilley Corporation had earnings after taxes of $436,000 in 20X2 with 200,000 shares outstanding. The stock price was $42.00. In 20X3, earnings after taxes declined to $206,000 with the same 200,000 shares outstanding. The stock price declined to $27.80.

    a. Compute earnings per share and the P/E ratio for 20X2.

    b. Compute earnings per share and the P/E ratio for 20X3.

    c. Give a general explanation of why the P/E changed. You might want to consult the textbook to explain this surprising result.

2-19. Solution:

Stilley Corporation

a. EPS (20X2) = $\frac{\$436,000}{200,000}$ = $2.18

P/E ratio (20X2) = Price/EPS = $\frac{\$42.00}{\$2.18}$ = $19.27x$

b. EPS (20X3) = $\frac{\$206,000}{200,000}$ = $1.03

P/E ratio (20X3) = Price/EPS = $\frac{\$27.80}{\$1.03}$ = $26.99x$

c. As explained in the text, when EPS drops rapidly, the stock price might not decline as much, and the P/E ratio rises. A higher P/E ratio under adverse conditions is not a positive.

20. **Cash flow (LO4)** Identify whether each of the following items increases or decreases cash flow:

Increase in accounts receivable	Decrease in prepaid expenses
Increase in notes payable	Increase in inventory
Depreciation expense	Dividend payment

Increase in investments	Increase in accrued expenses
Decrease in accounts payable	

2-20. Solution:

Increase in accounts receivable – decreases cash flow (use)
Increase in notes payable – increases cash flow (source)
Depreciation expense – increases cash flow (source)
Increase in investments – decreases cash flow (use)
Decrease in accounts payable – decreases cash flow (use)
Decrease in prepaid expense – increases cash flow (source)
Increase in inventory – decreases cash flow (use)
Dividend payment – decreases cash flow (use)
Increase in accrued expenses – increases cash flow (source)

21. **Depreciation and cash flow (LO5)** The Rogers Corporation has a gross profit of $880,000 and $360,000 in depreciation expense. The Evans Corporation also has $880,000 in gross profit, with $60,000 in depreciation expense. Selling and administrative expense is $120,000 for each company.

Given that the tax rate is 40 percent, compute the cash flow for both companies. Explain the difference in cash flow between the two firms.

2-21. Solution:

Rogers Corporation – Evans Corporation

	Rogers	Evans

Gross profit	$880,000	$880,000
Selling and adm. expense	120,000	120,000
Depreciation	360,000	60,000
Operating profit	$400,000	$700,000
Taxes (40%)	160,000	280,000
Earnings after taxes	$240,000	$420,000
Plus depreciation expense	$360,000	$60,000
Cash flow	$600,000	$480,000

Rogers had $300,000 more in depreciation which provided $120,000 (0.40 × $300,000) more in cash flow.

22. **Free cash flow (LO4)** Nova Electrics anticipates cash flow from operating activities of $6 million in 20X1. It will need to spend $1.2 million on capital investments to remain competitive within the industry. Common stock dividends are projected at $.4 million and preferred stock dividends at $0.55 million.

a. What is the firm's projected free cash flow for the year 20X1?
b. What does the concept of free cash flow represent?

2-22. Solution:

Nova Electronics

a.	Cash flow from operations activities	$6.00 million
	– Capital expenditures	1.20
	– Common stock dividends	0.40
	– Preferred stock dividends	0.55
	Free cash flow	$3.85 million

b. Free cash flow represents the funds that are available for special financial activities, such as a leveraged buyout, increased dividends, common stock repurchases, acquisitions, or repayment of debt.

23. **Book value (LO3)** Landers Nursery and Garden Stores has current assets of $220,000 and fixed assets of $170,000. Current liabilities are $80,000 and long-term liabilities are $140,000. There is $40,000 in preferred stock outstanding and the firm has issued 25,000 shares of common stock. Compute book value (net worth) per share.

2-23. Solution:

Landers Nursery and Garden Stores

Current assets	$220,000
Fixed assets	170,000
Total assets	$390,000
– Current liabilities	80,000
– Long-term liabilities	140,000
Stockholders' equity	$170,000
– Preferred stock obligation	40,000
Net worth assigned to common	$130,000

Common shares outstanding		25,000
Book value (net worth) per share	$	5.20

24. **Book value and market value (LO2 and 3)** The Holtzman Corporation has assets of $400,000, current liabilities of $50,000, and long-term liabilities of $100,000. There is $40,000 in preferred stock outstanding; 20,000 shares of common stock have been issued.

   a. Compute book value (net worth) per share.
   b. If there is $22,000 in earnings available to common stockholders, and Holtzman's stock has a P/E of 18 times earnings per share, what is the current price of the stock?
   c. What is the ratio of market value per share to book value per share?

2-24. Solution:

Holtzman Corporation

a.	Total assets	$400,000
	– Current liabilities..................................	50,000
	– Long-term liabilities..............................	100,000
	– Stockholders' equity..............................	$250,000
	– Preferred stock......................................	40,000
	Net worth assigned to common............	$210,000
	Common shares outstanding.............	20,000
	Book values (net worth) per share	$10.50
b.	Earnings available to common................	$22,000
	Shares outstanding..................................	20,000
	Earnings per share	$1.10

P/E ratio	×	earnings per share	=	price
18	×	$1.10	=	$19.80

c. Market value per share (price) to book value per share $19.80/$10.50 = 1.89

25. **Book value and market value (LO2 and 3)** Amigo Software Inc. has total assets of $889,000, current liabilities of $192,000, and long-term liabilities of $154,000. There is $87,000 in preferred stock outstanding. Thirty thousand shares of common stock have been issued.

   a. Compute book value (net worth) per share.
   b. If there is $56,300 in earnings available to common stockholders, and the firm's stock has a P/E of 23 times earnings per share, what is the current price of the stock?

c. What is the ratio of market value per share to book value per share? (Round to two places to the right of the decimal point.)

2-25. Solution:

Amigo Software, Inc.

a.

Total assets	$889,000
– Current liabilities	192,000
– Long-term liabilities	154,000
Stockholders' equity	$543,000
– Preferred stock	87,000
Net worth assigned to common	$456,000
Common shares outstanding	30,000
Book value (net worth) per share	$ 15.20

b.

Earnings available to common	$ 56,300
Shares outstanding	30,000
Earnings per share	$ 1.88

P/E ratio	×	earnings per share	=	price
23	×	$1.88	=	$43.24

c. Market value per share (price) to book value per share
$43.24/$15.20 = 2.84

26. **Book value and P/E ratio (LO2 and 3)** Vriend Software Inc.'s book value per share is $15.20. Earnings per share is $1.88, and the firm's stock trades in the stock market at 3.5 times book value per share, what will the P/E ratio be? (Round to the nearest whole number.)

2-26. Solution:

Vriend Software Inc.

$$3.5 \times \text{book value per share} = \text{price}$$

$$3.5 \times \$15.20 = \$53.20$$

$$\frac{\text{Price}}{\text{Earnings per share}} = \text{P/E}$$

$$\frac{\$53.20}{\$1.88} = 28.30 \quad \text{P/E ratio} \qquad \text{round to 28x}$$

27. **Construction of income statement and balance sheet (LO1 and 3)** For December 31, 20X1, the balance sheet of Baxter Corporation was as follows:

Current Assets		**Liabilities**	
Cash	$ 15,000	Accounts payable	$ 17,000
Accounts receivable	20,000	Notes payable	25,000
Inventory	30,000	Bonds payable	55,000
Prepaid expenses	12,500		
Fixed Assets		**Stockholders' Equity**	
Plant and equipment (gross)	$255,000	Preferred stock	$25,000
Less: Accumulated depreciation	51,000	Common stock	60,000
		Paid-in capital	30,000
Net plant and equipment	$204,000	Retained earnings	69,500
Total assets	$281,500	Total liabilities and stockholders' equity	$281,500

Sales for 20X2 were $245,000, and the cost of goods sold was 60 percent of sales. Selling and administrative expense was $24,500. Depreciation expense was 8 percent of plant and equipment (gross) at the beginning of the year. Interest expense for the notes payable was 10 percent, while the interest rate on the bonds payable was 12 percent. This interest expense is based on December 31, 20X1 balances. The tax rate averaged 20 percent.

$2,500 in preferred stock dividends were paid, and $5,500 in dividends were paid to common stockholders. There were 10,000 shares of common stock outstanding.

During 20X2, the cash balance and prepaid expenses balances were unchanged. Accounts receivable and inventory increased by 10 percent. A new machine was purchased on December 31, 20X2, at a cost of $40,000.

Accounts payable increased by 20 percent. Notes payable increased by $6,500 and bonds payable decreased by $12,500, both at the end of the year. The preferred stock, common stock, and paid-in capital in excess of par accounts did not change.

a. Prepare an income statement for 20X2.
b. Prepare a statement of retained earnings for 20X2.
c. Prepare a balance sheet as of December 31, 20X2.

2-27. Solution:

Baxter Corporation
20X2 Income Statement

a.	Sales	$245,000
	Cost of good sold (60%)	147,000
	Gross profit	$ 98,000
	Selling and administrative expense	24,500
	Depreciation expense (8%)	20,400[1]
	Operating profit (EBIT)	$ 53,100
	Interest expense	9,100[2]
	Earnings before taxes	$ 44,000
	Taxes (20%)	8,800
	Earnings after taxes (EAT)	$ 35,200
	Preferred stock dividends	2,500
	Earnings available to common stockholder	$ 32,700
	Shares outstanding	10,000
	Earnings per share	$ 3.27

b.	20X2 Statement of Retained Earnings	
	Retained earnings balance, January 1, 20X2	$ 69,500
	Add: Earnings available to common stockholders, 20X2	32,700
	Deduct: Cash dividend declared in 20X2	5,500

[1] 8% × $255,000 = $20,400
[2] (10% × $25,000) + (12% × $55,000) = $9,100

Retained earnings balance, December 31, 20X2	$96,700

2-27. (Continued)

c. **20X2 Balance Sheet**

Current Assets		Liabilities	
Cash…………..	$ 15,000	Accounts payable	$20,400
Accounts receivable……..	22,000	Notes payable….	31,500
Inventory………	33,000	Bonds payable…	42,500
Prepaid expenses	12,500		
	$82,500		$94,400

Fixed Assets		Stockholders' Equity	
Gross plant…...	$295,000	Preferred stock... Common stock...	$ 25,000 60,000
Accumulated depr…………	(71,400)[3]	Paid in capital in excess of par…	30,000
Net plant……..	223,600	Retained earnings	96,700
Totalassets…..	$306,100	Total liability & equity………..	$306,100

[3] $51,000 + $20,400 = $71,400

28. **Statement of cash flows (LO4)** Refer to the following financial statements for Crosby Corporation:

a) Prepare a statement of cash flows for the Crosby Corporation using the general procedures indicated in Table 2–10.
b) Describe the general relationship between net income and net cash flows from operating activities for the firm.
c) Has the buildup in plant and equipment been financed in a satisfactory manner? Briefly discuss.
d) Compute the book value per common share for both 20X1 and 20X2 for the Crosby Corporation.
e) If the market value of a share of common stock is 3.3 times book value for 20X1, what is the firm's P/E ratio for 20X2?

CROSBY CORPORATION
Income Statement
For the Year Ended December 31, 20X2

Sales	$2,200,000
Cost of goods sold	1,300,000
Gross profits	900,000
Selling and administrative expense	420,000
Depreciation expense	150,000
Operating income	330,000
Interest expense	90,000
Earnings before taxes	240,000
Taxes	80,000
Earnings after taxes	160,000
Preferred stock dividends	10,000
Earnings available to common stockholders	$ 150,000
Shares outstanding	120,000
Earnings per share	$ 1.25

Statement of Retained Earnings
For the Year Ended December 31, 20X2

Retained earnings, balance, January 1, 20X2	$500,000
Add: Earnings available to common stockholders, 20X2	150,000
Deduct: Cash dividends declared and paid in 20X2	50,000
Retained earnings, balance, December 31, 20X2	$600,000

Comparative Balance Sheets
For 20X1 and 20X2

	Year-End	Year-End

Assets	20X1	20X2
Current assets:		
Cash	$ 70,000	$100,000
Accounts receivable (net)	300,000	350,000
Inventory	410,000	430,000
Prepaid expenses	50,000	30,000
Total current assets	830,000	910,000
Investments (long-term securities)	80,000	70,000
Plant and equipment	2,000,000	2,400,000
Less: Accumulated depreciation	1,000,000	1,150,000
Net plant and equipment	1,000,000	1,250,000
Total assets	$1,910,000	$2,230,000

Liabilities and Stockholders' Equity

Current liabilities:		
Accounts payable	$ 250,000	$ 440,000
Notes payable	400,000	400,000
Accrued expenses	70,000	50,000
Total current liabilities	720,000	890,000
Long-term liabilities:		
Bonds payable, 20X2	70,000	120,000
Total liabilities	790,000	1,010,000
Stockholders' equity:		
Preferred stock, $100 par value	90,000	90,000
Common stock, $1 par value	120,000	120,000
Capital paid in excess of par	410,000	410,000
Retained earnings	500,000	600,000
Total stockholders' equity	1,120,000	1,220,000
Total liabilities and stockholders' equity	$1,910,000	$2,230,000

(The following questions apply to the Crosby Corporation, as presented in Problem 27.)

Solution 2-28 a):

Crosby Corporation
Statement of Cash Flows
For the Year Ended December 31, 20X2

Cash flows from operating activities:		
Net income (earnings after taxes)		$160,000
Adjustments to determine cash flow from operating activities:.............		
Add back depreciation	$150,000	
Increase in accounts receivable	(50,000)	
Increase in inventory	(20,000)	
Decrease in prepaid expenses	20,000	
Increase in accounts payable	190,000	
Decrease in accrued expenses.............	(20,000)	
Total adjustments		$270,000
Net cash flows from operating activities..		$430,000
Cash flows from investing activities:		
Decrease in investments	10,000	
Increase in plant and equipment	(400,000)	
Net cash flows from investing activities		(390,000)
Cash flows from financing activities:		
Increase in bonds payable	50,000	
Preferred stock dividends paid................	(10,000)	
Common stock dividends paid................	(50,000)	
Net cash flows from financing................		(10,000)
Net increase (decrease) in cash flows		$ 30,000

The student should observe that the increase in cash flows of $30,000 equals the $30,000 change in the cash account on the balance sheet. This indicates the statement is correct.

Solution 2-28 b):

Cash flows from operating activities far exceed net income. This occurs primarily because we add back depreciation of $319,000 and accounts payable increase by $248,000. Thus, the reader of the cash flow statement gets important insights as to how much cash flow was developed from daily operations.

Solution 2-28 c):

The buildup in plant and equipment of $690,000 (gross) and $371,000 (net) has been financed, in part, by the large increase in accounts payable (248,000). This is not a very satisfactory situation. Short-term sources of funds can always dry up, while fixed asset needs are permanent in nature. This firm may wish to consider more long-term financing, such as a mortgage, to go along with profits, the increase in bonds payable, and the add-back of depreciation.

Solution 2-28 d):

$$\text{Book value per share} = \frac{\text{Stockholders' equity} - \text{Preferred stock}}{\text{Common shares outstanding}}$$

$$\text{Book value per share (20X1)} = \frac{(\$1{,}120{,}000 - \$90{,}000)}{120{,}000} = \frac{\$1{,}030{,}000}{120{,}000} = \$8.58$$

$$\text{Book value per share (20X2)} = \frac{(\$1{,}220{,}000 - \$90{,}000)}{120{,}000} = \frac{\$1{,}130{,}000}{120{,}000} = \$9.42$$

Solution 2-28 e):

$$\text{Market value} = 3.3 \times \$9.42 = \$31.09$$

$$\begin{aligned} \text{P / E ratio} &= \text{Market value / Earnings per share} \\ &= \$31.09 / \$1.25 \\ &= 24.87 \end{aligned}$$

2

Review of Accounting

Author's Overview

As already discussed, finance is a blend of accounting, economics, and other disciplines. This chapter will prove invaluable in establishing the relationship between accounting and finance, whether the student has already taken accounting or not. Though it is assumed that every student taking the introductory course in managerial finance has had course work in accounting, many students are in need of a review. By explicitly covering this review material early in the course, the student is able to grasp later material more easily and the instructor does not have to continually close the "accounting gaps" during the course. The instructor must, of course, decide whether to lecture on this material or merely assign it as reading. Some may choose to forego it altogether. Our experience as professors is that the introductory accounting curriculum has changed over the years and does not always cover the relationship between the balance sheet, income statement, and statement of cash flows. In order to cover the financial analysis material in the next chapter, understanding Chapter 2 is a necessity. Also cash flow generation is necessary for understanding capital budgeting decisions.

Chapter Concepts

LO1. The income statement measures profitability.

LO2. The price-earnings ratio indicates the relative valuation of earnings.

LO3. The balance sheet shows assets and the financing of those assets with debt and equity.

LO4. The statement of cash flows indicates the change in the cash position of the firm.

LO5. Depreciation provides a tax reduction benefit that increases cash flow.

Annotated Outline and Strategy

I. The Income Statement

PPT	**Kramer Corporation-Income Statement** (Table 2-1)

A. The income statement begins with the aggregate amount of sales (revenues) that are generated within a specific period of time.

B. The various expenses that occur in generating the sales are subtracted in stair-step fashion to arrive at the net income for the defined period.

C. The separation of the expense categories such as cost of goods sold, selling and administrative expenses, depreciation, interest and taxes enables the management to assess the relative importance and appropriateness of the expenditures in producing each level of sales.

D. The "bottom line" value, net income, is the aggregate amount available to the owners.

E. Net income is converted from an aggregate value to an earnings per share (EPS) value by dividing net income by the number of shares of outstanding stock.

F. The EPS is a measurement of the return available to providers of equity capital to the firm. The return to the providers of debt capital, interest, appears earlier in the income statement as a tax-deductible expense.

PPT	**Kramer Corporation-Statement of Retained Earnings** (Table 2-2)

G. The earnings per share may be converted to a measure of current value through application of the price/earnings (P/E) ratio.

H. The P/E ratio is best used as a relative measure of value because the numerator, price, is based on the future and the denominator, earnings, is a current measure.

Perspective 2-1: P/E ratios provide a new concept and can be of benefit to the student. Students tend to respond enthusiastically to stock market considerations in valuation. They can get a feel for P/E ratios and how they change over time in Table 2-3.

PPT **P/E Ratios for Selected U.S. Companies** (Table 2-3)

I. There are limitations associated with the income statement. For example, the income statement reflects only income occurring to the individual or business firm from verifiable transactions as opposed to the economists' definition of income, which reflects changes in real worth. Furthermore, flexibility in the application of Generally Accepted Accounting Principles may cause similar events to be recorded and reported differently.

J. The statement of retained earnings, a supplement to the income statement, indicates the disposition of earnings.

II. Balance Sheet

PPT **Kramer Corporation – Balance Sheet** (Table 2-4)

A. Whereas the income statement provides a summary of financial transactions for a period of time, the balance sheet portrays the cumulative results of transactions at a point in time. The balance sheet may present the position of the firm as a result of transactions for six months, twenty-five years, or other periods.

B. The balance sheet is divided into two broad categories. The assets employed in the operations of the firm compose one category while the other, liabilities and net worth, is composed of the sources of financing for the employed assets.

C. Within the asset category, the assets are listed in their order of liquidity.

1. Cash (including demand deposits)
2. Marketable securities: investments of temporarily excess cash in highly liquid securities
3. Accounts receivable
4. Inventory
5. Prepaid expenses: future expense items that have already been paid
6. Investments: investments in securities and other assets for longer than one operating cycle
7. Plant and equipment adjusted for accumulated depreciation

D. The various sources of financing of a firm are listed in their order of maturity. Those sources that mature earliest, current liabilities, are listed first. The more permanent debt and equity sources follow.

1. Accounts payable
2. Notes payable
3. Accrued expenses: an obligation to pay is incurred but payment has not been made
4. Long-term debt: all or a majority of the principal will be paid beyond the current period
5. Preferred stock
6. Common stock accounts:
    a. Common stock (par value)
    b. Capital paid in excess of par
    c. Retained earnings

E. Confusing balance-sheet-related terms

1. Retained earnings is the account used to measure the accumulation of earnings over the life of the firm. It includes "all the income the firm ever made minus all the dividends the firm ever paid." It is not a bucket of money that can be reinvested, but the annual increase in retained earnings is one of the sources of funds that make up the existing investment level.
2. Net worth or book value of the firm is composed of the various common equity accounts and represents the net contributions of the owners to the business plus the earnings retained by the firm (Retained Earnings – see above).
3 Book value is a historical value and does not necessarily coincide with the market value of the owner's equity.

F. Limitation of the balance sheet: Values are recorded at cost. Replacement cost of some assets, particularly plant and equipment, may greatly exceed their recorded value. The Financial Accounting Standards Board (FASB) issued a ruling in October 1979 that required many large companies to disclose inflation adjusted accounting data in their annual reports. However, the standard is no longer in force and the inclusion of inflation adjusted accounting data in financial reports is purely a voluntary act.

Perspective 2-2: Illustrate the substantial differences that may exist between market definitions of value and accounting definitions.

PPT Comparison of Market Value to Book Value per Share (Table 2-5)

III. Statement of Cash Flows

A. In November 1987, the accounting profession replaced the statement of changes in financial position (and the sources and uses of funds statement) with the Statement of Cash Flows as a required financial statement.

B. The new statement emphasizes the critical nature of cash flow to the operations of the firm.

C. The three primary sections of the statement of cash flows are:

1. Cash flows from operating activities.
2. Cash flows from investing activities.
3. Cash flows from financing activities.

PPT Illustration of Concepts behind Statement of Cash Flows (Figure 2-1)

D. Income from operations may be translated from an accrual basis to a cash basis in two ways to obtain cash flow from operations.

1. Direct method -- each and every item on the income statement is adjusted from accrual accounting to cash accounting.
2. Indirect method - a less tedious process than the direct method is usually preferred. Net income is used as the starting point and adjustments are made to convert net income to cash flows from operations. Beginning with net income,
    a. Add depreciation for the current period, decreases in individual current asset accounts (other than cash) and increases in current liabilities;
    b. Subtract increases in current asset accounts (other than cash) and decreases in current liabilities.

Perspective 2-3: The steps necessary for computing cash flow from operations are illustrated in Figure 2–2. The actual numerical material can be found in Tables 2-1, 2-6 and 2-7.

PPT **Steps in Computing Net Cash Flows from Operating Activities Using the Indirect Method** (Figure 2-2)

PPT **Kramer Corporation-Comparative Balance Sheet** (Table 2-6)

PPT **Cash Flows from Operating Activities** (Table 2-7)

E. Cash flow from investing is found by summing the changes of investment in securities and plant and equipment. Increases are uses of funds and decreases are sources of funds.

F. Cash flow from financing activities is found by summing the sale or retirement of corporate securities and dividends. The sale of securities is a source of funds and the retirement of securities and payment of dividends are uses of funds.

G. Cash flows from operations, cash flows from investing, and cash flows from financing are combined to arrive at the net cash flows. The net increase or decrease shown in the statement of cash flows will be equal to the change in the cash balance on the balance sheet.

Perspective 2-4: The three sections of the statement of cash flows are brought together in Table 2-10. In the example, highlight how the cash flows from operating activities are funding investing and financing activities.

Perspective 2-5: The Finance in Action Box discusses some of the major differences between international accounting standards (IFRS) and U.S. generally accepted accounting principles (GAAP) and is a good example of how the global economy is impacting financial reporting.

PPT **Kramer Corporation -- Statement of Cash Flows** (Table 2-10)

IV. Depreciation and Funds Flow

A. Depreciation is an attempt to allocate an initial asset cost over its life.

B. Depreciation is an accounting entry and does not involve the movement of funds.

C. As indicated in the statement of cash flows, depreciation is added back to net income to arrive at cash flow.

Perspective 2-6: To illustrate how the initial purchase of an asset and the subsequent write-off affects cash flow, refer to Table 2-11.

PPT	**Comparison of Accounting and Cash Flows** (Table 2-11)

Finance in Action: Switzerland, a Beautiful Place to Pay Your Taxes
Switzerland is only one example of European countries with lower tax rates than the U.S. and it demonstrates why some corporations have moved their headquarters out of the United States. This is a significant issue for many global companies headquartered in the U.S. because the U.S. is out of step with the rest of the world on corporate taxation of foreign operations.

V. Free Cash Flow

A. Free cash flow is equal to cash flow from operating activities:
Minus: Capital expenditures required to maintain the productive capacity of the firm.
Minus: Dividends

B. The amount of free cash flow is often a determining factor as to whether a leveraged buyout is possible.

VI. Income Tax Considerations

A. Personal taxes at varying rates apply to the earnings of proprietors and partners.

B. Corporate earnings are subject to taxation at two levels -- at the corporate level and at the personal level when received as dividends. Since 1980 Congress has changed corporate tax rates four times.

C. The after-tax cost of a tax-deductible business expense can be calculated by taking the (expense) × (1 – tax rate).

D. Although depreciation is a noncash expense, it does affect cash flow by reducing taxes. Tax reduction in cash outflow for taxes resulting from depreciation charges may be computed by multiplying the (depreciation expense) × (tax rate).

2

Review of Accounting

Block, Hirt, and Danielsen

Foundations of Financial Management

16th edition

Learning Objectives

- Income statement measures profitability
- Price-earnings ratio indicates relative valuation of earnings
- Balance sheet shows assets and financing of assets with debt and equity
- Statement of cash flows indicate change in firm’s cash position
- Depreciation provides tax reduction benefits that increase cash flow

Basic Financial Statements

- Three basic types of financial statements
  - Income statement
  - Statement of retained earnings Balance sheet
  - Statement of cash flows

Income Statement

- Device to measure firm profitability
  - Covers defined time period
  - Presented in stair-step or progressive fashion to examine profit or loss after each type of expense item deducted
- Table 2-1
  - Income Statement for the Kramer Corporation

Table 2-1
Example Income Statement

Table 2-1

KRAMER CORPORATION
Income Statement
For the Year Ended December 31, 2015

1. Sales	$2,000,000
2. Cost of goods sold	1,500,000
3. Gross profit	$ 500,000
4. Selling and administrative expense	270,000
5. Depreciation expense	50,000
6. Operating profit (EBIT)*	$ 180,000
7. Interest expense	20,000
8. Earnings before taxes (EBT)	$ 160,000
9. Taxes	49,500
10. Earnings after taxes (EAT)	$ 110,500
11. Preferred stock dividends	10,500
12. Earnings available to common stockholders	$ 100,000
13. Common shares outstanding	100,000
14. Earnings per share	$ 1.00

*Earnings before interest and taxes.

Income Statement

- Sales – Cost of Goods Sold (COGS)
  = Gross Profit (GP)

- GP – Expenses – depreciation = Earnings Before Interest and Taxes (EBIT) *or* Operating Income (OI)

- EBIT – Interest = Earnings Before Taxes (EBT)

- EBT – Taxes = Earnings After Taxes (EAT) *or* Net Income (NI)

Return to Capital

- Three primary sources of capital
  - Bondholders (receive interest)
  - Preferred stockholders (receive dividends)
  - Common stockholders (receive dividends after preferred stockholders)
- Earnings per share
  - Interpreted in terms of number of outstanding shares
  - May be paid out in dividends or retained by company for subsequent reinvestment

Table 2-2
Statement of Retained Earnings

- Indicates disposition of earnings with
  - Adjustments to previously-reported income
  - Restrictions on cash dividends

Table 2-2

STATEMENT OF RETAINED EARNINGS For the Year Ended December 31, 2015	
Retained earnings, balance, January 1, 2015	$250,000
Add: Earnings available to common stockholders, 2015	100,000
Deduct: Cash dividends declared in 2015	50,000
Retained earnings, balance, December 31, 2015	$300,000

Price-Earnings Applied to Earnings per Share

- Price-earnings ratio (P/E ratio)
  - Multiplier applied to earnings per share to determine current value of common stock
- Factors that influence P/E ratio
  - Earnings and sales growth of firm
  - Risk (volatility in performance)
  - Debt-equity structure of firm
  - Dividend payment policy
  - Quality of management

Price-Earnings Applied to Earnings per Share

- Allows relative market value comparison of many companies
- Indicates expectations about the future of a company
- Firms with higher expected returns have higher P/E ratio
- Price-earnings ratios can be confusing
  - Drop in earnings may not match magnitude of falloff in earnings, which causes increase in P/E ratio

Table 2-3 Price-earnings ratios for selected U.S. companies

Corporation	January 3, 1994	January 2, 1998	January 2, 2001	January 3, 2006	January 4, 2010	January 2, 2013	January 2, 2015
Bank of America	*dd	16	10	11	35	10	45
Cisco Systems	41	28	58	19	23	8	19
Ford Motor Co.	14	9	5	7	*dd	8	10
Intel Corp.	12	19	19	18	17	11	16
Johnson & Johnson	17	27	31	18	14	13	16
McDonald's Corp.	19	21	23	17	16	15	19
Southwest Air	36	17	28	38	62	10	26
Textron Inc.	14	27	10	17	49	11	22
Walmart Stores	26	27	38	18	15	14	18
S&P 500 Index	23	25	23	17	18	14	19

*dd means the company is operating at a deficit and has no P/E ratio at the time because there are no positive earnings per share.

Limitations of the Income Statement

- Income gained or lost during given period is function of verifiable transactions
  - Stockholders may perceive much smaller gain or loss from actual day-to-day operations
- Flexibility in reporting transactions can result in differing measurements of income gained from similar events at end of time period

Balance Sheet

- Indicates what the firm owns and how assets are financed in form of liabilities or ownership interest
  - Delineates the firm’s holdings and obligations
  - Picture of the firm at point in time
  - Items stated on original cost basis rather than current market value

Interpretation of Balance Sheet Items

- Asset accounts are listed in order of liquidity (convertibility to cash)
  - Current assets
    - Items that can be converted to cash within one year
  - Marketable securities
    - Temporary investments of excess cash
  - Accounts receivable
    - Allowance for bad debts to determine anticipated collection value
  - Inventory
    - Includes raw materials, goods in process or finished goods

Interpretation of Balance Sheet Items

- Prepaid expenses
  - Represent future expense items already paid for
- Investments
  - Long-term commitment of funds (at least one year)
  - Includes stocks, bonds, investments in other corporations
- Plant and equipment
  - Carried at original cost minus accumulated depreciation
  - Accumulated depreciation is sum of past and present depreciation charges on currently-owned assets

Table 2-4 Statement of Financial Position (Balance Sheet)

Table 2-4

KRAMER CORPORATION Statement of Financial Position (Balance Sheet) December 31, 2015		
Assets		
Current assets:		
Cash		$ 40,000
Marketable securities		10,000
Accounts receivable	$ 220,000	
Less: Allowance for bad debts	20,000	200,000
Inventory		180,000
Prepaid expenses		20,000
Total current assets		$ 450,000
Other assets:		
Investments		50,000
Fixed assets:		
Plant and equipment, original cost	$1,100,000	
Less: Accumulated depreciation	600,000	
Net plant and equipment		500,000
Total assets		$1,000,000
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable		$ 80,000
Notes payable		100,000
Accrued expenses		30,000
Total current liabilities		$ 210,000
Long-term liabilities:		
Bonds payable,		90,000
Total liabilities		$ 300,000
Stockholders' equity:		
Preferred stock, $100 par value, 500 shares		$ 50,000
Common stock, $1 par value, 100,000 shares		100,000
Capital paid in excess of par (common stock)		250,000
Retained earnings		300,000
Total stockholders' equity		$ 700,000
Total liabilities and stockholders' equity		$1,000,000

Interpretation of Balance Sheet Items

- Total assets are financed through liabilities or stockholders' equity
- Liabilities
  - Represent financial obligations of the firm
  - Move from current liabilities (due within one year) to longer-term obligations

Interpretation of Balance Sheet Items

- Short-term obligations
  - Accounts payable represents amount owed on open account to suppliers
  - Notes payable are short-term signed obligations to the banker or other creditors
  - Accrued expense is generated when a services has been provided and payment has not yet been received

Interpretation of Balance Sheet Items

- Stockholder's Equity
  - Represents total contribution and ownership interest of preferred and common stockholders
    - Preferred stock
    - Common stock
    - Capital paid in excess of par
    - Retained earnings
  - Table 2-4
    - Represents the firm's cumulative earnings since inception minus dividends and other adjustments

Concept of Net Worth

- Net worth or book value
  - Stockholders' equity – Preferred stock component
- Market value is of primary concern to
  - Financial manager
  - Security analyst
  - Stockholders

Limitations of the Balance Sheet

- Most values based on historical or original cost basis
  - Troublesome for plant, equipment and inventory
  - Value may be worth 2 or 3 times original cost
  - May require many times original cost to replace
- FASB reversed disclosure of inflation adjustments and is no longer required
  - Voluntary act on part of company

Limitations of the Balance Sheet

- Factors explaining differences between per share values
  - Asset valuation
  - Industry outlook
  - Growth prospects
  - Quality of management
  - Risk-return expectations

Table 2-5 Comparison of Market Value to Book Value per Share

Corporation	Market Price Per Share	Book Value Per Share	Ratio of Market Price to Book Value
UPS*	103.42	6.19	16.71
Verizon	47.80	4.00	11.95
IBM*	153.90	14.40	10.69
Kellogg*	69.84	9.53	7.33
PepsiCo*	98.90	15.44	6.41
Apple	112.40	19.01	5.91
Adobe	73.48	13.57	5.41
Microsoft	47.13	10.92	4.32
Oracle	44.05	10.81	4.07
Google	534.39	145.68	3.67
eBay	57.15	15.95	3.58
Southern Co.	52.13	22.07	2.36
Kohls	60.19	28.16	2.14
Comstock Resources	4.66	19.63	0.24

* Companies with large stock repurchases over time.

Statement of Cash Flows

- Emphasizes critical nature of cash flow to firm operations
- Represents cash or cash equivalent items easily convertible to cash within 90 days
- Advantage of accrual method
  - Allows matching of revenues and expenses in period in which they occur to appropriately measure profits

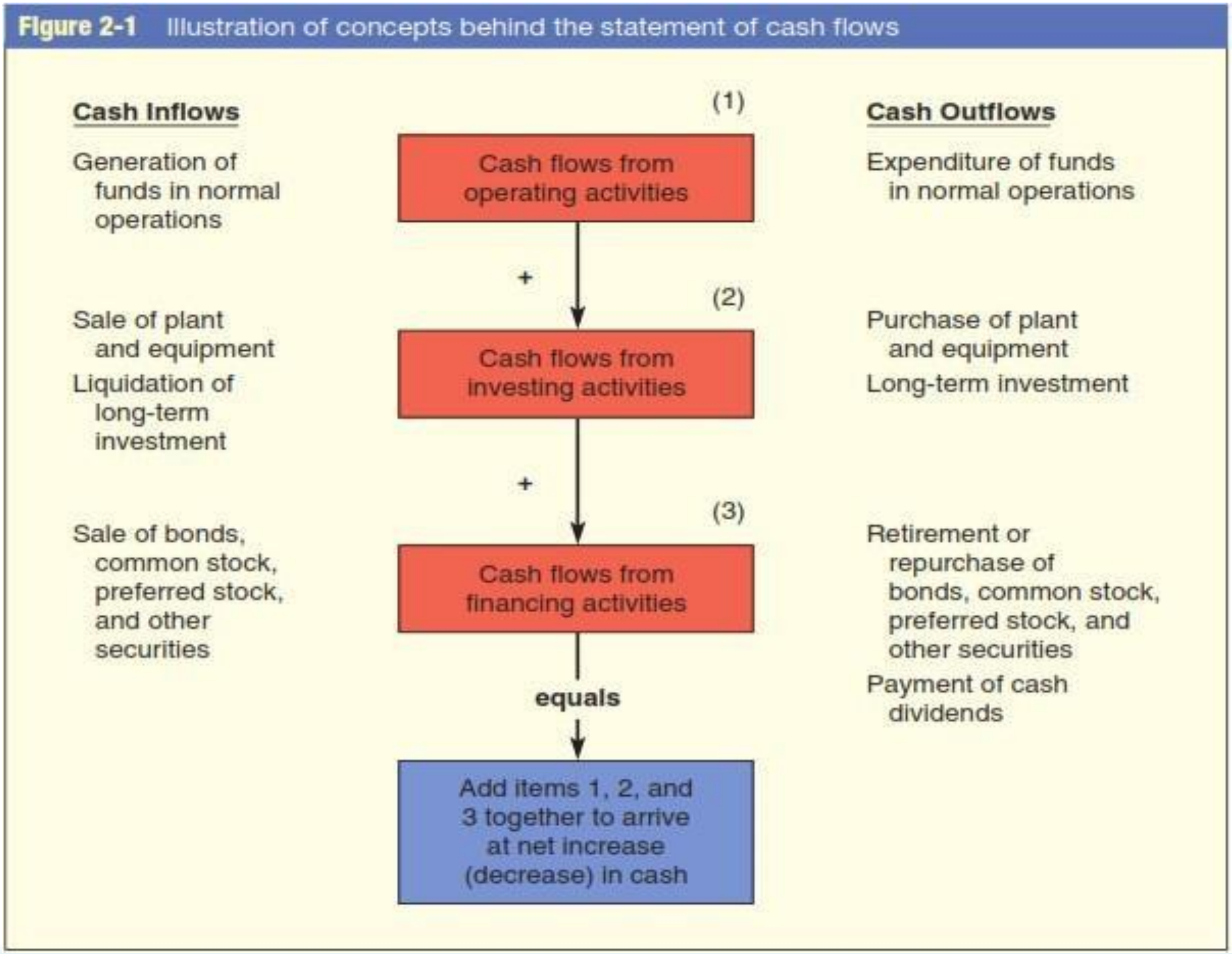
Statement of Cash Flows

- Disadvantage of accrual method
  - Adequate attention not directed to firm's actual cash flow position
- Cash-flow analysis helps in combating discrepancies faced through accrual method of accounting

Developing an Actual Statement

- Statement of cash flows
  - Cash flows from operating activities
  - Cash flows from investing activities
  - Cash flows from financing activities
- Results added together to compute net change in cash flow

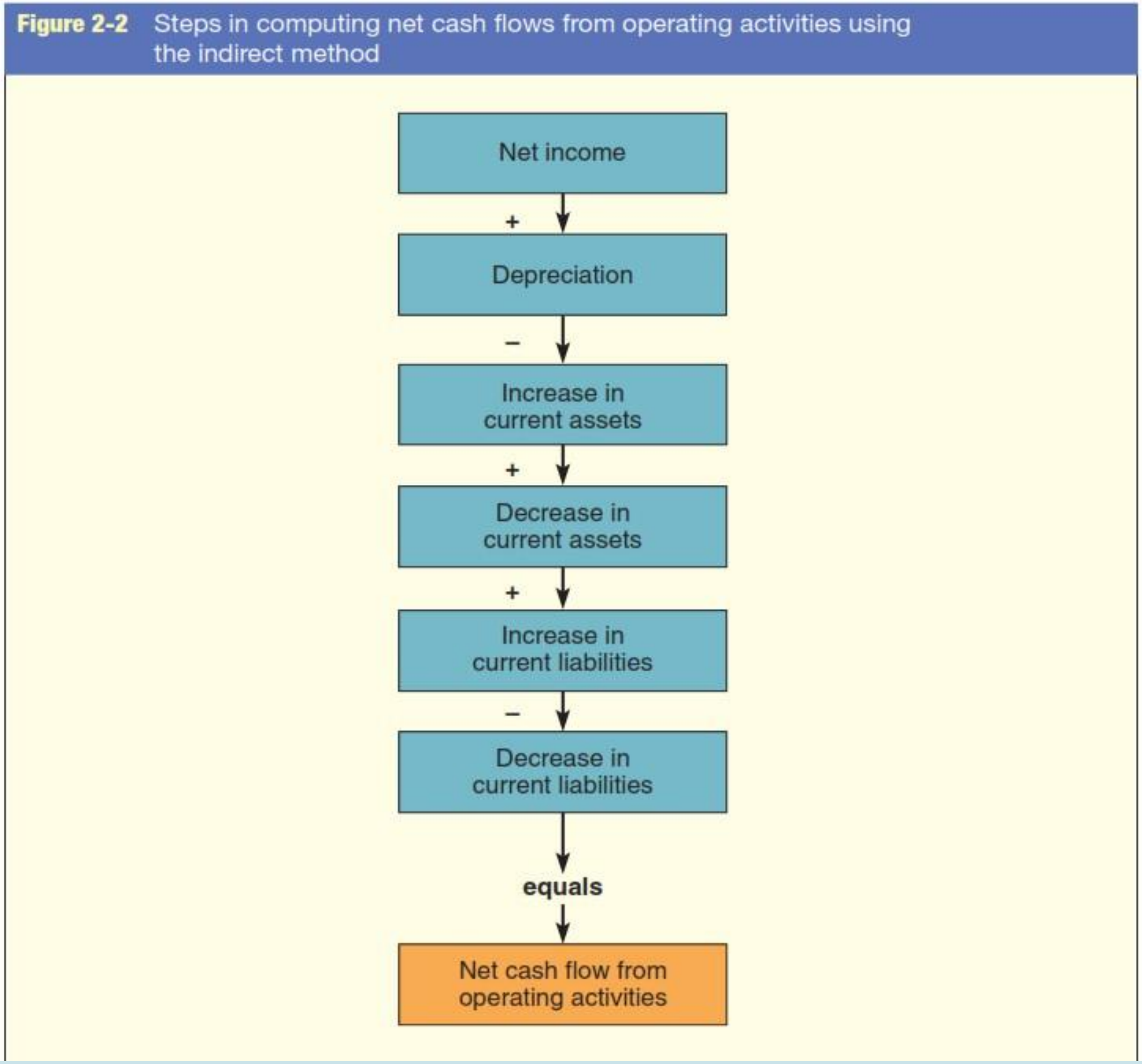
Figure 2-1 Concepts Behind the Statement of Cash Flows



Determining Cash Flows from Operating Activities

- Translation of income from operations from accrual to cash basis
- Direct method
  - Every item on income statement adjusted from accrual to cash accounting
- Indirect method (more popular)
  - Net income represents starting point
  - Adjustments are made to convert net income to cash flows from operations

Figure 2-2 Steps in Computing Net Cash Flows from Operating Activities (Indirect Method)



Determining Cash Flows from Operating Activities

- Start with net income
- Recognize depreciation is a noncash deduction
- Recognize increases in current assets reduce cash balance
- Recognize that decreases in current assets increase cash balance
- Recognize that increases in current liabilities increase cash balance
- Recognize that decreases in current liabilities decrease cash balance

Table 2-6 Comparative Balance Sheets

Table 2-6

KRAMER CORPORATION
Comparative Balance Sheets

		Year-End 2014		Year-End 2015
Assets				
Current assets:				
Cash		$ 30,000		$ 40,000
Marketable securities		10,000		10,000
Accounts receivable (net)		170,000		200,000
Inventory		160,000		180,000
Prepaid expenses		30,000		20,000
Total current assets		$ 400,000		$ 450,000
Investments (long-term)		20,000		50,000
Plant and equipment	$1,000,000		$1,100,000	
Less: Accumulated depreciation	550,000		600,000	
Net plant and equipment		450,000		500,000
Total assets		$ 870,000		$1,000,000
Liabilities and Stockholders' Equity				
Current liabilities:				
Accounts payable		$ 45,000		$ 80,000
Notes payable		100,000		100,000
Accrued expenses		35,000		30,000
Total current liabilities		$ 180,000		$ 210,000
Long-term liabilities:				
Bonds payable, 2025		40,000		90,000
Total liabilities		$ 220,000		$ 300,000
Stockholders' equity:				
Preferred stock, $100 par value		$ 50,000		$ 50,000
Common stock, $1 par value		100,000		100,000
Capital paid in excess of par		250,000		250,000
Retained earnings		250,000		300,000
Total stockholders' equity		$ 650,000		$ 700,000
Total liabilities and stockholders' equity		$ 870,000		$1,000,000

Table 2-7 Cash Flows from Operating Activities

Net income (earnings after taxes) (Table 2-1)..		$110,500
Adjustments to determine cash flow from operating activities:		
Add back depreciation (Table 2-1)..	50,000	
Increase in accounts receivable (Table 2-6)..	(30,000)	
Increase in inventory (Table 2-6)..	(20,000)	
Decrease in prepaid expenses (Table 2-6)..	10,000	
Increase in accounts payable (Table 2-6)..	35,000	
Decrease in accrued expenses (Table 2-6)..	(5,000)	
Total adjustments..		40,000
Net cash flows from operating activities..		$150,500

Determining Cash Flows from Investing Activities

- Investing activities
  - Long-term investment activities in mainly plant and equipment
    - Increasing investments represent *use* of funds
    - Decreasing investments represent *source* of funds
  - Table 2-8 Cash flows from investing activities

Determining Cash Flows from Financing Activities

- Financial activities apply to the sale or retirement of
  - Bonds
  - Common and preferred stock
  - Other corporate securities
  - Payment of cash dividends
- Sale of firm's securities is *source* of funds
- Payment of dividends and repurchase of securities is *use* of funds
- Table 2-9 Cash flows from financing activities

Table 2-10 Combining the Three Sections of the Statement

Table 2-10

KRAMER CORPORATION Statement of Cash Flows For the Year Ended December 31, 2015		
Cash flows from operating activities:		
Net income (earnings after taxes)		$ 110,500
Adjustments to determine cash flow from operating activities:		
Add back depreciation	$ 50,000	
Increase in accounts receivable	(30,000)	
Increase in inventory	(20,000)	
Decrease in prepaid expenses	10,000	
Increase in accounts payable	35,000	
Decrease in accrued expenses	(5,000)	
Total adjustments		40,000
Net cash flows from operating activities		$ 150,500
Cash flows from investing activities:		
Increase in investments (long-term securities)	$(30,000)	
Increase in plant and equipment	(100,000)	
Net cash flows from investing activities		(130,000)
Cash flows from financing activities:		
Increase in bonds payable	$ 50,000	
Preferred stock dividends paid	(10,500)	
Common stock dividends paid	(50,000)	
Net cash flows from financing activities		(10,500)
Net increase (decrease) in cash flows		$ 10,000

Combining the Three Sections of the Statement

- May require further analysis on how buildups in various accounts were financed
- Adequate long-term financing and profits should exist to finance long-term needs
- Short-term funds may be utilized to carry long-term needs
  - High-risk situation as short-term sources of funds may dry up while long-term needs continue to demand funding

Depreciation and Funds Flow

- Depreciation
  - Non-cash expense
  - Not a ‘new’ source of funds
  - Added back to net income to determine amount of actual funds on hand
  - Represents an attempt to allocate initial cost of asset over useful life
- Charging of depreciation does not directly influence fund movement, but rather serves as an accounting entry

Table 2-11 Comparison of Accounting and Cash Flows

Table 2-11 Comparison of accounting and cash flows

	Year 1	
	(A) Accounting Flows	(B) Cash Flows
Earnings before depreciation and taxes (EBDT)	$1,000	$1,000
Depreciation	100	100
Earnings before taxes (EBT)	$ 900	$ 900
Taxes	300	300
Earnings after taxes (EAT)	$ 600	$ 600
Purchase of equipment		(500)
Depreciation charged without cash outlay		100
Cash flow		$ 200

	Year 2	
	(A) Accounting Flows	(B) Cash Flows
Earnings before depreciation and taxes (EBDT)	$1,000	$1,000
Depreciation	100	100
Earnings before taxes	$ 900	$ 900
Taxes	300	300
Earnings after taxes (EAT)	$ 600	$ 600
Depreciation charged without cash outlay		100
Cash flow		$ 700

Free Cash Flow

- Free cash flow =

  Cash flow from operating activities – Capital expenditures – Dividends
  - Capital expenditures
    - Maintains productive capacity of firm
  - Dividends
    - Maintains necessary payout on common stock and covers preferred stock obligations
- Free cash flow used for special financing activities

Income Tax Considerations

- Corporate Tax Rates
  - Progressive rage - top rate is 40% including state and foreign taxes if applicable, lower bracket is 15–20%
- Cost of Tax-Deductible Expense
  - Include interest on business loans, travel expenditures, salaries, etc.

	Corporation A		Corporation B
Earnings before interest and taxes	$400,000		$400,000
Interest	100,000		0
Earnings before taxes (taxable income)	$300,000		$400,000
Taxes (40%)	120,000		160,000
Earnings after taxes	$180,000		$240,000
Difference in earnings after taxes		$60,000	

Income Tax Considerations

- Depreciation as a Tax Shield
  - Not new source of funds
  - Provides tax shield benefits measurable as depreciation times tax rate

	Corporation A	Corporation B
Earnings before depreciation and taxes	$400,000	$400,000
Depreciation	100,000	0
Earnings before taxes	$300,000	$400,000
Taxes (40%)	120,000	160,000
Earnings after taxes	$180,000	$240,000
+ Depreciation charged without cash outlay	100,000	0
Cash flow	$280,000	$240,000
Difference	$40,000	

CASE

2

Chem-Med Company

April 9, 2016: Dr. Nathan Swan, age 40, chairman of the board of directors, chief executive officer, and founder of the Chem-Med Company, sat back in his chair and wondered if he wouldn't have been better off staying in his old job of teaching biochemistry at Harvard University. This business, he thought, was getting to be a headache. Just a short time ago, it seemed, he was able to spend most of his time in the company's lab comfortably working with test tubes and formulas. Lately, though, all his waking hours (or so it seemed) were taken up with columns of figures, dollars, and spreadsheets. It was true that he wanted the company to make money and grow; but he had no idea that the financial end of the business, about which he knew so little, would take up so much of his time.

Dr. Swan was a little mystified by financial matters. How did one describe a company in financial terms anyway? How did one tell if the company was in good or bad shape? (The amount of cash in the company's checking account didn't seem to be a sufficient indicator.) What on earth would one use to convince a bunch of hard-nosed investors that the company was capable of making a lot of money in the next few years if it just had some more money now? (Dr. Swan was always puzzled by the fact that Chem-Med was growing and making money, but it never seemed to have enough cash.)

Dr. Swan reflected back over Chem-Med's origins and the events that led up to today. Chem-Med began operations in 2001 after Dr. Swan completed the development of commercial-scale isolation of sodium hyaluronate (hereafter referred to as HA), a naturally occurring biological fluid that is useful in eye surgery and other medical and veterinary uses. The isolation process, complex and proprietary to the company, involves extracting and purifying HA from rooster combs. Initial seed money for the enterprise came from research grants from Harvard University and the U.S. Department of Agriculture (Food and Drug Admin-istration), plus contributions from Dr. Swan's colleague and associates, who were now classified as the company's stock- holders (254 as of April 2016, all closely held—not traded publicly).

In mid-2009, Chem-Med commenced the manufacture and distribution of its first product, VISCAM, which is used to hold tissues in place during and after surgery of the retina. In late 2010, Chem-Med received regulatory approval to market another HA product known as VISCHY, which is used for the treatment of degenerative joint diseases in horses. The two products, VISCHAM and VISCHY, are the only ones Chem-Med currently produces; however, the company has an active R&D program that is currently investigating other applications.

There are only two other manufacturers of FDA-approved HA products in the world: AB Fortia, a Swedish corporation, which manufactures a product called Healon in Sweden and distributes it in the United States through a subsidiary, Pharmacia, Inc.; and Cilco, Inc., of Huntington, West Virginia. Chem-Med has about a 25 percent share of the market (for HA products in eye surgery) against Cilco's 16 percent and Pharmacia's 59 percent. Pharmacia, with the power of giant AB Fortia behind it, waged a continuing marketing war with Chem-Med, undercutting Chem-Med's prices and wooing its costumers away at every opportunity. The matter came to a head in September, when Chem-Med filed a $13 million suit against Pharmacia, charging unfair trade practices. Dr. Swan was reasonably confident that Chem-Med would prevail in the suit, and, in fact, Pharmacia had recently offered to settle out of court for $500,000.

Dr. Swan's primary problem, he said, was that, although he was convinced the company was sound and would grow, he wasn't sure how to communicate that to potential investors in the financial community in a way that would convince them. Just handing out past income statements and balance sheets that he received from the accountants didn't seem to be enough. Further, he wasn't even sure the company needed outside financing, let alone how much. He just felt that they would need it, since they had always had to ask for money in the past.

Figure 1

CHEM-MED COMPANY
Income Statements

	2013—2015 (in 000s)			Pro Forma Income Statements		
	2013	*2014*	*2015*	*2016*	*2017*	*2018*
Net sales (all credit)	$ 777	$3,051	$3,814	$5,340	$7,475	$10,466
Cost of goods sold	257	995	1,040	1,716	2,154	3,054
Gross profit	520	2,056	2,774	3,624	5,321	7,412
Selling, etc., expenses	610	705	964	1,520	2,120	2,645
Other inc (exps)*	0	0	0	500	0	0
Operating profit	(90)	1,351	1,810	2,604	3,201	4,767
Interest expense	11	75	94	202	302	434
Income before tax	(101)	1,276	1,716	2,402	2,899	4,333
Income taxes (40% in 1986; 33% thereafter)	0	510	566	793	957	1,430
Net income	($ 101)	$ 766	$1,150	$1,609	$1,943	$ 2,903
Dividends paid	0	0	0	0	0	0
Increase in retained earnings	($ 101)	$ 766	$1,150	$1,609	$1,943	$ 2,903
Average number of shares**	2,326	2,326	2,347	2,347	2,347	2,347
Earnings per share	($ 0.04)	$ 0.33	$ 0.49	$ 0.69	$ 0.83	$ 1.24

* Other Inc (Exps) refers to extraordinary gains and losses. In 2016, $500,000 is expected from Pharmacia, Inc., in settlement of their suit.
** Shares are not publicly traded.

Figure 2

CHEM-MED COMPANY
Balance Sheets

	As of Dec. 31, years ended:			Pro Forma Balance Sheets As of Dec. 31, years ended:		
	2013	*2014*	*2015*	*2016*	*2017*	*2018*
Assets:			$ 167			
Cash and equivalents	$ 124	$ 103	564	$ 205	$ 422	$ 101
Accounts receivable	100	409	960	907	1,495	2,351
Inventories	151	302	29	1,102	1,443	798
Other current	28	59	1,720	41	57	11
Total current assets	403	873	2,917	2,255	3,417	3,261
Property, plant, and equipment	1,901	2,298	346	4,301	5,531	8,923
Less: accumulated depreciation	81	82	2,571	413	522	588
Property, plant, and equipment, net	1,820	2,216	200	3,888	5,009	8,335
Other fixed assets	0	101	$4,491	200	215	399
Total assets	$2,223	$3,190		$6,343	$8,641	$11,995
Liabilities:			$ 551			
Accounts payable	210	$ 405	42	$ 771	$1,080	$ 1,512
Short-term debt	35	39	593	59	82	135
Total current liabilities	245	444	21	830	1,162	1,647
Long-term debt	17	19	614	27	50	17
Total liabilities	262	463		857	1,212	1,664
Equity:			2,062			
Common stock	2,062	2,062	1,815	2,062	2,062	2,062
Retained earnings	(101)	665	3,877	3,424	5,366	8,269
Total equity	1,961	2,727	$4,491	5,486	7,428	10,331
Total liabilities and equity	$2,223	$3,190		$ 6,343	$8,641	$11,995

Dr. Swan had lunch with his banker just recently, and the banker mentioned several restrictive covenants that the company would have to meet if it came to the bank for financing. Dr. Swan pulled a sheet of paper from his desk drawer and glanced at it. There were three covenants listed:

- The current ratio must be maintained above 2.25 to 1.
- The debt-to-assets ratio must be less than .3 to 1.
- Dividends cannot be paid unless earnings are positive.

Dr. Swan didn't think he would have any trouble with those, but he wasn't sure. Then he suddenly remembered he was supposed to meet a representative from one of the local supermarket chains (who supplied Chem-Med with rooster combs) in five minutes. He hurriedly put his papers away and wished he had more time to analyze the numbers before the next board of directors meeting. (The financial information is presented in Figures 1, 2, and 3.)

Figure 3

Biotechnology Industry Statistics
Median Company in SIC 2831
Biological Products*

	2013	*2014*	*2015*
Current ratio	2.5	2.3	2.4
Quick ratio	1.2	1.1	1.3
Inventory turnover	5.5	5.6	5.7
Total asset turnover	1.15	1.16	1.18
Return on sales	4.00%	4.00%	5.00%
Return on assets	4.60%	4.64$	5.90%
Return on equity	7.64%	8.44%	12.29%
Total debt to assets	0.40	0.45	0.52

Selected Statistics
Pharmacia Company

	2013	*2014*	*2015*
Current ratio	2.8	2.7	2.8
Quick ratio	1.5	1.3	1.6
Inventory turnover	5.6	5.7	5.8
Total asset turnover	1.9	2	1.9
Return on sales	6.00%	6.50%	7.00%
Return on assets	11.40%	13.00%	13.30%
Return on equity	19.04%	27.66%	29.56%
Total debt to assets	0.40	0.53	0.55
Price-earnings ratio	13.7	14	15
Average stock price	$21.78	$24.92	$31.50

* Source: Dun’s Industry Ratios. The data have been adjusted for this case.

Required

You are an investor who is considering adding Chem-Med to your portfolio. As such, you are interested in the company's record of profitability, prospects for the future, degree of risk, and how it compares with others in the industry. From that point of view, answer the following questions:

1. What was Chem-Med's rate of sales growth in 2015? What is it forecasted to be in 2016, 2017, and 2018?
2. What was Chem-Med's net income growth in 2015? What is it forecasted to be in 2016, 2017, and 2018? Is projected net income growing faster or slower than projected sales? After computing these values, take a hard look at the 2016 income statement data to see if you want to make any adjustments.
3. How does Chem-Med's current ratio for 2015 compare to Pharmacia's? How does it compare to the industry average? Compute Chem-Med's current ratio for 2018. Is there any problem with it?
4. What is Chem-Med's total debt-to-assets ratio for 2015, 2016, 2017, 2018? Is any trend evident in the four-year period? Does Chem-Med in 2015 have more or less debt than the average company in the industry?
5. What is Chem-Med's average accounts receivable collection period for 2015, 2016, 2017, 2018? Is the period getting longer or shorter? What are the consequences?
6. How does Chem-Med's return-on-equity ratio (ROE) compare to Pharmacia's and the industry for 2015? Using the Du Pont method, compare the positions of Chem-Med and Pharmacia. Compute ROE for each company using the following formula:

   $$\text{ROE} = \text{Profit margin} \times \text{Asset turnover}/(1\text{—Debt to assets})$$

   Compare the results to determine the sources of ROE for each company.

Spreadsheet Templa

Foundations of Financial M

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Review of Accounting

Problem 2-6 **Problem 2-8**

Spreadsheet Templates by Block, Hirt, and Dan tes

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Problem 2-21

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Foundations of Financial Management

Block, Hirt, and Danielsen

Problem 2-6
Objective: Income statement

Student Name:	
Course Name:	
Student ID:	
Course Number:	

Given the following information prepare in good form an income statement for the Dental Drilling Company

Selling and administrative expense	$112,000
Depreciation expense	73,000
Sales	489,000
Interest expense	45,000
Cost of goods sold	156,000
Taxes	47,000

Solution

Problem 2-6
Instructions

Enter data and formulas to complete the Income Statement template below.

Dental Drilling Company
Income Statement

Sales	
Cost of goods sold	
Gross profit	FORMULA
Selling and administrative expense	
Depreciation expense	
Operating profit	FORMULA
Interest expense	
Earnings before taxes	FORMULA
Taxes	
Earnings after taxes	FORMULA

Foundations of Financial Management

Block, Hirt, and Danielsen

Problem 2-8
Objective: Determination of profitability

Student Name:	
Course Name:	
Student ID:	
Course Number:	

Prepare in good form an income statement for Franklin Kite Co. Take your calculations all the way to computing earnings per share.

Sales	$900,000
Shares outstanding	50,000
Cost of goods sold	400,000
Interest expense	40,000
Selling and administrative expense	60,000
Depreciation expense	20,000
Preferred stock dividends	80,000
Taxes	50,000

Solution

Problem 2-8
Instructions

Enter data and formulas to complete the Income Statement template below.

Franklin Kite Co.
Income Statement

Sales	
Cost of goods sold	
Gross profit	FORMULA
Selling and administrative expense	
Depreciation expense	
Operating profit	FORMULA
Interest expense	
Earnings before taxes	FORMULA
Taxes	
Earnings after taxes	FORMULA
Preferred stock dividends	
Earnings available to common stockholders	FORMULA
Shares outstanding	
Earnings per share	FORMULA

Foundations of Financial Management

Block, Hirt, and Danielsen

Problem 2-21
Objective: Depreciation and Cash flow

Student Name:	
Course Name:	
Student ID:	
Course Number:	

The Rogers Corporation has a gross profit $880,000 and $360,000 in depreciation expense.
The Evans Corporation also has $880,000 in gross profit, with $60,000 in depreciation expense.
Selling and administrative expense is $120,000 for each company.

Given that the tax rate is 40 percent, compute the cash flow for both companies.Explain the difference in cash flow between the two firms.

Solution

Problem 2-21
Instructions

Complete the template below by entering data and formulas to calculate the cash flow.

	Rogers	**Evans**
Gross profit		
Selling and adm. Expense		
Depreciation		
Operating profit	FORMULA	FORMULA
Taxes (40%)	FORMULA	FORMULA
Earnings after taxes	FORMULA	FORMULA
Plus depreciation expense		
Cash flow	FORMULA	FORMULA

Explain the difference in cash flow between the two firms.

Chem-Med Company

Case 2

Ratio Analysis

Purpose: The case allows the student to go into financial analyses in more depth than in possible with end-of-chapter problems. In addition to computing a series of ratios, the student must consider industry data and trends for the purpose of evaluating relative performance. The student must also make use of the Du Pont system of analysis. Of special interest are the debt and performance covenants established by the potential financier. Finally, the student is forced to identify the impact of extraordinary income on ratio analysis and how it can distort one year's performance.

Relation to Text: The case should follow Chapter 3.

Complexity: The case is moderately complex. It should require 1-1½ hours.

Solutions

1. Sales Growth = (Sales this year – Sales last year) / Sales last year

for 2015	$ 3,814	–	$3,051	/	$3,051	= + 25%
for 2016	5,340	–	3,814	/	3,814	= + 40%
for 2017	7,475	–	5,340	/	5,340	= + 40%
for 2018	10,466	–	7,475	/	7,475	= + 40%

2. Net income growth = (Net income this year – Net income last year) / Net Income last year

for 2015	$1,150	–	$ 766	/	$ 766	= + 50%
for 2016	1,609	–	1,150	/	1,150	= + 40%
for 2017	1,943	–	1,609	/	1,609	= + 21%
for 2018	2,903	–	1,943	/	1,943	= + 49%

According to Dr. Swan's estimates net income growth will exceed sales growth in 2015, match sales growth in 2016, then slack off and rebound in 2018. However, Dr. Swan's figures are misleading: in 2016 they include $500,000 worth of extraordinary income expected to be received from the settlement of the suit with Pharmacia. The astute analyst will realize that this amount should be excluded from his/her calculations because (1) receiving the amount is by no means certain, and (2) it is a one-time event which has nothing to do with the operations of the company. When the amount is excluded from 2016's figures we see that net income growth for 2016 is actually considerably less than 40%.

Aftertax effect of removing $500,000 from gross income = $500 x (1 – tax rate) = $500 x (1 – .33) = – $335

New net income = $1,609 – $335 = $1,274

Appropriate net income growth for 2016 = ($1,274 – $1,150) / $1,150
= + 11%

Also changes 2017 net income growth $= \frac{1{,}943 - 1{,}274}{1{,}274} = +\ 53\%$

Failing to exclude the extraordinary amount has the effect of obscuring the ―real‖ profitability ratios— ROE in 2016 would be 23%, not 29%. Net profit margin would be 24%, not 30%. These are facts a potential investor would want to know.

3. Chem-Med's current ratio = Current Assets / Current Liabilities:

for 2015	=	$1,720	/	$ 593	=	2.90
for 2018	=	$3,261	/	$1,647	=	1.98

Pharmacia had a current ratio in 2015 of 2.8, and the industry average was 2.4. Chem-Med, therefore, in 2015 was slightly more liquid than the average company. This would probably be looked upon favorably by someone considering loaning money to the company; however, the banker with whom Dr. Swan had lunch would have a problem with Chem-Med's current ratio for 2018: it falls below the 2.25 to 1 limit he would establish as a restrictive covenant. In view of that, Dr. Swan needs to revise his financial plan for 2018 in such a way that less money is invested in fixed assets, and more is held in cash & equivalents (or, alternatively, shift some current liabilities to long-term debt and/or equity).

4. Chem-Med's total debt to assets ratio = total liabilities / total assets

for 2015	=	$ 614	/	$ 4,491	=	.137
for 2016	=	$ 857	/	$ 6,343	=	.135
for 2017	=	$1,212	/	$ 8,641	=	.140
for 2018	=	$1,664	/	$11,995	=	.139

The variation from year to year is small—no trend can be established, except, of course, that the ratio remains nearly constant, indicating that Chem-Med is doing a good job in managing its debt. It was doing especially well in 2015 compared to other companies in the industry, where the average debt to assets ratio was .52 (and Pharmacia's was .55). A potential investor in Chem-Med's stock might be pleased or displeased depending on his/her tolerance for risk and outlook for the future. (Chem-Med has much less financial risk than average, but the company, which is in a growth situation, might be considered to be underleveraged.)

5. Chem-Med's average accounts receivable collection period = accounts receivable / sales per day

for 2015	=	$ 564	/	($ 3,814/360)	= 53 days
for 2016	=	$ 907	/	($ 5,340/360)	= 61 days
for 2017	=	$1,495	/	($ 7,475/360)	= 72 days
for 2018	=	$2,351	/	($10,466/360)	= 81 days

This is not a good sign. The average length of time that Chem-Med's customers are taking to pay for products they've bought is increasing steadily every year. If Chem-Med's credit policy is, say, 2/10, net 30, it is clear that very few customers are adhering to it, and the situation is getting worse. Not only is Chem-Med, in effect, granting free credit to those customers by allowing them to delay payment for so long, it is paying for such credit itself. The company's higher balances of accounts receivable must be financed in some way, either through additional debt or equity, and these additions have a cost.

6. Chem-Med's return on equity ratio = net income / total equity for 2015 = $1,150 / $3,877 = 29.7%

Pharmacia's ROE in 2015 was 29.7%, and the industry average was only 12.3%. A potential investor in Chem-Med would be very pleased; Chem-Med is offering a handsome return that's almost two and a half times that of the average company in the industry. Now, the investor will want to use the Du Pont method to look further at Chem-Med and Pharmacia to determine the source of this return.

	ROE	=	Profit Margin	x	Asset Turnover	/	(1 – Debt to Assets)
Chem-Med, 2015	.2970	=	.3015	x	.85	/	(1 – .137)
Pharmacia:	.2956	=	.07	x	1.9	/	(1 – .55)

Note the drastic difference in the operation of the two companies, even though their ROEs are nearly the same. Chem-Med makes relatively few sales (low asset turnover), but makes a lot of money on each one (30%). Pharmacia is just the opposite: it makes a lot of sales, and only a little profit (7%) on each one. Pharmacia's ROE is also being propped up by greater use of debt than Chem-Med (Pharmacia has relatively less equity; so the same amount of income will represent a greater return to Pharmacia's equity holders than Chem-Med's). All other considerations being equal, a potential investor would probably prefer Chem-Med's position, but it's by no means certain (for example, it's much more serious for Chem-Med to lose a sale).