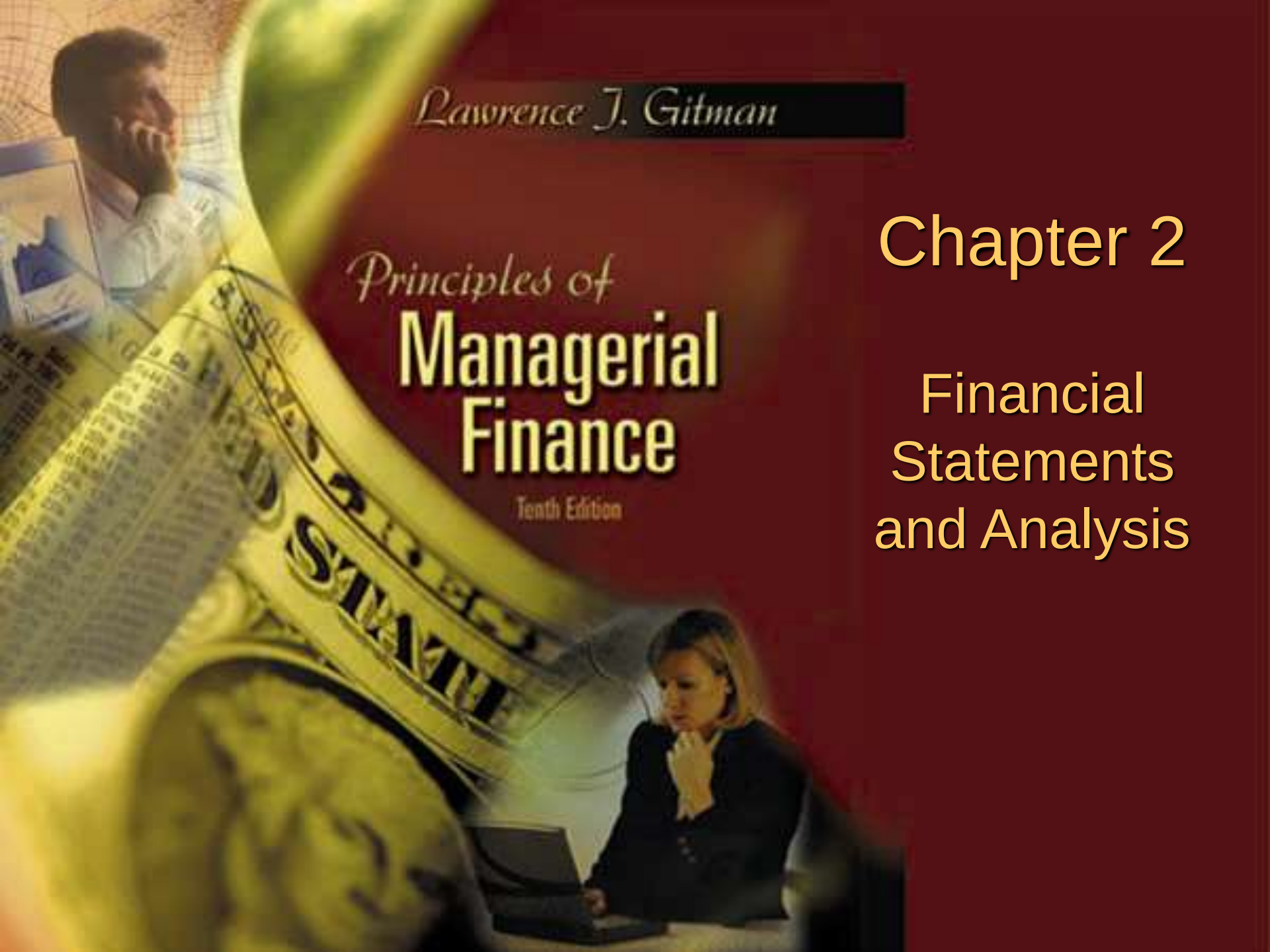




Lawrence J. Gitman

Principles of
**Managerial
Finance**

Tenth Edition

Chapter 2

**Financial
Statements
and Analysis**

Learning Goals

1. Review the contents of the stockholders' report and the procedures for consolidating international financial statements.
2. Understand who uses financial ratios, and how.
3. Use ratios to analyze a firm's liquidity and activity.
4. Discuss the relationship between debt and financial leverage and the ratios used to analyze a firm's debt

Learning Goals

5. Use ratios to analyze a firm's profitability and market value.
6. Use a summary of financial ratios and the DuPont system of analysis to perform a complete ratio analysis.

The Stockholders' Report

- The guidelines used to prepare and maintain financial records and reports are known as generally accepted accounting principles (GAAP).
- GAAP is authorized by the Financial Accounting Standards Board (FASB).
- Public corporations with more than \$5 million in assets and more than 500 stockholders are required by the SEC to provide their stockholders with an annual stockholders report.

Financial Statements

The Income Statement

- The income statement provides a financial summary of a company's operating results during a specified period.
- Although they are prepared annually for reporting purposes, they are generally computed monthly by management and quarterly for tax purposes.

Financial Statements

TABLE 2.1

Bartlett Company Income Statements (\$000)

	For the years ended December 31	
	2003	2002
Sales revenue	\$3,074	\$2,567
Less: Cost of goods sold	<u>2,088</u>	<u>1,711</u>
Gross profits	\$ 986	\$ 856
Less: Operating expenses		
Selling expense	\$ 100	\$ 108
General and administrative expenses	194	187
Lease expense ^a	35	35
Depreciation expense	<u>239</u>	<u>223</u>
Total operating expense	\$ 568	\$ 553
Operating profits	\$ 418	\$ 303
Less: Interest expense	<u>93</u>	<u>91</u>
Net profits before taxes	\$ 325	\$ 212
Less: Taxes (rate = 29%) ^b	<u>94</u>	<u>64</u>
Net profits after taxes	\$ 231	\$ 148
Less: Preferred stock dividends	<u>10</u>	<u>10</u>
Earnings available for common stockholders	<u>\$ 221</u>	<u>\$ 138</u>
Earnings per share (EPS) ^c	\$ 2.90	\$ 1.81
Dividend per share (DPS) ^d	\$ 1.29	\$ 0.75

^aLease expense is shown here as a separate item rather than being included as part of interest expense, as specified by the FASB for financial-reporting purposes. The approach used here is consistent with tax-reporting rather than financial-reporting procedures.

^bThe 29% tax rate for 2003 results because the firm has certain special tax write-offs that do not show up directly on its income statement.

^cCalculated by dividing the earnings available for common stockholders by the number of shares of common stock outstanding—76,262 in 2003 and 76,244 in 2002. Earnings per share in 2003: $\$221,000 \div 76,262 = \$2.90$; in 2002: $\$138,000 \div 76,244 = \$1.81$.

^dCalculated by dividing the dollar amount of dividends paid to common stockholders by the number of shares of common stock outstanding. Dividends per share in 2003: $\$98,000 \div 76,262 = \$1.29$; in 2002: $\$57,183 \div 76,244 = \$0.75$.

Financial Statements

The Balance Sheet

- The balance sheet presents a summary of a firm's financial position at a given point in time.
- Assets indicate what the firm owns, equity represents the owners' investment, and liabilities indicate what the firm has borrowed.

Financial Statements

TABLE 2.2 Bartlett Company Balance Sheets (\$000)

Assets	December 31	
	2003	2002
Current assets		
Cash	\$ 363	\$ 288
Marketable securities	68	51
Accounts receivable	503	365
Inventories	289	300
Total current assets	<u>\$1,223</u>	<u>\$1,004</u>
Gross fixed assets (at cost) ^a		
Land and buildings	\$2,072	\$1,903
Machinery and equipment	1,866	1,693
Furniture and fixtures	358	316
Vehicles	275	314
Other (includes financial leases)	98	96
Total gross fixed assets (at cost)	<u>\$4,669</u>	<u>\$4,322</u>
Less: Accumulated depreciation	<u>2,295</u>	<u>2,056</u>
Net fixed assets	<u>\$2,374</u>	<u>\$2,266</u>
Total assets	<u><u>\$3,597</u></u>	<u><u>\$3,270</u></u>

Financial Statements

Liabilities and Stockholders' Equity

Current liabilities

Accounts payable	\$ 382	\$ 270
Notes payable	79	99
Accruals	<u>159</u>	<u>114</u>
Total current liabilities	<u>\$ 620</u>	<u>\$ 483</u>

Long-term debt (includes financial leases)^b

Total liabilities	<u>\$1,643</u>	<u>\$1,450</u>
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Stockholders' equity

Preferred stock—cumulative 5%, \$100 par, 2,000 shares authorized and issued ^c	\$ 200	\$ 200
Common stock—\$2.50 par, 100,000 shares authorized, shares issued and outstanding in 2003: 76,262; in 2002: 76,244	191	190
Paid-in capital in excess of par on common stock	428	418
Retained earnings	<u>1,135</u>	<u>1,012</u>
Total stockholders' equity	<u>\$1,954</u>	<u>\$1,820</u>

Total liabilities and stockholders' equity	<u><u>\$3,597</u></u>	<u><u>\$3,270</u></u>
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^aIn 2003, the firm has a 6-year financial lease requiring annual beginning-of-year payments of \$35,000. Four years of the lease have yet to run.

^bAnnual principal repayments on a portion of the firm's total outstanding debt amount to \$71,000.

^cThe annual preferred stock dividend would be \$5 per share ($5\% \times \$100$ par), or a total of \$10,000 annually ($\$5$ per share $\times$ 2,000 shares).

Financial Statements

Statement of Retained Earnings

- The statement of retained earnings reconciles the net income earned and dividends paid during the year, with the change in retained earnings.

Financial Statements

TABLE 2.3

Bartlett Company Statement of Retained Earnings (\$000) for the Year Ended December 31, 2003

Retained earnings balance (January 1, 2003)		\$1,012
Plus: Net profits after taxes (for 2003)		231
Less: Cash dividends (paid during 2003)		
Preferred stock	(\$10)	
Common stock	(<u>98</u>)	
Total dividends paid		(<u>108</u>)
Retained earnings balance (December 31, 2003)		<u><u>\$1,135</u></u>

Financial Statements

Statement of Cash Flows

- The statement of cash flows provides a summary of the cash flows over the period of concern, typically the year just ended.
- This statement not only provides insight into a company's investment, financing and operating activities, but also ties together the income statement and previous and current balance sheets.

Financial Statements

TABLE 2.4

Bartlett Company Statement of Cash Flows (\$000) for the Year Ended December 31, 2003

Cash Flow from Operating Activities

Net profits after taxes	\$231	
Depreciation	239	
Increase in accounts receivable	(138) ^a	
Decrease in inventories	11	
Increase in accounts payable	112	
Increase in accruals	<u>45</u>	
Cash provided by operating activities		\$500

Cash Flow from Investment Activities

Increase in gross fixed assets	(\$347)	
Change in business interests	<u>0</u>	
Cash provided by investment activities		(347)

Cash Flow from Financing Activities

Decrease in notes payable	(\$ 20)	
Increase in long-term debts	56	
Changes in stockholders' equity ^b	11	
Dividends paid	<u>(108)</u>	
Cash provided by financing activities		(<u>61</u>)

Net increase in cash and marketable securities	<u>\$ 92</u>
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^aAs is customary, parentheses are used to denote a negative number, which in this case is a cash outflow.

^bRetained earnings are excluded here, because their change is actually reflected in the combination of the "net profits after taxes" and "dividends paid" entries.

Consolidating International Financial Statements

- FASB 52 mandated that U.S. based companies translate their foreign-currency denominated assets and liabilities into dollars using the current rate (translation) method.
- Under the translation method, companies translate all foreign-currency-denominated assets and liabilities into dollars at the exchange rate prevailing at the fiscal year ending date (the current rate).
- Income statement items are usually treated similarly.

Consolidating International Financial Statements

- Equity accounts, on the other hand, are translated into dollars by using the exchange rate that prevailed when the parent's equity investment was made (the historical rate).
- Retained earnings are adjusted to reflect each year's operating profits (or losses).

Using Financial Ratios

Interested Parties

- Ratio analysis involves methods of calculating and interpreting financial ratios to assess a firm's financial condition and performance.
- It is of interest to shareholders, creditors, and the firm's own management.

Using Financial Ratios

Types of Ratio Comparisons

- Trend or time-series analysis

Used to evaluate a firm's performance over time

Using Financial Ratios

Types of Ratio Comparisons

- Trend or time-series analysis
- cross-sectional analysis

Used to compare different firms at the same point in time

Using Financial Ratios

Types of Ratio Comparisons

- Trend or time-series analysis
- cross-sectional analysis
 - industry comparative analysis

One specific type of cross sectional analysis.
Used to compare one firm's financial performance
to the industry's average performance

Using Financial Ratios

Types of Ratio Comparisons

- Trend or time-series analysis
- cross-sectional analysis
 - industry comparative analysis
- Combined Analysis

Combined analysis simply uses a combination of both time series analysis and cross-sectional analysis

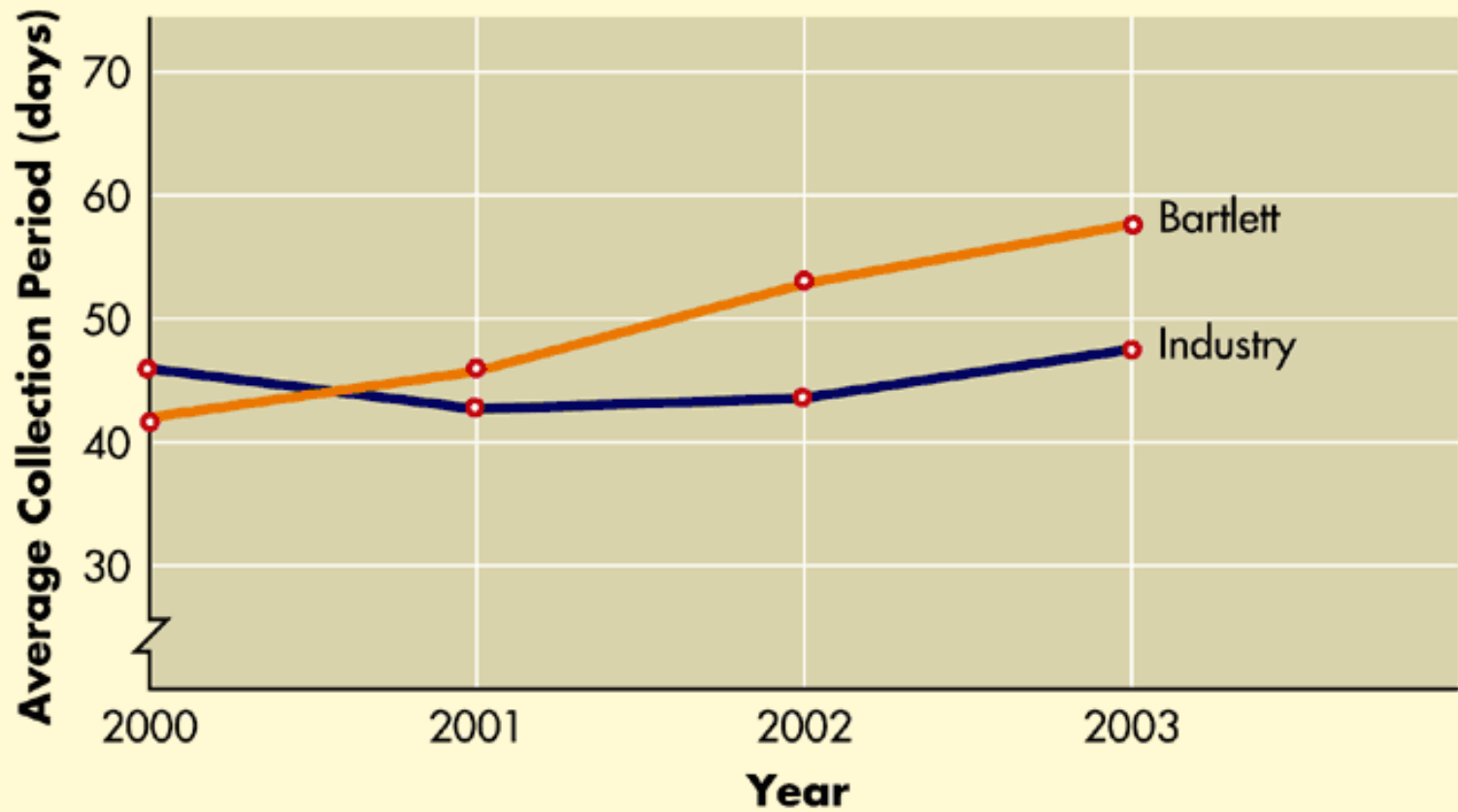
TABLE 2.5 Industry Average Ratios (2001) for Selected Lines of Business ^a

Line of business (number of concerns reporting) ^b	Current ratio (X)	Quick ratio (X)	Sales to inventory (X)	Collection period (days)	Total assets to sales (%)	Total liabilities to net worth (%)	Return on sales (%)	Return on total assets (%)	Return on net worth (%)
Department stores (167)	6.2	1.9	6.0	2.9	34.3	19.7	4.0	8.5	14.6
	3.0	0.8	4.7	8.0	50.9	62.0	1.8	3.3	6.5
	1.9	0.3	3.3	34.7	68.2	164.9	0.6	0.9	2.0
Electronic computers (91)	3.6	1.8	19.0	34.7	36.4	121.4	7.1	11.7	23.9
	1.8	1.0	9.1	55.9	59.7	230.4	1.8	3.5	9.8
	1.3	0.6	5.3	85.4	102.3	428.4	(0.8)	(3.1)	2.0
Grocery stores (541)	2.5	0.9	31.0	1.1	14.4	46.2	2.2	9.9	24.3
	1.5	0.4	19.7	2.9	20.3	128.4	0.8	3.9	11.1
	1.0	0.2	14.0	5.8	31.3	294.2	0.3	1.0	3.8
Motor vehicles (38)	2.0	1.0	11.2	18.5	27.9	95.9	3.7	9.7	24.1
	1.5	0.7	8.7	26.7	39.0	174.3	1.9	3.7	15.6
	1.2	0.3	5.8	47.5	59.2	393.9	0.6	1.4	3.4

^aThese values are given for each ratio for each line of business. The center value is the median, and the values immediately above and below it are the upper and lower quartiles, respectively.

^bStandard Industrial Classification (SIC) codes for the lines of business shown are, respectively: SIC #5311, SIC #3571, SIC #5411, SIC #3711.

Source: "Industry Norms and Key Business Ratios," Copyright © 2001 Dun & Bradstreet, Inc. Reprinted with permission.



Using Financial Ratios

Cautions for Doing Ratio Analysis

- Ratios must be considered together; a single ratio by itself means relatively little.
- Financial statements that are being compared should be dated at the same point in time.
- Use audited financial statements when possible.
- The financial data being compared should have been developed in the same way.
- Be wary of inflation distortions.

Ratio Analysis Example

Using the
Bartlett Company Financial Statements
Presented Earlier

Ratio Analysis

- Liquidity Ratios
 - Current Ratio

$$\text{Current ratio} = \frac{\text{total current assets}}{\text{total current liabilities}}$$

$$\text{Current ratio} = \frac{\$1,233,000}{\$620,000} = 1.97$$

Ratio Analysis

- Liquidity Ratios
 - Current Ratio
 - Quick Ratio

$$\text{Quick ratio} = \frac{\text{Total Current Assets} - \text{Inventory}}{\text{total current liabilities}}$$

$$\text{Quick ratio} = \frac{\$1,233,000 - \$289,000}{\$620,000} = 1.51$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
 - Inventory Turnover

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Inventory}}$$

$$\text{Inventory Turnover} = \frac{\$2,088,000}{\$289,000} = 7.2$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
 - Average Collection Period

$$\text{ACP} = \frac{\text{Accounts Receivable}}{\text{Net Sales}/360}$$

$$\text{ACP} = \frac{\$503,000}{\$3,074,000/360} = 58.9 \text{ days}$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
 - Average Payment Period

$$\text{APP} = \frac{\text{Accounts Payable}}{\text{Annual Purchases}/360}$$

$$\text{APP} = \frac{\$382,000}{(.70 \times \$2,088,000)/360} = 94.1 \text{ days}$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
 - Total Asset Turnover

$$\text{Total Asset Turnover} = \frac{\text{Net Sales}}{\text{Total Assets}}$$

$$\text{Total Asset Turnover} = \frac{\$3,074,000}{\$3,579,000} = .85$$

Ratio Analysis

TABLE 2.6 Financial Statements Associated with Patty's Alternatives

	No-debt plan	Debt plan
Balance Sheets		
Current assets	\$20,000	\$20,000
Fixed assets	<u>30,000</u>	<u>30,000</u>
Total assets	<u>\$50,000</u>	<u>\$50,000</u>
Debt (12% interest)	\$ 0	\$25,000
(1) Equity	<u>50,000</u>	<u>25,000</u>
Total liabilities and equity	<u>\$50,000</u>	<u>\$50,000</u>
Income Statements		
Sales	\$30,000	\$30,000
Less: Costs and operating expenses	<u>18,000</u>	<u>18,000</u>
Operating profits	\$12,000	\$12,000
Less: Interest expense	<u>0</u>	$0.12 \times \$25,000 =$ <u>3,000</u>
Net profit before taxes	\$12,000	\$ 9,000
Less: Taxes (rate = 40%)	<u>4,800</u>	<u>3,600</u>
(2) Net profit after taxes	<u>\$ 7,200</u>	<u>\$ 5,400</u>
Return on equity [(2) ÷ (1)]	$\frac{\$7,200}{\$50,000} = \underline{\underline{14.4\%}}$	$\frac{\$5,400}{\$25,000} = \underline{\underline{21.6\%}}$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Financial Leverage Ratios
 - Debt Ratio

Debt Ratio = Total Liabilities/Total Assets

Debt Ratio = \$1,643,000/\$3,597,000 = 45.7%

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
 - Times Interest Earned Ratio

Times Interest Earned = $\text{EBIT} / \text{Interest}$

Times Interest Earned = $\$418,000 / \$93,000 = 4.5$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
 - Fixed-Payment coverage Ratio (FPCR)

$$\text{FPCR} = \frac{\text{EBIT} + \text{Lease Payments}}{\text{Interest} + \text{Lease Pymts} + \{(\text{Princ Pymts} + \text{PSD}) \times [1/(1-t)]\}}$$

$$\text{FPCR} = \frac{\$418,000 + \$35,000}{\$93,000 + \$35,000 + \{(\$71,000 + \$10,000) \times [1/(1-.29)]\}} = 1.9$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Common-Size Income Statements

TABLE 2.7**Bartlett Company Common-Size Income Statements**

	For the years ended December 31		Evaluation ^a
	2003	2002	2002–2003
Sales revenue	100.0%	100.0%	same
Less: Cost of goods sold	<u>67.9</u>	<u>66.7</u>	worse
(1) Gross profit margin	<u>32.1%</u>	<u>33.3%</u>	worse
Less: Operating expenses			
Selling expense	3.3%	4.2%	better
General and administrative expenses	6.8	6.7	better
Lease expense	1.1	1.3	better
Depreciation expense	<u>7.3</u>	<u>9.3</u>	better
Total operating expense	<u>18.5%</u>	<u>21.5%</u>	better
(2) Operating profit margin	13.6%	11.8%	better
Less: Interest expense	<u>3.0</u>	<u>3.5</u>	better
Net profits before taxes	10.6%	8.3%	better
Less: Taxes	<u>3.1</u>	<u>2.5</u>	worse ^b
Net profits after taxes	7.5%	5.8%	better
Less: Preferred stock dividends	<u>0.3</u>	<u>0.4</u>	better
(3) Net profit margin	<u><u>7.2%</u></u>	<u><u>5.4%</u></u>	better

^aSubjective assessments based on data provided.

^bTaxes as a percent of sales increased noticeably between 2002 and 2003 because of differing costs and expenses, whereas the average tax rates (taxes ÷ net profits before taxes) for 2002 and 2003 remained about the same—30% and 29%, respectively.

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Gross Profit Margin

$$\text{GPM} = \text{Gross Profit} / \text{Net Sales}$$

$$\text{GPM} = \$986,000 / \$3,074,000 = 32.1\%$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Operating Profit Margin

$$\text{OPM} = \text{EBIT} / \text{Net Sales}$$

$$\text{OPM} = \$418,000 / \$3,074,000 = 13.6\%$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Net Profit Margin

$$\text{NPM} = \text{Net Profits After Taxes} / \text{Net Sales}$$

$$\text{NPM} = \$231,000 / \$3,074,000 = 7.5\%$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Return on Total Assets (ROA)

$$\text{ROA} = \text{Net Profits After Taxes} / \text{Total Assets}$$

$$\text{ROA} = \$231,000 / \$3,597,000 = 6.4\%$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Return on Equity (ROE)

$$\text{ROE} = \text{Net Profits After Taxes} / \text{Stockholders Equity}$$

$$\text{ROE} = \$231,000 / \$1,954,000 = 11.8\%$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Earnings Per Share (EPS)

$$\text{EPS} = \frac{\text{Earnings Available to Common Stockholders}}{\text{Number of Shares Outstanding}}$$

$$\text{EPS} = \$221,000 / 76,262 = \$2.90$$

Ratio Analysis

- Liquidity Ratios
- Activity Ratios
- Leverage Ratios
- Profitability Ratios
 - Price Earnings (P/E) Ratio

$$\text{P/E} = \frac{\text{Market Price Per Share of Common Stock}}{\text{Earnings Per Share}}$$

$$\text{P/E} = \$32.25 / \$2.90 = 11.1$$

Summarizing All Ratios

TABLE 2.8 Summary of Bartlett Company Ratios (2001–2003, Including 2003 Industry Averages)

						Evaluation ^d		
Ratio	Formula	Year			Industry average 2003 ^c	Cross-sectional 2003	Time-series 2001–2003	Overall
		2001 ^a	2002 ^b	2003 ^b				
Liquidity								
Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$	2.04	2.08	1.97	2.05	OK	OK	OK
Quick (acid-test) ratio	$\frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$	1.32	1.46	1.51	1.43	OK	good	good
Activity								
Inventory turnover	$\frac{\text{Cost of goods sold}}{\text{Inventory}}$	5.1	5.7	7.2	6.6	good	good	good
Average collection period	$\frac{\text{Accounts receivable}}{\text{Average sales per day}}$	43.9 days	51.2 days	58.9 days	44.3 days	poor	poor	poor
Average payment period	$\frac{\text{Accounts payable}}{\text{Average purchases per day}}$	75.8 days	81.2 days	94.1 days	66.5 days	poor	poor	poor
Total asset turnover	$\frac{\text{Sales}}{\text{Total assets}}$	0.94	0.79	0.85	0.75	OK	OK	OK
Debt								
Debt ratio	$\frac{\text{Total liabilities}}{\text{Total assets}}$	36.8%	44.3%	45.7%	40.0%	OK	OK	OK
Times interest earned ratio	$\frac{\text{Earnings before interest and taxes}}{\text{Interest}}$	5.6	3.3	4.5	4.3	good	OK	OK
Fixed-payment coverage ratio	$\frac{\text{Earnings before interest and taxes} + \text{Lease payments}}{\text{Int.} + \text{Lease pay.} + \{(\text{Prin.} + \text{Pref. div.}) \times [1/(1 - T)]\}}$	2.4	1.4	1.9	1.5	good	OK	good

Summarizing All Ratios

Ratio	Formula	Year			Industry average 2003 ^c	Evaluation ^d		
		2001 ^a	2002 ^b	2003 ^b		Cross-sectional 2003	Time-series 2001–2003	Overall
Profitability								
Gross profit margin	$\frac{\text{Gross profits}}{\text{Sales}}$	31.4%	33.3%	32.1%	30.0%	OK	OK	OK
Operating profit margin	$\frac{\text{Operating profits}}{\text{Sales}}$	14.6%	11.8%	13.6%	11.0%	good	OK	good
Net profit margin	$\frac{\text{Earnings available for common stockholders}}{\text{Sales}}$	8.2%	5.4%	7.2%	6.2%	good	OK	good
Earnings per share (EPS)	$\frac{\text{Earnings available for common stockholders}}{\text{Number of shares of common stock outstanding}}$	\$3.26	\$1.81	\$2.90	\$2.26	good	OK	good
Return on total assets (ROA)	$\frac{\text{Earnings available for common stockholders}}{\text{Total assets}}$	7.8%	4.2%	6.1%	4.6%	good	OK	good
Return on common equity (ROE)	$\frac{\text{Earnings available for common stockholders}}{\text{Common stock equity}}$	13.7%	8.5%	12.6%	8.5%	good	OK	good
Market								
Price/earnings (P/E) ratio	$\frac{\text{Market price per share of common stock}}{\text{Earnings per share}}$	10.5	10.0 ^e	11.1	12.5	OK	OK	OK
Market/book (M/B) ratio	$\frac{\text{Market price per share of common stock}}{\text{Book value per share of common stock}}$	1.25	0.85 ^e	1.40	1.30	OK	OK	OK

^aCalculated from data not included in the chapter.

^bCalculated by using the financial statements presented in Tables 2.1 and 2.2.

DuPont System of Analysis

- The DuPont system is used to dissect the firm's financial statements and to assess its financial condition.
- It merges the income statement and balance sheet into two summary measures of profitability: ROA and ROE as shown in Figure 2.2 on the following slide.
- The top portion focuses on the income statement, and the bottom focuses on the balance sheet.
- The advantage of the DuPont system is that it allows you to break ROE into a profit on sales component, an efficiency-of-asset-use component, and a use-of-leverage component.

