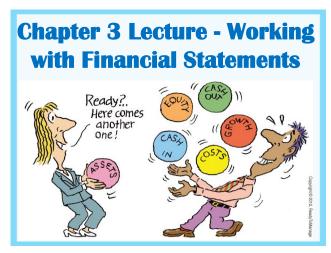
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Learning Objectives

After studying this chapter, you should be able to:

- LO 1 Standardize financial statements for comparison purposes.
- LO 2 Compute and, more important, interpret some common ratios.
- LO 3 Assess the determinants of a firm's profitability and growth.
- LO 4 Identify and explain some of the problems and pitfalls in financial statement analysis.

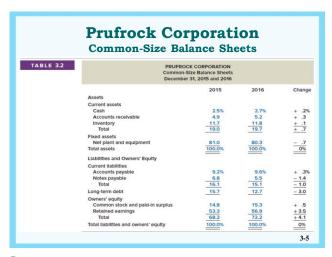
3-2

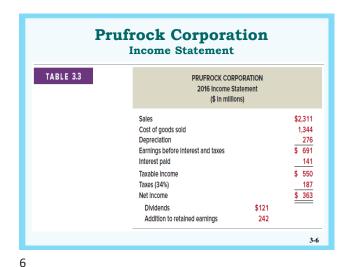
Standardized Financial Statements

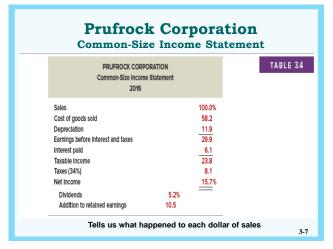
- · Common-Size Balance Sheets
 - All accounts = percent of total assets (%TA)
- Common-Size Income Statements
 - All line items = percent of sales or revenue (%SLS)
- · Standardized statements are useful for:
 - Comparing financial information year-to-year
 - Comparing companies of different sizes, particularly within the same industry

	ock Corpor alance She		
PRUFROCK CO Balance Sheets as of Dece (\$ in mil	mber 31, 2015 and 2016		TABLE 3.1
	2015	2016	
Assets			
Current assets			
Cash	\$ 84	\$ 98	
Accounts receivable	165	188	
Inventory	393	422	
Total	\$ 642	\$ 708	
Fixed assets			
Net plant and equipment	\$2,731	\$2,880	
Total assets	\$3,373	\$3,588	
Liabilities and Owners' Equity			
Current liabilities			
Accounts payable	\$ 312	\$ 344	
Notes payable	231	196	
Total	\$ 543	\$ 540	
Long-term debt	\$ 531	\$ 457	
Owners' equity			
Common stock and pald-in surplus	\$ 500	\$ 550	
Retained earnings	1,799	2,041	
Total	\$2,299	\$2,591	
Total liabilities and owners' equity	\$3,373	\$3,588	

3 4







Ratio Analysis

- Allow for better comparison through time or between companies
- · Used both internally and externally
- · For each ratio, ask yourself:
 - What the ratio is trying to measure
 - Why that information is important

1

Categories of Financial Ratios

- Liquidity ratios or Short-term solvency
- <u>Financial leverage ratios</u> or Long-term solvency ratios
- Asset management or Turnover ratios
- Profitability ratios
- · Market value ratios

3-9

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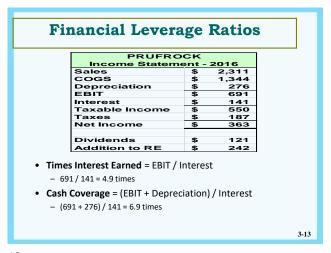
Common Financial Ratios $\begin{aligned} & \text{Days' sales in receivables} = \frac{365 \text{ days}}{\text{Receivables turnover}} \\ & \text{Days' costs in payables} = \frac{365 \text{ days}}{\text{Payables turnover}} \end{aligned}$ I. Short-term solvency, or liquidity, ratios Current ratio = Current assets
Current liabilities $\label{eq:Quick ratio} \mbox{Quick ratio} = \frac{\mbox{Current assets} - \mbox{Inventory}}{\mbox{Current liabilities}}$ Total asset turnover = Sales
Total assets $Cash ratio = \frac{Cash}{Current liabilities}$ Capital intensity = Total assets
Sales II. Long-term solvency, or financial leverage, ratios IV. Profitability ratios $\label{eq:total_total} \begin{aligned} \text{Total debt ratio} &= \frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}} \end{aligned}$ Profit margin = Net Income Sales Debt-equity ratio = Total debt/Total equity Equity multiplier = Total assets/Total equity Return on assets (ROA) = Net income Total assets Times interest earned ratio = $\frac{EBIT}{Interest}$ Return on equity (ROE) = Net income Total equity Cash coverage ratio = EBIT + Depreciation Interest ROE = Net income Sales Sales Assets Equity III. Asset utilization, or turnover, ratios Price-earnings ratio = Price per share Earnings per share Days' sales in inventory = 365 days Inventory turnover Price-sales ratio = Price per share Sales per share Market-to-book ratio = Market value per share
Book value per share Receivables turnover = Sales Accounts receivable $\mathsf{EBITDA}\ \mathsf{ratio} = \frac{\mathsf{Enterprise}\ \mathsf{value}}{\mathsf{EBITDA}}$

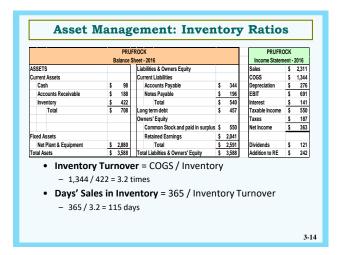
Liquidity Ratios eet - 2016 Liabilities ASSETS s & Owners Equity urrent Liabilities Accounts Payable urrent Assets Accounts Receivable 196 540 457 Notes Payable Long term debt \$

Dwners' Equity

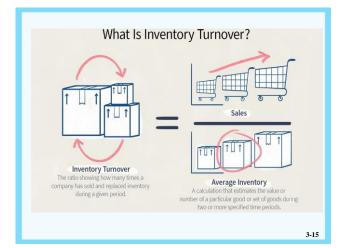
Common Stock and paid in surplus \$ 550 Fixed Assets Net Plant & Equipment Total Asets Retained Earnings Total Current Ratio = CA / CL - 708 / 540 = 1.31 times • Quick Ratio = (CA - Inventory) / CL "Acid Test" - (708-422) / 540 = 0.53 times • Cash Ratio = Cash / CL - 98/540 = .18 times 3-11 | PRUFROCK | Balance Sheet - 2016 | Liabilities & Owners Equity | Current Assets | Cash | S 98 | Accounts Receivable | \$ 188 | Inventory | \$ 422 | Total | \$ 708 | Total Assets | S 1,588 | Total Liabilities | S 3,44 | Accounts Payable | \$ 344 | Accounts Payable | \$ 196 | Total | \$ 540 | Liabilities | S 1,540 | Total | \$ 540 | Common Stock and paid in surplus | \$ 550 | Retained Earnings | \$ 2,291 | Total Assets | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$ 3,588 | Total Liabilities & Owners' Equity | \$

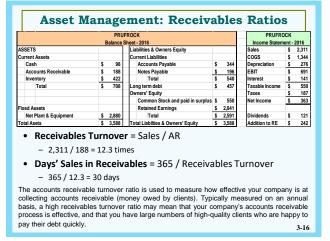
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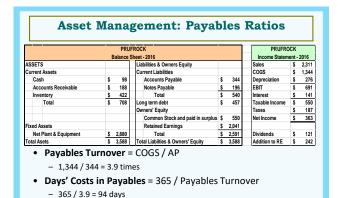


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A higher accounts payable ratio indicates that a company pays its bills in a shorter amount of time than those with a lower ratio. Low AP ratios could signal

that a company is struggling to pay its bills, but that is not always the case. It

could be using its cash strategically.

		В		OCK eet - 2016		-	PRUFRO Income Statem		2016
ASS	SETS			Liabilities & Owners Equity	Т		Sales	\$	2,31
Cur	rent Assets			Current Liabilities			COGS	\$	1,34
	Cash	\$	98	Accounts Payable	\$	344	Depreciation	\$	27
	Accounts Receivable	\$	188	Notes Payable	\$	196	EBIT	\$	69
	Inventory	\$	422	Total	\$	540	Interest	\$	14
Total	\$	708	Long term debt	\$	457	Taxable Income	\$	55	
				Owners' Equity			Taxes	\$	18
				Common Stock and paid in surplus	\$	550	Net Income	\$	36
Fixe	ed Assets			Retained Earnings	\$	2,041		Т	
	Net Plant & Equipment	\$	2,880	Total	\$	2,591	Dividends	\$	12
Tot	al Asets	\$	3,588	Total Liabilties & Owners' Equity	\$	3,588	Addition to RE	\$	24

Generally, a higher ratio TAT is favored because it implies that the company is efficient in generating sales or revenues from its asset base. A lower ratio indicates

that a company is not using its assets efficiently and may have internal problems.

		PRU	FROCK			PRUFRO	CK	
		Balance S	Sheet - 2016			Income Statem	ent-	2016
ASSETS			Liabilities & Owners Equity			Sales	\$	2,311
Current Assets		Current Liabilities			COGS	\$	1,344	
Cash \$		98	Accounts Payable	\$	344	Depreciation	\$	276
Accounts Receivable	\$	188	Notes Payable	\$	196	EBIT	\$	691
Inventory	\$	422	Total	\$	540	Interest	\$	141
Total	\$	708	Long term debt Owners' Equity	\$	457	Taxable Income Taxes	\$	550 187
			Common Stock and paid in surplus		550	Net Income	\$	363
Fixed Assets			Retained Earnings	s	2.041	Net income	÷	303
Net Plant & Equipment	S	2,880	Total	S	2,591	Dividends	s	121
Total Asets		3,588	Total Liabilties & Owners' Equity	Š	3,588	Addition to RE	s	242
• Profit Margi = 363 / 2,313		,	les					
 Return on A 	ssets	(RO	A) = NI / TA					
= 363 / 3,588	3 = 10	.12%						
	ruitv	(ROE	E) = NI / TE					
 Return on Ed 	44.69							

Market Value Measures

• Market Price = \$88 per share = PPS

• Shares outstanding = 33 million

• Earnings per Share = EPS = 363 / 33 = \$11

• PE ratio = PPS / EPS

- \$88 / \$11 = 8 times

• Price/Sales ratio = PPS/Sales per share

- \$88 / (\$2,311 / 33) = 1.26 times

• Market-to-book ratio = PPS / Book value per share

- Book value per share = Total Equity/shares outstanding

= \$2,591 / 33 = \$78.52

- Market-to-Book = \$88 / 78.52 = 1.12 times

3-20

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Market Value Measures

 Enterprise value = Total market value of the stock + Book value of all liabilities - Cash

 $EV = ($88 \times 33) + (3,588 - 2,591) - (98) = 3,803$

Cash gets subtracted when calculating Enterprise Value because (1) cash is considered a non-operating asset AND (2) cash is already implicitly accounted for within equity value.

- EBITDA ratio = Enterprise value / EBITDA
 - EBITDA = EBIT + Depreciation & Amortization = (691 + 276) = 967
 - EBITDA ratio = (3,803 / 967) = 3.93 times

21

As a general guideline, an EV/EBITDA value below 10 is commonly interpreted as healthy and above average by analysts and investors.

Pı	ufro	ck Ratios
	PRUFRO	CK RECAP
Liquidity Ratios		Financial Leverage Ratios
Current Ratio	1.31	Total Debt Ratio 0.2
Quick Ratio	0.53	Debt to Equity 0.3
Cash Ratio	0.18	Equity Multiplier 1.3
Asset Management Ratio	s	Times Interest Earned 4.
Inventory Turnover	3.20	Cash Coverage 6.
Days' Sales in Inventory	114	Profitability Measures
Receivables Turnover	12.30	Profit Margin 15.70%
Days' Sales in Receivables	30	ROA 10.10%
Total Asset Turnover	0.64	ROE 14.00%
Capital Intensity Ratio		
	Market Val	ue Measures
Market Price	\$88.00	
Shares Outstanding	33 m	
EPS	\$11.00	Price/Sales Ratio 1.2
PE Ratio	8.0	Book value per share \$78.52
Market to Book	1.12	EBITDA Ratio 3.9
		3-

Financial Information Example for 2014 for Lowe's and Home Depot (millions of dollars)

Home Depot \$56,226 \$83,176 2,698 10,080 from 2014 for Lowe's and Home Depot (numbers in millions Current assets 15,302 Current liabilities Total assets 9 348 7,488 39,946 except for per-share Total debt 21.589 30.624 9,968 67.76 Total equity Price per share 7.28 4.96 2.04 Book value per share 10.78 Earnings per share Current ratio 1.08 3.29 2.08 7.63% Debt-equity ratio
Total asset turnover 2.19 Profit margin 4.80% 68.06% 15.88% 27.07% 8.48% Market-to-book ratio 14.34 3-23 The DuPont Identity

• Return on Equity = Net Income / Total Equity
= Basic Formula

ROE = PM * TAT * EM = DuPont Identity
 PM (profit margin) = Net Income / Sales

o TAT (Total asset turnover) = Sales / Total Assets

o EM (Equity Multiplier) = Total Assets / Total Equity

 $ROE = \left(\frac{NI}{Sales}\right) \times \left(\frac{Sales}{TA}\right) \times \left(\frac{TA}{TE}\right) = \frac{NetIncome}{Total Equity}$

Profit Margin Asset Use Leverage = ROE

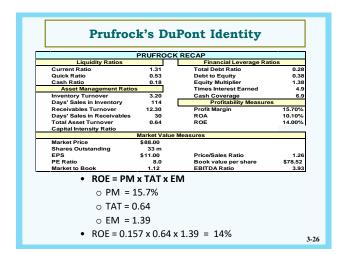
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23 24

Using the DuPont Identity

- ROE = PM \times TAT \times EM
 - Profit margin
 - Measures firm's operating efficiency
 - · How well does it control costs
 - Total asset turnover
 - · Measures the firm's asset use efficiency
 - · How well does it manage its assets
 - Equity multiplier
 - Measures the firm's financial leverage
 - EM = TA / TE = 1 + D/E ratio

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Payout and Retention Ratios

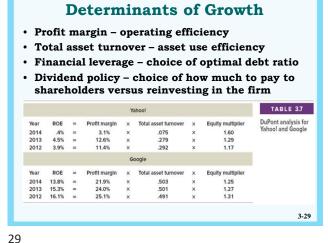
- Dividend payout ratio = Cash Dividends
 Net Income
- · Retention ratio or plowback ratio
 - Addition to Retained Earnings
 Net Income

Dividend payout ratio ("1 - b") Retention ratio ("b")

3-27

	PRUFROCK Income Statement - 201						
ASSETS Balance		Liabilities & Owners Equity			Sales	\$	2,311
Current Assets		Current Liabilities			cogs	\$	1,344
Cash	\$ 98	Accounts Payable	\$	344	Depreciation	\$	276
Accounts Receivable	\$ 188	Notes Payable	\$	196	EBIT	\$	691
Inventory	\$ 422	Total	\$	540	Interest	\$	141
Total	\$ 708	Long term debt	\$	457	Taxable Income	\$	550
		Owners' Equity			Taxes	\$	187
Fixed Assets		Common Stock and paid in surplus	\$	550	Net Income	\$	363
INCO FICCUS		Retained Earnings	\$	2,041	Dividends	2	121
Net Plant & Equipment Total Asets	\$ 2,880 \$ 3,588	Total Liabilties & Owners' Equity	\$	3,588	Addition to RE	\$	242
Dividend paCash divide(DIV / NI) =	nds / Net	income					
Retention ra	tio ("h")	= (NI – DIV) / NI					

27 28



Why Evaluate Financial Statements?

- · Internal uses
 - Performance evaluation
 - compensation and comparison between divisions
 - Planning for the future - guide in estimating
- External uses
 - Creditors
 - Suppliers
 - Customers
 - Stockholders
- future cash flows

Benchmarking

- · Ratios need to be compared to something
- **Time-Trend Analysis**
 - · How the firm's performance is changing through time Internal and external uses
- · Peer Group Analysis

30

- Compare to similar companies or within industries
- · SIC and NAICS codes

http://siccode.com/en/

Problems with Financial Analysis Conglomerates No readily available comparables · Global competitors · Different accounting procedures · Different fiscal year ends · Differences in capital structure · Seasonal variations and one-time events Analysts should look beyond the ratios.

Example: Work the Web

- The Internet makes ratio analysis much easier than it has been in the past
- Click on the Web surfer to go to www.reuters.com or https://finance.yahoo.com/ or https://www.investing.com/equities/
 - Choose a company and enter its ticker symbol
 - Click on "Financial Results" and "Key Ratios" to compare the firm to its industry and the S&P 500 for various ratio categories
 - Change the ratio category using the links to the left of