

Chapter 3

Working With Financial Statements

Key Concepts and Skills

- Know how to standardize financial statements for comparison purposes
- Know how to compute and interpret important financial ratios
- Know the determinants of a firm's profitability and growth
- Understand the problems and pitfalls in financial statement analysis

Chapter Outline

- Standardized Financial Statements
- Ratio Analysis
- The Du Pont Identity
- Internal and Sustainable Growth
- Using Financial Statement Information

Standardized Financial Statements

- Common-Size Balance Sheets
 - Compute all accounts as a percent of total assets
- Common-Size Income Statements
 - Compute all line items as a percent of sales
- Standardized statements make it easier to compare financial information, particularly as the company grows
- They are also useful for comparing companies of different sizes, particularly within the same industry

Ratio Analysis

- Ratios also allow for better comparison through time or between companies
- As we look at each ratio, ask yourself what the ratio is trying to measure and why that information is important
- Ratios are used both internally and externally

Categories of Financial Ratios

- Short-term solvency or liquidity ratios
- Long-term solvency or financial leverage ratios
- Asset management or turnover ratios
- Profitability ratios
- Market value ratios

Sample Balance Sheet

Numbers in thousands

Cash	680,623	A/P	318,301
A/R	1,051,438	N/P	4,613
Inventory	300,459	Other CL	1,645,748
Other CA	415,310	Total CL	1,968,662
Total CA	2,447,830	LT Debt	909,814
Net FA	3,415,159	C/S	2,984,513
Total Assets	5,862,989	Total Liab. & Equity	5,862,989

Sample Income Statement

Numbers in thousands, except EPS & DPS

Revenues	5,250,538
- Cost of Goods Sold	(2,046,645)
- Expenses	(1,904,556)
- Depreciation & Amortization	(124,647)
EBIT	1,174,690
- Interest Expense	(5,785)
Taxable Income	1,168,905
- Taxes	(412,495)
Net Income	756,410
EPS (193,000 shares outstanding)	3.92
Dividends per share	1.20

Computing Liquidity Ratios

- Current Ratio = CA / CL
 - $2,447,830 / 1,968,662 = 1.24$ times
- Quick Ratio = (CA - Inventory) / CL
 - $(2,447,830 - 300,459) / 1,968,662 = 1.09$ times
- Cash Ratio = Cash / CL
 - $680,623 / 1,968,662 = .346$ times

Computing Leverage Ratios

- Total Debt Ratio = (TA - TE) / TA
 - $(5,862,989 - 2,984,513) / 5,862,989 = .491$ times or 49.1%
 - The firm finances slightly over 49% of their assets with debt.
- Debt/Equity = TD / TE
 - $(5,862,989 - 2,984,513) / 2,984,513 = .964$ times
- Equity Multiplier = TA / TE = 1 + D/E
 - $1 + .964 = 1.964$

Computing Coverage Ratios

- Times Interest Earned = EBIT / Interest
 - $1,174,900 / 5,785 = 203$ times
- Cash Coverage = (EBIT + Depr. & Amort.) / Interest
 - $(1,174,900 + 124,647) / 5,785 = 225$ times

Computing Inventory Ratios

- Inventory Turnover = Cost of Goods Sold / Inventory
 - $2,046,645 / 300,459 = 6.81$ times
- Days' Sales in Inventory = 365 / Inventory Turnover
 - $365 / 6.81 = 54$ days

Computing Receivables Ratios

- Receivables Turnover = Sales / Accounts Receivable
 - 5,250,538 / 1,051,438 = 4.99 times
- Days' Sales in Receivables = 365 / Receivables Turnover
 - 365 / 4.99 = 73 days

Computing Total Asset Turnover

- Total Asset Turnover = Sales / Total Assets
 - 5,250,538 / 5,862,989 = .896 times
- Measure of asset use efficiency
- Not unusual for TAT < 1, especially if a firm has a large amount of fixed assets

Computing Profitability Measures

- Profit Margin = Net Income / Sales
 - 756,410 / 5,250,538 = .1441 times or 14.41%
- Return on Assets (ROA) = Net Income / Total Assets
 - 756,410 / 5,862,989 = .1290 times or 12.90%
- Return on Equity (ROE) = Net Income / Total Equity
 - 756,410 / 2,984,513 = .2534 times or 25.34%

Computing Market Value Measures

- Market Price (12/31/04) = \$91.54 per share
- Shares outstanding = 189,813,459
- PE Ratio = Price per share / Earnings per share
 - 91.54 / 3.92 = 23.35 times
- Market-to-book ratio = market value per share / book value per share
 - 91.54 / (2,984,513,000 / 189,813,459) = 5.82 times

Table 3.5

I. Short-term solvency, or liquidity, ratios	
Current ratio = $\frac{\text{Current assets}}{\text{Current liabilities}}$	Days sales in receivables = $\frac{365 \text{ days}}{\text{Receivables turnover}}$
Quick ratio = $\frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$	Total asset turnover = $\frac{\text{Sales}}{\text{Total assets}}$
Cash ratio = $\frac{\text{Cash}}{\text{Current liabilities}}$	Capital intensity = $\frac{\text{Total assets}}{\text{Sales}}$
II. Long-term solvency, or financial leverage, ratios	
Total debt ratio = $\frac{\text{Total debt}}{\text{Total assets} + \text{Total equity}}$	IV. Profitability ratios
Debt-equity ratio = $\frac{\text{Total debt}}{\text{Total equity}}$	Profit margin = $\frac{\text{Net income}}{\text{Sales}}$
Equity multiplier = $\frac{\text{Total assets}}{\text{Total equity}}$	Return on assets (ROA) = $\frac{\text{Net income}}{\text{Total assets}}$
Times interest earned ratio = $\frac{\text{EBIT}}{\text{Interest}}$	Return on equity (ROE) = $\frac{\text{Net income}}{\text{Total equity}}$
Cash coverage ratio = $\frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}}$	ROE = $\frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$
III. Asset utilization, or turnover, ratios	
Inventory turnover = $\frac{\text{Cost of goods sold}}{\text{Inventory}}$	V. Market value ratios
Days sales in inventory = $\frac{365 \text{ days}}{\text{Inventory turnover}}$	Price-earnings ratio = $\frac{\text{Price per share}}{\text{Earnings per share}}$
Receivables turnover = $\frac{\text{Sales}}{\text{Accounts receivable}}$	Market-to-book ratio = $\frac{\text{Market value per share}}{\text{Book value per share}}$

Deriving the Du Pont Identity

- ROE = NI / TE
- Multiply by 1 and then rearrange
 - ROE = (NI / TE) (TA / TA)
 - ROE = (NI / TA) (TA / TE) = ROA * EM
- Multiply by 1 again and then rearrange
 - ROE = (NI / TA) (TA / TE) (Sales / Sales)
 - ROE = (NI / Sales) (Sales / TA) (TA / TE)
 - ROE = PM * TAT * EM

Using the Du Pont Identity

- $ROE = PM \times TAT \times EM$
 - Profit margin is a measure of the firm's operating efficiency – how well does it control costs
 - Total asset turnover is a measure of the firm's asset use efficiency – how well does it manage its assets
 - Equity multiplier is a measure of the firm's financial leverage

Payout and Retention Ratios

- Dividend payout ratio (“b”) = Cash dividends / Net income
 - $1.20 / 3.92 = .3061$ or 30.61%
- Retention ratio (“1 – b”) = Addn. to R/E / Net income = $(EPS - DPS) / EPS$
 - $(3.92 - 1.20) / 3.92 = .6939 = 69.39\%$
- Or: Retention ratio = $1 - \text{Dividend Payout Ratio}$
 - $1 - .3061 = .6939 = 69.39\%$

The Internal Growth Rate

- The internal growth rate tells us how much the firm can grow assets using retained earnings as the only source of financing.

$$\begin{aligned} \text{Internal Growth Rate} &= \frac{ROA \times b}{1 - ROA \times b} \\ &= \frac{.1290 \times .3061}{1 - .1290 \times .3061} = .0411 \\ &= 4.11\% \end{aligned}$$

The Sustainable Growth Rate

- The sustainable growth rate tells us how much the firm can grow by using internally generated funds and issuing debt to maintain a constant debt ratio.

$$\begin{aligned} \text{Sustainable Growth Rate} &= \frac{ROE \times b}{1 - ROE \times b} \\ &= \frac{.2534 \times .3061}{1 - .2534 \times .3061} = .0841 \\ &= 8.41\% \end{aligned}$$

Determinants of Growth

- Profit margin – operating efficiency
- Total asset turnover – asset use efficiency
- Financial leverage – choice of optimal debt ratio
- Dividend policy – choice of how much to pay to shareholders versus reinvesting in the firm

Table 3.7

I. Internal growth rate	
Internal growth rate	$= \frac{ROA \times b}{1 - ROA \times b}$
where	
ROA	= Return on assets = Net income/Total assets
b	= Plowback (retention) ratio
	= Addition to retained earnings/Net income
	= $1 - \text{Dividend payout ratio}$
The internal growth rate is the maximum growth rate that can be achieved with no external financing of any kind.	
II. Sustainable growth rate	
Sustainable growth rate	$= \frac{ROE \times b}{1 - ROE \times b}$
where	
ROE	= Return on equity = Net income/Total equity
b	= Plowback (retention) ratio
	= Addition to retained earnings/Net income
	= $1 - \text{Dividend payout ratio}$
The sustainable growth rate is the maximum growth rate that can be achieved with no external equity financing while maintaining a constant debt-equity ratio.	

Why Evaluate Financial Statements?

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

Benchmarking

- Ratios are not very helpful by themselves; they need to be compared to something
- Time-Trend Analysis
 - Used to see how the firm's performance is changing through time
 - Internal and external uses
- Peer Group Analysis
 - Compare to similar companies or within industries
 - SIC and NAICS codes



Real World Example - I



- Ratios are figured using financial data from the 02/01/2004 Annual Report for Home Depot
- Compare the ratios to the industry ratios in Table 3.10 in the book
- Home Depot's fiscal year ends Feb. 1
- Be sure to note how the ratios are computed in the table so you can compute comparable numbers.
- Home Depot sales = \$64,816 MM

Real World Example - II

- Liquidity ratios
 - Current ratio = 1.40x; Industry = 1.8x
 - Quick ratio = .45x; Industry = .6x
- Long-term solvency ratio
 - Debt/Equity ratio (Debt / Worth) = .54x; Industry = 1.4x
- Coverage ratio
 - Times Interest Earned = 2,282x; Industry = 4.8x

Real World Example - III

- Asset management ratios:
 - Inventory turnover = 4.9x; Industry = 4.2x
 - Receivables turnover = 59.1x (every 6 days); Industry = 21.3x (every 17 days)
 - Total asset turnover = 1.9x; Industry = 2.8x
- Profitability ratios
 - Profit margin before taxes = 10.6%; Industry = 3.0%
 - ROA (profit before taxes / total assets) = 19.9%; Industry = 7.3%
 - ROE = (profit before taxes / tangible net worth) = 34.6%; Industry = 16.8%

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 Moneycentral.com
 - 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 the chart.

Quick Quiz

- How do you standardize balance sheets and income statements and why is standardization useful?
- What are the major categories of ratios and how do you compute specific ratios within each category?
- What are the major determinants of a firm's growth potential?
- What are some of the problems associated with financial statement analysis?

Comprehensive Problem

- XYZ Corporation has the following financial information for the previous year:
- Sales: \$8M, PM = 8%, CA = \$2M, FA = \$6M, NWC = \$1M, LTD = \$3M
- Compute the ROE using the DuPont Analysis.