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**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>680,623</td>
</tr>
<tr>
<td>A/R</td>
<td>1,051,438</td>
</tr>
<tr>
<td>Inventory</td>
<td>300,459</td>
</tr>
<tr>
<td>Other CA</td>
<td>415,310</td>
</tr>
<tr>
<td>Total CA</td>
<td>2,447,830</td>
</tr>
<tr>
<td>Net FA</td>
<td>3,415,159</td>
</tr>
<tr>
<td>Total Assets</td>
<td>5,862,989</td>
</tr>
<tr>
<td>A/P</td>
<td>318,301</td>
</tr>
<tr>
<td>N/P</td>
<td>4,613</td>
</tr>
<tr>
<td>Other CL</td>
<td>1,645,748</td>
</tr>
<tr>
<td>Total CL</td>
<td>1,968,662</td>
</tr>
<tr>
<td>Total Liab. &amp; Equity</td>
<td>5,862,989</td>
</tr>
</tbody>
</table>

### Sample Income Statement

**Numbers in thousands, except EPS & DPS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>5,250,538</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>(2,046,645)</td>
</tr>
<tr>
<td>Expenses</td>
<td>(1,904,556)</td>
</tr>
<tr>
<td>Depreciation &amp; Amortization</td>
<td>(124,647)</td>
</tr>
<tr>
<td>EBIT</td>
<td>1,174,900</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>(5,785)</td>
</tr>
<tr>
<td>Taxable Income</td>
<td>1,168,905</td>
</tr>
<tr>
<td>Taxes</td>
<td>(412,495)</td>
</tr>
<tr>
<td>Net Income</td>
<td>756,410</td>
</tr>
<tr>
<td>EPS (193,000 shares outstanding)</td>
<td>3.92</td>
</tr>
<tr>
<td>Dividends per share</td>
<td>1.20</td>
</tr>
</tbody>
</table>

### Computing Liquidity Ratios

- **Current Ratio** = \( \frac{CA}{CL} \)
  - \( \frac{2,447,830}{1,968,662} = 1.24 \) times
- **Quick Ratio** = \( \frac{(CA - Inventory)}{CL} \)
  - \( \frac{(2,447,830 - 300,459)}{1,968,662} = 1.09 \) times
- **Cash Ratio** = \( \frac{Cash}{CL} \)
  - \( \frac{680,623}{1,968,662} = .346 \) times

### Computing Leverage Ratios

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

### Computing Coverage Ratios

- **Times Interest Earned** = \( \frac{EBIT}{Interest} \)
  - \( \frac{1,174,900}{5,785} = 203 \) times
- **Cash Coverage** = \( \frac{(EBIT + Depr. & Amort.)}{Interest} \)
  - \( \frac{(1,174,900 + 124,647)}{5,785} = 225 \) times

### Computing Inventory Ratios

- **Inventory Turnover** = \( \frac{Cost of Goods Sold}{Inventory} \)
  - \( \frac{2,046,645}{300,459} = 6.81 \) times
- **Days’ Sales in Inventory** = \( \frac{365}{Inventory Turnover} \)
  - \( 365 / 6.81 = 54 \) 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

<table>
<thead>
<tr>
<th>Du Pont Identity</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE = NI / TE</td>
<td></td>
</tr>
<tr>
<td>Multiply by 1 and then rearrange</td>
<td></td>
</tr>
<tr>
<td>ROE = (NI / TE) (TA / TE)</td>
<td></td>
</tr>
<tr>
<td>Multiply by 1 again and then rearrange</td>
<td></td>
</tr>
<tr>
<td>ROE = (NI / TA) (TA / TE) (Sales / Sales)</td>
<td></td>
</tr>
<tr>
<td>ROE = (NI / Sales) (Sales / TA) (TA / TE)</td>
<td></td>
</tr>
<tr>
<td>ROE = PM * TAT * EM</td>
<td></td>
</tr>
</tbody>
</table>
Using the Du Pont Identity

- **ROE** = **PM** * **TAT** * **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
  - \( \frac{1.20}{3.92} = 0.3061 \) or 30.61%

- Retention ratio (“1 – b”) = Addn. to R/E / Net income = (EPS – DPS) / EPS
  - \( \frac{(3.92 - 1.20)}{3.92} = 0.6939 = 69.39\% 

- Or: Retention ratio = 1 – Dividend Payout Ratio
  - \( 1 - 0.3061 = 0.6939 = 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.

\[
\text{Internal Growth Rate} = \frac{\text{ROA} \times b}{1 - \text{ROA} \times b} = \frac{0.1290 \times 0.3061}{1 - 0.1290 \times 0.3061} = 0.0411 \approx 4.11\%
\]

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.

\[
\text{Sustainable Growth Rate} = \frac{\text{ROE} \times b}{1 - \text{ROE} \times b} = \frac{0.2534 \times 0.3061}{1 - 0.2534 \times 0.3061} = 0.0841 \approx 8.41\%
\]

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

<table>
<thead>
<tr>
<th>Determinants of Growth</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal growth rate</td>
<td>( \text{ROA} \times b )</td>
</tr>
<tr>
<td>Sustainable growth rate</td>
<td>( \frac{\text{ROE} \times b}{1 - \text{ROE} \times b} )</td>
</tr>
</tbody>
</table>

\( \text{ROA} = \frac{\text{Return on assets}}{\text{Net income/Total assets}} \)

\( \text{ROE} = \frac{\text{Return on equity}}{\text{Net income/Total equity}} \)

The internal growth rate is the maximum growth rate that can be achieved with no external financing of any kind.

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.