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 is that information 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></th>
<th>Amount</th>
<th></th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>6,489</td>
<td>A/P</td>
<td>340,220</td>
</tr>
<tr>
<td>A/R</td>
<td>1,052,606</td>
<td>N/P</td>
<td>86,631</td>
</tr>
<tr>
<td>Inventory</td>
<td>295,255</td>
<td>Other CL</td>
<td>1,098,602</td>
</tr>
<tr>
<td>Other CA</td>
<td>199,375</td>
<td>Total CL</td>
<td>1,525,453</td>
</tr>
<tr>
<td>Total CA</td>
<td>1,553,725</td>
<td>LT Debt</td>
<td>871,851</td>
</tr>
<tr>
<td>Net FA</td>
<td>2,535,072</td>
<td>C/S</td>
<td>1,691,493</td>
</tr>
<tr>
<td>Total Assets</td>
<td>4,088,797</td>
<td>Total Liab. &amp; Equity</td>
<td>4,088,797</td>
</tr>
</tbody>
</table>
# Sample Income Statement

Numbers in thousands, except EPS & DPS

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>3,991,997</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>1,738,125</td>
</tr>
<tr>
<td>Expenses</td>
<td>1,269,479</td>
</tr>
<tr>
<td>Depreciation</td>
<td>308,355</td>
</tr>
<tr>
<td>EBIT</td>
<td>739,987</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>42,013</td>
</tr>
<tr>
<td>Taxable Income</td>
<td>697,974</td>
</tr>
<tr>
<td>Taxes</td>
<td>272,210</td>
</tr>
<tr>
<td>Net Income</td>
<td>425,764</td>
</tr>
<tr>
<td>EPS</td>
<td>2.17</td>
</tr>
<tr>
<td>Dividends per share</td>
<td>0.86</td>
</tr>
</tbody>
</table>
Computing Liquidity Ratios

- **Current Ratio** = CA / CL
  - \(1,553,725 / 1,525,453 = 1.02\) times

- **Quick Ratio** = (CA – Inventory) / CL
  - \((1,553,725 – 295,225) / 1,525,453 = .825\) times

- **Cash Ratio** = Cash / CL
  - \(6,489 / 1,525,453 = .004\) times
Long-term Solvency Measures

• Total Debt Ratio = (TA – TE) / TA
  – (4,088,797 – 1,691,493) / 4,088,797 = .5863 times or 58.63%
  – The firm finances almost 59% of their assets with debt.

• Debt/Equity = TD / TE
  – (4,088,797 – 1,691,493) / 1, 691,493 = 1.417 times

• Equity Multiplier = TA / TE = 1 + D/E
  – 1 + 1.417 = 2.417
Computing Coverage Ratios

• Times Interest Earned = EBIT / Interest
  – $739,987 / 42,013 = 17.6$ times

• Cash Coverage = (EBIT + Depreciation) / Interest
  – $(739,987 + 308,355) / 42,013 = 24.95$ times
Computing Inventory Ratios

• Inventory Turnover = Cost of Goods Sold / Inventory
  – 1,738,125 / 295,255 = 5.89 times

• Days’ Sales in Inventory = 365 / Inventory Turnover
  – 365 / 5.89 = 62 days
Computing Receivables Ratios

• Receivables Turnover = Sales / Accounts Receivable
  – 3,991,997 / 1,052,606 = 3.79 times

• Days’ Sales in Receivables = 365 / Receivables Turnover
  – 365 / 3.79 = 96 days
Computing Total Asset Turnover

- Total Asset Turnover = Sales / Total Assets
  - \( \frac{3,991,997}{4,088,797} = .98 \text{ times} \)
- 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
  \[-425,764 / 3,991,997 = .1067 \text{ times or } 10.67\%\]

• Return on Assets (ROA) = Net Income / Total Assets
  \[-425,764 / 4,088,797 = .1041 \text{ times or } 10.41\%\]

• Return on Equity (ROE) = Net Income / Total Equity
  \[-425,764 / 1,691,493 = .2517 \text{ times or } 25.17\%\]
Computing Market Value Measures

- Market Price = $61.625 per share
- Shares outstanding = 205,838,594
- PE Ratio = Price per share / Earnings per share
  - $61.625 / $2.17 = 28.4 times
- Market-to-book ratio = market value per share / book value per share
  - $61.625 / ($1,691,493,000 / 205,838,594) = 7.5 times
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 * 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 = Cash dividends / Net income
  - $0.86 / 2.17 = 0.3963$ or 39.63%

- Retention ratio = Additions to retained earnings / Net income = 1 – payout ratio
  - $1.31 / 2.17 = 0.6037 = 60.37%$
  - Or $1 - 0.3963 = 0.6037 = 60.37%$
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.

\[
\text{Internal Growth Rate} = \frac{\text{ROA} \times b}{1 - \text{ROA} \times b} = \frac{.1041 \times .6037}{1 - .1041 \times .6037} = .0671
\]

\[
= 6.71\%
\]
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.

\[
\text{Sustainable Growth Rate} = \frac{\text{ROE} \times b}{1 - \text{ROE} \times b}
\]

\[
= \frac{.2517 \times .6037}{1 - .2517 \times .6037} = .1792
\]

\[
= 17.92\%
\]
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
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