Chapter 3

Working With Financial Statements

Key Concepts and Skills

- Understand sources and uses of cash and the Statement of Cash Flows
- Know how to standardize financial statements for comparison purposes
- Know how to compute and interpret important financial ratios
- Be able to compute and interpret the Du Pont Identity
- Understand the problems and pitfalls in financial statement analysis

Chapter Outline

- Cash Flow and Financial Statements: A Closer Look
- Standardized Financial Statements
- Ratio Analysis
- The Du Pont Identity
- Using Financial Statement Information

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Contact Charles Hodges

- Email D2L Email or chodges@westga.edu
- Chat Sessions
- Skype (bufordshighway), LinkedIn and Facebook (Charles Hodges).
- Office Phone (678)839-4816 and Cell Phone (770)301-8648, target is under 24 hours

Sample Balance Sheet

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th></th>
<th>2011</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>696</td>
<td>58</td>
<td>307</td>
<td>303</td>
</tr>
<tr>
<td>A/R</td>
<td>956</td>
<td>902</td>
<td>26</td>
<td>119</td>
</tr>
<tr>
<td>Inventory</td>
<td>301</td>
<td>361</td>
<td>1,662</td>
<td>1,353</td>
</tr>
<tr>
<td>A/P</td>
<td>303</td>
<td>294</td>
<td>1,065</td>
<td>1,775</td>
</tr>
<tr>
<td>Net CA</td>
<td>2,596</td>
<td>1,675</td>
<td>843</td>
<td>1,091</td>
</tr>
<tr>
<td>Net FA</td>
<td>3,138</td>
<td>3,358</td>
<td>2,566</td>
<td>2,167</td>
</tr>
<tr>
<td>Total Assets</td>
<td>5,394</td>
<td>5,033</td>
<td>5,394</td>
<td>5,033</td>
</tr>
</tbody>
</table>

Numbers in millions of dollars

Sample Income Statement

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues</td>
<td>5,000</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>(2,006)</td>
</tr>
<tr>
<td>Expenses</td>
<td>(1,740)</td>
</tr>
<tr>
<td>Depreciation</td>
<td>(116)</td>
</tr>
<tr>
<td>EBIT</td>
<td>1,138</td>
</tr>
<tr>
<td>Interest Expense</td>
<td>(7)</td>
</tr>
<tr>
<td>Taxable Income</td>
<td>1,131</td>
</tr>
<tr>
<td>Taxes</td>
<td>(442)</td>
</tr>
<tr>
<td>Net Income</td>
<td>689</td>
</tr>
<tr>
<td>EPS</td>
<td>3.61</td>
</tr>
<tr>
<td>Dividends per share</td>
<td>1.08</td>
</tr>
</tbody>
</table>

Numbers in millions of dollars, except EPS & DPS
Sources and Uses

• Sources
  - Cash inflow – occurs when we “sell” something
  - Decrease in asset account (Sample B/S)
    - Accounts receivable, inventory, and net fixed assets
  - Increase in liability or equity account
    - Accounts payable, other current liabilities, and common stock

• Uses
  - Cash outflow – occurs when we “buy” something
  - Increase in asset account
    - Cash and other current assets
  - Decrease in liability or equity account
    - Notes payable and long-term debt

Statement of Cash Flows

• Statement that summarizes the sources and uses of cash
• Changes divided into three major categories
  - Operating Activity – includes net income and changes in most current accounts
  - Investment Activity – includes changes in fixed assets
  - Financing Activity – includes changes in notes payable, long-term debt, and equity accounts, as well as dividends

Sample Statement of Cash Flows

<table>
<thead>
<tr>
<th></th>
<th>$ millions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash, beginning of year</td>
<td>58</td>
<td></td>
</tr>
<tr>
<td>Financing Activity</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|                           |           | Decrease in Notes Payable            | 93
|                           |           | Decrease in L/T Debt                 | 248
|                           |           | Decrease in C/D (reduce PR)          | -16
|                           |           | Decrease in CA                       | 94
|                           |           | Decrease in Inventory                | 36
|                           |           | Increase in A/P                      | 4
|                           |           | Increase in Other CA                 | 309
|                           |           | Net Cash from Operations             | 1,175
|                           |           | Cash at end of year                  | 696
| Operating Activity          |           |                                      |
|                           |           | Decrease in A/P                      | -6
|                           |           | Decrease in Other CA                 | -39
|                           |           | Net Cash from Operations             | 1,175
|                           |           | Cash at end of year                  | 696
| Investment Activity         |           |                                      |
|                           |           | Sale of Fixed Assets                 | 104
|                           |           | Net Cash from Investments             | 104
|                            |           |                                      |

Numbers in millions of dollars
Contact Charles Hodges

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Standardized Financial Statements

- Common-Size
  - Balance Sheets, Compute accounts as a percent of total assets
  - Income Statements, Compute accounts 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

- Something/Something Else
- Ratios 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
  - Vary by Industry and Company
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

More on Common Size and Ratio Analysis

- Three basic ratio types, usually computed to nearest .1
  - Days (e.g. days in inventory)
  - Times (e.g. current ratio)
  - Percent (e.g. Return on Equity)

Benchmarking

- Ratios are not very helpful by themselves; they need to be compared to something
- Time-Trend/ Historical Analysis
  - Used to see how the firm’s performance is changing through time
  - Internal and external uses
- Peer Group/Competitive/Benchmarking Analysis
  - Compare to similar companies or within industries
  - SIC and NAICS codes
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<td>992</td>
<td>29</td>
<td>119</td>
</tr>
<tr>
<td>Inventory</td>
<td>301</td>
<td>361</td>
<td>1,462</td>
<td>1,353</td>
</tr>
<tr>
<td>Other CA</td>
<td>303</td>
<td>264</td>
<td>1,995</td>
<td>1,775</td>
</tr>
<tr>
<td>Total CA</td>
<td>2,256</td>
<td>1,675</td>
<td>843</td>
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<td>Net FA</td>
<td>3,138</td>
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Computing Liquidity Ratios

- Current Ratio = CA / CL
  - 2,256 / 1,995 = 1.13 times
- Quick Ratio = (CA – Inventory) / CL
  - (2,256 – 301) / 1,995 = .98 times
- Cash Ratio = Cash / CL
  - 696 / 1,995 = .35 times
- NWC to Total Assets = NWC / TA
  - (2,256 – 1,995) / 5,394 = .05
- Interval Measure = CA / average daily operating costs
  - 2,256 / ((2,006 + 1,740)/365) = 219.8 days
Computing Long-term Solvency/Leverage Ratios

- **Total Debt Ratio** = (TA – TE) / TA
  - \( (5,394 - 2,556) / 5,394 = 52.61\% \)
- **Debt/Equity** = TD / TE
  - \( (5,394 - 2,556) / 2,556 = 1.11 \) times
- **Equity Multiplier** = TA / TE = 1 + D/E
  - \( 1 + 1.11 = 2.11 \)
- **Long-term debt ratio** = LTD / (LTD + TE)
  - \( 843 / (843 + 2,556) = 24.80\% \)

Computing Leverage Coverage Ratios

- **Times Interest Earned** = EBIT / Interest
  - \( 1,138 / 7 = 162.57 \times \)
- **Cash Coverage** = (EBIT + Depreciation) / Interest
  - \( (1,138 + 116) / 7 = 179.14 \times \)

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<td></td>
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Numbers in millions of dollars, except EPS & DPS

Asset Management Ratios

- Computing Inventory Ratios
- Inventory Turnover = Cost of Goods Sold / Inventory
  - 2,006 / 301 = 6.66 times
- Days’ Sales in Inventory = 365 / Inventory Turnover
  - 365 / 6.66 = 55 days
Computing Receivables Ratios

- Receivables Turnover = Sales / Accounts Receivable
  - 5,000 / 956 = 5.23 times
- Days’ Sales in Receivables = 365 / Receivables Turnover
  - 365 / 5.23 = 70 days

Computing Total Asset Turnover

- Total Asset Turnover = Sales / Total Assets
  - 5,000 / 5,394 = .93
  - It is not unusual for TAT < 1, especially if a firm has a large amount of fixed assets
- NWC Turnover = Sales / NWC
  - 5,000 / (2,256 – 1,995) = 19.16 times
- Fixed Asset Turnover = Sales / NFA
  - 5,000 / 3,138 = 1.59 times

Computing Profitability Measures

- Profit Margin = Net Income / Sales
  - 689 / 5,000 = 13.78%
- Return on Assets (ROA) = Net Income / Total Assets
  - 689 / 5,394 = 12.77%
- Return on Equity (ROE) = Net Income / Total Equity
  - 689 / 2,556 = 26.96%
Computing Market Value Measures - I

- Market Price = $87.65 per share
- Shares outstanding = 190.9 million
- PE Ratio = Price per share / Earnings per share
  - \( \frac{87.65}{3.61} = 24.28 \) times
- Market-to-book ratio = market value per share / book value per share
  - \( \frac{87.65}{(2,556 / 190.9)} = 6.55 \) times

Computing Market Value Measures - II

- Enterprise value = market value of stock + book value of liabilities - cash
  - \( 16,732 + 2,838 - 696 = $18,874 \)
- EBITDA ratio = Enterprise value / EBITDA
  - \( \frac{18,874}{1,138} = 16.6 \) times

Deriving the Du Pont Identity

- ROE = NI / TE
- Multiply by 1 (TA/TA) and then rearrange
  - ROE = (NI / TE) (TA / TA)
  - ROE = (NI / TA) (TA / TE) = ROA * EM
- Multiply by 1 (Sales/Sales) 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 it controls 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

Expanded Du Pont Analysis – Du Pont Data

<table>
<thead>
<tr>
<th>Table 3.9</th>
<th>Financial Statements for Donald (in $ millions, all numbers are in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income Statement</td>
<td>Balance Sheet</td>
</tr>
<tr>
<td>Sales</td>
<td>$30.7</td>
</tr>
<tr>
<td>Cash</td>
<td>0.0</td>
</tr>
<tr>
<td>Gross profit</td>
<td>19.3</td>
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<tr>
<td>Expenses</td>
<td>9.0</td>
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<td>Depreciation</td>
<td>0.0</td>
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<tr>
<td>Net income</td>
<td>$ 3.3</td>
</tr>
<tr>
<td>TAC</td>
<td>9.0</td>
</tr>
<tr>
<td>Net income</td>
<td>$ 3.3</td>
</tr>
</tbody>
</table>

Extended Du Pont Chart

[Diagram: Du Pont Chart]
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/ Historical Analysis
  - Used to see how the firm’s performance is changing through time
- Internal and external uses
- Peer Group/Competitive/Benchmarking Analysis
  - Compare to similar companies or within industries
  - SIC and NAICS codes

Real World Example - I

- Ratios are figured using financial data from the 2007 Annual Report for Home Depot
- Compare the ratios to the industry as they are reported in Tables 3.11 and 3.12 in the book
- Home Depot’s fiscal year ends Feb. 3
- Be sure to note how the ratios are computed in the table so you can compute comparable numbers
- Home Depot sales = $70,395MM
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Real World Example - II

- Liquidity ratios
  - Current ratio = 1.55x; Industry = 1.7x
  - Quick ratio = .45x; Industry = .5x
- Long-term solvency ratio
  - Debt/Equity ratio (Debt / Worth) = 1.27x; Industry = 1.4x.
- Coverage ratio
  - Times Interest Earned = 11x; Industry = 7.2x

Real World Example - III

- Asset management ratios:
  - Inventory turnover = 4.5x; Industry = 3.4x
  - Receivables turnover = 56.5x (6 days); Industry = 24.1x (15 days)
  - Total asset turnover = 1.7x; Industry = 2.3x
- Profitability ratios
  - Profit margin before taxes = 8.6%; Industry = 2.2%
  - ROA (profit before taxes / total assets) = 9.6%; Industry = 6.2%
  - ROE = (profit before taxes / tangible net worth) = 21.7%; Industry = 14.1%
Potential Problems

• There is no underlying theory, so there is no way to know which ratios are most relevant
• Benchmarking is difficult for diversified firms
• Globalization and international competition makes comparison more difficult because of differences in accounting regulations
• Varying accounting procedures, i.e. FIFO vs. LIFO
• Different fiscal years
• Extraordinary events

Work the Web Example

• 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
  ▪ Click on Markets, then Stocks, then choose a company and enter its ticker symbol
  ▪ Click on Financials to see what information is available

Quick Quiz

• What is the Statement of Cash Flows and how do you determine sources and uses of cash?
• 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 some of the problems associated with financial statement analysis?
Ethics Issues

• Should financial analysts be held liable for their opinions regarding the financial health of firms?
• How closely should ratings agencies work with the firms they are reviewing? I.e., what level of independence is appropriate?

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.

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