Financial Statement Analysis - Ratios

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Prepared for HFMA Certification Study Group
Interested Parties

- Management
- Board of Directors
- Shareholders
- Creditors
- Governmental Agencies, Employees, Competitors, etc.
An item on a financial statement has little meaning by itself. The meaning of the numbers can be enhanced by drawing comparisons.

I. Trend analysis (Horizontal analysis)

II. Common-Size Analysis (Vertical Analysis)

III. Ratio Analysis
Ratio Analysis:

- Ratios standardize numbers and facilitate comparisons.
- Ratios are used to highlight weaknesses and strengths.
- Ratio comparisons should be made through time and with competitors.
Inherent Limitations of Financial Ratios

- It may be difficult to find a meaningful set of industry-average ratios.
- Financial statements are not exact.
- Ratio analysis is backward-looking.
- Different accounting practices can distort comparisons.
- It is difficult to generalize about whether a ratio is good.
Using a medical metaphor, we may characterize a company as being ill, healthy, or fit. What matters is where the firm lies on the spectrum of health. The following 4 major ratio classifications help expose the firm’s condition:

1. Profitability
2. Liquidity
3. Capital Structure
4. Asset Management
Profitability Ratios

Profitability ratios measure the overall impact of operating decisions on a business’s financial condition. Because businesses require profits to remain viable in the long run, profitability ratios are perhaps the most important measures of financial condition.

1. **Contractual Discount Percentage**
   Concerned with the deductions that are taken from revenue. Computation is the dollar discount divided by gross patient service revenue.
   \[
   \text{Deductions from Gross Patient Service Revenue} \quad \frac{\text{Gross Patient Service Revenue}}{\text{Gross Patient Service Revenue}}
   \]

2. **Markup**
   The amount by which a price is increased over cost.
   \[
   \text{Gross Patient Service Revenue} + \text{Other Operating Revenue} \quad \frac{\text{Operating Expenses}}{	ext{Gross Patient Service Revenue}}
   \]
Profitability Ratios continued

3  **Operating Margin**
This ratio measures operating profitability as a percentage of operating revenue.
\[
\frac{\text{Total Operating Revenue} - \text{Operating Expenses}}{\text{Total Operating Revenue}}
\]

4  **Reported Income Index**
Measures how much of the income in the current year is reflective of the change in net assets.
\[
\frac{\text{Net Income}}{\text{Change in Net Assets}}
\]

5  **Return on Total Assets**
Measures a business’s ability to use its assets to generate income.
\[
\frac{\text{Net Income}}{\text{Total Assets}}
\]

6  **Return on Equity**
Measures a business’s ability to use its equity financing to generate profits.
\[
\frac{\text{Net Income}}{\text{Net Assets}}
\]
Summary- Profitability

Profitability ratios measure the overall impact of operating decisions on a business’s financial condition.

<table>
<thead>
<tr>
<th></th>
<th>Profitability Ratios</th>
<th>Preferred Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contractual Discount Percentage</td>
<td>Deductions from Gross Patient Service Revenue / Gross Patient Service Revenue</td>
</tr>
<tr>
<td>2</td>
<td>Markup</td>
<td>Gross Patient Service Revenue + Other Operating Revenue / Operating Expenses</td>
</tr>
<tr>
<td>3</td>
<td>Operating Margin</td>
<td>Total Operating Revenue – Operating Expenses / Total Operating Revenue</td>
</tr>
<tr>
<td>4</td>
<td>Reported Income Index</td>
<td>Net Income / Change in Net Assets</td>
</tr>
<tr>
<td>5</td>
<td>Return on Total Assets</td>
<td>Net Income / Total Assets</td>
</tr>
<tr>
<td>6</td>
<td>Return on Equity</td>
<td>Net Income / Net Assets</td>
</tr>
</tbody>
</table>
Liquidity Ratios

Liquidity ratios measure a firm’s ability to meet its cash obligations as they become due. Firms must balance the need for liquidity with the costs associated with maintaining liquidity.

1. **Current Ratio**
   Measures the dollars of current assets per dollar of current liabilities. The higher the current ratio, the greater a business’s liquidity.
   
   \[
   \text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}
   \]

2. **Quick Ratio**
   Measures the dollars of current assets other than inventories per dollar of current liabilities. A more stringent measure of liquidity because it removes inventories (the least liquid of current assets) from the measure.
   
   \[
   \text{Quick Ratio} = \frac{\text{Cash + Marketable Securities + Accounts Receivable}}{\text{Current Liabilities}}
   \]
Liquidity Ratios continued

3 **Acid-Test Ratio**
   The most stringent measure of liquidity (vs. current or quick ratio) because it removes both inventories and accounts receivable from the measure.

4 **Days in Patient Accounts Receivable**
   The average time an organization takes to collect its receivables. The quicker receivables are converted into cash, the more liquid the organization is.

5 **Average Payment Period**
   Measures the average amount of time that elapses before the organization meets its current liabilities. High values often indicate a lack of liquidity.

6 **Days Cash on Hand**
   Measures the number of days the organization could continue to pay its average daily cash obligations without new cash resources becoming available. High values imply higher liquidity.
Liquidity ratios measure a firm’s ability to meet its cash obligations as they become due.

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<tr>
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<tbody>
<tr>
<td>1</td>
<td>Current</td>
<td>Up</td>
</tr>
<tr>
<td></td>
<td>$\frac{\text{Current Assets}}{\text{Current Liabilities}}$</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Quick</td>
<td>Up</td>
</tr>
<tr>
<td></td>
<td>$\frac{\text{Cash + Marketable Securities + Accounts Receivable}}{\text{Current Liabilities}}$</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Acid-Test</td>
<td>Up</td>
</tr>
<tr>
<td></td>
<td>$\frac{\text{Cash + Marketable Securities}}{\text{Current Liabilities}}$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Days in Patient Accounts Receivable</td>
<td>Down</td>
</tr>
<tr>
<td></td>
<td>$\left(\frac{\text{NetPatientAccountsReceivable}}{\text{NetPatientServiceRevenue - Bad Debt expense}}\right) \times 365$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Average Payment Period</td>
<td>Down</td>
</tr>
<tr>
<td></td>
<td>$\frac{\text{Operating Expenses – Depreciation}}{365}$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Days Cash on Hand</td>
<td>Up</td>
</tr>
<tr>
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<td>$\frac{\text{Cash + Marketable Securities}}{\text{Operating Expenses – Depreciation}} \times 365$</td>
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Capital Structure Ratios

Capital structure ratios assess the amount of debt financing used by a business. Such measures are important because the use of financial leverage affects both the risk and profitability of a business.

1. **Equity Financing**
   Measures the proportion of equity financing in a business’s capital structure. The higher, the greater the amount of equity financing
   \[
   \text{Equity Financing} = \frac{\text{Net Assets}}{\text{Total Assets}}
   \]

2. **Long-term Debt to Equity**
   Measures the proportion of long-term debt financing relative to equity.
   \[
   \text{Long-term Debt to Equity} = \frac{\text{Long-term Liabilities}}{\text{Net Assets}}
   \]

3. **Debt Capitalization**
   Measures the proportion of debt financing relative to total financing.
   \[
   \text{Debt Capitalization} = \frac{\text{Total Debt}}{\text{Net Assets} + \text{Debt}}
   \]
4  **Cash Flow to Total Debt**  
Measures the percentage of total debt covered by the business’s cash flow. 
\[
\frac{\text{Net Income + Depreciation}}{\text{Current Liabilities + Long - term Debt}}
\]

5  **Times Interest Earned**  
Measures the number of dollars of earnings available to pay each dollar of interest expense. 
\[
\frac{\text{Net Income + Interest Expense}}{\text{Interest Expense}}
\]

6  **Debt Service Coverage**  
Measures the number of dollars of cash flow available to make debt payments per dollar of debt expense.  
\[
\frac{\text{Cash Flow + Interest Expense}}{\text{Principal Payment + Interest Expense}}
\]
Capital structure ratios assess the amount of debt financing used by a business.

### Capitalization Ratios

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<th>Capitalization Ratios</th>
<th>Formula</th>
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<tr>
<td></td>
<td>Equity Financing</td>
<td>$\frac{\text{Net Assets}}{\text{Total Assets}}$</td>
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<td></td>
<td>Long-Term Debt to Equity</td>
<td>$\frac{\text{Net Assets}}{\text{Total Debt}}$</td>
</tr>
<tr>
<td></td>
<td>Debt Capitalization</td>
<td>$\frac{\text{Net Assets}}{\text{Net Assets} + \text{Debt}}$</td>
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### Coverage Ratios

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<td></td>
<td>Cash Flow to Total Debt</td>
<td>$\frac{\text{Net Income} + \text{Depreciation}}{\text{Current Liabilities} + \text{Long-term Debt}}$</td>
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<tr>
<td></td>
<td>Times Interest Earned</td>
<td>$\frac{\text{Net Income} + \text{Interest Expense}}{\text{Interest Expense}}$</td>
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<td>Debt Service Coverage</td>
<td>$\frac{\text{Cash Flow} + \text{Interest Expense}}{\text{Principal Payment} + \text{Interest Expense}}$</td>
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Activity Ratios

Asset efficiency ratios measure how efficiently a business is utilizing its assets.

1. Total Asset Turnover
   Measures the dollars of total revenue per dollar of total assets. The higher the total asset turnover is, the more efficient (in the financial sense) a business’s investment in total assets.

2. Fixed Asset Turnover
   Measures the dollars of total revenue per dollar of net fixed assets. The higher the fixed asset turnover is, the more efficient a business’s investment in fixed assets (land, facilities, and equipment).

3. Current Asset Turnover
   Measures the dollars of total revenue per dollar of current assets. The higher the current asset turnover is, the more efficient a business’s investment in current assets.

4. Inventory Turnover
   Measures the dollars of total revenue generated by each dollar of inventory. The higher the inventory turnover is, the more efficient a business’s investment in inventory.
1. Profitability
2. Liquidity
3. Capital Structure
4. Asset Management
Further contact information

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- cjbradbury@plymouth.edu

- Put in “HFMA Ratio Analysis” in the Subject Line