Chapter 2
Financial Statement and Cash Flow Analysis

Balance Sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities and Shareholder’s Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Accounts Payable</td>
</tr>
<tr>
<td>Inventory</td>
<td>Notes Payable</td>
</tr>
<tr>
<td>Accounts Receivable</td>
<td>Accrued Wages</td>
</tr>
<tr>
<td>Property</td>
<td>Bank Loans</td>
</tr>
<tr>
<td>Plant</td>
<td>Bonds</td>
</tr>
<tr>
<td>Equipment</td>
<td>Common Stock</td>
</tr>
<tr>
<td></td>
<td>Retained Earnings</td>
</tr>
<tr>
<td>Total Assets</td>
<td>Total Liabilities and Shareholder’s Equity</td>
</tr>
</tbody>
</table>

Income Statement

Used to figure out how much money we are earning for:

(a) vendors, employees, etc - **Cost of Goods Sold, Operating Expenses**
(b) lenders, bondholders - **Interest**
(c) government - **Taxes**
(d) owners/stockholders - **Dividends/Retained Earnings**

<table>
<thead>
<tr>
<th>Sales</th>
<th>Liabilities and Shareholder’s Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-) Cost of Goods Sold</td>
<td>revenues</td>
</tr>
<tr>
<td>(-) Operating Expenses</td>
<td>cost to manufacture product</td>
</tr>
<tr>
<td>(-) Depreciation</td>
<td>general expenses</td>
</tr>
<tr>
<td>EBIT</td>
<td>earnings before int. and taxes</td>
</tr>
<tr>
<td>(-) Interest</td>
<td>to bondholders</td>
</tr>
<tr>
<td>EBT</td>
<td>earnings before taxes</td>
</tr>
<tr>
<td>(-) Taxes</td>
<td>rate set by government</td>
</tr>
<tr>
<td>Net Income</td>
<td>payout or retain</td>
</tr>
<tr>
<td>(-) Dividends</td>
<td>payout</td>
</tr>
<tr>
<td>Additions to R/E</td>
<td>retain</td>
</tr>
</tbody>
</table>
Statement of Cash Flows

Cash Flow from Operations:
   Net income (I/S)
   + depreciation (I/S)
   - increases in current assets (B/S)
   + increases in current liabilities (B/S)

Cash Flow from Investments:
   - investments in PPE (B/S)
   + sale of assets (B/S)

Cash Flow from Financing:
   + proceeds from issues of common stock or debt (B/S)
   - payment of dividends (I/S)
   - repurchase of common stock (B/S)
   - repayment of debt (B/S)

Net increase/decrease in Cash Account

Cash Flow Analysis

Earnings before Interest, Taxes, Depreciation, and Amortization (EBITDA)
Cash Flow available to bondholders, to pay government, and to fund asset purchase. Adds back in noncash items.

Net Operating Profits after Taxes (NOPAT) = Earnings before Interest and Taxes (EBIT) * (1-T)

Operating Cash Flow (OCF) = NOPAT + depreciation

Free Cash Flow (FCF) = OCF - ΔFA - (ΔCA - ΔA/P - Δaccruals)
   ΔFA = change in gross fixed assets (Increase in PPE - Depreciation)
   ΔCA = change in current assets (increase represents an investment)
   ΔA/P = change in accounts payable (increase represents borrowing)
   Δaccruals = change in accrued liabilities (increase represents borrowing)

example:
Problem 2-3 page 60
Smart Finance solution
Analyzing Financial Performance using Ratio Analysis

Five major areas to analyze.

(1) Liquidity Position
(2) Management of Assets
(3) Management of Debt
(4) Company's Profitability
(5) Market's View of Company

(1) **Liquidity Ratios** - use to investigate the relationship between a firm's current (short-term) assets and current (short-term) liabilities.

(a) Current Ratio = \( \frac{\text{Current Assets}}{\text{Current Liabilities}} \)

**higher the better**

(b) Quick Ratio = \( \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} \)

( Acid-test )

**higher the better**

(2) **Activity Ratios (Asset Management Ratios)** - Use to evaluate how efficiently management employs assets.

(a) Inventory Turnover = \( \frac{\text{Cost of Goods Sold}}{\text{Inventory}} \)

**higher the better**

(b) Average Collection Period = \( \frac{\text{Accounts Receivable}}{\text{Average Sales/day}} \)

**lower the better**

(c) Fixed Asset Turnover = \( \frac{\text{Sales}}{\text{Net Fixed Assets}} \)

**higher the better**

(d) Total Asset Turnover = \( \frac{\text{Sales}}{\text{Total Assets}} \)

**higher the better**
(3) **Debt Ratios** - use to evaluate riskiness of company (remember higher risk equates to higher required return)

(a) Debt Ratio \[= \frac{\text{Total Liabilities}}{\text{Total Assets}}\]

*higher = more risk*

(b) Asset-to-Equity Ratio = \[= \frac{\text{Total Assets}}{\text{Common Stock Equity}}\]

*(Equity Multiplier)*

*higher = more risk*

(c) Debt-to-Equity Ratio \[= \frac{\text{Long-term Debt}}{\text{Stockholders' Equity}}\]

*higher = more risk*

(d) Times-Interest-Earned \[= \frac{\text{EBIT}}{\text{Interest}}\]

*(TIE)*

*higher the better*

(4) **Profitability Ratios** - Are the owner's earning an adequate return on their investment.

(a) Net Profit Margin \[= \frac{\text{Net Income}}{\text{Sales}}\]

*higher the better*

(b) Return on Total Assets = \[= \frac{\text{Net Income}}{\text{Total Assets}}\]

*(ROA)*

*higher the better*

(c) Return on Common Equity = \[= \frac{\text{Net Income}}{\text{Common Stock Equity}}\]

*(ROE)*

*higher the better*
(5) **Market Ratios** - use to determine how market views company

(a) PE Ratio = \( \frac{\text{Price per share}}{\text{EPS}} \)

*higher the better*

(b) PEG Ratio = \( \frac{\text{PE Ratio}}{e(g_{\text{EPS}})} \)

*expected to equal one*

(c) Market/Book Ratio = \( \frac{\text{Price}}{\text{Book Value}} \)

*higher the better*

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**Du Pont Analysis**

The DuPont equation provides us a method to evaluate the components that make up ROE.

\[
\text{ROE} = \frac{\text{Net Income}}\text{Common Stock Equity}
\]

\[
\text{ROE} = (\text{ROA}) \times (\text{Asset-to-Equity Ratio})
\]

remember: \[
\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}
\]

\[
\text{Asset-to-Equity Ratio} = \frac{\text{Total Assets}}{\text{Common Equity}}
\]

shows the asset base supported by common equity; high equity multiplier shows a lot of risk or may be due to low market value relative to book value.

\[
\text{ROE} = (\text{ROA}) \times (\text{Asset-to-Equity Ratio})
\]

\[
\text{ROE} = \frac{\text{Net Income}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Common Stock Equity}}
\]

\[
\text{ROA} = (\text{net profit margin}) \times (\text{total asset turnover})
\]

where:

\[
\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Sales}}
\]

\[
\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}}
\]
Extended DuPont Equation

may be most beneficial to use as analysis tool.

\[
ROE = \frac{\text{Net Profit Margin}}{} \times \frac{\text{Total Asset Turnover}}{} \times \frac{\text{Asset-to-Equity Ratio}}{}
\]

\[
ROE = \frac{\text{Net Income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Common Stock Equity}}
\]

ROE is separated into profitability of each $ of sales (net profit margin), efficiency of asset management (total asset turnover), and company risk (asset-to-equity ratio).

Can now get insight into whether company's return is due to high profitability, good management, or compensation for risk.

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**Keys** to using Ratio Analysis

1. Compare ratios to industry
2. Look at trend of ratios over time
3. Be aware of the limitations in using ratio analysis

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**LIMITATIONS TO RATIO ANALYSIS**

1. Difficult to fit conglomerate into specific industry - or company make-up may change over time.
2. Focus on some 'important' ratios may adversely effect overall firm performance.
3. Timing of cash flows affect balances in accounts.
4. Window Dressing Techniques - make ratios appear better than they are to improve appearance of the company (fool investors).
5. Different Accounting Methods
6. No absolutes - high/low does not always mean good/bad or bad/good.
7. Industry averages may be distorted if all company's in industry very good or very bad.