Chapter 3
Analyzing Financial Statement

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 = Current Assets
                      Current Liabilities

b) Quick Ratio = Current Assets - Inventory
                  (Acid-test) Current Liabilities

c) Cash Ratio = Cash + Marketable Securities
               Current Liabilities

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

Inventory Management

a) Inventory Turnover = Cost of Goods Sold (or Sales)
                       Inventory

b) Days’ Sales in Inventory = Inventory
                              Average Sales/day

Accounts Receivable Management

a) Average Collection Period (ACP) = Accounts Receivable
                                    Average Sales/day

b) Accounts Receivable Turnover = Sales
                                  Accounts Receivable
Accounts Payable Management

a) Average Payment = \( \frac{\text{Accounts Payable}}{\text{Cost of Goods Sold / day}} \)

b) Accounts Payable Turnover = \( \frac{\text{Cost of Goods Sold}}{\text{Accounts Payable}} \)

Fixed Asset and Working Capital Management

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

b) Sales to Working Capital = \( \frac{\text{Sales}}{\text{Net Working Capital}} \)

Total Asset Management

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

b) Capital Intensity = \( \frac{\text{Total Assets}}{\text{Sales}} \)

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

Debt vs. Equity Financing

a) Debt = \( \frac{\text{Total Debt}}{\text{Total Assets}} \)

b) Debt-to-Equity = \( \frac{\text{Total Debt}}{\text{Total Equity}} \)

c) Equity Multiplier = \( \frac{\text{Total Assets}}{\text{Common Stock Equity}} \)

Coverage Ratios

a) Times-Interest-Earned = \( \frac{\text{EBIT}}{\text{Interest}} \)

b) Fixed-charge Coverage = \( \frac{\text{EBIT} + \text{Lease Payments}}{\text{Interest} + \text{Lease Payments}} \)

c) Cash Coverage = \( \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest} + \text{Lease Payments}} \)
(4) Profitability Ratios - Are the owner's earning an adequate return on their investment.

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

b) Basic Earnings Power = \( \frac{\text{EBIT}}{\text{Total Assets}} \)

c) Return on Assets (ROA) = \( \frac{\text{Net Income}}{\text{Total Assets}} \)

d) Return on Equity (ROE) = \( \frac{\text{Net Income}}{\text{Common Stockholders' Equity}} \)

e) Dividend Payout = \( \frac{\text{Common Stock Dividends}}{\text{Net Income}} \)

(5) Market Ratios - use to determine how market views company

a) Market-to-Book = \( \frac{\text{Stock Price}}{\text{Book Value / share}} \)

b) Price-Earnings (PE) = \( \frac{\text{Stock Price}}{\text{EPS}} \)

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

Du Pont Analysis

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

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

\[
\text{ROE} = (\text{ROA}) \times (\text{Equity Multiplier Ratio})
\]

remember: \( \text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} \)

\[
\text{Equity Multiplier Ratio} = \frac{\text{Total Assets}}{\text{Common Stock Equity}}
\]

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.

\[
\text{ROE} = (\text{ROA}) \times (\text{Equity Multiplier Ratio})
\]

\[
\text{ROE} = \frac{\text{Net Income}}{\text{Total Assets}} \times \frac{\text{Total Assets}}{\text{Common Stock Equity}}
\]
ROA = (Profit Margin)*(Total Asset Turnover)

where:

Profit Margin = \frac{Net \ Income}{Sales}

Total Asset Turnover = \frac{Sales}{Total \ Assets}

**Extended DuPont Equation**

may be most beneficial to use as analysis tool.

\[
ROE = \text{PROFIT MARGIN} \times \text{TOTAL ASSET} \times \text{EQUITY MULTIPLIER RATIO}
\]

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

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

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

**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

**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.
**Spreading Financial Statements**

Common Size Financial Statements

divide Balance Sheet amounts by Total Assets

divide Income Statement amounts by Sales

**Internal and Sustainable Growth Rates**

Internal Growth Rate = \( \frac{\text{ROA} \times \text{RR}}{1 - (\text{ROA} \times \text{RR})} \)

where RR is the firm’s Retention Ratio

Retention Ratio (RR) = \( \frac{\text{Additions to Retained Earnings}}{\text{Net Income}} = 1 - \frac{\text{Dividends}}{\text{Net Income}} \)

Sustainable Growth Rate = \( \frac{\text{ROE} \times \text{RR}}{1 - (\text{ROE} \times \text{RR})} \)