

1 Introduction:

1.1 The real value of financial statements lies in the fact that they can be used to help predict future earnings and dividends.

1.2 Financial ratios are designed to help one evaluate a financial statement.

1.3 Why should you care about ratios? Reasons include:

- The bankers and creditors will care about monitoring the ratios of the borrowing organizations. They want to make sure that your business is generating enough cash to repay the principal and interest charges
- Ratios are excellent indicators of financial health.
- Ratios are a useful tool for comparing business activities year over year
- Ratios are a useful tool for comparing your business activities and

2 Types of Financial Ratio

2.1 The five major categories of ratios and their uses:

- *Liquidity ratio*

Ratios that show the relationship of a firm's cash and other current assets to its current liabilities. Liquidity ratio includes **current ratio**, and **quick ratio**.

- *Asset Management ratio*

A set of ratios which measure how effectively a firm is managing its asset. Asset management ratio includes **inventory turnover ratio**, **average collection period**, **fixed assets turnover ratio**, and **total assets turnover**.

- *Debt Management ratio*

Ratios that show the use of debt financing or financial leverage. Debt management ratio includes **debt ratio**, **times-interest-earned ratio**, and **fixed charge coverage ratio**.

- *Profitability ratio*

A group of ratios which show the combined effects of liquidity, asset management, and debt on operating results. Profitability ratio includes **profit margin on sales**, **basic earning power ratio**, **return on total assets**, and **return on common equity**.

- *Market Value ratio*

A set of ratios that relate the firm's stock price to its earnings and book value per share. Market value ratio includes **price/earnings ratio**, **cash flow per share**, and **market/book ratio**.

**Key terms:***Financial leverage*

If a firm earns more on investments financed with borrowed funds than it pays in interest, the return on the owners' capital is **magnified** or "**leverage**".

3 Ratios Calculations and Formulas

a) *Liquidity ratios:*

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$$

b) *Asset Management ratio:*

$$\text{Inventory turnover ratio} = \frac{\text{Sales}}{\text{Inventories}}$$

$$\begin{aligned} \text{Average collection period ratio} &= \frac{\text{Receivables}}{\text{Annual sales}/360} \\ \text{Or Days sales outstanding} & \end{aligned}$$

$$\text{Fixed assets turnover ratio} = \frac{\text{Sales}}{\text{Net fixed assets}}$$

$$\text{Total assets turnover ratio} = \frac{\text{Sales}}{\text{Total assets}}$$

c) *Debt Management ratio:*

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

Note: Total debt includes both current liabilities and long-term debt.

$$\text{Times-interest-earned ratio} = \frac{\text{EBIT}}{\text{Interest charges}}$$

$$\text{Fixed charge coverage ratio} = \frac{\text{EBIT} + \text{Lease payments}}{\text{Interest charges} + \text{Lease payments} + \frac{\text{Sinking funds payments}}{(1 - \text{Tax rate})}}$$

Note: A sinking fund is a required payment designed to reduce the balance of a bond or preferred stock issued.

d) *Profitability ratio:*

$$\text{Profit margin on sales} = \frac{\text{Net income available to common stockholders}}{\text{Sales}}$$

$$\text{Basic earning power ratio} = \frac{\text{EBIT}}{\text{Total assets}}$$

$$\text{Return on total assets} = \frac{\text{Net income available to common stockholders}}{\text{Total assets}}$$

$$\text{Return on common equity} = \frac{\text{Net income available to common stockholders}}{\text{Common equity}}$$

e) *Market Value ratio:*

$$\text{Price/Earnings ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

Note: Earnings per share (EPS) is calculated as net income divided by the number of common shares outstanding.

$$\text{Market/book ratio} = \frac{\text{Market price per share}}{\text{Book value per share}}$$

Note: Book value per share (BVPS) is calculated as total common equity divided by the number of common shares outstanding.

$$\text{Cash flow per share} = \frac{\text{Net income} + \text{Depreciation}}{\text{Outstanding common shares}}$$

3.1 The *Extended Du Pont Equation*, which shows how the profit margin, the assets turnover ratio, and the equity multiplier combine to determine the Return on Equity (ROE):

$$\begin{aligned} \text{ROE} &= (\text{Profit margin}) (\text{Total assets turnover}) (\text{Equity multiplier}) \\ &= \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}} \times \frac{\text{Total assets}}{\text{Common equity}} \end{aligned}$$

4 Users of Ratio Analysis

4.1 Ratio analysis is used by three main groups:

- **Managers**, who employ ratios to help analyze, control, and thus improve their firms' operations.
- **Credit analysts**, such as bank loan officers or bond rating analysts, who analyze ratios to help ascertain a company's ability to pay its debts.
- **Stock analysts**, who are interested in a company's efficiency, risk, and growth prospects.



Key terms:

Trend analysis – an analysis of a firm's financial ratios over time; used to estimate the likelihood of improvement or deterioration in its financial situation.

Benchmarking – is the process of comparing a particular company with a group of “benchmark” companies.

“**Window Dressing**” techniques – are techniques used by firms to make their financial statements look better than they really are.

5 Limitations of Ratio Analysis

- Comparison with industry averages is difficult if the firm operates many different divisions.
- “Average” performance not necessarily good.
- Seasonal factors can distort ratios.
- “Window dressing” techniques can make statements and ratios look better.
- Different operating and accounting practices distort comparisons.
- Sometimes hard to tell if a ratio is “good” or “bad.”
- Difficult to tell whether company is, on balance, in strong or weak position.

6 Qualitative Factors to Consider When Evaluating A Company’s Likely Financial Performance:

- Are the company’s revenues tied to 1 key customer, product, or supplier?
- What percentage of the company’s business is generated overseas?
- Competition
- Future prospects
- Legal and regulatory environment

Reading/reference materials:

- Brigham E. F. and J. F. Houston. Fundamentals of Financial Management. 8th edition. The Dryden Press 1998
- Shim J.K. and Siegel J.G. Financial Management. 2nd edition. McGraw-Hill 1998
- Mohr A. Financial Management 101. Advantage Quest Publications Edition 2004