

Chapter 19: Financial Statement Analysis – Ratio Analysis

Introduction

Financial statements present a company's financial health and performance, but raw figures alone don't offer insights unless analyzed in context. Ratio analysis is a powerful quantitative tool that interprets financial statements by establishing relationships between different figures. It is essential for stakeholders—management, investors, creditors, and regulators—to make informed decisions.

In BTech CSE, especially for aspiring tech entrepreneurs or managerial roles in tech firms, understanding how to evaluate a company's financial position using ratios is crucial. This chapter explores the types, interpretation, and applications of financial ratios.

19.1 Objectives of Financial Statement Analysis

- To evaluate a firm's profitability, liquidity, solvency, and efficiency.
 - To enable intra-firm and inter-firm comparisons.
 - To help management in strategic planning and decision-making.
 - To assess the performance and financial stability for investment or credit decisions.
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19.2 Types of Financial Ratios

Financial ratios are generally classified into the following categories:

19.2.1 Liquidity Ratios

These ratios measure a firm's ability to meet short-term obligations.

a) Current Ratio Formula:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Ideal Ratio: 2:1 Interpretation: Indicates whether the company can cover short-term debts with current assets.

b) Quick Ratio (Acid Test Ratio) Formula:

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$$

Ideal Ratio: 1:1 **Interpretation:** Stricter test of liquidity, excludes inventory.

19.2.2 Solvency Ratios (Leverage Ratios)

These indicate a firm's ability to meet long-term obligations.

a) Debt-to-Equity Ratio Formula:

$$\text{Debt-Equity Ratio} = \frac{\text{Total Debt}}{\text{Shareholders' Equity}}$$

Interpretation: High ratio signals more debt financing, possibly more financial risk.

b) Interest Coverage Ratio Formula:

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Interest Expense}}$$

Interpretation: Measures how easily a firm can pay interest on outstanding debt.

19.2.3 Profitability Ratios

These assess a firm's ability to generate earnings relative to revenue, assets, or equity.

a) Gross Profit Ratio Formula:

$$\text{Gross Profit Ratio} = \frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$$

Interpretation: Reflects efficiency in production or sourcing.

b) Net Profit Ratio Formula:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit}}{\text{Net Sales}} \times 100$$

Interpretation: Indicates overall profitability after all expenses.

c) Return on Capital Employed (ROCE) Formula:

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital Employed}} \times 100$$

Interpretation: Efficiency in using capital to generate profits.

d) Return on Equity (ROE) Formula:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders' Equity}} \times 100$$

Interpretation: Profit earned on shareholders' funds.

19.2.4 Efficiency or Activity Ratios

These ratios evaluate how efficiently a firm uses its assets.

a) Inventory Turnover Ratio Formula:

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

Interpretation: Measures how quickly inventory is sold.

b) Debtors Turnover Ratio Formula:

$$\text{Debtors Turnover Ratio} = \frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable}}$$

Interpretation: Indicates how efficiently the company collects receivables.

c) **Total Asset Turnover Ratio Formula:**

$$\text{Total Asset Turnover Ratio} = \frac{\text{Net Sales}}{\text{Total Assets}}$$

Interpretation: Shows how effectively a firm uses its assets to generate sales.

19.3 Importance of Ratio Analysis

- **Decision-making tool:** Helps management evaluate business strategies.
 - **Financial health assessment:** Investors and banks analyze risks before investing or lending.
 - **Comparative analysis:** Enables benchmarking against competitors or industry averages.
 - **Performance evaluation:** Managers use it for goal setting and performance tracking.
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19.4 Limitations of Ratio Analysis

While useful, ratio analysis has several limitations:

- **Historical Data Dependence:** Based on past figures, which may not reflect current realities.
 - **Window Dressing:** Companies may manipulate figures to show a better financial picture.
 - **Lack of Standard Benchmarks:** Ideal ratios vary across industries and companies.
 - **Inflation Impact:** Financial statements are not always adjusted for inflation.
 - **Different Accounting Policies:** Can make comparisons misleading.
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19.5 Ratio Analysis in Tech Companies (BTech CSE Context)

Understanding financial ratios helps CS engineers and tech entrepreneurs to:

- Evaluate startup viability before investment.
 - Understand cash flow cycles in SaaS or product-based models.
 - Negotiate funding by showcasing good ROE or quick ratio.
 - Track growth in user-to-profit conversion using activity and profitability ratios.
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Summary

Ratio analysis is indispensable in interpreting financial statements and making sound financial decisions. It offers clarity on liquidity, profitability, solvency, and operational efficiency. Though not foolproof, when used with other tools and industry knowledge, it becomes a powerful component in strategic financial planning. For BTech CSE students venturing into startups, product management, or fintech, mastering ratio analysis gives a strong edge in understanding business viability and scalability.
