

## **Ratio Analysis for Financial Planning and Management**

(Relevant to PBE Paper II – Management Accounting and Finance)

Dr Fong Chun Cheong, Steve, School of Business, Macao Polytechnic Institute

### **Introduction**

Appropriate and effective financial planning and management is the key to running a successful business. Ratio analysis is a critical tool for company stakeholders to understand financial statements, to identify trends over time and to measure the overall financial situation of the business. In addition, creditors and potential investors can rely on ratio analysis to help them make lending and investing decisions.

### **Ratio Analysis**

Ratio analysis is the most popular method of analyzing financial results. However, its function is often misunderstood by students, and its significance may easily be over- or underrated. You may recall that a ratio states the mathematical relationship between two quantities. For instance, the ratio of 300 to 100 is expressed as 3:1, or 3. While the calculation of a ratio comprises a simple mathematical operation, its meaning varies under different situations.

More broadly, a ratio expresses a logical relationship between two quantities. For instance, there is a clear and understandable relationship between the cost of a product and its sales price. On the other hand, there is no real relationship between investment and staff salaries in organizations. Ratios are tools of analysis that help in ascertaining the indicators of underlying situations. Depending on their particular needs, managers may find different ratios to be useful when examining their company's financial position. Short-term creditors are mainly interested in a company's current performance and its possession of liquid assets to ensure a ready source of cash to meet its current cash requirements. These assets include cash, accounts receivable, inventories, and marketable securities. Company directors and long-term loan creditors are concerned with both the short-term and long-term prospects of the company.

Ratios should be used as a tool to help in discovering the strengths and weaknesses of a company. In evaluating a company's financial position, there are four common categories of financial ratios:

1. Activity
2. Liquidity
3. Leverage
4. Profitability.

**Activity ratios** show the intensity with which a company utilizes its assets to generate sales. The ratios indicate whether the company's investment in current and long-term assets is appropriate. If the ratio is too large, this means funds are tied up

in assets that could be employed more productively. If the ratio is too small, it means the company is providing poor service to its customers or producing its products inefficiently.

For activity ratios, there are two basic approaches, the year-end approach and the average approach. The first approach considers the year-end balance of inventory. This approach is sometimes favoured because it matches with the fiscal year. However, in certain situations, the calculated ratios may be biased. For instance, a toy- manufacturing factory that mainly exports its products to America and Europe would usually have its peak manufacturing season in the summer and its stock level would be low around the fiscal year end at 31 December. Thus, ratio calculations using the year-end balances would be biased because of the low inventory balance, and the resulting ratios would be of little value for comparing the company with other manufacturers in the same industry. The second approach looks at the average company performance over the entire year. This method is preferred when asset balances fluctuate significantly during the year. For example, inventory levels for most toy factories vary significantly due to seasonal orders and according to completion dates of product deliveries. Thus, the average approach is considered fair and is the most commonly used approach.

**Liquidity ratios** measure the short-term ability of a company to fulfil its maturing debts with liquid assets and to meet unexpected needs for cash. These ratios are of particular interest to short-term creditors. The current ratio and the quick ratio are the two most commonly used measures of liquidity. For most companies, these two ratios provide a significant picture of overall liquidity. These ratios measure the extent of the company's "total debt" problem and reflect the company's ability to meet both its short- and long-term debt obligations.

The ratios are calculated either by relating the debt and equity items from the statement of financial position or by comparing earnings from the income statement to interest payments. Creditors value these ratios, as they measure the capacity of the company's revenues to support interest and other fixed expenses, and specify whether the capital base is sufficient to settle the company's debts during liquidation.

**Leverage ratios** measure debt load. The more predictable the returns of the company, the more debt will be acceptable for the company to take on, as the company would be less susceptible to surprising circumstances that would prevent it fulfilling its debt obligations. For instance, utilities companies (e.g. gas companies) possess relatively stable incomes, but are also among the industries with the heaviest debt structure. In contrast, vegetable farms are a cyclical business, where income is greatly affected by weather conditions, and they normally possess a far lower proportion of debt in their capital structure.

**Profitability ratios** measure the success of the company in earning a net return on its operations. Profit is an important objective of a commercial enterprise, so poor performance indicates a basic failure that, if not corrected, would probably result in the company going out of business.

Proper profitability ratios can help in reducing the number of inquiries from investigating companies. Some companies return on their investment at the end of the operating year and show significant profits in their financial statements. Other companies have different operational policies and may show few end-of-the-year profits. Lending companies unfamiliar with the particulars of these businesses would not dare to lend money to the companies with low reported net profit. This is especially true for companies that after business combination report a minimum amount of year-end profit.

The most popular ratios used in analyzing companies' financial performance can be found in most basic accounting textbooks.

## **Ratio Functions and Their Respective Implications**

### **1. Activity Ratios**

These ratios are used to compare performance over multiple periods and measure how a company is utilizing its assets and administering its liabilities.

$$\text{Sales Growth} = \frac{\text{Current Period Sales} - \text{Last Period Sales}}{\text{Last Period Sales}}$$

This ratio measures the percentage change in sales between two periods. If inflation increases, then one should see a corresponding increase in sales.

$$\text{Operating Expense Ratio} = \frac{\text{Operating Expenses}}{\text{Total Revenue}}$$

This ratio compares expenses to revenue. A decreasing ratio is considered favourable, as it indicates increased efficiency.

$$\text{Total Asset Turnover} = \frac{\text{Revenue}}{\text{Average Total Assets}}$$

This ratio measures how efficiently the business generates sales on each dollar of its total assets. An increasing ratio is considered favourable, as it indicates improved asset utilization.

### **2. Liquidity Ratios**

These ratios measure whether the company has enough cash on an ongoing basis to meet its operational obligations.

$$\text{Current Ratio or Working Capital Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

This ratio measures the company's ability to satisfy its short-term commitments with short-term assets. A company needs to ensure that it can pay its salaries, bills and expenses on time. Failure to pay its loans limits a company's future access to credit. A ratio of less than 1 indicates problems with liquidity. A ratio between 1.2 and 2.0 is considered appropriate. However, the current ratio does not take into account cash-flow timing.

$$\text{Quick Ratio} = \frac{\text{Cash} + \text{Accounts Receivable} + \text{Marketable Securities}}{\text{Current Liabilities}}$$

This ratio provides a quick liquidity test that indicates whether the company has enough short-term assets (without selling inventories) to cover its current liabilities. This ratio is also called the "acid test", as it considers the company's most liquid assets (without inventory) that can be immediately realized as cash. A ratio of 1:1 means that a company can settle its current liabilities without selling any inventory.

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

Working capital measures the amount of capital invested to cover current liabilities with quick turnover. Lenders often use this number to evaluate the company's ability to make payments in difficult times. Lenders would like to see that an acceptable level of working capital is maintained.

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

This ratio calculates the number of times that trade receivables turn over during the year. The higher the turnover, the shorter the time between sales and cash collection.

$$\text{Days in Accounts Receivable} = \frac{\text{Average Accounts Receivable}}{\text{Credit Sales} \times 365}$$

This ratio indicates the customer payment pattern. If the ratio is too high, the company may need to step up its collection practices or tighten the company's credit policies. The previous two ratios are applicable when most of the sales are made on credit, not cash sales.

$$\text{Days in Inventory} = \frac{\text{Average Inventory}}{\text{Cost of Sales} \times 365}$$

$$\text{Inventory Turnover} = \frac{\text{Cost of Sales}}{\text{Average Inventory}}$$

These two ratios calculate how many days it takes to sell inventory or the number of times in the year that inventory is turned into sales. High ratios indicate inventory that

can be sold. If the ratios are low, it means the company has obsolete stock or excessive inventory.

### 3. Leverage Ratios

Lenders often wish to determine whether a business is able to repay its debts. These ratios reflect the degree to which a company utilizes borrowed money and what its level of risk is.

$$\text{Debt to Equity} = \frac{\text{Short Term Debt} + \text{Long Term Debt}}{\text{Total Equity}}$$

This ratio compares owners' investments with debts provided by lenders. Lenders would like to see some safety cushion to draw on when the company faces financial difficulties. The more equity there is, the more likely that a lender will be repaid. Most lenders impose limits on the debt to equity ratio they will accept. 2:1 is an acceptable and appropriate ratio for a small business.

### 4. Profitability Ratios

These ratios reflect the profit-generation capabilities of the business.

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Total Sales}}$$

This ratio measures how much profit is earned on the products sold, thus representing the profit-making ability of the company.

$$\text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Total Sales}}$$

This ratio reflects the business' ability to cover all operating costs, including indirect costs. It is the ratio of money earned for every dollar of sales.

### Concluding Remarks

Many companies regard ratio analysis as an important tool for analyzing company data and information. A well-prepared set of ratio analyses enables a company to conduct its internal financial planning and management effectively. The four categories of ratios illustrated above provide a framework to facilitate the formulation of a company's overall corporate plan. If performed correctly, ratio analysis not only organizes information and data but also identifies the competitive advantages that a business can use to gain leverage over its competitors in the industry.