

FINANCIAL RATIOS

Each type of financial analysis has a purpose or use that determines the different relationships emphasised in the analysis.

It is useful to classify ratios into four fundamental types:

- Liquidity ratios, which measure the firm's ability to meet its maturing short-term obligations.
- Leverage ratios, which measure the extent to which the firm has been financed by debt.
- Activity ratios, which measure how effectively the firm is using its resources.
- Profitability ratios, which measure management's overall effectiveness as shown by the returns generated on sales and investments.

Liquidity Ratios

Generally the first concern of the financial analyst is liquidity. In other words, is the firm able to meet its maturing obligations? Can these obligations be satisfied? Relating the amount of cash and other current assets to the current obligations, provides a quick and easy-to-use measure of liquidity. Two commonly used liquidity ratios are presented below.

Current ratio

The current ratio is computed by dividing current assets by current liabilities. Current assets normally include inter-alia cash, accounts receivables, and inventories.

$$\text{Current Ratio} = \frac{\text{current assets}}{\text{current liabilities}} = \frac{\$700,000}{\$300,000} = 2.3$$

Figure 1

Current liabilities include inter-alia, accounts payable, current maturities of long-term debts, accrued income taxes, and other accrued expenses (in particular wages).

Quick ratio or acid test ratio

$$\text{Quick, or acid test, Ratio} = \frac{\text{current assets} - \text{inventory}}{\text{current liabilities}} = \frac{\$400,000}{\$300,000} = 1.3 \text{ times}$$

Figure 2

The quick ratio is calculated by deducting inventories from current assets and dividing the remainder by current liabilities. Inventories are typically the least liquid of a firm's current assets, and represent the assets on which losses are most likely to occur in the event of liquidation. Therefore this measure of a firm's ability to pay off short-term obligations without the sale of inventories is important.

Leverage ratios

Total debt to total assets

Creditors prefer moderate debt ratios, since the lower the ratio, the greater the cushion against creditor's losses in the event of liquidation.

$$\text{Debt Ratio} = \frac{\text{total debt}}{\text{total assets}} = \frac{\$1,000,000}{\$2,000,000} = 50\%$$

Figure 3



Technology Training that Works

Contact IDC

<http://www.idc-online.com>

Times-Interest-Earned

$$\begin{aligned}\text{Times-interest-earned} &= \frac{\text{gross income}}{\text{interest charges}} \\ &= \frac{\text{profit before taxes}}{\text{interest charges}} \\ &= \frac{\$270,000}{\$70,000} = 3.9\end{aligned}$$

The 'times-interest-earned' ratio is determined by dividing earnings before interest and taxes (ie gross income) by the interest charges. This ratio measures the extent to which earnings can decline without resultant financial embarrassment to the firm because of inability to meet annual interest costs.

Figure 4

Fixed Charge Cover

This ratio is similar to the times-interest-earned ratio, but it is somewhat more inclusive in that it recognises that many firms lease assets and incur long term obligations under lease contracts.

$$\begin{aligned}\text{Fixed charge cover} &= \frac{\text{Profit Before Taxes} + \text{Interest Charge} + \text{Lease Obligations}}{\text{Interest Charges} + \text{Lease Obligations}} \\ &= \frac{\$200,000 + \$70,000 + \$28,000}{\$70,000 + \$28,000} \\ &= \frac{\$298,000}{\$98,000} = 3.04 \text{ times}\end{aligned}$$

Figure 5

Activity Ratios

Activity ratios measure how effectively the firm employs the resources at its command.

Inventory Turnover

$$\text{Inventory Turnover} = \frac{\text{sales}}{\text{inventory}} = \frac{\$3,000,000}{\$300,000} = 10 \text{ times}$$

The inventory turnover is defined as sales divided by inventories.

Figure 6

Average Collection Period

The average collection period, which is a measure of the accounts receivable turnover, is computed in two steps:

- annual sales are divided by 360 (ie 12 months at 30 days per month) to get the average daily sales,
- daily sales are divided into accounts receivable to find the number of days that sales tied up in receivables. This is defined as the average collection period, because it represents the average length of time that the firm must wait after making a sale before receiving cash.

$$\begin{aligned}1. \text{ Sales Per Day} &= \frac{\$3,000,000}{360} = \$8,333 \\ 2. \text{ Average Collection Period} &= \frac{\text{Receivables}}{\text{Sales Per Day}} = \frac{\$200,000}{\$8,333} = 24 \text{ Days}\end{aligned}$$

Figure 7

Fixed Asset Turnover

$$\text{Fixed Assets Turnover} = \frac{\text{Sales}}{\text{Net Fixed Assets}} = \frac{\$3,000,000}{\$2,000,000} = 2.3 \text{ times}$$

Figure 8

The ratio of sales to fixed assets measures the turnover of plant and equipment.

Total Assets Turnover

$$\text{Total Assets Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{\$3,000,000}{\$2,000,000} = 1.5 \text{ Times}$$

Figure 9

The ratio of sales to total assets measures the turnover of all of the firms' assets.

Profitability Ratios

Profitability is the net result of a large number of policies and decisions.

Profit Margin on Sales

$$\text{Profit Margin} = \frac{\text{Net Profit After Taxes}}{\text{Sales}} = \frac{\$120,000}{\$3,000,000} = 4\%$$

Figure 10

The profit margin on sales, computed by dividing net income after taxes by sales, gives the profit per dollar of sales.

Return on total assets

$$\text{Return on Total Assets} = \frac{\text{Net Profit After Taxes}}{\text{Total Assets}} = \frac{\$120,000}{\$2,000,000} = 6\%$$

Figure 11

The ratio of the net profit after taxes to total assets measures the rate of return on the total assets.

Return on Net Worth

$$\text{Return on Net Worth} = \frac{\text{Net Profit After Taxes}}{\text{Net Worth}} = \frac{\$120,000}{\$1,000,000} = 12\%$$

Figure 12

The ratio of net profit after taxes to net worth measures the rate of return on the shareholder's investment.



Technology Training that Works

Contact IDC

<http://www.idc-online.com>