

# TYPES OF FINANCIAL RATIOS

In the previous articles we discussed how to invest in the stock market and unit trusts. When investing in the stock market an investor should have a clear understanding about the company that he is investing in. Financial ratios will help an investor to get a sufficient understanding of the company's financial status.

Ratio Analysis is a form of Financial Statement Analysis that is used to obtain a quick indication of a firm's financial performance in several key areas. Financial ratios are categorized according to the financial aspect of the business which the ratio measures. Financial ratios allow for comparisons

- between companies
- between industries
- between different time periods for one company
- between a single company and its industry average

Ratios generally hold no meaning unless they are benchmarked against something else, like past performance or another company. Thus, the ratios of firms in different industries, which face different risks, capital requirements, and competition are usually hard to compare.

In the analysis of financial statements it is better to have a complete understanding of the different types of ratios, their calculation, and interpretation. Financial ratios can be classified into five types as follows.

1. Liquidity ratios
2. Asset Management ratios
3. Leverage ratios
4. Profitability ratios
5. Valuation ratios

## Liquidity ratios

Liquidity ratios assess the firm's ability to meet its short-term obligations using short-term assets. The short-term obligations are the ones recorded under current liabilities that come due within one financial year. Short-term assets are the current assets. There are three (03) important liquidity ratios.

### 1. Current Ratio

The current ratio (CR) is equal to total current assets divided by total current liabilities. This indicates the extent to which current liabilities can be paid off through current assets.

**Current Ratio =**

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

### 2. Quick asset Ratio

One Key problem with the current ratio is that it assumes that all current assets can be converted into cash in order to meet short-term obligations. We know this assumption is

highly untrue. Firms carry current assets, such as inventory and pre-paid expenses which can not be converted into cash quickly. To correct this problem, the quick asset ratio (QAR) removes from current assets less liquid current assets, such as inventory and pre-paid expenses, which cannot be converted into cash quickly. The quick ratio, also called the acid test ratio, is equal to liquid current assets, divided by current liabilities. It indicates the extent to which current liabilities can be paid off through liquid current assets such as cash, marketable securities, and accounts receivables.

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

### 3. Cash Ratio

The cash ratio goes a step further and examines the ability of the firm to settle short-term liabilities using only cash and cash equivalents such as marketable securities. In other words, the cash ratio indicates the extent to which current liabilities can be paid through very liquid assets.

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

## Asset Management Ratios

Asset management ratios also known as efficiency ratios indicate the efficiency of the use of assets in generating sales. There are five (05) more important efficiency ratios: average collection period, inventory turnover, cash conversion cycle, fixed assets turnover and total assets turnover.

### 1. Average Collection Period

The average collection period (ACP), also known as days sales outstanding (DSO), indicates the average length of time the firm must wait after making a credit sale before it collects cash. In other words, it shows the average number of days accounts receivables remain outstanding. The ACP is calculated as follows:

$$\text{Average Collection Period} = \frac{\text{Receivables}}{\text{Annual credit Sales}/365}$$

This is an important ratio used to evaluate the credit policy of the firm in relation to the industry norms. A higher ACP indicates a liberal policy in that the firm gives more times to debtors for making payments. A lower ACP indicates astringent policy in that the firm gives less time for debtors.

### 2. Inventory / Stock Turnover

The inventory turnover indicates whether inventory levels are reasonable in relation to cost of goods sold. Inventory Turnover ratio is calculated as follows:

**Inventory / Stock Turnover =**

$$\frac{\text{Cost of Goods sold}}{\text{Average Inventory}}$$

Lower inventory turnover ratio relative to the industry standard may indicate excessive, obsolete, or slow moving inventory, while higher turnover may indicate inadequate inventory and perhaps possibility of inventory shortages.

### 3. Cash Conversion Cycle

The cash conversion cycle shows the average number of days the cash is tied up in inventory and receivables. Typically, a firm buys inventory, and cash is tied up in inventory for a number of days before they are sold and converted in to receivables. Thus beyond the initial period in which cash is tied up in inventory, there is an additional time period where cash is tied up in receivables. However, firms are also able to obtain inventory on a credit basis, to that extent, the firm does not tie up its own funds in building inventory. Hence, the total number of days cash is tied up in inventory and receivables can be determined as follows.

**Cash Conversion Cycle =**

$$\begin{aligned} &\text{Inventory processing Days} \\ &+ \text{Average Collection Period} \\ &- \text{Payables Payment Period} \end{aligned}$$

### 4. Fixed asset Turnover

The fixed asset turnover ratio measures the efficiency of the use of fixed assets in generating sales. It is computed as sales divided by average net fixed assets, where the average net fixed assets is equal to the simple average of beginning and ending balance sheet values of net fixed assets. Net fixed assets are gross fixed assets less accumulated depreciation.

**Fixed Asset Turnover =**

$$\frac{\text{Sales}}{\text{Average Net Fixed Assets}}$$

A lower fixed asset turnover relative to the industry may indicate that the firm carries excessive fixed assets. A higher turnover may indicate inadequate, low, outdated or depreciated fixed assets.

### 5. Total Asset Turnover

Total asset turnover ratio measures the efficiency of the use of total assets in generating sales. Total assets are sum of current and net fixed assets. The total asset turnover is calculated as sales divided by average total assets. The average total assets are the simple average of total assets at the beginning and end of the period.

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

## Leverage Ratios

The leverage ratios, also called debt management ratios, measure two key aspects of the use of debt financing by the firm. The use of debt financing is called financial leverage. We want to know the level of financial leverage used by the business as well as the ability of the firm to service its debt obligations. The debt ratio, debt-equity ratio and interest cover is discussed below.

### 1. Debt Ratio

The debt ratio indicates the proportion of assets financed through both short-term and long-term debt. This ratio is computed as total debt, which is the sum of short-term and long-term debt, as a percentage of total assets. A higher ratio indicates higher leverage. A higher ratio also means lower debt capacity in that the ability for the firm to raise funds through more debt is lower due to already high debt levels.

$$\text{Debt Ratio} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

### 2. Debt – Equity Ratio

The debt to equity ratio (D/E) is also widely used as an indication of the level of financial leverage. While there are several ways of computing this ratio, the most useful version is to express long term debt as percent of total equity. Thus it focuses only on the long-term financing, both debt and equity, and it is meaningful when we want to examine the long-term leverage. Total equity includes both preferred equity and common equity. A higher debt equity ratio indicates greater leverage and potentially higher financial risk.

$$\text{Debt – Equity Ratio} = \frac{\text{Long Term Debt}}{\text{Total Equity}}$$

### 3. Interest Cover

The interest coverage ratio, also known as the times-interest earned (TIE), measures the ability of firm's current operating earnings (EBIT) to meet current interest obligations. It is the ratio of EBIT to interest charge. The ratio shows number of times the interest payment are covered by the firm's operating earnings. The larger the coverage the better their ability of the firm to service interest obligations on debt.

$$\text{Interest Coverage} = \frac{\text{EBIT}}{\text{Interest Charge}}$$

## Profitability Ratios

The profitability ratios, also known as performance ratios, assesses the firm's ability to earn profits on sales, assets and equity. These are critical to determining the attractiveness of investing in company shares, and investors use these ratios widely. We will examine five important profitability ratios, namely, gross profit margin, operating profit margin, net profit margin, return on assets, and return on equity.

### 1. Gross Profit Margin

**The gross profit margin (GPM) shows the firm's profit margin after deducting costs of goods sold but before deducting operating expenses, interest expenses, and taxes. This ratio is also known as gross profit ratio.**

$$\text{Gross Profit Margin} = \frac{\text{Sales} - \text{Cost of Goods Sold}}{\text{Sales}}$$

This is the first level of profitability. The GPM depends primarily on the firm's product pricing and cost control. The price of the product impacts sales. Production cost such as material, labour, and overhead or the cost of purchases affect the cost of goods sold. A firm with a better ability to price products in line with inflation of cost of production and the ability to control production costs or suppliers will be able to maintain or increase gross margins.

### 2. Operating Profit margin

The operating profit margin (OPM) shows the firm's profit margin after deducting cost of goods sold and operating expenses but before interest expenses and taxes. The operating profit is the earnings before interest and taxes or EBIT as a percent of sales.

$$\text{Operating Profit margin} = \frac{\text{EBIT}}{\text{Sales}}$$

The OPM reflects the true profitability of firm's business in that it is calculated before deducting interest costs, which are a result from firm's financing decision, and taxes, which are outside the control of the firm. In other words, regardless of the way the firm is financed, whether through debt or equity, and regardless of the taxes imposed by the government, the firm is able to earn this margin.

### 3. Net Profit Margin

This is the bottom line profitability, which most analysts and investors pay attention to on a regular basis. The net profit margin (NPM) shows the firm's profit margin after all the costs and expenses. It is the profit available for distribution to common shareholders a percentage of sales.

$$\text{Net Profit margin} = \frac{\text{Net Income}}{\text{Sales}}$$

Obviously, the lower operating profit margin is one reason for the lower NPM. It is also possible that, since the firm is more debt-financed than an average firm, it has more interest expenses as well. Since taxes are fixed, the key difference between the OPM and NPM is interest costs, which are linked to the firm's financing decision.

#### 4. Return on assets

The return on assets (ROA) measures the return earned on total assets employed in the business. Sometimes, this is also referred to as the return on total capital. Since total assets are financed through both debt and equity, it is important that the return measure used for this calculation reflects income to both shareholders and debt holders. We define the return as the net income available for distribution to shareholders plus the interest expenses paid to debt holders. This return is divided by the average total assets, which represents the simple average of the total assets at the beginning and ending balance sheets.

**Return on assets =**

$$\frac{\text{Net Income} + \text{Interest Expenses}}{\text{Average total assets}}$$

#### 5. Return on Equity

The return on equity (ROE) measures the return earned on the capital provided by the common stockholders (Equity holders). It is the net income as a percent of the average common equity, where the average common equity is the simple average of the common equity at the beginning and ending balance sheets. The net income is the income available for distribution to ordinary shareholders after deducting any preferred dividends.

**ROE =**

$$\frac{\text{Net Income}}{\text{Average Common Equity}}$$

### Valuation Ratios

The valuation ratios indicate the market valuation of a stock in terms of some measure of company fundamentals such as earnings, book value, cash flows, and dividends. These are the ratios that investors tend to look at on a daily basis. These ratios change whenever the price of the stock changes. We will discuss the price/earnings ratios, the price/book value ratio, the price/cash flow ratio, and dividend yield.

#### 1. Price / Earnings ratio (P/E)

This is the most widely used valuation ratio. It indicates the market price of a share in terms of earnings. It is the rupee amount an investor has to pay for each rupee of earnings made by the firm for the ordinary shareholder.

**P/E =**

$$\frac{\text{Market Price per share}}{\text{Earnings per Share}}$$

The earnings per share (EPS) is calculated as the net income available for ordinary shareholders divided by the number of issued shares.

$$\text{EPS} = \frac{\text{Net Income}}{\text{Number of Shares}}$$

## 2. Price / Book Value Ratio (P/BV)

Price / Book Value is also a regularly reported and watched valuation ratio. It indicates the market price of a share in terms of the book value of equity. It is the rupee amount an investor has to pay for each rupee of book value.

$$\text{P/BV} = \frac{\text{Market Price per Share}}{\text{Book Value per Shares}}$$

The book value per share is calculated as the equity divided by the number of ordinary shares outstanding.

$$\text{BV} = \frac{\text{Equity}}{\text{Number of Shares}}$$

## 3. Price / Cash Flow Ratio

The price/cash flow indicates the price of a share in terms of the cash flow per share. It shows the rupee amount an investor has to pay for each rupee of cash flow generated.

$$\text{P/CF} = \frac{\text{Market Price per Share}}{\text{Cash Flow per Share}}$$

Although not widely reported, this is in fact a more useful ratio than the P/E and P/BV ratios discussed earlier. This is because the price of a share must be related to the actual cash flows generated by the firm to its shareholders. There are a number of different definitions of cash flow, and the one we use here is the most basic definition of cash flow. The cash flow is the net income available for ordinary shareholders adjusted for non-cash income and expenses included in the income statement. Since most common non-cash item in the income statement is depreciation of physical assets and amortization of intangible assets, the cash flow is calculated by adding these two items to the net income.

**Total cash flow = Net income + Depreciation & Amortization**

$$\text{CF} = \frac{\text{Total Cash Flow}}{\text{Number of Shares}}$$

#### 4. Dividend Yield (DY)

The dividend yield indicates the dividend income as a percentage of the investment. It is calculated as the common dividend per share divided by the market price per share.

$$DY = \frac{\text{Dividend per Share} \times 100}{\text{Market Price per Shares}}$$

This is a particularly an important valuation measure for investors seeking regular income. Investor who depend on income from their investments include retired persons and well as pension and mutual funds, which invest with the primary objective of maximizing the income return. These investors like to see a higher dividend yield. Typically, higher dividend yields are associated with more stable and mature companies such as utilities. Growth -oriented companies tend to pay lower dividends such as at a higher multiple, and as a result, produce lower dividend yields.

The dividend per share (DPS) is the total dividends to ordinary shareholders during a specific period divided by the number of ordinary shares outstanding.

$$DPS = \frac{\text{Total Ordinary Dividend}}{\text{Number of Shares}}$$