

15.3: Calculate Ratios That Analyze a Company's Short-Term Debt-Paying Ability

Ratios are expressions of logical relationships between items in the financial statements of a single period. Analysts can compute many ratios from the same set of financial statements. A ratio can show a relationship between two items on the same financial statement or between two items on different financial statements (e.g. balance sheet and income statement). The only limiting factor in choosing ratios is the requirement that the items used to construct a ratio have a logical relationship to one another.

Ratio analysis

Logical relationships exist between certain accounts or items in a company's financial statements. These accounts may appear on the same statement or on two different statements. We set up the dollar amounts of the related accounts or items in fraction form called ratios. These ratios include: (1) liquidity ratios; (2) equity, or long-term solvency, ratios; (3) profitability tests; and (4) market tests.

Liquidity ratios indicate a company's short-term debt-paying ability. Thus, these ratios show interested parties the company's capacity to meet maturing current liabilities.



Current (or working capital) ratio

Working capital is the excess of current assets over current liabilities. The ratio that relates current assets to current liabilities is the **current (or working capital) ratio**. The current ratio indicates the ability of a company to pay its current liabilities from current assets and, thus, shows the strength of the company's working capital position. You calculate the current ratio by:

$$\text{current ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The ratio is usually stated as a number of dollars of current assets available to pay every dollar of current liabilities (although the dollar signs usually are omitted). Thus, for Synotech, when current assets totaled \$2,846.7 million and current liabilities totaled \$2,285.2 million, the ratio is 1.25:1 (or 1.25 to 1), meaning that the company has \$1.25 of current assets available to pay every \$1.00 of current liabilities.

Short-term creditors are particularly interested in the current ratio since the conversion of inventories and accounts receivable into cash is the primary source from which the company obtains the cash to pay short-term creditors. Long-term creditors are also interested in the current ratio because a company that is unable to pay short-term debts may be forced into bankruptcy. For this reason, many bond indentures, or contracts, contain a provision requiring that the borrower maintain at least a certain minimum current ratio. A company can increase its current ratio by issuing long-term debt or capital stock or by selling noncurrent assets.

A company must guard against a current ratio that is too high, especially if caused by idle cash, slow-paying customers, and/or slow-moving inventory. Decreased net income can result when too much capital that could be used profitably elsewhere is tied up in current assets.

Acid-test (quick) ratio

The current ratio is not the only measure of a company's short-term debt-paying ability. Another measure, called the **acid-test (quick) ratio**, is the ratio of quick assets (cash, marketable securities, and net receivables) to current liabilities. Analysts exclude inventories and prepaid expenses from current assets to compute quick assets because they might not be readily convertible into cash. The formula for the acid-test ratio is:

$$\text{acid-test ratio} = \frac{\text{Cash} + \text{Short-term investments} + \text{net current receivables}}{\text{Current Liabilities}}$$

Short-term creditors are particularly interested in this ratio, which relates the pool of cash and immediate cash inflows to immediate cash outflows. In deciding whether the acid-test ratio is satisfactory, investors consider the quality of the marketable securities and receivables. An accumulation of poor-quality marketable securities or receivables, or both, could cause an acid-test ratio to appear deceptively favorable. When referring to marketable securities, poor quality means securities likely to generate losses when sold. Poor-quality receivables may be uncollectible or not collectible until long past due.

Since inventory and accounts receivable are a large part of a company's current assets, it is important to understand the company's ability to collect from their customers and the company's efficiency in buying and selling inventory.



Video 2: <https://youtu.be/g432Yyb8-aw>

Accounts receivable turnover

Turnover is the relationship between the amount of an asset and some measure of its use. **Accounts receivable turnover** is the number of times per year that the average amount of receivables is collected. To calculate this ratio:

$$\text{Accounts receivable turnover} = \frac{\text{Net Sales}}{\text{AVERAGE Accounts receivable, net}}$$

Net accounts receivable is accounts receivable after deducting the allowance for uncollectible accounts. Calculate average accounts receivable by taking the **beginning balance in accounts receivable** (or ending amount from the previous year) + **the ending balance of the current year and divide by 2**.

The accounts receivable turnover ratio provides an indication of how quickly the company collects receivables. For Synotech, Inc., we have the following information:

Net Sales	\$ 10,498.80
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Accounts Receivable, Net	
January 1	\$ 1,340.30
December 31	1,277.30

We first need to calculate average accounts receivable. Jan 1 accounts receivable \$1,340.30 + Dec 31 Accounts receivable \$1,277.30 = \$2,617.60 / 2 gives us average accounts receivable of \$1,308.80. We calculate the AR Turnover of 8.02 times:

$$\begin{aligned}\text{Accounts receivable turnover} &= \frac{\text{Net Sales}}{\text{AVERAGE Accounts receivable, net}} \\ &= \frac{\$10,498.80}{\$1,308.80} \\ &= 8.02\end{aligned}$$

The accounts receivable turnover ratio indicates Synotech collected, or turned over, its accounts receivable slightly more than eight times. The ratio is better understood and more easily compared with a company's credit terms if we convert it into a number of days, as is illustrated in the next ratio.

Number of days' sales in accounts receivable

The **number of days' sales in accounts receivable** ratio is also called the average collection period for accounts receivable. Calculate it as follows:

$$\text{Number of days' sales in accounts receivable} = \frac{\text{Avg Accounts Receivable} \times 365 \text{ days}}{\text{Net Sales}}$$

We use a 365 days in a year for this calculation. Notice we are using Average accounts receivable here as well, but it can also be calculated with ending accounts receivable instead. Still using Synotech, Inc.'s information from above, we calculate 45.5 or 46 days from:

$$\begin{aligned}\text{Number of days' sales in accounts receivable} &= \frac{\text{Avg Accounts Receivable} \times \text{days}}{\text{Net Sales}} \\ &= \frac{\$1,308.80 \times \text{days}}{\$10,498.80} \\ &= 45.5 \text{ days}\end{aligned}$$

It can also be calculated as (365 days / AR Turnover). This ratio tells us it takes 46 days to collect on accounts receivable. Standard credit terms are 30 days but 46 days is not too bad.

What about how a company handles inventory? We can prepare similar ratios for inventory turnover and number of days' sales in inventory.

Inventory turnover

A company's inventory turnover ratio shows the number of times its average inventory is sold during a period. You can calculate **inventory turnover** as follows:

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

When comparing an income statement item and a balance sheet item, measure both in comparable dollars. Notice that we measure the numerator and denominator in cost rather than sales dollars. (Earlier, when calculating accounts receivable turnover, we measured both numerator and denominator in sales dollars.) We will calculate average inventory by taking the beginning inventory + ending inventory and divide by 2. Let's look at the following information for Synotech, Inc.:

Cost of goods sold	\$ 5,341.30
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Inventory	
January 1	\$ 929.80
December 31	924.80

We first calculate average inventory as Jan 1 inventory \$929.80 + Dec 31 inventory \$924.80 = total inventory of \$1,854.60 and divide by 2 for average inventory of \$927.30. Next, we calculate inventory turnover:

$$\begin{aligned}\text{Inventory turnover} &= \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}} \\ &= \frac{\$5,341.30}{\$927.30}\end{aligned}$$

Synotech was able to sell average inventory 5.76 times during the year. This ratio can better be understood by looking at the number of days' sales in inventory. Calculated as 365 days / inventory turnover or by this formula:

$$\text{number of days in inventory} = \frac{\text{Average Inventory} \times 365 \text{ days}}{\text{Cost of goods sold}}$$

We will calculate Synotech's number of days in inventory using average inventory (but can also be calculated using ending inventory) of 63.4 or just 63 days as follows:

$$\text{number of days in inventory} = \frac{\$1,854.60 \times 365 \text{ days}}{\$5,341.30}$$

This means it takes 63 days to sell our inventory. This is a very useful ratio to determine how quickly a company's inventory moves through the company.

Other things being equal, a manager who maintains the highest inventory turnover ratio (and lowest number of days) is the most efficient. Yet, other things are not always equal. For example, a company that achieves a high inventory turnover ratio by keeping extremely small inventories on hand may incur larger ordering costs, lose quantity discounts, and lose sales due to lack of adequate inventory. In attempting to earn satisfactory income, management must balance the costs of inventory storage and obsolescence and the cost of tying up funds in inventory against possible losses of sales and other costs associated with keeping too little inventory on hand.

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