

## Selected Financial Ratios Useful in Analytical Procedures

## Appendix D

A number of financial ratios are used by auditors as analytical procedures. These ratios are broken down into four categories: short-term liquidity, activity, profitability, and coverage ratios. Although the ratios discussed apply to most entities, auditors may also use other industry-specific ratios. As follows, each ratio is calculated for EarthWear Clothiers for the year ended December 31, 2007.

A few points are worth mentioning before financial ratios are discussed. First, in many instances, the auditor may compare the client's ratios with industry averages (see Exhibit 5-4 on text page 180). While the industry averages serve as useful benchmarks, certain limitations should be recognized. Because the industry ratios are averages, they may not capture operating or geographical factors that may be specific to the client. The use of different accounting principles for valuing inventory or calculating depreciation may also result in differences from industry averages for certain ratios. Finally, the industry data may not be available in sufficient detail for a particular client. For example, if the auditor was looking for industry information on a company in the paging industry (which includes Calabro Digital Services, see Problem 3-38 on text page 114), such ratio data is combined with the telecommunications industry data.

Second, audit research has shown that material misstatements may not significantly affect certain ratios.<sup>1</sup> This is particularly true for activity ratios. Third, the auditor must be careful not to evaluate a financial ratio in isolation. In certain cases, a ratio may be favourable because its components are unfavourable. If related ratios are not examined, the auditor may draw an incorrect conclusion. For example, suppose that a client's days outstanding in accounts receivable is getting larger and the inventory turnover ratio is getting smaller. The negative trend in these ratios may indicate that accounts receivable are getting older and that some inventory may be obsolete. However, both of these factors positively affect the current ratio. If the auditor calculates only the current ratio, he or she may reach an incorrect conclusion about the entity's ability to meet current obligations.

<sup>1</sup>See W. R. Kinney, Jr., "Attention-Directing Analytical Review Using Accounting Ratios: A Case Study," *Auditing: A Journal of Practice and Theory* (Spring 1987), pp. 59-73, for a discussion of this limitation of analytical procedures.

## Short-Term Liquidity Ratios

Short-term liquidity ratios indicate the entity's ability to meet its current obligations. Three ratios commonly used for this purpose are the *current ratio*, *quick* (or *acid test*) *ratio*, and the *operating cash flow ratio*.

**Current Ratio** The current ratio is calculated as follows:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{209,095}{116,268} = 1.80$$

It includes all current assets and current liabilities and is usually considered acceptable if it is 2 to 1 or better. Generally, a high current ratio indicates an entity's ability to pay current obligations. However, if current assets include old accounts receivable or obsolete inventory, this ratio can be distorted.

**Quick Ratio** The quick ratio includes only assets that are most readily convertible to cash and is calculated as follows:

$$\text{Quick ratio} = \frac{\text{Liquid assets}}{\text{Current liabilities}} = \frac{48,978 + 12,875}{116,268} = 0.53$$

Thus, inventories and prepaid items are not included in the numerator of the quick ratio. The quick ratio may provide a better picture of the entity's liquidity position if inventory contains obsolete or slow-moving items. A ratio greater than 1 generally indicates that the entity's liquid assets are sufficient to meet the cash requirements for paying current liabilities.

**Operating Cash Flow Ratio** The operating cash flow ratio measures the entity's ability to cover its current liabilities with cash generated from operations and is calculated as follows:

$$\text{Operating cash flow ratio} = \frac{\text{Cash flow from operations}}{\text{Current liabilities}} = \frac{39,367}{116,268} = 0.34$$

The operating cash flow ratio uses the cash flows as opposed to assets to measure short-term liquidity. It provides a longer-term measure of the entity's ability to meet its current liabilities. If cash flow from operations is small or negative, the entity will likely need alternative sources of cash, such as additional borrowings or sales of assets, to meet its obligations.

## Activity Ratios

Activity ratios indicate how effectively the entity's assets are managed. Only ratios related to accounts receivable and inventory are discussed here because for most wholesale, retail, or manufacturing companies these two accounts represent the assets that have high activity. Activity ratios may also be effective in helping the auditor determine if these accounts contain material misstatements.

**Receivables Turnover and Days Outstanding in Accounts Receivable** These two ratios provide information on the activity and age of accounts receivable. The receivables turnover ratio and days outstanding in accounts receivable are calculated as follows:

$$\text{Receivables turnover} = \frac{\text{Credit sales}}{\text{Receivables}} = \frac{950,484}{12,875} = 73.8$$

$$\text{Days outstanding in accounts receivable} = \frac{365 \text{ days}}{\text{Receivables turnover}} = 4.95 \text{ days}$$

The receivables turnover ratio indicates how many times accounts receivable are turned over during a year. However, the days outstanding in accounts receivable may be easier to interpret because this ratio can be compared to the client's terms of trade. For example, if an entity's terms of trade are 2/10, net/30, the auditor would expect that if management was doing a good job of managing receivables, the value for this ratio would be 30 days or less. If the auditor calculates the days outstanding to be 43 days, he or she might suspect that the account contains a material amount of bad debts. Comparing the days outstanding to industry data may be helpful in detecting a slowdown in payments by customers that is affecting the entire industry. EarthWear's ratio is 4.91 days because most sales are paid in cash or by credit card.

**Inventory Turnover and Days of Inventory on Hand** These activity ratios provide information on the inventory and are calculated as follows:

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}} = \frac{546,393}{122,337} = 4.47$$

$$\text{Days of inventory on hand} = \frac{365 \text{ days}}{\text{Inventory turnover}} = 81.7 \text{ days}$$

Inventory turnover indicates the frequency with which inventory is consumed in a year. The higher the ratio, the better the entity is at liquidating inventory. This ratio can be easily compared to industry standards. If the inventory turnover is 4.5 times a year and the industry average is 8.2 times a year, the auditor might suspect that inventory contains obsolete or slow-moving goods. The days of inventory on hand measures how much inventory the entity has available for sale to customers.

## Profitability Ratios

Profitability ratios indicate the entity's success or failure for a given period. A number of ratios measure the profitability of an entity, and each ratio should be interpreted by comparison to industry data.

**Gross Profit Percentage** The gross margin percentage ratio is generally a good indicator of potential misstatements and is calculated as follows:

$$\text{Gross profit percentage} = \frac{\text{Gross profit}}{\text{Net sales}} = \frac{404,091}{950,484} = 42.5\%$$

If this ratio varies significantly from previous years or differs significantly from industry data, the entity's financial data may contain errors. Numerous errors can affect this ratio. For example, if the client has failed to record sales, the gross profit percentage will be less than in previous years. Similarly, any errors that affect the inventory account can distort this ratio. For example, if the client has omitted goods from the ending inventory, this ratio will be smaller than in previous years.

**Profit Margin** The profit margin ratio is calculated as follows:

$$\text{Profit margin} = \frac{\text{Net income}}{\text{Net sales}} = \frac{22,527}{950,484} = 2.4\%$$

While the gross profit percentage ratio measures profitability after cost of goods sold is deducted, the profit margin ratio measures the entity's profitability after all expenses are considered. Significant fluctuations in this ratio may indicate that misstatements exist in the selling, general, or administrative expense accounts.

**Return on Assets** This ratio is calculated as follows:

$$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{22,527}{329,959} = 6.8\%$$

This ratio indicates the return earned on the resources invested by both the shareholders and the creditors.

**Return on Equity** The return on equity ratio is calculated as follows:

$$\text{Return on equity} = \frac{\text{Net income}}{\text{Shareholders' equity}} = \frac{22,527}{204,222} = 11.0\%$$

This ratio is similar to the return on assets ratio except that it shows only the return on the resources contributed by the shareholders.

## Coverage Ratios

Coverage ratios provide information on the long-term solvency of the entity. These ratios give the auditor important information on the ability of the entity to continue as a going-concern.

**Debt to Equity** This ratio is calculated as follows:

$$\text{Debt to equity} = \frac{\text{Short-term debt} + \text{Long-term debt}}{\text{Shareholders' equity}} = \frac{116,268}{204,222} = 0.569$$

This ratio indicates what portion of the entity's capital comes from debt. The lower the ratio, the less debt pressure on the entity. If the entity's debt to equity ratio is large relative to the industry's, it may indicate that the entity is too highly leveraged and may not be able to meet its debt obligations on a long-term basis.

**Times Interest Earned** This ratio is calculated as follows:

$$\begin{aligned}\text{Times interest earned} &= \frac{\text{Net income} + \text{Interest expense}}{\text{Interest expense}} \\ &= \frac{(22,527 + 983)}{983} = 23.9\end{aligned}$$

The times interest earned ratio indicates the ability of current operations to pay the interest that is due on the entity's debt obligations. The more times that interest is earned, the better the entity's ability to service the interest on long-term debt.