

LIQUIDITY RATIOS

Liquidity is a measure of the quality and adequacy of current assets to meet current obligations as they come due.

Current Ratio

Computation: Total current assets divided by total current liabilities

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

Interpretation: this ratio is a rough indication of a firm's ability to service its' current obligations. Generally, the higher the ratio, the greater the "cushion" between current obligations and a firm's ability to cover them. The stronger ratio reflects a numerical superiority of current assets over current liabilities; however, the composition and quality of current assets is a critical factor in the analysis of an individual firm's liquidity.

Quick Ratio

Computation: cash and equivalents plus trade receivables (A/R) divided by total current liabilities.

$$\frac{\text{Cash \& Equivalents} + \text{A/R (net)}}{\text{Total Current Liabilities}}$$

Interpretation: also known as the "acid test" ratio, it is a refinement of the current ratio and is a more conservative measure of liquidity. The ratio expresses the degree to which a company's current liabilities are covered by the most liquid current assets of the business. Generally any value of less than 1.0 : 1.0 implies a reciprocal "dependency" on inventory or other current assets to liquidate short term debt.

Sales/Working Capital

Computation: Net Sales divided by Net Working Capital.

$$\frac{\text{Net Sales}}{\text{Net Working Capital}}$$

Interpretation: working capital is a measure of the margin of protection for current creditors. It reflects the ability to finance current operations. Relating the level of sales arising from operations to the underlying working capital measures how efficiently working capital is employed. A low ratio may indicate an inefficient use of working capital while a very high ratio often signifies over trading – vulnerable position for creditors.

ACTIVITY RATIOS

Sales/Receivables

Computation: Net sales divided by net trade receivables (A/R).

$$\frac{\text{Net Sales}}{\text{Trade Receivables (A/R) net}}$$

Interpretation: this ratio measures the number of times trade receivables turn over during the year. The higher the turnover, the shorter the time between the sale and the conversion into cash. For example, a company with sales of \$720,000 and receivables of \$120,000 would have a sales/receivable turnover ratio of 6.0 times, which means receivables turnover 6 times per year. If a company's receivables appear to be turning slower than the remainder of the industry, further inquiry is necessary and the quality of the receivables should be closely examined.

A weakness in this ratio is that it is a "one day comparison" of the receivables shown on the statement date, and compared to net total sales (an aggregation of activity for the accounting period). It will not, therefore, take into consideration cyclicity of a business. Additionally, if the business has a large portion of their sales on a cash basis, then this ratio also may not yield reliable information.

Days' Receivables: this ratio converts the times per year turnover of the above ratio to the number of days to collect the "average trade receivable".

Computation:

$$\frac{365}{\text{Net Sales/Trade Receivables ratio}} \\ \text{Cost of Sales/Inventory}$$

Computation: Cost of Sales divided by inventory.

$$\frac{\text{Cost of Sales}}{\text{Inventory}}$$

Interpretation: much like the sales/receivables ratio above, this ratio measures the number of times inventory is turned over in a year's time. The higher the ratio, the more liquid you might consider the inventory to be; conversely, a low turnover can indicate poor liquidity, obsolescence or possible overstocking. Like the sales/receivable ratio, it is a "one day comparison" of the inventory to the aggregation of the Cost of Sales data. Another shortcoming of this ratio is more "accurate" if instead of Cost of Sales, net Purchases is utilized. This would reflect a more precise indication of turnover given that Cost of Sales generally includes more than net purchases added to beginning inventory less ending inventory.

Days' Inventory: this ratio converts the times per year turnover of the above ratio to the number of days to conversion of the inventory.

Computation:

$$\frac{365}{\text{Cost of Sales/Inventory ratio}}$$

Cost of Sales/Accounts Payables

Computation: Cost of Sales divided by accounts payable.

$$\frac{\text{Cost of Sales}}{\text{Accounts Payable}}$$

Interpretation: this ratio measures the number of times accounts payable turnover during the year. The higher the turnover of payables, the shorter the time between the purchase of inventory and the payment for those goods. If a company's payables appear to be turning more slowly than the industry, then the company may be experiencing cash shortages, having disputes over invoices or the quality of the inventory purchased, enjoying extended terms or simply, "riding the trade" – generally, a "free" form of financing to the company.

As with the other above ratios, this one does not accurately reflect seasonal fluctuations, etc.

Days' Payable: this ratio converts the times per year turnover of the above ratio to the number of days to conversion of the accounts payable.

Computation:

$$\frac{365}{\text{Cost of Sales/Accounts Payable ratio}}$$

Sales/Net Fixed Assets

Computation: Net sales divided by net fixed assets.

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

Interpretation: this ratio is a measure of the productive use of a company's fixed assets. Firms whose fixed assets are largely depreciated or are a labor intensive operation may find distortions in this ratio.

Sales/Total Assets

Computation: Net sales divided by total assets.

$$\frac{\text{Net Sales}}{\text{Total Assets}}$$

Interpretation: this ratio is a general measure of a company's ability to generate sales in relation to total assets. It should be used only to compare companies within a specific industry grouping and in conjunction with other operating ratios to determine the effective employment of assets.

Sales/Tangible Net Worth

Computation: Net sales divided by tangible net worth.

$$\frac{\text{Net Sales}}{\text{Tangible Net Worth}}$$

Interpretation: this ratio is a general measure of a company's ability to generate sales in relation to tangible net worth or owner's equity. It should be used only to compare companies within a specific industry grouping and in conjunction with other operating ratios to determine the effective employment of capital.

COVERAGE OR PROFITABILITY RATIOS

Coverage ratios measure a company's ability to cover debt service.

Earnings Before Interest and Taxes/Interest

Computation: Earnings (profits) before annual interest expense and taxes divided by annual interest expense.

$$\frac{\text{Earnings Before Interest \& Taxes}}{\text{Annual Interest Expense}}$$

Interpretation: this ratio is a measure of a company's ability to meet interest payments. A high ratio may indicate that a borrower would have little difficulty in meeting the interest obligation of a loan. This ratio also serves as an indicator of a firm's capacity to take on additional debt.

"Traditional" Cash Flow/CMLTD Net Profit + Non – Cash Expenditures/Current Maturities of Long Term Debt

Computation: net profit plus all non – cash expenditures divided by current maturities of long term debt

$$\frac{\text{Net Profits + Non – Cash Expenditures}}{\text{Current Maturities of LTD}}$$

Interpretation: the ratio expresses the coverage of current maturities of term debt by "cash" flow from operations. Since cash flow is the primary source of debt repayment, this ratio measures the ability of a company to service principal repayment and is an indicator of additional debt capacity. Although it is misleading to think that all cash flow is available for debt service, the ratio is a valid measure of the ability to service long term debt.

An alternative calculation for this ratio is:

EBITDA + Non – Cash Expenditures/Current Maturities of LTD + Annual Interest Expense

An additional consideration in these two ratio's – one might consider capital lease obligations (found in the company's footnotes) as a part of the "long term debt" calculations. Capital Leases are "near debt" obligations that may have significant impacts on the company's ability to service debt in the future.

LEVERAGE RATIOS

Highly leveraged firms (those with heavy debt in relation to net worth) are more vulnerable to business downturns than those with lower debt – to – worth positions. While leverage ratios help to measure this vulnerability, it must be remembered that they vary greatly depending on the requirements of particular industry groups.

Fixed Assets/Net Worth

Computation: Net fixed assets divided by tangible net worth

$$\frac{\text{Net Fixed Assets}}{\text{Tangible Net Worth}}$$

Interpretation: this ratio measures the extent to which owner's equity (capital) has been invested in plant and equipment. A lower ratio indicates a proportionally smaller investment in fixed assets in relation to net worth, and a better "cushion" for creditors in case of liquidation. Similarly, a higher ratio would indicate the opposite situation.

The presence of substantial leased fixed assets (not shown on the balance sheet) may deceptively lower this ratio.

Debt – to – Worth

Computation: Total Liabilities divided by tangible net worth.

$$\frac{\text{Total Liabilities}}{\text{Tangible Net Worth}}$$

Interpretation: this ratio expresses the relationship between capital contributed by creditors and that contributed by the owners. It expresses the degree of protection provided by owners for the creditors. The higher the ratio, the greater the risk being assumed by the creditors. A lower ratio generally indicates greater long term financial stability. A firm with a low debt – to – worth ratio usually has greater flexibility to borrow in the future, and conversely, the higher the ratio the more limited the borrowing capacity of the firm.

Again, a caution about inclusion of all debt exposure and capital leases. These should be considered when trying to estimate the “true” leverage of a company.

OPERATING RATIOS

Operating ratios are designed to assist in the evaluation of management’s performance.

% Profits Before Taxes/Tangible Net Worth

Computation: Profits before taxes divided by tangible net worth and the resultant multiplied by 100.

$$\frac{\text{Profits Before Taxes}}{\text{Tangible Net Worth}} \times 100$$

Interpretation: this ratio expresses the rate of return on tangible capital employed. While it can serve as an indicator of management’s performance, the analysis is cautioned to use it in conjunction with other ratios. A high return, normally associated with effective management, could indicate an undercapitalized company. Whereas, a low return usually is an indicator that there is inefficient management, or could reflect a highly capitalized, conservatively operated business.

This ratio has been multiplied by 100 since it is shown as a percentage.

% Profits Before Taxes/Total Assets

Computation: Profits before taxes divided by total assets and the resultant multiplied by 100.

$$\frac{\text{Profits Before Taxes}}{\text{Total Assets}} \times 100$$

Interpretation: this ratio expresses the pre – tax return on total assets and measures the effectiveness of management in employing the resources available to it. If a specific ratio varies considerably from the “norm” of the industry, the analyst will need to examine the makeup of the assets and take a closer look at the earnings figure. A heavily depreciated plant and a large amount of intangible assets or unusual income or expense item may cause to distort this ratio.