GAAP Financial Statement Analysis

**Part 1 - Financial Statement Analysis Techniques**

Insurance professionals need to be able not only to read financial statements but also to perform some analysis in order to gain a more complete understanding of an organization’s financial condition.

While there are many methods of analysis, three common techniques used to analyze financial statements are these:

***Question: Explain how identifying the goal or goals of a financial statement analysis helps focus attention on the techniques most likely to generate the information required***

**Identifying the goal or goals of a financial statement analysis helps focus attention on the techniques most likely to generate the information required. For example, if the goal is to search for abnormal values reported by an organization, vertical analysis can be used. Alternatively, if the goal is to evaluate how an organization has been performing through time, trend analysis is a good choice. If the goal is to evaluate a company’s profitability, emphasis should be placed on the income statement an on profitability ratios using ratio analysis**.

**Vertical Analysis**

Vertical analysis begins with the creation of a common-size statement, which shows the relative size of the amounts on each line. For example, the income statement may report each line amount as a percentage of revenue, or the balance sheet may report each line amount as a percentage of total assets. Common-size statements are particularly useful when the analysis requires evaluating the relative performance or financial condition of two or more companies, especially when those companies differ greatly in size.

***Question: Describe what vertical analysts looks for***

**Vertical analysis looks for any unusual percentages in the common-size statements that identify items that have an excessively large (or small) value when compared with those of competitors or with a benchmark, such as an average for an industr**y. It can be difficult to see even the basic financial relationships by simply looking at the numerical values published in a company’s financial statements. Therefore, it is helpful to construct common-size statements and perform a vertical analysis.

**Trend analysis**

Trend analysis uses the period-to-period percentage changes to identify patterns and highlight changes in specific statement items over time. When trend analysis is applied to several years of reported values, it is particularly effective for identifying changes in important financial statement items such as total assets, sales, or net income**.**

Trend analysis involves making comparisons across two or more years of financial statement data. Although trend analysis can be applied to the balance sheet to quantify changes in assets or liabilities over time, it is usually applied to the income statement to quantify changes in a company’s revenues and expenses over time. An analyst focuses on the major components of the income statement: sales, cost of goods sold, gross profit, operating expenses, and net income (profitability). Trend analysis can also be applied to other comprehensive income.

**Ratio Analysis**

Ratios can highlight both relationships between items that appear within a single financial statement and relationships between items on different financial statements. As a result, ratios can be used to analyze a single company or to compare one company with another. As with vertical and trend analysis, because ratios examine relationships between amounts, companies of different sizes and in different industries can be directly compared.

Ratios are grouped into the following broad categories: efficiency, liquidity, leverage, and profitability.

Financial ratios by category: PELL Profitability, Efficiency, Liquidity, Leverage

|  |  |
| --- | --- |
| **Category** | **GAAP-Based Measurement** |
| Profitability | Net Profit Margin |
|  | Return on Assets |
|  | Return on Equity |
|  | DuPont Identity |
| Efficiency | Accounts Receivable Turnover |
|  | Asset Turnover |
|  | Inventory Turnover |
| Liquidity | Current Ratio |
|  | Acid-Test, or Quick, Ratio |
| Leverage | Debt-to Equity Ratio |
|  | Debt-to Assets Ratio |

***Question: Explain why benchmarks are needed in order to perform a comparative analysis***

**As with any type of comparative analysis, benchmarks are needed when one company’s results are compared with those of its industry or another company. Without some basis for making comparisons, it is difficult-if not impossible- to determine whether a single value for a given ratio or percentage should be interpreted as superior, average or below average.**

**Ratio consistency – To support appropriate, informed judgements about companies’ operations, ratios should be calculated consistently. However, not all analysts calculate ratios in exactly the same way. Some prefer to use income before interest and taxes rather than net income when calculating a profitability ratio such as net profit margins**.

Net Profit Margin = Net Income ÷ Sales

**Part 2 -Vertical Analysis of Financial Statements**

**Vertical analysis is defined as the use of common-sized statements to highlight basic relationships among items within a single set of financial statements.**

**Single-Period Vertical Analysis**

Vertical analysis of the common-size statements allows for comparisons between companies. However, an analyst should also be familiar with, the particular industries concerned in order to draw meaningful conclusions from the comparison.

**A vertical analysis of the common-size statements helps draw attention to items that have significant effect on net income. Cost of merchandise sold, other costs such as wages and benefits (administrative expenses) would reflect adequate pricing in the face of competition and control over costs in order to operate profitably.**

**The common-size balance sheet is also comparable. Different percentages of assets and liabilities. Assets in inventories and property, plant and equipment can provide evidence of the companies’ strategy of owning vs renting. Liabilities can reflect whether the company relies mostly on equity and retained earnings to meet its financing needs vs a greater use of debt to finance activities with large amounts of liabilities**.

**Multiple-Period Vertical Analysis**

Multi-period vertical analysis is performed by applying single-period vertical analysis to more than one reporting period.

***Question: Explain how information obtained from a multi-period vertical analysis can be used in a variety of insurance contexts, particularly when several years’ data are available***

**Information obtained from a multi-period vertical analysis can be used in a variety of insurance contexts, particularly when several years’ data are available. For example, insurance policies are available to cover the risks of business interruption. Having a clear picture of an applicant’s operating history can assist an underwriter in assessing the applicant’s loss exposure to ensure the proper premium is charged. Loss adjusters can also use multi-period vertical analysis, for example, to estimate the amount of inventory lost in a fire by reviewing inventory amounts recorded before and after the fire**.

**Analysis of Income Statement**

**Gross and Net Profit Margins**

Net Profit Margin is the percentage of sales remaining after deducting all expenses.

A company’s profitability is driven by its sales, its gross margin, and its operating and interest expenses.

**Analysis of Balance Sheet**

If changes have occurred, an important consideration is whether the magnitude and direction of these changes are consistent with the company’s business.

***Question: Explain what a multi-period vertical analysis of a company would typically indicate if the company has implemented a growth strategy fueled by debt financing***

**When growth strategies are first implemented, companies typically experience periods of increased expenses and reduced efficiency with the added burden of debt service, if debt financing was used, until production or sales activity catches up with the newly created capacity. Although these results are undesirable, they may be inevitable unless action is taken to counter the results**.

**An important question for the analyst is how the growth in fixed assets was financed. In looking at the common-size balance sheet, because long-term debt decreased and no significant changes occurred in capital stock over a three-year period, the company appears to have chosen to finance growth using retained earnings rather than paying out those earnings as dividends to the shareholders**.

**Part 3 – Trend Analysis of Financial Statements**

Trend analysis uses period-to-period percentage changes to identify trends. This technique is effective for identifying trends for items such as total assets, sales, or net income.

***Question: Describe two methods of conducting trend analysis of financial statements***

**Two methods of conducting trend analysis are year-to-year analysis and base-year-to-date analysis:**

**Year-to-year analysis determines the percentage change in values for statement items between consecutive years in the period under consideration.**

**Base-year-to-date analysis uses the earliest year of the period under consideration as a base year and determines the percentage change in statement item values for each successive year relative to that base year**.

***Question: Identify the major income statement components an analyst focuses on when conducting a trend analysis***

**An analyst’s attention is focused on the major components of the income statement: Sales, Costs of Goods Sold, Gross Profit, Operating Expenses and Net Income. Example, the analyst’s goal is to quantify the growth rate of sales and net income over the most recent 4 year period.** Such an analysis begins with calculating the year to year percentage change for sales and net income.

**To calculate the percentage of change of an amount from one year to the next, divide the change from the first year to the subsequent year by the first year amount, and multiply the result by 100 to express it a s a percentage. Ending – Beginning = X divided by Beginning**

**Example:**

**2015 Sales $30,219**

**2014 Sales $24,156**

**$30,219 - $24,156 = $6,063 / $6,063 ÷ $24,156 = .02509935 / .02509935 X 100 = 25.1%**

|  |  |  |
| --- | --- | --- |
| **Annual Prcentage Change Income Statement** | |  |
|  | **2005-2004** | **2004-2003** |
| Sales | 25.10% | 23.60% |
| Cost of Merchandise sold | 24.4 | 23.2 |
| Gross profit | 26.9 | 24.8 |
| Operating expenses: |  |  |
| selling, general and administrative | 24.6 | 22.2 |
| Pre-opening | 35.4 | 18.2 |
| Total Operating expenses | 22.1 | 24.8 |
| Operating Income | 39.2 | 24.6 |
| Earnings before Income Taxes | 40.9 | 23.6 |
| Income Taxes | 40.9 | 23.6 |
| Net Income | 39.1 | 23.7 |

An analyst can draw several conclusions from the results

* Monitoring sales growth
* Maintain profitability. If Percentage changes in both cost of merchandise sold and gross profit closely parallel the percentage changes in sales, will confirm that sales growth is not the result of shifting to a low-price strategy.
* Maintaining control over its operating expenses by the percentage changes associated with total operating expenses closely parallel the percentage change in sales.

**Part 4 – Financial Ratios: Efficiency and Profitability**

**Efficiency ratios measure a company’s ability to manage and use its assets**.

**Efficiency Ratios**

Efficiency ratios examine how well a company manages and uses its assets. The ratios that measure this type of performance-the account receivable ratios, the asset turnover ratio, and the inventory ratio-are typically used in generally accepted accounting principles (GAAP) based efficiency analysis.

**Accounts Receivable Turnover Ratio**

**Accounts receivable turnover ratio: an efficiency ratio that indicates how quickly a business collects the amounts owed by its customers**.

**Accounts receivable turnover ratio = credit sales ÷ Accounts receivable**

***Question: Explain how underwriters use the accounts receivable turnover ratio***

**Underwriters use the accounts receivable turnover ratio to look for indications of poor collections policies on the part of management. The longer an account remains unpaid, the less likely the collection of payment. Moreover, if the company has an average collection period that significantly exceeds the industry average, the financial problems might exist; that is, a company that has excess funds tied up in receivable might have difficulty financing its other operations. Slow collections might indicate unsound management and financial weakness.**

Typically, the higher the ratio, the more efficiently the company is performing.

An alternative measure of efficiency for accounts receivable is the days sales outstanding. **Day Sales Outstanding: A measure of the number of days it takes, on average, for a company to collect its accounts receivable**.

**Day sales outstanding = 365 ÷ Accounts receivable turnover ratio**

The more quickly an outstanding amount is collected, the better, so a lower days sales outstanding is preferable. Many organizations have a 30 day payment period**; a number below 30 is often desirable**.

**Asset Turnover Ratio**

**The asset turnover ratio is an efficiency ratio that measures the use of assets. The more efficiently a company uses its assets to generate sales, the higher the total asset turnover; that is, the more a company sells in proportion to its assets, the higher its asset turnover will be**.

**Asset turnover ratio = Sales ÷ Total assets**

**If a company runs its operation for two shifts per day, it will produce more goods for sale (and will presumably have greater sales) than if it runs its operation for one shift. The investment in fixed assets is essentially the same regardless of whether the company runs its operation for one or two shifts. Therefore, the company’s asset turnover ratio would be larger with two shifts than with one**.

Fixed Assets: Resources that cannot be expected to be sold or consumed within the business’s normal operating cycle and that are usually considered to be long lived.

**Inventory Turnover Ratio**

The inventory turnover ratio relates the amount of cost of goods sold for a given period to the amount of inventory held at the end of the period.

**Inventory turnover ratio: An efficiency ratio that indicates how quickly inventory is sold, generating either cash (from cash sales) or accounts receivable (from credit sales). Higher is better**

**Inventory turnover ratio = Cost of goods sold ÷ Inventory**

***Question: explain what a decline in the value of the inventory turnover ratio indicates***

A low inventory turnover ratio may indicate inefficiency-that is, inventory is not being sold quickly enough and is therefore generating higher costs than it would if it were sold more quickly. If the company were burdened with slow-moving or obsolete products, the average inventory level used in the denominator would tend to be higher, meaning the ratio value smaller**. A decline in the value of this ratio over time would serve as a warning that the company may be experiencing inventory management problems.**

**Profitability Ratios**

**A company’s ability to operate profitably is crucial to its survival**. Therefore, evaluating a company’s profitability is the focus of many financial statement analyses.

**Net Profit Margin**

**Net Profit Margin: A profitability ratio that measures the percentage of sales remaining after deducting all expenses that indicates how effective an insurer is at cost control, uses income statement data, and is calculated by dividing net income after taxes by sales.**

**Net Profit Margin = Net income ÷ Sales**

***Question: Explain why some analysts think it is inappropriate to consider interest expense when calculating net profit margin***

A profit margin can be calculated in various ways. Gross profit might be used in place of net income. **Some analysts think it is inappropriate to consider interest expense because operating results are independent of interest paid on debt to finance the business. Therefore, the analysts add interest expense back into net income before calculating the net profit margin**.

**Return on Assets**

**Return on Assets: A profitability ratio that shows how well a company has used its resources by comparing net income to the assets invested to generate that income. The higher the return on assets, the more efficiently management has used those assets to generate earnings.**

Return on assets (ROA) = Net income ÷ Total assets

**To calculate ROA, an analyst uses figures from both the balance sheet (total assets) and the income statement (net income).**  Because the total asset figure measures a value as of a single date, whereas the net income figure measures a flow from one date to another, some analysts use an average of the assets over the period being analyzed for the denominator, rather than assets of a single date.

**Return on Equity**

**Return on Equity (ROE): A profitability ratio express as a percentage by dividing a company’s net income by its net worth (book value). Depending on the context net worth is sometimes called shareholder’s equity, owner’s equity or policyholder’s surplus.**

**Return on Equity (ROE) = Net income ÷ Shareholder’s equity**

Again, because the shareholder’s equity figure measures a value as of a single date and the net income figure measures a flow from one date to another, some analysts use an average of the shareholder’s equity over a time period being analyzed, rather than the shareholder’s equity as of a single date.

***Question: Explain why in many respects, the return on equity ratio is the most important profitability measure***

**In many respects, the return on equity ratio is the most important profitability measure because it measures the actual return to the owners (stockholders), net of the effect of financial leverage – unlike the gross return measure, return on assets**. If the measure is lower than the industry average, the other ratios can be used to diagnose where the problem(s) exist. Too much money might be tied up in capital because of poor inventory management or a poor credit collection policy. The company might be operating at too low a percentage of capacity, which would be made evident by the total assets turnover ratio and fixed assets turnover ratio. Finally, the company might have too much debt or be paying too high an interest rate for it. Leverage ratios would diagnose these problems.

**DuPont Identity**

**DuPont Identity: An analysis of ROA and ROE by breaking them down into their component ratios.**

**Leverage: The practice of using borrowed money to invest**

**Leverage Ratio: A financial ratio that indicates the relationship between the amount of funds supplied by creditors and the funds supplied by the owner of the company**.

The more efficiently a company uses its equity in relation to its assets, the higher its equity multiplier.

By looking at each of these components, an analyst can better understand a company’s ROA and ROE figures and determine where potential issues for the company may lie.

**Part 5 - Financial Ratios: Liquidity and Leverage**

**Liquidity Ratios**

Liquidity ratios measure a company’s ability to convert assets to cash in order to satisfy its obligations. For most organizations, liquidity can be measured using working capital; the current ratio; and the acid-test ratio, or quick ratio.

**Working Capital**

Working capital is the excess of a company’s current assets over its current liabilities.

**Working capital = Current assets – Current liabilities**

***Question: How might a company without enough cash on hand expect to meet its obligations for the next year***

Current assets are cash and those assets that are likely to be converted to cash within one year of the balance sheet date – primarily marketable securities, accounts receivable, and inventory. Current liabilities are those obligations that will need to be paid within that same one-year period, including accounts payable; the current portion of loans payable; and accrued expenses such as wages payable, interest payable and taxes payable. **Although a company may not have enough cash on hand to meet all its obligations for the next year, it expects to collect accounts receivable and sell inventory to provide the required cash**.

**Current Ratio**

Most financial sound companies have positive working capital. However, simply having positive working capital does not give an analyst much information about how adequately that working capital will meet the company’s upcoming obligations. **The current ratio is a liquidity ratio that indicates the adequacy of a company’s working capital to meet its current financial obligations**.

Current ratio = Current assets ÷ Current liabilities

**Acid-Test Ratio**

Acid-test ratio (quick ratio): A liquidity ratio that provides a measure of a company’s ability to meet its current obligations if it cannot sell its inventory.

The acid-test is more conservative measure of liquidity than the current-ratio because it includes only cash, marketable securities, and accounts receivable in it numerator.

**Leverage Ratios**

**Debt-to-Equity Ratio**

Debt-to-equity ratio: A leverage ratio that measures the extent to which a company is financed using borrowings rather than its own funds (owners’ equity).

The debt-to equity ratio is commonly used to assess the relative extent of an organization’s debt financing as compared to other organizations in the same industry.

Debt-to-equity ratio = Long-term debt ÷ Shareholders’ equity

In some cases, the analyst may substitute total liabilities for long-term debt-that is, calculate the debt-to-equity ratio by dividing total liabilities by shareholder’s equity. As indicated previously, it is important to know the ratio is calculated because different calculation approaches can produce significantly different ratios.

**Debt-to-Asset Ratio**

**Debt-to-asset ratio: A leverage ratio that shows the extent to which a company’s assets are financed by debt; uses balance sheet data and is calculated by dividing total liabilities by total assets**.

***Question: Describe the debt-to equity ratio***

**The debt-to-asset ratio is commonly used to assess the relative extent of an organization’s debt financing as compared to other organizations in the same industry. It is calculated by dividing long-term debt by shareholders’ equity.** The debt-to-equity**,** or debt ratio, is a leverage ratio that shows the extent to which a company’s assets are financed by debt. For this ratio, the term “debt” is used in a broad sense to include not only borrowed funds but also other obligations such as accounts payable.

Debt-to-asset ratio = Total liabilities ÷ Total assets

***Question: Explain what high leverage ratios indicate to an underwriter***

An advantage of this ratio is that it shows how the assets of the company are financed**. If the ratio is less than .5, then the company is financing most of its assets through the equity contribution of its shareholders. If the ratio is greater than .5, then most of the company’s assets are financed through debt. Typical debt-to-asset ratios vary by industry. However, an exceptionally high debt-to-asset ratio might indicate that a company is highly leveraged and could be at risk if it is not able to keep up with debt repayments (financial weakness and doubtful growth). Under these circumstances the underwriter must be aware of possible moral and morale hazards**.

**Analyzing Financial Ratios Case**

TMT is a manufacturing firm shopping for property-casualty insurance. Larry, an underwriter, has been reviewing the applications for various lines of coverage from TMT’s broker. Larry has determined that he must analyze TMT’s financial position and performance with ratio analysis to accurately assess the insurable risks of the firm.

The financial ratios by category provide each of the ratio formulas that are to be applied to certain values in TMT’s income statement and balance sheet.

The income statement summarizes TMT’s income and expenses during a certain period of time-in this case, one year.

In contrast to the income statement, the balance sheet provides a snapshot of TMT’s position as of a certain date. The figures in the balance sheet can change significantly due to transactions entered into after that date. As the figures change, the ratios that rely on those figures also change

|  |  |  |
| --- | --- | --- |
| ***Financial Ratios by Category*** |  |  |
| **Category** | **GAAP-based measurement** | **Ratio Formula** |
| **Efficiency** | **Accounts receivable turnover** | **Credit sales ÷ Accounts receivable (12 or higher = efficiency)** |
| ***(managing assets?)*** | **Asset turnover** | **Sales ÷ Total assets** |
| ***(add 2nd shift)*** | **Inventory turnover (12 ÷ 1.25 = 9 months)** | **Cost of goods sold ÷ Inventory (low turnover months = efficiency)** |
| **Liquidity** | **Current ratio** | **Current assets ÷ Current liabilities** |
| ***(want close to 1:1)*** | **Acid-test, or Quick, ratio** | **(Cash + Marketable securities + Accounts receivable) ÷ Current liabilities** |
| ***(ability to turn assets to cash to satisfy obligations)*** |  |  |
| **Leverage** | **Debt-to-equity** | **Long-term debt ÷ Shareholders' equity** |
| ***(too much finance?)*** | **Debt-to-asset** | **Total liabilities ÷ Total Assets** |
|  | **Equity multiplier** | **Total assets ÷ Shareholders' equity** |
| **Profitability** | **Net Profit Margin** | **Net Income ÷ Sales** |
| ***(generating income?)*** | **Return on Assets** | **Net Income ÷ Total Assets** |
|  | **Return on Equity** | **Net Income ÷ Shareholder's equity** |
|  | **DuPont Identity - Return on Equity** | **(Net Income ÷ Sales) X** |
|  |  | **(Sales ÷ Total Assets) X** |
|  |  | **(Total Assets ÷ Shareholders equity)** |

**Efficiency Ratios**

To evaluate TMT’s efficiency, three turnover ratios can be used: The accounts receivable turnover ratio, the asset turnover ratio, and the inventory turnover ratio.

**Accounts Receivable Turnover ratio**

**To calculate TMT’s accounts receivable turnover ratio for the year 2011, the credit sales figure from the income statement is necessary. The accounts receivable from the balance sheet is also required.**

**Accounts receivable turnover = Credit sales ÷ Accounts receivable**

$2,500,000 ÷ $150,000 = 16.67

There may be some difficulty obtaining the correct numerator for the ratio by examining only the income statement. Specifically, the ratio’s numerator calls for credit sales, but the income statement generally does not break down sales into credit and cash sales. To determine the amount of credit sales, the notes to the financial statement or other financial records can be used.

The more quickly an outstanding amount is collected, the better, so a lower days sales outstanding is preferable. Many organizations have a 30 day payment period**; a number below 30 is often desirable**.

**The ratio value of 16 indicates that TMT is collecting its receivables more than sixteen times per year, or more frequently than once a month. This ratio is normally 12 or less if the company requires customer payment in 30 days. TMT’s management might consider performing additional analysis to see whether easing the customer payment requirements could increase sales and profits by making TMT more competitive with other retailers’ credit policies**.

An alternative for measuring the efficiency of TMT’s accounts receivable is to calculate the days sales outstanding.

The alternative to accounts receivable turnover ratio (days sales outstanding) is calculated by dividing the number of days in a year (365) by the accounts receivable turnover ratio: 365 ÷ 16 = 22.8

**Asset Turnover Ratio**

Calculating the asset turnover ratio will provide an indication of how efficiently TMT is using its assets to generate sales. The more efficiently TMT uses its assets, the higher its asset turnover. Stated another way, the more a company sells as a proportion of the assets it owns, the higher its asset turnover.

Taking the sales figure from TMTs income statement – Sales divided by Total assets from the balance sheet

Asset Turnover Ratio 0.66 = $5,000,000 ÷ $,7500,000

TMT may compare its 0.66 result with other organizations in its industry and determine it could do better. One way to accomplish that would be for TMT to run its operation for two shifts per day. It will produce more goods for sale (and will presumably have higher sales) than if it runs its operation for only one shift. The investment in fixed assets is essentially the same regardless of whether the company runs its operations for one or two shifts. Therefore, the company’s asset turnover would be larger with two shifts than with one.

**Inventory Turnover Ratio**

Calculating TMT’s inventory turnover ratio can provide another indication of whether TMT is experiencing an inventory management problem by measuring how quickly its inventory is sold. When TMT’s inventory is sold, it generates either cash (from cash sales) or accounts receivable (from credit sales). This ratio relates the amount of cost of goods sold for a given period to the amount of inventory held at the end of the period.

**Taking the figure from TMT’s balance sheet Inventory = $1,000,000 and the cost of goods sold from the income statement = $3,500,000 the calculation of TMT inventory turnover ratio is:**

**Inventory turnover ratio = Cost of goods sold ÷ Inventory**

**$3,500,000 ÷ $1,000,000 = 3.5 times**

**The inventory turnover ratio of 3.5 times indicates that the company converts its inventory into sales in a little less than three and a half months (12 months ÷ 3.5 times). A ratio in this range may indicate that the company is exposed to relatively little risk that it will be unable to convert its inventory to cash through sales in a reasonable amount of time. A competitor with a higher ratio may have a relatively lower risk of being unable to convert its inventory to cash in a reasonable amount of time. A low inventory turnover ratio may indicate inefficiency-that is inventory is not being sold quickly enough and therefore generating higher costs than if would if it were sold more quickly. A ratio of 1.25 for example 12 months ÷ 1.25 = 9.6 reflecting an average of 9 months to turn that inventory into cash**!

**Liquidity Ratios**

Liquidity refers to a company’s ability to convert assets to cash in order to satisfy its debt obligations. For TMT, liquidity can be measured using working capital, current ratio, and the acid-test, or quick, ratio.

TMT has obligation that must be paid within the next year. The balance sheet Total Current Liabilities = $750,000. Can this be paid? Is a stain on cash probable? Liquidity ratios can help answer these types of questions. A company with a low liquidity ratio is not in a good position to satisfy obligations (including insurance premiums) as they become due. Low and high are relative terms, of course. A ratio is useless unless it is compared to other ratios -either in trend analysis or in industry analysis. A high ratio indicates that the company is in a better position than its peers to pay its current premiums. Liquidity ratios can also help indicate a potential moral or morale hazard. An account with lower liquidity ratios might represent a moral hazard because of the temptation to intentionally cause a loss to receive cash.

**Working Capital**

Working capital can measure the extent to which TMT current assets exceed its current liabilities. If working capital is sufficient, it can be used to finance immediate operations, such as buying inventory, financing growth, and obtaining credit.

TMT’s balance sheet shows current assets of $1,600,000 and current liabilities of $750,000

Working Capital = Current assets – Current liabilities

Working Capital is $850,000 + $1,600,000 Current assets - $750,000 Current liabilities

The positive amount of $850,000 indicates that TMT has an adequate working capital position. The company appears to have enough cash on hand to meets its obligations. Companies can operate even when the amount is negative, a company may not currently have enough cash on hand to meet all its obligations for the next year because it expects to collect accounts receivable and sell inventory throughout the year to generate the required cash.

**Current Ratio**

The current ratio can be calculated to determine the extent to which TMT’s assets are expected to be converted to cash in the next year, which covers the obligations to short-term creditors. To calculate TMT’s current ratio for the year 2011, the current assets and current liabilities figures from the balance sheet are necessary.

The balance sheet shows the Total Current assets in 2011 = $1,600,000 and the current liabilities = $750,000

Current Ratio = Current assets ÷ Current liabilities

Current ratio is 2.13 = 1,6000,000 ÷ $750,000

If the average current ratio for the industry is 2.0. TMT appears to be in line with that standard. Industry averages are often used for comparison; however, they are not necessarily the appropriate benchmark that all companies should try to achieve. The extent to which the business being analyzed represents the industry from which the average is calculated is crucial. In some industries, a few large companies greatly influence the average, in which case the average is less meaningful for the smaller companies in the industry. In the case of TMT, in addition to the current ratios’ being very close to the industry average, with $2.13 worth of current assets for every $1.00 of current liabilities, TMT should not have a liquidity problem, barring a dramatic adverse development in the near future. However, consideration should be given to how representative TMT is of the average firm in the industry. If TMT’s size or other characteristic differ greatly from the average, a different benchmark should be used for comparison, perhaps one developed from data of a similarly sized firms within the industry.

**Acid-Test Ratio**

**Similar to the current ratio, the acid-test ratio (or quick ratio) can be used to measure TMT’s ability to meet its current obligations if it cannot sell its inventory. To calculate TMT’s acid-test ratio for the year 2011, the cash, marketable securities (reflected as short-term investments – meant to be used within a one year period), accounts receivable and current liabilities from the balance sheet.**

**Acid-test ratio = (Cash + Marketable securities + Accounts receivables) ÷ Current liabilities**

**Acid-test Ratio 0.8 = $300,000 + $150,000 + $150,000 ÷ $750,000**

**The acid-test ratio can provide a clear indicator of the financial well-being of a company. It shows the extent to which the company could meets its obligations if it were to shut down or be liquidated immediately. In this illustration, every $1.00 worth of current debt was back by only $0.80 of cash or nearly cash assets. Assume that the industry average is 1:1 (1:1 is the traditionally favorable level). TMT’s acid-test ratio of less than 1:1 should be interpreted as a danger signal because the company would not be able to satisfy all current liabilities by liquidating its quick assets**.

**Leverage Ratios**

In the context of a financial statement analysis, leverage is a measure of the extent to which TMT has borrowed money. Leverage ratios, such as the debt-to-equity ratio and the debt-to-assets ratio, can provide an indication of how TMT is using borrowed funds and of its financial strength and soundness of management.

**Debt-to-Equity Ratio**

**The debt-to-equity ratio will show the extent to which TMT has financed its operations using borrowed funds instead of its own funds. To calculate TMTs debt-to-equity ratio in the year 2011, the long-term debt and shareholders’ equity figures from the balance sheet are necessary.**

**Debt-to-Equity = Long-term debt ÷ Shareholders’ equity**

**Debt-to-Equity Ratio 48.78 = $2,000,000 ÷ $ 4,100,000**

**Although the typical debt-to equity ratio varies by industry, an analyst would normally expect a nonfinancial company to have a debt-to equity ratio below 100 percent. If the ratio is higher than 100 percent, the company is mostly financed by debt; if the ratio is lower than 100 percent the company is mostly financed by equity. A company mostly financed by debt (with a ratio of 300) is several times the amount of equity contributed by its shareholders, this is a danger signal.**

**Debt-to-Assets Ratio**

The debt-to-assets ratio will show the extent to which TMT’s assets are financed by debt

Debt-to-Asset Ratio = Total liabilities ÷ Total assets

Debt-to-Asset Ratio 45.33 = $3,400,000 ÷ $7,500,000

TMT’s debt-to-asset ratio of 45.33 percent indicates that each $100 of assets was financed with $45.33 of debt and $54.67 ($100 - $45.33) of equity.

If the industry average for this ratio is 40 percent TMT’s ratio is slightly above average but probably not high enough to cause concern.

**Profitability Ratios**

TMT’s ability to operate profitably is crucial to its survival as a going concern and can be measured with these commonly used profitability ratios.

**Net Profit Margin**

Calculation of TMT’s net profit margin can measure the net profit realized per dollar of sales, and it indicates how effective TMT is at controlling its costs. To calculate net profit margin, the net income and the sales figures are needed from the income statement.

Net Profit Margin = Net income ÷ Sales

Net Profit Margin 11.38 = $569,000 ÷ $5,000,000

Assume that the average profit margin for the industry is 10 percent. TMT’s profit margin is slightly above average, which is a good indication. If the industry average were 15 percent, further analysis should be done to try to determine why the company’s margin is substantially below that average.

**Return on Assets**

The return on assets ratio can measure how well TMT has used its resources and provides a measure of its return on its total investment in the company. To calculate the return on assets, the net income and total assets from the balance sheet are needed.

Return on Assets = Net Income ÷ Total assets

Return on Assets 7.59 = $569,000 ÷ $7,500,000

Assume that TMT’s return on total assets last year was 0.086 or 8.6 percent, as compared to this year 7.59 percent. The reason for this decline is that TMT purchased more assets and net income after taxes decreased. This might indicate that management made a poor decision in purchasing the assets. Although two years is not enough time to develop a trend analysis, this ratio should be used in conjunction with other return measures.

**Return on Equity**

In many respects, the return on equity ratio is the most important profitability measure because it measures actual return to the shareholders (owners), net of the effect of financial leverage. To calculate the return on equity the net income from the income statement and the shareholders’ equity from the balance sheet are necessary.

Return on Equity (ROE) = Net Income ÷ Shareholders’ equity

Return on Equity 13.88 = $569,000 ÷ $4,100,000

If TMT’s 13.88 percent is lower than the industry average, the other ratios can be used to diagnose the cause(s). Too much money might be tied up in capital because of poor inventory management or a poor collection policy. TMT might be operating at too-low percentage of capacity, which would be made evident by the assets turnover ratio and the fixed assets turnover ratio. Finally, TMT might have too much debt or be paying too high an interest rate for it; leverage ratios can be used to diagnose these problems. A high result is probably due to a highly leveraged position.