

Financial Terms & Calculations

So much about business and its management requires knowledge and information as to financial measurements. Unfortunately these key terms and ratios are often misunderstood if understood at all. The following is an effort to describe different measurement within business as to financial affairs. Although the definitions and explanations are not meant to be inclusive; it is meant to give sufficient talking knowledge of that particular aspect. Some applications could be more complex than others and the following will hopefully provide a good basis for understanding and acknowledging the basics as a building block towards a deeper understanding of finance and its importance.

Ratio analysis is an excellent tool for determining the overall financial condition of your small business. It puts the information from the financial statement into perspective, helping to spot whether your business is a risk of insolvency or whether other negative financial patterns threaten the health of your firm.

Ratios are also very useful for making quick comparisons between your business and other businesses in your industry. Banks and investors use them to help decide whether a business is a good credit or investment risk. Managers look at ratios to monitor operations and determine whether or not the company is running efficiently. For example, ratios can indicate whether a business is carrying a dangerous amount of debt, holding too much inventory, or not collecting accounts receivable quickly enough.

One of the keys to using ratios is that you need a baseline, something to compare them with. Usually, you would be comparing your firm's ratios to the average for your industry or with your own ratios for the same period in a previous year.

Your CPA or financial advisor should be able to assist you in calculating these ratios as they relate to your balance sheet and may be able to help you determining whether or not they are in line.

There are also a number of directories you can check to find common ratios for businesses in your industry, including the following:

- **Dun & Bradstreet** – publishes key business ratios in its monthly *Dun's Review* as well as in its annual "Cost of Doing Business." Contact Business Information Systems, 99 Church Street, New York, NY 10007.
- **Accounting Corporation of America**– publishes Parameter of Small Businesses which classifies operation ratios for various industry groups on the basis of gross volume. Contact: The Research Department, 1929 First Avenue, San Diego, CA 92101.
- **Robert Morris Associates** – a national association of bank loan and credit publishes ratio for more than 225 industries. Contact: the Executive Manager, Robert Morris Associates, Philadelphia National Bank Building, Philadelphia, PA 19107.

Acid Test or "Quick" Ratio – This is a tougher measure of liquidity than the current ratio because it excludes inventories when counting assets. It calculates the company's liquid assets in relation to its liabilities. The higher the ratio, the higher the business' level of liquidity, which usually corresponds to its financial health. The quick ratio also indicates whether a business could pay off its debts quickly, if that becomes necessary.

The desired quick ratio is 1:1. The formula:

- **(Current Assets less Inventories) divided by Current Liabilities**

Current Ratio – This is the standard measure of any business's financial health. You derive this ratio from the figures on your balance sheet. It tells whether a company has enough assets to cover its liabilities. The standard current ratio is 2:1. The formula:

- **Current Assets divided by Current Liabilities**

Calculating Asset Turnover - In basic form, this is meant to measure the amount of sales generated for every dollars worth of assets over a given period. This is also meant to measure how well a company is leveraging its assets to produce revenue. As a general rule the higher the number the better. Those companies with low profit margins, however, may tend to have higher asset turnover than those with higher profit margins. They may also be used to show how capital intensive a business is. As an example, electric utilities are heavy industry manufactures and even a local cable TV firm is hugely asset based and generates loss sales as compared to software developers.

Asset turnover basic formula is simply **sales divided by assets**. Probably the best measurement is to use average assets, which could simply utilize the assets at the beginning of the period and the end of the period to determine the average.

If this ratio that has been measured declines, it could be because there is an over investment in plant equipment or other fixed assets and if the ratio is high, it could mean that there is too much sales revenue and not enough investment. Either case indicates an inefficient management of resources.

Calculating APR – APR measures either the rate of interest that invested money earns in one year or the cost of credit expressed as a yearly rate. Probably the most important aspect of the APR, besides the actual payment required, is the comparison that is available with APR numbers. Whether you are evaluating investment alternative or borrowing funds it is important to understand and compare alternatives.

You must understand that as a rule of thumb the annual percentage rate is typically slightly higher than the quoted rate and when expressing the cost of credit you must obtain the other costs of obtaining the credit, in addition to the interest, such as any loan closing costs or financial fees that might be outside the computation of APR's. When used in the context of investment APR is commonly referred to as annual percentage yield (APY).

For the mathematician in you, the annual percentage rate formula can be described as follows:

- $APR = [1 + i/m]^m - 1.0$

In the above formula, (i) is referred to interest quoted-expressed as a decimal and (m) is the number of compound periods per year.

Calculating Book Value – In its pure form, book value measures a company's common equity (common stock) as it appears on its balance sheet. This is important because it represents the company's net worth to its shareholders based on the difference between assets and liabilities plus debt. You must understand the book value is substantially different from market value especially where primary assets may be intangible (high tech and knowledge based industries and other type businesses). When compared with its market value book value helps reveal high revenue, regarded by the investment community in that the market value is notably higher than the book value, indicating that the investors have a high regard for the company. A comparison measure is a company's book value per share and it shows the value of the company's assets that each shareholder theoretically would receive if the company were liquidated. The book value also is used to describe the actual value of the individual asset on a balance sheet once it is reduced by the accumulative depreciation. Unfortunately, book value may be unrealistic since some assets are depreciated and in fact could be depreciated fully, except any residual land values that could still be sold for a large amount of funds, in fact greater than the amount accrued on the asset.

Calculating Contribution Margins – This measurement implies that products or services are meant to contribute to net profit and therefore measurement is available to determine that contribution. That measurement will help a business decide how to direct its resources, which from time to time can be limited. The entire management of the process from eliminating or creating product lines, pricing, structuring payment methods or sales commissions or bonuses, directing marketing and advertising expenditures, and the appropriation of time can be aided by the knowledge of the contribution margin of the product/service.

Its calculation is reasonably straight forward as it simply takes the sales price minus the available cost to equal the contribution margin. For example, if the sales price of a good is \$1000.00 and the cost is \$500.00, then the contribution margin is \$500.00 or 50% of sales, meaning that .50 of every sales dollar

remains to contribute to fixed costs and the profit after the cost directly related to the sales is subtracted.

The basic assumption is of course that after the accounting information is available for available cost including any indirect cost of services.

Calculating Debt-to-Capital Ratio – This measurement is important as it measures the percentage of total funding represented by debt. If you compare a company's long-term liabilities to its total capital, the debt-to-capital ratio provides review of extent to which the company relies on external debt financing towards funding and therefore is a measurement of risk to its shareholders. It also represents the measure of the company's borrowing capacity and its ability to pay financial payments. Bond-rating agencies and analysts typically use it to check creditworthiness. Generally the greater the debt a company has; the higher the risk. However, it can be misleading to assume that lowest ratio is automatically the best ratio. Utilities for instance have a high capital requirement so their debt-to-capital ratios are high so are those of manufacturing companies, especially those who are developing a new technology or product. It is certain that the higher level of debt, the higher the requirement is for a company to have the ability to create positive earnings and a steady cash flow.

The most common method to determine the ratio is to divide total long-term debt by total assets (total long-term debt plus shareholders' funds) that looks like the following:

- **Total liabilities/total assets = debt-to-capital ratio**

If you are to calculate this or understand it, there are few items that you should be knowledgeable of. First debt calculation should include any long-term capital leases; if a company has an interest in other companies then that value must be added to the shareholders' equity; if a company's external assets exceeds the rate of interest paid to creditors then a high debt-to-capital ratio occurs, while meaning less security for shareholders since debt holders are paid first in bankruptcies, it can still be tolerable; also do not try to confuse debt-to capital with debt-to-capitalization, which compares debt with total market

capitalization that could change with company's stock price changes, if it is a publicly traded entity.

Inventory to Net Working Capital – This ratio tells how much of the company's funds are tied up in inventory. If this number is high compared to the industry average, it could mean the business has too much inventory on hand. It is preferable to run your business with as little inventory as possible on hand, while not affecting potential sales opportunities. The formula:

- **Inventory divided by Net Working Capital**

Calculating Debt-to-Equity Ratio – This measurement seeks to understand how much money a company owes compared with how much money shareholders and owners have invested in the company. The debt-to-equity ratio will reveal the portion of debt and equity the company has used to finance its business. It also will reveal the company's borrowing capacity. The higher the ratio is, the greater the portion of debt but also the greater the risk. There has been some that described the debt-to-equity ratio as a test of long-term corporate health because debt establishes a commitment to repay money throughout a period of time even though there is still no assurance that cash can be created to honor that commitment. Creditors and lenders rely heavily on a ratio to evaluate its borrowers.

The debt-to-equity ratio is calculated by dividing debt by owner's equity, where equity is typically the figure stated for the preceding calendar or fiscal year. The most common formula for the ratio is:

- **Total liabilities/owners equity = debt to equity ratio**

It is very important that equity be measured against time, against companies within the industry as different analysis could occur. The lower the number is indicates better financial stability than a high number, practically, if facing higher interest rates the company's requirement for debt service increases. If a ratio is greater than one occurs, then assets are typically financed mainly with debt, when less than one equity provides a majority of the financing.

Inventory Turnover Ratio – This ratio tells how often your business' inventory turns over during the course of the year. Because inventories are the least liquid form of asset, a high inventory turnover ratio is generally positive. On the other hand, an unusually high ratio compared to the average for the industry could mean you are losing sales because of inadequate stock on hand. The formula:

- **Cost of Goods Sold divided by the Average Value of Inventory.**

Payables Turnover Ratio – This number tells how quickly you are paying your bills. The payables turnover ratio reveals how often your payables turn over during the year. A high ratio means a relatively short time between purchase of goods and services and payment for them. A low ratio may be a sign that the company has chronic cash shortages. The formula:

- **Cost of Sales divided by Trade Payables**

Calculating Accounts Receivable Days – Accounts Receivable Days (sometime called creditor or debtor days) is meant to indicate a measure of the number of days on average that a company requires to pay its creditors. While debtor days is measure is the number of days on average that it takes a company to receive payment for its sales. It is also called accounts receivable days.

To determine creditor days simply divide the accumulative amount of supplier bills (also called trade creditors) by sales, then multiply by 365. As an example, if supplier bill totals \$800,000 and sales are \$9,000,000 the calculation is:

$$(800,000/9,000,000) \times 365 = 32.44 \text{ days}$$

This indicates the company takes 32.44 on average to pay its bills.

To determine debtor days, simply divide the accumulative amount of accounts receivable by sales and then multiply by 365. Again as an example, if accounts receivable totaled \$600,000 and sales are \$9,000,000 the calculation is:

$$(600,000/9,000,000) \times 365 = 24.33 \text{ days}$$

This indicates the company takes an average of 24.33 to collect its debts.

Understanding that these numbers must be comparable within the industry because cash businesses, including most retailers, should have much lower debtor days than the non-cash businesses since they receive payment when the goods are sold. Typically, non-cash businesses run 40 to 50 days. If the creditor days run high, it may suggest that a cash crisis could occur in the near future. An increasing number of debtor days might also suggest much to generous credit terms or product quality or a lack of collection efforts.

Calculating Efficiency – This measurement is intended to provide knowledge as to the portion of operating revenue or fee income spent on overhead expenses. For this mechanism, it is often identified with banking and financial sectors; the efficiency ratio indicates the management's ability to keep overhead costs low. It also can be used by the mature industries such as auto production, chemical or steel manufacturing that must focus on tight cost controls to boost profitability since growth prospect are often times modest. Some industries utilize the efficiency ratio in terms of an overhead burden, that is, overhead as a percentage of sales. Other methods might include measuring efficiency simply by tracking three other measures: accounts payable to sales, days sales outstanding, and inventory turnover. The general guide is that if the first two of these measures are low (accounts payable to sales and days sales outstanding) and the third is high (inventory turnover), efficiency is probably high and if the reverse happens then it is likely low.

The basic definition is the efficiency ratio is the operating overhead efficiency expenses divided by fee income plus tax equivalent net interest income. If operating expenses are \$100,000 and revenues is \$230,000 then:

$$100,000/230,000 = 0.43\% \text{ efficiency ratio}$$

It must be understood that some institutions include all non-interest expenses, while others exclude certain charges, and intangible asset amortization.

The very nature of identifying overhead in order to calculate efficiency ratio in itself can contribute to

overall inefficiency. In the banking industry an acceptable efficiency ratio was once in the low 60's, with the goal now 50, while better-performing banks boast ratios in the mid 40's. Low ratings usually indicate a higher return on equity and earnings.

Calculating Internal Rate of Return – This measurement determines the interest rate that makes the present value of an investment's projected cash flow equal to the cost of the project; practically speaking, the rate that indicates whether an investment is worth pursuing.

It is this calculation of the internal rate return (IRR) that is used to appraise a prospective viability of investments and capital projects. The IRR allows the investor to find the interest rate that is equivalent to the monetary returns that is expected from the project. Once that rate is determined, it can be compared to the rates that could be earned by investing the money elsewhere or to the weighted cost of capital. IRR can also count for the time value of money.

Typically, management will require an IRR equal to or higher than the cost of capital, depending on the relative risk and other factors.

This analysis is generally used to evaluate a project's cash flow rather than the income, because, unlike income cash flows do not reflect depreciation and therefore are usually more instructive to appraise.

IRR has its critics who dismiss it as misleading, especially as significant costs will occur late in the project. For the most part thorough analysis of the project's investment potential, some experts urges using both IRR and net present value calculations and comparing their results before the determination is made.

Return on Assets (ROA) Ratio –This number tells you how effective your business has been at putting its money to work. The ROA is a test of capital utilization – how much profit (before interest and income tax) a business earned on the total capital used to make that profit. This ratio is most useful when compared with the interest rate paid on the company's debt. For example, if the ROA is 15% and the interest rate paid on its debt was 10%, the business's profit is 5 percentage points more than it paid in interest. The formula:

- **Earnings Before Interest and Taxes divided by Net Operating Assets**

Gross Profit Margin Ratio –This ratio shows how efficiently a business uses material and labor in the production process. It shows how the percent of net sales remaining after subtracting cost of goods sold. A high gross profit margin indicates that a business can make a reasonable profit on sales, as long as it keeps overhead cost in control. The formula:

- **Gross Profit divided by Total Sales**

Return on Sales Ratio –This is the difference between what a business takes in and what it spends in the process of doing business. When you compare profit to sales volume, you can determine whether you're making enough of a profit. The formula:

- **Net Profit divided by Sales**