

## Financial Analysis Reading

Now that you know the basics of financial statements (balance sheets, income statements, enterprise budgets, cash flow statements), it's time to use them to make better management decisions. We don't create these statements just to create them and keep them in a folder – we use them to identify the strengths and weaknesses of our business. This allows us to improve our business so that it can continue well into the future.

Think about Greta's Green Grocery for a minute. How does she know if she has a problem in her produce section? Obviously, she looks at the vegetables to be sure they are high quality. If Greta looks in her produce section and sees that the lettuce is wilted and turning brown, she knows she has a problem. And now that she knows she has a problem she can come up with ways to solve the problem. Maybe she is buying produce that is too old. Maybe her cooling system isn't keeping the produce at the proper temperature. Maybe her prices are too high and the produce is staying on the shelf too long. By simply looking at the produce Greta gathers important information that will help her improve her business. That's the goal of financial analysis – improving the “money side” of the business.

There are two main forms of financial analysis: **Ratio analysis** and **Trend analysis**. Remember when we said that financial records are similar to the medical records your doctor uses to look at your health? Well, your doctor is also doing ratio analysis and trend analysis. Ratio analysis is where we calculate financial ratios and compare them to “benchmarks.” Your doctor compares your heart rate (pulse) to the average heart rate (benchmark) for healthy people. In this case, the doctor might use a benchmark of 70 beats per minute – if your heart rate is higher than this, say 90 beats per minute, that might indicate that you have a health problem.

Trend analysis is where we look at the financial ratios over a period of time, say 3-4 years, to see if we can see trends. Are we becoming more profitable over time? Is our equity (net worth) improving or getting worse over time? Your doctor looks at your medical records to see how your current heart rate compares to your heart rate from last year and the year before. If she sees that your heart rate is getting higher each year, that might indicate that you have a potential problem.

Financial analysis looks at four main areas of your business finances. Those four areas are:

- Liquidity

Liquidity refers to the business' ability to pay its bills on time without having to sell some of its productive assets (land, machinery, etc.)

- Solvency

Solvency refers to how the value of its assets compares to the value of its liabilities. If its liabilities are greater than the value of its assets we say that the business is “insolvent” – it can't repay all of its loans by selling its assets.

- Profitability

Profitability analysis shows us if the business is making money after paying all of its expenses.

- Financial Efficiency

Financial Efficiency analysis helps determine how good we are at controlling our costs and how good we are at using our assets to generate revenues.

Let's do some basic financial analysis for Greta's Green Grocery. The starting point for financial analysis is looking at Greta's balance sheet and income statement:

**Greta's Green Grocery**

**Balance Sheet**

**July 1, 2023**

<b>Assets</b>		<b>Liabilities</b>	
<b>Current Assets</b>		<b>Current Liabilities</b>	
Inventory of Produce	\$5,000	Wages Payable	\$2,000
Inventory of Crafts	\$15,000	Sales Tax Payable	\$1,500
Cash in the cash registers	\$2,000	Accounts Payable	\$25,000
Cash in her checking account	\$45,000	Portion of Mortgage	
Accounts Receivable	\$10,000	due this year	\$25,000
<b>Total Current Assets</b>	<b>\$77,000</b>	<b>Total Current Liabilities</b>	<b>\$53,500</b>
<b>Non-Current Assets</b>		<b>Non-Current Liabilities</b>	
Land	\$100,000	Mortgage Remaining	\$185,000
Building	\$250,000		
Refrigerators & Freezers	\$75,000		
Office equipment & furniture	\$5,000		
<b>Total Non-Current Assets</b>	<b>\$430,000</b>	<b>Total Non-Current Liab.</b>	<b>\$185,000</b>
		<b>Total Liabilities</b>	<b>\$238,500</b>
		<b>Net Worth</b>	<b>\$268,500</b>
<b>Total Assets</b>	<b><u>\$507,000</u></b>	<b>Total Liab. &amp; Net Worth</b>	<b><u>\$507,000</u></b>

**Greta's Green Grocery  
Income Statement  
For the year 2022**

**Revenues:**

Produce	\$325,000
Crafts	<u>\$175,000</u>
<b>Total Revenues</b>	<b>\$500,000</b>

**Operating Expenses:**

Produce	\$150,000
Crafts	<u>\$80,000</u>
<b>Total Operating Expenses</b>	<b>\$230,000</b>

**Overhead Expenses:**

Business License	\$1,000
Utilities (electricity, water, etc.)	\$15,000
Liability Insurance	\$5,000
Supplies	\$10,000
Interest on her loans	\$14,000
Labor	\$70,000
Office Expenses	\$6,000
Property Taxes	\$15,000
Advertising	\$25,000
Professional Fees (lawyer, accountant)	\$4,000
Depreciation	<u>\$30,000</u>
<b>Total Overhead Expenses</b>	<b>\$195,000</b>

**Total Expenses** **\$425,000**

**Net Income (Profit)** **\$75,000**

## Liquidity Analysis

The balance sheet is the main source of information for liquidity analysis. Specifically, we look at the Total Current Assets and the Total Current Liabilities. Current liabilities show us the debts of the business that will be paid within the next year. Current assets show the value of all the business' assets that will be sold or used within the next year. Ideally, we would like to have more in Current assets than we have in Current liabilities. To make this comparison easier we calculate the Current Ratio:

$$\text{Current Ratio} = \text{Total Current Assets} / \text{Total Current Liabilities}$$

This ratio tells us how many dollars we have in current assets for every one dollar that we have in current liabilities. For example, a Current Ratio of 2.0 indicates that we have \$2 of current assets for every \$1 of current liabilities on the day of the balance sheet. When the Current Ratio is greater than 1.0 we say that the business is "liquid", which is good! That is, a business that is liquid should be able to pay its obligations without having to sell any non-current assets. A business that is not liquid may have trouble paying their bills on time.

The benchmark for the Current Ratio is 1.0. We like to see this ratio GREATER than 1.0. Higher is better when it comes to the Current Ratio. Most lenders would like to see the Current Ratio close to 2.0.

Let's calculate the Current Ratio for Greta's business. Her Total Current Assets are \$77,000 and her Total Current Liabilities are \$53,500 on the day of her balance sheet. That means Greta's Current Ratio is:

$$\text{Current Ratio} = \$77,000 / \$53,500 = 1.4$$

Greta's business can be considered to be liquid. Her Current Ratio is greater than 1.0. Her ratio signifies that she has \$1.40 in current assets (cash, accounts receivable, inventory) for every \$1 of debt that she will pay within the next year. For a trend analysis we would compare Greta's Current Ratio from the previous years to 1.4. If her Current Ratio is either increasing or holding steady around 1.4, she is in good shape when it comes to liquidity. If her Current Ratio is falling over time, that would tell us that she is having some financial problems – we would have to look deeper to find the actual problem.

## Solvency Analysis

We also use the balance sheet to examine the Solvency of the business. Solvency analysis compares the value of all of the assets of the business to the total amount of debts. A business that has more assets than liabilities is said to be "solvent"; a business whose assets are worth less than its liabilities is "insolvent." Needless to say, we want our business to be solvent!

We use the Debt/Asset Ratio to look at the solvency of a business. In a nutshell, the Debt/Asset ratio tells us the percentage of our assets that are "owned" by the lenders. For example, a Debt/Asset Ratio of 40% tells us that we owe the lender an amount that is equal to 40% of our total assets. Looking at this from the other side, it also tells us that we have paid for (we "own") 60% of our assets outright.

There are two benchmarks for the Debt/Asset Ratio. Ideally, we like to see the Debt/Asset Ratio less than 40% for most businesses. If our ratio gets much higher than 40% we are in a much riskier position because we owe so much to the lenders. The maximum we ever want to see our Debt/Asset Ratio is 70%. When our Debt/Asset Ratio is higher than 70% the business owes so much money to its lenders that most of the

revenues of the business will be used to make the large loan payments – that doesn't leave much money for our operating expenses and for our own salary!

Greta's Debt/Asset Ratio is calculated using her Total Assets of \$507,000 and her Total Liabilities of \$238,500. That means her Debt/Asset Ratio is:

$$\text{Debt/Asset Ratio} = \$238,500 / \$507,000 = 47\%$$

How would you rate Greta's solvency? Her ratio of 47% says that she owes \$0.47 of debts for every \$1 of assets in her business – or, that her lenders "own" 47% of her business and she owns 53% of the business. Because her Debt/Asset Ratio is higher than 40% I would rate her solvency as "okay, but not great" – she would be in a less risky situation if her Debt/Asset Ratio were lower; but, she's not in "the danger zone" with a Debt/Asset Ratio greater than 70%.

When we look at Greta's historical financial records we can see her Debt/Asset Ratio over the past 4 years:

July 2013	57%
July 2014	53%
July 2015	49%
July 2016	47%

Using trend analysis, what can you say about Greta's solvency over time? Greta's Debt/Asset Ratio is steadily falling over the past 4 years. That is a good sign. Although her Debt/Asset Ratio is slightly higher than our 40% benchmark, this shows that her solvency is improving each year. As a manager or as a lender, I would not be too concerned about Greta's solvency.

### Profitability Analysis

Okay, let's admit it – most managers are primarily concerned with earning profits. And I can't blame them. After all, a business must earn profits year in and year out to be able to stay in business. If it doesn't earn profits, it can't pay its operating expenses or repay all of its loans – and those are not good! So we need to look closely at the profitability of a business.

Remember that profits are simply "revenues minus expenses". In the enterprise budget lesson we looked at short-run and long-run profits:

**Short-run Profits = Return Above Variable Costs aka Gross Margin**

**Long-run Profits = Return Above Total Costs**

On the Income Statement we simply referred to the Net Income (or Profit) of the business. It shows how much of your revenues are left over after you pay all of your expenses. Net Income is a useful number – we can easily see if our profits increased or decreased since last year. But it's hard to know if that Net Income is good for the size of a business. To do this we calculate the Rate of Return on Assets, or the ROA of the business.

$$\text{ROA} = (\text{Net Income} + \text{Interest Expense}) / \text{Total Assets}$$

We get this information from the Income Statement and the Balance Sheet. For Greta's business the ROA is:

$$\begin{aligned}\text{Net Income} &= \$75,000 \\ \text{Interest Expense} &= \$14,000 \\ \text{Total Assets} &= \$507,000 \\ \text{ROA} &= (\$75,000 + \$14,000) / \$507,000 = 17.5\%\end{aligned}$$

What does 17.5% mean? The easy way to think about ROA is that every \$1 of Greta's assets is earning \$0.175 of profit. Now we need to know – is that good or bad? For ROA, the higher the number, the better! There are a few benchmarks for ROA:

- We want ROA to be greater than 0% -- that means we made some profits
- We want the ROA to be greater than the interest rate (APR) on our liabilities  
(Remember the saying "If it costs more than it's worth, don't do it"? If the APR is greater than the ROA, the cost of the interest is greater than the profits we will earn.)
- Ideally, we would like for the ROA to be greater than 6%.

How would you rate Greta's ROA of 17.5%? Assuming that most of her loans have an interest rate (APR) of 5%, we can easily say that Greta's ROA is very good! It is greater than 0%; it is greater than her APR; and it is greater than 6%. Greta's business seems to be very profitable!

Again, we should look at her ROA over the past 3-4 years to look for trends. If her ROA is holding steady around 17.5% or increasing over time, she is doing a great job managing the profitability of her business. If her ROA is decreasing over time that would indicate that she may have some potential problems. We should look at her financial efficiency to try to uncover the actual reason for her decreasing profitability.

### Financial Efficiency Analysis

Financial Efficiency refers to how well we are using our financial assets. The more efficiently we use our resources, the greater the chance that we will be able to earn profits. One of the most commonly used ratios for Financial Efficiency is the Operating Expense/Receipt Ratio. This ratio estimates how much money we are spending for operating expenses (variable expenses) to generate one dollar of revenue. We calculate this ratio as follows:

$$\text{Operating Expense/Receipt Ratio} = (\text{Total Expenses} - \text{Interest} - \text{Depreciation}) / \text{Total Revenues}$$

All of this information comes from the income statement. Let's calculate this ratio for Greta's business:

$$\begin{aligned}\text{Total Expenses} &= \$425,000 \\ \text{Interest Expense} &= \$14,000 \\ \text{Depreciation} &= \$30,000 \\ \text{Total Revenues} &= \$500,000\end{aligned}$$

$$\text{Operating Exp./Rec. Ratio} = (\$425,000 - \$14,000 - \$30,000) / \$500,000 = 76\%$$

This tells us that Greta is spending approximately \$0.76 on operating expenses to generate \$1 of sales revenue. That leaves her with \$0.24 to pay for her interest, depreciation, and her salary. As you can see, the lower this ratio, the better! The benchmark for the Operating Expense/Receipt Ratio is 75%. We like to see the ratio be less than 75%. When it gets up near 85% the business may have problems paying its bills on time, and there won't be much money left over for Greta to live on!

Because Greta's ratio is close to the benchmark of 75% we can say that she is doing a good job of controlling her costs but she could do slightly better. If she wants to improve this ratio she needs to find ways to spend less money on her operating expenses or she needs to find ways to increase her sales revenues. A trend analysis over the past 3-4 years will give Greta a better idea of how she is doing on cost control. We would hope to see her ratio holding steady around 76% or decreasing over time. If her ratio is increasing over time she will need to determine why this is happening.

### Summary

After we calculate these ratios we should go back and look at the financial condition of the entire business. We need to look at how the business rates in each of the four main areas: Liquidity, Solvency, Profitability, and Financial Efficiency. An easy way to do this is to create a chart that shows your ratings for each area. Let's do this for Greta:

<b>Greta's Green Grocery</b>	
<b>Financial Analysis</b>	
<b>Liquidity</b>	<b>Good, could improve slightly</b>
<b>Solvency</b>	<b>Average, needs to improve</b>
<b>Profitability</b>	<b>Strong. Excellent job!</b>
<b>Financial Efficiency</b>	<b>Average, could improve slightly</b>
<b>Overall Rating</b>	<b>Better than Average</b>

This chart helps us see where Greta should focus her management efforts. The 2 main areas where she can improve are Financial Efficiency and Solvency. Now she knows where to look to solve her problems and improve her business!

Financial analysis is a powerful tool for managers and lenders. Managers can determine how they can make their business stronger and safer. Lenders can identify the risks of lending money to the managers – thereby helping the managers!