

Case Study: Financial Analysis

by Sophia



WHAT'S COVERED

This tutorial will cover the topic of financial analysis in the context of a case study, by performing financial analysis for a subject company.

Our discussion breaks down as follows:

1. Case Study: Legacy Clothing

Our subject company, Legacy Clothing, is a sole proprietorship, which is a type of company that is owned by a single individual, and where that individual and the business are legally treated as the same.

The purpose of Legacy Clothing as a business is to own and operate clothing/merchandise stores. It is similar to a department store chain, selling men's, women's, and children's clothing and other related items.

Legacy Clothing has locations throughout Washington, DC, and they have a staff of 50 people employed in their stores.

Legacy Clothing	
Type of company	Sole proprietorship
Business purpose	Own and operate clothing/merchandise stores
Business location(s)	Washington, D.C. Staff of 50 people

Legacy Clothing needs to perform financial analysis. They need to perform vertical analysis because it helps them to understand the relationship between individual accounts and overall revenue, in the case of the income statement, or total assets, in the case of the balance sheet.

They also need horizontal analysis because it aids in their understanding of trends in individual accounts, or how those individual accounts change over time.

Lastly, they need ratio analysis to fully understand their business operating performance in the case of profitability, or their business position and ability to pay debts in the case of liquidity ratios .

Essentially, all three of these types of financial analysis are needed in order for Legacy Clothing to truly

understand the state of their business, how it's performing and changing.

Using financial analysis, Legacy Clothing can do a comparison of changes within the company, as well as compare itself to other companies and against industry standards. In this manner, they have a better picture of their business and where they fit within the greater context of the competitive and industry landscape.

In today's lesson, we're going to look at our case study company in performing financial analysis, exploring examples of performing vertical analysis, horizontal analysis, and ratio analysis.

2. Case Study: Vertical Analysis

The first piece of analysis we're going to perform is vertical analysis, starting with Legacy Clothing's income statement.

2a. Income Statement

Here is income statement information from both 2012, which for our purposes is the current year, as well as 2011, which is last year.

We're going to look at the relationship of these individual financial statement line items to our base amount, which in the case of the income statement, is net sales.

VERTICAL ANALYSIS				
Legacy Clothing Income Statement For the period ending December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
Sales	1,000,000		1,100,000	
Sales Returns and Allowances	50,000		55,000	
Sales Discounts	25,000		20,000	
Net Sales	925,000		1,025,000	
Cost of Goods Sold	450,000		475,000	
Gross Profit	475,000		550,000	
Salaries Expense	150,000		175,000	
Advertising Expense	30,000		32,000	
Rent Expense	10,000		11,000	
Insurance Expense	2,500		2,500	
Supplies Expense	5,000		5,000	
Depreciation Expense - Buildings	15,000		15,000	
Total Operating Expenses	212,500		240,500	
Income from Operations	262,500		309,500	
Other Revenue (Expenses)				
Interest Expense	5,000		5,500	
NET INCOME	257,500		304,000	

Next, we take the dollar figures on our income statement and convert them to a percentage of our base amount, for both years. In this manner, we can understand how these individual financial statement line items relate to our base amount, net sales.

VERTICAL ANALYSIS				
Legacy Clothing Income Statement For the period ending December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
Sales	1,000,000	108.1%	1,100,000	107.3%
Sales Returns and Allowances	50,000	5.4%	55,000	5.4%
Sales Discounts	25,000	2.7%	20,000	2.0%
Net Sales	925,000	100.0%	1,025,000	100.0%
Cost of Goods Sold	450,000	48.6%	475,000	46.3%
Gross Profit	475,000	51.4%	550,000	53.7%
Salaries Expense	150,000	16.2%	175,000	17.1%
Advertising Expense	30,000	3.2%	32,000	3.1%
Rent Expense	10,000	1.1%	11,000	1.1%
Insurance Expense	2,500	0.3%	2,500	0.2%
Supplies Expense	5,000	0.5%	5,000	0.5%
Depreciation Expense - Buildings	15,000	1.6%	15,000	1.5%
Total Operating Expenses	212,500	23.0%	240,500	23.5%
Income from Operations	262,500	28.4%	309,500	30.2%
Other Revenue (Expenses)				
Interest Expense	5,000	0.5%	5,500	0.5%
NET INCOME	257,500	27.8%	304,000	29.7%

In this case, you can see that salary expense is 16% of our net sales in 2011, but the following year, it represents 17% of net sales. This allows us to see its changing composition over time.

Another example is sales. In 2011, our sales represented 108%, and it decreased to 107% in 2012.

2b. Balance Sheet

Now we can perform our vertical analysis for Legacy Clothing's balance sheet, performing the same type of exercise as we did with the income statement.

Once again, we're going to express these individual accounts, or financial statement line items, as a percentage of a base amount. In the case of the balance sheet, the base amount is our total assets.

VERTICAL ANALYSIS				
Legacy Clothing Balance Sheet As of December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
Assets				
Cash	125,000		200,000	
Accounts Receivable	150,000		100,000	
Merchandise Inventory	200,000		250,000	
Supplies	15,000		20,000	
Prepaid Insurance	10,000		10,000	
Land	50,000		50,000	
Buildings (net)	375,000		350,000	
Total Assets	925,000		980,000	
Liabilities				
Accounts Payable	85,000		75,000	
Sales Tax Payable	50,000		55,000	
Unearned Revenue	30,000		25,000	
Notes Payable	325,000		300,000	
Total Liabilities	490,000		455,000	
Equity				
Owner's Capital	435,000		525,000	
Total Liabilities and Equity	925,000		980,000	

We express each line item as a percentage of that base amount. Note that total assets is 100%.

By expressing each line item as a percentage of the base amount, we can understand the composition of these line items, as well as any changes over time.

VERTICAL ANALYSIS				
Legacy Clothing Balance Sheet As of December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
Assets				
Cash	125,000	13.5%	200,000	20.4%
Accounts Receivable	150,000	16.2%	100,000	10.2%
Merchandise Inventory	200,000	21.6%	250,000	25.5%
Supplies	15,000	1.6%	20,000	2.0%
Prepaid Insurance	10,000	1.1%	10,000	1.0%
Land	50,000	5.4%	50,000	5.1%
Buildings (net)	375,000	40.5%	350,000	35.7%
Total Assets	925,000	100.0%	980,000	100.0%
Liabilities				
Accounts Payable	85,000	9.2%	75,000	7.7%
Sales Tax Payable	50,000	5.4%	55,000	5.6%
Unearned Revenue	30,000	3.2%	25,000	2.6%
Notes Payable	325,000	35.1%	300,000	30.6%
Total Liabilities	490,000	53.0%	455,000	46.4%
Equity				
Owner's Capital	435,000	47.0%	525,000	53.6%
Total Liabilities and Equity	925,000	100.0%	980,000	100.0%

For example, notice that in 2011, our merchandise inventory represented 21% of our total assets, whereas in 2012, it represents a little more than 25%.

In another instance, notes payable represented 35% of our total assets in 2011 and 30% in 2012; therefore, notes payable is going down, which makes sense.

3. Case Study: Horizontal Analysis

Now we're going to turn our attention to our horizontal analysis, which will help us understand trend in the individual financial statement line items and how they are changing over time.

3a. Income Statement

Again, we're going to start with the income statement for our subject company.

HORIZONTAL ANALYSIS				
Legacy Clothing Income Statement For the period ending December 31, 2012				
	2012	2011	Increase/Decrease	
			Amount	Percent
Sales	1,100,000	1,000,000		
Sales Returns and Allowances	55,000	50,000		
Sales Discounts	20,000	25,000		
Net Sales	1,025,000	925,000		
Cost of Goods Sold	475,000	450,000		
Gross Profit	550,000	475,000		
Salaries Expense	175,000	150,000		
Advertising Expense	32,000	30,000		
Rent Expense	11,000	10,000		
Insurance Expense	2,500	2,500		
Supplies Expense	5,000	5,000		
Depreciation Expense - Buildings	15,000	15,000		
Total Operating Expenses	240,500	212,500		
Income from Operations	309,500	262,500		
Other Revenue (Expenses)				
Interest Expense	5,500	5,000		
NET INCOME	304,000	257,500		

First, we express the changes from 2011 to 2012 in dollar amounts for each of these individual financial statement line items.

HORIZONTAL ANALYSIS				
Legacy Clothing Income Statement For the period ending December 31, 2012				
	2012	2011	Increase/Decrease Amount	Percent
Sales	1,100,000	1,000,000	100,000	
Sales Returns and Allowances	55,000	50,000	5,000	
Sales Discounts	20,000	25,000	(5,000)	
Net Sales	1,025,000	925,000	100,000	
Cost of Goods Sold	475,000	450,000	25,000	
Gross Profit	550,000	475,000	75,000	
Salaries Expense	175,000	150,000	25,000	
Advertising Expense	32,000	30,000	2,000	
Rent Expense	11,000	10,000	1,000	
Insurance Expense	2,500	2,500	-	
Supplies Expense	5,000	5,000	-	
Depreciation Expense - Buildings	15,000	15,000	-	
Total Operating Expenses	240,500	212,500	28,000	
Income from Operations	309,500	262,500	47,000	
Other Revenue (Expenses)				
Interest Expense	5,500	5,000	500	
NET INCOME	304,000	257,500	46,500	

Now, once we have this information, we can convert those amounts to a percentage increase or decrease, so that we can understand how these individual lines are changing.

HORIZONTAL ANALYSIS				
Legacy Clothing Income Statement For the period ending December 31, 2012				
	2012	2011	Increase/Decrease Amount	Percent
Sales	1,100,000	1,000,000	100,000	10.0%
Sales Returns and Allowances	55,000	50,000	5,000	10.0%
Sales Discounts	20,000	25,000	(5,000)	-20.0%
Net Sales	1,025,000	925,000	100,000	10.8%
Cost of Goods Sold	475,000	450,000	25,000	5.6%
Gross Profit	550,000	475,000	75,000	15.8%
Salaries Expense	175,000	150,000	25,000	16.7%
Advertising Expense	32,000	30,000	2,000	6.7%
Rent Expense	11,000	10,000	1,000	10.0%
Insurance Expense	2,500	2,500	-	0.0%
Supplies Expense	5,000	5,000	-	0.0%
Depreciation Expense - Buildings	15,000	15,000	-	0.0%
Total Operating Expenses	240,500	212,500	28,000	13.2%
Income from Operations	309,500	262,500	47,000	17.9%
Other Revenue (Expenses)				
Interest Expense	5,500	5,000	500	10.0%
NET INCOME	304,000	257,500	46,500	18.1%

In this case, we can see that our sales are going up 10%. However, our sales discounts actually went down 20%, which means we are issuing less discounts. Also, we can see that our salaries have gone up 16.7% from 2011 to 2012.

3b. Balance Sheet

Next, let's perform horizontal analysis on Legacy Clothing's balance sheet.

Once again, we are looking at the individual financial statement line items on the balance sheet and how they are changing from one year to the next.

HORIZONTAL ANALYSIS				
Legacy Clothing Balance Sheet As of December 31, 2012				
	2012	2011	Increase/Decrease	
			Amount	Percent
Assets				
Cash	200,000	125,000		
Accounts Receivable	100,000	150,000		
Merchandise Inventory	250,000	200,000		
Supplies	20,000	15,000		
Prepaid Insurance	10,000	10,000		
Land	50,000	50,000		
Buildings (net)	350,000	375,000		
Total Assets	980,000	925,000		
Liabilities				
Accounts Payable	75,000	85,000		
Sales Tax Payable	55,000	50,000		
Unearned Revenue	25,000	30,000		
Notes Payable	300,000	325,000		
Total Liabilities	455,000	490,000		
Equity				
Owner's Capital	525,000	435,000		
Total Liabilities and Equity	980,000	925,000		

The first thing we do is to express that change in dollars, whether an increase or decrease, for each of these individual financial statement line items.

HORIZONTAL ANALYSIS				
Legacy Clothing Balance Sheet As of December 31, 2012				
	2012	2011	Increase/Decrease	
			Amount	Percent
Assets				
Cash	200,000	125,000	75,000	
Accounts Receivable	100,000	150,000	(50,000)	
Merchandise Inventory	250,000	200,000	50,000	
Supplies	20,000	15,000	5,000	
Prepaid Insurance	10,000	10,000	-	
Land	50,000	50,000	-	
Buildings (net)	350,000	375,000	(25,000)	
Total Assets	980,000	925,000	55,000	
Liabilities				
Accounts Payable	75,000	85,000	(10,000)	
Sales Tax Payable	55,000	50,000	5,000	
Unearned Revenue	25,000	30,000	(5,000)	
Notes Payable	300,000	325,000	(25,000)	
Total Liabilities	455,000	490,000	(35,000)	
Equity				
Owner's Capital	525,000	435,000	90,000	
Total Liabilities and Equity	980,000	925,000	55,000	

Next, we convert that dollar amount change to a percentage, to show us the percentage change of these individual financial statement line items.

HORIZONTAL ANALYSIS				
Legacy Clothing Balance Sheet As of December 31, 2012				
	2012	2011	Increase/Decrease Amount	Percent
Assets				
Cash	200,000	125,000	75,000	60.0%
Accounts Receivable	100,000	150,000	(50,000)	-33.3%
Merchandise Inventory	250,000	200,000	50,000	25.0%
Supplies	20,000	15,000	5,000	33.3%
Prepaid Insurance	10,000	10,000	-	0.0%
Land	50,000	50,000	-	0.0%
Buildings (net)	350,000	375,000	(25,000)	-6.7%
Total Assets	980,000	925,000	55,000	5.9%
Liabilities				
Accounts Payable	75,000	85,000	(10,000)	-11.8%
Sales Tax Payable	55,000	50,000	5,000	10.0%
Unearned Revenue	25,000	30,000	(5,000)	-16.7%
Notes Payable	300,000	325,000	(25,000)	-7.7%
Total Liabilities	455,000	490,000	(35,000)	-7.1%
Equity				
Owner's Capital	525,000	435,000	90,000	20.7%
Total Liabilities and Equity	980,000	925,000	55,000	5.9%

As you can see, our cash position went up 60% and merchandise inventory increased 25%. However, notes payable went down 7%, which tells us that we are paying our notes payable down.

4. Ratio Analysis

The last type of analysis that we're going to be performing today for our subject company is ratio analysis.

4a. Profitability Ratios

Let's start with our profitability ratios, which measure the operating performance of the company.

We will calculate three different profitability ratios: rate of return on sales, return on total assets, and asset turnover.

RATIO ANALYSIS	
Profitability Ratios	
Rate of Return on Sales $\frac{\text{Net Income}}{\text{Net Sales}}$	<input type="text"/>
Return on Total Assets $\frac{\text{Income before interest expense and taxes}}{\text{Total assets}}$	<input type="text"/>
Asset Turnover $\frac{\text{Net Sales}}{\text{Total assets}}$	<input type="text"/>

Rate of Return on Sales

So, if we look at rate of return on sales--net income divided by net sales--and input our figures for our subject company, we can see that our rate of return on sales is 29.7%.

Rate of Return on Sales	<input type="text" value="29.7%"/>
$\frac{304,000}{1,025,000}$	

Return on Total Assets

Return on total assets measures how effectively we are using our assets, expressed as income before interest expense and taxes, divided by total assets. Plugging in our information, our return on total assets for Legacy Clothing is 31.6%.

Return on Total Assets	<input type="text" value="31.6%"/>
$\frac{309,500}{980,000}$	

Asset Turnover

Asset turnover measures the use of assets to make sales, calculated by taking net sales divided by total assets. In this case, the asset turnover is 1.0 times.

Asset Turnover	<input type="text" value="1.0 times"/>
$\frac{1,025,000}{980,000}$	

4b. Liquidity Ratios

The last piece of our ratio analysis is to look at liquidity ratios for our subject company. Liquidity ratios measure the ability of our company to pay their debts when they are due.

We will calculate both the current ratio as well as inventory turnover.

RATIO ANALYSIS	
Liquidity Ratios	
Current Ratio	<input type="text"/>
$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	
Inventory Turnover	<input type="text"/>
$\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$	

Current Ratio

The current ratio shows how much in current assets we have to pay off our current liabilities, or short-term debt obligations. Plugging in the information from Legacy Clothing's--current assets divided by current liabilities--we can see that the current ratio is 3.74.

Current Ratio	<input type="text" value="3.74"/>
$\frac{580,000}{155,000}$	

Inventory Turnover

Inventory turnover tells us the number of times inventory is sold and replaced during the period, expressed as cost of goods sold divided by average inventory. One more time, we input the information for our subject company and calculate that inventory turnover is 2.1 times.

Inventory Turnover	<input type="text" value="2.1 times"/>
$\frac{475,000}{225,000}$	



SUMMARY

Today we introduced our **case study** company called **Legacy Clothing**, a department store selling men's, women's, and children's clothing and other related items. We learned how to perform financial analysis for our subject company, including **vertical analysis** and **horizontal analysis** on Legacy Clothing's **income statement** and **balance sheet**. We also performed **ratio analysis**, calculating **profitability ratios** and **liquidity ratios**.

Source: Adapted from Sophia instructor Evan McLaughlin.