

# Vertical Analysis and Horizontal Analysis

by Sophia



## WHAT'S COVERED

This tutorial will cover vertical analysis and horizontal analysis, used in the evaluation of financial statements.

Our discussion breaks down as follows:

## 1. Vertical Analysis

Let's begin today's lesson by discussing **vertical analysis**, which is used to evaluate financial statement items by expressing those items as a percent of a base amount.

Vertical analysis involves analyzing the relationship of each item on the financial statement to some base amount. So, for the balance sheet, for example, we will be expressing each item as a percentage of total assets. For the income statement, we will be expressing each item as a percent of net revenue.

We can use vertical analysis to evaluate how the percentages change over time:

- We can look at changes within the company, which is an internal evaluation.
- We can compare our company to others, which is an external evaluation.
- We can look at industry standard, which is also an external analysis.

Now let's look at an example of how we perform vertical analysis.

### 1a. Income Statement

We're going to start with vertical analysis of our income statement, shown below. Again, vertical analysis is where we express these values as a percentage of a base amount.

Note, the base amount is going to be our net sales, and we have two years to compare.

VERTICAL ANALYSIS				
Example Company Income Statement For the period ending December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
Sales	500,000		550,000	
Sales Returns and Allowances	25,000		27,500	
Sales Discounts	12,500		10,000	
<b>Net Sales</b>	<b>462,500</b>		<b>512,500</b>	
Cost of Goods Sold	200,000		205,000	
Gross Profit	262,500		307,500	
Salaries Expense	120,000		130,000	
Advertising Expense	15,000		16,000	
Rent Expense	5,000		6,000	
Insurance Expense	2,500		2,500	
Supplies Expense	5,000		5,000	
Depreciation Expense - Buildings	10,000		10,000	
Total Operating Expenses	157,500		169,500	
Income from Operations	105,000		138,000	
Other Revenue (Expenses)				
Interest Expense	2,000		3,000	
<b>NET INCOME</b>	<b>103,000</b>		<b>135,000</b>	

We're going to express all of these line items--sales returns and allowances, sales discounts, operating expenses, etc.--as a percentage of our base amount, which again, for the income statement, is our net sales.

Once we drop those figures in, below, if you look at the percentage column, you'll see that our base amount is our net sales, which represents 100%.

We're expressing all of these individual line items as a percentage of that base amount so that we can understand the relationship between these specific line items and that base amount.

For example, you can see that in 2011, our salaries expense was 25.9% of our net sales. In 2012, salaries expense went down slightly to 25.4% of net sales. Therefore, not only can we look at the relationship within one year, but we can also look at that changing relationship over time.

VERTICAL ANALYSIS				
Example Company Income Statement For the period ending December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
Sales	500,000	108.1%	550,000	107.3%
Sales Returns and Allowances	25,000	5.4%	27,500	5.4%
Sales Discounts	12,500	2.7%	10,000	2.0%
<b>Net Sales</b>	<b>462,500</b>	<b>100.0%</b>	<b>512,500</b>	<b>100.0%</b>
Cost of Goods Sold	200,000	43.2%	205,000	40.0%
Gross Profit	262,500	56.8%	307,500	60.0%
Salaries Expense	120,000	25.9%	130,000	25.4%
Advertising Expense	15,000	3.2%	16,000	3.1%
Rent Expense	5,000	1.1%	6,000	1.2%
Insurance Expense	2,500	0.5%	2,500	0.5%
Supplies Expense	5,000	1.1%	5,000	1.0%
Depreciation Expense - Buildings	10,000	2.2%	10,000	2.0%
Total Operating Expenses	157,500	34.1%	169,500	33.1%
Income from Operations	105,000	22.7%	138,000	26.9%
Other Revenue (Expenses)				
Interest Expense	2,000	0.4%	3,000	0.6%
<b>NET INCOME</b>	<b>103,000</b>	<b>22.3%</b>	<b>135,000</b>	<b>26.3%</b>

## 1b. Balance Sheet

Now, continuing with vertical analysis, we can do the same thing we we did for the income statement for the

balance sheet. Again, we're going to express all of these individual line items of our balance sheet as a percentage of our base amount, which for the balance sheet is our total assets.

VERTICAL ANALYSIS				
Example Company Balance Sheet As of December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
<b>Assets</b>				
Cash	40,000		50,000	
Accounts Receivable	75,000		80,000	
Merchandise Inventory	110,000		100,000	
Supplies	10,000		12,000	
Prepaid Insurance	6,000		6,000	
Land	50,000		50,000	
Buildings (net)	225,000		215,000	
<b>Total Assets</b>	<b>516,000</b>		<b>513,000</b>	
<b>Liabilities</b>				
Accounts Payable	75,000		85,000	
Sales Tax Payable	25,000		27,500	
Unearned Revenue	15,000		20,000	
Notes Payable	200,000		175,000	
<b>Total Liabilities</b>	<b>315,000</b>		<b>307,500</b>	
<b>Equity</b>				
Owner's Capital	201,000		205,500	
<b>Total Liabilities and Equity</b>	<b>516,000</b>		<b>513,000</b>	

So, if we express all of these financial statement line items as a percentage of our total assets, we can understand the relationship between these individual lines and our base amount.

For instance, you can see that our inventory represents 21% of our total assets, and that our notes payable represents 38% of our total assets. Then, if you look at the next year, you can see that notes payable only represents 34%. Therefore, that composition is changing, which helps us to understand the relationship of that individual line item to our base amount.

VERTICAL ANALYSIS				
Example Company Balance Sheet As of December 31, 2012				
	2011		2012	
	Amount	Percent	Amount	Percent
<b>Assets</b>				
Cash	40,000	7.8%	50,000	9.7%
Accounts Receivable	75,000	14.5%	80,000	15.6%
Merchandise Inventory	110,000	21.3%	100,000	19.5%
Supplies	10,000	1.9%	12,000	2.3%
Prepaid Insurance	6,000	1.2%	6,000	1.2%
Land	50,000	9.7%	50,000	9.7%
Buildings (net)	225,000	43.6%	215,000	41.9%
<b>Total Assets</b>	<b>516,000</b>	<b>100.0%</b>	<b>513,000</b>	<b>100.0%</b>
<b>Liabilities</b>				
Accounts Payable	75,000	14.5%	85,000	16.6%
Sales Tax Payable	25,000	4.8%	27,500	5.4%
Unearned Revenue	15,000	2.9%	20,000	3.9%
Notes Payable	200,000	38.8%	175,000	34.1%
<b>Total Liabilities</b>	<b>315,000</b>	<b>61.0%</b>	<b>307,500</b>	<b>59.9%</b>
<b>Equity</b>				
Owner's Capital	201,000	39.0%	205,500	40.1%
<b>Total Liabilities and Equity</b>	<b>516,000</b>	<b>100.0%</b>	<b>513,000</b>	<b>100.0%</b>



## TERM TO KNOW

### Vertical Analysis

Evaluates financial statement items as a percent of a base amount.

## 2. Horizontal Analysis

Now that we've seen how to perform vertical analysis, let's turn our attention to **horizontal analysis**, which is used to evaluate percentage changes in financial statements from one period to another.

We are looking at the percentage changes within these individual financial statement items across periods, which helps us to analyze changes from one period to another. Now, not only can we express changes in percentages, but we can also express these changes in dollars, meaning we can see the percentage change of each line item as well as the dollar change of each of those financial statement items.

Again, this helps us to perform both internal and external comparisons, evaluating any internal changes within the company structure, or externally comparing ourselves to competitors, as well as industry standards.

Let's look at an example of performing horizontal analysis.

### 2a. Income Statement

Now, horizontal analysis is going to help us to look at these individual financial statement lines on our income statement, and how they are changing from one period to the next. Note, we are focusing on the individual line items and the changes within those line items themselves.

HORIZONTAL ANALYSIS				
Example Company Income Statement For the period ending December 31, 2012				
	2012	2011	Increase/Decrease Amount	Percent
Sales	550,000	500,000		
Sales Returns and Allowances	27,500	25,000		
Sales Discounts	10,000	12,500		
Net Sales	512,500	462,500		
Cost of Goods Sold	205,000	200,000		
Gross Profit	307,500	262,500		
Salaries Expense	130,000	120,000		
Advertising Expense	16,000	15,000		
Rent Expense	6,000	5,000		
Insurance Expense	2,500	2,500		
Supplies Expense	5,000	5,000		
Depreciation Expense - Buildings	10,000	10,000		
Total Operating Expenses	169,500	157,500		
Income from Operations	138,000	105,000		
Other Revenue (Expenses)				
Interest Expense	3,000	2,000		
NET INCOME	135,000	103,000		

The first thing we can do is express those changes in dollar amounts so that we can see what the dollar increase or decrease is in these individual financial statement lines.

HORIZONTAL ANALYSIS				
Example Company Income Statement For the period ending December 31, 2012				
	2012	2011	Increase/Decrease	
			Amount	Percent
Sales	550,000	500,000	50,000	
Sales Returns and Allowances	27,500	25,000	2,500	
Sales Discounts	10,000	12,500	(2,500)	
<b>Net Sales</b>	<b>512,500</b>	<b>462,500</b>	<b>50,000</b>	
Cost of Goods Sold	205,000	200,000	5,000	
<b>Gross Profit</b>	<b>307,500</b>	<b>262,500</b>	<b>45,000</b>	
Salaries Expense	130,000	120,000	10,000	
Advertising Expense	16,000	15,000	1,000	
Rent Expense	6,000	5,000	1,000	
Insurance Expense	2,500	2,500	-	
Supplies Expense	5,000	5,000	-	
Depreciation Expense - Buildings	10,000	10,000	-	
<b>Total Operating Expenses</b>	<b>169,500</b>	<b>157,500</b>	<b>12,000</b>	
<b>Income from Operations</b>	<b>138,000</b>	<b>105,000</b>	<b>33,000</b>	
<b>Other Revenue (Expenses)</b>				
Interest Expense	3,000	2,000	1,000	
<b>NET INCOME</b>	<b>135,000</b>	<b>103,000</b>	<b>32,000</b>	

Now we can convert that increase or decrease amount to a percentage, to show us the percentage increase or decrease of these individual financial statement lines, to better understand how they are changing over time.

We can see, for instance, that our sales increased 10% from 2011 to 2012, and rent expense went up 20%. Again, this helps us to understand the changes that are taking place at the individual financial statement line item.

HORIZONTAL ANALYSIS				
Example Company Income Statement For the period ending December 31, 2012				
	2012	2011	Increase/Decrease	
			Amount	Percent
Sales	550,000	500,000	50,000	10.0%
Sales Returns and Allowances	27,500	25,000	2,500	10.0%
Sales Discounts	10,000	12,500	(2,500)	-20.0%
<b>Net Sales</b>	<b>512,500</b>	<b>462,500</b>	<b>50,000</b>	<b>10.8%</b>
Cost of Goods Sold	205,000	200,000	5,000	2.5%
<b>Gross Profit</b>	<b>307,500</b>	<b>262,500</b>	<b>45,000</b>	<b>17.1%</b>
Salaries Expense	130,000	120,000	10,000	8.3%
Advertising Expense	16,000	15,000	1,000	6.7%
Rent Expense	6,000	5,000	1,000	20.0%
Insurance Expense	2,500	2,500	-	0.0%
Supplies Expense	5,000	5,000	-	0.0%
Depreciation Expense - Buildings	10,000	10,000	-	0.0%
<b>Total Operating Expenses</b>	<b>169,500</b>	<b>157,500</b>	<b>12,000</b>	<b>7.6%</b>
<b>Income from Operations</b>	<b>138,000</b>	<b>105,000</b>	<b>33,000</b>	<b>31.4%</b>
<b>Other Revenue (Expenses)</b>				
Interest Expense	3,000	2,000	1,000	50.0%
<b>NET INCOME</b>	<b>135,000</b>	<b>103,000</b>	<b>32,000</b>	<b>31.1%</b>

## 2b. Balance Sheet

Now we can perform the same horizontal analysis for our balance sheet. Again, we're looking at changes in the individual financial statement line items from one period to the next.

HORIZONTAL ANALYSIS				
Example Company Balance Sheet As of December 31, 2012				
	2012	2011	Increase/Decrease	
			Amount	Percent
<b>Assets</b>				
Cash	50,000	40,000		
Accounts Receivable	80,000	75,000		
Merchandise Inventory	100,000	110,000		
Supplies	12,000	10,000		
Prepaid Insurance	6,000	6,000		
Land	50,000	50,000		
Buildings (net)	215,000	225,000		
<b>Total Assets</b>	<b>513,000</b>	<b>516,000</b>		
<b>Liabilities</b>				
Accounts Payable	85,000	75,000		
Sales Tax Payable	27,500	25,000		
Unearned Revenue	20,000	15,000		
Notes Payable	175,000	200,000		
<b>Total Liabilities</b>	<b>307,500</b>	<b>315,000</b>		
<b>Equity</b>				
Owner's Capital	205,500	201,000		
<b>Total Liabilities and Equity</b>	<b>513,000</b>	<b>516,000</b>		

The first thing we do is express the change in dollar amounts, in this case, from 2011 to 2012. We want to know, from a dollar perspective, how these individual financial statement line items are changing.

As you can see, for example, cash increased \$10,000 and notes payable went down \$25,000.

HORIZONTAL ANALYSIS				
Example Company Balance Sheet As of December 31, 2012				
	2012	2011	Increase/Decrease	
			Amount	Percent
<b>Assets</b>				
Cash	50,000	40,000	10,000	
Accounts Receivable	80,000	75,000	5,000	
Merchandise Inventory	100,000	110,000	(10,000)	
Supplies	12,000	10,000	2,000	
Prepaid Insurance	6,000	6,000	-	
Land	50,000	50,000	-	
Buildings (net)	215,000	225,000	(10,000)	
<b>Total Assets</b>	<b>513,000</b>	<b>516,000</b>	<b>(3,000)</b>	
<b>Liabilities</b>				
Accounts Payable	85,000	75,000	10,000	
Sales Tax Payable	27,500	25,000	2,500	
Unearned Revenue	20,000	15,000	5,000	
Notes Payable	175,000	200,000	(25,000)	
<b>Total Liabilities</b>	<b>307,500</b>	<b>315,000</b>	<b>(7,500)</b>	
<b>Equity</b>				
Owner's Capital	205,500	201,000	4,500	
<b>Total Liabilities and Equity</b>	<b>513,000</b>	<b>516,000</b>	<b>(3,000)</b>	

Next we can convert increase or decrease in dollars to a percentage, to increase our understanding of what changes are taking place.

For instance, supplies went up 20% and unearned revenues also went up by 33%. Sales tax payable went up 10%, which makes sense if you think back to our income statement, because our sales were increasing.



HORIZONTAL ANALYSIS				
Example Company Balance Sheet As of December 31, 2012				
	2012	2011	Increase/Decrease Amount	Percent
<b>Assets</b>				
Cash	50,000	40,000	10,000	25.0%
Accounts Receivable	80,000	75,000	5,000	6.7%
Merchandise Inventory	100,000	110,000	(10,000)	-9.1%
Supplies	12,000	10,000	2,000	20.0%
Prepaid Insurance	6,000	6,000	-	0.0%
Land	50,000	50,000	-	0.0%
Buildings (net)	215,000	225,000	(10,000)	-4.4%
<b>Total Assets</b>	<b>513,000</b>	<b>516,000</b>	<b>(3,000)</b>	<b>-0.6%</b>
<b>Liabilities</b>				
Accounts Payable	85,000	75,000	10,000	13.3%
Sales Tax Payable	27,500	25,000	2,500	10.0%
Unearned Revenue	20,000	15,000	5,000	33.3%
Notes Payable	175,000	200,000	(25,000)	-12.5%
<b>Total Liabilities</b>	<b>307,500</b>	<b>315,000</b>	<b>(7,500)</b>	<b>-2.4%</b>
<b>Equity</b>				
Owner's Capital	205,500	201,000	4,500	2.2%
<b>Total Liabilities and Equity</b>	<b>513,000</b>	<b>516,000</b>	<b>(3,000)</b>	<b>-0.6%</b>



#### TERM TO KNOW

#### Horizontal Analysis

Evaluates percentage changes in financial statement items from one period to another.



#### SUMMARY

Today's tutorial was all about analysis. We learned about **vertical analysis**, which evaluates financial statement items as a percent of a base amount. We also learned about performing **horizontal analysis**, which evaluates percentage changes in financial statement items from one period to another. We explored examples of performing both of types of analysis on an **income statement** and **balance sheet**.

Source: Adapted from Sophia instructor Evan McLaughlin.



#### TERMS TO KNOW

#### Horizontal Analysis

Evaluates percentage changes in financial statement items from one period to another.

#### Vertical Analysis

Evaluates financial statement items as a percent of a base amount.