# Merchandising Financial Statement Analysis 

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## WHAT'S COVERED

This tutorial will cover some methods of analyzing merchandising financial statements.

Our discussion breaks down as follows:

## 1. Income Statement Analysis

One type of income statement analysis is vertical analysis, which is expressing expenses as a percentage of gross revenue.

Another type of income statement analysis that we can perform is calculating the gross margin ratio, which is expressed as net sales minus cost of goods sold, divided by net sales.

## Income Statement Analysis <br> VERTICAL ANALYSIS <br> Express expenses as a <br> percentage $(\%$ ) of gross revenue <br> GROSS MARGIN RAIIO <br> Net Sales - Cost of GoodS Sold Net Sales

Performing income statement analysis is important for many reasons:

- Trend Identification. It helps to identify trends and aids in assessing past performance and predicting future performance.
- Completeness. It provides a complete picture so it helps us to understand the relationship between expenses and revenues, the changing composition of expenses over time, as well as helping to measure the results of our expense management.
- Frequency. For any business, it should be analyzed at least annually, but it is typically done more frequently, such as monthly or quarterly.

A gross margin analysis allows you to do a personal expenditure analysis similar to what a business would do in terms of performing vertical analysis. You can look at how much you're bringing in, how much you're
spending, and you can categorize your expenses to help you understand where you're spending your money. Businesses use it in the same way, to understand where they're spending their money.

Let's look at an example of performing an income statement analysis.

## 1a. Vertical Analysis

We're going to start by performing a vertical analysis. As mentioned above, vertical analysis is expressing our expenses as a percentage of our total gross revenue. Using the income statement below, our total revenue or total sales of $\$ 635,000$ is going to represent $100 \%$.

Then, we take all of the expense items and express them as a percentage of that total sales number.

| Income Statement Analysis |  |  |  | Total gross revenue |
| :---: | :---: | :---: | :---: | :---: |
| Example CompanyIncome StatementFor the period ending December 31, 2012 |  |  | Vertical <br> Analysis <br> 100\% |  |
| Sales |  | 635,000 |  |  |
| Sales Returns and Allowances | 15,000 |  | 2\% |  |
| Sales Discounts | 7,500 | 22,500 | 1\% |  |
| Net Sales |  | 612,500 |  |  |
| Cost of Goods Sold |  | 228,500 | 36\% | Example: |
| Gross Profit |  | 384,000 |  | $228,500=0.36=36 \%$ |
|  |  |  |  | 635,000 |
|  |  |  |  |  |
| Salaries Expense | 175,000 |  | 28\% | Example: |
| Advertising Expense | 10,000 |  | 2\% | $175,000=0.28=28 \%$ |
| Rent Expense | 50,000 |  | 8\% | 635,000 |
| Insurance Expense | 6,000 |  | 1\% |  |
| Supplies Expense | 2,500 |  | 0.4\% |  |
| Depreciation Expense - Buildings | 15,000 | 258,500 | 2\% |  |
| Income from Operations |  | 125,500 |  |  |
|  |  |  |  |  |
| Other Revenue (Expenses) |  |  |  |  |
| Interest Expense |  | 20,000 | 3\% |  |
|  |  |  |  |  |
| Net Income |  | 105,500 |  |  |

As you can see, cost of goods sold is $36 \%$ of total sales, salaries expense is $28 \%$ of our total sales, etc.

Again, this analysis helps us to understand the composition of our expenses, the relationship between expenses and revenues and allows us to measure the results of any expense management if, for instance, we're trying to bring our salaries down.

## 1b. Gross Margin Ratio

Next, let's turn our attention to calculating the gross margin ratio. Below you will see some information that we need from our income statement. Remember, the gross margin ratio formula is net sales minus cost of goods sold, divided by net sales.

| Income Statement Analysis |  |  |
| :---: | :---: | :---: |
| Example Company |  |  |
| Income Statement |  |  |
| For the period ending December 31, 2012 |  |  |
| Sales |  | 635,000 |
| Sales Returns and Allowances | 15,000 |  |
| Sales Discounts | 7,500 | 22,500 |
| Net Sales |  | 612,500 |
| Cost of Goods Sold |  | 228,500 |
| Gross Profit |  | 384,000 |

Gross Margin Ratio $=\underline{\text { Net Sales }- \text { Cost of Goods Sold }}$ Net Sales
$=6 \underline{612,500-228,500}$
612,500
$=\frac{384,000}{612,500} \longleftarrow \begin{gathered}\text { Same as } \\ \text { Gross Profit } \\ \text { value }\end{gathered}$
$=0.36$
= 36\%

Please note the typo in the above image. The final result is .63 or $63 \%$.

Therefore, if we take our net sales of $\$ 612,500$ and subtract out cost of goods sold $(\$ 228,500)$, this equals $\$ 384,000$, or gross profit.

Now, if we divide that number by net sales, this gives us $63 \%$. In this case, our gross margin, meaning gross profit as a percentage of net sales, is $63 \%$.

## 2. Balance Sheet Analysis

Now that we've seen how to perform income statement analysis for a merchandising company, let's discuss balance sheet analysis. We will focus on inventory turnover analysis, which is how often a business buys, sells, and replaces inventory, meaning the periodic changes in the inventory.

Performing an inventory turnover analysis is important for many reasons:

- Inventory management
- Flow of inventory

As a business, you don't want to have too much inventory due to increased costs associated with storing, protecting, and managing that inventory. On the other hand, you also don't want to have the too little inventory, because you might not be able to meet your sales.
There are multiple calculations involved in an inventory turnover analysis:

1. Inventory Turnover

The calculation for inventory turnover is net sales divided by inventory, but it can also be calculated by taking cost of goods sold and dividing by average inventory.


This second formula is probably a better indicator because these are both period-based items. It's going to look at the entire period in terms of inventory turnover rather than a point in time like the first formula.

## 2. Days Inventory on Hand, or Days in Inventory

The other calculation mentioned is days inventory on hand, also known as days in inventory. In this formula, we take the number of days in the period--for an annual period, 365 days--and divide by the inventory turnover ratio that we just calculated.

## Days Inventory on Hand

## or <br> Days in Inventory

\# of days in period
Inventory Turnover

Now, let's take these two analyses--inventory turnover and days inventory on hand--and look at an example of performing balance sheet analysis.

## 2a. Inventory Turnover

Below is the balance sheet analysis, and we're going to start by calculating our inventory turnover ratios. There are two different ways to accomplish this, so as you can see, we've pulled the information that we need from the income statement and the balance sheet in order to perform these analyses.

| Balance Sheet Analysis |  |  |
| :---: | :---: | :---: |
| Income Statement |  |  |
| Sales |  | 635,000 |
| Sales Returns and Allowances | 15,000 |  |
| Sales Discounts | 7,500 | 22,500 |
| Net Sales |  | 612,500 |
| Cost of Goods Sold |  | 228,500 |
| Gross Profit |  | 384,000 |
|  |  |  |
|  |  |  |
| Balance Sheet |  |  |
| Current Assets |  |  |
| Beginning Inventory |  | 200,000 |
| Ending Inventory |  | 125,000 |
|  |  |  |
|  |  |  |

For the first inventory turnover calculation, we take our net sales from the income statement, and divide by the ending inventory from the balance sheet.


This gives us 4.9 as the number of times the inventory was sold during the period.

However, for the second calculation, we can use period-based items like cost of goods sold from the income statement, in addition to averaging our inventory. To do this, we take our beginning inventory and ending inventory to calculate the average inventory for the period.

$$
\begin{aligned}
\text { Inventory Turnover } & =\frac{\text { Cost of Goods Sold }}{\text { Average Inventory }} \\
& =\frac{228,500}{162,500} \quad \frac{200,000+125,000}{2}=162,500 \\
& =1.4
\end{aligned}
$$

Cost of goods sold divided by average inventory gives us an inventory turnover ratio of 1.4 times. This indicates that our inventory is only turning over 1.4 times, meaning we're only selling our inventory 1.4 times during the period.

## 2b. Days Inventory on Hand

Now we want to calculate our days inventory on hand or days in inventory.

To do this, we will need the inventory turnover ratio we just calculated, which is 1.4 times. We also need the number of days in the period; in this case, we're going to assume that we are looking at the entire year, or 365 days.

We take the number of days in the period, 365 , and divide by our inventory turnover ratio of 1.4.

```
Inventory Turnover = Cost of Goods Sold
                                    Average Inventory
    \(=\underline{228,500}\)
    162,500
    \(=1.4\)
Days Inventory on Hand = \# of days in period
    Or Inventory Turnover
    Days in Inventory
    \(=365\)
    1.4
    \(=260.7\)
```

This informs us that 260.7 days is the number of days it takes us to sell our average inventory.

Today we learned about merchandising financial statement analysis. We learned about income statement analysis, performing a vertical analysis and calculating the gross margin ratio, as well as learning about balance sheet analysis, by discussing inventory turnover calculations and calculating days inventory on hand or days in inventory.

Source: Adapted from Sophia instructor Evan McLaughlin.

