

6.3: What do financial statements tell us about the ability to sell inventory and collect from customers?

Learning Objectives

When a student has completed this section, they will be able to:

- Calculate the accounts receivable turnover ratio and days sales in receivables ratio
- Calculate the inventory turnover ratio and days in inventory ratio
- Explain what these ratios show about a business
- Explain how these ratios relate to overall liquidity of a business

Question: How do we measure the ability of a company to collect the amounts owed to them by customers?

From our earlier discussion, we learned that companies that sell to customers now and allow those customers to pay them later record the amounts owed by customers as accounts receivable on the balance sheet. For a company that chooses to sell on credit this way, the collection of the accounts receivable is an important part of the cash conversion cycle. Having customers that owe you does not allow you to pay your own obligations unless you can collect cash from those customers. Collecting this cash efficiently and at the same time keeping customers happy is the key to a successful and liquid company. So to measure this success, the accounts receivable turnover ratio compares the amount of sales on the income statement and the amount of accounts receivable (still not collected) on the balance sheet. Lots of sales with little accounts receivable indicates that a business is quickly collecting money from their customers. Lots of accounts receivable in comparison to sales shows that a business is not collecting quickly from customers.

For the accounts receivable turnover ratio we assume all sales are made on credit (probably only a good measure for a business that sells to other businesses and not retail) and the formula is:

SALES FOR YEAR / AVERAGE ACCOUNTS RECEIVABLE

AVERAGE ACCOUNTS RECEIVABLE = (ACCOUNTS RECEIVABLE AT BEGINNING OF THE YEAR + ACCOUNTS RECEIVABLE AT THE END OF THE YEAR)/2

For example if Arco, Inc. has sales on credit for 2023 of \$100,000 and accounts receivable at the beginning of 2023 is \$21,000 and accounts receivable at the end of 2023 is \$29,000, then average accounts receivable is \$25,000 $(21,000 + 29,000)/2$. The accounts receivable turnover will be $\$100,000 / \$25,000 = 4$ times. This is labeled as the number of times Arco collects their accounts receivable per year.

Another way to look at this is to calculate the days sales in receivables. This is simply:

365/ACCOUNTS RECEIVABLE TURNOVER

So for our example $365 / 4 = 91$ days. So we could say that Arco collects from customers on average 4 times per year and it takes them on average 91 days to collect from those customers. If Arco can increase sales without an increase in accounts receivable that would increase their accounts receivable turnover and reduce the average time to collect from customers. On the other hand if accounts receivable increase but sales stay the same that means their accounts receivable turnover is going down and the number of days to collect is increasing.

Question: So how does this calculation relate to the earlier ratios having to do with liquidity?

We remember that liquidity is the measure of a business's ability to meet its obligations and to perhaps take advantage of opportunities. The current ratio and quick ratio compare the assets available to the obligations owed by the business. The accounts receivable turnover and days sales in receivable ratios measure how quickly one of the assets used in the current/quick ratio is turned into cash. Two businesses each have \$1,000,000 of accounts receivable – the one who is collecting that money every 60 days or 6 times per year is more liquid than the other company who collects in 90 days or about 4 times per year.

Like our earlier comparisons, when comparing one company's accounts receivable turnover to another, it is important that both companies be in similar industries. It would not make much sense to compare a company that sells much of its product to other businesses on credit with a retail company that mostly does not sell on credit and would have few customers who owe them

money. Pepsi and Coke who sell most of their product to other businesses (you buy your soft drinks from a store or restaurant who bought from Pepsi or Coke) and those businesses would be the same type of customers. Thus a higher accounts receivable turnover would indicate more efficiency in collections and not just different types of customers.

Another thing to consider when comparing accounts receivable measures from one company to another and from one year to another is that collecting money quickly while making customers angry is not a winning strategy. So efficiency in collecting money is not about being a pest about payment with customers or being extra careful about who you sell to on credit. Much research has shown that the number one reason customers do not pay on time is related to billing errors and poor quality products. When quality products are delivered as promised and the amounts billed are as agreed and multiple ways to make payment are provided, customers for the most part pay what is owed on time and come back for more. Mistakes anywhere along the way tend to hold up the collection process. Thus sometimes the first indication that customers are not happy with a business is a decrease in accounts receivable turnover (unhappy customers pay their bills slower).

Real World Example

Calculate the accounts receivable turnover with Eli Lilly income statement and partial balance sheet.

[□ Demonstrate Eli Lilly AR Ratios.pdf](#)

What would the number of days in receivable for Eli Lilly for 2020 be? $365 / 4.7 \text{ times} = 77.7 \text{ days}$ to collect on average their accounts receivable.

Question: Before some businesses can think about collecting cash from customers, they must consider convincing customers to buy their product or service. How is that measured and reported?

Focusing on those businesses who purchase inventory with the plan of selling those items to customers, investors are very interested on how successful they are in selling that inventory. Like our earlier discussion, this is referred to as inventory turnover. This may be even more important than accounts receivable turnover. That is because having inventory stored somewhere has a lot more cost involved than having a list of customers that owe us. Costs to operate malls, warehouses and fleets of trucks are just a few of the costs that are involved in the storage, display and moving around of inventory items. As of January 31, 2023, Walmart showed over \$46 billion dollars of inventory on hand across the world. There are costs to track, insure and handle billions of items each year. Besides the complexity of getting all of those items to thousands of retail locations and into the hands of customers, Walmart must work very hard to identify which inventory items to include in their stores (what do customers want). Even an enormous store like Walmart cannot put every product available on their shelves. If they put products that customers do not want on the shelves, sales will be impacted and that inventory will be wasting space and expense without generating revenue. All businesses that stock inventory whether in a brick and mortar store or online must successfully anticipate customer demands so that items can be provided quickly and at a reasonable cost.

To measure success in having the right products in the right place to meet customer demand, we compare inventory on the balance sheet with cost of goods sold from the income statement.

Our formula is:

COGS FOR THE YEAR / AVERAGE INVENTORY FOR THE YEAR

AVERAGE INVENTORY = (BEGINNING OF THE YEAR INVENTORY + ENDING OF THE YEAR INVENTORY) / 2

This seems familiar because it is very much like the formula for accounts receivable turnover but uses COGS instead of sales and inventory instead of accounts receivable. It is measured in the times a business is able to turnover or sell through inventory in a given year. When a company correctly anticipates customer needs, the inventory does not stay on the shelves (physical or virtual) for very long and will turnover quickly. This means inventory at any given time is low relative to sales and thus a high turnover. The companion ratio is days sales in inventory:

DAYS SALES IN INVENTORY = 365 / INVENTORY TURNOVER

This ratio tells us on average how many days on average inventory sits in our business before being sold. So if inventory has a high turnover then the days in inventory will be low. A decrease in inventory turnover will result in a higher number of days that inventory sits.

For example if, BOLO, Inc. has COGS for 2023 of \$59,000 and inventory at the beginning of 2023 is \$7,200 and at the end of 2023 is \$9,600 our calculations for the inventory turnover would be:

Average inventory = $(\$7,200 + \$9,600)/2 = \$8,400$. Inventory turnover = $\$59,000 / \$8,400 = 7$ times per year.

This would indicate that on average items at BOLO are in the business for $365 / 7 = 52$ days (rounded). To get a better understanding we could then compare that ratio to the calculation for 2022 or we could compare it to 2023 for a competitor of BOLO.

Question: Can a business's inventory turnover be too high?

So changes in either inventory or cost of goods sold will also change a company's inventory turnover. Increasing COGS by making more sales while keeping inventory the same will result in better/higher turnover. The same COGS but having lower inventory will also increase the turnover. This reduction in inventory can be taken too far though. In general, having lower inventory is a sign of efficiency but at some point too low of inventory will start to make customers unhappy. If the things they want are not on the shelves or in online warehouses, they can get frustrated and go elsewhere where the item is available. If every customer was willing to wait for whatever time it took to make and deliver items, then maybe zero inventory would be ideal. But getting customers to wait is not often a good strategy and neither is the inability to respond when there are emergencies or high demand – thus some inventory is usually needed and inventory turnover can be high but not too high.

Key Takeaways

Too low of inventory turnover may indicate excess inventory that is not what customers want and is costing lots of money to store and take care of

Too high of inventory turnover may indicate shortages and inability to respond to customer demands in a timely way

The higher the inventory turnover, the more liquid (turning inventory into sales that can be turned into cash) the company is

Real World Example

Calculating inventory turnover using financial statements from Lowe's, Inc.

▯ [Lowe's inventory.pdf](#)

Lowe's on average would have their inventory for $365 / 4.1 = 89$ days. While most inventory at Lowe's is not perishable if kept too long, Lowe's is very much interested in having the correct items on hand for do-it-yourself homeowners and professional contractors. Inventory that sits too long could become obsolete as new models and technology comes out.

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