

## 5.5: Track changes in revenues and expenses.

### Learning Objectives

After completing this section, students will be able to explain the revenue recognition process and how expenses are incurred in four ways:

1. Matching with revenues
2. Use of resources that have only current benefit
3. Passing of time or use of an asset
4. Reduction in the usefulness of assets

*Question: How do accountants know when and how much to record as revenue for a company?*

No question is more critical to the financial success of a business and no question has caused more discussion in the accounting profession than how much revenue should be recorded on the income statement of that business. Listed first on the income statement it is a key metric that is looked at by investors and others to make decisions regarding the company. The process by which some companies earn revenue is complex while other companies have a very simple process. Accountants for years have discussed rules that would help all businesses small and large, simple and complex be able to use the same guidelines to determine when and how much revenue should be recognized (listed on the income statement). The result is the revenue recognition model that the FASB adopted in 2014. This model has the following 5 steps in this order:

1. Identify the contract – the model is dependent on an agreement or contract between the seller and the customer. While it does not need to be in writing (although that helps), there does need to be agreement on both sides before any revenue can be considered earned. A business cannot just send out products to random people and claim that it has earned revenue by simply providing products. No agreement with customer then no revenue. It might be something else but it is not revenue.
2. Based on the contract/agreement in step 1, the business identifies the performance obligations in the agreement. Essentially what is required in the agreement with the customer. This could be simple like Walmart agrees to let you take ownership of a product in the store as you check out and pay for it. One product and thus a single performance obligation. But it could also be much more complicated like Ford selling you a car and a warranty (maybe two performance obligations) or IBM installing a major computer system including hardware, software programming, and ongoing support and updates (maybe three performance obligations). Related products and services may be considered one bundled performance obligation or several separate performance obligations. Accountants have to use judgement and refer to the customer agreement to make the determination. The more interrelated (cannot work separately) products and services are the more likely they are to be determined to be one instead of many performance obligations.
3. Based on the agreement, determine the transaction price – how much the customer is most likely to pay when all conditions of the contract are fulfilled. This includes estimating returns, discounts, rebates and other such adjustments at the time the services or goods are provided not later. So if Walmart has a long history of product returns that indicates that 5% of the products are returned then the most likely amount customers in general will pay will be 95% of the sales price. Thus the transaction price is 95% of sales. If a road building contractor is to receive a 10% bonus for completing a road construction project ahead of schedule and their history is that they are almost always able to complete early then the transaction price may be 110% of the contract price from the beginning.
4. Using the result of steps 2 and 3 we allocate the transaction price in step 3 to the performance obligations identified in step 2. Now when only one performance obligation was identified in step 2 then all of the transaction price is allocated to that obligation and we are done. However, if there is more than one performance obligation then we have to answer the question – How much of the transaction price is for each performance obligation? So if the transaction price is \$25,000 for a car with warranty and we decided that the car and warranty are separate performance obligations – how much of the 25,000 is for the car and how much for the warranty. The rules state that the best way to make this judgement is to look for stand alone prices (if you sell the two performance obligations separately – what is the individual prices). These standalone prices may come from our sales or the sales of competitors in the market.
5. Recognize the amount of the transaction price that is allocated to a performance obligation at the time when the performance obligation is met. This could come at a single point in time (transfer of ownership) or over time (little bit every month). Let's say that we had our car and warranty and allocated \$24,000 to the car and \$1,000 to the warranty. We would recognize \$24,000 at the point in time when ownership of the car transfers. The warranty would be earned over the length of the warranty (say 36 months) by dividing 1,000 by 36 and recognizing that amount as revenue each month.

Note that from an accounting equation point of view, if you receive cash from a customer and have not satisfied the model to recognize revenue, then the amount would increase current assets (cash) and increase unearned revenue (current liability). The current liability would be reduced and revenue increased when the performance obligations are met at a point in time or over time. If the revenue model has been satisfied and performance obligations have been completed but cash has not yet been received then revenue is increased and accounts receivable (current asset) is increased as well.

So you could say that there is only one way that revenue increases in the accounting equation and that is by satisfying the revenue recognition model shown above. The only way that revenue can be reduced is if we need to fix any of the estimates we made when we applied the model needs to be reduced. Changes in revenue go along with changes in accounts receivable or cash (current assets) or unearned revenue (current liability). Returns or rebates or other parts of the agreement that cause the seller to give to customer may result in an increase in a current liability as well.

An example using the accounting equation is as follows:

Pepsi sells syrup to Taco Bell for use in its drink machines located in its restaurants. The agreement includes the incentive that if Taco Bell reaches a certain level of purchases during the year that Pepsi will give Taco Bell a 2% rebate of all purchases for the year. Almost all of Pepsi's customers reach the level to get the rebate. So for Pepsi, we have an agreement (step 1), a single performance obligation (syrup – step 2) and the transaction price (98% step 3). Step 4 is easy with only one performance obligation and step 5 means when syrup is delivered Pepsi will record revenue for 98% of the invoice. So here is how a shipment of \$1,000,000 of syrup to Taco Bell on credit would show in the accounting equation for Pepsi:

ASSETS		=	LIABILITIES		+ EQUITY	STOCKHOLDERS	
CURRENT	LONG TERM		CURRENT	LONG-TERM	CAPITAL STOCK	RETAINED EARNINGS	
Accounts Receivable			Rebate Payable			Revenues	– Expenses
Increase 1,000,000			Increase \$20,000			Increase \$980,000	

Note that the total changes to assets and liabilities/equity are \$1,000,000 thus we are still in balance.

### Real World Example

See how Apple applies the revenue recognition model.



*Question: So in addition to revenues on the income statement, we have expenses. Where do expenses come from how do they fit into the accounting equation?*

A quick reminder that the definition of expenses we discussed earlier is costs incurred to generate revenue and provide a past or current benefit. This definition gives us clues to how expenses originate and how they will affect the accounting equation. Most of the expected transactions that lead to the recording of expenses have been covered already in our discussion of changes in assets and liabilities but our focus was on those changes. Now we will consider them emphasizing the change in expenses:

- When we sold inventory in our section about changes in assets, the inventory decreased and the expense cost of goods sold increased – this is an example of **matching** the expense (cost of the items) with the revenue (sales price of those items to customers). This could also be illustrated by recording the cost of employees working on a project that we charge a customer for. The cost of the employees time is the expense and it is matched in the same time period as the revenue earned by selling that project to a customer.
- Another illustration of expenses was also shown earlier when discussing changes in liabilities. The use of utilities like electricity were described (this cost was incurred to help us earn revenues but not in the direct way as we saw with cost of goods sold and matching) and because the electricity would not provide any future benefit then it is a **resource used** and increases the expenses and the current liability (not paid yet). The effect on expenses would be the same in an example of a used resource like rent if we paid the rent (reduce the current asset – cash) in the same accounting period as resource is used (increase expense). The increase in expense is not dependent on how it is paid for (cash in the same period – rent or liability to be paid for later – utilities). The expense is recorded in the time period it is used.
- Using up an asset because time has passed is another way that expenses are recognized or increased. This comes about when assets (both current and long-term) have a designated time period for their future benefit. As time passes, what was once a **future benefit becomes a current or past benefit**. So if we purchase an insurance policy that is going to last for 1 year, that is a future benefit and an asset. As one month goes by, then 1/12 of the benefit has become current or past and we would reflect that reduction in the asset and an increase in the expense. A piece of equipment that is getting used up/worn out over time is another example – the original asset is recorded at its cost and we reduce the asset and increase the expense as time goes by and the equipment is used up.
- The last place to look for expenses are when there is a change in the benefit of an asset not because of the passage of time but rather from something unexpected. This could come because inventory becomes obsolete because of a change in technology or damage to equipment from a leaking roof. These reductions in the asset also result in an increase in expenses.

ASSETS				=	LIABILITIES	+	STOCKHOLDERS EQUITY
CURRENT		LONG-TERM			CURRENT		RETAINED EARNINGS
Inventory	Prepaid Insurance	Equipment	Building			Revenues	– Expenses
	Decrease 500						Increase 500 Insurance Expense
Decrease 350							Increase 350 Cost of Goods Sold
		Decrease 4,000					Increase 4,000 Depreciation Expense

*Note that it may be easier to remember how expenses are shown on the accounting equation to put them as negative even though they are increases to the expenses. This keeps the equation in balance because an increase in expenses is actually a reduction or has a negative impact on retained earnings/stockholders equity. That negative impact is the same as the negative impact on the asset side of the accounting equation.*

The accounting equation shows the following impacts from transactions that result in expenses:

- One month of an insurance policy that cost \$6,000 for a year was used during the month

- Inventory declined in value below what it cost by \$350 due to an unexpected change in technology
- Equipment that cost \$40,000 and lasts for 10 years has been used for one year.

Note how similar these expenses are in the accounting equation – each is a reduction to the assets and an increase to expenses. Which assets and expenses are used and how much detail we use to describe these changes depends on the chart of accounts and the information needs of those looking at the financial information. If the event that reduces the usefulness of an asset is extraordinary like a flood or lightning strike we might even use the term loss instead of expense and move it to the bottom section of the income statement to highlight just how unusual the event was. In each case shown above, the **increase in expenses reduces retained earnings** and thus the decrease on the asset side keeps the equation in balance.

### Key Takeaway

The examples given of changes in revenues and expenses show that revenues and expenses almost always move in one direction – they increase. Unlike assets like inventory and liabilities like accounts payable that go up and down regularly, revenues and expenses are not going to go down except when an earlier revenue or expense amount is refunded or determined to have been too high in the first place. These instances are rare and unexpected.

### Check Yourself

Arturo Corp. has a team of engineers who produce intricate designs for renewable energy systems which designs are then sold to customers who use the designs to build the systems. When the design is sold and revenue recognized, Arturo then increases its expense called costs of revenues for the amount paid to the engineers for their work on the design. This is an example of which expense recognition option?

- A. Use of resources
- B. Passing of time
- C. Reduction of usefulness of an asset
- D. Direct matching with revenue

The answer is D. The cost of the labor by the engineers employed in creating the designs is used to increase expenses in the same time period as the revenue from the sale of the designs is increased.

Arturo Corp. has a leak in its office building due to a severe storm. This damages several computers and desks such that they need to be thrown out. For the accounting equation, Arturo would reflect this damage with which of the following?

- A. Increase in current liabilities
- B. Decrease in revenues
- C. Decrease in assets
- D. Increase in assets

The answer is C. When assets lose some of their usefulness whether over time or with a sudden event, the asset is reduced by the amount of the drop in usefulness. In this case, this would be the cost of the desks and computers that are thrown out. To balance the accounting equation, Arturo would also record this amount as an increase in expenses (or loss if very unusual) that would reduce retained earnings/stockholders equity.

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