# unit 1. Inventories

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2. **Aims and Objectives**

This unit aims at discussing the meaning, importance and effects of inventories. It also discusses the inventory systems and determining actual quantities in inventories. After studying this unit, you will be able to:

* explain the meaning of inventories
* describe the effect of inventory on the financial statements of the current period and the following period
* identify and describe the two principal inventory systems
* identify the procedures for determining the actual quantities in inventory.
	1. **Introduction**

In the last section of Principles of Accounting I, you have learned about the principles and practices of accounting for receivables – one of the current asset items in the balance sheet of a retail business. In this unit you will learn and discuss the concepts in accounting for inventories.

Inventories are asset items held for sale in the ordinary course of business or goods that will be used or consumed in the production of goods to be sold. They are mainly divided into two major:

* + Inventories of merchandising businesses
	+ Inventories of manufacturing businesses
1. Inventories of merchandising businesses are merchandise purchased for resale in the normal course of business. These types of inventories are called merchandise inventories.
2. Inventories of manufacturing businesses manufacturing businesses are businesses that produce physical output. They normally have three types of inventories. These are:
	* Raw material inventory
	* Work in process inventory
	* Finished goods inventory

1. ***Raw material inventory*** -is the cost assigned to goods and materials on hand but not yet placed into production. Raw materials include the wood to make a chair or other office furniture’s, the steel to make a car etc.

2. ***Work in process inventory*-** is the cost of raw material on which production has been started but not completed, plus the direct labor cost applied specifically to this material and allocated manufacturing overhead costs.

3. ***Finished goods inventory-*** is the cost identified with the completed but unsold units on hand at the end of each period.

In this unit only the determination of the inventory of merchandise purchased for resale commonly called ***merchandise inventory*** will be discussed.

**1.2 Importance of Inventories**

Merchandise purchased and sold is the most active elements in merchandising business, i.e. in wholesale and retail type of businesses. This is due to the following reasons:

1.The sale of merchandise is the principal source of revenue for them.

 2.The cost of merchandise sold is the largest deductions from sales.

 3.Inventories (ending inventories) are the largest of the current assets or those firms.

Because of the above reasons inventories, have effects on the current and the following period’s financial statements. If inventories are misstated (understated of overstated), the financial statements will be distorted.

**Check Your Progress Exercise -1**

1. List the four types of inventories

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2.Why do we consider inventories the most active elements merchandising businesses?

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**1.3 The Effects of inventories on current and following period’s financial statements.**

**1.3.1 Effect of ending inventory on current period’s financial statements**

Ending inventory is the cost of merchandise on hand at the end of accounting period. Let us see its effect on current period’s financial statements.

Income statement

* + - 1. ***Cost of goods (merchandise) sold =Beginning inventory + Net purchase – Ending inventory***

As you see, ending inventory is a deduction in calculation cost of merchandise sold. So, it has an indirect (negative) relationship to cost of merchandise sold, i.e. if ending inventory is understated, the cost of merchandise sold will be overstated, and if ending inventory is overstated, the cost of merchandise sold will be understated.

* + - 1. ***Gross Profit = Net sales – Cost of merchandise sold***

Here, the cost of merchandise sold had indirect relationship to gross profit. So, the effect of ending inventory on gross profit is the opposite of the effect on cost of merchandise sold. That is, if ending inventory is understated, the gross profit will be understated and if ending inventory is overstated, the gross profit will be overstated. This is a direct (positive) relationship.

***c. Operating income = Gross Profit – Operating Expenses***

Gross profit and operating income have direct relationships. Thus, the effect of ending inventory on net income is the same as its effect on gross profit, i.e. direct (positive) effect (relationship).

## Balance Sheet

1. ***Current assets*** - Ending inventory is part of current assets, even the largest. So, it has a direct (positive) relationship to current assets. If ending inventory balance is understated (overstated), the total current assets will be understated (overstated). Since current assets are part of total assets, ending inventory has direct relationship to total assets.
2. ***Liabilities***- No effect on liabilities. Inventory misstatement has no effect on liabilities.
3. ***Owners’ equity*** – The net income will be transferred to the owners’ equity at the end of accounting period. Closing income summary account does this. So, net income has direct relationship with owners’ equity at the end of accounting period. The effect-ending inventory on owners’ equity is the same as its effect on net income, i.e. if ending inventory is understated (Overstated), the owners’ equity will be understated (Overstated).

**1.3.2 Effects of beginning inventory on current period’s financial statements**

Beginning inventory is inventory balance that was left on hand in the previous period and transferred to the current period. Its effect is summarized below:

**Income Statement**

1. ***Cost of merchandise sold= Beginning inventory + Net Purchases – Ending inventory***

As you see, beginning inventory is an addition in determining cost of goods sold. It has direct effect on cost of merchandise sold. That is, if the beginning inventory is understated (Overstated), the cost of merchandise sold will be understated (Overstated)

1. ***Gross Profit= Net Sales – Cost of merchandise sold***

The effect of beginning inventory on gross profit is the opposite of the effect on cost of merchandise sold, i.e. indirect (negative) relationship. If the beginning inventory is understated, the gross profit will be overstated and if it is overstated, the gross profit will be understated.

1. ***Net income = Gross Profit – Operating expenses***

The effect of beginning inventory on net income is the same as its effect on gross profit.

### Balance sheet

1. ***Current assets*** – The inventory included in current assets is the ending inventory. So, beginning inventory has no effect on current assets.
2. ***Owners’ equity***- If the effect comes from the previous year, the beginning inventory will not have an effect on ending owners’ equity since the positive or negative effect of the previous year will be netted off by the negative or positive effect of the current year. But if the error is made in the current period, it will have indirect effect on ending owners’ equity.

**1.3.3 Effect of ending inventory on the following period’s financial statements**

The ending inventory of the current period will become the beginning inventory for the following period. So, it will have the same effect as beginning inventory of the current period. Let us summarize it.

##### Income statement of the following period

Cost of merchandise sold direct relationship

Gross profit indirect relationship

Net income indirect relationship

##### Balance sheet of the following period

The ending inventory of the current period will not have an effect on the following period’s balance sheet items.

***Illustration - 1***

The following amounts were reported in Belay Company’s financial statements for three consecutive fiscal year ended December 31.

 ***2000 2001 2002***

a) Cost of merchandise sold Br. 130,000 Br. 154,000 Br. 140,000

b) Net income 40,000 50,000 42,000

c) Total Current assets 210,000 230,000 200,000

d) Owner’s equity 234,000 260,000 224,000

In making the physical counts of inventory, the following errors were made:

 Inventory on December 31,2000, under stated by Br. 12,000

 Inventory on December 31, 2001, overstated by Br. 6000

***Required:***

Determine the correct amount of the items listed above.

***Solution***

 ***2000 2001 2002***

1. *Cost of merchandise sold*:

 Reported Br. 130,000 Br. 154,000 Br. 140,000

 Adjustment of

 2000 error (12,000) 12,000 \_

 2001 error \_ 6,000 (6,000)

 Corrected Br. 118,000 Br. 172,000 Br. 136,000

1. *Net income:*

 Reported Br. 40,000 Br. 50,000 Br. 42,000

 Adjustment of

 2000 error 12,000 (12,000) \_

 2001 error \_ (6,000) 6,000

 Corrected Br. 52,000 Br. 32,000 Br. 48,000

1. *Total current assets:*

Reported Br. 210,000 Br. 230,000 Br. 200,000

Adjustment of

 2000 error 12,000 \_ \_

 2001 error \_ (6,000) \_

 Corrected Br. 222,000 Br. 224,000 Br. 200,000

1. *Owner’s equity:*

 Reported Br. 234,000 Br. 260,000 Br. 224,000

 Adjustment of

 2000 error 12,000 \_ \_

 2001 error \_ (6,000) \_

 Corrected Br. 246,000 Br. 254,000 Br. 224,000

Check Your Progress Exercise -2

1. Why does an understated ending inventory understate net income for the period by the same amount?

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1. Why does an error in ending inventory affect two accounting periods?

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**1.4 Inventory Systems: periodic Vs perpetual**

There are two principal systems of inventory accounting periodic and perpetual.

**1.4.1 Periodic inventory system**

Under this system there is no continuous record of merchandise inventory account. The inventory balance remains the same through out the accounting period, i.e. the beginning inventory balance. This is because when goods are purchased, they are debited to the purchases account rather than merchandise inventory account.

The revenue from sales is recorded each time a sale is made. No entry is made for the cost of goods sold. So, physical inventory must be taken periodically to determine the cost of inventory on hand and goods sold.

The periodic inventory system is less costly to maintain than the perpetual inventory system, but it gives management less information about the current status of merchandise.

This system is often used by retail enterprises that sell many kinds of low unit cost merchandise such as groceries, drugstores, hardware etc.

The journal entries to be prepared are:

1. *At the time of purchase of merchandise:*

Purchases XX at cost

 Accounts payable or cash XX

1. *At the time of sale of merchandise:*

Accounts receivable or cash XX at retail price

 Sales XX

1. *To record purchase returns and allowance:*

Accounts payable or cash XX

 Purchase returns and allowance XX

1. *To record adjusting entry or closing entry for merchandise inventory:*

Income Summary XX

 Merchandise inventory (beginning) XX

*To close beginning inventory*

 Merchandise inventory (ending) XX

 Income summary XX

  *To record ending inventory*

**1.4.2 Perpetual inventory system**

Under this system the accounting record continuously disclose the amount of inventory. So, the inventory balance will not remain the same in the accounting period. All increases are debited to merchandise inventory account and all decreases are credited to the same account.

There are no purchases and purchase returns and allowances accounts in this system. At the time of sale, the cost of goods sold is recorded in addition to Journal entry for the sale. So, we can determine the cost of inventory as well as goods sold from the accounting record. No need of physical counting to determine their costs.

Companies that sell items of high unit value, such as appliances or automobiles, tended to use the perpetual inventory system.

Given the number and diversity of items contained in the merchandise inventory of most businesses, the perpetual inventory system is usually more effective for keeping track of quantities and ensuring optimal customer service. Management must choose the system or combination of systems that is best for achieving the company's goal.

Journal entries to be prepared are:

1. *At the time of purchase of merchandise*

 Merchandise inventory XX at cost

 Accounts payable/cash XX

 *To record cost of goods sold*

1. *At the time of sale of merchandise*

 Accounts receivable or cash XX at retail price

 Sales XX

 *To record cost of goods sold*

 To record the sales

 Cost of goods sold XX

 Merchandise inventory XX at cost

 *To record the cost of merchandise sold*

1. *To record purchase returns and allowances*

 Accounts payable or cash XX

 Merchandise inventory XX

1. No adjusting entry or closing entry for merchandise inventory is needed at the end of each accounting period.

***Illustration – 2***

In its beginning inventory on Jan 1, 2002, NINI Company had 120 units of merchandise that cost Br. 8 Per unit. The following transactions were completed during 2002.

February 5 Purchased on credit 150 units of merchandise at Br. 10 per unit.

1. Returned 20 detective units from February 5 purchases to the supplier.

June 15 Purchased for cash 230 units of merchandise at Br 9 per unit.

September 6 Sold 220 units of merchandise for cash at a price of Br. 15 per unit. These

 goods are: 120 units from the beginning inventory and 100 units for February

 Purchases.

December 31 260 units are left on hand, 30 units from February 5 purchases.

***Required:*** Prepare general journal entries for NINI Company to record the above transactions and adjusting or closing entry for merchandise inventory on December 31,

1. Periodic inventory system
2. Perpetual inventory system

***Solution***

**a)** February 5 Purchases (150 x Br.10) 1,500

 Account payable 1,500

 9 Accounts payable (20 x Br. 10) 200

 Purchase returns and allowances 200

 June 15 Purchases (230 x Br. 9) 2,070

 Cash 2,070

 September 6 Cash (220 x Br. 15) 3,300

 Sales 3,300

December 31 To record or close the merchandise inventory account

 Income summary (120 x Br. 8) 960

 Merchandise inventory (beginning) 960

 \_To close the beginning inventory

 Merchandise inventor (ending) 2,370

 Income summary [(30 x Br. 10) + (230 x Br. 9)] 2,370

 \_ To record the ending merchandise inventory

**b)** February 5 Merchandise inventory 1,500

 Accounts payable 1,500

 9 Accounts payable 200

 Merchandise inventory 200

 June 15 Merchandise inventory 2,070

 Cash 2,070

September 6 i) To record the sales

 Cash 3,300

 Sales 3,300

 ii) To record cost of merchandise sold

 = (120 x Br. 8) + (100 x Br. 10)

 = Br. 960 + Br. 1,000 = Br. 1,960

 Cost of merchandise sold 1,960

 Merchandise inventory 1,960

December 31 No entry is needed to record or close merchandise inventory account.

**1.5 Determining actual quantities in the inventory**

The physical count of inventory is needed under both inventory systems. Under periodic inventory system, it is needed to determine the cost of inventory and goods sold.

The inventory account under a perpetual inventory systems is always up to date. Yet events can occur where the inventory account balance is different from inventory on hand. such events include theft,, loss, damage, and errors. The physical count (some times called “taking an inventory”) is used to adjust the inventory ac count balance to the actual inventory on hand.

We determine a birr (dollar) amount for physical count of inventory on hand at the end of a period by:

1. Counting the units of each product on hand
2. Multiplying the count for each product by its cost per unit
3. Adding the cost for all products

At the time of taking an inventory, all the merchandise owned by the business on the inventory date, and only such merchandise, should be included in the inventory. The merchandise owned by the business may not necessarily be in the warehouse. They may be in transit.

The legal title to the merchandise in transit on the inventory date is known by examining purchase and sales invoices of the last few days of the current accounting period and the first few days of the following accounting period. This legal title depends on shipping terms (agreements).

 There are two main types of shipping terms. FOB shipping point and FOB destination

1. ***FOB shipping poin****t*- the ownership title passes too the buyer when the goods are shipped (when the goods are loaded on the means of transportation, i.e. at the seller’s point). The purchaser is responsible for freight charges.
2. ***FOB destination*** – the title passes to the buyer when the goods arrive at their destination, i.e. at the buyer’s point.

So, in general, goods in transit purchased on FOB shipping point terms are included in the inventories of the buyer and excluded from the inventories of the buyer and excluded from the inventories of the seller. And goods in transit purchased on FOB destination terms are included in the inventories of the seller and excluded from the inventories of the buyer.

There are also a problem with goods on consignment at the time of taking and inventory. Goods on consignment to another party (agent) called the consignee. A Consignee is to sell the goods for the owner usually on commission are included in the consignor’s inventories and excluded from the consignee’s inventories.

**Check Your Progress Exercise -3**

ABC Company, found in Addis, purchased goods from XYZ Company, found in Mekele, on FOB shipping point terms.

1.Who will cover transportation charges? Why?

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2. Assume these goods are in transit at the end of accounting period. In which company’s inventories do we include these goods?

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**1.6 Summary**

Inventories are goods held for sale in the ordinary course of business or goods that will be used or consumed in the production of goods to be sold. They are included in the current asset section of the balance sheet.

Goods purchased and sold are the most active elements in the merchandising businesses due to many reasons. Because of this reason, they have significant effects on the current and the following period’s financial statements.

There are two principal systems of inventory accounting periodic and perpetual. In the periodic system, only the revenue from sales is recorded at the time the sale is made no entry is made until the end of the period to record the merchandise inventory and the cost of goods sold. In the perpetual inventory system, sales and cost of merchandise sold are recorded at the time each sale is made. In this way, the accounting records continuously disclose the amount of inventory on hand.

The first step in “taking an inventory” is to count the merchandise on hand. To this count is added merchandise in transit that is owned. Therefore, it is normally necessary to examine purchases and sales invoices of the last few days of the accounting period and the first few days of the following period to determine who has legal title to merchandise in transit on the inventory date.

**1.7 Answers to check your progress**

***Check Your Progress Exercise 1***

1. - Merchandise inventory

- Raw material inventory

- Work in process inventory

- Finished goods inventory

2. - It is due to many reasons including the following

- The sale of merchandise is the main source of revenue

- The major deduction from sales is cost of merchandise sold

- Inventories are the largest of the current assets.

***Check Your Progress Exercise 2***

1. Ending inventory has direct effect on net income of the current period. So, if ending inventory is understated, the net income will be understated by the same amount. In other way round, if ending inventory is understated, cost of goods sold will be overstated, resulting in an understatement of gross margin and net income.
2. Because the ending inventory for the current period will become beginning inventory for the following period.

***Check Your Progress Exercise 3***

1. The buyer (ABC Company). The title to the goods is passed to ABC Company at the seller’s point. So, while in transit, they are the properties of ABC company.
2. In ABC Company

**1.8 Model examination questions**

**A. Short answer questions**

1. Define inventories
2. From the two inventory systems, which method is better considering internal controls?
3. If ending inventory is misstated, it will not have an effect in the owners’ equity of the following period. Why?

**B. Workout questions**

2. Abera Company reported annual net income as follows

* 1. Br. 151,400
	2. 152,400
	3. 128,120

Analysis of its inventories shows that the following incorrect inventory amounts were used (the correct amounts are also shown)

 ***Incorrect inventory Correct inventory***

 ***Amount Amount***

December 31,2001 Br. 24,000 Br. 28,000

December 31,2001 27,000 23,000

Compute the annual net income for each of the three years assuming the correct inventories had been used.

3. Condensed income statement for FANTU Supermarket for two years are shown below:

**19 x 4** **19 x 3**

Sales (net) Br. 126,000 Br. 105,000

Cost of Goods Sold 75,000 54,000

Gross Margin Br. 51,000 Br. 51,000

Operating Expenses 30,000 30,000

Net Income Br. 21,000 Br. 21,000

After the end of 19 x 4 it was discovered that an error had resulted in a Br. 9000 understatement of 19 x 3 ending inventory.

***Required:*** Compute

* 1. the corrected net income for 19 x 3
	2. the corrected cost of goods sold for 19 x 4
	3. the corrected net income for 19 x 4
	4. what effect will the error have on net income and ending owner's equity for 19 x 5?

4. MAMO Co. engaged in the following transactions in Megabit 1995:

Megabit 1- Sold merchandise to Belew Co. on credit, terms n/30, FOB shipping point, Br. 2100 (cost br. 1260)

3 – Purchased merchandise on credit from Semi Co., terms n/30, FOB shipping point, Br. 3800

5 – Paid Express Transit for freight charges on merchandise received, Br. 290

6 – Purchased store supplies on credit from Hadiya Trading, terms n/20, Br. 636

8 – Purchase merchandise on credit from Semi Co., terms n/30, FOB shipping point, Br. 3600, which includes Br. 200 freight costs paid by Semi Co.

12 – Returned some of the merchandise received on Megabit 3 for credit, Br. 600

Refer to the following exercise in order to answer questions a – f.

The following information is related to the business for three consecutive fiscal years.

 **19 x 3 19 x 2 19 x 1**

 Net sales Br. 430,000 Br. 425,000 Br. 400,000

 Cost of goods sold 240,000 243,000 240,000

 Gross Profit 189,200 182,000 160,000

 Operating Expenses 96,800 92,400 86,500

Assume that you have found everything in order except for the following:

1. The ending inventory was understated by Br. 15,000 and Br. 3000 at the end of 19 x 1 and 19 x 2 respectively.
2. The ending inventory was overstated by Br. 20,200 at the end of 19 x 3

The business enterprise uses the periodic inventory system and the above errors had not been brought to attention prior to your investigation.

* 1. What was the correct amount of cost of goods sold for 19 x 1?
	2. What was the correct amount of cost of goods sold for 19 x 2?
	3. What was the correct amount of cost of goods sold for 19 x 3?
	4. What was the correct amount of Net income for 19 x 2?
	5. What was the correct amount of Net income for 19 x 3?
	6. Compute the correct gross profit percentage for 19 x 1?

Megabit 15 – Sold merchandise on credit to MERON Trading, terms n/30, FOB shipping point, Br. 1200 (cost Br. 720)

 16 – Returned some of the store supplies purchased in Megabit 6 for credit, Br. 200

 17 – Sold merchandise for cash Br. 1000 (cost, Br. 600)

 18 – Accepted for full credit a return from Belew Company and returned merchandised to inventory, Br. 200 (Cost Br. 120)

24 – Paid Semi Company for purchase of Megabit 3 loss return of Megabit 12

25 – Received full payment from Belew Company for his Megabit 1 purchase less the return on Megabit 18

***Required:***

1. Prepare general journal entries to record the transactions, assuming use of the periodic inventory system.
2. Prepare general journal entries to record the transactions, assuming use of the periodic inventory system.
3. Compute the cost of goods sold and net sales during Megabit.
4. Compute the Gross Profit on sale for the month of Megabit.

**1.9 Glossary**

1. **Cost of merchandise sold**- The cost of the merchandise purchased by a merchandise enterprise and sold
2. **Current asset**- Cash or another asset that may reasonably be expected to be realized in cash or sold or consumed, usually within a year or less, through the normal operations of a business.
3. **Finished goods inventory**- The cost of finished products on hand that have not been sold
4. **FOB destination**- Terms of agreement between buyer and seller where by ownership passes when merchandise is received by the buyer, and the seller absorbs the transportation costs.
5. **FOB shipping, point**-Terms of agreement between buyer and seller, whereby ownership passes when merchandise is delivered to the shipper, and the buyer absorbs the transportation costs.
6. **Gross profit**- The excess of net revenue from sales over the cost of merchandise sold.
7. **Net income**- The final figure in the income statement when revenues exceed expenses.
8. **Purchases returns and allowances**- Reduction in purchase, resulting from merchandise returned to the vendor or from the vendor’s reduction in the original purchase price; a contra account to purchases.
9. **Work in process inventory**- The direct materials costs, the direct labor costs, and the factory overhead costs, which have entered into the manufacturing process, but are associated with products that have not been finished.