

**ACCT 101**  
**LECTURE NOTES – CH. 5:**  
**Inventories and Cost of Sales**  
**Prof. Johnson**

You learned in Chapter 4 that merchandising companies purchase goods for resale, and that those goods are called merchandise inventory. In chapter 5, we will focus specifically on the merchandise inventory account by learning about different methods that GAAP allows companies to use to account for their inventories. As you study these methods, keep in mind that your primary goal is to match costs with sales, which will determine Cost of Goods Sold and Ending Inventory. We then explore how companies value their inventories to comply with the conservatism constraint, and understand the financial implications of mistakes in inventory reporting. We begin with a quick discussion on inventory basics.

**INVENTORY BASICS**

**Which items should be included in inventory?**

Merchandise inventory includes all goods a company owns and holds for sale. Pay attention to the following special circumstances involving inventory that is in transit, on consignment, or damaged:

**Goods in Transit:** When goods are in transit from seller to buyer (on a truck, ship rail, etc.), the shipping terms we learned last chapter will determine whose books the inventory should be a part of. FOB shipping point means the goods are in the buyer's inventory when shipped. FOB destination means the goods are in the buyer's inventory when they arrive at the destination.

**Goods on Consignment:** This refers to goods that are shipped by the owner (consignor) to another party (consignee). The consignee sells the goods (collects a portion of the sale as a fee) for the owner. The consignor continues to own the goods and would report the goods in the consignor's inventory. Consignment stores work under this arrangement.

**Goods Damaged or Obsolete:** Goods that are damaged or obsolete (and deteriorated) are not counted in inventory if they cannot be sold. If these goods can be sold at a reduced price, they're included in inventory at their net realizable value which is sales price minus the cost of making the sale.

**What costs are included in inventory?**

The cost of an inventory item includes its invoice cost minus any discount, plus any added or incidental costs necessary to bring the item to a salable condition and location. This may include import duties, freights, storage, and insurance. To satisfy the matching principle, the aforementioned costs are considered inventory (balance sheet), until they are sold, in which case it is considered cost of goods sold (income statement).

Here is a guided example on determining inventory costs:

<http://www.viddler.com/embed/120707d7/?f=1&autoplay=0&player=full&disablebranding=0%22%20width=%22694%22%20height=%22520%22%20frameborder=%220%22%3E%3C/iframe%3E>

### **What is the importance of a physical count, and what steps are taken to ensure the reliability of that count?**

The perpetual inventory system allows managers to gauge inventory levels and determine COGS without actually having to physically count inventory (called “taking an inventory”), but events such as theft, loss, damage and errors can cause actual inventory on hand to differ from calculated levels. Thus, nearly all companies take an inventory at least once a year; the physical count is used to adjust the inventory account balance to the actual inventory on hand.

Internal controls refer to policies and procedures managers use to protect company assets, promote efficient operations, uphold company policies, and ensure reliable accounting. We touch more on this in chapter 6, but with regards to inventory, the following internal control procedures are followed:

- a. Prenumbered inventory tickets; each ticket must be accounted for.
- b. Those responsible for inventory do not count inventory, separation of duties.
- c. Counters confirm the validity of inventory, including its existence, amount, and quality.
- d. A second count is taken by a different counter.
- e. A manager confirms that all inventories are ticketed once and only once, which avoids double counting an item in stock.

### **INVENTORY COSTING UNDER A PERPETUAL SYSTEM**

The major goal of inventory costing is to properly match costs with sales. The matching principle is used to decide how much of the cost of goods available for sale is debited to expense (COGS on the income statement) and how much is carried forward as an asset (Merchandise Inventory on the balance sheet). Four methods are commonly used to assign costs to COGS and inventory, and each method assumes a specific pattern for how costs flow through inventory. Physical flow and cost flow do not need to be the same.

- a. First-in, first-out (FIFO) – assumes costs flow in the order incurred. Assumes the oldest units are sold first; the newest units are still in stock.
- b. Last-in, last-out (LIFO) - assumes costs flow in the reverse order occurred. Assumes the newest units are sold first; the oldest units are still in stock.

- c. Weighted average—assumes costs flow in an average of the costs available. As sales occur, weighted average computes the average cost per unit of inventory at time of sale and charges this cost per unit sold to cost of goods sold leaving average cost per unit on hand in inventory
- d. Specific identification—each item can be identified with a specific purchase and invoice. As sales occur, cost of goods sold is debited for the actual or invoice cost, leaving actual costs of inventory on hand in the inventory account.

Here is a guided example that demonstrates each of these four costing methods using the same data set in each case:

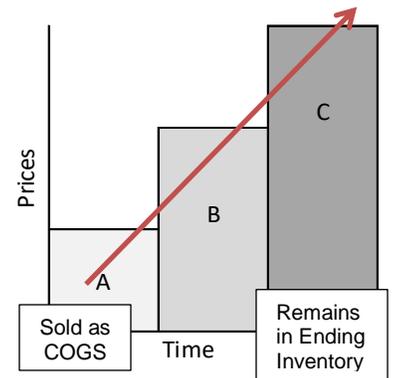
<http://www.viddler.com/embed/c43c85b4/?f=1&autoplay=0&player=full&disablebranding=0%22%20width=%22694%22%20height=%22520%22%20frameborder=%220%22%3E%3C/iframe%3E>

### What are the financial statement effects of the four costing methods?

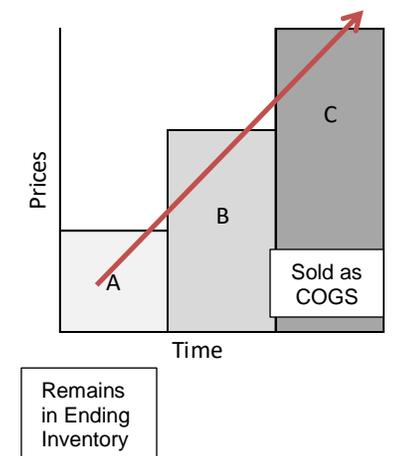
When purchase prices do not change, each inventory costing method assigns the same amounts to inventory and to COGS. However, when purchase prices change by either rising or declining, the methods assign different cost and ending inventory amounts.

- a. Rising price environment:

FIFO: assigns the lowest amount to COGS resulting in the highest gross profit and highest net income. Advantage: inventory on the balance sheet approximates its current replacement cost; it also mimics the flow of goods for most businesses.



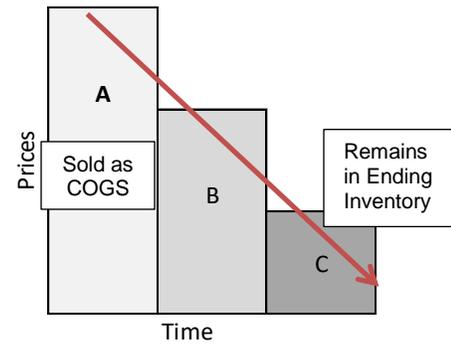
LIFO assigns the highest amount to COGS resulting in lowest gross profit and lowest net income. Advantage: better match of current costs with revenues in computing gross margin.



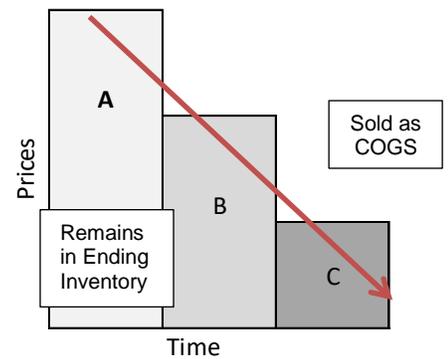
b. Declining price environment:

FIFO: assigns the lowest amount to COGS resulting in the highest gross profit and highest net income.

Advantage: inventory on the balance sheet approximates its current replacement cost; it also mimics the flow of goods for most businesses.



LIFO assigns the highest amount to COGS resulting in lowest gross profit and lowest net income. Advantage: better match of current costs with revenues in computing gross margin.



c. Weighted average: in both rising and declining price environments, yields results between FIFO and LIFO which smooths out price changes.

d. Specific identification: in both rising and declining price environments, yields results that depend on which units are sold, which exactly matches costs and revenues.

- e. The following chart summarizes the effects on the financial statements of using FIFO and LIFO in both rising and declining price environments.

When purchase costs are:		Rising		Rising	
		LIFO	Reason	FIFO	Reason
Income Statement					
	COGS	higher	last units sold are more expensive	lower	first units sold are cheaper
	Income before taxes	lower	higher COGS, lower income	higher	lower COGS means higher income
	Income tax provision	lower	lower income, lower tax liability	higher	higher income means higher tax liability
Balance Sheet					
	Merchandise inventory	lower	expensive units have been sold	higher	more expensive units remain
Statement of Retained Earnings					
	Retained Earnings	lower	lower income, lower earnings	higher	higher income, higher earnings

When purchase costs are:		Declining		Declining	
		LIFO	Reason	FIFO	Reason
Income Statement					
	COGS	lower	last units sold are cheaper	higher	more expensive (older) units sold first
	Income before taxes	higher	lower COGS, higher income	lower	higher COGS, lower income
	Income tax provision	higher	higher income, higher tax liability	lower	lower income implies lower tax liability
Balance Sheet					
	Merchandise inventory	higher	more expensive items remain	lower	cheaper (newer) items remain
Statement of Retained Earnings					
	Retained Earnings	higher	higher income, higher earnings	lower	lower income, lower earnings

### What are the tax effects of Costing Methods?

Since inventory costs affect net income, costing methods for inventory have potential tax effects. Keep in mind that we are studying financial accounting, and that its aim is to generate useful information about the company through financial statements. The main aim of tax accounting is to help companies generate taxable income to determine tax expense. With these two goals in mind, companies often use different costing methods for financial reporting vs tax reporting. For example, it may use FIFO for financial reporting because it better represents business performance, and use LIFO for tax reporting because it creates lower tax expense.

The only exception is when LIFO is used for tax reporting; in this case the IRS also requires LIFO to be used for financial reporting.

### Why is Consistency in costing methods important?

Consistency enables comparability. The consistency concept requires use of same accounting methods period after period so the financial statements are comparable across periods. Changing methods is acceptable if it will improve financial reporting. The full-disclosure principle requires that statement notes report the type of change, its justification, and its effect on income. Different methods may be consistently applied to different categories of inventory.

## **VALUING INVENTORY AT LCM AND THE EFFECTS OF INVENTORY ERRORS**

### **What is the Lower of Cost or Market (LCM)?**

Accounting principles require that inventory be reported on the balance sheet at the lower of cost or market (LCM). Market is the current replacement cost of purchasing the same inventory items in the usual manner. When the recorded cost of inventory is higher than the replacement cost, a loss is recognized on the income statement. When the recorded cost is lower, no adjustment is made. Lower of cost or market pricing is applied to either: 1) each individual item separately, 2) major categories of items, or 3) to the entire inventory.

Accounting rules require that inventory be adjusted to market when market is less than cost, but inventory cannot be written up to market when market exceeds cost. The conservatism constraint prescribes the use of the less optimistic amount when more than one estimate of the amount to be received or paid exists and these estimates are about equally likely.

Here is a guided example on Lower of Cost or Market:

<http://www.viddler.com/embed/d1d3d907/?f=1&autoplay=0&player=full&disablebranding=0%22%20width=%22694%22%20height=%22520%22%20frameborder=%220%22%3E%3C/i%3E>

### **Financial Statement Effects of Inventory Errors**

The following formula will help you understand the financial statement implications of inventory errors:

**Cost of Goods Sold = Beginning Inventory + Purchases – Ending Inventory**

Based on above, we see how an inventory error (where either beginning or ending inventory is over or under-stated), can affect both the income statement and balance sheet by distorting COGS, which affects gross profit, net income, current assets, and equity. It also causes misstatements in the next period's financial statements because ending inventory of one period is the beginning inventory of the next.

Income Statement effects:

- a. If ending inventory is understated, COGS is overstated, net income is understated.
- b. If beginning inventory is understated, COGS is understated, net income is overstated.
- c. If ending inventory is overstated, COGS is understated, net income is overstated.
- d. If beginning inventory is overstated, COGS is overstated, net income is understated.

Balance Sheet effects:

- a. If ending inventory is understated, assets and equity are understated.
- b. If ending inventory is overstated, assets and equity are overstated.
- c. Errors in beginning inventory do not yield misstatements on the end-of-period balance sheet, but they do affect the current period's income statement (see above).

## **GROSS PROFIT METHOD OF ESTIMATING ENDING INVENTORY (FROM CH. 5 APPENDIX)**

The gross profit method estimates the cost of ending inventory when circumstances prohibit a physical count. For example, a company may want to know ending inventory for insurance claims when inventory is destroyed, lost or stolen. Steps below:

- a. Determine the normal gross profit percentage from recent periods.
- b. Find the COGS percentage (100% less gross profit percentage).
- c. Multiply actual sales by the cost of goods sold percentage to get estimated cost of goods sold.
- d. Subtract estimated cost of goods sold from the actual amount of cost of goods available for sale (beginning inventory + purchases) to get estimated ending inventory at cost.

Here is a guided example showing the gross profit method:

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## **RATIO ANALYSIS**

**Inventory turnover:** used to measure how quickly a company sells its inventory and can affect a merchandiser's ability to pay its short-term obligations. Formula below, the answer reflects the *number of times* a company's average inventory was sold during an accounting period.

Cost of Goods Sold

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Average Inventory

**Days Sales in Inventory:** used to measure how much inventory is available in terms of the *number of days*’ sales. Inventory management is a major emphasis for most merchandisers; they must both plan and control inventory purchases and sales. Formula below:

$$\frac{\text{Ending Inventory}}{\text{-----} \times 365} \\ \text{COGS}$$

Please review the guided example below which shows how to calculate both the aforementioned ratios:

<http://www.viddler.com/embed/6092d8d3/?f=1&autoplay=0&player=full&disablebranding=0%22%20width=%22694%22%20height=%22520%22%20frameborder=%220%22%3E%3C/iframe%3E>