CHAPTER 8

VALUATION OF INVENTORIES: A COST-BASIS APPROACH

Intermediate Accounting
13th Edition
Kieso, Weygandt, and Warfield
Inventory Cost Flow

Perpetual System
1. Purchases of merchandise are debited to Inventory.
2. Freight-in is debited to Inventory. Purchase returns and allowances and purchase discounts are credited to Inventory.
3. Cost of goods sold is debited and Inventory is credited for each sale.
4. Subsidiary records show quantity and cost of each type of inventory on hand.

The perpetual inventory system provides a continuous record of Inventory and Cost of Goods Sold.

Periodic System
1. Purchases of merchandise are debited to Purchases.
2. Ending Inventory determined by physical count.
3. Calculation of Cost of Goods Sold:

   Beginning inventory $100,000
   Purchases, net 800,000
   Goods available for sale 900,000
   Ending inventory 125,000
   Cost of goods sold $775,000

Illustration: Assume that at the end of the reporting period, the perpetual inventory account reported an inventory balance of $4,000. However, a physical count indicates inventory of $3,800 is actually on hand. The entry to record the necessary write-down is as follows.

   Inventory Over and Short 200
   Inventory 200

Note: Inventory Over and Short adjusts Cost of Goods Sold. In practice, companies sometimes report Inventory Over and Short in the "Other revenues and gains" or "Other expenses and losses" section of the income statement.

Inventory Issues

Inventory Control
All companies need periodic verification of the inventory records by actual count, weight, or measurement, with the counts compared with the detailed inventory records.

Companies should take the physical inventory near the end of their fiscal year, to properly report inventory quantities in their annual accounting reports.

Physical Goods Included in Inventory

A company should record purchases when it obtains legal title to the goods.

Illustration: Fesmire Company had the following transactions during the current year.

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
<th>Price per Unit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning inventory</td>
<td>100</td>
<td>$6</td>
<td>$600</td>
</tr>
<tr>
<td>Purchases</td>
<td>900</td>
<td>$5.40</td>
<td>$4,860</td>
</tr>
<tr>
<td>Sales</td>
<td>600</td>
<td>$7.20</td>
<td>$4,320</td>
</tr>
<tr>
<td>Ending inventory</td>
<td>400</td>
<td>$2.40</td>
<td>$960</td>
</tr>
</tbody>
</table>

Record these transactions using the Perpetual and Periodic systems.

Illustration: Assume that at the end of the reporting period, the perpetual inventory account reported an inventory balance of $4,000. However, a physical count indicates inventory of $3,800 is actually on hand. The entry to record the necessary write-down is as follows.

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Basic Issues in Inventory Valuation

Valuation requires determining:
- The physical goods (goods on hand, goods in transit, consigned goods, special sales agreements).
- The costs to include (product vs. period costs).
- The cost flow assumption (FIFO, LIFO, Average cost, Specific Identification, Retail, etc.).

Basic Issues in Inventory Valuation

Valuation
Companies must allocate the cost of all the goods available for sale (or use) between the goods that were sold or used and those that are still on hand.

Illustration 8-5

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning inventory, Jan. 1</td>
<td>$100,000</td>
</tr>
<tr>
<td>Cost of goods acquired or produced during the year</td>
<td>$400,000</td>
</tr>
<tr>
<td>Total cost of goods available for sale</td>
<td>$500,000</td>
</tr>
<tr>
<td>Ending, Dec. 31</td>
<td>$200,000</td>
</tr>
<tr>
<td>Cost of goods sold during the year</td>
<td>$100,000</td>
</tr>
</tbody>
</table>
Effect of Inventory Errors

Illustration 8-7

Jay Weiseman Corp. understates its ending inventory by $10,000 in 2009; all other items are correctly stated.

Illustration 8-8

The understatement does not affect cost of goods sold and net income because the errors offset one another.

Chapter 8

LO 3 Identify the effects of inventory errors on the financial statements.

Costs Included in Inventory

- Product Costs - costs directly connected with bringing the goods to the buyer's place of business and converting such goods to a salable condition.
- Period Costs - generally selling, general, and administrative expenses.
- Purchase Discounts - Gross vs. Net Method

Cost Flow Assumptions

"First-In-First-Out (FIFO)"

Example

Young & Crazy Company makes the following purchases:
1. One item on 2/2/11 for $10
2. One item on 2/15/11 for $15
3. One item on 2/25/11 for $20

Young & Crazy Company sells one item on 2/28/11 for $90. What would be the balance of ending inventory and cost of goods sold for the month ended Feb. 2011, assuming the company used the FIFO, LIFO, Average Cost, and Specific Identification cost flow assumptions? Assume a tax rate of 30%.

Which Cost Flow Assumption to Adopt?

FIFO

LIFO

Average Cost

Specific Identification

Answer: Method adopted should be one that most clearly reflects periodic income.

Cost Flow Assumptions

"First-In-First-Out (FIFO)"

Chapter 8

LO 4 Understand the items to include as inventory cost.

Cost Flow Assumptions

"First-In-First-Out (FIFO)"

Chapter 8

LO 5 Describe and compare the cost flow assumptions used to account for inventories.
**Average Cost**

**Weighted-Average**

<table>
<thead>
<tr>
<th>Date of Invoice</th>
<th>No. Units</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2</td>
<td>2,000</td>
<td>$4.00</td>
<td>$ 8,000</td>
</tr>
<tr>
<td>March 15</td>
<td>6,000</td>
<td>4.40</td>
<td>26,400</td>
</tr>
<tr>
<td>March 30</td>
<td>2,000</td>
<td>4.76</td>
<td>9,520</td>
</tr>
<tr>
<td><strong>Total goods available</strong></td>
<td><strong>10,000</strong></td>
<td></td>
<td><strong>$43,900</strong></td>
</tr>
</tbody>
</table>

Weighted-average per unit:

- Inventory in units: 6,000 units
- Ending inventory: 6,000 units

Cost of goods available for sale: $43,900
Deduct: $43,900
Cost of goods sold: $0

In this method, Call-Mart computes a new average unit cost each time it makes a purchase.

**Moving-Average**

<table>
<thead>
<tr>
<th>Date</th>
<th>Purchased</th>
<th>Sold or Issued</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 7</td>
<td>2,000 @ $4.00</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>March 15</td>
<td>6,000 @ 4.40</td>
<td>26,400</td>
<td></td>
</tr>
<tr>
<td>March 20</td>
<td>2,000 @ 4.76</td>
<td>9,520</td>
<td></td>
</tr>
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</table>

**First-In, First-Out (FIFO)**

<table>
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<tr>
<th>Date</th>
<th>No. Units</th>
<th>Unit Cost</th>
<th>Total Cost</th>
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<tbody>
<tr>
<td>March 30</td>
<td>2,000</td>
<td>4.40</td>
<td>8,800</td>
</tr>
<tr>
<td>March 15</td>
<td>4,000</td>
<td>4.76</td>
<td>18,600</td>
</tr>
<tr>
<td>March 19</td>
<td>5,000</td>
<td>4.80</td>
<td>24,000</td>
</tr>
<tr>
<td><strong>Ending inventory</strong></td>
<td><strong>11,000</strong></td>
<td></td>
<td><strong>$51,400</strong></td>
</tr>
</tbody>
</table>

Cost of goods available for sale: $51,400
Deduct: $51,400
Cost of goods sold: $0

Determine cost of ending inventory by taking the cost of the most recent purchase and working back until it accounts for all units in the inventory.

**Last-In, First-Out (LIFO)**

**Periodic Method**

<table>
<thead>
<tr>
<th>Date</th>
<th>No. Units</th>
<th>Unit Cost</th>
<th>Total Cost</th>
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</thead>
<tbody>
<tr>
<td>March 20</td>
<td>2,000</td>
<td>4.76</td>
<td>9,520</td>
</tr>
</tbody>
</table>

The LIFO method results in different ending inventory and cost of goods sold amounts than the amounts calculated under the periodic method.

**LIFO Reserve**

LIFO Reserve is the difference between the inventory method used for internal reporting purposes and LIFO.

Example:

- FIFO value per books: $160,000
- LIFO value: $145,000
- **LIFO Reserve**: $15,000

Journal entry to reduce inventory to LIFO:

- Cost of goods sold: 15,000
- Allowance to reduce inventory to LIFO: 15,000

Companies should disclose either the LIFO reserve or the replacement cost of the inventory.

**LIFO Liquidation**

Older, low cost inventory is sold resulting in a lower cost of goods sold, higher net income, and higher taxes.

**Special Issues Related to LIFO**

**LIFO Reserve**

Many companies use

- LIFO for tax and external financial reporting purposes
- FIFO, average cost, or standard cost system for internal reporting purposes.

Reasons:

1. Pricing decisions
2. Record keeping easier
3. Profit-sharing or bonus arrangements
4. LIFO troublesome for interim periods

**LIFO Liquidation**

Older, low cost inventory is sold resulting in a lower cost of goods sold, higher net income, and higher taxes.

**Illustration:** Basler Co. has 30,000 pounds of steel in its inventory on December 31, 2010, with cost determined on a specific goods LIFO approach.
Special Issues Related to LIFO

LIFO Liquidation

**Illustration:** At the end of 2011, only 6,000 pounds of steel remained in inventory.

Dollar-Value LIFO

- Changes in a pool are measured in terms of total dollar value, not physical quantity.
- Advantage:
  - Broader range of goods in pool.
  - Permits replacement of goods that are similar.
  - Helps protect LIFO layers from erosion.

Exercise 8-26 (partial):

The following information relates to the Choctaw Company.

<table>
<thead>
<tr>
<th>Date</th>
<th>Ending Inventory (End-of-Year Prices)</th>
<th>Price Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 31, 2007</td>
<td>$ 70,000</td>
<td>100</td>
</tr>
<tr>
<td>December 31, 2008</td>
<td>88,200</td>
<td>105</td>
</tr>
<tr>
<td>December 31, 2009</td>
<td>95,120</td>
<td>116</td>
</tr>
</tbody>
</table>

Use the dollar-value LIFO method to compute the ending inventory for 2007 through 2009.

Exercise 8-26 Solution

**Advantages**
- Matching
- Tax Benefits/Improved Cash Flow
- Future Earnings Hedge

**Disadvantages**
- Reduced earnings
- Inventory understated
- Physical flow
- Involuntary Liquidation / Poor Buying Habits

Basis for Selection of Inventory Method

LIFO is generally preferred:
1. if selling prices are increasing faster than costs and
2. if a company has a fairly constant "base stock."

LIFO is not appropriate:
1. if prices tend to lag behind costs,
2. if specific identification traditionally used, and
3. when unit costs tend to decrease as production increases.