**Chapter 6**

**Classifying Inventory**

|  |  |
| --- | --- |
| Merchandising company | Manufacturing company |
| Merchandise Inventory (ready for resale) | Raw materials (waiting to be used in production)  Work in process (in various stages of production but not yet completed)  Finished goods (completed and ready for sale) |

**Determination of Inventory Quantities**

Inventory on hand + goods in transit belong to the firm as of year end – inventory held on consignment + inventory out for consignment and held by another company

Example 1: Farley Company identifies the following items for possible inclusion in the taking of a physical inventory. Indicate whether each item should be included or excluded from the inventory.

|  |  |
| --- | --- |
| (a) | Goods shipped on consignment by Farley to another company. |
| (b) | Goods in transit from a supplier shipped FOB destination. |

|  |  |
| --- | --- |
| (c) | Goods sold but being held for customer pickup. |
| (d) | Goods held on consignment from another company. |

(a) Ownership of the goods belongs to Farley. Thus, these goods should be included in Farley’s inventory.

(b) The goods in transit should not be included in the inventory count because ownership by Farley does not occur until the goods reach the buyer.

(c) The goods being held belong to the customer. They should not be included in Farley’s inventory.

(d) Ownership of these goods rests with the other company. Thus, these goods should not be included in the physical inventory.

Example 2: Tri-State Bank and Trust is considering giving Josef Company a loan. Before doing so, management decides that further discussions with Josef's accountant may be desirable. One area of particular concern is the inventory account, which has a year-end balance of $297,000. Discussions with the accountant reveal the following.

1. Josef sold goods costing $38,000 to Sorci Company, FOB shipping point, on December 28. The goods are not expected to arrive at Sorci until January 12. The goods were not included in the physical inventory because they were not in the warehouse.

2. The physical count of the inventory did not include goods costing $95,000 that were shipped to Josef FOB destination on December 27 and were still in transit at year-end.

3. Josef received goods costing $22,000 on January 2. The goods were shipped FOB shipping point on December 26 by Solita Co. The goods were not included in the physical count.

4. Josef sold goods costing $35,000 to Natali Co., FOB destination, on December 30. The goods were received at Natali on January 8. They were not included in Josef's physical inventory.

5. Josef received goods costing $44,000 on January 2 that were shipped FOB destination on December 29. The shipment was a rush order that was supposed to arrive December 31. This purchase was included in the ending inventory of $297,000.

Determine the correct inventory amount on December 31.

Ending inventory—physical count $297,000

1. No effect—title passes to purchaser upon shipment

when terms are FOB shipping point 0

2. No effect—title does not transfer to Josef until

goods are received 0

3. Add to inventory: Title passed to Josef when goods

were shipped 22,000

4. Add to inventory: Title remains with Josef until

purchaser receives goods 35,000

5. The goods did not arrive prior to year-end. The goods,

therefore, cannot be included in the inventory   (44,000)

Correct inventory $310,000

**Inventory Costing**

**1. Specific Identification (Specific unit cost)**

COGS=cost of the specific unit sold

Ending Inventory= cost of the specific unit on hand

**2. FIFO (First In First Out)**

COGS=cost of the first items in

Ending Inventory=cost of the last items in

**3. LIFO (Last In First Out)**

COGS=cost of the last items in

Ending Inventory=cost of the first items in

**4. Average-Cost**

weighted-average unit cost = Cost of goods available for sale ÷ total units available for sale.

COGS=weighted-average unit cost × number of units sold

Ending Inventory= weighted-average unit cost × number of units on hand

Example 3: On December 1, Marzion Electronics Ltd. has three DVD players left in stock. All are identical, all are priced to sell at $150. One of the three DVD players left in stock, with serial #1012, was purchased on June 1 at a cost of $100. Another, with serial #1045, was purchased on November 1 for $90. The last player, serial #1056, was purchased on November 30 for $80. If Marzion Electronics used the specific identification method instead of the FIFO method, how might it alter its earnings by “selectively choosing” which particular players to sell to the two customers? What would Marzion's cost of goods sold be if the company wished to minimize earnings? Maximize earnings?

It could choose to sell specific units purchased at specific costs if it wished to impact earnings selectively. If it wished to minimize earnings it would choose to sell the units purchased at higher costs—in which case the Cost of Goods Sold would be $190. If it wished to maximize earnings it would choose to sell the units purchased at lower costs—in which case the cost of goods sold would be $170.

Example 4: Bethke uses a periodic inventory system. In its first month of operations, Bethke Company made three purchases of merchandise in the following sequence:

1. 300 units at $6,

2. 400 units at $7, and

3. 200 units at $8.

Assuming there are 360 units on hand, compute the cost of goods sold and the cost of the ending inventory under the (a) FIFO method (b) LIFO method and (c) average-cost method.

(a) The ending inventory under FIFO consists of 200 units at $8 + 160 units at $7 for a total allocation of $2,720 or ($1,600 + $1,120).

(b) The ending inventory under LIFO consists of 300 units at $6 + 60 units at $7 for a total allocation of $2,220 or ($1,800 + $420).

(c) Average unit cost is $6.89 computed as follows:

300 X $6 = $1,800

400 X $7 = 2,800

200 X $8 = 1,600

900 $6,200

$6,200 ÷ 900 = $6.89 (rounded).

The cost of the ending inventory is $2,480 or (360 X $6.89).

Example 5: Kaleta Company reports the following for the month of June.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | **Units** | **Unit Cost** | **Total Cost** | | --- | --- | --- | --- | --- | | June  1 | Inventory | 200 | $5 | $1,000 | | 12 | Purchase | 400 | 6 | 2,400 | | 23 | Purchase | 300 | 7 | 2,100 | | 30 | Inventory | 100 |  |  | |

Instructions

|  |  |
| --- | --- |
| (a) | Compute the cost of the ending inventory and the cost of goods sold under (1) FIFO and (2) LIFO (3)Average-Cost. |
| (b) | Which costing method gives the higher ending inventory? Why? |

|  |  |
| --- | --- |
| (c) | Which method results in the higher cost of goods sold? Why? |

(a) FIFO

Beginning inventory (200 X $5) $1,000

Purchases

June 12 (400 X $6) $2,400

June 23 (300 X $7) 2,100 4,500

Cost of goods available for sale 5,500

Less: Ending inventory (100 X $7) 700

Cost of goods sold $4,800

LIFO

Cost of goods available for sale $5,500

Less: Ending inventory (100 X $5) 500

Cost of goods sold $5,000

Average-cost

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Cost of Goods  Available for Sale  $5,500 | ÷ | Total Units  Available for Sale  900 | = | Weighted Average  Unit Cost  $6.11 |

Ending inventory (100 X $6.11) $ 611

Cost of goods sold (800 X $6.11) 4,889

(b) The FIFO method will produce the higher ending inventory because costs have been rising. Under this method, the earliest costs are assigned to cost of goods sold and the latest costs remain in ending inventory. For Kaleta Company, the ending inventory under FIFO is $700 or (100 X $7) compared to $500 or (100 X $5) under LIFO.

(c) The LIFO method will produce the higher cost of goods sold for Kaleta Company. Under LIFO the most recent costs are charged to cost of goods sold and the earliest costs are included in the ending inventory. The cost of goods sold is $5,000 or [$5,500 – (100 X $5)] compared to $4,800 or ($5,500 – $700) under FIFO.

Example 6: You are provided with the following information for Barton Inc. Barton Inc. uses the periodic method of accounting for its inventory transactions.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | March  1 | Beginning inventory 2,000 liters at a cost of 60¢ per liter. | | March  3 | Purchased 2,500 liters at a cost of 65¢ per liter. | | March  5 | Sold 2,300 liters for $1.05 per liter. | | March 10 | Purchased 4,000 liters at a cost of 72¢ per liter. | | March 20 | Purchased 2,500 liters at a cost of 80¢ per liter. | | March 30 | Sold 5,200 liters for $1.25 per liter. | |

Instructions

|  |  |
| --- | --- |
|  | Compute the cost of the ending inventory and the cost of goods sold under (1) Specific Identification (2)FIFO and (3) LIFO (4)Average-Cost.  Specific identification method assuming:  i. The March 5 sale consisted of 1,000 liters from the March 1 beginning inventory and 1,300 liters from the March 3 purchase; and  ii. The March 30 sale consisted of the following number of units sold from beginning inventory and each purchase: 450 liters from March 1; 550 liters from March 3; 2,900 liters from March 10; and 1,300 liters from March 20. |

Cost of Goods available for sale= 2000\*0.06+ (2,500 @ $ .65) + (4,000 @ $.72) + (2,500 @ $.80)

(c)Specific identification ending inventory consists of:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Beginning inventory (2,000 liters – 1,000 – 450) |  | 550 @ $.60 |  | $ 330.00 |
| March 3 purchase (2,500 liters – 1,300 – 550) |  | 650 @ $.65 |  | 422.50 |
| March 10 purchase (4,000 liters – 2,900) |  | 1,100 @ $.72 |  | 792.00 |
| March 20 purchase (2,500 liters – 1,300) |  | 1,200 @ $.80 |  | 960.00 |
|  |  | 3,500 liters |  | $2,504.50 |

FIFO ending inventory consists of:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| March 20 purchase |  | 2,500 @ $.80 |  | $2,000 |
| March 10 purchase |  | 1,000 @ $.72 |  | 720 |
|  |  | 3,500 liters |  | $2,720 |

LIFO ending inventory consists of:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Beginning inventory |  | 2,000 @ $.60 |  | $1,200 |
| March 3 purchase |  | 1,500 @ $.65 |  | 975 |
|  |  | 3,500 liters |  | $2,175 |

**Financial Statement Effects**

In periods of rising prices, FIFO produces a higher net income, LIFO the lowest (therefore the lowest income taxes), and average cost falls in the middle. The reverse is true when prices are falling.

Which inventory cost flow method produces the most meaningful inventory amount for the balance sheet?

The FIFO method produces the most meaningful inventory amount for the balance sheet because the units are costed at the most recent purchase prices.

Which inventory cost flow method produces the most meaningful net income?

The LIFO method produces the most meaningful net income because the costs of the most recent purchases are matched against sales.

Which inventory cost flow method is most likely to approximate actual physical flow of the goods?

The FIFO method is most likely to approximate actual physical flow because the oldest goods are usually sold first to minimize spoilage and obsolescence.

Example 7: Lisa Company had 100 units in beginning inventory at a total cost of $10,000. The company purchased 200 units at a total cost of $26,000. At the end of the year, Lisa had 80 units in ending inventory.

Instructions

(a) Compute the cost of the ending inventory and the cost of goods sold under (1) FIFO, (2) LIFO, and (3) average-cost.

(b) Which cost flow method would result in the highest net income?

(c) Which cost flow method would result in inventories approximating current cost in the balance sheet?

(d) Which cost flow method would result in Lisa paying the least taxes in the first year?

(a) (1) FIFO

Beginning inventory $10,000

Purchases   26,000

Cost of goods available for sale 36,000

Less: ending inventory (80 X $130) 10,400

Cost of goods sold $25,600

(2) LIFO

Beginning inventory $10,000

Purchases   26,000

Cost of goods available for sale 36,000

Less: ending inventory (80 X $100)    8,000

Cost of goods sold $28,000

(3) AVERAGE-COST

Beginning inventory $10,000

Purchases   26,000

Cost of goods available for sale 36,000

Less: ending inventory (80 X $120)   9,600

Cost of goods sold $26,400

(b) The use of FIFO would result in the highest net income since the earlier lower costs are matched with revenues.

(c) The use of FIFO would result in inventories approximating current cost in the balance sheet, since the more recent units are assumed to be on hand.

(d) The use of LIFO would result in Lisa paying the least taxes in the first year since income will be lower.

**Lower-of-Cost-or-Market**

Market is defined as the **current replacement cost** of the goods, not selling price.

Example 7: Central Appliance Center accumulates the following cost and market data at December 31.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | **Inventory Categories** | **Cost Data** | **Market Data** | | --- | --- | --- | | Cameras | $12,000 | $12,100 | | Camcorders | 9,500 | 9,700 | | DVD players | 14,000 | 12,800 | |

Compute the lower-of-cost-or-market valuation for the company's total inventory.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Inventory Categories |  | Cost |  | Market |  | LCM |
| Cameras |  | $12,000 |  | $12,100 |  | $12,000 |
| Camcorders |  | 9,500 |  | 9,700 |  | 9,500 |
| DVD players |  | 14,000 |  | 12,800 |  | 12,800 |
| Total valuation |  |  |  |  |  | $34,300 |

Example 8: Optix Camera Shop uses the lower-of-cost-or-market basis for its inventory. The following data are available at December 31.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | **Item** | **Units** | **Unit Cost** | **Market** | | --- | --- | --- | --- | | Cameras: |  |  |  | | Minolta | 5 | $170 | $156 | | Canon | 6 | 150 | 152 | | Light meters: |  |  |  | | Vivitar | 12 | 125 | 115 | | Kodak | 14 | 120 | 135 | |

Instructions

Determine the amount of the ending inventory by applying the lower-of-cost-or-market basis.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | Cost |  | Market |  | Lower -of-Cost -or-Market: |
| Cameras |  |  |  |  |  |  |
| Minolta |  | $ 850 |  | $ 780 |  | $ 780 |
| Canon |  | 900 |  | 912 |  | 900 |
| Total |  | 1,750 |  | 1,692 |  |  |
|  |  |  |  |  |  |  |
| Light meters |  |  |  |  |  |  |
| Vivitar |  | 1,500 |  | 1,380 |  | 1,380 |
| Kodak |  | 1,680 |  | 1,890 |  | 1,680 |
| Total |  | 3,180 |  | 3,270 |  |  |
| Total inventory |  | $4,930 |  | $4,962 |  | $4,740 |

**Effects of Inventory Errors**

The effects of **inventory errors** on the current year’s income statement are:

**Cost of**

**Inventory Error                             Goods Sold Net Income**

Beginning inventory understated Understated Overstated

Beginning inventory overstated Overstated Understated

Ending inventory understated Overstated Understated

Ending inventory overstated Understated Overstated

The effects of ending inventory errors on the balance sheet are:

**Ending**

**Inventory   Assets         Liabilities Owner’s Equity**

Overstated Overstated No effect Overstated

Understated Understated No effect Understated

**Inventory Turnover**

Inventory Turnover = Cost of Goods Sold ÷ Average Inventory

Days in Inventory= 365 ÷ Inventory Turnover

Example 9: At December 31, 2015, the following information was available for A. Kamble Company: ending inventory $40,000, beginning inventory $60,000, cost of goods sold $270,000, and sales revenue $380,000. Calculate inventory turnover and days in inventory for A. Kamble Company.

Inventory turnover:  =  = 5.4

Days in inventory: = 67.6 days