Chapter 6

Inventories and Cost of Goods Sold

Key Concepts:
- Why should every manager be informed and concerned about inventory?
- Are the inventory figures on all companies’ balance sheets calculated the same way?
- How does a company select its inventory costing method?
- How does inventory affect cash flow?
Chapter Outline

LO 1  

The Nature of Inventory

Inventory is an asset held for resale rather than use, and takes different forms:

- **Retailer** has single inventory, *merchandise inventory* (Exhibit 6-1)
  - cost is purchase price
- **Manufacturer** has more than one form of inventory, depending on stage of development (Exhibit 6-1)
  - **raw materials**: purchased items that have not yet entered the manufacturing process
  - **work in process**: unfinished units of the company's product
    - direct materials: used to make product
    - direct labor: paid to workers who make the product from raw materials
    - manufacturing overhead: manufacturing costs that cannot be directly traced to a specific unit of product
  - **finished goods**: product ready for sale

LO 2  

Inventory Valuation and the Measurement of Income

Inventory—an *asset* (unexpired cost)—becomes cost of goods sold—an *expense* (expired cost):

\[
\text{Beginning inventory} + \text{Purchases} = \text{Goods available for sale} - \text{Ending inventory} = \text{Cost of goods sold}
\]

Error in end inventory figure will give incorrect cost of goods sold, and thus incorrect income.

Cost of inventory includes all costs incurred in bringing the inventory to its existing condition and location

- Purchase price less discounts
- Transportation in
- Insurance in transit
- Taxes
- Storage
- Apply cost/benefit test to determine which items to add to cost

LO 3  

Inventory Costing Methods with a Periodic System

Inventory is purchased at different times, and at different prices; these costs must be allocated correctly when items are sold.

- **Specific identification**: find out exactly which item(s) were sold; their actual cost is cost of goods sold
  - only correct method in terms of physical flow
  - impractical for most retail merchandise
- Accountants make assumptions about flow of *costs* rather than flow of *units*
  - **specific identification matches** flow of costs to flow of units
  - may be difficult to keep track of individual units (what if they're nails? ping-pong balls? cans of peas?)
♦ can lead to income manipulation: sell selected items (depending on their purchase price) to increase or decrease income

♦ **weighted average**: unit cost = cost of goods available for sale ÷ units available for sale

♦ results in smoothing of income

♦ **FIFO**, or **First In, First Out** method: assumes that the costs of the first items received (in most cases the beginning inventory) are the first used to cost goods sold, working forward in time through the purchased goods; ending inventory is costed at the most recently paid prices, working backward in time

♦ **LIFO**, or **Last In, First Out**, is the opposite of FIFO: assumes that the costs of the last units purchased are the first to be used to value cost of goods sold, working backward in time; ending inventory is costed at oldest unit costs available (beginning inventory), working forward

### Selecting an Inventory Costing Method

**Major consideration in selection of method is accurate income reporting.**

- Weighted average is simple

- When prices are rising, LIFO puts higher costs in cost of goods sold, resulting in lower income, lower taxes. Ending inventory may be distorted because it consists of older (earlier) costs.
  - this is a deferral, not permanent savings, in taxes because taxes will be paid later when goods are finally sold
  - **LIFO liquidation**: company sells more than it bought in a period, thus selling some units with older, relatively lower costs

- IRS has **LIFO conformity rule**: if a company uses LIFO for taxes, it must also use LIFO for its financial reporting

- **LIFO reserve**: excess of value of ending inventory if calculated at FIFO rather than at LIFO
  - this is also the cumulative amount of the increase in cost of goods sold on the income statement over the years LIFO has been used
  - the difference in the LIFO reserve between any two years is the additional cost of goods sold in the current year resulting from the use of LIFO
  - tax savings = the change in the LIFO reserve times the company’s tax rate

- **Inventory profit**: difference between valuation placed on inventory and its replacement cost, or the profit earned simply by holding inventory during a period of rising prices; particularly notable with FIFO
  - some argue that inventory should be valued at replacement cost because replacement cost is more realistic and would eliminate inventory profits
  - if any cost other than replacement cost is used, part of the profit is not real profit, but dollars that will have to be spent to replace inventory at higher cost (assuming rising prices)
  - currently LIFO is nearest approximation to replacement cost
  - replacement cost approach is not acceptable under current GAAP

### Changing method of inventory valuation:

- Done if company believes another method would result in better matching of revenue and expense

- Must be justified by other than tax considerations

- Must be disclosed (see consistency principle, chapter 2)
International accounting for inventory:
- Rules vary considerably throughout the world
  - some countries rarely use LIFO
  - international standards-makers favor the use of FIFO or weighted average, accepting LIFO only if information is given to allow users to reconcile LIFO to FIFO

Perpetual versus periodic inventory systems:
- **Periodic** system, used in this chapter, requires a count of ending inventory to determine cost of goods sold
  - simpler system
  - use of computers has inclined more businesses toward **perpetual** system, which allows better control (see Appendix 6A)

**LO 5 Inventory Errors**
A number of possible errors exist:
- Mathematical
- Error in physical count
- In-transit goods treated incorrectly
- Consignment not accounted for correctly
  - owner (consignor) gives goods to a second party (consignee) to sell
  - goods still belong to, and should be counted in the inventory of, consignor
- Any inventory error translates directly into an error of same amount in cost of goods sold and income before tax
- Incorrect ending inventory of one year, if not corrected, carries over to become erroneous beginning inventory of the following year
  - counterbalancing effect: the income effect of the first year's error in ending inventory will cause the opposite effect in second year’s income; thus retained earnings by the end of the second year will be correct
  - for example, overstating ending inventory causes overstated net income; in the next year the overstated beginning inventory will cause understated income
  - not all errors are counterbalancing (i.e. if a section of inventory continues to be omitted)

*NOTE: counterbalancing effect does not mean the error can be ignored; the two individual years are still incorrect*

**LO 6 Valuing Inventory at Lower of Cost or Market**
**Lower of Cost or Market (LCM)** rule is applied when the market value of inventory is less than its historical cost.
- The effect is that the asset, inventory, is reduced and the net income is reduced because of an additional “expense” on the income statement
- **Replacement cost** is used as measure of market value (thus we should really call it the lower of cost or replacement rule)
- Report loss in the period when the market price actually declines (real time), not when inventory is sold (which could be in a future period)
  - Loss on decline in value is “Other Expense” on the Income Statement
Normal gross profit when items are sold (lower selling price, lower—written down—cost)

Reflects conservatism principle (see chapter 2)

- LCM is a valid exception to the cost principle (see chapter 1)

Ways to apply LCM rule:

- Report lower of total cost or total market value of inventory
- Report lower of cost or market for each item
  - most popular, required for tax purposes
- lower of cost or market for groups of items
- choose a method and apply it consistently from one accounting period to the next

**Methods for Estimating Inventory Value Gross Profit Method**

**Gross Profit Method**

Ratio of gross profit to sales is used to estimate inventory that is stolen or destroyed by fire, flood, or other type of damage, as well as for inventory estimation for interim statements when physical count is not practical (Exhibit 6-8).

- Assumes reliable estimate of company's usual gross profit rate (gross profit is synonymous with gross margin)
- Subtract estimated cost of goods sold, using gross profit rate to calculate, from goods available to obtain estimated ending inventory

\[
\text{Beginning inventory} + \text{Purchases} = \text{Goods available} - \text{Estimated cost of goods sold (sales – gross profit calculated using usual rate)} = \text{Estimated remaining inventory}
\]

**Retail Inventory Method**

For retailers, where count is an enormous task, estimates are used for interim reporting.

- Inventory when counted is recorded at retail selling price and then converted, using mark-up information, to cost
- Sales figures can be used to estimate cost of goods sold for interim periods using the same information
- This methodology may be used at year-end (see intermediate accounting texts)

**Analyzing the Management of Inventory Turnover**

**Inventory turnover:** balance between having enough merchandise in stock to meet customer needs, and not so much that cash is tied up unreasonably.

\[
\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}
\]

Divide into 360 to find how many days, on average, items stay in inventory

\[
\text{Days} = 360 \div \text{turnover}
\]

**How Inventories Affect the Cash Flows Statement**

Operating section of statement of cash flows:

- Inventory purchases ultimately result in use of cash, via payment of accounts payable (Exhibit 6-10)
Direct Method
- cash paid to suppliers = cost of goods sold ± change in inventory ± change in accounts payable

Indirect Method
- increase in inventory decreases cash/decrease in inventory increases cash
- decrease in accounts payable decreases cash/increase in accounts payable increases cash
Appendix 6A

Inventory Costing Methods with a Perpetual System

Need to know not only how many items were sold, but exact dates of sales:

- Fundamental methods are the same, but they are applied each time an item is sold, not once a year.
- Specific identification and FIFO will give the same ending inventory whether a periodic or perpetual system is used.
- LIFO and moving (weighted) average will produce different results:
  - using moving (weighted) average, each time inventory is either bought or sold, a new average cost is calculated.
  - using LIFO, periodic system uses ending inventory only at year-end whereas perpetual system uses ending inventory after each sale.
Lecture Suggestions

**LO 1**
Make a simple comparison between the grocer (retailer) who buys lemons, sugar, bottled water and paper cups, and sells them as is; and the “manufacturer” who buys these items from the grocer, makes lemonade at home, and sells it (in the cups) at the fair. The manufacturer is a retailer, too, but has to make the product before selling it.

**LO 4**
To keep the discussion well anchored in reality, ask students for examples of merchandise or businesses that would lend themselves to each type of inventory valuation. Don’t let the discussion drift into confusing costing methods with methods of monitoring physical flow, which students do very easily. Play devil's advocate and ask why a business they suggest as a LIFO candidate could not be accounted for by specific identification, for example.

Have students work through an example similar to Exhibit 6-2 on their own, so that they see for themselves how the inventory calculations are done, and how these calculations affect income. Problem 6-7 provides useful amounts.

Ask students to explain what is wrong with using replacement cost for reporting purposes. They should think about inventory costing as well as review the fundamental principles of objectivity and verifiability.

**LO 5**
Review exhibit 6-4 in class, then substitute the information in Problem 6-3. Students use what they've learned to answer the questions.

**LO 6**
The LCM rule appears to be a minor point, but carries over into many more areas than merchandise inventory, and deserves emphasis. Students find the many different meanings of one word—in this case “market”—to be troublesome.

Ask student to explain why the LCM rule is a classic illustration of the use of conservatism.
Projects and Activities

The Nature of Inventory

Inventory Valuation and the Measurement of Income

Food for thought: Labor costs and inventories
An article about Pratt & Whitney, an aircraft engine manufacturer, stated that "...the extent of Connecticut's competitive disadvantage is $6 to $8 an hour. That is how much more the company said it costs to pay a hypothetical middle-level manufacturing worker, compared with the company's plants in Maine and Georgia."

• Where does Pratt & Whitney classify labor costs?
• How does this differ from the way a retailer such as Kmart accounts for workers' pay?
• Why is this difference a problem for Pratt and Whitney? How do you think a company manages a problem like this? Can you think of ways for P & W to mitigate the problem?

Draft a memo with your suggestions to the management of the company.

Solution
This question addresses the fundamental difference between inventory for a manufacturer and inventory for a retailer, and thus the different ways of treating wages.

• Pratt & Whitney inventories labor costs for manufacturing workers as part of the cost of the product they are manufacturing.
• Kmart classifies wages and related costs as operating expenses in the period they benefit.
• When labor becomes part of inventory of products, higher labor costs translate into higher cost to manufacture the product in Connecticut than in Maine or Georgia. Theoretically, cost of goods sold on a Connecticut engine is higher than on a Georgia engine.
• Pratt & Whitney, faced by market pressures that are cutting revenues, does not feel it can continue to absorb this differential. If they are not able to wring salary concessions from workers, and other labor-related cost concessions from the state government, P & W will be obliged to lay off workers in Connecticut, and eventually move some, or even all, of the manufacturing done in Connecticut to one of the company's other locations. Although Connecticut Kmart stores also feel the effects of higher labor (and other) costs in the state, they are probably employing less skilled, lower-paid workers, and fewer of them, so the corporation as a whole is less sensitive to differing labor costs than P & W. The article also notes that more automation in some P & W plants, especially in Georgia, and younger workers with less seniority and lower pay, are not helping Connecticut's case. Creative measures on the part of the state government, concerned about the loss of one of its larger employers, the unions, concerned that their jobs will literally go South, and management, trying to return the company to profitability, are going to be necessary.

Inventory Costing Methods with a Periodic System

Food for thought: LIFO versus FIFO and gasoline prices
Following the Iraqi invasion of Kuwait in 1990, an article in the (Toronto) Globe and Mail in 1990 discussed the difference in the effect of the increase in crude oil prices on consumer gasoline prices in

Canada and the United States. Consumers in the two countries would not be affected in the same way because the Canadian refiners use a FIFO inventory system to account for their crude oil inventory, whereas the American refiners use LIFO. Why would this cause a difference in gasoline prices paid by a consumer at the pump?

Solution

This article might have been written for an accounting class. Since Canadians use a FIFO system, the older, and in this case lower, costs of the crude oil are used to calculate the price of the refined product they ship. Between 60 and 100 days are needed for a crude oil price to work its way through the system in Canada, so the consumers there would not see the new, higher prices for at least that long. In the United States, on the other hand, the LIFO system passes the new (higher in this case) prices on to consumers almost immediately. In some cases, the American refiners are suspected of using a “NIFO” (Next In First Out) pricing scheme, raising prices on petroleum products in anticipation of higher prices that they have not yet paid.

More Food for thought: Inventory for an airline?

AMR Corp. (the parent company of American Airlines) lists in their 1998 balance sheet inventories of $596 million. A footnote indicates that these inventories are accounted for by the weighted average method.

- Why does an airline have inventory? What might these items be?
- Few companies favor the average method of costing inventory (see Exhibit 6-3 in your text). Why might this be true? What characteristics of inventory costs make average costing, on the other hand, convenient (its principle advantage), and mitigate any disadvantage?
- The $596 million is net of an “allowance for obsolescence” of $214 million. What is this allowance? What accounting principle(s) cause(s) its use?

Solution

These may be difficult questions for students.

- AMR’s inventory includes spare parts and supplies for flight equipment. The items are not for sale, but for use as needed. While waiting to be used, the parts are an asset.
- One argument against average costing is that an arithmetic average cost is not the dollar amount they paid for any item, that is, cannot be traced to an invoice, but is a hybrid. This is not true of any of the other methods. However, if the costs of inventory are fairly consistent over time, large base stocks are not kept, and purchases, especially of more expensive items, are made infrequently in large lots, then average cost very nearly approximates actual cost. The method is very convenient to use.
- The allowance for obsolescence conforms to the conservatism and matching principles. The company knows from past experience that some spare parts might be left over and not usable when flight equipment is retired. Rather than wait until this happens, the possibility of obsolescence is recognized as soon as it becomes apparent the obsolescence will happen, that is, as soon as a piece of equipment goes into service and spares are procured. The expense is amortized over the life of the equipment.

Selecting an Inventory Costing Method

In-class discussion: Effect of year-end purchase

Review the calculations in Exhibit 6-2 in your textbook. Assume for the sake of discussion that the company made one additional inventory purchase on December 20, of 100 units at $14. No additional sales were made. Thus the ending inventory will contain 700 instead of 600 units.

2The Globe and Mail, (Toronto), August 8, 1990, "Gasoline Price Could Hit 70¢."
Without making any calculations for the moment, explain what the effect of this purchase will be on net income (increase, decrease, or no change) under each of the costing methods: weighted average, FIFO, and LIFO. Explain your answer.

If you want to compare the dollar effect on LIFO and FIFO, do you have to recalculate the entire income statement? What is the dollar effect on FIFO net income? What about on LIFO?

Solution

The additional purchase will have no effect at all on FIFO net income, since for that method the most recent prices paid are used to calculate ending inventory. However, the additional units at the highest price will make the average price per unit higher for weighted average, and thus cost of goods sold will be higher, and net income lower. The most dramatic effect will be on LIFO, where the first units sold will be costed at the new $14 figure.

The additional 100 available units all go into inventory because the number of units sold did not change. LIFO costs this additional inventory at $11, the next LIFO cost layer working from the oldest purchases forward. This amount had originally been used in the cost of goods sold calculation, before 100 units at a newer price were purchased. The $11 is replaced in cost of goods sold with $14. The difference of $300 (($14 - $11) x 100 units) will cause a decrease of $300 in income before taxes, and an after-tax decrease of $180 (60 percent of 300). Thus the tax savings from the end-of-year purchase will be $120.

Food for thought: LIFO reserve

The footnote on inventory in the Kmart 1998 Annual Report says:

INVENTORIES: Inventories are stated at the lower of cost or market, primarily using the retail method. The last-in, first-out (LIFO) method, utilizing internal inflation indices, was used to determine cost for $6,148, $5,990 and $5,883 of inventory as of year end 1998, 1997, and 1996, respectively. Inventories valued on LIFO were $407, $457, and $440 lower than amounts that would have been reported using the first-in, first-out (FIFO) method at year end 1998, 1997, and 1996, respectively. 3

Has the LIFO reserve increased or decreased? What does this say about inventory costs? Comment on their inventory levels.

Solution


The 1998 consolidated balance sheet for Wal-Mart includes:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventories at replacement cost</td>
<td>$16,845 million</td>
</tr>
<tr>
<td>Less LIFO reserve</td>
<td>$348 million</td>
</tr>
<tr>
<td>Inventories at LIFO cost</td>
<td>$16,497 million</td>
</tr>
</tbody>
</table>

The related footnote states:

"The Company uses the retail last-in, first-out (LIFO) method for domestic Wal-Mart discount stores and Supercenters and cost LIFO for SAM's Clubs. International inventories are on other cost methods. Inventories are not in excess of market value."4

Ask students to comment, based on their level of expertise, on the following aspects of Wal-mart's inventory presentation:

- What do they see as the benefits of showing inventories at both replacement cost and at LIFO cost on the balance sheet?
- Why does Wal-Mart use different inventory costing methods? Does this violate consistency?
- What does the 'LIFO reserve' tell them?
- How does the footnote address the conservatism principle?

Solution

The answers will vary.

In-class discussion: Nike LIFO liquidation

Note 2 to Nike's annual report (1993) states in part the following:

During 1992, certain inventory quantities were reduced resulting in liquidations, which were not material, of LIFO inventory quantities carried at different costs prevailing in prior years as compared with the cost of 1992 purchases.5

Explain in your own words what is meant by this footnote. Although Nike did not consider the amount material, do you think the liquidation resulted in an increase or decrease to Nike's income? Why might Nike reduce inventories?

Solution

Nike lowered “base stock”—the minimum inventory on hand—of certain items. If the items were costed using LIFO, the inventories were carried at older costs. When Nike liquidated base stock, these older LIFO layers were carried to the income statement, resulting in lower cost of goods sold and higher net income. More efficient manufacturing or distribution systems, or both, made it possible to keep lower inventories on hand, freeing up resources for other purposes.

Ethical decision: Inventory stock-up

During the last month of the fiscal year, a company experienced extraordinarily good sales, and severely depleted its base stock of merchandise. Since the company accounts for inventory using LIFO, the controller realized that cost of goods sold will be reduced by an extraordinary amount, inflating net income. This effect will be increased by the fact that the purchasing department negotiated some very good prices on merchandise during the year. The controller decided that a last minute inventory purchase, at current higher prices, was the answer to the problem, and asked the purchasing department to check the inventory files and stock up on as many items as possible to be sure that the company did not have to “liquidate the LIFO layers.”

- Is this ethical? Explain your answer, noting any reservations you might put on it.

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Solution

The practice is frequently done by companies who do not wish to liquidate LIFO stocks. As long as the merchandise is used within the usual time, this is not unethical. Emphasize to students that the company may not, for example, return the inventory three days into the new year. Further, of course, the inventory must be the property of the company (review the “FOB rules”) before year-end. The company cannot record an order as inventory.

Inventory Errors

In-class discussion: Freight costs

Chapters 5 and 6 have raised a number of issues concerning the cost of acquiring inventory, and its effect upon income. An article in a trade publication addressed the question of “free freight” on shipments of books from publishers and wholesalers to book retailers. The article considers both sides of the question of who should pay for freight charges, the shipper or the buyer. Buyers promote free freight, while publishers and wholesalers are less enthusiastic, although at the time few had actually discontinued the practice. The article did say that "[M]any of the publishers who don't offer free freight have gone to freight pass-through … Publishers add a set amount onto the invoiced price of any book that is supposed to cover at least part of the cost of freight …"

• If you were a small bookstore owner, what difference would the three methods—receiving free freight, being charged for freight actually incurred on your shipment, or being charged the average “pass-through” amount—make in your inventory amount? How will cost of goods sold be affected by your choice?

• Is free freight really “free?”

• When a publisher pays the freight, when does the inventory (books) become the book seller's, to be counted (even if it has not been received yet) as part of the book seller's inventory?

• What are the disadvantages to a buyer of being charged freight as incurred on your shipment? If the tables were turned—that is, the publisher paid the freight—might publishers name any of these same disadvantages?

Solution

• Freight in, if charged, becomes a part of cost of goods sold (Chapter 5). If the pass-through makes freight part of the price charged for a book, the effect is the same. If freight is free, technically it will not be a cost anywhere (but see the answer to the question of whether it is indeed “free”). Whether freight is part of the cost of inventory, we now see, is somewhat up to the discretion of the retailer if freight is a separate charge on the invoice. If shipping is included in the cost of the book, it automatically becomes an inventory cost.

• An argument could be made that free freight is never really free. One could hardly imagine that the freight is not passed on somewhere along the line as part of the cost of the product. Sometimes the cost is balanced by a reduction in discounts offered.

• When the publisher pays the freight, the book does not become part of the retailer's inventory until the retailer actually receives the book. Until then, the publisher counts the merchandise as part of its inventory.

• The disadvantages of free freight are claimed by both sides. Publishers pay freight to increase orders and to encourage larger orders, with mixed success. Retailers argue that if the publishers pay for freight they will ship more efficiently, but publishers complain that when the retailer does not have to pay the freight they have no incentive to order.

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efficiently. The choice of carrier is often based on price, not speed, so the retailer may not get the best delivery terms if they get free freight. The publisher may delay shipments in order to combine shipments for efficiency and lower costs. If the customer is paying the freight, they order from the closest, or cheapest, supplier of the items they want. The answer, as the article notes, is not a simple one because, in the midst of the dispute, no one denies that shipping costs, a necessary evil, are also an increasingly expensive evil

**Food for thought: Crazy Eddie: Not exactly an error**

In a well-publicized case, electronics retailer Edward “Crazy Eddie” Antar was charged with a variety of crimes including that of defrauding his stockholders. The case centered on misrepresentation of inventory.

An article in the *Wall Street Journal* explained that Antar was expanding his business, and wanted healthy earnings figures to keep stock sales expanding. At the time Crazy Eddie was a favorite of many brokers, and the stock was a hot seller, driving the price up. However at the end of 1986, holiday sales were not what the company had hoped. Antar, citing illness, sold one-third of his stock in the company for approximately $21 million. In the following year a group of investors took over the company. They discovered at that time the company's inventories were overstated by about $65 million, or 100 percent. Antar and his accounting staff had been altering inventory records to overstate ending inventories for a number of years. The change was relatively small in the first year, but grew considerably in each following period. By this time, the auditors had grown suspicious of the firm's gross profit rate, and the SEC began to look more closely at the company. Subsequent investigation by government agencies and others led to the discovery of the alleged fraud, but not before Antar and a brother had literally disappeared with the proceeds of massive sales of stock in the company, about $80 million. A number of the company's executives, including accountants involved in the inventory manipulation, were left to face the music, and the stockholders held nearly worthless paper.

Ultimately Antar was found overseas and extradited back to the United States for trial, but the wealth he'd accumulated was by no means all accounted for. Consider the following questions:

- How easy do you think it might be for an executive, working with a cooperative company accountant, to change physical inventory records? If you do not know exactly how inventory counts are recorded, find out. Call a local retailer, or find a classmate who has actually participated in inventory-taking.
- What effect would an increase in ending inventory have on the balance sheet? What about the income statement? What would happen the year following the “adjustment?” What do you think the company did then?
- Why would the gross profit rate be a place to look if you suspected inventory manipulation?
- Think about what you have learned of the role and activities of outside auditors. How do you think the inventory changes, in the first year in particular, escaped their notice? Shouldn't they have been checking the count?

**Solution**

- Doctoring inventory counts is not at all difficult. A “1” in the “quantity” column could be changed to “10” or “21” with no trouble at all by an enterprising person who had the original sheets in his or her control.

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7 *Fortune*, July 6, 1987, "Eddie's Prices Are Insane. Is He?"
9 *The Wall Street Journal*, May 2, 1994, "Crazy Eddie Founder Sentenced to Prison; Restitution Ordered."
• Overstating ending inventory overstates assets on the balance sheet. On the income statement, it understates cost of goods sold, and therefore overstates net income, which was Antar’s intent. The following year, of course, the effect would reverse because that overstated ending inventory becomes an overstated beginning inventory that will decrease income. Antar adjusted the following year by an even larger amount, to compensate for the beginning inventory, and to increase that second year’s ending inventory, and thus that year’s earnings. By then, insiders noticed his behavior was becoming erratic.

• Gross profit rate should be consistent, unless there has been a dramatic shift in sales mix (there was not) or a change in mark-up policy (again, none had taken place). If the gross profit rate changes unexpectedly, auditors suspect an inventory problem—not necessarily fraud, but some problem.

• A small alteration to inventory is difficult to detect. Auditors cannot check the count for every item, especially in a business that has a number of stores and warehouse facilities. Such thoroughness would inflate the cost of an audit far beyond its value or the clients’ ability to pay. In this case, as a matter of fact, when the auditors began to get suspicious and ask questions, the New York Times article notes that Antar threw the inventory documents in the dumpster and claimed they had been lost. The normal mission of auditors is not to look for fraud. By the time the auditors in this case began to suspect the company’s accounting records, large-scale fraud had already occurred.

In-class discussion: MiniScribe again

In the previous chapter we looked at the troubled MiniScribe Corp. Articles in the Wall Street Journal discussed the company’s attempts to inflate earnings. The company’s inventories included, for example, obsolete parts and scrap accumulated in the manufacturing process.\(^{11}\)

- What if some of the obsolete parts and scrap could be sold? Doesn’t that make them inventory?

- The company also was found to have repackaged disc drives that were returned to the company as defective (the old packaging was tattered from so much handling), recorded them as inventory, and ultimately shipped them out again to new customers, recording a new sale.\(^ {12}\) How should MiniScribe have accounted for the returned drives?

Solution

- Clearly, MiniScribe inflated all the “good numbers”—assets and revenues—and minimized the bad ones—returns and scrap. Scrap had originally been expensed, and should have stayed there, along with the obsolete parts, which at best should have been carried at their realizable value, if any.

The returned drives were sales returns, and should not have been put back into inventory unless and until they could be reworked into good parts. Otherwise, they too should have been expensed, or written down to their net realizable value.

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\(^{10}\)Ibid.

\(^{11}\)The Wall Street Journal, September 12, 1989, "MiniScribe's Investigators Determine That 'Massive Fraud' Was Perpetrated."

Valuing Inventory at Lower of Cost or Market

In-class discussion: Zayre

Reconsider the article on Zayre referred to in a previous example (see Chapter 5). At one point we learn that “Poor merchandising decisions filled its 382 stores with many items—such as out-of-fashion women's blouses—that few customers wanted.”

- Explain how Zayre should account for the unsold portion of this inventory at the end of the year.
- Why might the company be reluctant to take the steps required?

Solution

- Lower of cost or market calculations are illustrated in this example. The company quickly realized that they were not going to be able to sell this merchandise at their usual price. They were required to mark down any unsold items in inventory to a cost that would yield their normal mark-up on such items, at the reduced selling price. The resulting loss is charged to the income statement in the period in which it became apparent that a loss would occur, which was probably the period in which the items were acquired, not to future periods when the merchandise is sold.

- Practically speaking, companies resist writing down inventory. For a company such as Zayre, whose profits depend on rapid merchandise turnover, a write-down may not become necessary because they would probably acquire the items, see they aren't selling, slash the price, and sell them all in one period. For other companies this sequence of events might not happen so quickly. Since an inventory write-down is not only a decrease in an asset, but also an increase in expense, companies are understandably reluctant to write down merchandise. If the amount is not material, this might not be critical. If material amounts are involved, audit discovery may force the write-down.

Ethical decision: Obsolete inventory

A small manufacturing company marketed a number of electronic test instruments, used primarily by the petroleum industry. One such instrument had recently been updated, and the old model was no longer produced. About $20,000 of accessories related to this old model were in the stockroom. The manufacturing manager asked the company's founder and president what should be done with these items, which could not to his knowledge be used for any other instrument. The president told him to “put them in the loft.” The loft was a storage area in a barn on the company’s property, where items with no current use were kept, and company automobiles were garaged on the ground floor.

At year-end the contents of the loft were included in the company's inventory. When the auditors checked the inventory they asked about the accessories, which they could not find. The manufacturing manager said that those were “for the 2345,” and were in the loft. The auditors went out to the barn and could see from the ground floor that items were stacked in the loft. They did not deem it necessary to climb the ladder to confirm the count. None of them remembered at the time that the “2345” had been discontinued.

- What is your analysis of this situation? Who is at fault, and what responsibilities are involved? Suggest a solution.

Solution

Background: the obsolete items were finally discovered by accountants for a slightly larger company that bought this small company about two years later. The small company had no real accountant, only a very skilled “full-charge” bookkeeper who reported to the founder and president, and who declined to follow the company to its new location after the sale. She probably did not know the rules.

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concerning inventory. She costed and recorded exactly what was on the inventory sheets from the physical count, in which just about everyone in the company participated.

- The manufacturing manager probably should have known that hiding the items in the loft for two years was not correct, and he probably deliberately said as little as possible when the auditors asked about the items. The president knew what he should have done, and simply made the decision that suited his company at the time, justifying it by saying that he believed they might adapt the items in the future and sell or use them. No one wanted to make an issue of the decision made by the former president, now a vice president of the new company. The auditors slipped up. It is surprising that none remembered the discontinued product, since it was a large item, and with its successor a major contributor to revenues. The development of the new version took place over a number of months.

The value, and possible use, of all the items should have been determined as soon as the old instrument was discontinued. By the time the accountants at the new parent company discovered what had happened, the items were useless. They, and a number of other items discovered in the loft, were expensed in the year the company was purchased, resulting in a charge of about $47,000 against income (for a company with consolidated revenues of about $2 million). The items were all donated to a trade school to use as they saw fit. The parent company’s audit firm was satisfied that the problem was now corrected, and nothing would be gained by pursuing it further.

From an ethical point of view, any item listed as inventory must be worth at least its stated value. Obsolete items must be written down, or off, as soon as their decreased value is apparent, and not kept in the hope of a possible future turn-around. Deliberately withholding information from auditors is as unethical as telling them an outright untruth.

Methods for Estimating Inventory Value

In-class discussion: Kmart inventory costing

The following footnote appears in the 1998 annual report of Kmart Corp.:

INVENTORIES: Inventories are stated at the lower of cost or market, primarily using the retail method. The last-in, first-out (LIFO) method, utilizing internal inflation indices, was used to determine cost for $6,148, $5,990 and $5,883 of inventory as of year end 1998, 1997, and 1996, respectively. Inventories valued on LIFO were $407, $457, and $440 lower than amounts that would have been reported using the first-in, first-out (FIFO) method at year end 1998, 1997, and 1996, respectively.14

Consider the following questions:

- Describe the procedure you think Kmart uses to apply the retail method.
- Kmart uses “primarily” the retail method, implying that another method is used for some inventory. Doesn’t this varying treatment violate the consistency principle? Explain why or why not.
- Kmart opened three new Super Kmart Centers in 1998 (bringing the total to 102 stores in 21 states), where customers could buy groceries, including fresh meats, produce, dairy and bakery items, in addition to the usual discount-department store merchandise. Could Kmart account for these fresh-food items using LIFO, or should they switch to FIFO for this inventory?

Solution

Here students review the retail method. Kmart calculates the mark-up on all merchandise, perhaps a number of mark-up rates for different categories. As inventory is counted, the retail price of each item is recorded. The company uses the mark-up rate(s) to convert the retail price into cost for each item. Ending inventory numbers are used to determine cost of goods sold if necessary.

Consistency refers to between-periods consistency, not internal consistency. Kmart is not required to treat all inventory items the same way, but only to use the same method on the same item from one period to the next.

Students forget that inventory methods are cost flow, not physical flow measures. Kmart can, on the one hand, arrange their stock on the shelf to be sure that the fresh items are sold in the order they are received or produced. But Kmart may cost the items sold in the reverse order, that is, using the more recent costs first. In reality the two methods would in this case probably produce very similar if not identical results because a retailer would not keep “inventories” of fresh goods on hand, but would turn them over very quickly, or dispose of unsold items, in order to maintain a reputation for offering only fresh stock.

Food for thought: Why would anyone accept this?

You have been told that the gross profit method of determining the value of inventory is used when inventory is suddenly lost (for example in a theft), or it is inconvenient or not possible to count the inventory (such as for interim financial statements).

- How is the gross profit rate obtained? How reliable is it?
- Why would an insurance company accept an estimate, instead of insisting on a more accurate amount?

Solution

Students ask these questions frequently. The gross profit method sounds suspiciously inaccurate for a discipline like accounting. Considering the questions in open discussion can lead to better understanding of the realities of accounting for merchandise.

- The gross profit rate is derived from previous periods' financial statements. Obviously, the more statements available, the better to demonstrate consistency. The rate is reliable because the company can show it consistently earned a certain gross profit rate over a number of years. Even small companies have produced audited statements for one reason or other in the past, or at least prepared tax returns.
- The insurance company has little choice, since neither it nor the company can count missing items. A reasonable estimate, with some objective back-up (audited statements), is the best the company can produce. The insurance company can reassure themselves by inspecting the company's books and past financial statements.

Outside assignment: Inventory turnover

Divide students into teams. Have each team select two companies in the same industry and research the companies using the internet. Each team should answer the following questions for the two companies.

- What kind of companies have been selected? Based on your answer, what is the likely composition of each company's inventories?
- Calculate inventory turnover and days in inventory for the last two years. Comment on each company's efficiency in handling inventories.
How is efficiency in the use of inventories different for a manufacturer than for a retailer? Why is this important? What other figures might you like to have to assess the companies' position?

Solution

Solutions will vary.

- This introduces students to some of the considerations they will encounter in managerial accounting. A manufacturer measures manufacturing cycle efficiency, the time it takes for a customer order to move through manufacturing and be delivered to the customer.
  This is especially important to a manufacturer, since they not only have to purchase and sell merchandise and collect a receivable, but have the extra, and sometimes lengthy, step of turning the purchased materials into another product. Manufacturing ties up resources for an additional amount of time.
  Other useful figures would be additional years' history for the selected companies and comparative industry figures. The students might also want to know if any one particular inventory (raw material, work in process, finished goods) is responsible for the buildup.