19. Inventory Estimation Techniques

Whether a company uses a periodic or perpetual inventory system, a physical count of goods on hand should occur from time to time. The quantities determined via the physical count are presumed to be correct, and any differences between the physical count and amounts reflected in the accounting records should be matched with an adjustment to the accounting records. Sometimes, however, a physical count may not be possible or is not cost effective. Then, estimation methods are employed.

19.1 Gross Profit Method

One such estimation technique is the gross profit method. This method might be used to estimate inventory on hand for purposes of preparing monthly or quarterly financial statements, and certainly would come into play if a fire or other catastrophe destroyed the inventory. Such estimates are often used by insurance companies to establish the amount that has been lost by an insured party. Very simply, a company's historical normal gross profit rate (i.e., gross profit as a percentage of sales) would be used to estimate the amount of gross profit and cost of sales. Once these data are known, it is relatively simple to project the lost inventory.

For example, assume that Tiki's inventory was destroyed by fire. Sales for the year, prior to the date of the fire were $1,000,000, and Tiki usually sells goods at a 40% gross profit rate. Therefore, Tiki can readily estimate that cost of goods sold was $600,000. Tiki's beginning of year inventory was $500,000, and $800,000 in purchases had occurred prior to the date of the fire. The inventory destroyed by fire can be estimated via the gross profit method, as shown.

19.2 Retail Method

A method that is widely used by merchandising firms to value or estimate ending inventory is the retail method. This method would only work where a category of inventory sold at retail has a consistent mark-up. The cost-to-retail percentage is multiplied times ending inventory at retail. Ending inventory at retail can be determined by a physical count of goods on hand, at their retail value. Or, sales might be subtracted from goods available for sale at retail. This option is shown in the following example.

To illustrate, Crock Buster, a specialty cookware store, sells pots that cost $7.50 for $10 -- yielding a cost to retail percentage of 75%. The beginning inventory totaled $200,000 (at cost), purchases were $300,000 (at cost), and sales totaled $460,000 (at retail). The calculations suggest an ending inventory that has a cost of $155,000. In reviewing these calculations, note that the only "givens" are circled in yellow. These three data points are manipulated by the cost to retail percentage to solve for several unknowns. Be careful to note the percentage factor is divided within the red arrows and multiplied within the blue.

	A	B	C	D
1		At Cost (75% of retail)		At Retail
2	Beginning Inventory	$ 200,000	÷ 0.75	$ 266,667
3	Purchases	300,000	÷ 0.75	400,000
4	Goods available	$ 500,000		$ 666,667
5	Sales	345,000	0.75 X	460,000
6	Ending inventory	$ 155,000		$ 206,667
7				