INVENTORY VALUATION

Inventory, a key component of the cost of goods sold, is generally valued by one of two accounting methods—LIFO or FIFO—although another method, weighted-average cost, is increasing in use.

- LIFO uses the most recent purchases first in when determining cost of goods sold. As such, ending inventory is valued assuming the earliest purchases remain in ending inventory. In times of inflation, the LIFO method results in a lower gross profit. LIFO, because it more closely matches current costs with current selling prices, is a more accurate gauge of profits during inflationary periods
- FIFO accounts for a firm's operations as if it will use first those items purchased earliest. Therefore, on the firm's financial statements, the cost of the items purchased most recently is assigned to ending inventory. During a period of rising prices, FIFO accounting overstates gross profit.

LIFO and FIFO

LIFO and FIFO inventory methods are simply accounting conventions and do not have to match the actual flow or usage of inventory in a business.

One way to visualize LIFO accounting is a pile of sand or gravel. Inventory is added to the top of the pile as purchased. As inventory is used, it is taken from the top of the pile. Over time, a layer of sand or gravel at the bottom of the pile may be untouched and rather old. These lower layers of ending inventory are at older costs. Still, the actual flow of inventory in a business may not match this theoretical pile, but the LIFO accounting method matches it.

One way to visualize FIFO accounting is a pipeline. Inventory is added at the back end of the pipeline and then emerges from the front end as it is used. Depending on the length of the pipeline, the inventory items that get used may have been purchased some time ago. However, the ending inventory sitting in the pipeline was purchased more recently. Still, the actual flow of inventory in a business may not match this theoretical pipeline, but the FIFO accounting method matches it.

Changing the inventory method used

If a business changes the way it values inventory, many income statement accounts may be significantly different before and after the change. Generally accepted accounting principles (GAAP) require the customer's accountant to disclose any change in inventory valuation in the footnotes to the financial statements. The inventory valuation method used has no relationship to the physical movement of inventory. However, it does affect reported profits and post-tax cash flow. Depending on the inventory valuation method used, inflation or rising product costs can have a differing impact on reported earnings. The time needed to complete the operating cycle also can influence the selection of the appropriate inventory valuation method.

A company may switch from FIFO to LIFO inventory valuation without IRS approval or notification. A switch from LIFO to FIFO, however, requires IRS notification. Any gain realized from the switch must be amortized over twice the number of years the company used LIFO.

Reconciling LIFO to FIFO

If a firm uses LIFO, GAAP requires a footnote to the financial statements that attempts to reconcile inventory valued at LIFO for financial reporting purposes to the inventory's value if FIFO (replacement cost) had been used. This approach creates a LIFO reserve. The annual adjustment to the LIFO reserve is made at fiscal year-end. Interim financial statements are therefore distorted.

The LIFO reserve represents earnings that have been sheltered from taxes. Assuming the inventory can be sold for replacement cost and income taxes are paid, the residual can be considered "hidden inventory profits." In a period of rising inventory prices, some companies suspend purchase or production and sell out of inventory. This "dipping into the LIFO reserve" effectively increases earnings on a temporary basis.

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Inventory as a deferred or capitalized cost

The cost of inventory, whether purchased or manufactured, is aggregated or capitalized on the balance sheet in inventory until sold. Inventory is therefore a deferred cost that will remain on the balance sheet until sold or expensed. This further reinforces the importance of having a clear understanding of the borrower's inventory management systems and periodic inspection of the borrower's inventory.

To illustrate the impact inventory valuation has on ending inventory, cost of goods sold, gross profit, gross margin, and net profit, consider a simple example shown on this page in which inflation is at an extraordinarily high rate.

Inventory Purchases Illustration

Day	No. of Units	Unit Cost	Total Purchases
1	10,000	$1.00	$10,000
2	5,000	$1.50	$ 7,500
3	10,000	$2.00	$20,000
Total	**25,000**		**$37,500**

In this example 10,000 units were sold at $4.00 per unit by the end of Day 3. Ending inventory is 15,000 units. Based on this data, the accounts on two income statements—one prepared using the LIFO method the other using FIFO—as shown in the example.

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As you can see in the image below, the choice of inventory valuation method will have a significant affect on the income statement.

LIFO and FIFO Inventory Valuation Comparison			
	LIFO		FIFO
Sales (10,000 @ $4.00)	$40,000	Sales (10,000 @ $4.00)	$40,000
Opening inventory	$ 0	Opening inventory	$ 0
Purchases	$37,500	Purchases	$37,500
Cost of goods available for sale	$37,500	Cost of goods available for sale	$37,500
Less ending inventory (15,000 units)		*Less ending inventory (15,000 units)*	
10,000 units @ $1.00	($10,000)	5,000 units @ $1.50	($ 7,500)
5,000 units @ $1.50	(7,500)	10,000 units @ $2.00	(20,000)
Total ending inventory	($17,500)	Total ending inventory	(27,500)
Cost of goods sold	$20,000	Cost of goods sold	$10,000
Gross profit	$20,000	Gross profit	$30,000
Gross margin	50%	Gross margin	75%
Income taxes at 30%	$ 6,000	Income taxes at 30%	$ 9,000
Net profit after tax	$14,000	Net profit after tax	$21,000
Summary Comparison LIFO versus FIFO in Period of Rising Inventory Costs			
	LIFO		FIFO
Cost of goods sold	$20,000	Cost of goods sold	$10,000
Gross profit	$20,000	Gross profit	$30,000
Gross margin	50%	Gross margin	75%
Net profit after tax	$14,000	Net profit after tax	$21,000

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Inventory valuation—weighted average cost method

With bar codes, scanners, and other computerized inventory tracking, the weighted average cost method is becoming more popular. Businesses with fluctuating inventory levels use weighted average inventory accounting because it effectively combines the other two methods, thereby reducing the inventory holding gains of FIFO and limiting the gains in a LIFO windfall. The weighted-average unit cost is calculated as cost of goods for sale (beginning inventory and net purchases) divided by units available for sale.

Weighted Average Cost Inventory Valuation Example (Cost of Goods for Sale ÷ Units Available for Sale)		
Sales (10,000 units @ $4.00)		$40,000
Purchases	$37,500	
Less ending inventory—15,000 units @ $1.50 [($37,500÷25,000 = $1.50]	(22,500)	
Cost of goods sold		$15,000
Gross profit		$25,000
Gross margin		62.5%

The weighted average cost method shows results approximately halfway between the LIFO and FIFO methods.

The image below compares the weighted average cost inventory valuation method with LIFO and FIFO.

Inventory Valuation Comparison: Weighted Ave. Cost, LIFO, FIFO			
	Weighted Ave. Cost	LIFO	FIFO
Sales (10,000 x 4.00)	$40.000	$40,000	$40,000
Purchases	$37,500	$37,500	$37,500
Less ending inventory	22,500 *	17,500 **	27,500 ***
Cost of goods sold	$15,000	$20,000	$10,000
Gross profit	$25,000	$20,000	$30,000
Gross margin	62.5%	50.0%	75.0%

* 15,000 units @ $1.50 [(37,500÷25,000) = $1.50]

** 10,000 units @ $1.00 + 5,000 @ $1.50

*** 5,000 units @ $1.50 + 10,000 @ $2.00

Inventory valuation—retail method

Another way to value inventory is the retail method, which is used by retailers as a way to estimate the ending inventory cost. The retailer can take a physical inventory at retail prices (or estimate ending inventory), then convert the ending inventory from retail price to cost using the cost-to-retail ratio. This method eliminates the need to review original invoices or other documents to determine the original cost of each inventory item. The retail method can be used with any of the cost-flow assumptions discussed earlier—FIFO, LIFO, or weighted average cost. The business banker should understand which method is being used, because the valuation method affects net profit and the inventory balance sheet (and collateral) value.

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