

Inventory Costing Methods

Simplified Cost of Goods Sold Formula

Cost of goods sold:

Beginning inventory	\$ 20
+ Net Purchases	<u>100</u>
= Cost of goods available for sale	120
- Ending inventory	<u>(30)</u>
= Cost of goods sold	\$ 90

What Value Do You Assign Inventory & COGS If You Bought Inventory at Different Prices?

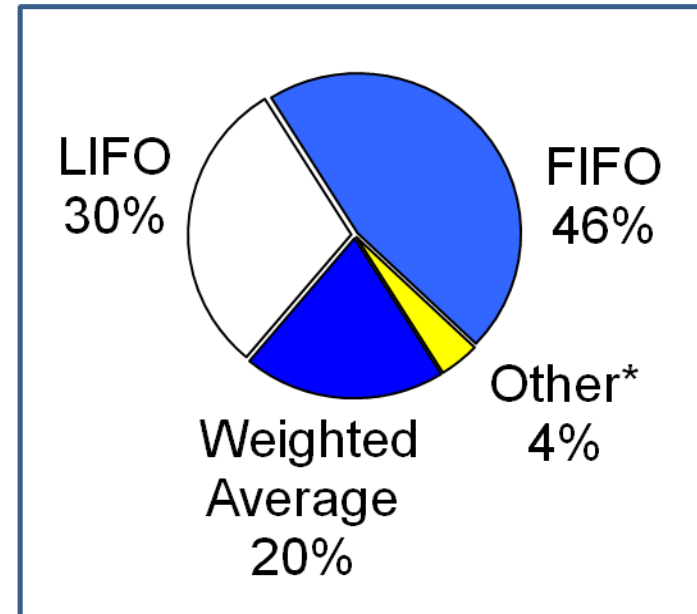
Beg. Inventory	10 units	@	\$10 /unit	=	\$100
Purchase #1	20 units	@	\$13 /unit	=	\$260
Purchase #2	<u>24 units</u>	@	\$17 /unit	=	<u>\$408</u>
Goods Available	54 units				\$768
Cost of Goods Sold	50 units	@	? /unit	=	?
Ending Inventory	4 units	@	? /unit	=	?

Value depends upon cost flow method!!

Cost Flow Methods Allowed per GAAP (and Frequency of Usage)

- Specific identification
- Weighted-average
- First-in, first-out (FIFO)
- Last-in, first-out (LIFO)

Must disclose method used in notes to financial statements



*includes specific identification

Demonstration Problem

Kip's Cap Company

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10 x	\$10 =	\$100
3/4	Purchase	20 x	\$13 =	\$260
3/8	Sale	22 x	\$20 =	\$440
3/18	Purchase	24 x	\$17 =	\$408
3/25	Sale	28 x	\$25 =	\$700

Assume ending inventory includes 2 units from March 4th purchase and 2 units from the March 18th purchase.



Weighted-Average (Average Cost) Method

- COGS & inventory values based on weighted average
- Smooths out the price changes

$$\frac{\text{cost of goods available for sale}}{\text{number of units available for sale}}$$

Weighted Average

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	18	x \$25	= \$700

Goods Purchased	Cost of Goods Sold	Inventory Balance	Ave.
Beg. Inventory		10 x \$10 = \$100	
20 x \$13 = \$260		<u>20</u> x \$13 = <u>\$260</u>	
		30	\$360
	22 x \$12 = \$264	8 x \$12 = \$96	\$12.00 a
24 x \$17 = \$408		<u>24</u> x \$17 = <u>\$408</u>	
		32	\$504
	18 x \$15.75 = \$283.5	14 x \$15.75 = \$220.5	\$15.75 b
	Total COGS \$547.5	End. Inv. \$220.5	

a) $\$360 / 30 \text{ units} = \12 average cost per unit

b) $\$504 / 32 \text{ units} = \15.75 average cost per unit

FIFO – first units in first out

(Typically reflects physical flow of inventory)

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	18	x \$25	= \$700

Goods Purchased	Cost of Goods Sold	Inventory Balance
Beg. Inventory		10 x \$10 = \$100
20 x \$13 = \$260		<u>20</u> x \$13 = <u>\$260</u>
		30 \$360
	10 x \$10 = \$100	
	<u>12</u> x \$13 = <u>\$156</u>	
	22 \$256	
24 x \$17 = \$408		8 x \$13 = \$104
		<u>24</u> x \$17 = <u>\$408</u>
		32 \$512
	8 x \$13 = \$104	
	<u>10</u> x \$17 = <u>\$170</u>	
	18 \$274	
	14 x \$17 = \$238	
	Total COGS \$530	End. Inv. \$238

LIFO-last units in first out

(If inventory costs rising, more accurately reflects performance)

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	18	x \$25	= \$450

Goods Purchased	Cost of Goods Sold	Inventory Balance
Beg. Inventory 20 x \$13 = \$260		10 x \$10 = \$100 <u>20</u> x \$13 = <u>\$260</u> 30 \$360
24 x \$17 = \$408	20 x \$13 = \$260 <u>2</u> x \$10 = <u>\$20</u> 22 x = \$280	8 x \$10 = \$80 <u>24</u> x \$17 = <u>\$408</u> 32 \$488
	18 x \$17 = \$306	8 X \$10 = \$80 <u>6</u> X \$17 = <u>\$102</u> 14 \$182
	Total COGS \$586	End. Inv. \$182

Periodic Method

- Separate purchases from sales
- Calculate cost of goods available (COGA)
- Calculate LIFO, FIFO, Weighted Average without regard to date of sale.

Weighted Average- Periodic

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	18	x \$25	= \$700

<u>Goods Available for Sale</u>					
3/1	Beg. Inventory	10	x	\$10	= \$100
3/4	Purchase	20	x	\$13	= \$260
3/18	Purchase	<u>24</u>	x	\$17	= <u>\$408</u>
		54			\$768
	Less: Sales	<u>-40</u>			
	End. Inventory	14			

\$768 / 54 = \$14.22

COGA		\$768.00
Less End. Inv.	14 x \$14.22 =	<u>- 199.08</u>
Cost of Goods Sold		\$568.92

First In First Out (FIFO) - Periodic

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	18	x \$25	= \$700

<u>Goods Available for Sale</u>					
3/1	Beg. Inventory	10	x \$10	=	\$100
3/4	Purchase	20	x \$13	=	\$260
3/18	Purchase	<u>24</u>	x \$17	=	<u>\$408</u>
		54			\$768
	Less: Sales	<u>-40</u>			
	End. Inventory	14			

COGA					\$768
Less End. Inv.	14	x \$17	=	<u>- 238</u>	
Cost of Goods Sold					\$530

Last In First Out (LIFO) - Periodic

<u>Date</u>	<u>Activity</u>	<u>Units</u>	<u>\$/Unit</u>	<u>Total</u>
3/1	Beg. Inventory	10	x \$10	= \$100
3/4	Purchase	20	x \$13	= \$260
3/8	Sale	22	x \$20	= \$440
3/18	Purchase	24	x \$17	= \$408
3/25	Sale	18	x \$25	= \$700

<u>Goods Available for Sale</u>					
3/1	Beg. Inventory	10	x	\$10	= \$100
3/4	Purchase	20	x	\$13	= \$260
3/18	Purchase	<u>24</u>	x	\$17	= <u>\$408</u>
		54			\$768
	Less: Sales	<u>-40</u>			
	End. Inventory	14			

COGA					\$768
Less End. Inv.	10	x	\$10	= \$100	
	<u>4</u>	x	\$13	= <u>\$52</u>	
	14			\$152	<u>-\$152</u>
Cost of Goods Sold					\$616