

# Introduction to Accounting for Inventory

## Inventory

### Perpetual Inventory Accounting

Accounting for inventory perpetually means that every transaction involving an inflow and outflow of inventory is recorded as it happens with a debit or credit to the inventory account. As a result, the inventory account in the general ledger will maintain a running balance of the amount of inventory on hand at any point in time.

#### Some Things to Note:

- Perpetual inventory accounting has been used in all of our examples to date.

#### Purchases of inventory:

Inventory	xxx	
Cash (A/P)		xxx

#### Sales of inventory:

Cash (A/R)	xxx	
Sales Revenues		xxx
Cost of Goods Sold	xxx	
Inventory		xxx

### Most perpetual inventory accounting systems utilize a subsidiary ledger.

#### General Ledger:

Inventory	
XXX	XXX
100,000	

#### Subsidiary Ledger: (item-by-item)

Inv.-Soup-Tomato	
XXX	XXX
200	
Inv.-Soup-Mshrm	
XXX	XXX
250	
Inv.- Soup- Ckn Nd	
XXX	XXX
175	

### The effect of computerized systems in accounting for inventories:

1. Especially useful in managing seasonal inventories.
2. Can help us discover interesting geographic and demographic trends relative to sales.
3. Can help us identify relationships between different products purchased by similar customers.

# Purchase Discounts and Returns of Inventory

Examples of perpetual inventory accounting given complicating factors of purchase discounts and returns.

On **11/1/X2**, Joe's Bicycle Store buys as inventory **20** bicycles for **\$100** each, terms of **2/10, n/30**. Two days later, Joe returns one defective bike to the manufacturer for credit on his account. On **11/9/X2**, Joe pays the balance due net of the discount.

Entry at **11/1/X2** to record purchase on account:

Inventory (20 x \$100)	2,000	
Accounts Payable		2,000

Entry at **11/3/X2** to record bicycle return:

Accounts Payable	100	
Inventory (1 x \$100)		100

Entry at **11/9/X2** to payoff account, net of discount amounting to **\$38**:

Accounts Payable	1,900	
Cash (\$1,900 - 38) (98% x \$1,900)		1,862
Inventory (2% x \$1,900)		38

The accounting for inventory perpetually requires accounting for the inflow and outflow of the # of units and any increases or decreases in the cost of those units.

Original cost of the bicycles: **(20 @ \$100 each)**

True cost of the bicycles: **(20 @ \$98 each)**

True inventory balance: **19 @ \$98 each = \$1,862**

Inventory	
2,000	
	100 Return of 1 unit
	38 Discount of 2% x \$1,900
	1,862

## Problem: Purchase Discounts and Returns

Mercy Lawn Mower Shop had the following transactions during the first twelve days of **March, 20X7**:

- March 1** Purchased **10** lawn mowers on account at **\$200** each, terms of **2/10, n/30**.
- 2** Returned **1** lawn mower to supplier because the frame was bent; received credit on account for **\$200**.
- 10** Paid supplier the net amount owed for the lawn mowers purchased on **March 1**, net of the discount.
- 11** Sold **5** lawn mowers for **\$400** each for cash.
- 12** One of the lawn mowers sold on **March 11** was returned; cash was refunded.

**Journalize these transactions.**

## Solution: Purchase Discounts and Returns

Mercy Lawn Mower Shop had the following transactions during the first twelve days of **March, 20X7**:

<b>3/1</b>	Inventory	2,000	
	Accounts Payable		2,000
<b>3/2</b>	Accounts Payable	200	
	Inventory		200
<b>3/10</b>	Accounts Payable	1,800	
	Cash (98% x 1800)		1,764
	Inventory (2% x \$1800)		36
<b>3/11</b>	Cash	2,000	
	Sales Revenue		2,000
	Cost of Goods Sold	980	
	Inventory		980
	(5 x 196 = \$980)		
<b>3/12</b>	Sales Returns and Allowances	400	
	Cash		400
	Inventory	196	
	Cost of Goods Sold		196

# Inventory Cost Flows

## Complications in Accounting for Inventory Cost Flows

**Example:** Assume you are starting a used car business and buy 3 cars for resale. If you buy an old VW Bug for **\$2,000**, a classic Camaro for **\$4,000**, and an old souped-up Pinto for **\$6,000**, the journal entries to record their purchase would be:

Inventory	<b>2,000</b>		<b>Inventory</b>
Cash		<b>2,000</b>	
Inventory	<b>4,000</b>		<b>2,000</b>
Cash		<b>4,000</b>	
Inventory	<b>6,000</b>		<b>6,000</b>
Cash		<b>6,000</b>	
			<b>12,000</b>

Now, assume one car is sold to a customer for **\$7,000** cash. The entry would be:

Cash	<b>7,000</b>	
Sales Revenues		<b>7,000</b>
Cost of Goods Sold		?
Inventory		?

## Perpetual Specific Identification Method

If Pinto:

Cost of Goods Sold	<b>6,000</b>		Gross Margin/Profit
Inventory		<b>6,000</b>	(Revenues - Cost of Goods Sold)

If VW Bug:

Cost of Goods Sold	<b>2,000</b>		Gross Margin/Profit
Inventory		<b>2,000</b>	(Revenues - Cost of Goods Sold)

**Example:** Assume you want to start a business that sells jelly beans. Your purchases of inventory are as follows:

Inventory		
10 lbs. @ \$2.00/lb. =	<b>\$20</b>	20
10 lbs. @ \$2.50/lb. =	<b>\$25</b>	25
10 lbs. @ \$3.00/lb. =	<b>\$30</b>	30
		<b>75</b>

Assume your first customer comes by and buys 1lb. of jelly beans for **\$4**.

Cash	<b>4</b>	
Sales Revenues		<b>4</b>
Cost of Goods Sold		?
Inventory		?

## Last in first out (LIFO):

Cost of Goods Sold	<b>3</b>	
Inventory		<b>3</b>

## First in first out (FIFO):

Cost of Goods Sold	<b>2</b>	
Inventory		<b>2</b>

Average cost ( $\$75 \div 30 \text{ lbs.} = \$2.50/\text{lb.}$ ):

Cost of Goods Sold	<b>2.50</b>	
Inventory		<b>2.50</b>

## Result Comparison:

	LIFO	FIFO	AVE.
Net Sales Revenue	<b>\$ 4</b>	<b>\$ 4</b>	<b>\$ 4</b>
Less: Cost of Goods Sold	<b>(3)</b>	<b>(2)</b>	<b>(2.50)</b>
Gross Margin	<b>\$ 1</b>	<b>\$ 2</b>	<b>\$1.50</b>
End Inventory	<b>\$ 72</b>	<b>\$ 73</b>	<b>\$ 72.50</b>

Would there have been any difference in the amount of cost of goods sold between the methods if all the inventory had been sold?

	LIFO	FIFO	AVE.
Sales Revenue	<b>\$120</b>	<b>\$120</b>	<b>\$120</b>
Less: Cost of Goods Sold	<b>(75)</b>	<b>(75)</b>	<b>(75)</b>
Gross Margin	<b>\$45</b>	<b>\$45</b>	<b>\$45</b>

What method would you use if you had not observed the actual physical flow?

Under GAAP you may use any method regardless of the actual physical outflow of inventory; however, the method selected must be consistently used over time.

What is the likely physical outflow of inventory at a supermarket?

# Inventory Cost Flows

What method would you choose if it was your business?

	LIFO	FIFO	AVE.
Net Sales Revenue	\$ 4	\$ 4	\$ 4
Less: Cost of Goods Sold	(3)	(2)	(2.50)
Gross Margin	\$ 1	\$ 2	\$ 1.50
End. Inventory	\$ 72	\$ 73	\$72.50

- A. To impress investors?
- B. To pay less income tax?

Whatever method you use for financial reporting to investors and creditors, you must also use for income tax reporting.

What would be the effect of the different methods on net income in a deflationary environment?

10 lbs. @ \$3.00/lb. = \$30
10 lbs. @ \$2.50/lb. = \$25
10 lbs. @ \$2.00/lb. = \$20

	LIFO	FIFO	AVE
Sales Revenues	\$ 4	\$ 4	\$ 4
Less: Cost of Goods Sold	(2)	(3)	(2.50)
Gross Margin	2	1	1.50
Inventory	\$ 73	\$ 72	\$72.50

Deflationary times create the opposite result.

What would be the results in a period of stable costs?

## Problem: Inventory Cost Flows

Joe has a small used car business going. He currently has the following in inventory:

	Date Purchased	Cost
Gremlin	1/6/X6	\$ 650
Pinto	1/19/X6	\$1,050

On January 25, 20X6 he buys for cash a decent Ford Mustang for \$1,850.

- Prepare the journal entry to record the sale of the Mustang for \$2,750 cash on 1/29/X6
  - Using the specific identification inventory cost flow.
  - Using a FIFO inventory cost flow assumption.
- Determine the gross margin on the Mustang sale under both cost flow methods.
- Which cost flow method is appropriate under the circumstances? Why?

## Solution: Inventory Cost Flows

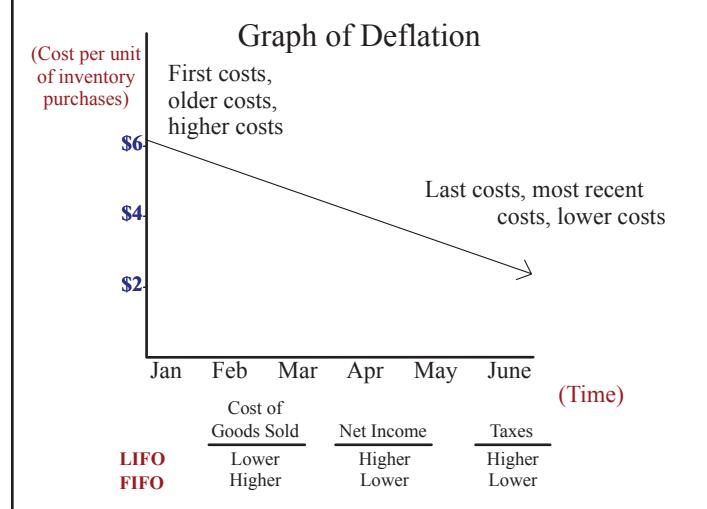
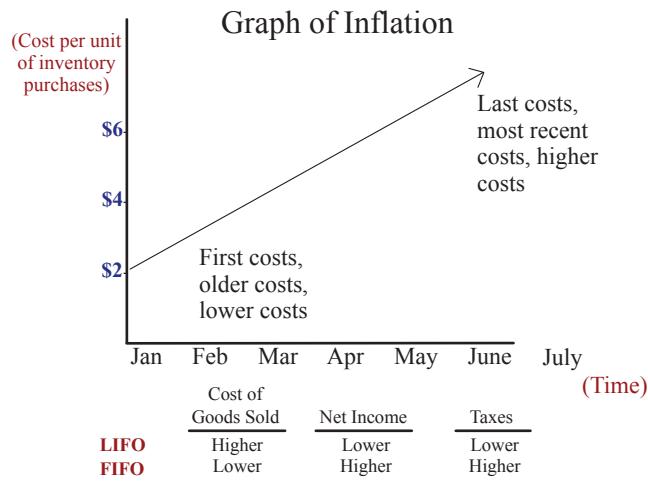
a. i.	Cash	2,750	2,750
	Sales Revenue		
	Cost of Goods Sold	1,850	1,850
	Inventory		

ii.	Cash	2,750	2,750
	Sales Revenue		
	Cost of Goods Sold	650	650
	Inventory		

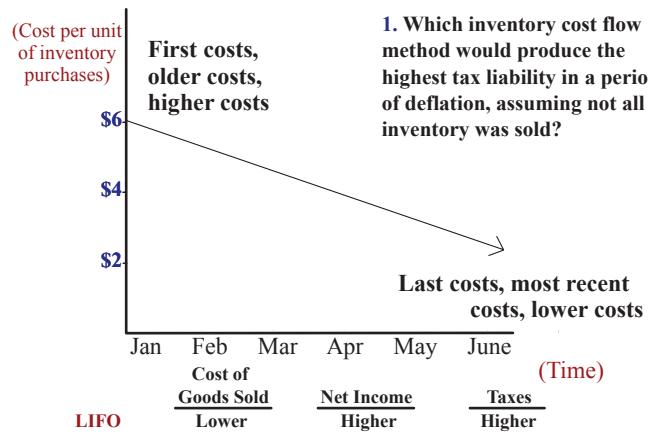
b.		Specific Identification	FIFO
	Sales Revenue	\$2,750	\$2,750
	Cost of Goods Sold	(1,850)	(650)
	Gross Margin	\$ 900	\$2,100

c. Specific identification is appropriate in this case because of the unique nature of each inventory item.

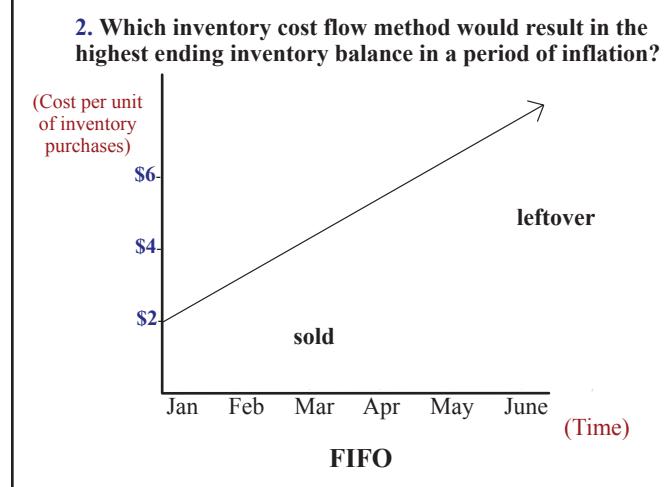
# Effects of Inflation and Deflation



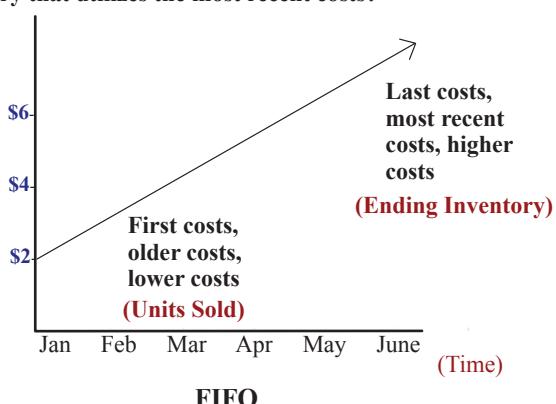
Using these graphs, respond to the following questions:



1. Which inventory cost flow method would produce the highest tax liability in a period of deflation, assuming not all inventory was sold?



3. Which inventory cost flow method results in ending inventory that utilizes the most recent costs?



## Problem: LIFO vs. FIFO Effects

Choose between FIFO, LIFO and the Weighted Average inventory cost flow assumptions used on a perpetual basis to respond to the following questions: (Assume under all scenarios that there is a balance of inventory on hand at the end of the period)

- Which method would produce the highest net income in inflationary times?
- Which method would produce the highest income tax in deflationary times?
- Which method would produce the highest ending inventory balance in inflationary times?
- Which method would produce the lowest ending inventory balance in deflationary times?
- Which method would produce the highest net income in a period of stable prices?
- Which method would produce the highest net income in inflationary times assuming there is no balance of inventory at the end of the period?

## Effects of Inflation and Deflation

Solution: LIFO vs. FIFO Effects

- a. FIFO
- b. LIFO
- c. FIFO
- d. FIFO
- e. Same under all methods
- f. Same under all methods

# Application of FIFO, LIFO, MWA

## Practical Application of FIFO, LIFO, and Moving Weighted Average Inventory Cost Flow Assumptions

**Example:** Jimbo's is a wholesale distributor of hot dogs. The following reflects Jimbo's inventory transactions for May, 20X1:

	# of Cases	Cost per Case
Beginning Inventory	1,000	\$ 20
5/5 Purchase	300	\$ 21
5/7 Sale	400	
5/13 Purchase	400	\$ 22
5/19 Sale	500	
5/23 Purchase	600	\$ 23
5/29 Sale	500	

Calculate the amount of Cost of Goods Sold for the month of May and the balance of ending Inventory at 5/31 under a. FIFO, b. LIFO, and c. Moving Weighted Average inventory cost flows assumptions.

### a. FIFO:

	Cost of Goods Sold	Inventory	
		5/1 1,000 @ 20 = 20,000 300 100 <b>5/5 300 @ 21 = 6,300</b> 300 <b>5/13 400 @ 22 = 8,800</b> 300 <b>5/23 600 @ 23 = 13,800</b> 300 <b>5/29 100 @ 22 = 2,300</b>	400 Units Sold 5/7 500 Units Sold 5/19 500 Units Sold 5/21 100 @ 20 5/29
	8,000 10,000 10,500 28,500	8,000 = 400 @ 20 10,000 = 500 @ 20 10,500 = 100 @ 22	400 Units Sold 5/7 500 Units Sold 5/19 300 @ 21 Sold 100 @ 20 5/29

### b. LIFO:

Cost of Goods Sold	Inventory
	5/1 1,000 @ 20 = 20,000 200 800 <b>5/5 300 @ 21 = 6,300</b> 300 @ 21 100 @ 20 300 @ 22 = 8,800 400 @ 22 100 @ 20 500 @ 23 = 13,800 100 11,500 30,600
8,300 10,800 11,500	8,300 = 100 @ 20 8,300 = 300 @ 21 10,800 = 100 @ 20 10,800 = 400 @ 22 11,500 = 100 @ 23 11,500 = 500 @ 23
	18,300

### c. Moving Weighted Average:

Cost of Goods Sold	Inventory
	5/1 1,000 @ 20 = 20,000 5/5 300 @ 21 = 6,300 MWA: 26,300 ÷ 1,300 = 20.23 per unit
8,092	8,092 = 400 @ 20.23 5/7 5/13 400 @ 22 = 8,800 MWA: 900 @ 20.23 = 18,207 400 @ 22 = 8,800 1,300 27,007 27,007 ÷ 1,300 = 20.77 per unit
	10,385 10,385 = 500 @ 20.77 5/19

Cost of Goods Sold (Continued)	Inventory (Continued)
	5/23 600 @ 23 = 13,800 MWA: 800 @ 20.77 = 16,616 600 @ 23 = 13,800 1,400 30,416 30,416 / 1,400 = 21.73 per unit
10,863	10,863 = 500 @ 21.73 5/29
	19,560
29,340	Ending Inventory: 900 x 21.73 = 19,560 Rounded

### Problem: FIFO, LIFO, MWA

Young, Inc. imports leather purses from Korea and sells them to retailers in the United States. The inventory flows and related costs for a particular purse style during the month of January, 20X1 is noted below:

	# of Units	Cost per Unit
Beginning Inventory	500	\$12
1/3 Purchase	200	\$13
1/7 Sale	250	
1/11 Purchase	400	\$14
1/17 Purchase	300	\$15
1/22 Sale	350	
1/25 Purchase	200	\$15
1/28 Sale	220	

If these purses sell to retailers for \$30/ea., determine the amount of 1/31/X1 inventory and January's cost of goods sold, gross margin and % markup on cost under the following cost flow assumptions.

- a. Perpetual FIFO
- b. Perpetual LIFO
- c. Moving Weighted Average

# Application of FIFO, LIFO, MWA

Solution: FIFO, LIFO, MWA

## a. FIFO

Cost of Goods Sold	Inventory
\$3,000	1/1 (500 x \$12) \$6,000 250
4,300	1/3 (200 x \$13) 2,600 100 1/1 (400 x \$14) 5,600 280
2,980	1/17 (300 x \$15) 4,500 1/25 (200 x \$15) 3,000  2,980 (100 x \$13) (120 x \$14) 1/28
<b>\$10,280</b>	<b>Debits - Credits = \$11,420</b>

Solution: FIFO, LIFO, MWA

## a. FIFO

### Gross margin:

Net sales revenue (820 x \$30) **\$24,600**  
 Less: Cost of goods sold **(10,280)**  
**\$14,320**

### % Markup on cost:

**\$14,320 ÷ \$10,280 = 1.39 or 139%**

Solution: FIFO, LIFO, MWA

## b. LIFO

Cost of Goods Sold	Inventory
\$3,200	1/1 (500 x \$12) \$6,000 450
5,200	1/3 (200 x \$13) 2,600 1/11 (400 x \$14) 5,600 350 330
3,280	1/17 (300 x \$15) 4,500 1/25 (200 x \$15) 3,000  3,280 (200 x \$15) (20 x \$14) 1/28 220 Units sold
<b>\$11,680</b>	<b>\$10,020</b>

Solution: FIFO, LIFO, MWA

## b. LIFO (continued)

### Gross margin:

Net sales revenue **\$24,600**  
 Less: Cost of goods sold **(11,680)**  
**\$12,920**

### % Markup on cost:

**\$12,920 ÷ \$11,680 = 1.11 or 111%**

Solution: FIFO, LIFO, MWA

## c. Moving Weighted Average

Cost of Goods Sold	Inventory
3,071	1/1 (500 x \$12) \$6,000 1/3 (200 x \$13) 2,600 MWA: $\$8,600 \div 700 = \$12.29$  1/11 (400 x \$14) 5,600 1/17 (300 x \$15) 4,500 MWA: $450 \times \$12.29 = 5,529$ $400 \times \$14 = 5,600$ $300 \times \$15 = 4,500$ $1,150 \times 15.629 = 15,629$ $\$15,629 \div 1,150 = \$13.59$
4,757	3,071 (250 x \$12.29) 1/7  1/25 (200 x \$15) 3,000 MWA: $800 \times \$13.59 = 10,872$ $200 \times \$15 = 3,000$ $1,000 \times 13.872 = 13,872$ $\$13,872 \div 1,000 = \$13.87$
10,880	3,052 (220 x \$13.87) 1/28

Solution: FIFO, LIFO, MWA

## c. Moving Weighted Average:

### Gross margin :

Net sales revenue **\$24,600**  
 Less: Cost of goods sold **(10,880)**  
**\$13,720**

### % Markup on cost:

**\$13,720 ÷ \$10,880 = 1.261 or 126%**

## Physical Inventory Count and Recap

What is a physical inventory?

Why is a periodic physical inventory necessary if you maintain a perpetual subsidiary ledger for inventory?

Pilferage Expense  
Inventory

XXX  
XXX