Thammasat University
Faculty of Economics
Bachelor of Economics (International Program)

AC201

Fundamental Accounting

Semester 2/2011
(January – April, 2012)

Course Materials

Topic:

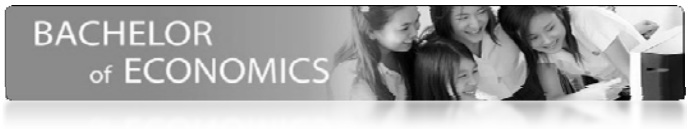
Chapter 07 Reporting and Interpreting Cost of Goods Sold and Inventory

Session:

Sessions #7

Instructor:

Ajarn Santana Singhasaneh



CHAPTER 7: REPORTING AND INTERPRETING COST OF GOODS SOLD AND INVENTORY

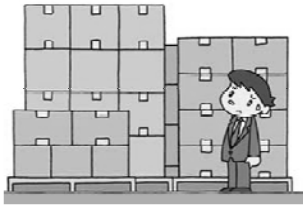
Ajarn Santana Singhasaneh
Department of Accounting
Thammasat Business School
Thammasat University

Understanding the Business

Primary Goals of Inventory Management

- Provide sufficient quantities of high-quality inventory.
- Minimize the costs of carrying inventory.

Nature of Inventory and Cost of Good Sold



Items Included in Inventory

Inventory

- Tangible
- Held for Sale
- Used to Produce Goods or Services

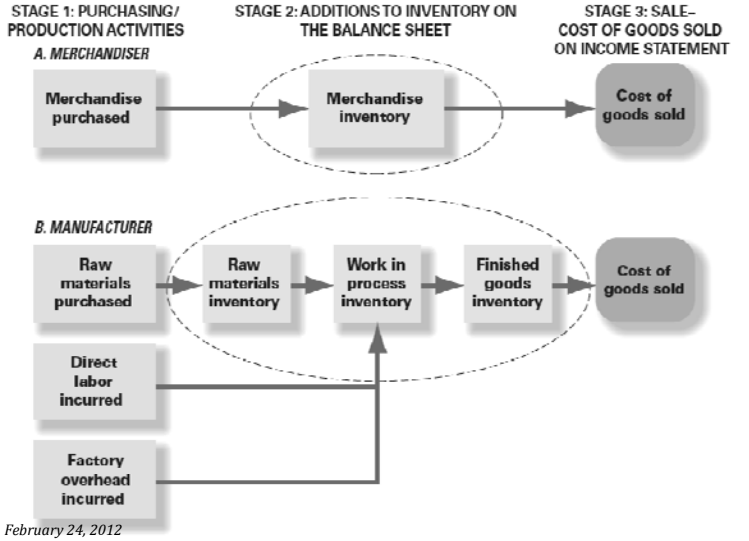
Merchandise Inventory
Raw Materials Inventory
Work in Process Inventory
Finished Goods Inventory

Costs Included in Inventory Purchases

The **cost principle** requires that inventory be recorded at the price paid or the consideration given.

- Invoice Price
- Freight
- Inspection Costs
- Preparation Costs

Flow of Inventory Costs

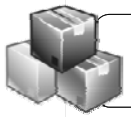


Nature of Cost of Goods Sold

Beginning Inventory + Purchases for the Period → Goods Available for Sale

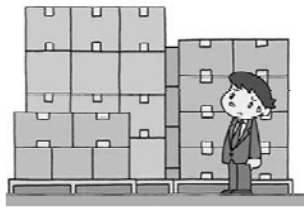
Goods Available for Sale → Ending Inventory (Balance Sheet)

Goods Available for Sale → Cost of Goods Sold (Income Statement)



Beginning inventory + Purchases = Goods Available for Sale
Goods Available for Sale – Ending inventory = Cost of goods sold

Inventory Costing Method



Inventory Costing Methods

Goods Available for Sale

Inventory Costing Methods
1. Specific Identification
2. First-in, First-out
3. Last-in, First-out
4. Weighted Average

To determine how much is to be recorded as "cost" of goods sold.

Ending Inventory
(Balance Sheet)

Cost of Goods Sold
(Income Statement)

Specific Identification

When units are sold,
the **specific cost** of the unit sold
is added to cost of goods sold.

Cost Flow Assumptions

The choice of an inventory costing method is **NOT based on the physical flow of goods** on and off the shelves.

FIFO | LIFO | Weighted Average

Example – Inventory Costing

We will use this data throughout our inventory examples.

Computers, Inc.
Mouse Pad Inventory
As of December 31, 2011

Date	Units	$ per Unit	Total $
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
Goods Available for Sale	2,250		12,210.00
Ending Inventory	1,200		?
Cost of Goods Sold	1,050		?

FIFO: First-In, First-Out Method

FIFO assumes that
the first goods purchased are the first goods sold.

Oldest Unit Costs → Cost of Goods Sold

Recent Unit Costs → Ending Inventory

FIFO: First-In, First-Out Method

The costs of the **most recent purchases** are in **ending inventory**.
Start with 200 units from Nov 29 and add units purchased
until you reach 1,200 units in ending inventory.

Given Information				Ending Inventory				Cost of Goods Sold			
Beg. Inv.	1,000	@	5.25								
Jan 3	500	@	5.30	↑	450	@	5.30				
Jun 20	300	@	5.60		300	@	5.60				
Sep 15	250	@	5.80		250	@	5.80				
Nov 29	200	@	5.90	●	200	@	5.90				
	2,250	Units			1,200	Units				Units	
					$ 6,695	Cost				Cost	

Now we have allocated the cost to all 1,200 units in ending inventory.

FIFO: First-In, First-Out Method

The costs of the **oldest purchases** are allocated to **cost of goods sold**.
Start with 1,000 units from beginning inventory
and add units purchased until you reach 1,050 units sold.

Given Information				Ending Inventory				Cost of Goods Sold			
Beg. Inv.	1,000	@	5.25					●	1,000	@	5.25
Jan 3	500	@	5.30		450	@	5.30	↓	50	@	5.30
Jun 20	300	@	5.60		300	@	5.60				
Sep 15	250	@	5.80		250	@	5.80				
Nov 29	200	@	5.90		200	@	5.90				
	2,250	Units			1,200	Units			1,050	Units	
					$ 6,695	Cost			$ 5,515	Cost	

Now we have allocated the cost to all 1,050 units sold.

FIFO: First-In, First-Out Method

Here is the cost of ending inventory and cost of goods sold using FIFO.

Computers, Inc.
Mouse Pad Inventory
As of December 31, 2011

Date	Units	$ per Unit	Total $
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
Goods Available for Sale	2,250		12,210.00
Ending Inventory	1,200		6,695.00
Cost of Goods Sold	1,050		5,515.00

LIFO: Last-In, First-Out Method

LIFO assumes that
the most recently purchased units are sold first.

Oldest Unit Costs → Ending Inventory

Recent Unit Costs → Cost of Goods Sold

LIFO: Last-In, First-Out Method

The costs of the **oldest purchases** are in **ending inventory**.
Start with 1,000 units in beginning inventory and add units purchased until you reach 1,200 units in ending inventory.

Given Information				Ending Inventory			Cost of Goods Sold	
Beg. Inv.	1,000	@	5.25	1,000	@	5.25		
Jan 3	500	@	5.30	200	@	5.30		
Jun 20	300	@	5.60					
Sep 15	250	@	5.80					
Nov 29	200	@	5.90					
	2,250	Units		1,200	Units			Units
				$ 6,310	Cost			Cost

Now we have allocated the cost to all 1,200 units in ending inventory.

LIFO: Last-In, First-Out Method

The costs of the **most recent purchases** are allocated to **cost of goods sold**. Start with 200 units from Nov 29
and add units purchased until you reach 1,050 units sold.

Given Information				Ending Inventory			Cost of Goods Sold		
Beg. Inv.	1,000	@	5.25	1,000	@	5.25			
Jan 3	500	@	5.30	200	@	5.30	300	@	5.30
Jun 20	300	@	5.60				300	@	5.60
Sep 15	250	@	5.80				250	@	5.80
Nov 29	200	@	5.90				200	@	5.90
	2,250	Units		1,200	Units		1,050	Units	
				$ 6,310	Cost		$ 5,900	Cost	

Now we have allocated the cost to all 1,050 units sold.

LIFO: Last-In, First-Out Method

Here is the cost of ending inventory and cost of goods sold using LIFO.

Computers, Inc.
Mouse Pad Inventory
As of December 31, 2011

Date	Units	$ per Unit	Total $
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
Goods Available for Sale	2,250		12,210.00
Ending Inventory	1,200		6,310.00
Cost of Goods Sold	1,050		5,900.00

Average Cost Method

The **average cost** is used for **both cost of goods sold** and **ending inventory**.

$$\text{Average Cost} = \frac{\text{Cost of Goods Available for Sale}}{\text{Number of Units Available for Sale}}$$

Average Cost Method

Computers, Inc.
Mouse Pad Inventory
As of December 31, 2011

Date	Units	$ per Unit	Total $
Beginning Inventory	1,000	5.25	5,250.00
Purchases:			
Jan 3	500	5.30	2,650.00
Jun 20	300	5.60	1,680.00
Sep 15	250	5.80	1,450.00
Nov 29	200	5.90	1,180.00
Goods Available for Sale	2,250		12,210.00
Ending Inventory	1,200		6,512.00
Cost of Goods Sold	1,050		5,698.00

Average Cost = $ 12,210 / 2,250 = $ 5.42667
= 1,200 x $ 5.42667
= 1,050 x $ 5.42667

Comparison of Methods

Computers, Inc.
Income Statement
For Year Ended December 31, 2011

	FIFO	LIFO	Weighted Average
Net sales	$ 25,000	$ 25,000	$ 25,000
Cost of goods sold:			
Merchandise inventory, beginning	$ 5,250	$ 5,250	$ 5,250
Net purchases	6,960	6,960	6,960
Goods available for sale	$ 12,210	$ 12,210	$ 12,210
Merchandise inventory, ending	6,695	6,310	6,512
Cost of goods sold	$ 5,515	$ 5,900	$ 5,698
Gross profit	$ 19,485	$ 19,100	$ 19,302
Operating expenses	750	750	750
Income before taxes	$ 18,735	$ 18,350	$ 18,552
Income taxes expense (30%)*	5,621	5,505	5,566
Net income	$ 13,114	$ 12,845	$ 12,986

* Tax expense amounts were rounded.

Financial Statement Effects of Costing Method

Advantages of Methods

First-In, First-Out	Last-In, First-Out	Weighted Average
Ending inventory approximates current replacement cost.	Better matches current costs in cost of goods sold with revenues.	Smoothes out price changes.

International Perspective
LIFO and International Comparisons

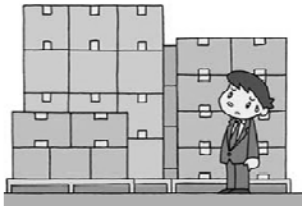
While U.S. GAAP allows companies to choose between FIFO, LIFO, and weighted average inventory methods, International Financial Reporting Standards (**IFRS**) currently **prohibit the use of LIFO**.

GAAP allows different inventory accounting methods to be used for different types of inventory items.

IFRS requires that the same method be used for all inventory items that have a similar nature and use.

These differences can create comparability problems when one attempts to compare companies across international borders.

Valuation at Lower of Cost or Net Realizable Value



Valuation at Lower of Cost or Net Realizable Value

Ending inventory is reported at the **lower of cost or net realizable value**.

Net realizable value (NRV) is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale.

The company will recognize a "holding" loss in the current period rather than the period in which the item is sold. This practice is **Conservative**.

Valuation at Lower of Cost or Net Realizable Value

Item	Quantity	Cost	NRV	Lower of Cost or NRV	Total
Intel chips	1,000	$ 250	$ 200	$ 200	$ 200,000
Disk drives	400	100	110	100	40,000
Total		290,000			240,000

(1,000 Intel chips × $50) = $50,000

GENERAL JOURNAL			
Date	**Description**	**Debit**	**Credit**
Dec 31, 11	Cost of goods sold (+E, -SE)	50,000	
	Inventory (-A)		50,000
	To adjust the Intel chips to		
	net realizable value.		

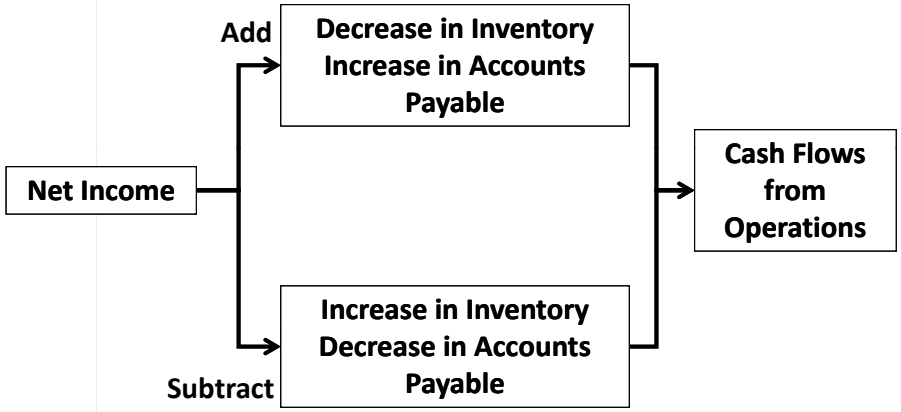
Inventory Turnover Ratio

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

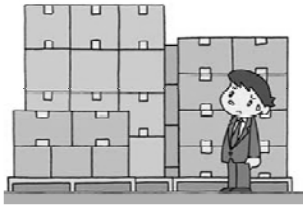
Average Inventory is
(Beginning Inventory + Ending Inventory) ÷ 2

This ratio reflects how many times
average inventory
was produced and sold during the period.
A higher ratio indicates that
inventory moves more quickly
thus reducing
storage and obsolescence costs.

Inventory and Cash Flows



Control of Inventory



Internal Control of Inventory

Separation of
inventory accounting &
physical handling of inventory.

Storage in a manner that
protects from
theft and damage.

Limiting access
to authorized employees.

Maintaining
perpetual inventory records.

Comparing perpetual records to
periodic physical counts.

Perpetual and Periodic Inventory Systems

Perpetual Inventory System

- Provides up-to-date inventory records.

- Provides up-to-date cost of sales records.

In a **Periodic Inventory System**,
ending inventory and cost of goods sold are determined
at the end of the accounting period based on **a physical count**.

Perpetual and Periodic Inventory Systems

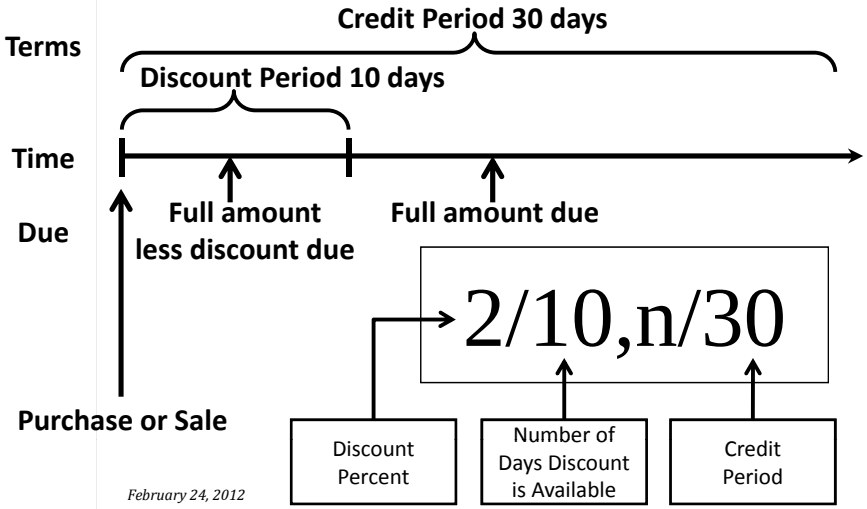
Item	Inventory System	
	Periodic System	Perpetual System
Beginning Inventory	Carried over from prior period	Carried over from prior period
Add: Purchases	Accumulated in the Purchases account	Accumulated in the Inventory account
Less: Ending Inventory	Measured at end of period by physical inventory count	Perpetual record updated at every sale
Cost of Goods Sold	Computed as a residual amount at end of period	Measured at every sale based on perpetual record

Supplement B: Additional Issues in Measuring Purchases

Purchase returns and allowances are
a reduction in
the cost of purchases
associated with unsatisfactory goods.

A purchase discount
is a cash discount received
for prompt payment of an account.

Supplement B: Additional Issues in Measuring Purchases



Supplement C: Comparison of Perpetual and Periodic Inventory Systems

Perpetual Inventory System

Jan. 1	Had beginning inventory of 800 units at a unit cost of $50.		
Apr. 14	Purchased 1,100 units at a unit cost of $50.		
	Inventory (+A)	55,000	
	Accounts payable (-L)		55,000
Nov. 30	Sold 1,300 units at a sales price of $83.		
	Accounts receivable (+A)	107,900	
	Sales revenue (+R, +SE)		107,900
	Cost of goods sold (+E, -SE)	65,000	
	Inventory (-A)		65,000
Dec. 31	Use cost of goods sold and inventory amounts.		

Supplement C: Comparison of Perpetual and Periodic Inventory Systems

Periodic Inventory System

Jan. 1	Had beginning inventory of 800 units at a unit cost of $50.		
Apr. 14	Purchased 1,100 units at a unit cost of $50.		
	Purchases (+A)	55,000	
	Accounts payable (+L)		55,000
Nov. 30	Sold 1,300 units at a sales price of $83.		
	Accounts receivable (+A)	107,900	
	Sales revenue (+R, +SE)		107,900
Dec. 31	Count the number of units on hand.		
	Compute the dollar valuation of the ending inventory.		
	Compute and record the cost of goods sold.		
	Cost of goods sold (+E, -SE)	95,000	
	Inventory (beginning) (-A)		40,000
	Purchases (-A)		55,000
To establish ending inventory bal.	Inventory (ending) (+A)	30,000	
	Cost of goods sold (-E, +SE)		30,000

Transfer to CoGS

End of Chapter 7

EXERCISE 7 – 1

INVENTORY COSTING METHODS

Quickie Grocery acquired the following five bottles of Corporate-Cola soft drink:

Date	Jan. 2	Jan. 10	Jan. 12	Jan. 16	Jan. 25
Cost	$1.00	$2.00	$3.00	$4.00	$5.00

A January 31 inventory count revealed that two bottles remained on the shelf.

How many bottles were sold in January?

_____

Specific Identification

The Quickie Grocery keeps track of each individual bottle. Suppose the Grocery knows that it sold the bottles acquired on Jan. 2, 12, and 16.

Date	Jan. 2	Jan. 10	Jan. 12	Jan. 16	Jan. 25	Total
Cost	$1.00	$2.00	$3.00	$4.00	$5.00	$15.00
COGS						
Inventory						

What was the cost of goods sold for January?

_____

What was the value of inventory on January 31?

_____

First-in, First-out (FIFO)

Date	Jan. 2	Jan. 10	Jan. 12	Jan. 16	Jan. 25	Total
Cost	$1.00	$2.00	$3.00	$4.00	$5.00	$15.00
COGS						
Inventory						

What was the cost of goods sold for January?

_____

What was the value of inventory on January 31?

_____

EXERCISE 7 – 1, CONTINUED

Last-in, First-out (LIFO)

Date	Jan. 2	Jan. 10	Jan. 12	Jan. 16	Jan. 25	Total
Cost	$1.00	$2.00	$3.00	$4.00	$5.00	$15.00
COGS						
Inventory						

What was the cost of goods sold for January?

What was the value of inventory on January 31?

Average Cost

Date	Jan. 2	Jan. 10	Jan. 12	Jan. 16	Jan. 25	
Cost	$1.00	$2.00	$3.00	$4.00	$5.00	$15.00

What was the cost of goods sold for January?

What was the value of inventory on January 31?

Complete the following table:

	Specific Identification	FIFO	LIFO	Average Cost
Cost of Goods Sold				
Inventory				

EXERCISE 7 – 2

LOWER OF COST OR NET REALIZABLE VALUE (NRV)

Amanda Corporation is preparing its financial statements for the year ending December 31, 2010. Ending inventory information about the three major items stocked for regular sale follows:

Item	Quantity on Hand	Unit Cost When Acquired (FIFO)	Net Realizable Value (NRV) at Year-End
AA	100	$ 30	$ 26
BB	150	80	80
CC	200	100	104

Compute the valuation that should be used for the ending inventory using the Lower of Cost or NRV rule applied on an item-by-item basis.

EXERCISE 7 – 3

PURCHASE TRANSACTIONS

On February 2, Hamm Manufacturing Corp. purchased $40,000 worth of inventory, on credit terms 3/10 n/30. On February 10, Hamm paid for the inventory, taking advantage of all available discounts.

Prepare the required journal entries.

Date	General Journal	Debit	Credit