



BACHELOR of ECONOMICS



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

AC201 Fundamental Accounting

Semester 2/2012

Course Materials

Topic:

Chapter 7 Reporting and Interpreting
Cost of Goods Sold and Inventory

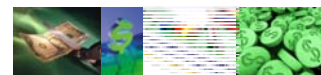
Session:

Sessions #7

Instructor:

Assistant Professor Dr.Orapan Yolrabil





BACHELOR of ECONOMICS



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

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Thammasat Business School
Thammasat University

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มาตรฐานการบัญชี ฉบับที่ 2 (ปรับปรุง 2552)

**เรื่อง
สินค้าคงเหลือ**

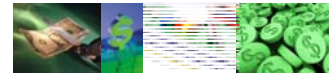
คำแถลงการณ์

มาตรฐานการบัญชีฉบับนี้ได้ปรับปรุงให้เป็นไปตามเกณฑ์ที่กำหนดขึ้นโดย มาตรฐานการบัญชีระหว่างประเทศ เรื่อง สินค้าคงเหลือ พ.ศ. 2552 ซึ่งเป็นการแก้ไขของคณะกรรมการมาตรฐานการบัญชีระหว่างประเทศที่สิ้นสุดในวันที่ 31 ธันวาคม พ.ศ. 2551 (IAS 2 Inventories (Bound volume 2009))

TAS2 Inventories

Federation of Accounting Professions

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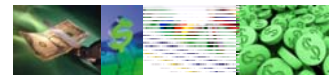
Nature of Inventory and Cost of Goods Sold

Items included in inventory

- Inventory is tangible property that is
 - (1) held for sale in the normal course of business or
 - (2) used to produce goods or services for sale.
- Inventory is reported on the **Statement of Financial Position** as a **current asset**, because it normally is used or converted into cash within one year or the next operating cycle.



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Inventory and Cost of Goods Sold Presentation

Statement of Financial Position

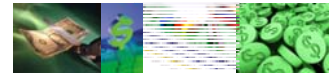
- Assets:
 - Current Assets:
 - **Inventory, net**
 - [Lower of cost or net realizable value]

Inventories include assets held for sale in the ordinary course of business (finished goods), assets in the production process for sale in the ordinary course of business (work in process), and materials and supplies that are consumed in production (raw materials).

Statement of Comprehensive Income

- Net Sales
- **Less: Cost of goods sold**
- Gross profit

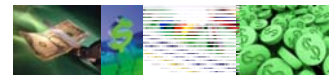
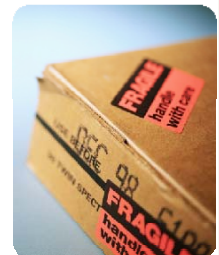
When inventories are sold and revenue is recognized, the carrying amount of those inventories is recognized as an expense (often called cost-of-goods-sold). Any write-down to NRV and any inventory losses are also recognized as an expense when they occur.



Cost Included in Inventory Purchases

• Goods in inventory are initially recorded **at cost**.

- Inventory cost includes the sum of the costs incurred in bringing an article to **usable** or **salable** condition and location.
 - The company should cease accumulating purchase costs when the raw materials are ready for use or when the merchandise inventory is ready for shipment.
 - Any additional costs related to selling the inventory to the dealers that are incurred after the inventory is ready for use should be included in selling, general and administrative expenses in the period they are incurred.



Accounting for Inventories



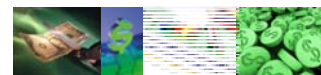
Perpetual Inventory System

- One keeping continual track of additions or deletions in materials, work-in-process, and cost of goods sold on a day-to-day basis.
- Physical inventory counts are usually taken at least once a year in order to check on the validity of the book records.
- Cost of goods sold is kept on a day-to-day basis rather than being determined periodically.



Periodic Inventory System

- One that does not require a day-to-day record of inventory changes.
- Cost of materials used and costs of goods sold cannot be calculated until ending inventories, determined by physical count, are subtracted from the sum of beginning inventories and purchases (or cost of goods available for sales)



Example on Inventory System

Information:

Beginning inventory	100 units @ ₪6	= ₪600
Purchases	900 units @ ₪6	= ₪5,400
Sales	600 units @ ₪12	= ₪7,200
Ending inventory	400 units @ ₪6	= ₪2,400

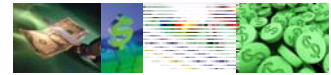
Perpetual Inventory System	Periodic Inventory System
1. Beginning inventory 100 units at 600 Baht	
Inventory account shows 600 Baht.	Inventory account shows 600 Baht.
2. Purchase of 900 units at 6 Baht per unit on credit	
Dr. Inventory 5,400	Dr. Purchases 5,400
Cr. Accounts payable 5,400	Cr. Accounts payable 5,400
3. Sale of 600 units at a selling price of 12 Baht per unit on account	
Dr. Accounts receivable 7,200	Dr. Accounts receivable 7,200
Cr. Sales revenue 7,200	Cr. Sales revenue 7,200
Dr. Cost of goods sold 3,600	
Cr. Inventory 3,600	
4. End-of-period entry for inventory adjustment	
No entry	Dr. Cost of goods sold 3,600
The ending balance of inventory shows 2,400 Baht.	Ending inventory 2,400
The cost of goods sold shows the balance of 3,600 Baht.	Cr. Beginning inventory 600
	Purchases 5,400



Cost of Goods Sold Calculation -- Illustration

- Perpetual inventory systems record cost of goods sold and keep inventory at its current balance throughout the year.
 - Therefore, there is no need to record a year-end inventory adjustment unless the perpetual records disagree with the inventory count.
 - In addition, a separate cost of goods sold calculation is unnecessary since cost of goods sold is recorded whenever inventory is sold.
- The inventory account in a Periodic inventory system keeps its beginning balance until the end of period adjustment to the physical count.
 - Therefore, a separate cost of goods sold calculation is necessary.

Beginning inventory	600
+ Purchases	5,400
= Cost of goods available for sale	6,000
- Ending inventory	(2,400)
= Cost of goods sold	3,600



Sales revenue, Cost of goods sold, and Ending inventory

- # of units sold
- x Unit price

Sales
revenue



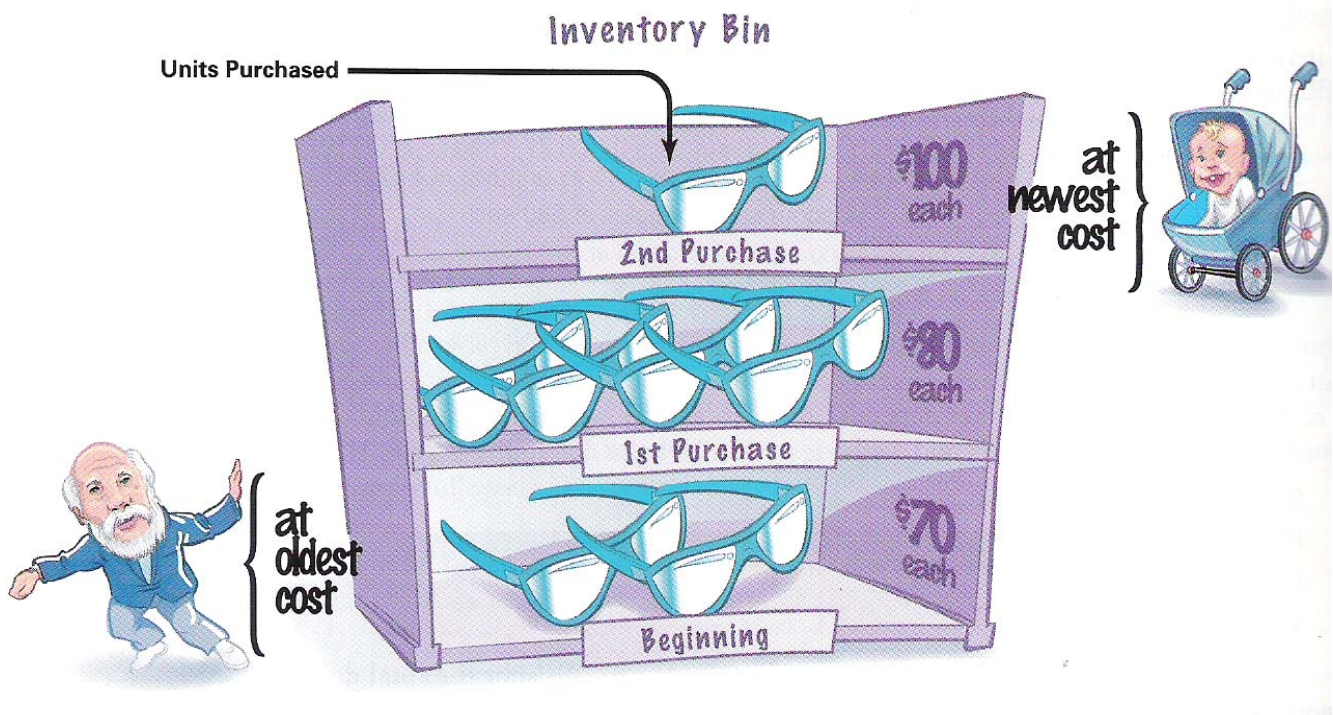
- # of units sold
- x Unit cost

Cost of
goods sold



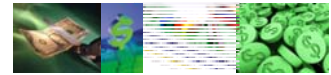
- # of units
unsold
- x Unit cost

Ending
inventory

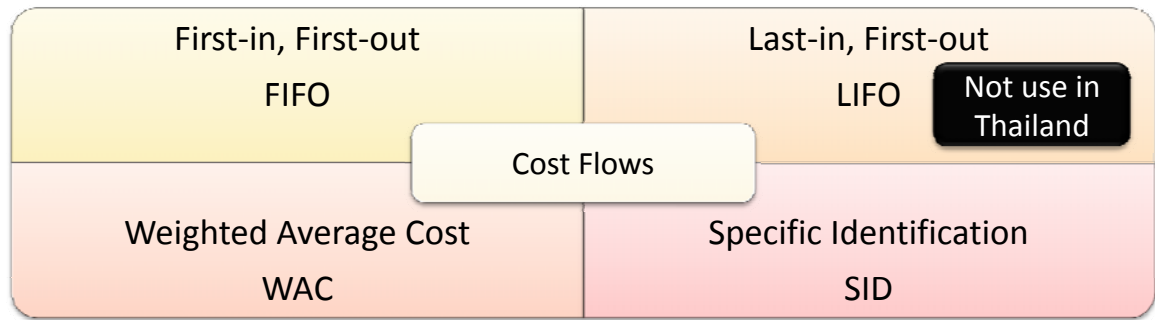


Cost of goods available for sale: The cost of all merchandise available for sale during the period; equal to the sum of beginning inventory and net purchases.

Cost of goods sold: The expenses incurred to purchase or manufacture the merchandise sold during a period.



Inventory Cost Flows Assumptions and Inventory System



- FIFO
- LIFO
- WAC
- SID

Perpetual
Inventory
System



- FIFO
- LIFO
- WAC
- SID

Periodic
Inventory
System



FIFO

- A method of inventory accounting in which the oldest remaining items are assumed to have been the first sold.



LIFO

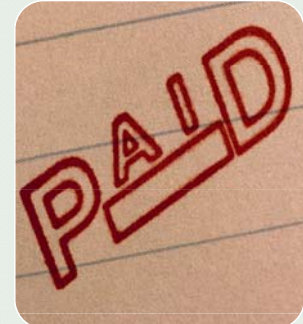
- A method of inventory accounting in which the most recently acquired items are assumed to have been the first sold.

Not use in Thailand



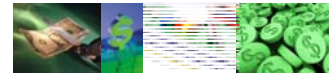
WAC

- A method of inventory that takes cost of goods available for sale and divide it by the number of units available for sale to determine an weighted average cost per unit.



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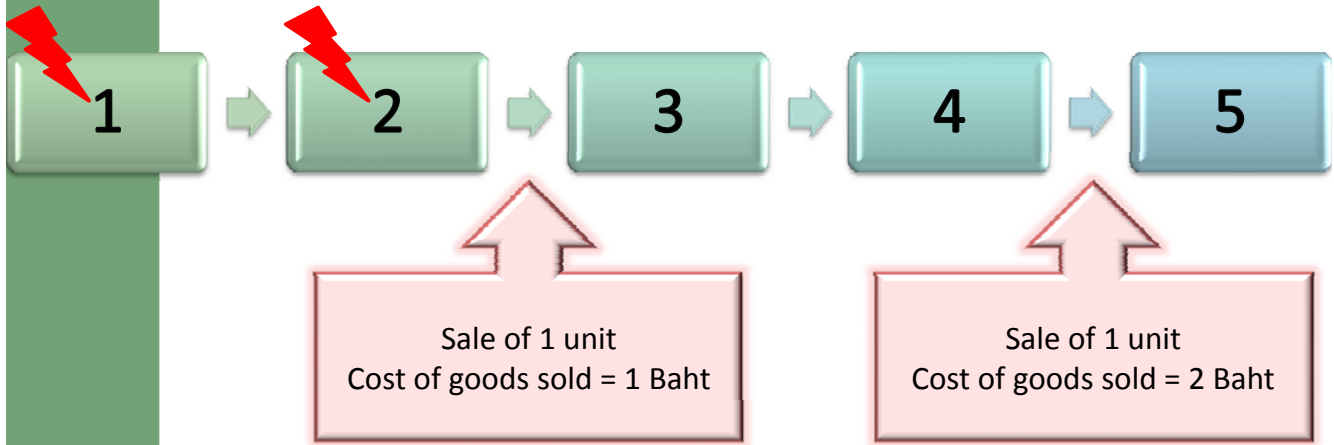
- Inventory method that considers the sale and cost of each item specifically.



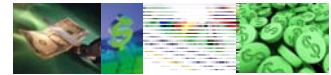
Perpetual & FIFO

Units available for sales = 5 units
Cost of goods available for sales = 15 Baht

Cost of goods sold = $1+2 = 3$ Baht
Ending inventory = $3+4+5 = 12$ Baht



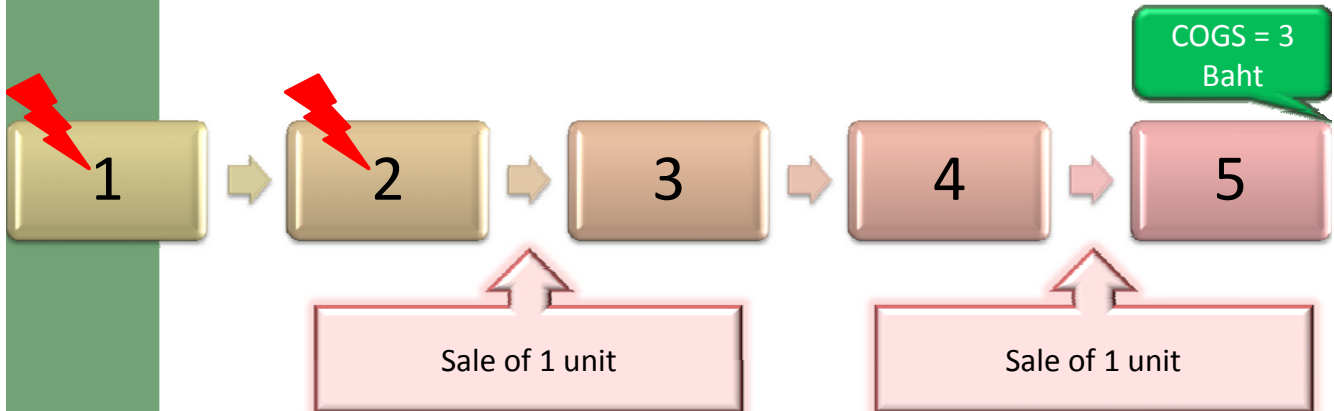
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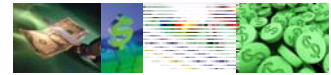
Periodic & FIFO

Units available for sales = 5 units
Cost of goods available for sales = 15 Baht

Cost of goods sold = $1+2 = 3$ Baht
Ending inventory = $3+4+5 = 12$ Baht



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Perpetual & Weighted Average

Units available for sales = 5 units
Cost of goods available for sales = 15 Baht

Cost of goods sold = $1.50 + 2.83 = 4.33$ Baht
Ending inventory = $5.67 + 5.00 = 10.67$ Baht

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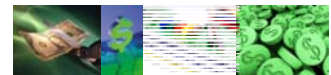
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Sale of 1 unit
Cost of goods sold = 1.50 Baht

Sale of 1 unit
Cost of goods sold = 2.83 Baht

Weighted average cost per unit for Sale #1
= Cost of goods available for sale /
of units available for sale
= 3 Baht / 2 Units
= 1.50 Baht per unit

Weighted average cost per unit for Sale #2
= Cost of goods available for sale /
of units available for sale
= 8.50 Baht / 3 Units
= 2.83 Baht per unit



Periodic & Weighted Average

Units available for sales = 5 units
Cost of goods available for sales = 15 Baht

Cost of goods sold = 3×2 units = 6 Baht
Ending inventory = 3×3 units = 9 Baht

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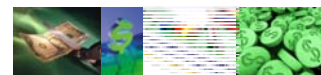
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Sale of 1 unit

Sale of 1 unit

COGS = 6
Baht

Weighted average cost per unit for the period
= Cost of goods available for sale / # of units available for sale
= 15 Baht / 5 Units
= 3 Baht per unit



Perpetual & Periodic Inventory System Examples

Cost of Goods Available for Sale

				Unit cost (Baht)		Amount (Baht)
Jan.	1	Beg. Inventory	10	units @	90 =	900
Feb.	3	Purchased	15	units @	105 =	1,575
Jul.	17	Purchased	20	units @	115 =	2,300
Aug.	28	Purchased	10	units @	120 =	1,200

Retail Sales of Goods

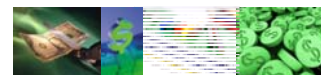
				Unit price (Baht)		Amount (Baht)
Jun.	14	Sales	20	units @	130 =	2,600
Nov.	30	Sales	25	units @	150 =	3,750

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Perpetual Inventory System & FIFO

DATE	PURCHASES			COST OF GOODS SOLD			INVENTORY		
	Quantity	Unit cost	Total cost	Quantity	Unit cost	Total cost	Quantity	Unit cost	Total cost
Jan. 1							10	90	900
Feb. 3	15	105	1,575				10	90	900
							15	105	1,575
Jun. 14				10	90	900	5	105	525
				10	105	1,050			
Jul. 17	20	115	2,300				5	105	525
							20	115	2,300
Aug. 28	10	120	1,200				5	105	525
							20	115	2,300
							10	120	1,200
Nov. 30				5	105	525	10	120	1,200
				20	115	2,300			
						Cost of goods sold = 4,775 Baht	Ending Inventory = 1,200 Baht		



Perpetual Inventory System & Weighted Average Cost

DATE	PURCHASES			COST OF GOODS SOLD			INVENTORY		
	Quantity	Unit cost	Total cost	Quantity	Unit cost	Total cost	Quantity	Unit cost	Total cost
Jan. 1							10	90	900
Feb. 3	15	105	1,575				25	99	2,475
Jun. 14				20	99	1,980	5	99	495
Jul. 17	20	115	2,300				25	111.80	2,795
Aug. 28	10	120	1,200				35	114.14	3,995
Nov. 30				25	114.14	2,854	10	114.14	1,141

Cost of goods sold
= 4,834 Baht

Ending Inventory
= 1,141 Baht



Periodic Inventory System & FIFO

Beg. Inv. & Purchases

Cost of Goods Available for Sales

Cost of Goods Sold

Jan. 1
10 units
@ 90 Baht

Feb. 3
15 units
@ 105 Baht

Jul. 17
20 units
@ 115 Baht

Aug. 28
10 units
@ 120 Baht

900

1,575

2,300

1,200

5,975

10 units @ 90

15 units @ 105

20 units @ 115

10 units @ 120

900

1,575

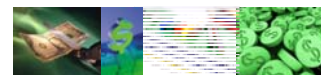
2,300

4,775

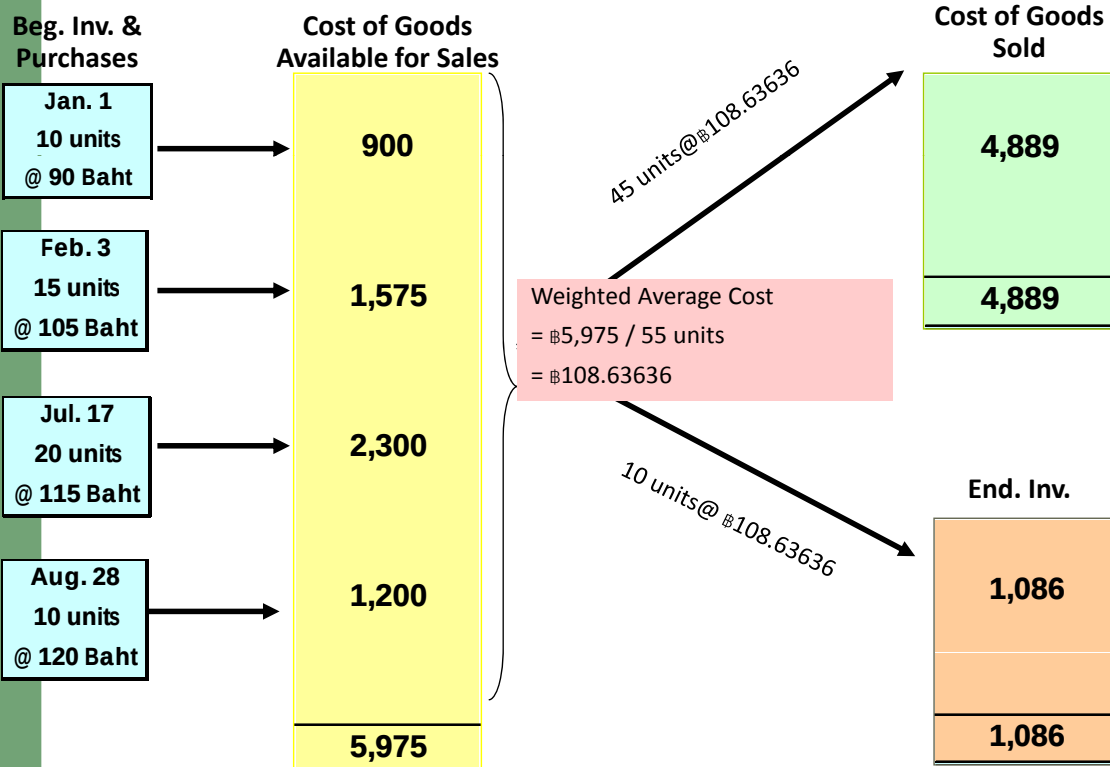
End. Inv.

1,200

1,200



Periodic Inventory System & Weighted Average Cost

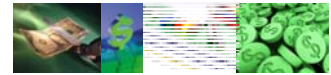


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Cost Flow Assumptions Compared

Inventory Valuation Methods: A Summary			
Valuation Method	Costs Allocated to:		Comments
	Cost of Goods Sold	Inventory	
Specific identification	Actual cost of the units sold	Actual cost of units remaining	Parallels physical flow Logical method when units are unique May be misleading for identical units
Average cost	Number of units sold times the average unit cost	Number of units on hand times the average unit cost	Assigns all units the same average unit cost Current costs are averaged in with older costs
First-in, First-out (FIFO)	Cost of earliest purchases on hand prior to the sale	Cost of most recently purchased units	Cost of goods sold is based on older costs Inventory valued at current costs May overstate income during periods of rising prices; may increase income taxes due
Last-in, First-out (LIFO)	Cost of most recently purchased units	Cost of earliest purchases (assumed still in inventory)	Cost of goods sold shown at recent prices Inventory shown at old (and perhaps out of date) costs Most conservative method during periods of rising prices; often results in lower income taxes

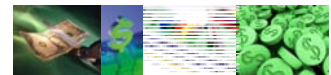


LIFO-FIFO combined with Periodic and Perpetual

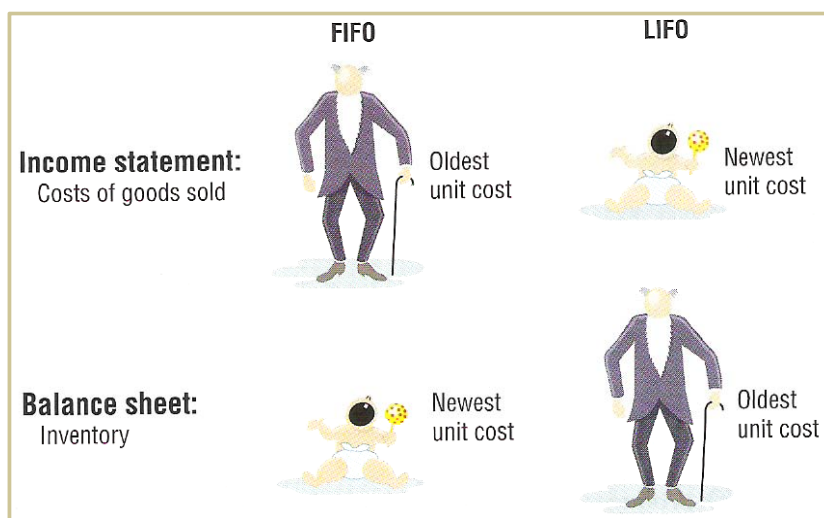
- When using FIFO, the COGS and Ending inventory are the same for both perpetual and periodic.
- When using LIFO (and Weighted Average), the perpetual and periodic recording methods do not give the same value for COGS and Ending inventory.
 - In a period of rising prices (inventory costs are rising), COGS under LIFO PERIODIC will either be equal to (rarely) or greater than (usually) COGS using LIFO PERPETUAL.



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FIFO VS. LIFO



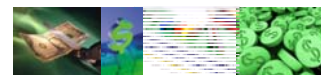
Cost of Goods Sold
(on the income statement)

Inventory
(on the balance sheet)

FIFO
LIFO

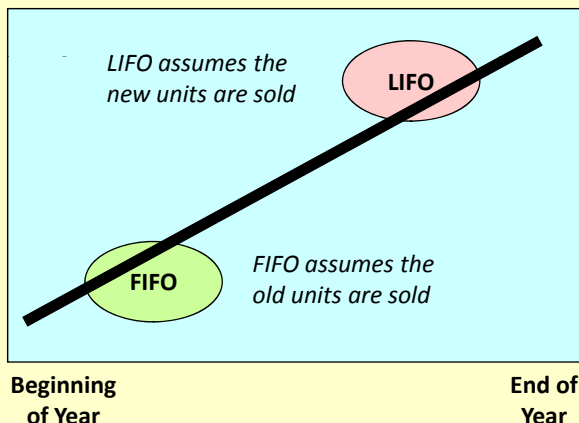
First-in (oldest) unit costs
Last-in (newest) unit costs

Newest unit costs
Oldest unit costs



FIFO and LIFO in Time of Inflation

Unit Cost of Goods Sold



Increasing Costs: Normal Financial Statement Effects

	FIFO	LIFO
Cost of goods sold	Lower	Higher
Net income	Higher	Lower
Income taxes	Higher	Lower
Inventory	Higher	Lower

Decreasing Costs: Normal Financial Statement Effects

	FIFO	LIFO
Cost of goods sold	Higher	Lower
Net income	Lower	Higher
Income taxes	Lower	Higher
Inventory	Lower	Higher

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Example of Financial Statement Presentation & Disclosure: Inventories

[Source: www.farmhouse.co.th]

BALANCE SHEETS

President Bakery Public Company Limited
As at 31 December 2010 and 2009

(Unit : Baht)

	Note	Financial statements in which the equity method is applied		Separate financial statements	
		2010	2009	2010	2009
Assets					
Current assets					
Cash and cash equivalents	6	385,066,986	85,947,113	385,066,986	85,947,113
Trade accounts receivable					
Related party	7, 9	120,973	66,313	120,973	66,313
Unrelated parties - net	7	529,960,712	452,864,675	529,960,712	452,864,675
Total trade accounts receivable - net		530,081,685	452,930,988	530,081,685	452,930,988
Inventories	8	140,930,621	116,929,748	140,930,621	116,929,748
Other current assets		14,109,410	10,100,648	14,109,410	10,100,648
Total current assets		1,070,188,702	665,908,497	1,070,188,702	665,908,497

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INCOME STATEMENTS

President Bakery Public Company Limited

For the years ended 31 December 2010 and 2009

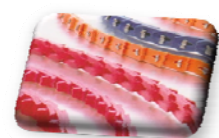
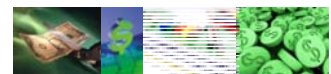
(Unit : Baht)

	Note	Financial statements in which the equity method is applied		Separate financial statements	
		2010	2009	2010	2009
Revenues					
Sales		4,596,386,529	3,912,737,836	4,596,386,529	3,912,737,836
Interest income		4,071,842	1,058,717	4,071,842	1,058,717
Other income		12,689,288	6,933,179	13,274,288	6,933,179
Total revenues		4,613,147,659	3,920,729,732	4,613,732,659	3,920,729,732
Expenses					
Cost of sales		2,804,137,759	2,389,519,215	2,804,137,759	2,389,519,215
Selling expenses		618,251,504	532,405,195	618,251,504	532,405,195
Administrative expenses		392,918,696	333,999,983	392,918,696	333,999,983
Management's remuneration		48,973,570	44,929,685	48,973,570	44,929,685
Total expenses		3,864,281,529	3,300,854,078	3,864,281,529	3,300,854,078

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AC201 Fundamental Accounting



4.4 Inventories

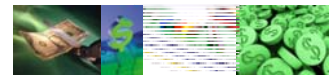
Inventories are valued at the lower of cost (weighted average basis) and net realisable value. Cost of finished goods and work in process comprises all production costs and attributable factory overhead.

Raw and packing materials, spare parts and factory supplies are charged to production costs whenever consumed.

8. INVENTORIES

(Unit : Baht)

	2010	2009
Finished goods	1,751,273	2,088,021
Work in process	3,382,346	3,700,422
Raw materials	57,109,332	48,277,068
Packaging materials	38,788,865	33,782,012
Spare parts and factory supplies	39,898,805	29,082,225
Total	140,930,621	116,929,748



Operation Cycle

Operating Cycle

$$= \text{Days to sell inventory} \\ + \text{Days to collect accounts receivable}$$

$$\text{Days to sell inventory} \\ = 365 \text{ days} / \\ \text{Inventory turnover rate}$$

$$\text{Days to collect accounts receivable} \\ = 365 \text{ days} / \\ \text{Accounts receivable turnover rate}$$

$$\text{Inventory turnover rate} \\ = \text{Cost of goods sold} / \\ \text{Average inventory}$$

$$\text{Average inventory} \\ = (\text{Beg. B/L} + \text{End. B/L}) / 2$$

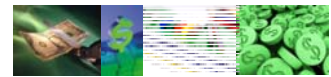
$$\text{Accounts receivable} \\ \text{turnover rate} \\ = \text{Net sales} / \\ \text{Average accounts} \\ \text{receivable}$$

$$\text{Average accounts} \\ \text{receivable} \\ = (\text{Beg. B/L} + \text{End. B/L}) / 2$$

Date of purchase → Date of sale

Date of sale → Date of collection

Date of purchase -----> Date of collection



Cash Cycle

Date of purchase -----> Date of collection

$$\text{Operating cycle} \\ = \text{Days to sell inventory} + \text{Days to collect accounts receivable}$$

Date of purchase → Date of payment

$$\text{Days to pay accounts payable} \\ = 365 \text{ days} / \text{Accounts payable turnover} \\ \text{rate}$$

$$\text{Accounts payable turnover rate} \\ = \text{Purchases} / \text{Average accounts payable}$$

$$\text{Average accounts payable} \\ = (\text{Beg. B/L} + \text{End. B/L}) / 2$$

$$\text{Cash cycle} \\ = \text{Operating cycle} - \\ \text{Days to pay accounts} \\ \text{payable}$$

External financing needed

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

Exercise 1: Inventory Costing Method

The Quickie Grocery acquired the following 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 bottles remained on the shelf.

How many bottles were sold in January? bottles sold

Specific Identification Method

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? Cost of goods sold = \$.

What was the value of inventory on January 31? Inventory = \$.

First-in, First-out (FIFO) Method

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? Cost of goods sold = \$.

What was the value of inventory on January 31? Inventory = \$.

Last-in, First-out (LIFO) Method

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? Cost of goods sold = \$.

What was the value of inventory on January 31? Inventory = \$.

Average Cost Method

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

$$\text{Average cost} = \frac{\text{Cost of Goods Available for Sale}}{\text{Number of Units Available for Sale}} = \frac{\$ \boxed{} \boxed{} . \boxed{} \boxed{}}{\boxed{} \text{ bottles available for Sale}}$$

$$= \$ \boxed{} . \boxed{} \boxed{} \text{ per bottle}$$

What was the cost of goods sold for January? Cost of goods sold = \$.

What was the value of inventory on January 31? Inventory = \$.

The Quickie Grocery Statement of Income (Partial) For the year ended December 31, 2012	
Revenues:	
Expenses:	

The Quickie Grocery Statement of Financial Position (Partial) As of December 31, 2012	
Assets:	Liabilities:
	Stockholders' Equity:

Complete the following table:

	Specific Identification	FIFO	LIFO	Average Cost
Cost of Goods Sold				
Inventory				

Exercise 2: Lower of Cost or Net Realizable Value (Nrv)

Amanda Corporation is preparing its financial statements for the year ending December 31, 2012. Ending inventory information about the three major items stocked for regular sale follows:

Item	Quantity on Hand	Unit Cost of Inventory 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.

Item	Quantity [A]	Unit Cost [B]	Inventory at Cost [A] x [B]	NRV	Lower of Cost or NRV [C]	Inventory at Lower of Cost or NRV [A] x [C]
AA						
BB						
CC						
Total						

GENERAL JOURNAL			
Date	Account Titles and Explanation		Credit
2012			

Amanda Corporation Statement of Financial Position (Partial) As of December 31, 2012	
Assets: 	Liabilities:
	Stockholders' Equity: