# ACC 1701XA
# Accounting for Decision Makers

## LECTURE 07

**Lecturer: Dr. Hanny Kusnadi**

*Accounting*

*The language of the business world*


NUS National University of Singapore | NUS BUSINESS SCHOOL


Chapter 08

# Inventory & Cost of Sales

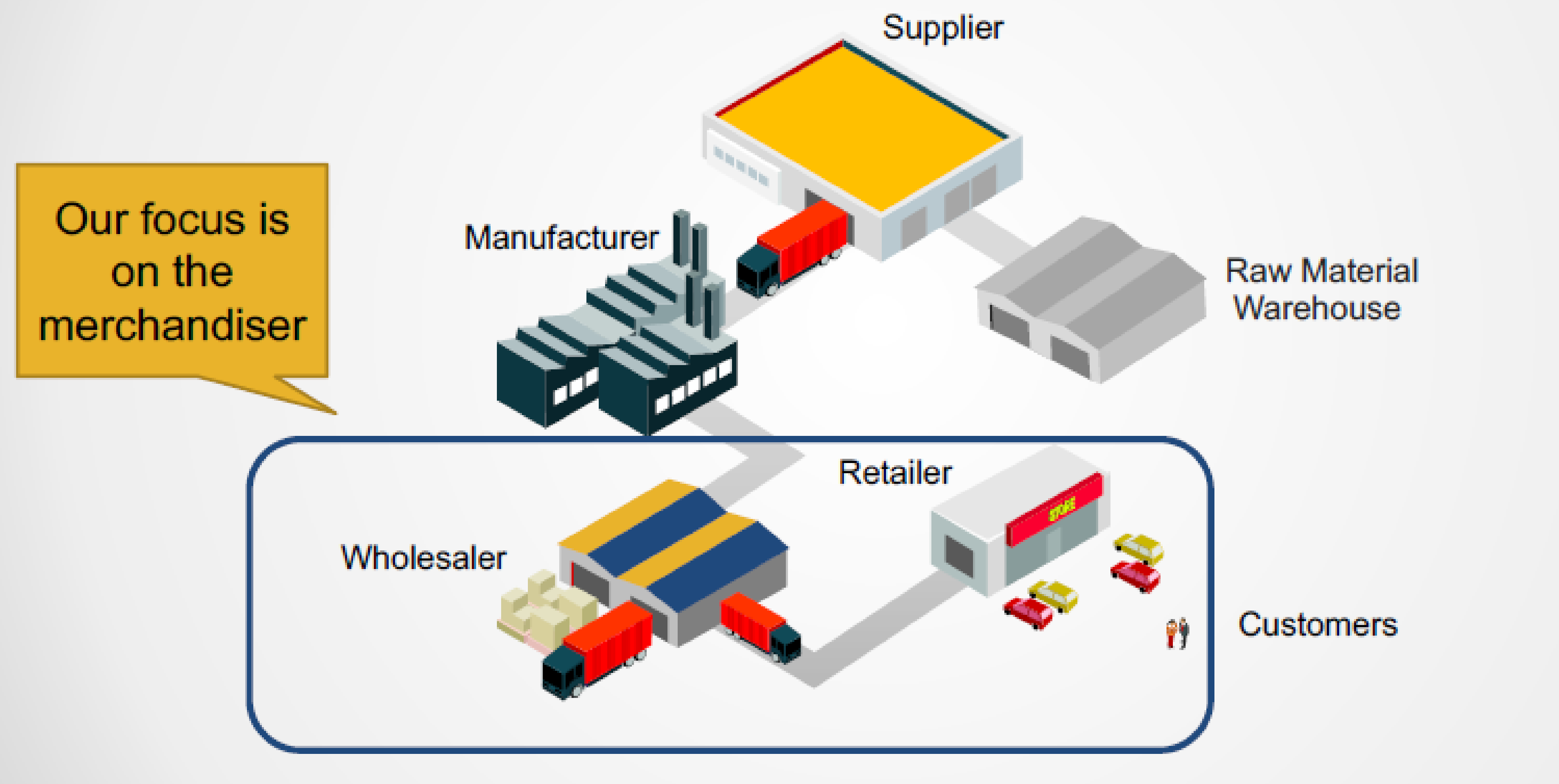
# Goals for Lecture 07

| | |
|---|---|
| **Concepts** | ▪ Inventory for merchandising companies<br>▪ Inventory systems – perpetual vs. periodic |
| **Accounting Procedures** | ▪ Purchases, freight, discounts, returns.<br>▪ Inventory costing methods – FIFO, LIFO, specific identification, weighted average cost<br>▪ Lower of cost and Net Realizable Value (NRV) of Inventory → Inventory write-down |
| **Financial Analysis** | ▪ Inventory Turnover<br>▪ Number of Days' Sales in Inventory<br>▪ Number of Days' Purchases in Accounts Payable<br>▪ Net Operating Cycle |

# What are Merchandising Companies?

- Service Companies - sell services (“time”) to earn revenues.
- **Merchandising Companies – sell products/goods to earn revenues.**

***Simplified Supply Chain for Merchandise Inventory***



# What is Inventory?

Inventories are assets:

(a) Held for sale in the ordinary course of business (finished goods)

**Our Focus!**

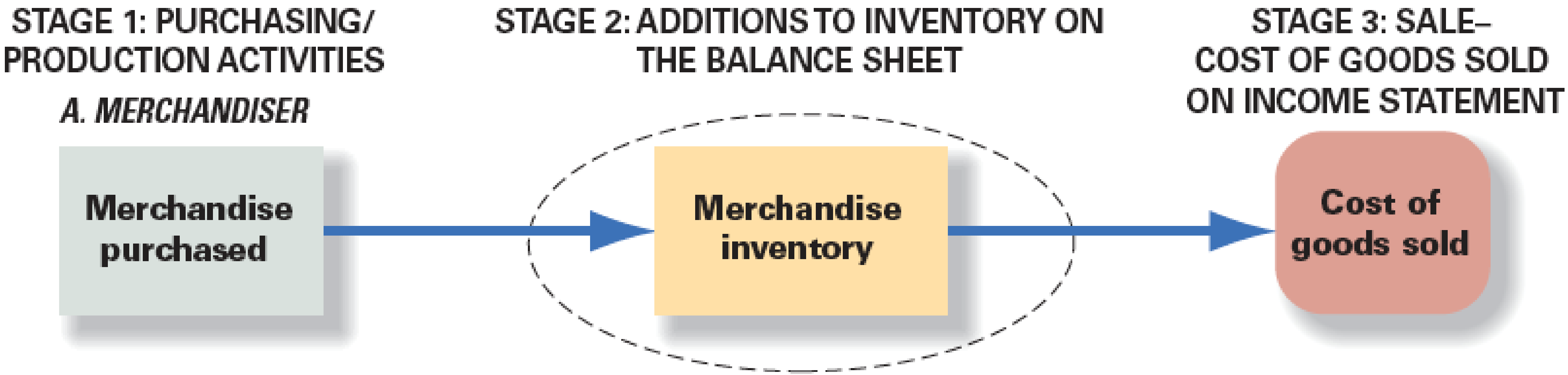
(b) In the process of production for such sale (work in progress)

(c) In the form of materials or supplies to be consumed in the production process or in the rendering of services (raw materials)

*(SFRS(I) 1-2: Inventories*

8 Inventories encompass goods purchased and held for resale including, for example, merchandise purchased by a retailer and held for resale, or land and other property held for resale. Inventories also encompass finished goods produced, or work in progress being produced, by the entity and include materials and supplies awaiting use in the production process. Costs incurred to fulfil a contract with a customer that do not give rise to inventories (or assets within the scope of another Standard) are accounted for in accordance with SFRS(I) 15 ***Revenue from Contracts with Customers***.

# Flow of Inventory Costs




**Importance of Inventories for Merchandiser:**

- One of the largest assets on its Statement of Financial Position/Balance Sheet
- One of the largest expense (Cost of goods sold) on the Income Statement

➔Significant impact of inventories and COGS on the financial position and profitability of a merchandiser

# Merchandising Companies – Inventory & COGS
# NTUC FairPrice 2024 & 2023

## SFP / BS (partial)

| | Note | 2024 $'000 | 2023 $'000 |
|---|---|---|---|
| **Current assets** | | | |
| Trade and other receivables | 11 | 183,802 | 170,788 |
| Inventories | 12 | 307,543 | 280,927 |
| Cash and cash equivalents | 13 | 360,677 | 364,808 |
| Current tax assets | | 996 | – |
| **Total current assets** | | 853,018 | 816,523 |

## SPL / IS (partial)

| | Note | 2024 $'000 | 2023 $'000 |
|---|---|---|---|
| **Revenue** | 21 | 4,570,532 | 4,416,715 |
| Inventories consumed | | (3,119,520) | (3,122,633) |
| Other income | | 338,786 | 353,899 |
| Staff and related costs | | (837,914) | (810,984) |
| Depreciation expense | | (383,703) | (363,347) |
| Impairment loss on intangible assets | | – | (36,776) |
| Other operating expenses | | (521,139) | (418,760) |
| **Profit from operations** | | 47,042 | 18,114 |


*Source: NTUC FairPrice 2023 Annual Report*

# Merchandising Companies – Inventory & COGS
# Amazon 2024 & 2023

## SFP / BS (partial)

| | December 31, 2023 | December 31, 2024 |
|---|---|---|
| **ASSETS** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 73,387 | $ 78,779 |
| Marketable securities | 13,393 | 22,423 |
| Inventories | 33,318 | 34,214 |
| Accounts receivable, net and other | 52,253 | 55,451 |
| Total current assets | 172,351 | 190,867 |

## SPL / IS (partial)

| | Year Ended December 31, 2022 | 2023 | 2024 |
|---|---|---|---|
| Net product sales | $ 242,901 | $ 255,887 | $ 272,311 |
| Net service sales | 271,082 | 318,898 | 365,648 |
| Total net sales | 513,983 | 574,785 | 637,959 |
| Operating expenses: | | | |
| Cost of sales | 288,831 | 304,739 | 326,288 |
| Fulfillment | 84,299 | 90,619 | 98,505 |
| Technology and infrastructure | 73,213 | 85,622 | 88,544 |
| Sales and marketing | 42,238 | 44,370 | 43,907 |
| General and administrative | 11,891 | 11,816 | 11,359 |
| Other operating expense (income), net | 1,263 | 767 | 763 |
| Total operating expenses | 501,735 | 537,933 | 569,366 |
| Operating income | 12,248 | 36,852 | 68,593 |


*Source: Amazon 2023 Annual Report*

# Inventory
# What's counted in it?

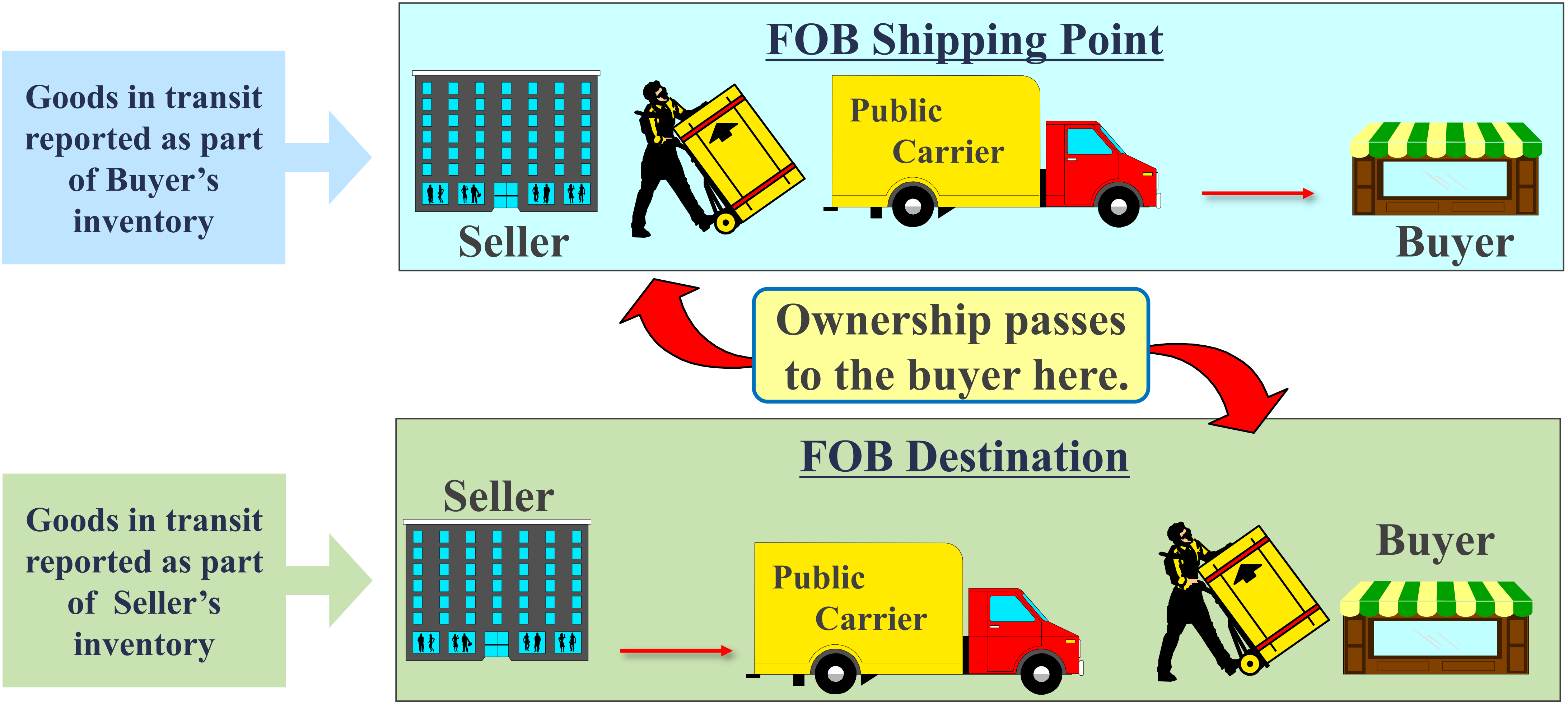
**Merchandise inventory includes all goods that a company owns and holds for sale, regardless of where the goods are located when inventory is counted.**

Items requiring special attention include:

- **Goods in Transit**
- **Goods on Consignment**
- **Goods Damaged or Obsolete**

# Goods in Transit
# My inventory or your inventory??

Whether to include goods in transit as part of inventory goods depends on who has ownership of the goods.

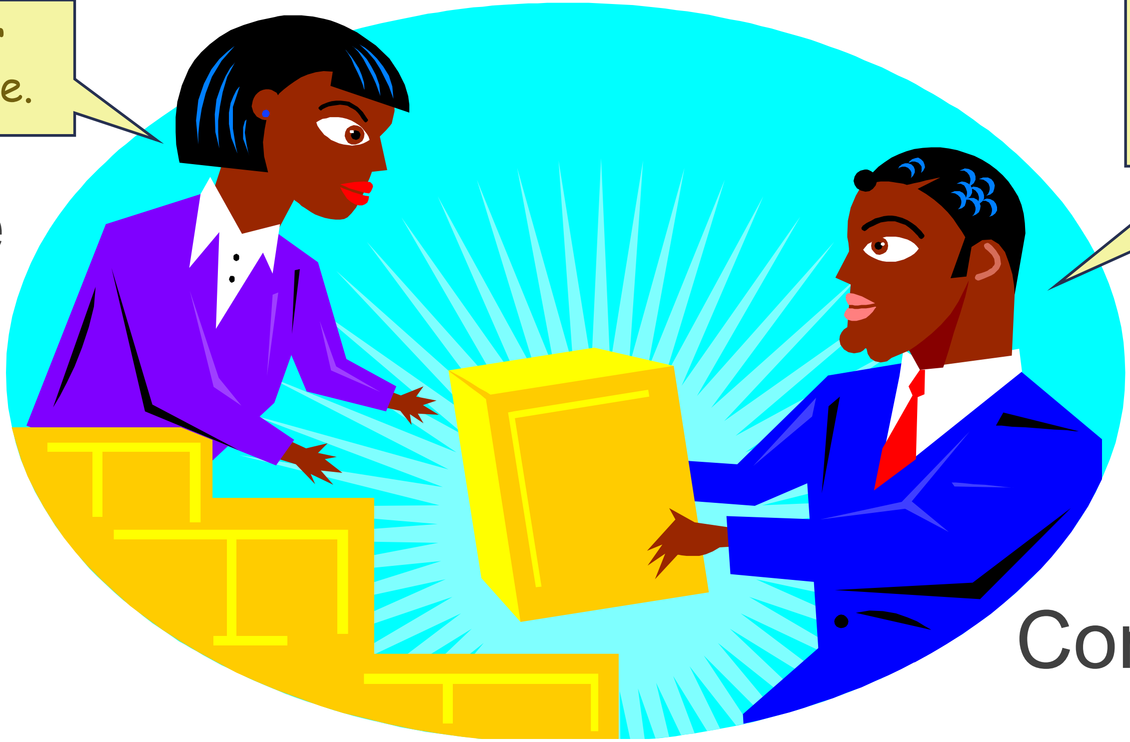


# Goods on Consignment

- Goods we OWN but are on display for sale at another place of business
- Ownership is still with the Consignor (even though item is with Consignee) so it is still part of consignor's inventory.

I'll let you sell your inventory at my store.

Consignee



Thanks for selling my inventory in your store.

Consignor

# Cost of Inventory (Merchandising Companies)
# What's included in it?

*SFRS(I) 1-2: Inventories - The cost of inventories shall comprise all costs of purchase, cost of conversion and other costs incurred in bringing the inventories to the present location and condition.*

- Inventory is recorded at **cost**, and includes all expenditures necessary to bring an item to a sellable condition and location:
  - Invoice cost
  - Freight/Transportation cost
  - Insurance cost (during shipment)
  - Storage cost (during shipment)
  - Import taxes/duties
  - Less any purchase discounts/returns


- Note: costs incurred **after** inventory is ready for use is **NOT** included! (e.g. marketing costs, salesperson salaries, financing cost, warehouse costs, retail store costs)

# Inventory System
# Perpetual vs. Periodic

**<u>Perpetual system</u>**

- <u>Up-to-date record</u> of inventory is maintained
- Inventory purchases are directly added to Inventory account
- Transaction-by-transaction record is recorded during the period
- Information on COGS and inventory balance is typically available on a continuous (perpetual) basis

**<u>Periodic system</u>**

- No up-to-date record of inventory during the accounting period
- Inventory purchases are recorded in a temporary account called "Purchases" (not directly added to Inventory account)
- Actual <u>physical count</u> of inventory is done at the end of the period
- COGS is then calculated *indirectly* using the COGS equation.

# Perpetual Inventory System: Purchasing and Selling Inventory

**Perpetual system: continually update Inventory account for merchandising transactions**

| DR | Inventory Account | CR |
|---|---|---|
| **Record INCREASE when goods are purchased** | | **Record DECREASE when goods are sold (COGS)** |

Skye Company bought merchandise inventory from its supplier : $5,000 for cash and $3,000 on credit.

| | | |
|---|---|---|
| Inventory | $5,000 | |
| Cash | | $5,000 |
| Inventory | $3,000 | |
| Accounts Payable | | $3,000 |

Skye Company sold $9,000 of merchandise on credit. The merchandise costs $4,800.

| | | |
|---|---|---|
| Accounts Receivable | $9,000 | |
| Sales Revenue | | $9,000 |
| Cost of Goods sold | $4,800 | |
| Inventory | | $4,800 |

***NOTE: Sales and COGS are typically recorded as a normal journal entry at the time of transaction. An AJE at the end of the period is only needed to adjust for any unrecorded accrued sales.***

# Periodic Inventory System: COGS Equation


**Beginning Inventory** + **Net Inventory Purchases**

**= Cost of Goods Available For Sale**


**Ending Inventory *(remaining inventory)*** + **Cost of Goods Sold *(sold inventory)***

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

➔ **COGS = Beg Inventory + Net Purchases – End Inventory**

# Periodic Inventory System: Recording Purchases & Deriving COGS

Under periodic system, purchases for inventory are recorded in a temporary "Purchases" accounts, which will be closed to the Inventory account at the end of the period.

**Inventory**

| | |
|---|---|
| **Beginning inventory** | **Cost of goods sold** |
| **Purchases** | |
| **Ending inventory** | |

COGS is derived indirectly from the COGS equation

- For example: ReadMe Magazines Co. purchased $7,000 of magazines for resale:

| | | | |
|---|---|---|---|
| Dr | Purchases | $7,000 | |
| | Cr Cash/Accounts Payable | | $7,000 |

- ReadMe uses the COGS equation to derive its COGS for the period:

| | |
|---|---|
| Beg Inventory Balance | $10,000 |
| Add: Net Purchases | $7,000 |
| Less: Cost of Goods Sold | ? |
| End Inventory (physical stock count) | $ 8,000 |

➔ **COGS = $9,000** ($10,000 +7,000 – 8,000)

# Perpetual vs. Periodic
# Decathlon Example: Merchandise Purchasing

Purchasing merchandise for resale from supplier.

## Perpetual System

- On Sept 1, Decathlon purchased 800 footballs @$10 each on credit from its supplier:

| | | |
|---|---|---|
| Inventory ($10 x 800) | $8,000 | |
| Accounts Payable | | $8,000 |

➔ The merchandise Inventory balance is $8,000.

## Periodic System

- On Sept 1, Decathlon purchased 800 footballs @$10 each on credit from its supplier:

| | | |
|---|---|---|
| Purchases | $8,000 | |
| Accounts Payable | | $8,000 |

➔ No merchandise Inventory balance, as the purchase of merchandise is currently in the temporary account "Purchases". Purchases account balance is $8,000.

Focus on the journal entries for perpetual system

# Perpetual vs. Periodic
# Decathlon Example: Transportation Costs

**Who Pays?**

| | Ownership transfers when goods passed to: | Transportation costs paid by: | Accounting for transportation costs: |
|---|---|---|---|
| FOB shipping | Carrier | Buyer | Included in buyer's inventory cost |
| FOB destination | Buyer | Seller | Selling expense in seller's accounts |

## Perpetual System

- On Sept 5, Decathlon purchased 320 more footballs at $10 each on credit with terms FOB shipping point. Transportation charge $250 is paid in cash.

| | | |
|---|---|---|
| Inventory ($3,200 + 250) | $3,450 | |
| Accounts Payable | | $3,200 |
| Cash | | $ 250 |

➔The merchandise Inventory balance is now $11,450 ($8,000 + 3,450)

## Periodic System

- On Sept 5, Decathlon purchased 320 more footballs at $10 each on credit with terms FOB shipping point. Transportation charge $250 is paid in cash.

| | | |
|---|---|---|
| Purchases | $3,200 | |
| Freight-in | $ 250 | |
| Accounts Payable | | $3,200 |
| Cash | | $ 250 |

➔The Purchases account balance is $11,200 ($8,000 + $3,200)

# Perpetual vs. Periodic: Decathlon Example - Returns

Merchandise returned by the purchaser to the supplier (e.g. due to defect)

## Perpetual System

- On Sept 6, Decathlon returns 140 footballs (bought at $10 each previously) to its supplier:

| | | |
|---|---|---|
| Accounts Payable | $1,400 | |
| Inventory (140 x $10) | | $1,400 |

➔The merchandise Inventory balance is now $10,050 ($11,450 - $1,400).

➔Decathlon now has 980 (800 + 320 – 140) footballs in its inventory

## Periodic System

- On Sept 6, Decathlon returns 140 footballs (bought at $10 each previously) to its supplier:

| | | |
|---|---|---|
| Accounts Payable | $1,400 | |
| Purchase Returns | | $1,400 |

➔ The Purchases balance is still $11,200, because the return is currently being accounted for in the temporary "Purchase Returns" account.

# Perpetual vs. Periodic: Decathlon Example - Discounts

Discounts can induce early payment of the amount due.

## Perpetual System

- For both the Sept 1 and Sept 5 purchases, the credit term is 2/10,n/30. Decathlon pays both invoices on Sept 8 (within 10 days).
- Invoice total = $8k + $3.2k - $1.4k = $9.8k

| | | |
|---|---|---|
| Accounts Payable | $9,800 | |
| Inventory (2%x$9.8k) | | $196 |
| Cash | | $9,604 |

➔ The merchandise Inventory balance after this transaction is $9,854 ($10,050 - $196).

## Periodic System

- For both the Sept 1 and Sept 5 purchases, the credit term is 2/10,n/30. Decathlon pays both invoices on Sept 8 (within 10 days).
- Invoice total = $8k + $3.2k - $1.4k = $9.8k

| | | |
|---|---|---|
| Accounts Payable | $9,800 | |
| Purchase Discounts | | $196 |
| Cash | | $9,604 |

➔ The Purchases account balance is still $11,200, because the discount is currently being accounted for in the temporary "Purchase discount" account.

# Decathlon Example: Cost of Inventory

**Decathlon's cost for each football:**

| | |
|---|---|
| Total purchase price ($8,000+$3,200) | $11,200 |
| Plus: Freight in | 250 |
| Less: Purchase returns (140 footballs) | (1,400) |
| Less: Purchase discounts | (196) |
| Total cost of footballs (980 footballs) | $9,854 |
| **Total cost $9,854 ÷ 980 football = $ 10.06 per football** | |

- Under the perpetual system, all these transactions were recorded directly into the "Inventory" account.
- Under the periodic system, the transactions were recorded into separate temporary accounts *(refer to the slide after the next slide on deriving "Net Purchases")*

# Perpetual vs. Periodic: Decathlon Example - Merchandise Sales

Selling of merchandise inventory and its effect on inventory account under the two systems:

## Perpetual System

- Decathlon sold 500 footballs for $14 each on credit. Cost of each football is $10.06.

| | | |
|---|---|---|
| Accounts Receivable | $7,000 | |
| Sales Revenue (500 x $14) | | $7,000 |
| Cost of Goods Sold | $5,030 | |
| Inventory ($10.06 x 500) | | $5,030 |

➔The merchandise Inventory balance is now $4,824 ($9,854 - $5,030). There is now 480 footballs left in the inventory record.

## Periodic System

- Decathlon sold footballs for $7,000 on credit.

| | | |
|---|---|---|
| Accounts Receivable | $7,000 | |
| Sales Revenue | | $7,000 |

➔Under the periodic system, it is not known how many of the footballs have been sold, only the sales amount is known.

➔ COGS cannot be recorded at the time of sale because it is not known how much is COGS.

# Periodic System:
# Decathlon Example - Deriving Net Purchases & COGS

- Under periodic system, the temporary accounts for purchases, discounts, returns & freight will be closed into the inventory account to derive the "Net Purchase" amount:

| | | |
|---|---|---|
| Inventory | $9,854 | |
| Purchase Returns | $1,400 | |
| Purchase Discounts | $ 196 | |
| Freight-in | | $ 250 |
| Purchases | | $11,200 |

Net Purchases

- Let's assume that a physical inventory count at period end indicates that only 468 footballs are still in the inventory (not yet sold). Therefore, period end inventory value is $4,706 (468 * ($9,854 / 980)).

➔ **COGS = Beg Inventory + Net Purchases – End Inventory**

COGS = $0* + $9,854 - $4,706 (**Assume that Decathlon had no beg inventory*)

COGS = $5,148

➔ Journal entry to record COGS:

| | | |
|---|---|---|
| Cost of Goods Sold | $5,148 | |
| Inventory | | $5,148 |

# Perpetual System
# Adjustment for Inventory Shrinkage

A merchandiser using a perpetual inventory system is usually required to make an adjustment to update Inventory account to reflect any loss of merchandise, including theft and deterioration.

- Decathlon's inventory account from its system shows 480 balls, but physical count reveals only 468 footballs → 12 footballs missing (lost/stolen)
- Decathlon must record an inventory shrinkage for the missing footballs:

| | | |
|---|---|---|
| Cost of Goods Sold | $120.72 | |
| Inventory (12 X $10.06) | | $120.72 |

<u>Advantages of a Perpetual System over Periodic System:</u>

- Physical count helps to either confirm the amount in the accounting system or highlight shortages of inventory (e.g. Decathlon example above illustrates that from the physical count it was able to determine that 12 footballs were missing), which would not be possible under the periodic system.

# Inventory Costing Methods

Prices of goods are always changing → result in changes in inventory costs

- E.g. Cramer Electronic
  - Jan 1 : Beginning inventory of 5 rice cookers bought at $100 in prior period
  - Jan 10 : Bought 10 rice cookers from supplier for $120 each
  - Jan 15 : Sold 8 rice cookers to customer

  ***Q: What amount of COGS should Cramer record for the Jan 15 sale?***

  ***A: Depends on the type of inventory costing method that Cramer uses.***

- There are **FOUR** inventory costing methods:

  **1) Specific Identification Method**

  **2) FIFO (first-in, first-out)**

  ***3) LIFO (last-in, first-out)*** – **Not accepted under IFRS!**

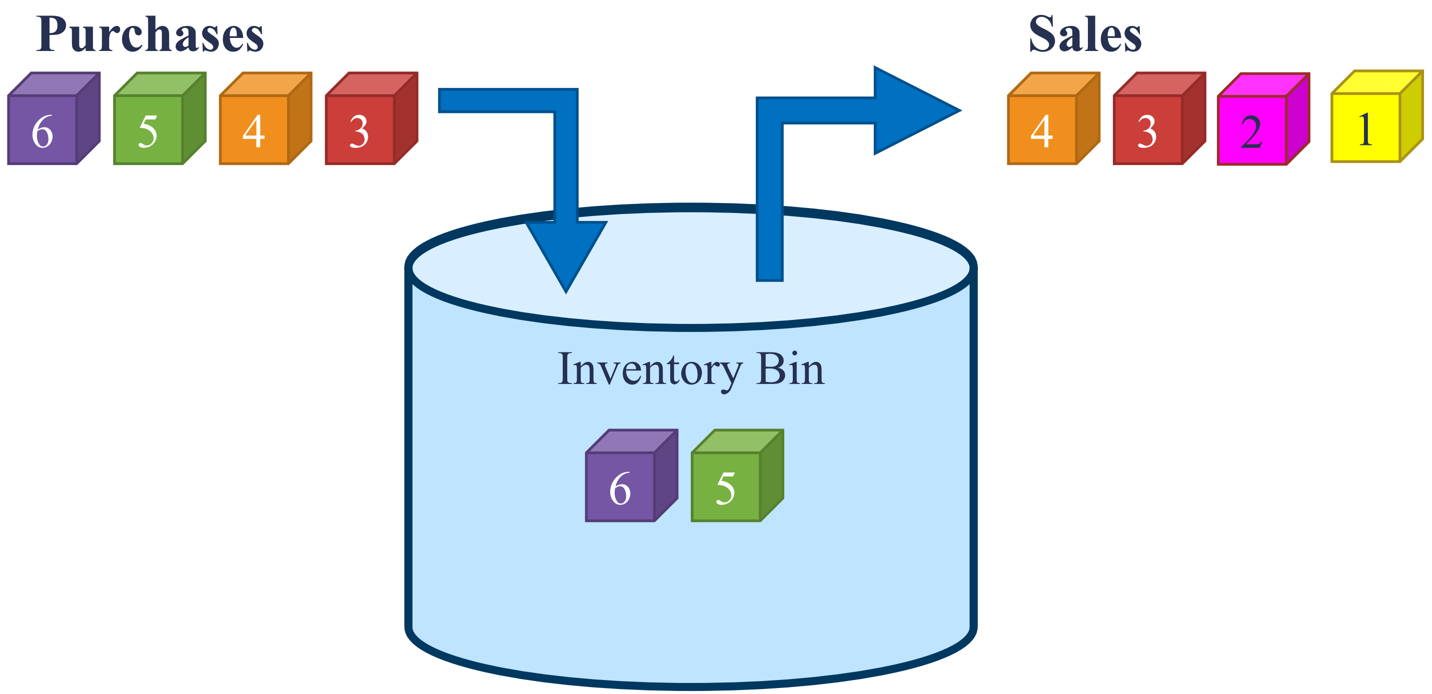
  **4) Weighted Average cost**

# 1) Specific Identification Method

- When specific units are sold, the <u>specific cost</u> of that unit is recorded as COGS.
- Impractical to use for large quantities of similar items being sold (e.g. toothpaste, clothing etc…)
- Typically used when dealing with expensive unique items (e.g. houses, expensive fine jewelry, unique custom made cars etc…) where costs can be easily tracked to specific item

# 2) FIFO (First-in, First-out)

- As the name suggests, the first goods purchased (i.e. first-in) are considered the first goods to be sold (i.e. first-out).




- Imagine an Inventory bin, with beginning inventory (item 1 & 2).
- Company purchase 4 new items (item 3-6) to add into inventory.
- Company sold 4 items → based on FIFO, items considered sold are items 1,2,3 & 4.
- Company's ending inventory are item 5 and 6.

# 2) FIFO
## Computers, Inc. Example

Computers, Inc. has the following information for its inventory. It uses FIFO inventory costing method.

- Beg inventory of 1,000 units
- Purchased total of 1,250 units
- Sold 1,050 units on December 1st.

| Computers, Inc. Mouse Pad Inventory | | | |
|---|---|---|---|
| Date | Units | $/Unit | Total |
| Beginning Inventory | 1,000 | $ 5.25 | $ 5,250.00 |
| Purchases: | | | |
| Jan. 3 | 500 | 5.30 | 2,650.00 |
| June 20 | 300 | 5.60 | 1,680.00 |
| Sept. 15 | 250 | 5.80 | 1,450.00 |
| Nov. 29 | 200 | 5.90 | 1,180.00 |

**Questions:**

**a) How much is COGS using the FIFO method?**

**b) How much is left in ending inventory?**

# 2) FIFO
## Computers, Inc. Example - COGS

- Computers, Inc. sold 1,050 units on December 1st.
- Remember, first ones in are the first ones out, therefore we will consider items sold are the 1,000 units that was in beginning inventory, and 50 units from the Jan. 3 purchases.

➔ **COGS = (1,000 x $5.25) + (50 x $5.30) = $5,515**

| Given Information | | | | Ending Inventory | Cost of Goods Sold | | |
|---|---|---|---|---|---|---|---|
| Beg. Inv. | 1,000 | @ | $5.25 | | 1,000 | @ | $5.25 |
| Jan. 3 | 500 | @ | 5.30 | | 50 | @ | 5.30 |
| June 20 | 300 | @ | 5.60 | | | | |
| Sept. 15 | 250 | @ | 5.80 | | | | |
| Nov. 29 | 200 | @ | 5.90 | | | | |
| | | | | | 1,050 | Units | |
| | | | | | $ 5,515 | Cost | |

# 2) FIFO
## Computers, Inc. Example – Ending Inventory

- Under the FIFO method the ending inventory will consists of the goods last purchased.

➔**Ending Inventory = (450 x $5.30) + (300 x $5.60) + (250 x $5.80) + (200 x $5.90) = $6,695**

| 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 |
| June 20 | 300 | @ | 5.60 | 300 | @ | $5.60 | | | |
| Sept. 15 | 250 | @ | 5.80 | 250 | @ | $5.80 | | | |
| Nov. 29 | 200 | @ | 5.90 | 200 | @ | $5.90 | | | |
| | | | | 1,200 | Units | | 1,050 | Units | |
| | | | | $ 6,695 | Cost | | $ 5,515 | Cost | |

# 2) FIFO

## Computers, Inc. Example

THEREFORE,

Under the FIFO method, the COGS for the 1,050 units sold during the period is $5,515.

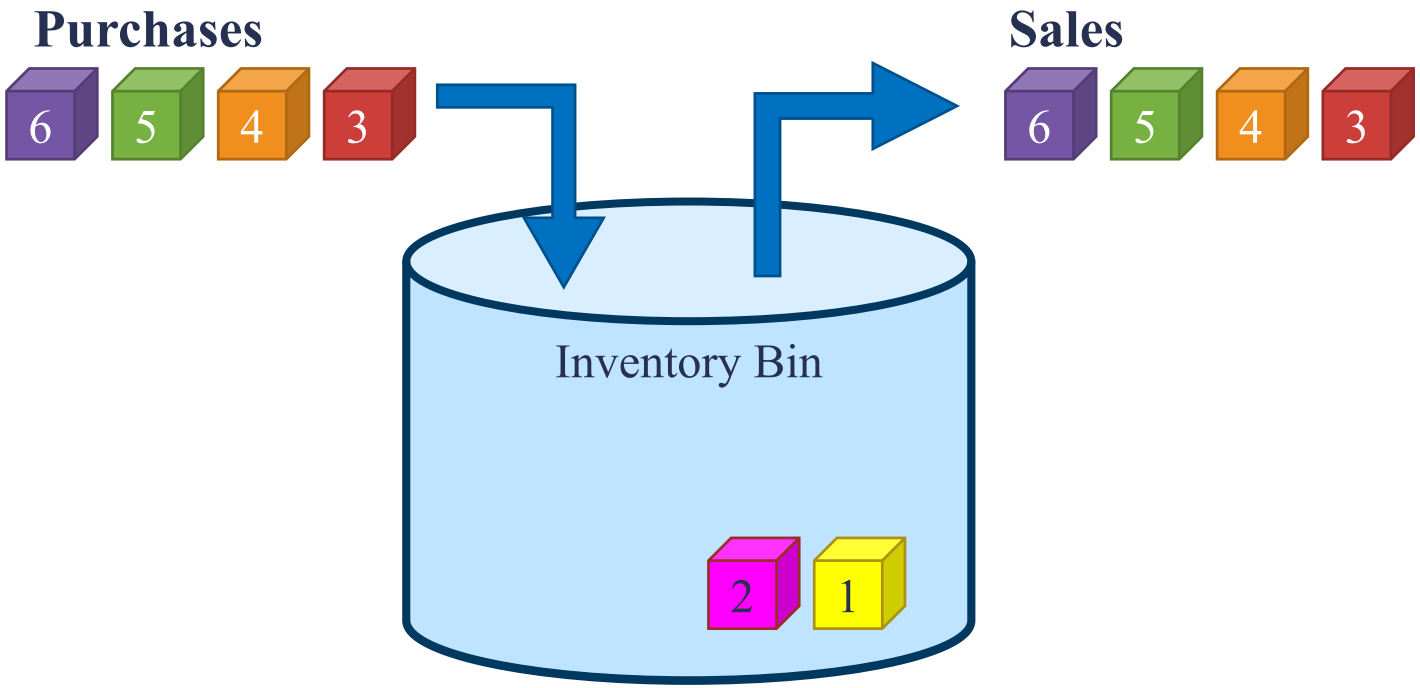
And the ending inventory balance is $6,695.

| Computers, Inc. Mouse Pad Inventory | | | |
|---|---|---|---|
| **Date** | **Units** | **$/Unit** | **Total** |
| Beginning Inventory | 1,000 | $ 5.25 | $ 5,250.00 |
| Purchases: | | | |
| Jan. 3 | 500 | 5.30 | 2,650.00 |
| June 20 | 300 | 5.60 | 1,680.00 |
| Sept. 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 |

# 3) LIFO (Last-in, First-out)

## *~ NOT ACCEPTED UNDER IFRS ~*

- As the name suggests, the last goods purchased (i.e. last-in) are considered the first goods to be sold (i.e. first-out).




- Imagine an Inventory bin, with beginning inventory (item 1 & 2).
- Company purchase 4 new items (item 3-6) to add into inventory.
- Company sold 4 items → based on LIFO, items considered sold are items 3,4,5 & 6.
- Company's ending inventory are item 1 and 2.

# 3) LIFO
## Computers, Inc. Example

Using back Computers, Inc. example from earlier. Assume now that it is on LIFO inventory costing method:

- Beg inventory of 1,000 units
- Purchased 1,250 units
- Sold 1,050 units on Dec 1st

**Computers, Inc.**
**Mouse Pad Inventory**

| Date | Units | $/Unit | Total |
|---|---|---|---|
| Beginning Inventory | 1,000 | $ 5.25 | $ 5,250.00 |
| Purchases: | | | |
| Jan. 3 | 500 | 5.30 | 2,650.00 |
| June 20 | 300 | 5.60 | 1,680.00 |
| Sept. 15 | 250 | 5.80 | 1,450.00 |
| Nov. 29 | 200 | 5.90 | 1,180.00 |

**Questions:**

**a) How much is COGS using the LIFO method?**

**b) How much is left in ending inventory?**

# 3) LIFO
## Computers, Inc. Example

- Computers, Inc. sold 1,050 units on Dec 1st.
- Remember, last ones in are the first ones out, therefore we will consider items sold are the 200 units from Nov 29 purchases, 250 units from Sept 15 purchases, 300 units from June 20 purchases and 300 units from Jan 3 purchases.

➔ **COGS = (200 x \$5.90) + (250 x \$5.80) + (300 x \$5.60) + (300 x \$5.30) = \$5,900**

| Given Information | | | | Ending Inventory | Cost of Goods Sold | | |
|---|---|---|---|---|---|---|---|
| Beg. Inv. | 1,000 | @ | \$5.25 | | | | |
| Jan. 3 | 500 | @ | 5.30 | | 300 | @ | \$5.30 |
| June 20 | 300 | @ | 5.60 | | 300 | @ | 5.60 |
| Sept. 15 | 250 | @ | 5.80 | | 250 | @ | 5.80 |
| Nov. 29 | 200 | @ | 5.90 | | 200 | @ | 5.90 |
| | | | | | 1,050 | Units | |
| | | | | | \$ 5,900 | Cost | |

# 3) LIFO
## Computers, Inc. Example

- Under the LIFO method, the ending inventory will consists of the goods first purchased.

→ **Ending Inventory = (1000 x $5.25) + (200 x $5.30) = $6,310**

| 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 |
| June 20 | 300 | @ | 5.60 | | | | 300 | @ | 5.60 |
| Sept. 15 | 250 | @ | 5.80 | | | | 250 | @ | 5.80 |
| Nov. 29 | 200 | @ | 5.90 | | | | 200 | @ | 5.90 |
| | | | | 1,200 | Units | | 1,050 | Units | |
| | | | | $ 6,310 | Cost | | $ 5,900 | Cost | |

# FIFO vs. LIFO Comparison!

## Computers, Inc. Example

- **Now let's compare the COGS reported under FIFO versus LIFO:**

FIFO

COGS = $5,515

| Computers, Inc. Mouse Pad Inventory | | | |
|---|---|---|---|
| Date | Units | $/Unit | Total |
| Beginning Inventory | 1,000 | $ 5.25 | $ 5,250.00 |
| Purchases: | | | |
| Jan. 3 | 500 | 5.30 | 2,650.00 |
| June 20 | 300 | 5.60 | 1,680.00 |
| Sept. 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

COGS = $5,900

| Computers, Inc. Mouse Pad Inventory | | | |
|---|---|---|---|
| Date | Units | $/Unit | Total |
| Beginning Inventory | 1,000 | $ 5.25 | $ 5,250.00 |
| Purchases: | | | |
| Jan. 3 | 500 | 5.30 | 2,650.00 |
| June 20 | 300 | 5.60 | 1,680.00 |
| Sept. 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 |

- **Different inventory costing method can give you very different COGS!**

# 4) Average Cost Method

- Also known as "weighted average cost method"
- When a unit is sold, the <u>average cost</u> per unit in inventory is assigned to COGS.
- The average cost per unit is calculated as follows:

$$\text{Average Cost per Unit} = \text{Cost of Goods Available for Sale} \div \text{Number of Units Available for Sale}$$

COGS = (


÷ 6 units ) x Units Sold

# 4) Average Cost Method
## Computers, Inc. Example

- Using back Computers, Inc. example from earlier. Assume now that it is on average cost inventory costing method:

**Weighted Average Cost**

$$\frac{\$\ 12,210}{2,250} = \$5.42667$$

Therefore,

Ending Inventory = 1,200 x \$5.427
= \$6,512

COGS = 1,050 x \$5.427
= \$5,698.

| Computers, Inc. Mouse Pad Inventory | | | |
|---|---|---|---|
| **Date** | **Units** | **$/Unit** | **Total** |
| Beginning Inventory | 1,000 | $ 5.25 | $ 5,250.00 |
| Purchases: | | | |
| Jan. 3 | 500 | 5.30 | 2,650.00 |
| June 20 | 300 | 5.60 | 1,680.00 |
| Sept. 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 Method: Perpetual vs Periodic
# CornerCakes Shop – In-Class Exercise

GoldenCakes Shop has the following information for its snowskin mooncakes for the month of September.

It sold the following mooncakes:

- 320 mooncakes on Sept 14
- 390 mooncakes on Sept 29

It uses the average cost method.

**Calculate the COGS under:**

**(i) Periodic inventory system**

**(ii) Perpetual inventory system**

| CornerCakes<br>Snowskin Mooncakes Inventory | | | |
|---|---|---|---|
| **Date** | **Units** | **$/Unit** | **Total** |
| Beg Inv @ 1 Sep | 100 | 4.00 | 400.00 |
| Purchases: | | | |
| 5-Sep | 300 | 4.50 | 1,350.00 |
| 15-Sep | 200 | 4.75 | 950.00 |
| 22-Sep | 120 | 5.00 | 600.00 |

# Comparison of Methods

## Effect on Income Statement of Computers, Inc.

**What is the impact of using different inventory methods on Net Income?**

- The following shows the Income Statement of Computers, Inc., where all items are the same except for the COGS and Ending Inventory balance:

**Computers, Inc.**
**Income Statement**
**For Year Ended December 31, 2023**

| | FIFO | LIFO | Weighted Average |
|---|---|---|---|
| Net sales | $ 25,000 | $ 25,000 | $ 25,000 |
| 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.

| | FIFO | LIFO | Weighted Average |
|---|---|---|---|
| Ending Inventory Balance | $ 6,695 | $ 6,310 | $ 6,512 |

# Comparison of Methods
## Effect on Financial Statements

- In periods of <u>rising costs</u>:
  - FIFO will give the **lowest** COGS amount, because it uses the older costs which tend to be lower → higher net income.
  - LIFO will give the **highest** COGS amount, because it uses the most recent costs which tend to be higher → lower net income.
  - Weighted Average will give a COGS amount that falls between FIFO and LIFO.


- In periods of declining costs:
  - FIFO will give the highest COGS amount → lower net income
  - LIFO will give the lowest COGS amount → higher net income
  - Weighted Average will give a COGS amount that typically falls between FIFO and LIFO.

# Comparison of Methods

## Advantages of different 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. | Smooth out price changes. |

- Which method do companies choose?
  - Depends on net income effects and income tax effects.
  - Companies can choose its inventory costing method, as long as it is used on a ***consistent*** basis (i.e. cannot change method every year!)
  - Note: U.S. GAAP allows either of all methods, but **IFRS do NOT allow the use of LIFO.**

# NTUC FairPrice & Amazon
# Notes on Inventories – Costing Method

**3.7 Inventories**

Inventories are measured at the lower of cost and net realisable value. The cost of inventories is based on the weighted average method, and includes expenditure incurred in acquiring the inventories and other costs incurred in bringing them to their existing location and condition.

Net realisable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and estimated costs necessary to make the sale.

Costing Methods

***Inventories***

Inventories, consisting of products available for sale, are primarily accounted for using the first-in, first-out method, and are valued at the lower of cost and net realizable value. This valuation requires us to make judgments, based on currently available information, about the likely method of disposition, such as through sales to individual customers, returns to product vendors, or liquidations, and expected recoverable values of each disposition category. The inventory valuation allowance, representing a write-down of inventory, was $3.0 billion as of December 31, 2023 and 2024.

# Valuation of Inventory
# @ Lower of Cost or Net Realizable Value

Ending inventory has to be reported at the **lower of cost or market value**.

  - Meaning that if the replacement cost of the same goods in inventory is lower than the inventory cost, it has to report the market value instead.
  - *E.g. GoodBottle Co. has ending inventory of bottles which cost \$100. However, the current replacement cost of such bottles is now \$80 (meaning that the suppliers have reduced the price and is now selling them for only \$80). Thus, GoodBottle Co. has to report an ending inventory of \$80 instead of \$100.*

- Market value – determined as the **net realizable value (NRV)**, which 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.

- NRV can be applied in two ways:

(1) Separately to each individual item

(2) To major categories of assets

# Lower of Cost and NRV – Writing down inventory
## Nvidia Inc. Example

Nvidia has ending inventory of GPUs as follows:

| Item | Quantity | Cost / item | NRV / item | *Lower of cost or NRV* | Ending Inventory at Lower of Cost and NRV |
|---|---|---|---|---|---|
| RTX-30 | 10,000 | $400 | **$350** | *$350* | **10,000 x $350 = $3.5m** |
| RTX-70 | 8,000 | **$600** | $820 | *$600* | **8,000 x $600 = $4.8m** |

- Nvidia has to report the RTX-30 GPUs at its NRV value (as NRV is lower than cost).
- Since RTX-30 inventory balance at cost is $4M (10,000 x $400).
- But its NRV is $3.5M → Nvidia has to recognize a $0.5M **inventory write-down** and report it as part of its COGS:

| | Debit | Credit |
|---|---|---|
| Cost of Goods Sold | $500,000 | |
| Allowance for Inventory Write-down | | $500,000 |

a contra-asset account to Inventory

- Nvidia continues to report its RTX-70 GPUs inventory at cost ($4.8m).

# Inventory Write down
# COGS or Other Expense?

- Inventory is reported **net** of the inventory account and the contra-asset account (Allowance for inventory write-down):

**Inventory**

**Less: Allowance for Write-down**

**Net Inventory** → **Statement of Financial Position**

- There are differences in practice on how to record the write down of inventory:

  (1) Can be recorded as part of COGS

  (2) Can also be recorded separately as a separate expense (e.g. Impairment loss on inventory / Loss on inventory write down).

# NTUC FairPrice & Amazon
# Notes on Inventories – Inventory Write-down

FairPrice

**3.7 Inventories**

Inventories are measured at the lower of cost and net realisable value. The cost of inventories is based on the weighted average method and includes expenditure incurred in acquiring the inventories and other costs incurred in bringing them to their existing location and condition.

Net realisable value is the estimated selling price in the ordinary course of business, less the estimated costs of completion and estimated costs necessary to make the sale.

Lower of Cost or NRV
➔ Inventory write-down
➔ Allowance for write-down

Costing Methods

amazon

*Inventories*

Inventories, consisting of products available for sale, are primarily accounted for using the first-in, first-out method, and are valued at the lower of cost and net realizable value. This valuation requires us to make judgments, based on currently available information, about the likely method of disposition, such as through sales to individual customers, returns to product vendors, or liquidations, and expected recoverable values of each disposition category. The inventory valuation allowance, representing a write-down of inventory, was $3.0 billion as of December 31, 2023 and 2024.

# NTUC FairPrice
# Inventory & Provision (Allowance for writedowns)

Written off and written down inventories are recorded as part of COGS (cost of inventories consumed)

**12 INVENTORIES**

| | Group | | Co-operative | |
|---|---|---|---|---|
| | 2024 $'000 | 2023 $'000 | 2024 $'000 | 2023 $'000 |
| Raw materials and consumables | 12,887 | 15,672 | – | – |
| Work in progress | 1,073 | 2,173 | – | – |
| Retail goods | 296,893 | 270,526 | 278,937 | 250,693 |
| Allowance for inventory obsolescence | (3,310) | (7,444) | (3,301) | (7,227) |
| | 307,543 | 280,927 | 275,636 | 243,466 |

Movement in allowance for inventory obsolescence during the financial year are as follows:

| | Group | | Co-operative | |
|---|---|---|---|---|
| | 2024 $'000 | 2023 $'000 | 2024 $'000 | 2023 $'000 |
| At 1 January | 7,444 | 4,851 | 7,227 | 4,831 |
| Allowance made during the year | 3,606 | 7,444 | 3,301 | 7,227 |
| Reversal of allowance during the year | (6,788) | (4,824) | (6,280) | (4,804) |
| Utilised during the year | (952) | (27) | (947) | (27) |
| At 31 December | 3,310 | 7,444 | 3,301 | 7,227 |

Inventories of $32,766,000 (2023: $41,338,000) and $30,874,000 (2023: $39,721,000) for the Group and the Co-operative respectively was written off during the year. The write-offs are included in cost of inventories consumed.

During the year, the Group and the Co-operative wrote down the inventories to their net realisable value, which resulted in a loss of $3,606,000 and $3,301,000 respectively (2023: $7,444,000 and $7,227,000). The write-downs are included in cost of inventories consumed.

<u>Write off vs write down:</u>

- Write down: reduction in value.
- Write off: no longer has value

# NTUC FairPrice
# Inventory Write off on Income Statement

**24 PROFIT BEFORE TAX AND CONTRIBUTIONS**

The following items have been included in arriving at profit before tax and contributions:

| | Note | Group 2024 $'000 | Group 2023 $'000 |
|---|---|---|---|
| Audit fees paid to: | | | |
| - Auditors of the Co-operative | | 714 | 701 |
| - Other auditors | | 263 | 165 |
| Non-audit fees paid to: | | | |
| - Auditors of the Co-operative* | | 185 | 228 |
| - Other auditors | | 233 | – |
| Packing and logistic expenses | | 110,098 | 79,844 |
| Occupancy expenses | | 100,039 | 97,159 |
| Contributions to defined contribution plans | | 64,758 | 61,757 |
| Repair, maintenance and supplies | | 65,108 | 62,797 |
| Sundry expenses | | 42,648 | 33,337 |
| IT related expenses | | 37,106 | 34,946 |
| Donations | | 46,076 | – |
| Inventories written-off | 12 | 32,766 | 41,338 |
| Professional fee | | 22,327 | 21,200 |
| Gain on derecognition of right-of-use assets | | (4,729) | (1,154) |
| (Reversal of)/Impairment loss on trade receivables | 32 | (1,232) | 282 |
| (Reversal of)/Impairment loss on property, plant and equipment | 4 | (7,933) | 12,020 |
| Impairment loss on right-of-use assets | 5 | 10,904 | 537 |
| Property, plant and equipment written-off | | 1,518 | 2,045 |
| Intangible assets written-off | 7 | 72 | 11 |
| Loss/(Gain) on liquidation of an associate | | 80 | – |
| Advertising, promotion and other service income | | (131,809) | (136,600) |
| Concessionary and commission income | | (31,692) | (32,074) |
| Rental income from property sublease | | (23,108) | (26,860) |
| Government grants | | (20,391) | (10,881) |
| Loss/(Gain) on disposal of property, plant and equipment, net | | 563 | (3,740) |

Inventory written off reported on the SPL (as a disclosure in Note 24)

# Inventory Error Effects In-class Exercise
# Black Myth Inc.

Following is the IS and SFP of Black Myth Inc. for the year ended **2024**, which is its first year of operation.

| **Income Statement** | | |
|---|---|---|
| Sales Revenue | | 100,000 |
| Less: COGS | | |
| *Beginning Inventory* | *20,000* | |
| *Add: Purchases* | *35,000* | |
| *Less: End Inventory* | *(18,000)* | |
| *COGS* | *37,000* | (37,000) |
| Less Operating Expenses | | (35,000) |
| Net Income | | 28,000 |

| **Statement of Financial Position** | |
|---|---|
| Assets | |
| Cash & AR | 54,000 |
| Inventory | 18,000 |
| Total Assets | 72,000 |
| Liabilities | 14,000 |
| Equity | |
| Share Capital | 30,000 |
| Retained Earnings | 28,000 |
| Total Equity | 58,000 |
| Total Liabilities & Equity | 72,000 |

Examine the effect of inventory misstatements on Black Myth Inc. financial statements.

(a) In 2024, there was an overstatement (OS) of ending inventory by $4,500. Effect on 2024 FS?

# Inventory Error Effects In-class Exercise
# Black Myth Inc.

Following is the IS and SFP of Black Myth Inc. for the year ended **2025**.

**Income Statement**

| | | |
|---|---|---|
| Sales Revenue | | 150,000 |
| Less: COGS | | |
| *Beginning Inventory* | *18,000* | |
| *Add: Purchases* | *48,000* | |
| *Less: End Inventory* | *(23,000)* | |
| *COGS* | *43,000* | (43,000) |
| Less Operating Expenses | | (60,000) |
| Net Income | | 47,000 |

**Statement of Financial Position**

| | |
|---|---|
| Assets | |
| Cash & AR | 96,000 |
| Inventory | 23,000 |
| Total Assets | 119,000 |
| Liabilities | 14,000 |
| Equity | |
| Share Capital | 30,000 |
| Retained Earnings | 75,000 |
| Total Equity | 105,000 |
| Total Liabilities & Equity | 119,000 |

(b) SCENARIO A: In 2025 there is now an error in the beginning inventory balance - an overstatement of beginning inventory of $4,500 (carried over from 2024). Effect on 2025 FS?

(c) SCENARO B: In 2025, there is now an error in the beginning inventory balance - an overstatement of beginning inventory of $4,500 (carried over from 2024). Additionally, there is also an understatement of the ending inventory of $2,300 at the end of 2025. Effect on the 2025 FS?

# Effect of Inventory errors on FS Summary

## Income Statement Effects

| Inventory Error | Cost of Goods Sold | Net Profit |
|---|---|---|
| Understate ending inventory | Overstated | Understated |
| Understate beginning inventory | Understated | Overstated |
| Overstate ending inventory | Understated | Overstated |
| Overstate beginning inventory | Overstated | Understated |

## Statement of Financial Position Effects

| Inventory Error | Assets | Equity |
|---|---|---|
| Understate ending inventory | Understated | Understated |
| Overstate ending inventory | Overstated | Overstated |

# Goals for Today

| | |
|---|---|
| **Concepts** | ▪ Inventory for merchandising companies<br>▪ Inventory systems – perpetual vs. periodic |
| **Accounting Procedures** | ▪ Purchases, freight, discounts, returns.<br>▪ Inventory costing methods – FIFO, LIFO, specific identification, weighted average cost<br>▪ Lower of cost and Net Realizable Value (NRV) of Inventory → Inventory write-down |
| **Financial Analysis** | ▪ Inventory Turnover<br>▪ Number of Days' Sales in Inventory<br>▪ Number of Days' Purchases in Accounts Payable<br>▪ Net Operating Cycle |

# Assessing Efficiency and Liquidity
# Inventory Turnover & Days' Sales in Inventory

**Inventory Turnover**

$$\text{Inventory Turnover} = \frac{\text{COGS}}{\text{Average Inventory}}$$

- Measures how many times a company turns over (sells) its inventory
- Useful to assess if company is controlling inventory well

**Number of Days' Sales in Inventory**

$$\text{Days' Sales In Inventory} = \frac{365}{\text{Inventory Turnover}}$$

- Measures how much inventory is available in terms of number of days' sales – estimates how many days on average it will take to convert inventory into cash/AR.

# Inventory Turnover & Days' Sales in Inventory
# An example: NTUC FairPrice

## SPL

| | Note | Group 2024 $'000 | Group 2023 $'000 |
|---|---|---|---|
| **Revenue** | 21 | 4,570,532 | 4,416,715 |
| Inventories consumed | | (3,119,520) | (3,122,633) |
| Other income | | 338,786 | 353,899 |
| Staff and related costs | | (837,914) | (810,984) |
| Depreciation expense | | (383,703) | (363,347) |
| Impairment loss on intangible assets | | – | (36,776) |
| Other operating expenses | | (521,139) | (418,760) |
| **Profit from operations** | | 47,042 | 18,114 |

## SFP

| | Note | 2024 | 2023 |
|---|---|---|---|
| **Current assets** | | | |
| Trade and other receivables | 11 | 183,802 | 170,788 |
| Inventories | 12 | 307,543 | 280,927 |
| Cash and cash equivalents | 13 | 360,677 | 364,808 |
| Current tax assets | | 996 | – |
| **Total current assets** | | 853,018 | 816,523 |

| | **2024** | **2023** | **2022** | **2021** |
|---|---|---|---|---|
| Beg Inventory | 280,927 | 298,904 | 291,264 | 356,611 |
| End Inventory | 307,543 | 280,927 | 298,904 | 291,264 |
| Average Inventory | 294,235 | 289,916 | 295,084 | 323,938 |
| Cost of Sales | 3,119,520 | 3,122,633 | 3,117,414 | 3,043,635 |
| **Inventory Turnover** | **10.60** | **10.77** | **10.56** | **9.40** |
| **Day's Sales in Inventory** | **34.43** | **33.89** | **34.55** | **38.85** |

FairPrice

# Operating Cycle of a Company

**Operating Cycle (OC)**

Operating Cycle = Average Collection Period + Number of Days' Sales in Inventory

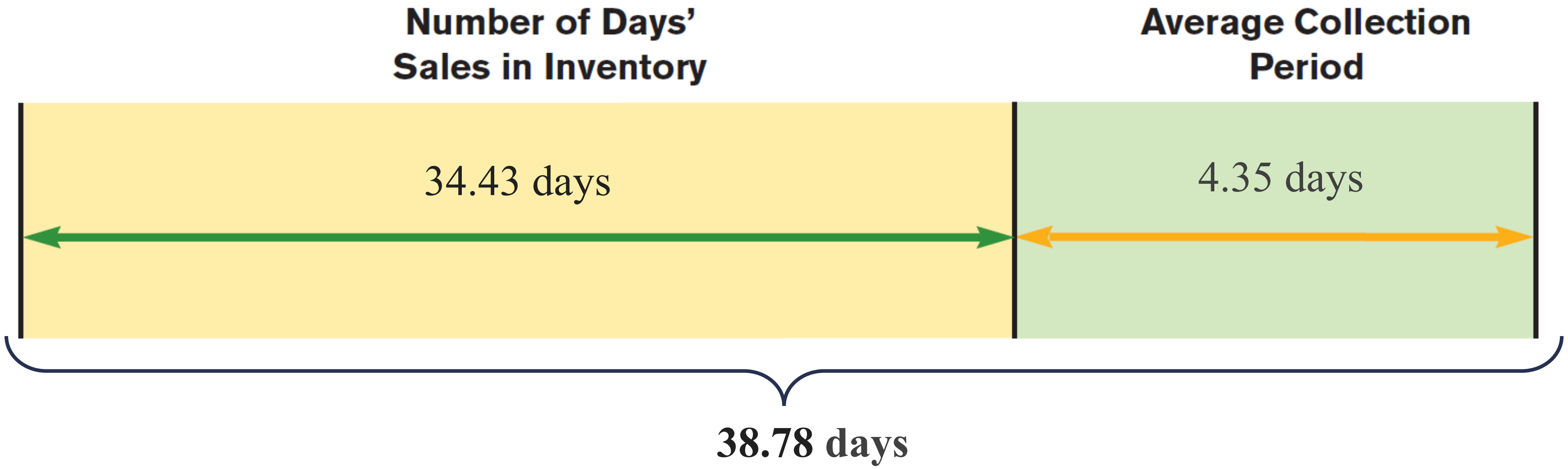
- Average Collection Period (from lecture 06) - how many days on average it takes the company to collect on its accounts receivables and convert it to cash.
- Number of Days' Sales in Inventory - how many days on average it will take to convert inventory into cash/AR.

➔**The two ratios together indicate a business's length of operating cycle – how much time it takes from the point inventory is purchased to cash collection from customer.**

# Operating Cycle of NTUC FairPrice

| | 2024 | 2023 | 2022 | 2021 | 2020 |
|---|---|---|---|---|---|
| **Day's Sales in Inventory** | **34.43** | **33.89** | **34.55** | **38.85** | **36.87** |
| Average AR | 54,472 | 48,826 | 45,091 | 44,650 | 38,752 |
| Net Sales | 4,570,532 | 4,416,715 | 4,334,607 | 4,216,106 | 4,507,232 |
| **Average Collection Period** | **4.35** | **4.04** | **3.80** | **3.87** | **3.14** |
| **Operating Cycle** | **38.78** | **37.93** | **38.35** | **42.72** | **40.01** |

- Illustration of 2024 Operating Cycle:



# Assessing Efficiency and Liquidity
# Number of Days' Purchases in Accounts Payable

**<u>Number of Days' Purchases in AP</u>**

$$\text{Number of Days' Purchases in AP} = \frac{365}{\text{Purchases / Average Accounts Payable}}$$

- Measures how many days' worth of inventory the company have in accounts payable
- Average length of time between purchase of inventory (on credit) and cash payment for that inventory.
- Useful to assess how fast a company is in paying its suppliers
- Note that FS usually do not disclose the amount of purchases the company made during the period, but we can estimate this figure based on our COGS formula:

Beg Inv + *Purchases* – COGS = End Inv

➔ *Purchases* = End Inv – Beg Inv + COGS

# Number of Days' Purchase in Accounts Payable
# NTUC FairPrice

## SPL

| | Note | Group 2024 $'000 | Group 2023 $'000 |
|---|---|---|---|
| **Revenue** | 21 | 4,570,532 | 4,416,715 |
| Inventories consumed | | (3,119,520) | (3,122,633) |
| Other income | | 338,786 | 353,899 |
| Staff and related costs | | (837,914) | (810,984) |
| Depreciation expense | | (383,703) | (363,347) |
| Impairment loss on intangible assets | | – | (36,776) |
| Other operating expenses | | (521,139) | (418,760) |
| **Profit from operations** | | 47,042 | 18,114 |

## SFP

| | Note | 2024 | 2023 |
|---|---|---|---|
| **Current assets** | | | |
| Trade and other receivables | 11 | 183,802 | 170,788 |
| Inventories | 12 | 307,543 | 280,927 |
| Cash and cash equivalents | 13 | 360,677 | 364,808 |
| Current tax assets | | 996 | – |
| **Total current assets** | | 853,018 | 816,523 |

## Note 10

| | 2024 $'000 | 2023 $'000 |
|---|---|---|
| **Trade payables** | | |
| External parties | 708,486 | 672,413 |
| Amount due to ultimate holding entity | – | 3,219 |
| Amount due to subsidiaries | – | – |
| Amount due to associates | 1 | – |
| Amount due to related parties | 157 | 1,146 |
| | 708,644 | 676,778 |

| | 2024 | 2023 | 2022 | 2021 |
|---|---|---|---|---|
| COGS | 3,119,520 | 3,122,633 | 3,117,414 | 3,043,635 |
| Increase in Inventory (End Inv – Beg Inv) | 26,616 | (17,977) | 7,640 | (65,347) |
| Purchases (COGS + Inc in Inv) | 3,146,136 | 3,104,656 | 3,125,054 | 2,978,288 |
| Average AP | 682,711 | 681,799 | 677,700 | 686,033 |
| **Number of Days' Purchases in AP** | **80.37** | **80.16** | **79.15** | **84.08** |

# Net Operating Cycle

**<u>Net Operating Cycle (NOC)</u>**

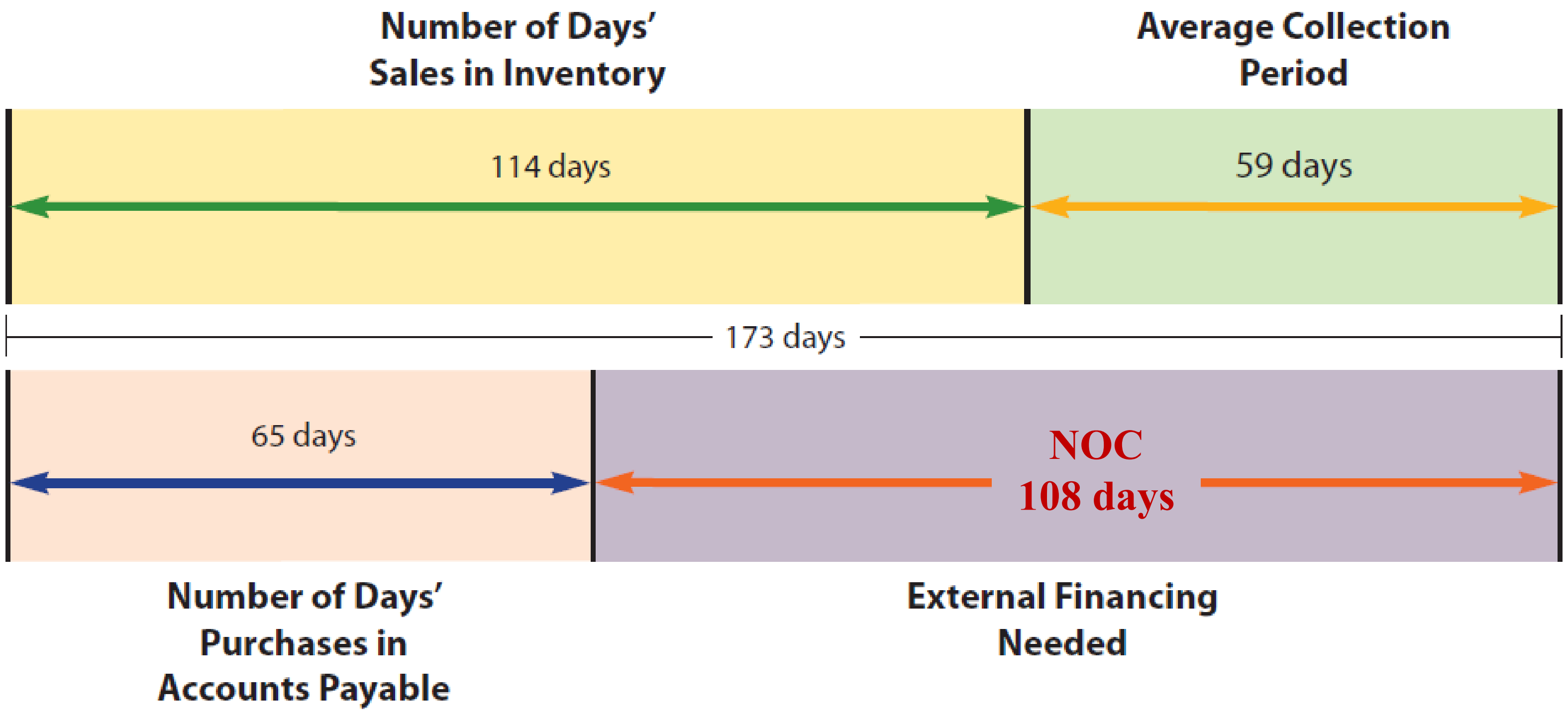
**Net Operating Cycle = Operating Cycle – Number of Days' Purchases in AP**

- Shows the difference between the time a company pays (cash) for its inventory and the time it collects (cash) from its customers from the sale of its inventory.
- Positive NOC when Operating Cycle > Number of Days' Purchases in AP

  → Company might require external financing to fund its operating cycle
- Negative NOC when Operating Cycle < Number of Days' Purchases in AP

  → "Excess Temporary Capital"

# Positive NOC Illustration: Operating Cycle > Number of Day's Purchases in AP



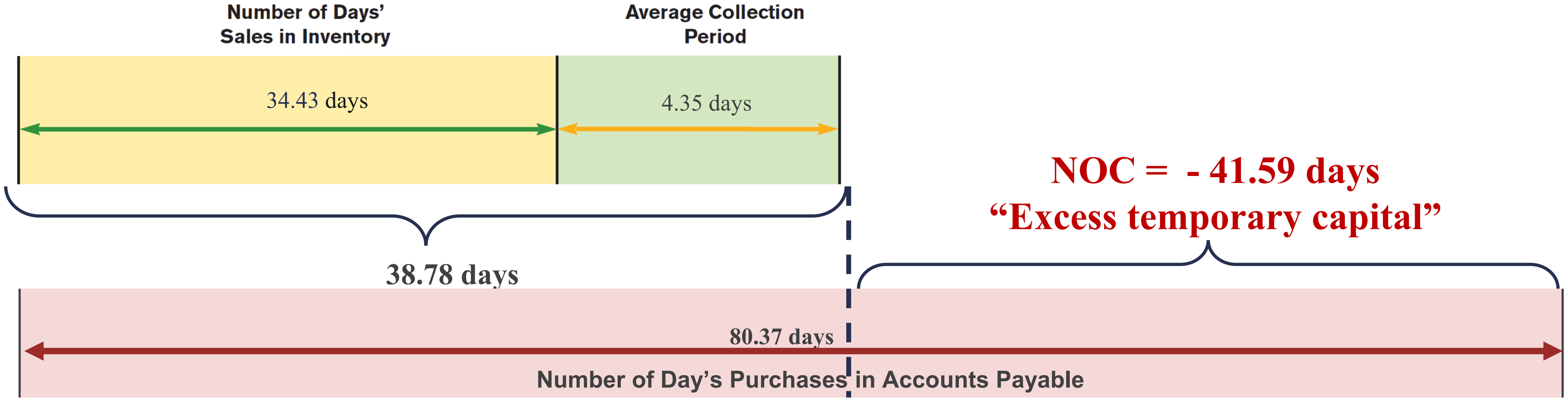

- Operating Cycle 173 days > Number of Days' Purchases in AP 65 days → NOC 108 days
- The company requires 173 days from the time it purchases its inventory to selling and receiving cash from its customers. However, it must pay its suppliers in 65 days.

→ The company might need to finance its NOC of 108 days through either equity or debt financing.

# Negative NOC Example: NTUC FairPrice

| | 2024 | 2023 | 2022 | 2021 | 2020 |
|---|---|---|---|---|---|
| Operating Cycle | 38.78 | 37.93 | 38.35 | 42.72 | 40.01 |
| Number of Days' Purchases in AP | 80.37 | 80.16 | 79.15 | 84.08 | 72.77 |
| **NOC** | **(41.59)** | **(42.23)** | **(40.81)** | **(41.36)** | **(32.76)** |

- Illustration of 2023 Net Operating Cycle:




- In 2024, it takes NTUC FairPrice about 39 days from the time it purchase its inventory to selling and receiving cash for it. However, NTUC FairPrice pays it suppliers in about 80 days!

➔NTUC FairPrice has "excess temporary capital" of about 42 days. It probably does not need to rely on external financing for cash to support its operating activities.

# Take Away for Lecture 07

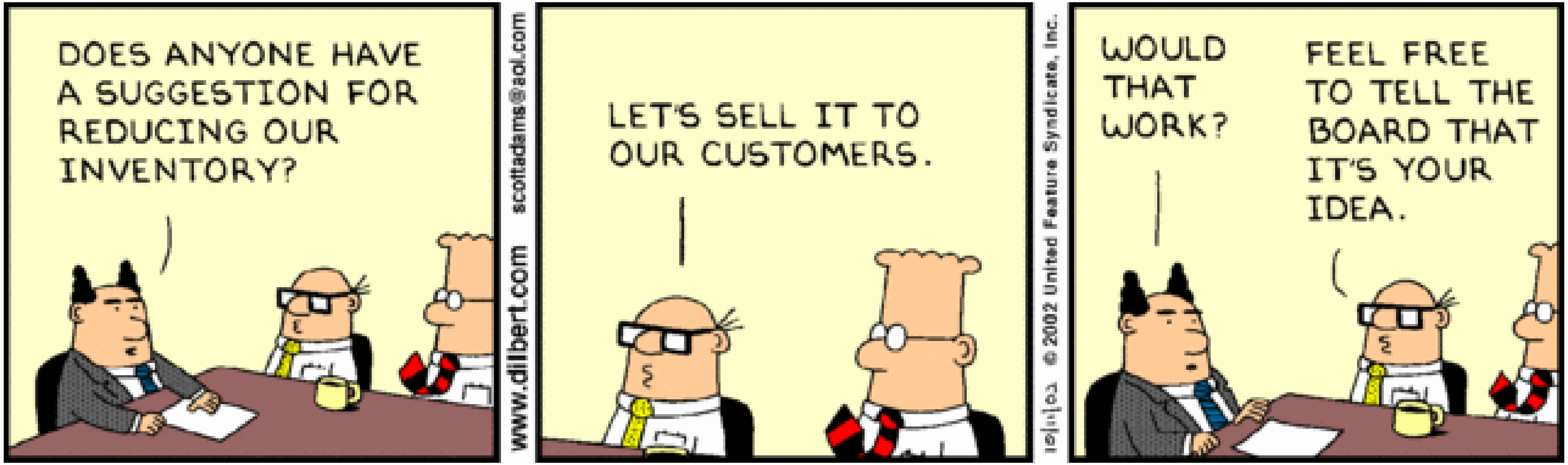
- Inventory for Merchandising Companies
  - Purchasing – discounts, returns & freight
  - Perpetual vs Periodic inventory system
- Inventory Costing
  - Inventory costing methods : specific identification, LIFO, FIFO, weighted average
  - Lower of cost and Net realizable value – recording inventory write down
  - Effect of Inventory Errors on FS
- FSA
  - Inventory Turnover & Number of Days' Sales in Inventory
  - Number of Days' Purchases in Accounts Payable
  - Net Operating Cycle

# Coming Up Next Week (Lecture 08)

CURRENT LIABILITIES:

- Known Liabilities
  - Accrued Liabilities: Sales Tax (GST), Payroll
  - Short Term Notes Payable
- Estimated Liabilities: (Chapter 9, LO3)
  - Warranty provision
- Contingent Liabilities (Chapter 9, LO3)
- FSA:
  - Current Ratio
  - Acid Test Ratio

# See you next week!




**Post your questions on Canvas discussion forum.**

**My email: hanny.kusnadi@nus.edu.sg**