

LM06 • FINANCIAL STATEMENT ANALYSIS • CFA LEVEL I

Analysis of Inventories

How cost-flow choices ripple through COGS, earnings, taxes, and every inventory ratio you'll ever calculate

What This Reading Covers

Inventory is a **current asset** held for sale or for use in production. Because purchase prices change over time, the method a company uses to assign costs to units sold vs. units still on hand drives huge differences in **COGS, gross profit, net income, taxes, ending inventory, working capital, and cash flow**. Under US GAAP a firm may pick FIFO, LIFO, weighted-average, or specific identification; under IFRS, **LIFO is banned**.

Learning Outcome Statements

- LOS a** Contrast costs included in inventories vs. costs recognised as expenses in the period
- LOS b** Describe different inventory valuation methods (cost formulas)
- LOS c** Calculate and compare COGS, gross profit, and ending inventory using different methods and under perpetual vs. periodic systems
- LOS d** Explain how inflation/deflation of inventory costs affects the financial statements and ratios
- LOS e** Explain LIFO reserve and LIFO liquidation and their effects
- LOS f** Demonstrate conversion from LIFO to FIFO for comparability
- LOS g** Describe measurement of inventory at the lower of cost or NRV
- LOS h** Describe implications of valuing inventory at NRV
- LOS i** Describe presentation and disclosure of inventories
- LOS j** Explain issues analysts consider when examining inventory disclosures
- LOS k, l** Calculate, compare, and analyze financial statements of companies using different inventory methods

Exam Tip: The single most-tested relationship in LM06 is what happens to COGS, NI, EI, working capital, and CFO under **LIFO vs. FIFO in rising prices**. Memorize the LIFO-vs-FIFO rising-price table cold — it unlocks most LM06 questions.

LOS A · INVENTORIABLE COSTS VS. PERIOD COSTS

What Goes Into Inventory (Capitalized) vs. What Hits the Income Statement

Under **both IFRS and US GAAP**, only costs required to get inventory to its *current condition and location* are capitalized into the inventory asset (a.k.a. **inventoriable / product costs**). Everything else is a **period cost** expensed as incurred.

CAPITALIZE OR EXPENSE?

CAPITALIZE → INVENTORY (BS)

expensed to COGS when sold

- Purchase cost (price + duties + taxes)
- Insurance & delivery (freight-in)
- Less: discounts & rebates
- Conversion cost: RM + direct/indirect labor
- Manufacturing overhead (direct + indirect)
- Other costs to bring inventory to current condition & location

PERIOD COST → INCOME STATEMENT

expensed in period incurred

- Abnormal waste of materials, labor, or other production inputs
- Storage costs (unless required as part of the normal production process)
- Administrative overhead
- Selling expenses

The Capitalization Rule

"All cost absorption ends when the inventory hits the finished-goods warehouse floor." Anything afterwards — storage of finished goods, admin, selling — is a period cost. Abnormal waste is always expensed (only normal waste is capitalized).

The Inventory Equation

INVENTORY EQUATION

$$\text{Beginning Inventory} + \text{Purchases} - \text{Ending Inventory} = \text{COGS}$$

<i>BI</i>	beginning inventory	<i>P</i>	purchases during period	<i>EI</i>	ending inventory
<i>COGS</i>	cost of goods sold (to income statement)				

This identity ($BI + P - EI = COGS$) is the backbone of every LM06 calculation. Move any value around and the other three must balance.

Balance Sheet vs. Income Statement Timing

EVENT

WHERE IT LANDS

Inventory is acquired or converted	Balance Sheet — asset capitalized
Inventory is sold	Income Statement — COGS recognised
Abnormal waste / admin / selling / (most) storage	Income Statement — period expense

LOS B · INVENTORY VALUATION METHODS (COST FORMULAS)

The Four Cost-Flow Methods

Under **IFRS** these are called "cost formulas"; under **US GAAP**, "cost-flow assumptions." The same valuation method must be used for items with a similar nature and use (items with a different nature may use a different method).

1. SPECIFIC IDENTIFICATION

Each unit sold is matched with the unit's actual cost.
Typically used for **non-interchangeable / unique** items — jewelry, custom equipment, art. COGS and ending inventory reflect actual costs; physical flow = cost flow.

2. FIFO (FIRST-IN, FIRST-OUT)

Oldest units sold first → COGS
Newest units remain → Ending Inventory

In rising prices, FIFO gives the *most accurate balance sheet* (EI near current replacement cost).

3. WEIGHTED-AVERAGE COST

Costs are allocated evenly across all units available for sale.

$$\text{W Avg cost/unit} = \frac{\text{Total Cost of Goods Available}}{\text{Total Units Available}}$$

Both COGS and EI are valued at this average; values lie **between FIFO and LIFO**.

4. LIFO (LAST-IN, FIRST-OUT)

Newest units sold first → COGS
Oldest units remain → Ending Inventory

US GAAP only — banned under IFRS. In rising prices, LIFO gives the *most accurate income statement* (COGS near current replacement cost).

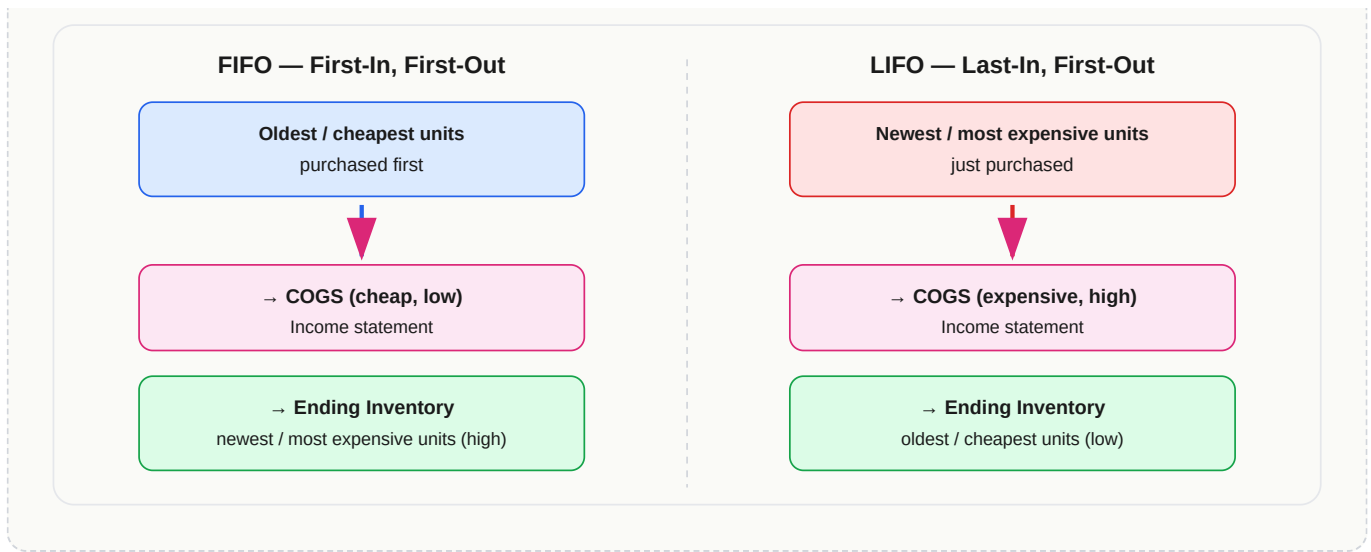
Standards at a Glance

US GAAP: permits all four (FIFO, LIFO, weighted-average, specific ID).

IFRS: permits specific ID, FIFO, and weighted-average — **LIFO is NOT permitted**.

FIFO vs. LIFO — Cost Flow Visual

HOW UNITS AND COSTS MOVE THROUGH THE SYSTEM (RISING PRICES)



Exam Tip: The shortcut: FIFO puts the *freshest* costs on the balance sheet (good BS); LIFO puts the *freshest* costs in the income statement (good IS). In both cases, the "fresh" side benefits.

LOS C · PERIODIC VS. PERPETUAL INVENTORY SYSTEMS

Two Ways of Keeping the Books

PERIODIC SYSTEM

Inventory on hand is determined **periodically** (usually at period-end via a physical count). Purchases accumulate in a "Purchases" account during the period; at period-end, the firm plugs COGS via the inventory equation:

$$\text{COGS} = \text{BI} + \text{Purchases} - \text{EI}$$

PERPETUAL SYSTEM

The inventory account is updated **continuously** — every purchase and sale flows through in real time. COGS is recorded each time a sale occurs, using the cost-flow rule chosen by the firm.

Critical Exam Point

Under both systems, **COGS and EI are identical for FIFO and specific identification**. However, for **LIFO and weighted-average**, periodic and perpetual *can* produce different COGS and EI because the timing of cost assignment differs (LIFO picks the "latest" purchase at the time of each sale; perpetual averages change with every purchase).

METHOD	PERIODIC = PERPETUAL?
Specific Identification	Yes — identical
FIFO	Yes — identical
Weighted-Average	No — can differ
LIFO	No — can differ

Exam Tip: A trap question: "FIFO produces the same result under periodic or perpetual." **True.** The oldest costs flow to COGS regardless of when you measure. The same goes for specific ID because each unit is tagged.

LOS D · INFLATION/DEFLATION EFFECTS ON IS, BS & RATIOS

LIFO vs. FIFO in a Rising-Price Environment

Assume **constant or increasing inventory quantities** with **rising unit costs**. This is the single most-tested scenario on the exam.

Ordering of COGS and EI**Rising prices:**

COGS: LIFO > Weighted-Avg > FIFO → LIFO: lower gross income, EBIT, NI

EI: FIFO > Weighted-Avg > LIFO → FIFO: higher asset value

Falling prices: exactly opposite (FIFO has higher COGS/lower profitability; LIFO has higher EI).

LIFO vs. FIFO (Rising Prices, Stable/Increasing Inventory Levels)

LINE ITEM	LIFO	FIFO
COGS	Higher	Lower
Gross profit	Lower	Higher
Earnings before taxes (EBT)	Lower	Higher
Taxes	Lower	Higher
Net income (earnings after taxes)	Lower	Higher
Ending inventory	Lower	Higher
Working capital (CA – CL)	Lower	Higher
Retained earnings / shareholders' equity	Lower	Higher
Cash flow after tax (CFO)	Higher	Lower

Why LIFO's CFO is Higher

LIFO produces higher COGS → lower taxable income → **lower cash taxes paid**. Pre-tax cash from operations is the same; LIFO saves real tax dollars. This is the entire economic reason US firms elect LIFO. Weighted-average cost values will lie **between LIFO and FIFO**.

Which Method is "Most Accurate" for What?

FIFO → Best Balance Sheet

Ending inventory is valued at the newest, most recent costs — close to **current replacement cost**. The BS carrying amount is a realistic reflection of the economic value of inventory on hand.

LIFO → Best Income Statement

COGS consists of the newest, most recent costs — so **COGS reflects current replacement cost**. Gross profit and margins are a more economically meaningful match of current revenues with current input costs.

Exam Tip: Don't confuse "lower" with "worse." LIFO's lower NI is an *accounting* effect driven by cost assignment; cash economics are actually better under LIFO (lower tax) in rising prices. This is why **companies in declining-price industries rarely elect LIFO** — there's no tax benefit.

QUIZ 1 · CHECKPOINT

Cost Capitalization, Methods & Rising-Price Effects

Q1. Which of the following is *most likely* capitalized as inventory rather than expensed in the period?

Q2. Under IFRS, which inventory valuation method is *not* permitted?

Q3. In a period of *rising prices* with stable inventory levels, a firm using LIFO instead of FIFO will report, compared to FIFO:

Q4. For which pair of cost-flow methods are COGS and ending inventory *the same* under the periodic and perpetual systems?

Q5. Which statement about the accuracy of reporting under rising prices is *most accurate*?

LOS C · WORKED EXAMPLE — FIFO VS. LIFO VS. WEIGHTED-AVERAGE

Calculate COGS and Ending Inventory Three Ways

WORKED EXAMPLE

Applying FIFO, LIFO & Weighted-Average to the Same Purchase Data

GIVEN — PURCHASES & SALES

Acme Co. has the following inventory activity (rising prices, periodic system). It sold **120 units** during the period.

EVENT	UNITS	COST/UNIT	TOTAL
Beginning inventory	50	\$10	\$500
Purchase #1	60	\$12	\$720
Purchase #2	70	\$14	\$980
Goods available (TGA)	180	—	\$2,200
Units sold	120	—	—
Ending units on hand	60	—	—

REQUIRED

Compute COGS and Ending Inventory under (i) FIFO, (ii) LIFO, and (iii) Weighted-Average cost.

SOLUTION

SOLUTION

- 1** **FIFO:** The oldest 120 units are sold. So COGS contains the 50 BI units @ 10 plus the 60 P#1 units @ 12 plus 10 P#2 units @ \$14.

$$\text{COGS} = (50 \times 10) + (60 \times 12) + (10 \times 14) = 500 + 720 + 140 = \$1,360$$

$$\text{EI (60 newest units)} = 60 \times 14 = 840$$

$$\text{Check: BI} + \text{P} - \text{EI} = 500 + 1,700 - 840 = \$1,360 \checkmark$$

- 2** **LIFO:** The newest 120 units are sold. So COGS uses 70 P#2 units @ 14 plus 50 P#1 units @ 12.

$$\text{COGS} = (70 \times 14) + (50 \times 12) = 980 + 600 = \$1,580$$

$$\text{EI (60 oldest units)} = (50 \times 10) + (10 \times 12) = 500 + 120 = \$620$$

$$\text{Check: } BI + P - EI = 500 + 1,700 - 620 = \$1,580 \checkmark$$

3

Weighted-Average: Allocate costs evenly over all 180 units available.

$$\text{W Avg cost/unit} = 2,200 / 180 \text{ units} = 12.2222$$

$$\text{COGS} = 120 \times 12.2222 \approx 1,466.67$$

$$\text{EI} = 60 \times 12.2222 \approx 733.33$$

ANSWER — RISING PRICES RANKINGS CONFIRMED

FIFO **COGS** 1,360 | **EI** 840

Weighted-Average **COGS** 1,467 | **EI** 733

LIFO **COGS** 1,580 | **EI** 620

COGS: LIFO (1,580) > W Avg (1,467) > FIFO (\$1,360) ✓

EI: FIFO (840) > W Avg (733) > LIFO (\$620) ✓

Exam Tip: Notice that **total costs flowing through the system are identical (\$2,200)** regardless of method — cost flow only changes the *allocation* between COGS (IS) and EI (BS) in the current period. Over the life of the firm, cumulative COGS is the same across methods.

LOS E, F · LIFO RESERVE & LIFO → FIFO CONVERSION

LIFO Reserve: The Bridge Between Reported LIFO and "What If FIFO?"

For US firms using LIFO, **US GAAP requires the LIFO Reserve to be disclosed in the footnotes**. It is the difference between what inventory would be valued at under FIFO and what it is reported at under LIFO.

Definition & Formulas

LIFO RESERVE & CONVERSION

$$\text{LIFO Reserve} = \text{FIFO Inventory} - \text{LIFO Inventory}$$

$$\text{Inventory}_{\text{FIFO}} = \text{Inventory}_{\text{LIFO}} + \text{LIFO Reserve}$$

$$\begin{aligned}\text{COGS}_{\text{FIFO}} &= \text{COGS}_{\text{LIFO}} - (LR_{\text{end}} - LR_{\text{beg}}) \\ &= \text{COGS}_{\text{LIFO}} - \Delta \text{LIFO Reserve}\end{aligned}$$

LR LIFO reserve (FIFO inv – LIFO inv)

ΔLR change in LIFO reserve over period

end / beg end-of-period / beginning-of-period

In rising prices, the LIFO reserve **grows over time** (it's a cumulative balance). So ΔLR is normally positive, meaning $\text{COGS}_{\text{FIFO}}$ is lower than $\text{COGS}_{\text{LIFO}}$.

Full LIFO → FIFO Conversion — Effects on Statements

TO CONVERT FROM LIFO TO FIFO BASIS	ADJUSTMENT
Inventory (BS)	Add the LIFO reserve
COGS (IS)	Subtract the change in LIFO reserve (ΔLR)
Cash (BS)	Subtract taxes saved: $LR \times t$ (this tax would have been paid under FIFO)
Retained earnings / equity (BS)	Add LIFO reserve $\times (1 - t)$
Deferred tax liability (BS)	Add LIFO reserve $\times t$ (under FIFO, taxable income would have been higher)
Net income (IS)	Add $\Delta LR \times (1 - t)$

WORKED EXAMPLE**LIFO → FIFO Conversion**

GIVEN

A US GAAP firm uses LIFO. From its footnotes:

Reported LIFO inventory (end)	\$1,000
LIFO reserve (end)	\$300
LIFO reserve (beginning)	\$240
Reported COGS under LIFO	\$5,000
Tax rate	25%

REQUIRED

Convert ending inventory and COGS to a FIFO basis, and quantify the adjustment to equity.

SOLUTION**SOLUTION****1****Inventory under FIFO.**

$$\text{Inv}_{\text{FIFO}} = \text{Inv}_{\text{LIFO}} + \text{LR} = 1,000 + 300 = \$1,300$$

2**Change in LIFO reserve.**

$$\Delta \text{LR} = 300 - 240 = \$60$$

3**COGS under FIFO.**

$$\text{COGS}_{\text{FIFO}} = \text{COGS}_{\text{LIFO}} - \Delta \text{LR} = 5,000 - 60 = \$4,940$$

Gross profit & NI both rise by \$60 pre-tax under FIFO (confirming the rising-price pattern).

4**Retained-earnings / equity adjustment.**

$$\Delta \text{Equity} = \text{LR} \times (1 - t) = 300 \times (1 - 0.25) = 225$$

The balancing entries on BS: Cash falls by $300 \times 0.25 = 75$ (taxes that would have been paid); DTL rises by 75; Equity rises by 225; Inventory rises by 300. Assets net change = +225; liabilities +75; equity +225 - 0? Net: +300 = +75 + \$225 ✓

ANSWERS

Inventory (FIFO basis)	\$1,300
COGS (FIFO basis)	\$4,940
Retained earnings uplift	+\$225

Exam Tip: Note the required pairing: **if a US firm uses LIFO for tax, it MUST use LIFO for external reporting** ("LIFO conformity rule"). However, firms may use FIFO or weighted-average internally for better pricing decisions.

LOS E · LIFO LIQUIDATION

When Old, Cheap "LIFO Layers" Flow Through COGS

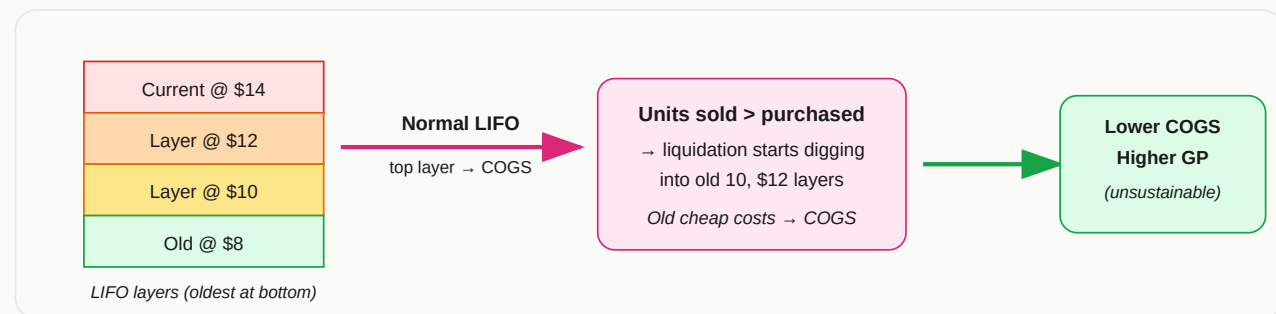
A **LIFO liquidation** occurs when **units sold > units purchased** in a period — inventory quantities are drawn down. Under LIFO, the oldest units are the ones still on the books, so some of those old "LIFO layers" now flow through COGS.

Mechanics & Analytical Warning

If unit costs have been rising over time and a LIFO liquidation occurs, the old cheap costs flowing through COGS make **COGS artificially low** → **gross margin artificially high** → **net income artificially high**.

This spike is **unsustainable**: once the old layers are exhausted, COGS reverts to current costs. Analysts should strip out the LIFO-liquidation profit when forecasting.

LIFO LIQUIDATION IN A RISING-COST ENVIRONMENT



How Analysts Spot a LIFO Liquidation

- 1 A **decrease in the LIFO reserve** may signal a liquidation (caveat: falling prices can also shrink LR without liquidation).
- 2 US GAAP also requires disclosure of any **material income resulting from a LIFO liquidation**.
- 3 Check inventory quantities: if physical units are dropping while LR drops, it's liquidation; if physical units are steady but LR drops, it's falling input prices.

Exam Tip: A LIFO liquidation is **one-time and unsustainable**. Always compare current-period gross margin to the LR change — a GP spike + a shrinking LR is the classic liquidation signature.

LOS G, H • INVENTORY VALUATION & WRITE-DOWNS

Lower of Cost or NRV (IFRS) vs. Lower of Cost or Market (US GAAP / LIFO)

Inventory may become unrecoverable due to **spoilage, obsolescence, or declining selling prices**. Accounting standards require a periodic test and a write-down when carrying cost exceeds the recoverable amount.

Side-by-Side

FRAMEWORK	RULE	REVERSALS?
IFRS (all inventory)	Lower of cost or NRV	Yes — up to original write-down; reversal reduces COGS
US GAAP — LIFO or retail method	Lower of cost or Market	No — non-reversible
US GAAP — all other methods (FIFO / WAvg)	Lower of cost or NRV	No — non-reversible

Net Realizable Value (NRV)

$$NRV = \text{Estimated selling price} \\ - \text{estimated cost of completion} \\ - \text{estimated selling (disposal) costs}$$

"Market" (US GAAP • LIFO/Retail)

Market = **Current Replacement Cost**, subject to:

- **Upper bound** = NRV
- **Lower bound** = NRV – normal profit margin

Write-down Mechanics (both frameworks)

- 1 When inventory value drops below carrying cost, it is **written down to NRV** (or market under US GAAP/LIFO) via an "Inventory Valuation Allowance" account.
- 2 The write-down is charged to **COGS** (or reported as a separate line item).
- 3 **IFRS only:** If value subsequently recovers, a reversal is recorded — capped at the original write-down — and reduces COGS in that period.
- 4 Because LIFO inventory is already held at the oldest (usually lowest) costs, **LIFO inventory is least likely to require a write-down**.

Effects of a Write-Down on Financial Statements & Ratios

METRIC	DIRECTION
Inventory, current assets, total assets	Decrease
Equity (RE via lower NI)	Decrease
COGS	Increase
Net income, profit margins, ROA, ROE	Decrease
Current ratio	Decrease
Quick ratio	Unaffected (inventory excluded)
Inventory turnover (COGS / Avg Inv)	Increase
Days of inventory on hand	Decrease
Asset turnover	Increase
Debt-to-equity, debt-to-assets	Increase

Special Case — Commodity Producers & Dealers

For agriculture, forest products, minerals, and commodity brokers/dealers, **both IFRS and US GAAP** allow inventory to be measured at **NRV (or fair value less costs to sell)**, and changes (*up or down*) flow through P/L in the period of change. Active market → quoted market price; no active market → most recent transaction price.

LOS J, K • INVENTORY RATIOS

Three Key Ratios for Inventory Management

INVENTORY TURNOVER

$$\text{COGS} / \text{Avg Inventory}$$

How many times inventory is sold and replaced per period. Higher = leaner inventory; lower = slower-moving stock.

DAYS OF INVENTORY ON HAND (DOH)

$$365 / \text{Inventory Turnover}$$

Average days a unit sits in inventory before being sold. Lower DOH = faster movement.

GROSS PROFIT MARGIN

$$\text{Gross Profit} / \text{Revenue}$$

Margin left after COGS. Affected by competition, product mix, and inventory management.

Why Cost-Flow Choice Drives These Ratios

Any ratio with **COGS or Inventory** in the numerator or denominator is directly affected by the firm's cost-flow method. Inventory turnover, DOH, asset turnover, current ratio, gross/operating/net margin, ROA, ROE, debt-to-equity, debt-to-assets — all distort between LIFO and FIFO firms.

Interpreting the Ratios

PATTERN	INTERPRETATION
High turnover + low DOH + sales growth $\geq$ industry	Highly effective inventory management
High turnover + low DOH + sales growth < industry	Possibly inadequate inventory → lost sales / stockouts
Low turnover + high DOH vs. industry	Slow-moving or obsolete inventory
Rising RM / WIP (vs. sales growth)	May signal <i>rising</i> future demand
Rising FGI + falling RM/WIP	May signal <i>falling</i> demand
FGI growing faster than sales	Demand decline / excess / obsolescence risk

Ratios — LIFO vs. FIFO (Rising Prices)

CATEGORY	RATIO	LIFO	FIFO
Profitability	Gross / Operating / Net Margin	Lower	Higher

	ROA, ROE	Lower	Higher
Liquidity	Current ratio	Lower	Higher
	Quick ratio	Unaffected (inventory excluded)	
Activity	Inventory turnover	Higher	Lower
	Days of inventory on hand (DOH)	Lower	Higher
Solvency	Debt ratio	Higher	Lower
	Debt-to-equity	Higher	Lower

Exam Tip: Inventory turnover under LIFO is *doubly* boosted in rising prices: numerator (COGS) is higher *and* denominator (average inventory) is lower. This flatters activity ratios for LIFO firms — always adjust to a FIFO basis before comparing LIFO companies to FIFO peers.

QUIZ 2 · CHECKPOINT

LIFO Reserve, Liquidation & Write-Downs

Q6. A US firm reports LIFO inventory of 800 and a LIFO reserve of 200. Inventory on a FIFO basis is *closest* to:

Q7. A LIFO firm reports COGS of 10,000. Its LIFO reserve rose from 300 to \$450. COGS on a comparable FIFO basis is *closest* to:

Q8. A LIFO liquidation in a period of rising costs is *most likely* to produce:

Q9. Under US GAAP, inventory measured using the **LIFO or retail** method is valued at the lower of cost or:

Q10. A firm writes down inventory from cost to NRV. Which of the following ratios is *unaffected*?

LOS I · PRESENTATION & DISCLOSURES

Required Inventory Disclosures

Under both **IFRS** and **US GAAP**, the following disclosures are required:

- a Accounting policy used (e.g., FIFO, LIFO, weighted-average)
- b Total carrying amount of inventory and any classifications (raw materials, WIP, finished goods)
- c Carrying amount of inventory reported at fair value less costs to sell
- d COGS (cost of inventory recognized as an expense during the period)
- e Amount of any inventory write-downs during the period
- f **IFRS only:** amount of any reversals of previous write-downs
- g **IFRS only:** description of the event that led to the reversal
- h Carrying amount of inventories pledged as collateral for liabilities

US GAAP Specifics

US GAAP requires disclosures (a)–(e) and (h), but **not** (f) and (g) because reversals are prohibited.

Additionally, **US GAAP requires disclosure of any material amount of income resulting from a LIFO liquidation.**

Analytical Lens — What To Look For

- 1 Inventory by **RM / WIP / FG** classification — shifts signal demand changes.
- 2 LIFO reserve trend — growing LR $\approx$ rising prices; shrinking LR $\approx$ either falling prices *or* a LIFO liquidation.
- 3 Write-down frequency & magnitude — chronic write-downs may indicate weak inventory management or obsolescence risk.
- 4 Compare **inventory turnover and sales growth vs. industry** to distinguish efficient management from stockouts.

QUIZ 3 · CHECKPOINT

Ratios, Disclosures & Analyst Adjustments

Q11. A firm's COGS is 600 and average inventory is 150. Days of inventory on hand is *closest* to:

Q12. In a rising-price environment, a LIFO firm compared to a FIFO peer will report, among activity ratios:

Q13. Which of the following inventory disclosures is required under **IFRS** but *not* under US GAAP?

Q14. An analyst observes that a LIFO firm's raw materials and work-in-process inventories are increasing while finished-goods inventory is falling. This is *most likely* a signal of:

Q15. A LIFO firm reports inventory of 1,200, *LIFO reserve* of 400, and a tax rate of 30%. The *estimated* addition to retained earnings if the firm had reported under FIFO is *closest* to:

MODULE COMPLETE

Your Scorecard

0 / 15

LM06 Key Takeaways — Exam-Ready Cheat Sheet

Inventoriable Costs vs. Period Costs

- 1 **Capitalize (BS):** purchase price, duties/taxes, freight-in, insurance, conversion costs (RM, direct/indirect labor, MOH), other costs to get inventory to *current condition and location*.
- 2 **Expense (IS period cost):** abnormal waste, storage of finished goods, admin overhead, selling expenses.
- 3 **Inventory equation:** $BI + Purchases - EI = COGS$.

Cost-Flow Methods

- 4 **FIFO:** oldest → COGS, newest → EI; best BS in rising prices.
- 5 **LIFO:** newest → COGS, oldest → EI; best IS in rising prices. **US GAAP only; banned under IFRS.**
- 6 **Weighted-average:** $WAvg/unit = TGA / \text{units available}$; COGS + EI between LIFO and FIFO.
- 7 **Specific ID:** actual cost to each unit; used for unique items.
- 8 **Periodic = Perpetual** for FIFO and specific ID only; LIFO and WAvg can differ.

Rising Prices — LIFO vs. FIFO

- 9 COGS: **LIFO > WAvg > FIFO**. EI: **FIFO > WAvg > LIFO**.
- 10 LIFO: lower NI, lower EI, lower working capital, lower RE/equity, **lower taxes** → **higher CFO**.

LIFO Reserve & Conversion

- 11 $\text{Inv}_{\text{FIFO}} = \text{Inv}_{\text{LIFO}} + \text{LR}$; $\text{COGS}_{\text{FIFO}} = \text{COGS}_{\text{LIFO}} - \Delta\text{LR}$. Equity uplift $\approx \text{LR} \times (1 - t)$.
- 12 **LIFO liquidation:** units sold > purchased; old cheap LIFO layers flow to COGS → artificially high GP/NI; one-time, unsustainable. A decline in LR may signal liquidation.

Valuation & Write-Downs

- 13 **IFRS:** lower of cost or NRV (NRV = sale price – completion – selling costs). Reversals allowed up to original write-down.
- 14 **US GAAP (LIFO / retail):** lower of cost or market; market = replacement cost capped at NRV, floored at NRV – normal profit margin. No reversals.
- 15 **US GAAP (FIFO / WAvg):** lower of cost or NRV. No reversals.
- 16 Commodity producers/dealers: measured at NRV; changes (up or down) flow through P/L.

Ratios & Analysis

- 17 **Inventory turnover** = $\text{COGS} / \text{Avg Inv}$; **DOH** = 365 / turnover; **Gross Profit Margin** = $\text{GP} / \text{Revenue}$.
- 18 LIFO (rising prices): higher turnover, lower DOH, lower margins, lower current ratio, higher D/E. Quick ratio unaffected.
- 19 Disclosures: policy, carrying amount by class, FV-less-costs-to-sell carried amount, COGS, write-downs, IFRS reversals, collateral; US GAAP also discloses material LIFO-liquidation income.

Last-Minute Exam Checklist

Inventoriable: purchase + conversion + bring-to-location/condition costs

Period: abnormal waste, FG storage, admin, selling

Identity: $\text{BI} + \text{Purchases} - \text{EI} = \text{COGS}$

Rising prices: LIFO → higher COGS, lower NI/EI, higher CFO; FIFO → lower COGS, higher NI/EI, lower CFO

Conversion: $\text{Inv}_{\text{FIFO}} = \text{Inv}_{\text{LIFO}} + \text{LR}$; $\text{COGS}_{\text{FIFO}} = \text{COGS}_{\text{LIFO}} - \Delta\text{LR}$; $\Delta\text{Equity} = \text{LR}(1-t)$

Write-downs: IFRS = lower of cost/NRV (reversible); US GAAP LIFO/retail = lower of cost/market (not reversible);
other US GAAP = lower of cost/NRV (not reversible)

Step 1 of 15