

Learning Module 6: Analysis of Inventories

LOS 6a: describe the measurement of inventory at the lower of cost and net realisable value and its implications for financial statements and ratios

The type of inventory valuation can affect the inventory carrying amounts and the cost of sales. Consequently, financial items such as current assets, total assets, and net income are impacted. As such, analysts should analyze financial statements and accompanying notes information regarding inventory accounting policies.

Measurement of Inventory at the Lower of Cost and Net Realizable Value

Recall Net realizable value is defined as the estimated selling price in the ordinary course of business, less the estimated costs necessary to make the sale and the costs to get the inventory in condition for sale.

Both IFRS and US GAAP have specific guidelines for inventory measurement, though there are notable differences.

IFRS Guidelines

Under IFRS, inventories must be measured and carried on the balance sheet at the lower of cost and net realizable value. This measurement is crucial in financial reporting as it ensures that inventory is not overstated on the balance sheet. This is particularly important because the value of inventory can decrease due to factors such as spoilage, obsolescence, or declining selling prices.

The assessment of net realizable value is typically performed item by item or by groups of similar or related items. If the net realizable value of inventory falls below its carrying amount, the inventory must be written down to this net realizable value. The resulting loss is recognized as an expense on the income statement, either included in the cost of sales or reported separately.

In subsequent periods, if the net realizable value increases, previous write-downs can be reversed, but only up to the amount of the original write-down. This reversal is recognized as a reduction in the cost of sales.

US GAAP Guidelines

Historically, US GAAP required inventories to be valued at a lower of cost or market value. However, for fiscal years beginning after December 15, 2016, inventories excluding those measured using the last-in, first-out (LIFO) or retail inventory methods are measured at the lower of cost or net realizable value, aligning more closely with IFRS.

Unlike IFRS, US GAAP prohibits the reversal of inventory write-downs. For inventories measured using LIFO and retail inventory methods, "market value" is defined as the current replacement cost, subject to upper and lower limits. The market value cannot exceed net realizable value, nor can it be less than net realizable value minus a normal profit margin.

Implications of Inventory Measurement on Financial Statements and Ratios

Inventory write-downs decrease reported profits because the loss is recognized as an expense on the income statement. This negatively affects profitability ratios, such as the net profit margin and gross profit margin.

Moreover, the write-down reduces the carrying amount of inventory on the balance sheet, which can negatively affect liquidity ratios like the current and quick ratios. Lower inventory values also reduce the total asset base, impacting solvency ratios such as the debt-to-assets ratio.

Lastly, activity ratios, such as inventory turnover and total asset turnover, can improve following a write-down because these ratios are calculated using a lower asset base (denominator).

Special Considerations

Analysts should be aware of the potential for significant inventory write-downs, especially in industries where technological obsolescence is a major risk. It's essential to evaluate the

potential impact of inventory write-downs on financial ratios, particularly when debt covenants include specific ratio requirements. Breaching these covenants can have severe consequences for a company.

Companies using specific identification, weighted average cost, or FIFO methods are more prone to inventory write-downs compared to those using LIFO. Under the LIFO method, inventory costs are already conservatively presented at the oldest (often lowest) costs, making significant write-downs less likely.

International Accounting Standards 2 (IAS 2), which governs inventories, does not apply to producers of agricultural and forest products, minerals, and commodity broker-traders. These inventories may be measured at net realizable value according to industry practices, often based on market prices if an active market exists.

Question #1

If a company values its inventory at the net realizable value, this will *most likely*:

- A. Improve the company's profitability.
- B. Decrease the company's inventory turnover.
- C. Lead to any loss being recognized as an expense on the company's income statement.

Solution

The correct answer is **C**.

When a company's inventory carrying amount is written down to its net realizable value, the loss is recognized as an expense on the income statement.

A and B are incorrect. If a company values its inventory at the net realizable value, its profitability will decrease as its inventory turnover increases.

Question #2

To find the net realizable value of a company's inventory, which of the following items ought to be deducted from the inventory's expected selling price?

- A. Selling costs.
- B. Costs required to convert inventory into a sellable condition.
- C. Both selling costs and costs are required to convert inventory into a sellable condition.

Solution

The correct answer is **C**.

The net realizable value of a company's inventory could be figured out using the

following equation:

Net realizable value = Selling price in an arm's length transaction - Cost of sales -
Cost required to convert inventory to sellable condition.

LOS 6 b: calculate and explain how inflation and deflation of inventory costs affect the financial statements and ratios of companies that use different inventory valuation methods

Rising inventory costs (inflation) or declining inventory costs (deflation) can significantly impact a company's financial statements, depending on the inventory valuation method used. Differences in the selected valuation method can affect companies' comparability when doing financial ratio analysis.

FIFO Method

- **Inflation:** When inventory unit costs rise and inventory quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet. Therefore, a company's gross profit, operating profit, and income before taxes will be higher.
- **Deflation:** When inventory unit costs decline and inventory quantities remain constant or increase, FIFO allocates a higher amount of the total cost of goods available for sale to the cost of sales on the income statement and a lower amount to ending inventory on the balance sheet. Therefore, a company's gross profit, operating profit, and income before taxes will be lower.

Generally, ending inventory amount under FIFO will more closely reflect current replacement values because inventories are assumed to consist of the most recently purchased items.

LIFO Method

- **Inflation:** When inventory unit costs rise, LIFO allocates a higher amount of the total cost of goods available for sale to the cost of sales on the income statement and a lower amount to ending inventory on the balance sheet. Therefore, a company's gross profit,

operating profit, and income before taxes will be lower.

- **Deflation:** When inventory unit costs decline, LIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet. Therefore, a company's gross profit, operating profit, and income before taxes will be higher.

The cost of sales under LIFO will more closely reflect current replacement values. However, the LIFO ending inventory amounts normally do not reflect the current replacement value because the ending inventory is assumed to be the oldest inventory, and costs are allocated accordingly.

Question 1

Which of the following statements is *most likely* accurate?

- A. When unit costs increase and quantities remain constant or increase, LIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.
- B. When unit costs increase and quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.
- C. When unit costs decrease and quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.

Solution

The correct answer is **B**.

Whenever inventory unit costs rise and inventory quantities remain constant or increase, FIFO allocates a lower amount of the total cost of goods available for sale to the cost of sales on the income statement and a higher amount to ending inventory on the balance sheet.

A is incorrect because it describes FIFO and not LIFO.

C is incorrect because under those circumstances (declining prices), FIFO allocates a higher amount of the total cost of goods available for sale to the cost of sales on the income statement and a lower amount to ending inventory on the balance sheet and not the reverse as indicated.

Question 2

For a company to increase its assets during a deflationary period, it needs to follow the:

- A. FIFO method.
- B. LIFO method.
- C. Average cost of inventory method.

Solution

The correct answer is **B**.

Using LIFO during a deflationary period would make a company add the most recently purchased inventory (the least expensive), which would leave the oldest inventory (the most expensive) to be added to the ending inventory. Hence, the increased value of inventory would lead to increased assets.

LOS 6c: describe the presentation and disclosures relating to inventories and explain issues that analysts should consider when examining a company's inventory disclosures and other sources of information

Presentation and Disclosures Relating to Inventories

IFRS Disclosure Requirements:

Under IFRS, companies must include the following information in their financial statements regarding inventories:

- **Accounting Policies:** The accounting policies adopted for measuring inventories, including the cost formula (inventory valuation method) used.
- **Total Carrying Amount:** The total carrying amount of inventories and the carrying amount in classifications such as merchandise, raw materials, production supplies, work in progress, and finished goods.
- **Fair Value Measurement:** The carrying amount of inventories carried at fair value less costs to sell.
- **Expense Recognition:** The amount of inventories recognized as an expense during the period (cost of sales).
- **Write-downs:** The amount of any write-down of inventories recognized as an expense in the period.
- **Reversals of Write-downs:** The amount of any reversal of any write-down that is recognized as a reduction in the cost of sales in the period.
- **Circumstances for Reversals:** The circumstances or events that led to the reversal of a write-down of inventories.
- **Pledged Inventories:** The carrying amount of inventories pledged as security for liabilities.

US GAAP Disclosure Requirements

Inventory-related disclosures under US GAAP are similar to those under IFRS but have some differences:

- **Significant Estimates:** Disclosure of significant estimates applicable to inventories.
- **LIFO Liquidation:** Disclosure of any material amount of income resulting from the liquidation of LIFO inventory.
- **Exclusions for Write-down Reversals:** Unlike IFRS, US GAAP does not require disclosures related to the reversal of inventory write-downs, and as such, reversals are not permitted.

Issues Analysts Should Consider

Analysts should consider several key issues when examining a company's inventory disclosures and other sources of information.

The choice of inventory valuation method (FIFO, LIFO, Weighted Average) affects several financial statement items, including cost of sales, gross profit, net income, inventories (current assets), total assets

Analysts should also consider the effect of inventory valuation on financial ratios: Inventory valuation methods impact financial ratios such as:

- Current ratio, since inventory is a component of current assets.
- Return on assets (ROA) because the cost of sales affects net income, and inventory is part of total assets.
- Gross profit margin, since gross profit is affected by the cost of sales.
- Inventory turnover since it measures how efficiently inventory is managed.

Note that adjustments of inventory carrying amounts to net realizable value or current replacement cost can also impact the above financial items and ratios.

Other Considerations

1. Inventory Size

Analysts should compare the company's inventory turnover ratio with sales trends to determine the appropriate inventory size. A too-small inventory might lead to missed sales opportunities, while too much inventory can negatively impact financial ratios.

2. Composition of Inventory

The percentage change of different inventory categories (finished goods, raw materials, work in progress) can indicate management's expectations about future demand. For example, an increase in finished goods might suggest slower future sales growth.

3. Inventory Growth vs. Sales Growth

Analysts should compare the growth rate of finished goods with the sales growth rate. If inventory growth outpaces sales, it could indicate potential future sales slowdowns or overstocking.

4. Other Sources of Information

Additional information can be found in the Management Discussion and Analysis (MD&A) section, as well as industry reports and economic data related to the industry. This can provide context and further insights into inventory management and future sales trends.

Inventory Ratios

Three key ratios often used to evaluate the efficiency and effectiveness of inventory management are the inventory turnover ratio, days of inventory on hand (DOH), and gross profit margin. These ratios are directly influenced by a company's choice of inventory valuation method.

However, other financial ratios, such as the current ratio, return on assets (ROA), and debt-to-equity ratio, are less directly affected by the inventory valuation method.

Inventory Turnover Ratio

Measures how often a company sells and replaces its inventory over a period. It is calculated as:

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

A higher turnover ratio indicates more efficient inventory management, as it means the company sells its inventory more frequently, reducing the investment tied up in inventory. Conversely, a low inventory turnover ratio could signal poor inventory management or overstocking. Comparing this ratio to industry norms helps contextualize the company's performance.

Days of Inventory on Hand (DOH)

Indicates the average number of days inventory is held before it is sold. It is inversely related to inventory turnover.

$$\text{Days of Inventory on Hand} = \frac{365}{\text{Inventory Turnover Ratio}}$$

Inventory turnover and DOH should be compared against industry norms and tracked over multiple periods to assess trends.

A high inventory turnover ratio and low DOH can indicate efficient inventory management. However, it could also suggest inadequate inventory levels or aggressive write-downs, potentially leading to lost sales or production issues. Analysts should compare the company's inventory turnover and sales growth rates with industry averages to differentiate between these scenarios and review inventory-related disclosures.

Conversely, a low inventory turnover ratio and a high DOH relative to industry standards may signal slow-moving or obsolete inventory. Comparing sales growth with industry norms and examining financial statement disclosures can provide further insights into potential inventory issues.

Gross Profit Margin

Gross profit margin indicates the percentage of sales that exceeds the cost of goods sold,

contributing to net income. It is calculated as:

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Sales}}$$

Gross profit margin provides insight into a company's financial health, indicating how much of each dollar of sales is retained as profit after accounting for the cost of goods sold.

Generally, companies in highly competitive markets typically have lower gross profit margins, while those selling luxury goods generally have higher margins. However, companies with higher margins might have lower inventory turnover rates than those selling staple goods.

Question 1

Which of the following financial statement items is *not* directly affected by the choice of inventory valuation method?

- A. Revenue.
- B. Net income.
- C. Cost of sales.

Solution

The correct answer is **A**.

Revenue is not affected by the choice of inventory valuation method. Net income and cost of sales, on the other hand, are.

B is incorrect. Net income is affected by the inventory valuation method because it impacts the cost of sales.

C is incorrect. Cost of sales is directly affected by the inventory valuation method used.

Question 2

The financial disclosure information required by the IFRS, but not US GAAP, is:

- A. Information related to inventory write-downs.
- B. Information related to inventory write-down reversals.
- C. Information related to the carrying amount of each inventory section.

Solution

The correct answer is **B**.

US GAAP does not require the disclosure of write-down reversals because it does not

allow for the reversal of write-downs.

A is incorrect. Both IFRS and US GAAP require information related to inventory write-downs.

C is incorrect. Both IFRS and US GAAP require information related to the carrying amount of each inventory section.