

Guideline	R16 Inventories: Implications for Financial Statement and Ratios	
Introduction	Section	Weight
	Ethics	10%
	Quant	5%-10%
	Economics	5%-10%
	FRA	15%-25%
	Corporate Finance	5-15%
	Equity Investment	20%-30%
	Alternative Investment	5%-15%
	Fixed Income	5%-15%
	Derivative	5%-15%
	Portfolio	5%-15%
	Total	100%

Need to know:

- 10 Cases each morning and afternoon
Each case has **6 questions**
3 hours total
- The length of each case around 1-2 pages
Reading words 400-800 for one case
- Usually, there are 4 cases of FRA, and 4 cases of Equity total in L2. Total accounts for 40%
- More calculation needed

Suggestion:

- 300 hours for preparation
Out of 300 hours, at least **150 hours** for problem practice
If you spent 4 hours each day, 38days needed to practice
- Choose text book or notes, it doesn't matter
- Practice: Mock Exam, problems in textbook, Sample Exam
Recommend to practice 300 cases and **understand**

Sessions and readings	<p>SS5 Financial Reporting and Analysis-Inventories and Long-lived Assets</p> <p>R16 Inventories: Implications for Financial Statements and Ratios</p> <p>R17 Long-lived Assets: Implications for Financial Statements and Ratios</p> <p>SS6 Financial Reporting and Analysis 2</p> <p>R18 Intercorporate Investments</p> <p>R19 Employee Compensation: Post-Employment and Share-Based</p> <p>R20 Multinational Operations</p> <p>SS7 Financial Reporting and Analysis-Quality of FR and FSA</p> <p>R21 Evaluating Quality of Financial Report</p> <p>R22 Integration of Financial Statement Analysis Techniques</p>
Topics	<p>a. calculate and explain how inflation and deflation of inventory costs affect the financial statements and ratios of companies that use different inventory valuation methods</p> <p>b. explain LIFO reserve and LIFO liquidation and their effects on financial statements and ratios</p> <p>c. convert a company's reported financial statements from LIFO to FIFO for purposes of comparison</p> <p>d. describe the implications of valuing inventory at net realizable value for financial statements and ratios</p> <p>e. analyze and compare the financial statements and ratios of companies, including those that use different inventory valuation methods</p> <p>f. explain issues that analysts should consider when examining a company's inventory disclosures and other sources of information</p>

a. different inventory methods

1. Ending Inventory=Beginning inventory+ Purchases-COGS

2. Inventory cost methods

- Specific identification
- FIFO
- LIFO (Not allowed under IFRS)
- Weighted average cost

3. FIFO vs LIFO during inflation period

FIFO: first item purchased is the first item sold

- COGS lower
- Ending inventory higher

LIFO: item purchased most recently is the first item sold

- COGS higher
- Ending inventory lower

4. Periodic vs Perpetual

Periodic system: inventory values and COGS determined at the end of the accounting period

Perpetual system: inventory values and COGS updated continuously

Inventory and COGS in two systems

are same: **FIFO** and **specific identification**

are different: **LIFO** and **weighted average cost**

Example:

Calculate Ending Inventory and COGS under LIFO, FIFO, weighted average in two systems

Sep 1	4 units \$5 each
Sep 5 purchase	2 units \$7 each
Sep 14 sell	3 units
Sep 20 purchase	4 units \$8 each
Sep 28 sell	2 units

Answer:

LIFO under periodic system

$$\text{COGS} = 4 \times 8 + 1 \times 7 = \$39$$

$$\text{Ending inventory} = 4 \times 5 + (2-1) \times 7 = \$27$$

LIFO under perpetual system

$$\text{COGS} = (2 \times 7 + 1 \times 5) + (2 \times 8) = \$35$$

$$\text{Ending inventory} = (4-1) \times 5 + (4-2) \times 8 = \$31$$

FIFO under periodic system

$$\text{COGS} = 4 \times 5 + 1 \times 7 = \$27$$

$$\text{Ending inventory} = (2-1) \times 7 + 4 \times 8 = \$39$$

FIFO under perpetual system

$$\text{COGS} = 3 \times 5 + (1 \times 5 + 1 \times 7) = \$27$$

$$\text{Ending inventory} = (2-1) \times 7 + 4 \times 8 = \$39$$

Same result

Weighted average	Periodic	Perpetual
COGS	\$33	\$31
Ending inventory	\$33	\$35

b. LIFO reserve and LIFO liquidation

1. LIFO reserve

- LIFO reserve helps to convert LIFO inventory to FIFO inventory
- FIFO inventory= LIFO inventory+ **LIFO reserve**
- COGS(FIFO)=COGS(LIFO)-**ΔLIFO reserve**

2. Convert LIFO to FIFO effect

-B/S

Asset: **Inventory** increased by LIFO reserve**Cash** decreased by LIFO reserve \times t(effective tax rate)

Note: if effective tax rate changes

Cash decreased by LIFO reserve₀ \times t₀+ **ΔLIFO reserve** \times t₁Equity: increased by the **same amount** as asset to balance

$$\begin{aligned} & \text{LIFO reserve}_1 - \text{LIFO reserve}_0 \times t_0 - \Delta \text{LIFO reserve} \times t_1 \\ & = (\text{LIFO reserve}_0 + \Delta \text{LIFO reserve}) - \text{LIFO reserve}_0 \times t_0 \\ & \quad - \Delta \text{LIFO reserve} \times t_1 \\ & = \text{LIFO reserve}_0 \times (1-t_0) + \Delta \text{LIFO reserve} \times (1-t_1) \end{aligned}$$

-I/S

Gross profit increased by: Δ LIFO reserveNet income increased by: Δ LIFO reserve \times (1-t₁)

3. LIFO liquidation

- LIFO firm's inventory quantities declining
 - lower costs included in COGS, which will increase profit
- For example, company purchase 0, but sell 100 units. Price of product now is \$100
Inventory: 200 \times \$80, so COGS=8000 < COGS=10000 if purchase products from market rather than using inventory

Example:

Prepared using LIFO

B/S partial	2016	2015
Inventory	\$310	\$290
Total current asset	\$630	\$580
Total Asset	\$2,070	\$1,940
Equity	\$1,030	\$880

Other info: LIFO reserve =90 in 2015

LIFO reserve =100 in 2016

Net income=210 in 2016

Effective tax rate=30% in 2016

Effective tax rate =20% in 2015

Calculate under FIFO: current asset, Asset to equity ratio, Net income

Answer:

Current asset: \$630

+ \$100

-(20% \times 90 + (30%) \times (100-90))=21

=\$709

Asset/ equity: (\$2070+100-21)/(1030+100-21)
=1.94Net income: 210+10 \times (1-30%)=217**Think about: Inventory turnover, ROA, ROE?**

<p>d. inventory valuation methods</p>	<ol style="list-style-type: none"> 1. IFRS(can write up to the amount previously recognized as loss) <ul style="list-style-type: none"> -lower of cost or NRV(net realizable value) -NRV=Sale price-(Selling cost+ completion cost) 2. GAAP(write up not allowed) <ul style="list-style-type: none"> -lower of cost or market(replacement cost) -NRV-normal profit margin<market<NRV 3. Reporting inventory above cost is permitted <ul style="list-style-type: none"> -applies to producer and dealers of commodity products 	<p>Example:</p> <p>Original cost \$210</p> <p>Estimated selling price \$225</p> <p>Estimated selling costs \$22</p> <p>Net realizable value \$203</p> <p>Replacement cost \$197</p> <p>Normal profit margin \$12</p> <p>Inventory value under IFRS and GAAP?</p> <p>IFRS: $NRV < cost$, write down to $i = \\$203$</p> <p>GAAP: $NRV - normal\ profit\ margin < replacement < NRV$, $i = 197$</p>
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e. compare financial statements and ratios under LIFO and FIFO

LIFO	FIFO
Higher COGS	Lower COGS
Lower tax	Higher tax
Higher cash flows	Lower cash flows
Lower net income	Higher net income
Lower working capital(CA-CL)	Higher working capital(CA-CL)
Higher inventory turnover	Lower inventory turnover
Higher debt to equity	Lower debt to equity

