

06 Inventories

6 Inventory

Example

Beginning Inventory 100 @ \$10.00 1,000

Purchases

Quarter 1 100 @ \$11.00 1,100
 2 100 @ \$12.10 1,210
 3 100 @ \$13.31 1,331
 4 100 @ \$14.64 1,464

Cost of goods available for sale 500 \$6,105

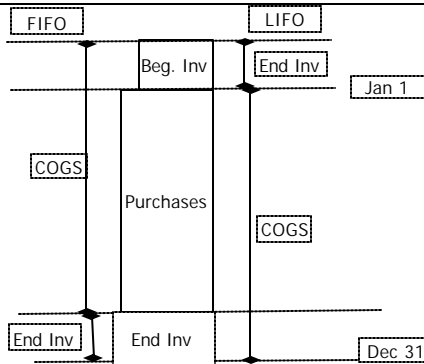
Sales 400 \$10,210

Inflation rate = $(14.64 - 10.00) / 10.00 = 46.41\%$

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LIFO vs. FIFO



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FIFO LIFO COGS and Ending Inventory

	FIFO	LIFO
Cost of goods available for sale	6,105	6,105
Ending inventory	100	100
	X \$14.64 1,464	\$10.00 1,000
COGS	4,641	5,105

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FIFO LIFO Comparison \$

Income Statement	FIFO	FIFO	LIFO	Diff
Revenue	Same	10,210	10,210	0
COGS	Lower	4,641	5,105	(464)
Income before taxes	Higher	5,569	5,105	464
Income taxes 40.00%	Higher	2,228	2,042	186
Net Income	Higher	3,341	3,063	278
=====				
- Increase in inventory	Higher	464		
Cash Flow from Opns	Lower	2,877	3,063	

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FIFO LIFO Comparison \$

Balance Sheet Differences	LIFO - FIFO
Cash 3,063 - 2,877	186
Inventory	(464)
Retained Earnings	(278)

Current ratio under LIFO lower. (Due to inventories)
 But can lenders be convinced of the replacement value.
 So companies must also report an audited figure

LIFO reserve 464

Cash Flow Difference

= Beginning Inventory (FIFO) x Inflation rate x Tax Rate
 = \$ 1,000 x 46.41% x 40.00% = \$ 186

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06 Inventories

FIFO LIFO Ratio Comparison 1

Ratios		FIFO	LIFO
Gross Margin			
	Better	54.5%	50.0%
Liquidity			
Current Assets	Better		(278)
Quick Assets	Worse	(186)	
Debt-to-Equity			
Retained Earnings	Better		(278)

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FIFO LIFO Ratio Comparison 2

Ratios	FIFO	LIFO
Inventory Turnover		
COGS / Average Inventory	4,641 / 1,232	5,105 / 1,000
	= 3.767	= 5.105
Over years:	Stays the same	Will Increase
	5,105 / 1,232	400 / 100
	= 4.144	= 4.000
	Current Cost	Units
	Stays the same	Stays the same

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Disclosure 2001 - 1

Inventories

Inventories are valued at the lower of cost or market. The cost of crude oil, petroleum and chemical product inventories is determined using the last-in, first-out method (LIFO). The cost of materials, supplies and other inventories is determined using principally the average cost method.



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Disclosure 2001 - 2

7. Inventories December 31

(Millions of Dollars)	2001	2000
Crude oil	\$245	\$210
Petroleum and chemical products	290	171
Materials, supplies and other	117	79
	\$652	\$460

The current replacement cost of all inventories valued at LIFO exceeded their carrying value by \$516 and \$873 million at December 31, 2001 and 2000, respectively. During 1999, Sunoco reduced certain inventory quantities which were valued at lower LIFO costs prevailing in prior years. The effect of this reduction in inventory was to increase 1999 net income by \$11 million.



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Restatements

COGS (as is) = Beg. I (as is) + Purchases - End. I (as is)
(rearrange)

Purchases = End. I (as is) + COGS (as is) - Beg. I (as is)

End. I (FIFO) = End. I (as is) + LIFO Res. [Definition]

COGS (FIFO) = Beg. I (FIFO) + Purchases - End. I (FIFO)

= Beg. I (FIFO) - End. I (FIFO)
+ End. I (as is) + COGS (as is) - Beg. I (as is)

= Beg LIFO Res. + COGS (as is) - End LIFO Res.

COGS (FIFO) = COGS (as is) - Increase in LIFO Res. **A**

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Firms with both methods

Consider a firm having 3 times the real operations of example

	Cost of Goods Sold	Ending Inventory
1/3 LIFO	1 x 5,105 = 5,105	1 x 1,000 = 1,000
2/3 FIFO	2 x 4,641 = 9,282	2 x 1,464 = 2,928

Total 14,387 3,928
LIFO Reserve 4,392 - 3,928 = 464

All that will be Reported:

Cost of Goods Sold 14,387

	Beginning	Ending
Inventory	3,000	3,928
LIFO Reserve	0	464

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06 Inventories

Going to all FIFO

Inventory (FIFO) <u>Q</u>			
= Inventory (as is)	+ LIFO reserve		
= 3,928	+ 464	=	4,392
Cost of Goods Sold (FIFO) <u>A</u>			
= Cost of Goods (as is)	- Increase in LIFO reserve		
= 14,387	- 464		
=			13,923

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Going to all LIFO

In the beginning inventory of 3,000,
1/3 was accounted using LIFO i.e. 1,000
The value of this inventory increased
by the increase in the LIFO reserve 464
B Cost Inflation Rate
= increase in the LIFO reserve / FIFO value of Beg. Inv
= 464 / 1,000 = 46.4%

C COGS (LIFO)
= COGS (FIFO) + Beg. Inventory (FIFO) x Cost Inflation Rate
= 13,923 + 3,000 x 46.41%
= 13,923 + 1,392
= 15,315

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Inventories: Actual Practice

Ratios: LIFO vs. FIFO	LIFO	FIFO	FIFO	LIFO
		to LIFO	to FIFO	
COGS / Average Inventory	4.97	4.72	3.88	4.03
Inventory / Assets	0.21	0.25	0.29	0.24

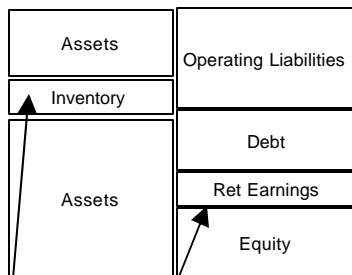
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LIFO Liquidations

For proper FSA remove the abnormal "paper" profits from LIFO layer liquidations.
Sometimes huge and occur for more than one year.
Price declines: may cause decrease in LIFO reserve.
Purchases must be always > sales for no liquidations

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Switch to LIFO 1



Can inventory and retained earnings be revalued to lower value?

No

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Switch to LIFO 2

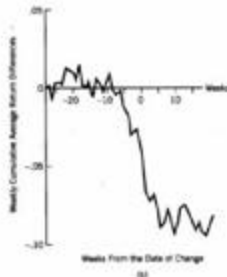
- » Page 216 Amareda Hess
- » Only on prospective basis. Opening inventory in the adoption year is the base period inventory.
- » Switch to LIFO: Is it good news ?
- » Saving = Beg. Inventory (FIFO) x Inflation rate x Tax rate
- » Releases unfavorable information about the sensitivity to price changes, level of inventories and tax rate.

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06 Inventories

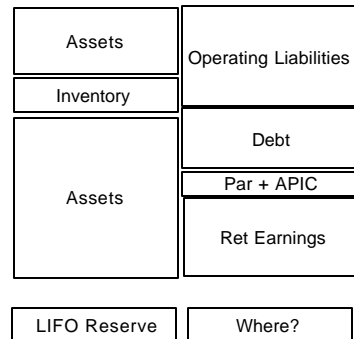
Switch to LIFO market effects

From the appendix



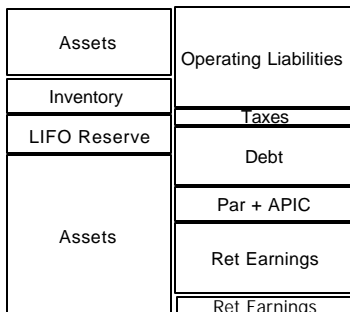
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Switch to FIFO 1



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Switch to FIFO 2



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Switch to FIFO 3

- Requires retroactive restatement.
- Cumulative effect credited to Retained Earnings of the first restated year.
- SEC requires: letter from auditor and rationale for change
- IRS requires: Tax on LIFO reserve to be paid immediately.
- Motivated by expiration of tax loss carry forwards.
- Pfizer page 43

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Empirical data – Usage of methods

	Firms	
FIFO	417	70%
LIFO	*351	59%
Average Cost	192	32%
Other	41	7%

Total 600 167%

Total more as some firms use multiple methods

*In this 203 firms use it for > 50% of inventories

Industry Variation in LIFO usage

Forest Products	0.97
Computers & office equipment	0.08

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WHY FIFO

- ≠ Reflects Physical Flow
- ≠ Tax Loss Carry forward
- ≠ Inventory Materiality
- ≠ LIFO Gives No Tax Benefits (Declining Prices)
- ≠ LIFO Administrative Costs (especially small firms)
- ≠ Inventory Variability (LIFO Leads to Liquidations)

LIFO not allowed for taxes in most countries.

Germany, Japan and Italy - gradual acceptance expected.

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06 Inventories

Forecasting

What does an increase in inventory mean ?

Bernard & Noel (1991)

↙ Decrease in Past Demand

Retail firms: Sales increase in future with drop in profit margins

↙ Anticipate Increase in Future Demand

How to recognize ? Increase in raw materials, WIP

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Event studies in stock markets

$$Exp[R_{it}] = R_{it} + \beta_i \times [Exp[R_{mt}] - R_{it}]$$

R_{it} rate of return on stock i in period t

$Exp[R_{it}]$ expected rate of return on stock i in period t

R_{mt} rate of return on the market as a whole in period t

R_{it} risk free rate of return in period t

β_i comovement of the firm i 's returns with those of the market as a whole

$Exp[R_{mt}]$ expected rate of return on the market as a whole in period t

Abnormal Return $AR_{it} = R_{it} - Exp[R_{it}]$

Cumulative Abnormal Return Over a window

$$CAR(i, \text{window}) = \sum_{t \text{ in window}} AR_{it}$$

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Exxon Mobil Quarterly Net Surges to More Than \$10 Billion

January 30, 2006 4:00 p.m.

Exxon Mobil Corp., ... racked up yet another record profit, saying its fourth-quarter earnings surpassed \$10 billion.

Exxon said its quarterly net income surged to \$10.7 billion, 27% higher than the year-ago period and 8% above Exxon's third-quarter take, which itself was a company record.

Fourth-quarter revenue was \$99.67 billion, up 19.5% from a year earlier.

In midday trading, Exxon Mobil up \$2.13, or 3.5%, to \$63.42.

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Exxon Mobil Quarterly Net Surges to More Than \$10 Billion 2

... Exxon result amounted to a profit of \$80,842.39 per minute

... companies have posted higher quarterly profits, those were largely through accounting adjustments, while Exxon's result came mainly from operations.

Excluding a special gain of \$390 million related to a lawsuit, the company's earnings amounted to \$1.65 per share, significantly higher than the \$1.44 predicted by analysts, according to Thomson Financial.

...

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Auto antonym

Remove	DUST	sprinkle with dust
Flammable	INFLAMMABLE	not flammable
Habitable	INHABITABLE	not habitable
Remaining	LEFT	gone away
to permit	LET	to hinder, to prevent
Ignore	OVERLOOK	inspect
Now	PRESENTLY	later
a sure foundation, anything immovable	ROCK	sway
to conceal from view	SCREEN	to display (a film etc.)
to move lightly and nimbly	TRIP	to stumble

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Oxymoron

Army	Intelligence
Postal	Service
	Civil Servants
Advanced	Basic
Airline	Food
	Soft Rock
Passive	Aggression
	Rap Music
Microsoft	Works

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McDonald's Annual Dividend Rises 38% as Chain Rebounds

Payout of 55 Cents a Share To Fatten Holders' Checks For Second Year in a Row

By MICHAEL J. MCCARTHY

Staff Reporter of THE WALL STREET JOURNAL
September 15, 2004

...

As a result of the latest payout boost, McDonald's will be cutting dividend checks for a total of nearly \$690 million this year, up from about \$504 million last year

...