

P9-1 040317

a. Alternative 1: The reduction in book value could be portrayed as an increase in cost of goods sold:

Cost of goods sold	300 million	
Inventory		300 million

Alternative 2: The decline in market value could be set out separately, as a loss on revaluation of inventory:

Loss on LOCM write-down	300 million	
Inventory		300 million

b. If the loss is material in amount, which it appears to be, it would be more appropriate to use alternative 2. This treatment would not affect the company's gross profit margin or percentage. Alternative 1 would create an artificially low gross profit and gross profit percentage, making comparability to prior and subsequent years' results difficult for investors. It would also be difficult to compare 3Com to other companies in the industry.

c. The write-down increased expenses or losses on the income statement, resulting in a reduction in income. On the balance sheet assets and equity were reduced. There was no effect on the cash flow statement.

d. None. The book value of inventory is never increased under GAAP. The sale of \$7 million of inventory previously written off resulted in a \$7 million "gain" in fiscal 2002.

e. On the income statement, revenues or gains would increase and income would increase. On the balance sheet, assets and equity would increase. Cash flows would increase if the sale was collected in 2002. If not, there would be no impact on the cash flows in 2002.

f. 3Com has been inconsistent in its treatment of the inventory. By excluding the write-down from pro forma results, the company was telling investors that the charges could essentially be ignored in assessing the company's performance. However, by including the gains in the subsequent year, the results are overstated relative to what they would have been if the company had been consistent with the previous year's treatment.

P9-2

a.		2000	1999
	Gross profit	328,104	298,050
	Sales	1,425,678	1,328,620
	Percentage	23%	22.4%

b. The weakening U.S. dollar relative to the Japanese yen could mean that cost of goods sold expressed in U.S. dollars would be higher. It would take more dollars to pay for Japanese purchases. This would result in a lower gross profit

margin and gross profit percentage.

c. The weakening U.S. dollar relative to the Canadian dollar would mean that sales expressed in U.S. dollars would be higher. It would take more U.S. dollars to buy Canadian dollars; when the Canadian subsidiary's sales were converted to U.S. dollars, sales would increase. This would result in higher sales and a higher gross profit percentage.

d. 1) The company could have changed its sales mix, selling product lines with relatively higher margins versus low-end merchandise.

2) The company could have achieved efficiencies in manufacturing, reducing costs, resulting in higher gross profit margins.

P9-3

a.		2002	2001	2000
	Sales	\$217,799	\$191,329	\$165,013
	Cost of sales	171,562	150,256	129,664
	Gross Profit	46,237	41,073	35,349
	Percentage	21.23%	21.47%	21.42%

b. The gross profit percentage was 0.24% less than 2001. This would have resulted in an increase in operating income of \$522.7 million if the company had been able to achieve the same gross profit percentage as 2001. ( $\$217,799 \times .0024$ )

c. The most likely explanation is that LIFO is not allowed under the tax regulations in many of the countries in which Wal-Mart operates.

d.	Inventory	67 million
	Cost of sales	67 million

e. Since the adjustment resulted in a reduction in cost of sales, gross profit would have increased.

f. Since the notes indicate that the company rarely experiences obsolescence or slow-moving inventory, we can assume that there are no LOCM adjustments affecting cost of sales. Given that the effect of the LIFO reserve adjustment was favorable, other factors would have to be negative. The company probably experienced pricing pressures due to the weakening economy and competition. Lowering the sales price of merchandise would result in a lower gross profit margin. In addition, note that the company is increasing its sales of food products through the expansion of SAM's clubs and the addition of Supercenters. Food products have lower gross profit margins than other merchandise. As the product mix shifts toward a greater percentage of food products, the overall gross profit percentage will decline.

g. Because the LIFO adjustment increased the value of ending inventory, cost of purchases would have been declining. Quoting from the Management's Discussion and Analysis: "A LIFO reserve adjustment that reduces cost of sales indicates that the current economic environment is deflationary, meaning that on

average, identical products that we sold in both fiscal 2002 and 2001 decreased in price from fiscal 2001 and 2002.”

h. Since the company would be using LIFO on its income tax returns due to the LIFO conformity rule, a reduction in cost of goods sold would result in a higher operating income and greater income taxes.

i. See answer g. If the deflationary trend continues, the impact on Wal-Mart would be negative. The company will not be able to realize the tax advantages that come from rising prices. A deflationary trend will also tend to shrink margins, as the company may be forced to continue reducing selling prices to attract customers. If the reduction in selling prices is greater than the reduced cost of inventories purchased from suppliers, margins and profits will continue to shrink. In addition, the company has about \$1 billion in annual interest costs, which are not reduced in an inflationary environment, due to their fixed nature.

j. The adjustment would cause Wal-Mart’s market-to-book ratio to decrease and its accounting rate of return to increase. The increase in assets and equity would increase Wal-Mart’s book value. Therefore, the market-to-book value would increase. Since the adjustment causes accounting income to increase, the accounting rate of return would increase.

k.	2000 to 2001	2001 to 2002
Wal-Mart Stores	12.1%	14.1%
SAM’S CLUBS	8.1%	9.7%
International	41.2%	10.5%
Other	20.3%	30.8%
Total company	15.9%	13.8%

l. Positives: The company is still growing by double digits. In the challenging economic environment from 2000 to 2002, this is an accomplishment by itself.

The company has established itself internationally, which should allow it to continue growing.

With over \$200 billion in annual sales, the company is, by far, the largest retailer in the world, giving it a significant competitive advantage over its rivals.

Negatives: growth, while good, has slowed on a relative basis to the early 90’s, when the company saw sales increases of 20 percent to 30 percent annually.

A deflationary environment is generally negative for companies trying to expand their gross margins.

International growth slowed dramatically from 2001 to 2002 relative to the previous year.

Percentage increases can be deceiving when the base year is low. From 1999 to 2000, Wal-Mart’s international segment grew by 85.6%!!!

While all segments experienced growth in 2002, the overall growth rate of the company slowed relative to 2001.

P9-4

a.	FIFO	LIFO	AVERAGE
Cost of goods available for sale	\$1,518,000	\$1,518,000	\$1,518,000
(Ending inventory)	(112,000)	(90,000)	(103,500)
Cost of goods sold	\$1,406,000	\$1,428,000	\$1,414,500
Computation of inventory:	2,000 @ 38	3,000 @ 30.	\$1,518,000
	\$ 76,000	\$90,000	44,000
	1,000 @ 36.		= \$34.50
	36,000		3,000 × \$34.50
	\$112,000	\$90,000	\$103,500

b. Sales = 41,000 @ \$60 = \$2,460,000

	FIFO	LIFO
Sales	\$2,460,000	\$2,460,000
(Cost of goods sold)	(1,406,000)	(1,428,000)
Gross Profit	\$1,054,000	\$1,032,000

c. Gross Profit Percentage

Gross profit	\$1,054,000	\$1,032,000
Sales	2,460,000	2,460,000
	= 42.8%	= 41.9%

d. In periods of rising prices, FIFO will generate the highest possible profits.

e. In periods of rising prices, LIFO will result in the lowest profits, resulting in the lowest income taxes, assuming inventory levels do not decrease.

f. The LIFO conformity rule is a tax rule that requires companies that use LIFO for income tax purposes to also use LIFO for financial reporting purposes. A company would not be able to use LIFO only on its tax return to reduce income taxes, while reporting FIFO for financial reporting purposes, resulting in higher income.

g. If the company uses LIFO primarily to pay lower taxes, the purchase on December 31 would increase the company’s cost of goods sold by \$10,000, thus lowering taxable income by \$10,000. Therefore, the company would benefit from such a purchase.

	Units	Cost per unit	Total cost
1/1 Beginning inventory	5,000	\$30	\$ 150,000
2/6 Purchase	20,000	34	680,000
7/18 Purchase	17,000	36	612,000
10/20 Purchase	2,000	38	76,000
12/31 Purchase	1,000	40	40,000
Goods available for sale	45,000		\$1,558,000

Cost of goods available for sale	\$1,558,000
Ending inventory: 4,000 @ 30	– 120,000
Cost of goods sold	\$1,438,000

Cost of goods available for sale increased by \$40,000 but ending inventory increased by only \$30,000, resulting in a net increase in cost of goods sold of \$10,000.

h. If the company uses FIFO, there will be no change in cost of goods sold. Both cost of goods available for sale and ending inventory will increase by \$40,000, resulting in the same cost of goods sold number.

Cost of goods available for sale	\$1,558,000
Ending inventory: (1,000 @ 40 + 2,000 @ 38 + 1,000 @ 36)	– 152,000
Cost of goods sold	\$1,406,000

i. Since FIFO results in the highest possible profits and the lowest cost of goods sold in periods of rising prices, switching from Average will increase cost of goods sold and lower profits.

j. There are two options. One is to write the inventory off directly to cost of goods sold. The second is to establish a separate loss account for the write-down.

Alternative 1:	Dr	Cr
Cost of goods sold	4,000	
Inventory		4,000

Alternative 2:		
Loss on LOCM writedown	4,000	
Inventory		4,000

k. While the net income would be the same under either alternative, Alternative 1 results in a higher cost of goods sold, reducing the gross profit and the gross profit percentage. If the writedown is material, there might be a significant change in the gross profit percentage under Alternative 1. In either case, however, pre-tax net income is \$4,000 lower.

Assuming FIFO is used

	Prior to writedown	Alternative 1	Alternative 2 FIFO
Sales	\$2,460,000	\$2,460,000	\$2,460,000
(Cost of goods sold)	(1,406,000)	(1,410,000)	(1,406,000)
Gross Profit	\$1,054,000	\$1,050,000	\$1,054,000

Gross Profit Percentage =			
Gross profit	\$1,054,000	\$1,050,000	\$1,054,000
Sales	2,460,000	2,460,000	2,460,000

= 42.8%      = 42.7%      = 42.8%

l. Under Generally Accepted Accounting Principles, once inventory is written down, the lower book value is considered the cost for future periods. No adjustment would be made in 2002.

P9-5

a. FIFO Ending Inventory:	
650 units @ \$8	\$ 5,200
1,400 units @ \$10	14,000
	\$19,200

b. LIFO Ending Inventory:	
1,000 units @ \$5	\$ 5,000
1,050 units @ \$7	7,350
	\$12,350

c. Startup Co.

**Income Statements For the Year Ended december 31, 2003**

	FIFO	LIFO
Sales	49,600	\$49,600
Cost of Goods Sold	(20,550)	(27,400)
Gross Margin	\$29,050	\$22,200
Selling, General & Administrative Expenses	(10,000)	(10,000)
Depreciation Expense	(5,000)	(5,000)
Interest Expense	(3,000)	(3,000)
Net Income Before Taxes	\$11,050	\$4,200
Income Taxes @ 40% of Net Income	(4,420)	(1,680)
Net Income After Taxes	\$6,630	\$2,520

P9-6

a. Beginning inventory	2,050	units
2001 Purchases	8,550	units
Units available	10,600	
Units sold	(7,000)	
Ending inventory	3,600	units
FIFO Ending Inventory:		
1,100 units @ \$15	\$16,500	
2,500 units @ \$16	40,000	
	\$56,500	

b. LIFO Ending Inventory:	
1,000 units @ \$5	\$ 5,000
1,050 units @ \$7	7,350
1,550 units @ \$12	18,600
	30,950

c. Startup Co.  
Income Statements

For the Year Ended December 31, 2004

	FIFO	LIFO
Sales	\$175,000	\$175,000
Cost of Goods Sold	(84,050)	(102,750)
Gross Margin	\$90,950	\$72,250
Selling, General & Administrative Expenses	(10,000)	(10,000)
Depreciation Expense	(5,000)	(5,000)
Interest Expense	(3,000)	(3,000)
Net Income Before Taxes	\$72,950	\$54,250
Income Taxes @ 40% of Net Income	(29,180)	(21,700)
Net Income After Taxes	\$43,770	\$32,550

P9-7

a. T-account analysis of inventory values over time using LIFO and lower of cost and market.

Inventory (LIFO + LOCM)	
Beginning balance 1/1/00	
Purchases: 12/31/00 (20 @ \$1.6)	
Ending balance 12/31/00	
Purchases: 6/15/01 (30 @ \$1.8)	62 (30 @ \$1.8) + (5 @ \$1.6)
Ending balance 12/31/01 (15 @ \$1.6)	76.5 (4)
Purchases: 2/3/02 (50 @ \$1.7)	2.5 LOCM writedown
Ending balance 12/31/02 (20 @ \$1.5)	30 (20 @ \$1.5) 6/1/03
Ending balance 12/31/03	

b. Cost of goods sold is shown in the above T-account analysis. To calculate the required LOCM writedowns:

Comparison of Market and Book Values for Inventory (LIFO)

Date	Market Value of Inventory	Book Value of Inventory (pre-writedown)	Required LOCM writedown
12/31/00	32.0	32.0 (20 @ \$1.6)	0
12/31/01	27.0	24.0 (15 @ \$1.6)	0

12/31/02	30.0	32.5 (15 @ \$1.6 + 5 @ \$1.7)	2.5
12/31/03	0.0		0

c. End of year Balance sheets for each of the years using LIFO and lower of cost and market.

Firm

**LIFO + LOCM Balance Sheets As of December 31 of year**

	2000	2001	2002	2003
Inventory	\$32	\$24	\$30	\$0
Equity	\$32	\$24	\$30	\$0

d. T-account analysis of inventory values over time using FIFO and lower of cost and market.

Inventory (FIFO + LOCM)	
Beginning balance 1/1/00	
Purchases: 12/31/00 (20 @ \$1.6)	
Ending balance 12/31/00	
Purchases: 6/15/01 (30 @ \$1.8)	59 (20 @ \$1.6) + (15 @ \$1.8)
Ending balance 12/31/01 (15 @ \$1.8)	78 (15 @ \$1.8 + 30 @ \$1.7)
Purchases: 2/3/02 (50 @ \$1.7)	4 LOCM writedown
Ending balance 12/31/02 (20 @ \$1.5)	30 (20 @ \$1.5) 6/1/03
Ending balance 12/31/03	

e. Cost of goods sold and losses from LOCM writedowns under FIFO.

See the T-account analysis for cost of goods sold. The calculations for the LOCM writedowns are:

Comparison of Market and Book Values for Inventory (FIFO)

Date	Market Value of Inventory	Book Value of Inventory (pre-writedown)	Required LOCM writedown
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12/31/00	32.0	32.0 (20 @ \$1.6)	0
12/31/01	27.0	27.0 (15 @ \$1.8)	0
12/31/02	30.0	34.0 (20 @ \$1.7)	10
12/31/03	0.0	0.0	0

f. Balance sheets using FIFO and LOCM:

**Firm FIFO Balance Sheets As of December 31 of year**

	2000	2001	2002	2003
Inventory	\$32	\$27	\$30	\$0
Equity	\$32	\$27	\$30	\$0

g. Balance sheets using economic market values:

**Firm Economic Balance Sheets As of December 31 of year**

	2000	2001	2002	2003
Inventory	\$32	\$27	\$30	\$0
Equity	\$32	\$27	\$30	\$0

Market-to-book ratios for LIFO and FIFO:

Market-to-book Ratios Using LIFO

Date	Market Value	Book Value	Market-to-book
12/31/00	32	32	1.0
12/31/01	27	24	1.125
12/31/02	30	30	1.0
12/31/03	0	0	—

Market-to-book Ratios Using FIFO

Date	Market Value	Book Value	Market-to-book
12/31/00	32	32	1.0
12/31/01	27	27	1.0
12/31/02	30	30	1.0
12/31/03	0	0	—

P9-8

a. T-account analysis of inventory values over time using LIFO and lower of cost and market.

Inventory (LIFO + LOCM)	
Beginning balance 12/31/00 (1/1/00)	
Purchases: 12/31/00 (10 @ \$1.5)	
Ending balance 12/31/00	

Purchases: 6/1/01 (50 @ \$2)	90 (45 @ \$2) Sold 12/15/01
Ending balance 12/31/01	
Purchases: 2/1/02 (60 @ \$1.75)	115
Ending balance 12/31/02	
	15 (10 @ \$1.5) 6/1/03
Ending balance 12/31/03	

b. Cost of goods sold is shown in the above T-account analysis. To verify that no LOCM writedowns are required:

Comparison of Market and Book Values for Inventory (LIFO)

Date	Market Value of Inventory	Book Value of Inventory (pre-writedown)	Required LOCM writedown
12/31/00	15.0 (10 @ \$1.5)	15.0	0
12/31/01	37.5 (15 @ \$2.5)	25.0	0
12/31/02	15.0 (10 @ \$1.5)	15.0	0

c. End of year Balance sheets for each of the years using LIFO and lower of cost and market.

**Firm LIFO + LOCM Balance Sheets As of December 31 of year**

	2000	2001	2002	2003
Inventory	\$15	\$25.0	\$15.0	\$0
Equity	\$15	\$25.0	\$15.0	\$0

d. T-account analysis of inventory values over time using FIFO and lower of cost and market.

Inventory (FIFO + LOCM)	
Beginning balance 12/31/00 (1/1/00)	
Purchases: 12/31/00 (10 @ \$1.5)	
Ending balance 12/31/00	
Purchases: 6/1/01 (50 @ \$2)	85 (35 @ \$2 + 10 @ \$1.5)
Ending balance 12/31/01 30	
Purchases: 2/1/02 (60 @ \$1.75) 105	1 17.5

	2.5 writedown
Ending balance 12/31/03 15	
	15 (10 @ \$1.5) 6/1/03
Ending balance 12/31/03 0	

e. Cost of goods sold and losses from LOCM writedowns under FIFO.

See the T-account analysis for cost of goods sold. The calculations for the LOCM writedowns are:

Comparison of Market and Book Values for Inventory (FIFO)

Date	Market Value of Inventory	Book Value of Inventory (pre-writedown)	Required LOCM writedown
12/31/00	15.0 (10 @ \$1.5)	15.0	0
12/31/01	37.5 (15 @ \$2.5)	30.0	0
12/31/02	15.0 (10 @ \$1.5)	17.5	2.5

f. Balance sheets using FIFO and LOCM:

**Firm FIFO Balance Sheets As of December 31 of year**

	2000	2001	2002	2003
Inventory	\$15	\$30.0	\$15.0	\$0
Equity	\$15	\$30.0	\$15.0	\$0

Balance sheets using economic market values:

**Firm Economic Balance Sheets As of December 31 of year**

	2000	2001	2002	2003
Inventory	\$15	\$37.5	\$15.0	\$0
Equity	\$15	\$37.5	\$15.0	\$0

P9-9

a. Inventory	1,024
Deferred tax	384
Retained earnings	640

b. and c. We know that if the reported incomes under LIFO and FIFO are different, then there must have been a change in the LIFO Reserve. The footnote tells us that there was no difference in LIFO and FIFO income in 1994 or 1995. Therefore, the LIFO Reserve as of December 31, 1993, must be what it is as of December 31, 1994. It must be \$1,024. Since the incomes are the same, the LIFO Reserves must be the same (i.e., the relative values of inventories under the two methods did not change over this two-year time span).

d. The footnote says that the net loss would have been larger if they had remained on LIFO. Therefore, costs must have been kept out of the income statement and put in the balance sheet as a result of the switch. Therefore, the LIFO Reserve must have increased.

e. No. If we are continually decreasing inventory levels over a period of years, one could argue perhaps that old inventory layers with LIFO costs could distort operating margins relative to true operating margins. Therefore, FIFO might do a better job during the transition period when inventory levels are being decreased.

f. Income is higher, assets are higher, working capital is higher, and equity is higher under FIFO. Higher values of these items are usually positive in loan covenants.