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Tax accounting for inventories and the pharmaceutical distribution industry

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Executive summary

Background

Healthcare distributors maintain large inventories for a variety of reasons, including: (1) to minimize lags between the time an order is placed and the time it is fulfilled, (2) to create a buffer against uncertainties in supply and demand, and (3) to obtain the best price from suppliers by purchasing in bulk.

In the pharmaceutical distribution industry, inventories play a critical role in ensuring the timely delivery of vital medications to hospitals, pharmacies and other healthcare providers throughout the United States. To assure timely delivery, HDMA member companies maintain 153 strategically located distribution centers throughout the United States.

Accounting for Inventories

For both financial and tax accounting purposes, businesses must distinguish the cost of goods sold during the year from the value of merchandise remaining at the end of the year. When companies purchase and sell high volumes of similar merchandise, it often is impractical to identify specifically the items that have been sold from those remaining in inventory. In such cases, the first-in first out (FIFO) and last-in first-out (LIFO) inventory accounting methods are common cost flow assumptions used for both financial and tax accounting.

Under the LIFO method, it is assumed that the last items produced or acquired are the first items sold, so that cost of goods sold reflects current prices and ending inventory is valued at earlier purchase prices. By comparison, FIFO accounting assumes that the earliest items produced or acquired are the first items sold, so that cost of goods sold reflects earlier purchase prices and ending inventory is valued at current prices.

Based on 2013 SEC form 10-K filings compiled by Compustat®, companies with a LIFO reserve accounted for 11 percent of total inventories and 17 percent of total net sales of all public U.S. companies. The LIFO method of inventory accounting is particularly prevalent in the pharmaceutical distribution industry, with companies using LIFO accounting for 98 percent of inventories and net sales in 2013.

Federal Tax Law

Where specific identification is impractical, federal tax law generally mandates the use of FIFO inventory accounting unless the taxpayer elects to use LIFO. Taxpayers making the LIFO election: (1) must use it consistently, (2) must value inventories at cost (rather than at the lower of cost or market), and (3) must not use a method other than LIFO for external reporting (i.e., the "book-tax conformity rule").

Accurate Measurement of Income

During periods of pharmaceutical price inflation, FIFO accounting can result in a mismatching of costs and revenues because prices used to measure costs of goods sold are less than replacement cost. By determining revenues at current prices and costs at prior prices, FIFO accounting overstates real income and in effect imposes

tax on inflationary gains. By contrast, under LIFO, taxpayers defer recognition of inflationary gains until inventory is drawn down.

Proposals Affecting LIFO Accounting

The President's FY 2016 budget proposed the elimination of LIFO in tax years beginning after December 31, 2015. The tax on the LIFO reserve (i.e., the excess of FIFO cost over LIFO cost) would be required to be included ratably in income (i.e., "recaptured") over a ten-year period starting with the first taxable year beginning after December 31, 2015. Thus, the proposal would increase taxable income of companies with LIFO inventories in two ways:

1. **Recapture Tax**. One-time increase in taxable income (spread over 10 years) due to recapture of historic LIFO reserves; and
2. **Ongoing Tax**. Annual increase in taxable income due to lower cost of goods sold deduction under FIFO as compared to LIFO (during periods of cost inflation).

Separate and apart from the Obama proposal, the Securities and Exchange Commission (SEC) and the Financial Accounting Standards Board (FASB) have explored a transition to International Financial Reporting Standards (IFRS) from generally accepted accounting principles (GAAP). IFRS does not permit the use of LIFO to measure the cost of inventories. Consequently, adoption of IFRS would have the effect of repealing the LIFO election for tax purposes because present law limits the LIFO election to companies that use LIFO for financial reporting.

In July 2012, the Staff of the SEC's Office of the Chief Accountant issued its final report on its IFRS work plan. The report did not include recommendations on IFRS adoption nor provide next steps toward an SEC decision on IFRS. The staff found little support for adopting IFRS as authoritative guidance in the US, but did find substantial support for exploring methods of incorporating IFRS to demonstrate a US commitment to a single set of global accounting standards. Accordingly, mandatory change to IFRS for US public companies is not expected for the foreseeable future.[1]

Impact of LIFO repeal on the Pharmaceutical Distribution Industry

If the LIFO election were repealed legislatively or made unavailable as a result of a transition to international financial reporting standards, the tax impact would vary by company and industry based on the rate of inflation, the age of the company, the importance of inventories as a share of assets, and other characteristics.

Recapture Tax. For public companies with a LIFO reserve, the one-time recapture tax triggered by conversion from LIFO to FIFO is estimated to be 85 percent of reported current federal income tax liability at 2013 levels.

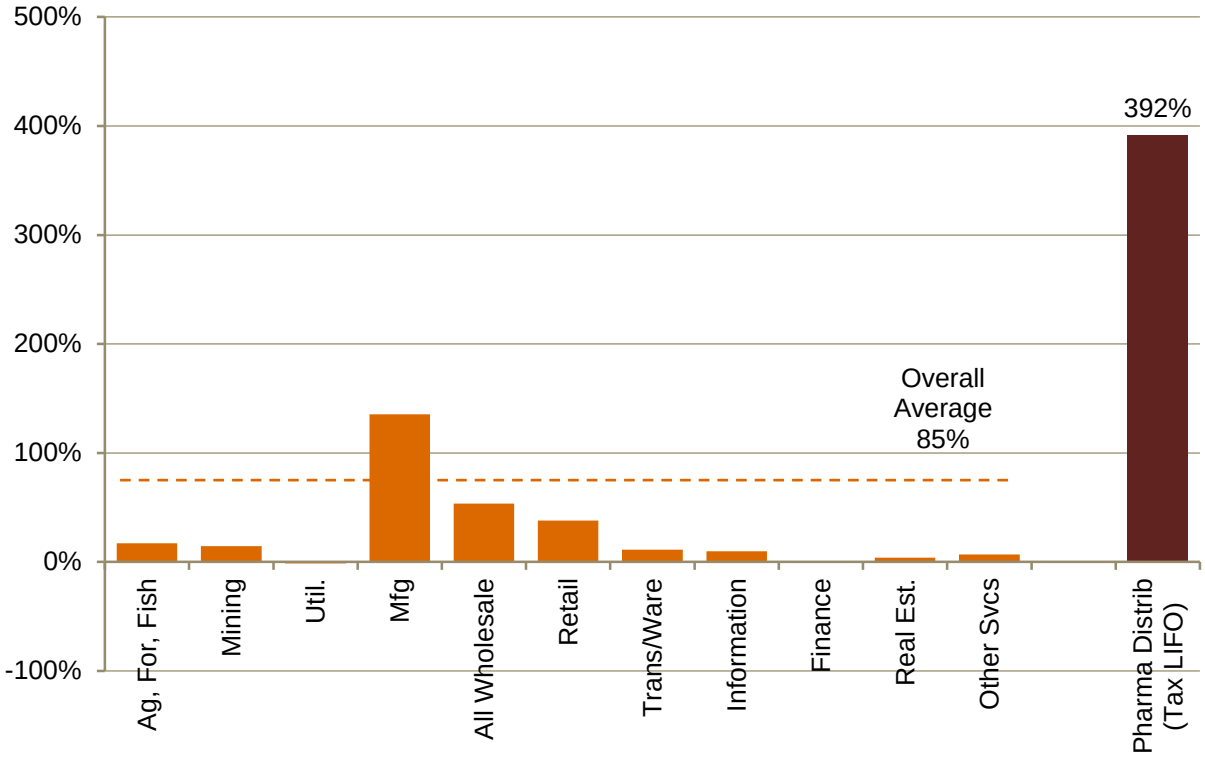
For public healthcare distributors that report use of LIFO accounting, the tax LIFO reserve is estimated as the book LIFO reserve plus the deferred tax liability attributable to inventories grossed up at the company's effective tax rate as indicated in the tax footnote to the financial statement.

Pharmaceutical distributors would face a recapture tax estimated to be 392 percent of reported current federal income tax liability at 2013 levels (see Figure E-1). Thus, the recapture tax imposed by LIFO repeal would amount to nearly 4 years of current corporate tax payments within the pharmaceutical distribution industry.

Ongoing Tax. For public companies with a LIFO reserve, the ongoing annual tax increase resulting from use of FIFO rather than LIFO accounting is estimated to be 5.5 percent of reported current federal income tax liability at 2013 levels. Within the pharmaceutical distribution industry, the annual increase in tax liability is estimated to be 45 percent (see Figure E-2).

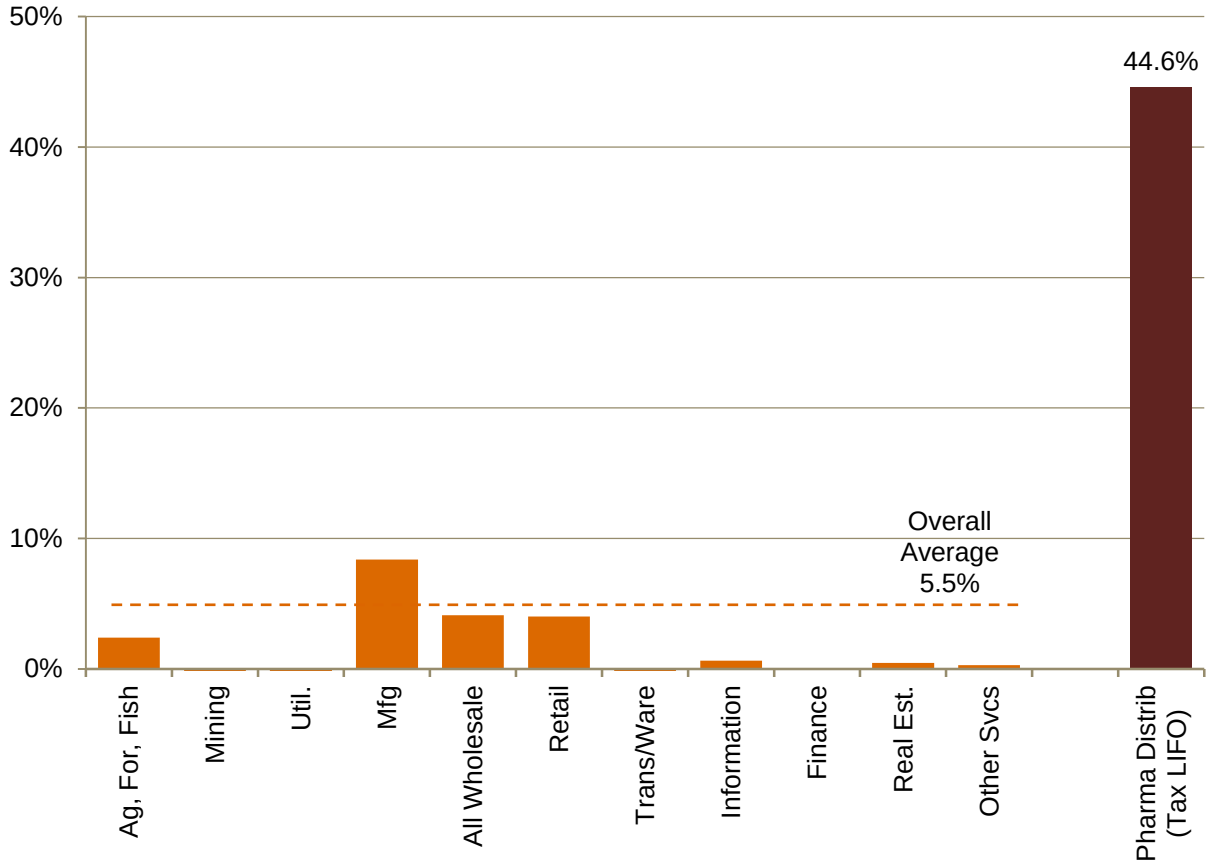
[1] See discussion in PwC, *IFRS and US GAAP: similarities and differences*, October 2014.

Figure E-1. Recapture Tax Attributable to LIFO Repeal as a Share of Current Federal Income Tax of Public Companies with a LIFO Reserve, 2013



Note: Based on estimated tax LIFO reserves for pharmaceutical distribution industry and book LIFO reserves for other industries.
Sources: PricewaterhouseCoopers calculations, Compustat®, and pharmaceutical distribution company financial reports.

Figure E-2. Ongoing Tax Increase Attributable to LIFO Repeal as a Share of Current Federal Income Taxes of Public Companies with a LIFO Reserve, 2013



Note: Based on estimated tax LIFO reserves for pharmaceutical distribution industry and book LIFO reserves for other industries.
Sources: PricewaterhouseCoopers calculations, Compustat®, and pharmaceutical distribution company financial reports.

Conclusion

Repeal of the LIFO election, either as a result of legislation or through adoption of international financial reporting standards, would have a disproportionate impact on the pharmaceutical distribution industry, imposing a recapture tax estimated to equal nearly 4 years' worth of tax liability at current levels as well as an ongoing 45 percent annual tax increase. Such a large tax increase could adversely affect the industry's ability to finance its inventory and to attract capital necessary to serve growing market needs. The impact of LIFO repeal would be exacerbated by the prevalence of multi-year fixed price supply contracts in the pharmaceutical distribution industry that generally do not permit adjustment for tax increases.

1. Introduction

Based on SEC Form 10-K data, companies in the pharmaceutical distribution industry that use the last-in first-out (LIFO) method of accounting represent 98 percent of industry inventories and sales. The industry's heavy reliance on the LIFO method of accounting makes it particularly vulnerable to recent developments that threaten the continued use of this long-standing inventory accounting method.

Notably, the Obama Administration proposed in its fiscal year 2015 budget to repeal the LIFO election for tax years beginning after the December 31, 2014. Separately, the Securities and Exchange Commission (SEC) and the Financial Accounting Standards Board (FASB) have explored a transition to International Financial Reporting Standards (IFRS) from Generally Accepted Accounting Principles (GAAP). IFRS does not permit the use of LIFO to measure the cost of inventories. Thus, adoption of IFRS would have the effect of repealing LIFO for tax purposes because present tax law limits election of LIFO to companies that use LIFO for financial reporting.

In July 2012, the Staff of the SEC's Office of the Chief Accountant issued its final report on its IFRS work plan. The report did not include recommendations on IFRS adoption nor provide next steps toward an SEC decision on IFRS. The staff found little support for adopting IFRS as authoritative guidance in the US, but did find substantial support for exploring methods of incorporating IFRS to demonstrate a US commitment to a single set of global accounting standards. Accordingly, mandatory change to IFRS for US public companies is not expected for the foreseeable future.[2]

In view of potential restrictions on the use of LIFO accounting, the Healthcare Distribution Management Association commissioned PricewaterhouseCoopers LLP to prepare a study on tax accounting for inventories and its importance to the pharmaceutical distribution industry.

Section II of this report summarizes the tax and financial rules that apply to accounting for inventories. Section III contains financial and operational information about the pharmaceutical distribution industry. Section IV analyzes policy issues raised by repeal of the LIFO election generally as well as the specific effects of repeal on pharmaceutical distributors.

2. Inventory accounting rules

A. Background

1. Inventory Accounting

For *financial statement* purposes, the measurement of gross profit on sales earned during the year is determined by subtracting the cost of goods sold during the year from the total sales for the year. The merchandise that is available for sale during the year, but not sold during that year, is an asset (i.e., ending inventory), which remains on the balance sheet. Likewise, for *tax* purposes, gross income for a taxpayer that engages in manufacturing, merchandising, or a mining business is equal to total sales less the cost of goods sold.[3] Thus, for both financial statement and tax purposes, businesses must distinguish the cost of goods that are sold during the year from those that remain on hand at the end of the year.

The process of measuring the cost and value of a company's beginning and ending inventory and the cost of goods that have been sold during the year is broadly referred to as inventory accounting. The relationship between beginning inventory, purchases, cost of goods sold, and ending inventory is given by the following formula:

Beginning Inventory + Purchases - Ending Inventory = Cost of Goods Sold

[2] See discussion in PwC, *IFRS and US GAAP: similarities and differences*, October 2014.
[3] See Treasury Regulation section 1.61-3.

A company's beginning inventory is a known quantity because it is equal to the prior period's ending inventory. Similarly, the cost of purchases made during the year is generally known. Thus, the key step in measuring cost of goods sold is determining ending inventory.

Where companies purchase and sell high volumes of similar merchandise, it often is not practical to identify specifically the items that have been sold from those that remain in ending inventory. This is particularly true in the pharmaceutical distribution industry given the large volumes and the lack of individually serialized units in inventory. In such cases, to establish the dollar amount of the cost of merchandise remaining in ending inventory and the cost of goods that have been sold, inventory accounting generally uses cost flow assumptions that do not reflect the actual physical flow of goods and costs. The first-in first-out (FIFO) and last-in first-out (LIFO) inventory methods are common cost flow assumptions used by businesses for both financial statement and tax purposes.

2. LIFO Accounting

Under the LIFO method, it is assumed that the last items produced or acquired are the first items sold. Thus, the cost of the goods sold during the year is determined by reference to the items produced or purchased most recently and the ending inventory is valued at the earliest purchase prices. For that reason, the LIFO method allows a taxpayer to match its current revenues against its current costs (i.e., the cost of its most recently purchased or produced goods).

3. FIFO Accounting

In comparison to LIFO accounting, FIFO accounting assumes that each item removed from inventory is the earliest item placed into inventory and that the value of that item is the cost incurred at the earlier time. Accordingly, the ending inventory under the FIFO method is valued at the most recent purchase prices. With rising prices, FIFO has the effect of realizing inflationary inventory profits that must be reported as taxable income. As a result, the FIFO method does not match current revenues with current costs. Instead, the historical cost of the inventory item is matched to current revenues.

4. LIFO vs. FIFO Accounting

When a taxpayer using the LIFO inventory method experiences rising prices to produce or acquire its inventory, the higher priced inventory is included in cost of goods sold and the inflationary gain associated with the goods contained in the beginning inventory is not reflected in taxable income. Instead, the inflationary gain is deferred in ending inventory until a future period when those goods are deemed to be sold. The deferral of the inventory profit due to inflation better enables a taxpayer to reinvest in replacement inventory.

Because the LIFO method, as compared to the FIFO method, better matches a firm's current costs against current receipts, it has been recognized that it may be the "most accurate measure of income during periods of inflation."[4] In fact, Congress recognized this in 1984 when it enacted Internal Revenue Code section 474. At that time, Congress considered LIFO the current method of accounting for inventory that most effectively mitigates the effect of inflation on business and concluded that LIFO should be simplified and made more available to all taxpayers.[5]

Likewise, because LIFO has the effect of matching current costs against current receipts; it also tends to reduce losses during periods of declining prices. As a result, the LIFO inventory method levels out the hills and valleys in earnings due to changes in prices of inventory so that the results from current operations reflect as nearly as possible current market conditions.[6]

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[4] Staff of Joint Committee on Taxation, 100th Cong., Description of Possible Options to Increase Revenues, Prepared for the Committee on Ways and Means, JCS-17-87 (1987).
[5] Staff of Joint Committee on Taxation, 100th Cong., General Explanation of the Tax Reform Act of 1986 JCS-10-87 (1987).
[6] Giving Life to LIFO, supra; Arundel Cotter, "Inventories, Oil Industry Considers 'Last in, First Out' System to Level Out Earnings," Wall Street Journal Mar. 19, 1935 at 6.

5. Example

The following example illustrates how a business' cost flow assumption (i.e., LIFO or FIFO) will affect the determination of ending inventory and hence the cost of goods sold.

Assume that a taxpayer has 200 units of merchandise in beginning inventory at a cost of $1.00 per unit (i.e., beginning inventory is $200). During the year, the taxpayer purchases 150 units with a per unit price of $1.07 (the 7 percent increase in price is attributable to inflation) and sells 100 units for $1.10 each.

Under FIFO, the taxpayer's cost of goods sold will be $1.00 per unit or $100 in total, based on the acquisition price of units in beginning inventory. By contrast, under LIFO, the taxpayer's cost of goods sold will be $1.07 per unit or $107 in total, based on the acquisition price of units purchased during the current year (see **Table II**.1, below). As a result, the taxpayer would have $10 of profit under FIFO ($110 of receipts less $100 of costs of goods sold) and $3 of profit under LIFO ($110 less $107). In effect, use of FIFO for tax purposes results in the current imposition of tax on the 7-percent inflation in the cost of units purchased for resale, while use of LIFO defers taxation of this gain due to inflation.

Table II.1—Example of FIFO and LIFO Inventory Accounting

Item	Units	Unit Price	Value
Beginning-of-year inventory	200	$1.00	$200.00
Transactions during year:			
Purchases	150	$1.07	$160.50
Sales	100	$1.10	$110.00
End-of-year inventory:			
LIFO	250		$253.50
Layer 1	200	$1.00	$200.00
Layer 2	50	$1.07	$53.50
FIFO	250		$260.50
Layer 1	100	$1.00	$100.00
Layer 2	150	$1.07	$160.50
Cost of goods sold[a]			
LIFO	100	$1.07	$107.00
FIFO	100	$1.00	$100.00
Profits[b]			
LIFO			$3.00
FIFO			$10.00
Memorandum:			
LIFO Reserve[c]			$7.00

[a] Beginning-of-year inventory plus purchases less end-of-year inventory.
[b] Sales less cost of goods sold.
[c] FIFO less LIFO ending inventory.

Under Generally Accepted Accounting Principles (GAAP), companies using LIFO inventory accounting are required to report the difference in the value of inventory using LIFO and FIFO, or the "LIFO reserve." In the example above, the LIFO reserve equals $7.00 ($260.50 - $253.50).

B. Generally Accepted Accounting Principles (GAAP)

The acceptability of the LIFO inventory method is well established in the authoritative accounting literature. According to Accounting Research Bulletin 43 (ARB 43) "a major objective of accounting for inventories is the proper determination of income through the process of matching appropriate costs against revenue."[7] ARB 43 also states "[c]ost for inventory purposes may be determined under any one of several assumptions as to the flow of cost factors (such as first-in first-out and last-in first-out); the major objective in selecting a method should be to choose the one which, under the circumstances, most clearly reflects periodic income."[8]

ARB 43 recognizes that matching the precise cost of the item sold against the revenue from the sale (i.e., specific identification) may not produce the most useful financial information, particularly in those instances where the materials purchased in various lots are identical and interchangeable. As indicated above, in such cases, the specific identification of cost related to an item that is sold is impractical since the identity of the goods is most likely lost between the time of acquisition and the time of sale.

C. International Financial Reporting Standards (IFRS)

International Accounting Standard (IAS) number 2 generally provides that "inventories shall be assigned by using FIFO or a weighted average cost formula."[9] The preface indicates that the standard "does not permit the use of LIFO to measure the cost of inventories."[10] The objective of the international standard is to properly state "the amount of cost to be recognized as an asset and carried forward until the related revenues are recognized." In other words, the objective is focused on presenting the balance sheet, rather than deriving a measure of current income.

The goal of tax accounting methods, as compared to financial accounting, is to compute taxable income for the taxable period, i.e., to match properly current revenues with current costs to determine current taxable income.[11] The LIFO inventory method does this by matching current revenues against current costs.

D. Federal Income Taxation Principles

Generally, a taxpayer is required to account for inventories at the beginning and end of each taxable year in every case in which the production, purchase, or sale of merchandise is an income-producing factor.[12] Where specific identification is impractical, federal tax law mandates the use of FIFO inventory accounting unless the taxpayer elects to use the LIFO method. Taxpayers making the LIFO election must use it consistently, must value inventories at cost (rather than the lower of cost or market), and must not use a method other than LIFO for external reporting.

As a result of the book-tax LIFO conformity rule, adoption of IFRS would have the effect of repealing the LIFO election for tax purposes.

E. Utilization of Inventory Accounting Methods: Recent U.S. Experience

While only 289 of the more than 8,900 public companies listed in the Compustat® database reported a LIFO reserve in 2013, these companies accounted for 11 percent of total inventories and 17 percent of net sales (see Table II.2). The number of public companies using LIFO as their primary inventory valuation method has fallen over the

[7] See Accounting Research Bulletin (ARB) No. 43, Chapter 4, Statement 2.
[8] See ARB No. 43, Chapter 4, Statement 4.
[9] See IAS 2.25. IAS 2 also provides that the cost of inventories of items that are not ordinarily interchangeable and goods or services produced and segregated for specific projects must be assigned by using specific identification of their individual costs.
[10] See IAS 2, IN 13.
[11] See INDOPCO, Inc. v. Commissioner, 503 U.S. 79 (1992); Knight-Ridder Newspapers, Inc. v. U.S., 743 F.2d 781 (11th Cir. 1984),
[12] See section 1.471-1.

last several years, going from 249 public companies in 2006 to 220 in 2013. Companies using LIFO as their primary inventory valuation method accounted for 18.3 percent of the net sales of all public companies in 2006 compared to 13.5 percent of net sales in 2013.[13]

Among public companies, the industries where LIFO is prevalent include manufacturing, trade, and agriculture. Within the manufacturing and trade sectors, companies with a LIFO reserve accounted for 21 percent of inventories and 26 percent of net sales in 2013. In the pharmaceutical distribution industry, companies using LIFO represent 98 percent of inventory and net sales.

Table II.2—Utilization of LIFO by Public Companies, 2013

		Companies with LIFO reserves		
NAICS code	Industry	Count	Share of total inventories	Share of industry net sales
11	Agriculture, Forestry, Fishing and Hunting	2	66%	64%
21	Mining	9	9%	14%
22	Utilities	1	1%	1%
23	Construction	0	0%	0%
31-33	Manufacturing	215	20%	25%
324110	Petroleum Refineries	17	17%	29%
42	Wholesale Trade	25	47%	43%
424210	**Drugs and Druggists' Sundries Merchant Wholesalers**	***3***	***98%***	***98%***
44-45	Retail Trade	28	19%	23%
48-49	Transportation and Warehousing	1	3%	2%
51	Information	3	0%	0%
52	Finance and Insurance	0	0%	0%
53	Real Estate and Rental and Leasing	1	1%	1%
54	Professional, Scientific, and Technical Services	0	0%	0%
56	Administrative and Support and Waste Management and Remediation Services	0	0%	0%
61	Education Services	0	0%	0%
62	Health Care and Social Assistance	0	0%	0%
71	Arts, Entertainment, and Recreation	0	0%	0%
72	Accommodation and Food Services	0	0%	0%
81	Other Services (except Public Administration)	0	0%	0%
99	Other	4	56%	68%
Totals				
	All industries	**289**	**11%**	**17%**
	Manufacturing and trade	**268**	**21%**	**26%**

Source: PricewaterhouseCoopers tabulations of financial statement information compiled in Compustat®. **Manufacturing and trade** includes industries in the manufacturing, wholesale trade, and retail trade industries (NAICS codes 31 through 45).

[13] PricewaterhouseCoopers tabulations of financial statement information compiled in Compustat®.

3. *Pharmaceutical distribution industry*

U.S. healthcare distributors deliver prescription medicines and other products to medical providers. HDMA members ensure that 15 million prescription medicines and healthcare products are delivered to pharmacies, hospitals, and other healthcare providers across the United States on a daily basis.[14]

In 2013, total U.S. pharmaceutical sales were nearly $330 billion, of which sales by pharmaceutical distributors were approximately $305 billion (90 percent).[15, 16] In 2014, HDMA members included approximately 32 local, regional, and national distributors with 153 strategically located distribution centers.[17] Booz & Company estimates that pharmaceutical distributors save the nation's healthcare system $42 billion per year by providing daily delivery, high service levels, and business efficiencies in a sophisticated and highly valuable supply chain.[18]

Chain and independent drug stores account for 57.2 percent of the pharmaceutical distribution industry's sales; hospitals, HMOs, clinics, and long-term care facilities account for an additional 24.7 percent; and the remaining 18.1 percent is sold to mail order fulfillment centers and other customers (see Table III.1).

Table III.1 -- Pharmaceutical Distribution Industry, Customers by Category, 2012-13

	2012		2013		2013/2012
Customers	**$ bn**	**%**	**$ bn**	**%**	**(% Change)**
Chain Sales	$118.9	44.1%	$115.1	41.8%	-3.2%
Independent Drug Stores	$42.6	15.8%	$42.1	15.3%	-1.1%
Hospitals & HMOs	$45.0	16.7%	$47.1	17.1%	4.6%
Specialty Pharmacies	$0.3	0.1%	$0.3	0.1%	3.7%
Clinics & Long-Term Care	$25.6	9.5%	$20.9	7.6%	-18.3%
Mail Order	$34.2	12.7%	$46.8	17.0%	36.7%
Other Distributors	$0.5	0.2%	$0.6	0.2%	1.9%
Physicians/Physicians' Offices	$0.0	0.0%	$0.0	0.0%	---
Other Customers	$2.4	0.9%	$2.2	0.8%	-9.5%
Total Sales	**$269.6**	**100.0%**	**$275.1**	**100.0%**	**2.1%**

Notes: May not sum to totals due to rounding; Total sales figure excludes sales from specialty distributors or specialty divisions.
Source: Center for Healthcare Supply Chain Research, 2014-2015 HDMA Factbook: The Facts, Figures & Trends in Healthcare.

[14] Healthcare Distribution Management Association; see http://www.healthcaredistribution.org/about_hdma/about_hdma.asp.
[15] Center for Healthcare Supply Chain Research, *2014-2015 HDMA Factbook: The Facts, Figures & Trends in Healthcare*.
[16] The $305 billion figure does not match Table III.1 due to the fact that Table III.1 excludes sales from specialty distributors or specialty divisions.
[17] Center for Healthcare Supply Chain Research, *2014-2015 HDMA Factbook: The Facts, Figures & Trends in Healthcare*. Employment count provided separately by HDMA.
[18] Booz & Company, *The Role of Distributors in the U.S. Healthcare Industry*, study prepared for HDMA, 2011.

The pharmaceutical distribution industry provides various types of sales contracts to meet specific needs of different customers. These include annual contracts and long-term (3-5 year) national contracts. In general, both the annual and long-term contracts provide that new taxes will not be passed through to the customer before the date of contract renewal. As a result, pharmaceutical distributors generally will be required to absorb any new taxes during the contract term. A customer may not renew a contract that seeks to impose pricing adjustments for new taxes, especially if the customer can find an alternate supplier that is not subject to the new tax.

The pharmaceutical distribution industry is a high volume, high value industry with low profit margins. In 2013, the industry's sales were approximately $305 billion, and the weighted average after-tax profit margin in the industry for these sales was 1.3 percent.[19]

A. Competitive Environment/Industry Consolidation

1. Internal Competition

Intense competitive pressure and the need for increased economies of scale has led to the number of primary full-service pharmaceutical distributor industry members decreasing by more than 65 percent, from approximately 100 distributors in the early 1990s to approximately 32 distributors in 2014. Most prescription medicine sales are to nationwide chains (as shown in Table III.1), meaning that distributors compete with each other in a national marketplace.

2. External Competition

About 10 percent of prescription medicines are shipped directly by manufacturers to customers.[20] Pharmaceutical distributors provide expedited access to medicines by maintaining centralized storage facilities throughout the United States. These facilities help ensure that patients are able to obtain their prescriptions in a timely manner.

B. Government Regulation

The pharmaceutical distribution industry is heavily regulated at both the federal and state levels. At the federal level, the industry is regulated by various agencies, including the Food and Drug Administration and the Drug Enforcement Administration. The industry also must comply with rules and licensing requirements promulgated in the states prior to conducting distribution activities. Although these federal and state agencies are focused on protecting consumers, they often add significant additional administrative requirements on pharmaceutical distributors.

4. Policy issues

A. Accurate Measurement of Income

Distributors maintain inventories for a variety of reasons, including: (1) to minimize lags between the time an order is placed and the time it is fulfilled, (2) to create a buffer against uncertainties in supply and demand, and (3) to obtain the best price from suppliers by purchasing in bulk.

In the pharmaceutical distribution industry, inventories play a critical role in ensuring the timely delivery of medications to hospitals and pharmacies throughout the United States. To assure timely delivery, HDMA member companies maintain 153 strategically located distribution centers throughout the United States.

Federal tax law does not permit distributors to deduct the cost of inventory when purchased from suppliers; instead, taxpayers must use an inventory method of accounting. The purpose of inventory accounting is to match the recognition of costs to revenues in order to obtain an appropriate periodic measure of income. Where specific

[19] Center for Healthcare Supply Chain Research, *2014-2015 HDMA Factbook: The Facts, Figures & Trends in Healthcare*.
[20] Center for Healthcare Supply Chain Research, *2014-2015 HDMA Factbook: The Facts, Figures & Trends in Healthcare*.

identification is impractical, federal tax law mandates the use of FIFO inventory accounting unless the taxpayer elects to use LIFO.

During periods of inflation, which in recent decades has been common in the pharmaceutical industry, FIFO accounting can result in a mismatching of costs and revenues because prices used to measure costs of goods sold are less than replacement cost. By determining revenues at current prices and costs at prior prices, FIFO accounting overstates real income and, in effect, imposes tax on inflationary gains.

Considering the example in Section II.A, the taxpayer sells 100 units for $110 and under FIFO accounting values those goods at $100. The taxpayer will pay tax on the $7 of gain attributable to inflation and the $3 in income attributable to value added. By contrast, LIFO accounting will result in $3 of income ($110 less $107) which corresponds to real, net of inflation income. Note that a taxpayer using LIFO accounting ultimately will be taxed on inflationary gains when the units purchased for $1.00 each are deemed sold (due to a drawdown of inventory). Consequently, LIFO defers, but does not eliminate taxation of inflationary gains.

In summary, repeal of the LIFO method of accounting would eliminate the ability of taxpayers to defer taxation of inflationary gains attributable to their inventoried assets and would result in higher taxes on investments in inventory as compared to equipment (for which accelerated depreciation is allowed).[21]

B. Inter-Industry Comparison

The President's FY 2016 budget proposed the elimination of LIFO in tax years beginning after December 31, 2015. The tax on the LIFO reserve (i.e., the excess of FIFO cost over LIFO cost) would be required to be included ratably in income (i.e., "recaptured") over a ten-year period starting with the first taxable year beginning after December 31, 2015. Thus, the proposal would increase taxable income of taxpayers with LIFO inventories in two ways:

1. **Recapture effect**. Transitional increase in taxable income due to recapture of historic LIFO reserves; and
2. **Ongoing effect**. Annual increase in taxable income due to reduction in cost of goods sold deduction computed under FIFO as compared to LIFO accounting method.

The tax imposed by LIFO's repeal would vary by company and industry based on industry-specific inflation, the importance of inventories as a share of assets, inventory holding patterns, and other characteristics.

1. Book LIFO Reserves

Companies relying on LIFO to value a portion of their inventories report the LIFO reserve in their financial statements. To assess the importance of LIFO across industries, we have tabulated data from financial statements on companies with LIFO reserves (see Table **IV.B.1**). As described in the first section of the report, 289 public companies reported LIFO reserves on their balance sheets in 2013. In 2013, public companies reported LIFO reserves of over $80.4 billion in the manufacturing sector; $3.7 billion in the wholesale sector; and $5.6 billion in the retail sector. The figures in **Table IV.B.1** understate the use of LIFO because they do not include values for private companies including many distributors, such as car dealerships, that typically are not publicly traded.

The importance of LIFO reserves to company balance sheets varied across industries in 2013. Overall, LIFO reserves represented 21.9 percent of total inventories of companies that used LIFO for some portion of inventories. In other words, the elimination of LIFO would cause the inventory valuations of companies that use LIFO to increase by 21.9 percent.

[21] For these reasons, the Treasury Department in the past has supported retention of the LIFO method of accounting: "Repeal of the LIFO method would include inflationary gains in the value of inventories in the tax base, which is inconsistent with proper income measurement and, more importantly, would disadvantage investment in inventories relative to other forms of investment." Source: US Department of the Treasury, *Approaches to Improve the Competitiveness of the US Business Tax System for the 21st Century* (December 20, 2007) p. 47 (footnote 63).

Table IV.B.1 LIFO Reserves on Financial Statements of Public Companies, 2013

NAICS code	Industry	LIFO Reserve	
		Value ($ millions)	Percent of Total Inventory
11	Agriculture, Forestry, Fishing and Hunting	$212	6.7%
21	Mining	637	8.7%
22	Utilities	36	4.2%
23	Construction	0	NA
31-33	Manufacturing	80,419	28.3%
324110	Petroleum Refineries	53,634	116.8%
42	Wholesale Trade	3,712	8.3%
44-45	Retail Trade	5,600	11.8%
48-49	Transportation and Warehousing	7	1.1%
51	Information	12	11.0%
52	Finance and Insurance	0	NA
53	Real Estate and Rental and Leasing	15	22.1%
54	Professional, Scientific, and Technical Services	0	NA
56	Administrative and Support and Waste Management and Remediation Services	0	NA
61	Education Services	0	NA
62	Health Care and Social Assistance	0	NA
71	Arts, Entertainment, and Recreation	0	NA
72	Accommodation and Food Services	0	NA
81	Other Services (except Public Administration)	0	NA
99	Other	1,592	4.8%
Totals			
	All industries	**$92,241**	**21.9%**
	Manufacturing and trade	**$89,731**	**23.9%**

Source: PricewaterhouseCoopers tabulations of financial information compiled in Compustat ®. **Manufacturing and trade** includes industries in the manufacturing, wholesale trade, and retail trade industries (NAICS codes 31 through 45).

The change in LIFO reserves for a year represents the excess of costs of goods sold determined under the LIFO versus the FIFO method for the year and thus the difference in book incomes caused by the use of FIFO instead of LIFO.

Since 2004, LIFO reserves have grown at an average annual rate of 6 percent across all industries. **Table IV.B.2** shows the average change in LIFO reserves over the 2004-2013 period at 2013 levels. Based on the historic growth rate of LIFO reserves, costs of goods sold in 2013 would have been $6.0 billion less for public companies if FIFO rather than LIFO had been used in 2013, resulting in an increase in pre-tax income of 1.4 percent for companies with a LIFO reserve. Retail trade, wholesale trade, and manufacturing would have seen the largest percentage changes in pretax book income as a result of switching from LIFO to FIFO.

Table IV.B.2 Average Change in LIFO Reserves of Public Companies at 2013 Levels, by Industry

NAICS Code	Industry	LIFO Reserve, 2013 ($millions)	Average Change in LIFO Reserves 2004-2013 (at 2013 Levels)	
			Amount [a] ($millions)	Share of Pretax Income
11	Agriculture, Forestry, Fishing and Hunting	$212	$30	0.9%
21	Mining	637	-16	0.0%
22	Utilities	36	13	0.7%
23	Construction	0	NA	NA
31-33	Manufacturing	80,419	4,983	1.6%
42	Wholesale Trade	3,712	286	3.1%
44-45	Retail Trade	5,600	596	3.5%
48-49	Transportation and Warehousing	7	0	0.0%
51	Information	12	1	0.3%
52	Finance and Insurance	0	NA	NA
53	Real Estate and Rental and Leasing	15	2	0.3%
54	Professional, Scientific, and Technical Services	0	NA	NA
56	Administrative and Support and Waste Management and Remediation Services	0	NA	NA
61	Education Services	0	NA	NA
62	Health Care and Social Assistance	0	NA	NA
71	Arts, Entertainment, and Recreation	0	NA	NA
72	Accommodation and Food Services	0	NA	NA
81	Other Services (except Public Administration)	0	NA	NA
99	Other	1,592	71	0.2%
Totals				
	All industries	**$92,242**	**$5,966**	**1.4%**
	Manufacturing and trade	**$89,731**	**$5,865**	**1.7%**

[a] Average percentage change in LIFO reserves over 2000-2009 period times 2009 LIFO reserve.

Source: Compustat® and PricewaterhouseCoopers calculations. Manufacturing and trade includes industries in the manufacturing, wholesale trade, and retail trade industries (NAICS codes 31 through 45).

2. Effect of LIFO Repeal on Tax Liability, All Industries

The tax effect of LIFO repeal can be estimated for public companies using SEC 10-K information under the assumption that book and tax LIFO reserves are equal. Differences in tax and book LIFO reserves may occur for a variety of reasons, including recognition for book (but not tax) of inventory gain in corporate acquisitions, and use of the Inventory Price Index Computation (IPIC) method for calculating LIFO reserves for tax (but not book)

purposes. Typically tax LIFO reserves will be greater than book LIFO reserves for these reasons. Consequently, use of SEC data to estimate the tax impact of LIFO election repeal understates the actual increase in tax liability.[22]

If the LIFO election had been repealed effective for fiscal year 2013, we estimate that the recapture tax on public companies would have amounted to $32.3 billion based on book LIFO reserves at a 35-percent corporate tax rate. The recapture tax amounts to 85 percent of total 2013 federal income tax liability reported by public companies. The ongoing tax increase associated with LIFO repeal is estimated to be $2.1 billion each year at 2013 levels, increasing federal income tax liability by 5.5 percent (see **Table IV.B.3**).

Within the manufacturing and trade sector, repeal of the LIFO election in 2013 would have imposed a recapture tax of $31.4 billion, representing 111 percent of 2013 book tax liability, and an ongoing annual tax increase of $2.1 billion at 2013 levels, representing a 7.2 percent increase in book tax liability.

Table IV.B.3 Effect of LIFO Repeal on Tax Liability of Public Companies at 2013 Levels by Industry
[Based on book LIFO reserves and tax liability]

		Transition effect (recapture tax)			Ongoing effect	
NAICS Code	Industry	Amount ($ millions)	Share of Pretax book Income	% of federal income tax[a]	Amount ($ millions)	% of federal income tax[a]
11	Agriculture, Forestry, Fishing and Hunting	$74	2.2%	17%	$10	2.4%
21	Mining	223	0.7%	14%	-6	-0.4%
22	Utilities	13	0.7%	-1%	5	-0.5%
23	Construction	0	NA	NA	NA	NA
31-33	Manufacturing	28,147	8.9%	135%	1,744	8.4%
42	Wholesale Trade	1,299	14.1%	53%	100	4.1%
44-45	Retail Trade	1,960	11.6%	38%	208	4.0%
48-49	Transportation and Warehousing	2	0.5%	11%	0	-0.4%
51	Information	4	1.7%	10%	0	0.6%
52	Finance and Insurance	0	NA	NA	NA	NA
53	Real Estate and Rental and Leasing	5	1.0%	4%	1	0.5%
54	Professional, Scientific, and Technical Services	0	NA	NA	NA	NA
56	Administrative and Support and Waste Management and Remediation Services	0	NA	NA	NA	NA
61	Education Services	0	NA	NA	NA	NA
62	Health Care and Social Assistance	0	NA	NA	NA	NA
71	Arts, Entertainment, and Recreation	0	NA	NA	NA	NA

[22] In cases where there is a material difference in the value of inventories for book and tax purposes, the associated deferred tax liability is specifically identified in the company's deferred tax account and its public filings; if not material, this information is not identified in its public filings such as SEC form 10-Ks.

NAICS Code	Industry	Transition effect (recapture tax)			Ongoing effect	
		Amount ($ millions)	Share of Pretax book Income	% of federal income tax[a]	Amount ($ millions)	% of federal income tax[a]
72	Accommodation and Food Services	0	NA	NA	NA	NA
81	Other Services (except Public Administration)	0	NA	NA	NA	NA
99	Other	557	1.2%	7%	25	0.3%
Totals						
	All industries	**$32,285**	**7.5%**	**85%**	**$2,088**	**5.5%**
	Manufacturing and trade	**$31,406**	**9.1%**	**111%**	**$2,053**	**7.2%**

[a] Based on current provision for federal income tax per financial statement.

Note: Calculations assume a 35-percent tax rate and are based on book LIFO reserves. **Manufacturing and trade** includes industries in the manufacturing, wholesale trade, and retail trade industries (NAICS codes 31 through 45).

Source: Compustat® and PricewaterhouseCoopers calculations.

3. Effect of LIFO Repeal on Tax Liability of the Pharmaceutical Distribution Industry

As discussed above, differences between tax and financial accounting rules can cause book and tax LIFO reserves to differ, and where material, such differences are identified in the deferred tax account. Within the pharmaceutical distribution industry, companies that use LIFO report the effect of book-tax differences on deferred tax liabilities. This deferred tax information can be used to estimate more accurately the tax effect of LIFO repeal within the pharmaceutical distribution industry as compared with other industries.

For public healthcare distributors that report use of LIFO accounting, the tax LIFO reserve is estimated as the book LIFO reserve plus the deferred tax liability attributable to inventories grossed up at the company's effective tax rate as indicated in the tax footnote to the financial statement.[23] The recapture tax attributable to LIFO repeal is calculated by multiplying the estimated tax LIFO reserve at 2013 levels by the effective tax rate.[24] For public pharmaceutical distributors that use LIFO accounting, the recapture tax attributable to LIFO repeal is estimated to be $4.7 billion at 2013 levels, or nearly four times reported current federal income tax liability (392 percent). See **Table IV.B.4**. The recapture tax would represent 122.8 percent of pretax income, in effect, a one-time 123 percentage point tax rate increase.

The ongoing annual tax increase attributable to LIFO repeal is calculated by multiplying the average annual increase in the tax LIFO reserve at 2013 levels times the effective tax rate. For public pharmaceutical distributors that use LIFO accounting, the permanent annual tax increase attributable to LIFO repeal is estimated to be $532 million at 2013 levels, or a 44.6 percent increase in reported current federal income tax liability. The tax increase would represent 14.0 percent of pretax income.

[23] The LIFO reserve provides the difference in inventory values using book LIFO and book FIFO, and the deferred tax liability attributable to inventories (grossed up by the tax rate) provides the difference between book LIFO and tax LIFO. The sum of the two approximates the difference in inventories valued using tax LIFO and tax FIFO, assuming that differences between book FIFO and tax FIFO are not material.

[24] The effective tax rate used for this calculation is the weighted average effective tax rate for the three public pharmaceutical distributors that use LIFO accounting, after adjusting for certain extraordinary items.

Table IV.B.4 Estimated Effect of LIFO Repeal on Tax Liability of Pharmaceutical Distributors 2013

Item	Amount ($ millions)	% of federal income tax[a]	% of pretax income
Financial Statement Information:			
LIFO Reserve, Book	$868		
Deferred Tax Liability Attributable to Inventories	$4,340		
Deferred Tax Liability Grossed up by Effective Tax Rate [b]	$8,678		
Estimated LIFO Reserve, Tax [c]	$9,546		
Average Annual % Increase in Tax LIFO Reserve, 2009-13	11%		
Average Annual Increase in Tax LIFO Reserve at 2013 levels	$1,535		
Transition Effect (Recapture Tax) at 2013 Levels [d]	$4,678	391.7%	122.8%
Ongoing Annual Effect at 2013 Levels [d]	$532	44.6%	14.0%

[a] Current provision for federal income tax per annual report.

[b] Calculated using the weighted average effective tax rate for the three public pharmaceutical distributors that use LIFO accounting, after adjusting for certain extraordinary items.

[c] LIFO reserve plus deferred tax liability attributable to inventories grossed up by effective tax rate.

[d] Based on reported effective tax rates in 2013 and 2014 annual reports. The recapture tax attributable to LIFO repeal is calculated by multiplying the estimated tax LIFO reserve at 2013 levels by the effective tax rate. The ongoing annual tax increase attributable to LIFO repeal is calculated by multiplying the average annual increase in the tax LIFO reserve at 2013 levels times the effective tax rate.

Source: 2013 and 2014 Annual Reports of pharmaceutical wholesalers using LIFO inventories, and PricewaterhouseCoopers calculations. Companies with fiscal years ending before April 1 were included in the prior year's results (e.g., the results for a company with a year-end of March 31, 2014, are included in the 2013 results).

The transitional recapture tax does not affect the marginal cost of production, so it is unlikely it would be passed through to customers. The ongoing effect, however, most likely would be passed through over time as contracts are renewed. As a result, over time, consumers would expect to see increases in drug prices of approximately $530 million, or approximately 0.2 percent of current drug spending.

5. Conclusion

The LIFO method of valuing inventory is a long-standing accounting approach to aligning cost of goods sold and sales revenues. The use of LIFO assigns values to sold inventory using current prices, i.e., the prices at which current sales are made and current inventory is replaced, and defers recognition of inflationary gains until inventory is drawn down. During periods of pharmaceutical price inflation, LIFO results in a more accurate measurement of current income in constant dollars. In contrast, FIFO accounting can result in a mismatching of costs and revenues because prices used to measure costs of goods sold are less than replacement cost. By determining revenues at current prices and costs at prior prices, FIFO accounting overstates real income and in effect imposes tax on inflationary gains.

Pharmaceutical distributors would be especially affected by a repeal of the LIFO accounting method as the price of pharmaceutical products has increased rapidly in recent years and the industry carries large inventories.

Low profit margins and intense competition within the pharmaceutical distribution industry make it difficult for the industry to absorb increased tax burdens; consequently, restricting use of LIFO likely would lead to increased prices to healthcare providers and ultimately to patients.