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University of Connecticut

Year 2009

Analysis of the LIFO inventory valuation
method during the onset of IFRS

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An Analysis of LIFO inventory valuation

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Honors Accounting Thesis

December 5, 2008

Table of Contents

I.	Introduction.....	3
II.	The History of Inventory Accounting.....	4
III.	A Closer Look at Inventory Valuation Methods.....	7
IV.	The LIFO Debate-Proponents.....	9
V.	The LIFO Debate-Opponents.....	10
VI.	LIFO and the Effect on Financial Ratios.....	16
VII.	LIFO Usage over the Past 10 Years.....	18
VIII.	Future of LIFO.....	23
IX.	Effects of Repeal.....	24
X.	Conclusion.....	26

An Analysis of LIFO inventory valuation

Introduction

Inventory accounting is one of the topics to be discussed as the U.S. contemplates adopting International Financial Reporting Standards (IFRS). The U.S. operates in a global economy; a main goal of IFRS is to enhance investor comparability of firms by adopting one set of accounting standards. The Securities and Exchange Commission (SEC) has recently released a statement justifying the adoption of IFRS and provided a timetable for this action. According to the news release, large, multinational institutions are allowed to switch to IFRS as early as December 2009; however, the SEC would not make an official ruling on the mandatory adoption of IFRS until 2011. The adoption of IFRS will depend on certain factors, or “milestones.” In other words, the SEC will not implement a mandatory adoption of LIFO unless it is in the best interest of the public and investors. These milestones include: “improvements in accounting standards, the accountability of funding of the International Accounting Standards Committee (IASC), the improvement in the ability to use interactive data for IFRS reporting, education and training related to IFRS, limited early use of IFRS where this would enhance comparability for U.S. investors, the anticipated timing of future rulemaking for the Commission, and the implementation of the mandatory use of IFRS by U.S. issuers.”¹ If adopted, IFRS rules would be implemented in 2014.

The Last in, First out (LIFO) inventory accounting method has received scrutiny over the years because the method allows firms to understate their net income, and thus pay less in tax. Under IFRS, LIFO would be banned and firms would be required to use either the FIFO or the weighted average inventory method. The goal of this report is to provide an analysis of the LIFO inventory valuation method, which has had significant effects on firms over the years, and evaluate the decision to eliminate LIFO from U.S. financial reporting.

¹ SECURITIES AND EXCHANGE COMMISSION
FR Parts 210, 229, 230, 240, 244 and 249
[RELEASE NOS. 33-8982; 34-58960; File No. S7-27-08]
RIN 3235-AJ93

Currently, the majority of firms value their inventory using one of two methods, the LIFO method or the First in, First out valuation method (FIFO). The use of LIFO instead of FIFO will have an impact on a firm's net income, total assets, and noncurrent liabilities. An analysis comparing firms' (with LIFO reserves) earnings under LIFO and FIFO for the previous 10 years will show the magnitude of the effect of using LIFO instead of FIFO and the discrepancies in income and inventories that arise from using the different methods. The analysis will also reveal the inconsistencies between the intended goals of the LIFO in inventory accounting method and how it is actually used. Moreover, the LIFO inventory valuation method will be shown as a tool for companies to inflate or deflate key financial ratios and look more favorable to shareholders and investors.

In the next section, I provide a history of inventory accounting, followed by a description of each inventory accounting method. After, I will discuss the debate amongst proponents and opponents of LIFO, explore the usage of LIFO over the past 10 years, and discuss the future of LIFO. To conclude, I will analyze the effects of the LIFO repeal on the U.S. business environment.

The History of Inventory Accounting

LIFO was not always an acceptable inventory valuation method under Generally Accepted Accounting Principles (GAAP). The implementation of LIFO took years and tremendous efforts from big business and accountants. LIFO became popularized during the New Deal when the Roosevelt administration passed unfavorable government policies, such as the undistributed profits tax, that sought to tax the undistributed profits of corporations in order to bolster the economy.

In 1918, Congress decided to approve the use of inventory accounting to reflect income. The only methods approved were the FIFO method and the weighted average method. LIFO had not come into existence yet; however, the base-stock method became popular at the time and would become LIFO's predecessor. The base-stock method accounted for the portion of the taxpayer's inventory that was considered necessary to the ongoing business of the concern like it was a fixed asset and valued it at its original cost basis. When this asset was depleted, new

inventory was written down to the original cost basis to replenish the reserve. When the firm bought new inventory, this was valued at lower of cost or market and sold as such by the firm. In this way, when items were removed from inventory, they were removed from items most recently added to total inventory, not the base-stock. As a result, the cost of the reserve would remain at the original price and not fluctuate as prices rose and fell during the years.²

Firms argued that the base-stock method of valuation was effective and accurately valued inventory, especially in the wake of the Great Depression when inventory levels dropped to extreme lows and then rebounded to higher levels. However, others felt that this inventory method should only be used by firms who would be significantly affected by changes in inventory prices. The Internal Revenue Bureau was one major opponent of the use of the base-stock method. The tax rules of inventory accounting were based on the FIFO method. For example, under this method, inventory had to be valued at “cost, or lower of cost or market, and applied consistently to the entire inventory.” Also, the “the goods in inventory were deemed to be the goods most recently purchased.” The base-stock method was not consistent with these principles and left firms who wanted to use this method with two choices, they could keep two sets of books, one for stockholders, and one for tax authorities, or they could take their case to court, which is what several firms chose, including Kansas City Structural Steel.³

Kansas City Structural Steel was the first company to actively lobby for the implementation of the base-stock method. However, they faced much the same criticism heard today with regards to the LIFO method. In their decision against the company, the U.S. Supreme Court stated that the base-stock method was inconsistent with accounting established by Congress (Kansas Structural Steel Company v. Lucas). The failure of the base-stock method in the Supreme Court did not deter proponents from continuing to fight for their cause. The base-stock method began to increase in popularity due to economic conditions, the changing role of the accounting profession, and the increasing role of big business and their discontent with the New Deal policies.

² The ideas in this paragraph are from Lessard at p. 2

³ Lessard at p. 3

During the Great Depression, firms preferred the FIFO method because under this method, in periods of declining prices, net income is reduced and thus, taxable income is also reduced. However, when the economy began to pick up, many members of business community were looking for a new valuation method that would keep net income low in periods of inflation and thus reduce their taxable income. Proponents of this method argued that the base-stock method was the best method because it properly matched costs with revenues. For example, the inventory that was sold was matched against the market cost of that inventory. In addition, instead of constantly reporting new values for inventory, the base-stock method would hold the inventory at a constant value and reduce volatility, thus more accurately reflecting the price of inventory over the long run. Firms with large inventories began to favor this method because of the potential tax advantages; however, they would not gain Congress' support alone. In order for this method to become an acceptable part of U.S. reporting, large firms needed the support of big business and accountants. Fortunately, the undistributed profits tax rallied big business behind LIFO.

The undistributed tax profit initiated by the Roosevelt Administration and the push for the LIFO valuation method complemented each other during 1936. The tax was implemented in order to make up for a shortfall in the budget. "The Treasury Department recommended eliminating the existing corporate income tax, replacing it with a tax on undistributed profits, and repealing the income tax's dividend exemption."⁴ The large corporations who opposed the undistributed profits tax pushed for the adoption of the LIFO method because it would increase cost of goods sold, lower net income, and reduce required distributions to stockholders. "For advocates of LIFO, the undistributed profits tax provided additional justification for adoption of an inventory accounting method that more accurately reflected income and profits."⁵ In other words, if the government was going to tax undistributed profits, an accurate assessment of profits would be necessary. Despite the success of the LIFO campaign, many of the same arguments that had plagued the base stock method still remained. For example, opponents were concerned that if both LIFO and FIFO were acceptable accounting methods, companies would just switch

⁴ Lessard at p. 7

⁵ Lessard at p. 7

between LIFO and FIFO to reduce taxes. In addition, they were concerned that the use of LIFO would increase managerial manipulation of earnings. Furthermore, they speculated that the earnings fluctuations of the oil companies were merely due to change in prices and not to changes in inventory valuations, as proponents of LIFO argued.⁶ Despite opposition to LIFO, the pressures from big business and the accountants' support of the method were too great. The Revenue Act of 1939 authorized the use of LIFO for every taxpayer and discarded the undistributed profits tax.⁷

A Closer Look at Inventory Valuation Methods

The goal of GAAP is to create rules in which the inventory sold is matched against the expense incurred to acquire that inventory. However, as illustrated above, there are differing views on which costs to associate with inventory. There are three inventory accounting methods that are used by companies today. The FIFO method matches revenues against the initial cost of inventory, the LIFO method matches revenues against current cost of inventories, and the weighted average method matches revenues against the average cost of inventory (the average of historical and market costs). The majority of companies use the FIFO inventory valuation method, while some opt to use the LIFO inventory valuation or the weighted average valuation method. There is no "correct" method; however, the majority of LIFO users are those who report inventories.

In order to gain a better understanding of the importance of LIFO and FIFO, we must consider the importance of LIFO to a firm with inventory and a firm without inventory. A key aspect of LIFO is that it is fundamentally inconsistent with tax principles because it discriminates between firms with inventories and those without inventories. For example, while LIFO is available to any firm, only firms with inventories can use it. No financial institution has inventory, and thus does not have the option to benefit from the tax break that LIFO creates.⁸ As a result, rules have been put in place to discourage companies from using the LIFO method. For

⁶ Lessard at p. 8

⁷ Lessard at p. 11

⁸ Klienbard, et al. at p. 238

example, the book-tax conformity rule states that if a company is using LIFO for tax purposes; it must use LIFO for all of its financial reporting. The book tax conformity rule attempts to tell firms that “the cost of realizing that (tax savings) is reporting an inferior balance sheet that understates the inventory’s cost, and an inferior income statement that fails to report realized holding gains on sold inventory items.”⁹ The book-tax conformity rule had to be implemented because Congress would have been criticized for allowing the sole use of one method over the other. For example, if Congress had forced firms to use FIFO, “they would have prevented managers from harvesting the tax benefit, and if they required LIFO, they would have forced managers to publish inferior” balance sheets and income statements.¹⁰ The book tax conformity rules discourage LIFO without directly stating it cannot be used. However, there are no true disadvantages for firms because they can elect to disclose LIFO Reserves in the footnotes to the financial statements. If firms with inventory can use LIFO and report lower net income and thus lower taxes, and still report financial statements that will not mislead investors, there is no reason to abandon LIFO. Therefore, LIFO is only used in practice to take advantage of a tax benefit and has no place in financial accounting.

The LIFO Reserve provides firms with a measure of the benefit from both tax advantages of LIFO and reporting advantages of FIFO. The LIFO Reserve is calculated by subtracting the inventory valued under LIFO from the inventory valued under FIFO. The LIFO Reserve is a critical piece of any LIFO firm’s financial statements because it can be used to calculate the value of inventory under FIFO and subsequently the net income, liabilities, and key financial ratios under FIFO. Firms using LIFO disclose a LIFO reserve and any financial statement calculations under FIFO.

Each inventory method can benefit a company in different ways depending on the economy. In periods of rising prices, firms that want to receive a tax benefit and are willing to report a lower net income will opt to use LIFO. In periods of declining prices, firms will benefit

⁹ Miller, et al. at p. 2

¹⁰ Ibid. 9

by using the FIFO inventory accounting method. However, it is important to note that firms cannot switch between the two methods depending on the rise and fall of prices. In order to switch between methods, a firm needs IRS approval and there are costs associated with this change that firms would have to constantly undergo even if they were permitted to keep switching.¹¹ Therefore, a major component in selecting an inventory valuation system is its implications for taxable income. The LIFO accounting method does not provide any benefit to the company on its balance sheet (it creates an understatement of inventory); the company only benefits from a reduction in taxable income, which is just one of many arguments for the abolishment of LIFO that will be discussed further.

The LIFO Debate-Proponents

Before evaluating the arguments for and against the use of LIFO, it is important to realize the subjective nature of inventory valuation. Firms can choose different methods to value inventory and therefore record different prices for inventory and, consequently, cost of goods sold. For example, proponents of LIFO often have differing views about the nature of the tax breaks and often emphasize the importance of income statement, whereas opponents will emphasize the importance of the balance sheet in discussing the use of LIFO.

The result of the use of LIFO generally results in reporting lower net income. The effect of reporting a lower net income is paying less in taxes; however, proponents of LIFO claim that these benefits are justified and do not constitute a tax deferral because firms are continuing to reinvest the money back into the business and there has been “no genuine economic realization event.”¹² In addition, proponents of LIFO classify the method as a temporary difference created by tax laws, similar to that of the accelerated depreciation methods. In the next sections, I will explore why these claims are invalid.

Moreover, proponents of LIFO suggest that “LIFO produces more accurate income statements.”¹³ The argument is that the LIFO method more accurately matches costs to revenues

¹¹ Dennis-Escoffier at p. 105

¹² Klienbard et al at p. 241

¹³ Katz at p. 1

because the cost of goods sold reflects the current prices of the goods in the market. In theory, this idea seems justified; however, the specific literature of FAS 157 disproves this assessment of LIFO.

FAS 157 requires firms to value all items in the financial statements-inventory, liabilities, pension plans, etc. - at fair value. In a business environment where all items are to be recorded at what they would sell for in the market, recording cost of goods sold at market value would seem like the correct practice. Under this assumption, firms would have every reason to use LIFO because not only would this inventory method reduce the amount of taxes payable, but it would mean that LIFO inventory valuation is consistent with GAAP, more so than firms using FIFO.

However, reporting cost of goods sold at fair value is not consistent with the “fair value” discussed in FAS 157 because if firms record cost of goods sold at current market prices, the inventory would have to be marked at historical costs (and therefore undervalued), which is inconsistent with the policies of FAS 157. LIFO remains an inferior inventory valuation method, one that is inconsistent with the tax and financial accounting principles. In the preceding section, we will explore other problems with the LIFO inventory valuation method.

The LIFO Debate- Opponents

The birth of LIFO in the early 20th century as an acceptable valuation method was supported by accountants and big business and strongly opposed by the Treasury Department. The LIFO valuation method was created as a valuation method that would assist manufacturing firms in reporting accurate financial statements. However, there has been speculation that the reason firms use LIFO is to benefit from a “tax holiday” that results from the use of the method. The term “tax holiday” is appropriate because under LIFO, firms can report lower net income, and thus pay less tax. The amount of tax that firms avoid can be calculated by multiplying the LIFO Reserve by the applicable tax rate. The data collected from Compustat (see below) will reveal that from 2006-2007, the amount of the LIFO reserve increased from \$74 billion to \$92 billion (it is important to note the \$92 billion LIFO Reserve was aggregated from companies representing only approximately 4% of all publicly traded companies in 2007). As a result, uncollected taxes increased from approximately \$26 billion to \$32 billion (assuming a 35% tax

rate). It is important to note that these figures will understate the aggregate LIFO Reserve as they do not include non-public firms.¹⁴ In either circumstance, the financial impact of LIFO on firms and the economy is substantial.

The LIFO Reserve (in millions)

Year	LIFO Reserve	% Change in LIFO Reserve	Change in LIFO Reserve	Net Income(LIFO)	Net Income (FIFO)	Companies
1996	29,860.43					
1997	29,353.51	-2%	(506.92)	87,392.11	86,885.19	281
1998	25,230.29	-14%	(4,123.22)	95,173.50	91,050.27	285
1999	30,507.47	21%	5,277.18	103,375.20	108,652.38	292
2000	33,971.21	11%	3,463.74	111,321.75	114,785.48	294
2001	27,841.81	-18%	(6,129.40)	76,827.27	70,697.87	318
2002	33,137.70	19%	5,295.89	60,475.53	65,771.41	299
2003	34,476.44	4%	1,338.73	107,233.84	108,572.58	305
2004	45,245.73	31%	10,769.29	159,894.39	170,663.68	313
2005	63,388.44	40%	18,142.71	191,805.47	209,948.18	324
2006	66,390.74	5%	3,002.30	225,647.41	228,649.71	329
2007	91,310.44	38%	24,919.71	208,446.19	233,365.89	336

The data was derived using Compustat database for fiscal years 1996-2007. The companies represented include those reporting a positive LIFO Reserve for each fiscal year.

The ability of a firm to deliberately avoid a tax obligation is inconsistent with tax principles because it may create a permanent “tax holiday” for these firms (i.e. the gains in wealth from gains in inventory are never taxed) and only the firms who select this method can benefit. Some firms have been using LIFO for years. It is no surprise that these firms are the

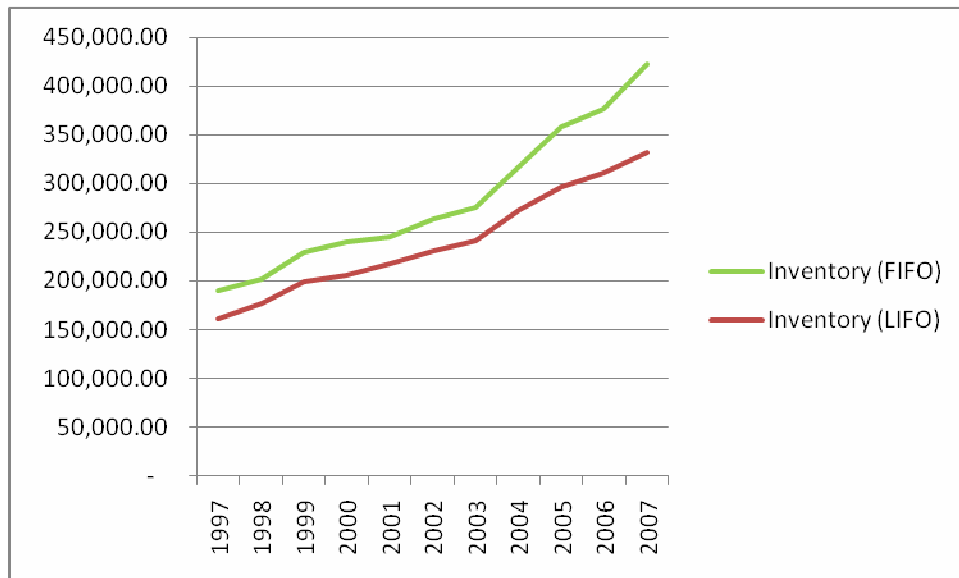
¹⁴ Plesko, George. Committee on Finance, United States Senate. 13 June 2006. 21 Nov. 2008
www.nam.org/~media/Files/s_nam/docs/237100/237063.pdf.ashx.

same firms who have been avoiding substantial taxes for years and the same firms who report unusually high LIFO reserves. These firms have been benefiting from what is known as the “value creep” effect. The “value creep” effect can be best illustrated by example. Recently, oil prices skyrocketed. The price per barrel is significantly more than it was a decade ago. However, firms that are continuing to value their inventory using LIFO are benefiting by not recognizing this gain. As the price per barrel rises and oil companies match their revenues against current oil prices, they still have inventory that is valued at historic prices, prices that could be representative of barrels of oil costing significantly lower than their price today. Therefore, oil companies are reporting far less net income than they would without LIFO and therefore paying less in tax.¹⁵

As shown in the graph, inventories under LIFO for all companies reporting a LIFO reserve are significantly understated. I have collected total inventory data from the same firms analyzed in the preceding table. Below, I provide a comparison of company’s total inventory under the LIFO and the FIFO methods.

¹⁵ Klienbard et al. at p. 243

Aggregate Inventory Under LIFO & FIFO (in millions of dollars)



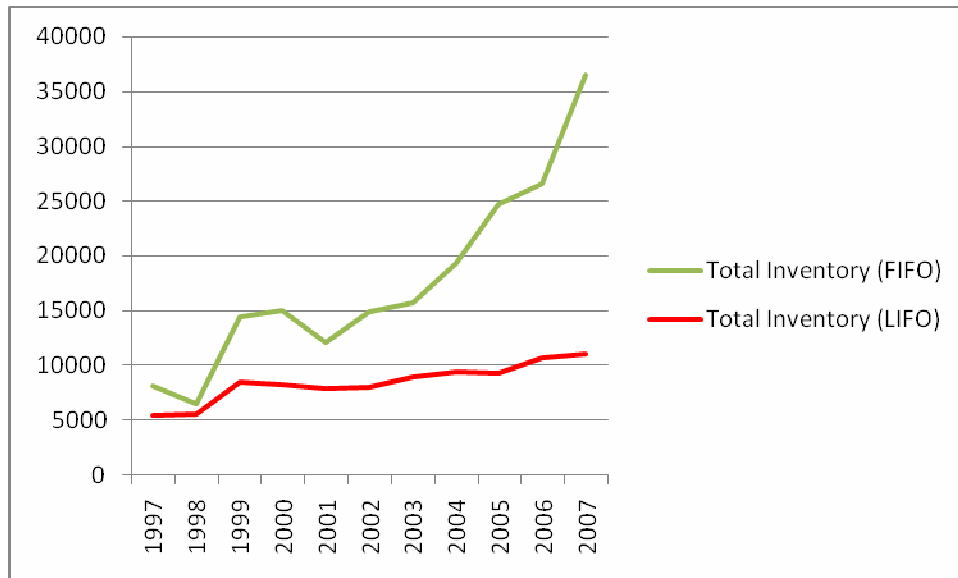
The inventories are much higher for firms using FIFO than those reporting LIFO reserves. This difference is due to the undervaluing of inventories that results from the use of LIFO (Compustat).

The data presented above shows the amount of inventory reported by all companies under LIFO and FIFO for the years 1997-2007. The inventory under LIFO is undervalued, thus creating discrepancies in total assets, which can have an effect on key financial ratios and evaluation of firm performance (described below). The opponents of LIFO often look to the balance sheet as a key indicator of a firm's profitability. However, with the adoption and widespread use of the LIFO method, investors are more inclined to look at the income statement as a key performance measure. Katz suggests that "the International Accounting Standards Board has pushed companies to move 'from an income statement view'...noting that a balance sheet could reflect the cost of goods sold from '50 years ago'."¹⁶ In other words, the International Accounting Standards Board recognizes the understatement of inventories on a firm's balance sheet as a result of the use of LIFO and is urging others to realize this as well. This understatement is most pronounced in industries with large recent increases in inventory.

¹⁶ Katz at p. 1

The companies with the largest LIFO reserves are those from the oil and petroleum sectors. For example, looking at a graph comparing Exxon Mobil's total inventory under LIFO and FIFO, we can see that inventory has been significantly understated for years.

Exxon Mobil (in millions of units)



As oil prices keep rising, the LIFO reserve and the gap between LIFO inventory and FIFO inventory will continue to increase (Compustat).

The proponents of LIFO suggested two arguments to justify the use of LIFO. The first idea supports the tax deferral on the basis that there would be “no genuine economic realization event.” However, this claim is contradictory because they are saying that is acceptable for the firms using LIFO to benefit from a tax-free transfer of money and wealth. In other words proponents claim that it is acceptable if a firm reports a lower net income, and subsequently uses the tax benefit to invest in the business. However, this same firm could generate a similar amount of capital by borrowing from a bank. If they borrowed, they would have to pay interest. Therefore, a tax benefit (the uncollected tax) is a tax-free transfer of money. Moreover, in response to the claim that a tax deferral is a result of a temporary tax difference, similar to accumulated depreciation, opponents state the tax that these firms defer due to accelerated

depreciation is paid at a later time; the only way to ever receive tax on inventory monies is to ban LIFO and collect the tax on the amount of the LIFO Reserve.¹⁷

Tax avoidance is a direct result of the LIFO method; however, the method also has the potential to influence managers to manipulate earnings. For example, in periods of rising prices, cost of goods sold increase and inventories remain at low levels. Towards the end of a fiscal year, managers can purchase more inventories “and match these goods against revenues to avoid charging the old costs to expense.”¹⁸ According to Congressman Charles Rangel, the key to getting back revenue lost is to reduce loopholes such as this one that exist in the system.¹⁹ Although acts such as the one described above may be perfectly legal, they are not consistent with goals of accounting standards. It may not be in the best interest of the firm to have excess inventory on hand. Therefore, the firm engages in practices that may not increase the value of the firm just so the firm can take advantage of tax breaks. In addition, firms can use the liquidation of LIFO layers to “reduce inventories and thereby release earnings.”²⁰ The ability to manipulate earnings is unique to the LIFO accounting method and is inconsistent with tax principles.

Perhaps the strongest opposition of the LIFO method comes from the evidence that the absence of taxes, there is little evidence that any taxpayer would use LIFO accounting to fairly present its financial statements. For example, many companies base their pricing decisions on a FIFO average. In other words, when firms create a product and need to decide on a fair market price, they need to take into account the price it costs to make. They cannot choose a value at which they think will be the market price at time of sale. Also, profit sharing and other bonus arrangements are not based on LIFO (rewards are based on profits created from matching revenues achieved to the actual cost of producing the inventory), and the use of a pure LIFO

¹⁷ Klienbard et al at p. 241

¹⁸ Klienbard at al. at p. 247

¹⁹ McIntyre, Bob. "Congressman Rangel's Tax Bill Would Make the Tax Code Simpler & Fairer — and the Changes Are All Paid For." Citizens for Tax Justice 2 Nov. 2007. 21 Nov. 2008 <www.ctj.org/pdf/rangelbill.pdf>.

²⁰ Klienbard at al. at p. 247

system is troublesome for interim periods because estimates must be made for year-end quantities and prices. Once again, accurately estimating future sales is made easier with FIFO because firms can easily predict the physical flow of the goods. In addition, if LIFO is used, it is troublesome to estimate market prices for months ahead of time. It is much easier to create forward looking statements using the product cost as the cost of goods sold.²¹

LIFO and the Effect on Financial Ratios

Other arguments for the repeal of LIFO focus on its impact on financial ratios. LIFO has a significant effect on profitability ratios, activity ratios, and solvency ratios. For example, a study conducted by Ayres, et al. reveals that for companies reporting a LIFO reserve in 2006, once converted to FIFO, the profitability ratio went up 325%, the activity and solvency ratios went down 11.8 % and 10.3% respectively, and the return on common equity, days to sell inventory, and the current ratio, went up 287%, 48.4%, and 25% respectively.²² As stated earlier, the majority of the LIFO reserves are concentrated in a relatively few number of companies within the petroleum and natural gas and steel works industries. The impact of LIFO on financial ratios in these concentrated firms is significant and misleading to investors and shareholders alike.

According to Ayres, et al., the LIFO reserve has a significant impact on total assets and net income for the petroleum and natural gas and steel industries. To verify this claim, data has been collected from 1975- 2005 reflecting the LIFO Reserve as a percent of reported inventory. According to research conducted by Ayres, et al., in 2005, the LIFO Reserve accounted for approximately 27% of the reported inventory. Therefore, if FIFO were used, the inventory would rise approximately 27%. The impact on such an increase would significantly affect key ratios. Perhaps the most significant ratio analysts look at is the Return on Equity, which is the return on assets multiplied by the financial leverage ratio. Firms using LIFO report a higher net income and a higher inventory; therefore, firms who have opted to use LIFO instead of FIFO are

²¹ The ideas in this paragraph are from Klienbard et al. at p. 243

²² Ayres et al. at p. 12

significantly understating their net income, total assets, and thus their return on equity.²³ The understatement of such a financial ratio will make it easy for the firm to constantly beat earnings and meet customer expectations. For example, a company using LIFO can liquidate its LIFO layers in a difficult time and thus meet or beat earnings expectations that are already understated because of the use of LIFO. Analysts make predictions on firm earnings quarter after quarter, but these predictions are an understatement of the firm's potential. The use of FIFO will reveal that the firm is actually more profitable than it appears. Therefore, in addition to benefiting by paying less tax, managers who opt to use LIFO can alter the perceptions of their company and create a different view of the firm in the market.

While investors will be concerned with the ROE, they should also pay some attention to the financial impact LIFO has on the Days in Inventory Ratio and the Current Ratio. The Days in Inventory ratio measures how long a company's assets are in inventory and it is calculated by dividing 365 by the inventory turnover ratio. The inventory turnover ratio is calculated by dividing the cost of goods sold by the average inventory. Under LIFO, the cost of goods sold is overstated, thus yielding a relatively higher inventory turnover which equates to a lower days in inventory. However, if FIFO was used, cost of goods sold would appropriately consist of lower priced, older inventory and the inventory turnover would be lower. Subsequently, the days in inventory ratio would be higher. Therefore, firms would not be turning over inventory as fast as they appear to. The current ratio measures a firm's current assets minus a firm's current liabilities-it is a solvency ratio. When LIFO inventory valuation is used, taxes are avoided, thus there is an understatement of long-term debt. If LIFO is repealed, companies would have to restate their inventories to higher, market price levels. As a result, firms would be forced to pay a significant amount of taxes on their LIFO reserve. The current ratio would rise because there would be a gain in current assets (inventory) and the current liabilities would remain the same because the tax liability would be included in long-term debt.²⁴

²³ Ayres et al. at p. 14

²⁴ Ayres et al. at 18-19

LIFO Usage over the Past 10 Years

I have collected data from 10K reports using the Compustat Database for companies reporting a LIFO reserve over the past 10 years (1997-2007). The trend over the past 10 years has been for more companies to adopt FIFO; however, between the years 1997 and 2007, the amount of LIFO users appears to be increasing. This occurs because I first collected the net income and total inventory for companies reporting a LIFO reserve in 2007. Next, I collected the same data for these companies dating back to 1997. Therefore, some of these companies may not have used LIFO in the previous years and just recently began to use it. In my calculations, I have aggregated the LIFO Reserve of all the firms for each year, derived the change in the LIFO Reserve from the prior year, and added that change to the firms' aggregate net income in order to derive the aggregate net income that would have been reported under FIFO. The following formula illustrates the procedure:

$$\text{Income under LIFO} + \Delta \text{LIFO Reserve} = \text{Income under FIFO}$$

The aggregate amount of net income for all companies under LIFO and FIFO valuation methods are summarized in the table located in the previous section and in the graph below. As discussed earlier, over the past 10 years, firms reporting a LIFO Reserve have been consistently reporting lower net income in the years in which the LIFO Reserve has increased (the LIFO Reserve has increased in most of the last 10 years and has increased substantially in 2004, 2005, and 2007). As a result, taxable income has been lower and the amount of uncollected tax over the past 10 years is approximately \$32 billion for all firms (assuming a 35% average tax rate).

Furthermore, the amount of firms reporting a LIFO reserve for 2007 is approximately 4%; therefore, a significant portion of the LIFO Reserve is aggregated in a relatively small number of companies. For example, according to research done by Plesko (2008), in 2007, 356 companies reported a LIFO Reserve; 5 companies accounted for 50%, 19 companies accounted for 75%, and 68 companies accounted for 90% of the reserve.²⁵ In addition, I have conducted

²⁵ Plesko, George, "Does LIFO have a future?" Presentation at the University of Illinois Tax Symposium, October 2008.

research pooling data from 2002-2007; the data reveals the percentage of firms using LIFO from 2002-2007 and the aggregate LIFO Reserve for that year. In my findings (summarized below), the amount of firms using LIFO are decreasing over the years; however, the amount of the LIFO Reserve is steadily increasing (with the exception of 2002-2003). As prices continue to rise; firms in certain industries (steel and oil and petroleum) continue to benefit from not recognizing the gains in their inventories and from matching current revenues with current prices in the marketplace.

Earnings of Firms Reporting a LIFO Reserve 1997-2007 (in millions)



Firms reporting a LIFO reserve report lower net income than those who use FIFO; lower reported net income results in uncollected taxes (Compustat).

Percent Decrease in Firms using a LIFO Reserve

Year	Aggregate LIFO Reserve	Firms Reporting a LIFO Reserve
2002	42,419.09	513.00
2003	41,124.76	480.00
2004	54,632.94	454.00
2005	71,515.08	424.00
2006	73,977.01	399.00
2007	91,669.42	344.00

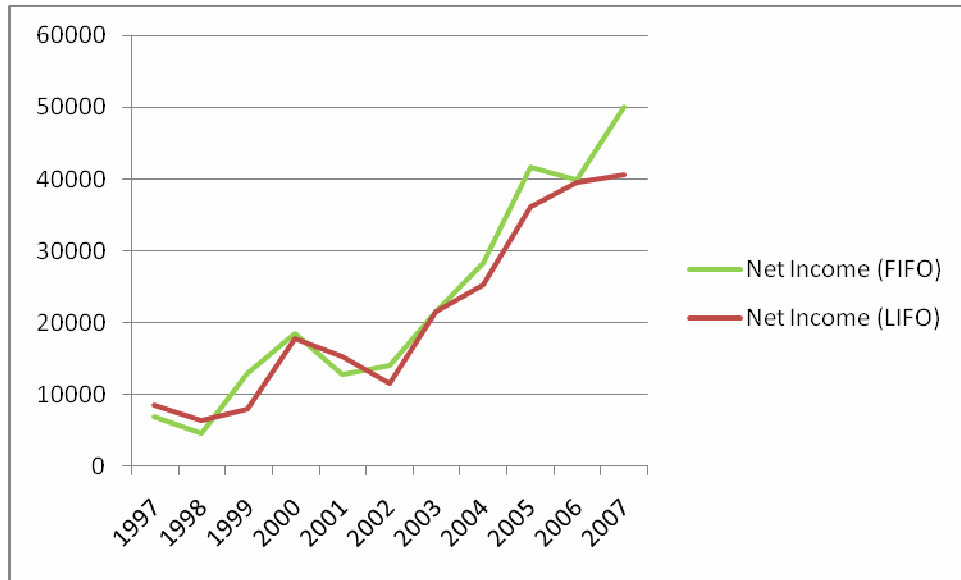
Typically, there has been a trend to move away from the LIFO inventory valuation method, as indicated above. (Compustat).

According to Ayres, the steel and oil and petroleum industries benefit the most from LIFO.²⁶ The graph below reveals the LIFO effect on earnings for AK Steel Holding Corporation and Exxon Mobil. The income for each is significantly higher under the FIFO method in recent years due the recent increases in prices and therefore, these firms have been consistently paying less tax. It has been suggested that these companies are holding inventory on their books at prices from decades ago. By matching current costs with current revenues, these firms can avoid the vast increases in income that should be reflective of the rise in oil and steel prices.²⁷

²⁶ Ayres et al. at p. 5

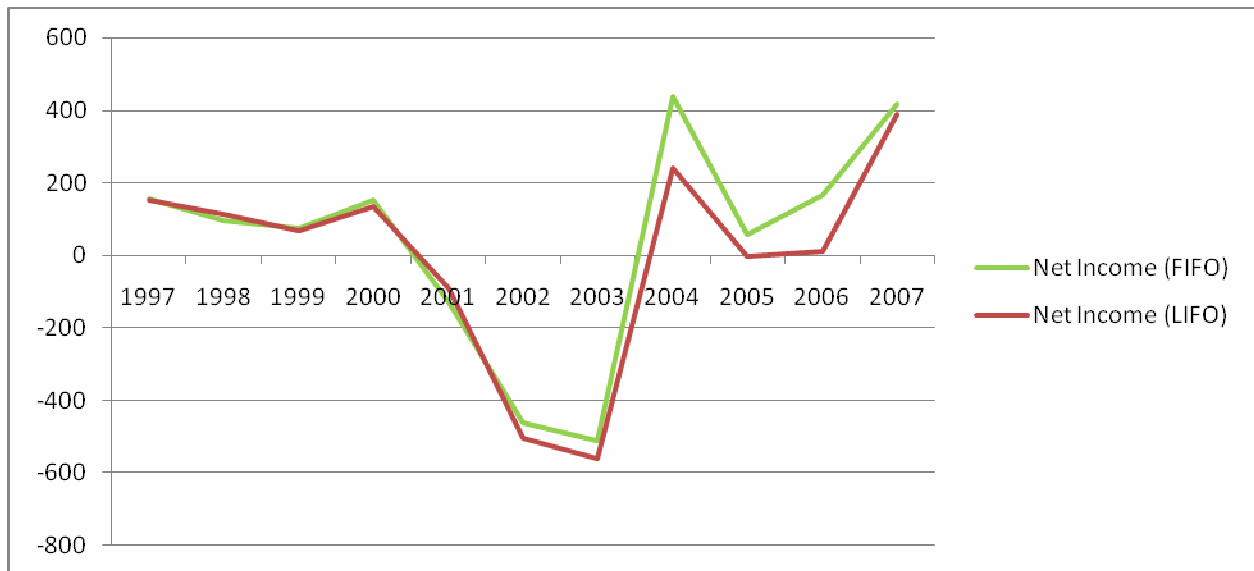
²⁷ Klienbard et al. at p. 243

Exxon Mobil (in millions)



With the recent increases in oil prices, firms such as Exxon Mobil are benefiting from the LIFO method. They match current revenues against current costs, and record barrels of oil at historic prices on their balance sheet (Compustat).

AK Steel (in millions)



AK Steel benefits from increases in steel prices; net income has been generally understated for the past 10 years (Compustat).

As stated previously, proponents of LIFO focus on the income statement as the predominate indicator of a firm's profitability and contest that the LIFO method appropriately matches costs to revenues and thus provides a more accurate income statement than the FIFO method. Thus far, I have analyzed the effect LIFO has on net income, and the amount of uncollected tax in addition to the effect LIFO has on inventories. LIFO users often take a "income statement approach," meaning they find the accuracy of the income statement to be the most important financial indicator of a firm's success. As a result, some suggest that LIFO is a more conservative approach because of this understatement of net income; however, the reality is that it is not conservative because it creates a tax breaks for certain firms. If firms were paying taxes on the correct amount of income over the years, there income statement would reflect this and net income would be reported more accurately. As illustrated by AK Steel and Exxon Mobil, the differences in net income do not become as pronounced until prices start to rise. In this type of high growth environment, firms who have high growth products have the option to pay substantially less tax if they chose to use the LIFO method.

The use of LIFO creates an inferior balance sheet. The balance sheet shows all the assets, liabilities, and owner's equity of a firm. Under LIFO, inventory is significantly understated; all the items in inventory are recorded at older costs. This discrepancy causes an inflated LIFO reserve, and thus a significant increase in the cost of goods sold and a reduction in net income, reflected in the income statement. The adverse effect on the balance sheet and income statement are major reasons to argue for the repeal of the LIFO method. A major push is for more transparent and comparative financial statements.

It would seem logical that due to the tax benefits of using LIFO, more firms would begin to use that inventory valuation method. However, as stated earlier, the overall trend in the marketplace over the years is a declining use of LIFO (only 4% of publicly traded firms use LIFO). There are several reasons for this trend. Some firms may anticipate the adoption of IFRS and make the appropriate changes sooner rather than later in order to ease the transition to LIFO. Also, some firms may chose to switch methods in order to take advantage of the benefits in financial accounting of using FIFO over LIFO (described in an earlier part of the analysis). However, the main reason a firm will switch inventory methods is to get the tax benefit from that

method. Firms receiving a better benefit under LIFO will keep using LIFO, and vice versa (each company is unique).

Future of LIFO

The possibility of a worldwide accounting standard has increased discussions about LIFO and its validity. IFRS supports fair valuation principles and thus does not allow the use of LIFO.²⁸ If the U.S. were to adopt IFRS, LIFO would be banned because, as described earlier, LIFO is not a permissible inventory method.

LIFO faces two major opponents: IFRS and Congress. In recent years, Congress has made attempts to abolish LIFO, especially in the wake of rising oil prices. In 2006, the first proposal was made by Republicans to repeal LIFO and have the “oil companies pay for the energy relief, including \$100 rebate to compensate taxpayers for higher gas prices.”²⁹ This proposal was dropped and new hearings were held. LIFO faced further opposition in 2006, and in 2007 Congressman Charles Rangel proposed the repeal of LIFO to raise approximately \$107 billion over 10 years to help pay for other provisions. In addition, he proposed to cut the corporate tax rate to 30.5%, which would significantly reduce taxes for corporations. He contests that the effective corporate tax rate is currently at 30.5% because there are loopholes, such as LIFO, that allow firms to avoid paying all of their taxes. He suggests that if loopholes such as LIFO were repealed, a tax rate of 30.5% should be adopted.³⁰ During the 2008 election, LIFO remained a topic of discussion. Senator McCain “proposes elimination of corporate welfare, explicitly including LIFO” and Obama “would likely agree with repeal.”³¹

²⁸ Kewalramani, Sunil. "Convergence of IFRS, US GAAP and Indian GAAP and Its Impact on Indian Companies Listing in U.S and American Companies Listing in India." Concept Paper, 2 Nov. 2008. Convergence with IFRSs in India. 21 Nov. 2008 <<http://www.articlesbase.com/accounting-articles/convergence-of-ifs-us-gaap-and-indian-gaap-and-its-impact-on-indian-companies-listing-in-us-and-american-companies-listing-in-india-627587.html>>.

²⁹ Plesko, George, “Does LIFO have a future?” Presentation at the University of Illinois Tax Symposium, October 2008.

³⁰ McIntyre, Bob. "Congressman Rangel's Tax Bill Would Make the Tax Code Simpler & Fairer — and the Changes Are All Paid For." Citizens for Tax Justice 2 Nov. 2007. 21 Nov. 2008 <www.ctj.org/pdf/rangelbill.pdf>.

³¹ Ibid. 29

Repealing LIFO will result in increased government revenue and additional costs for firms, if implemented before the IFRS Standard is adopted. For example, ideally, taxes should be collected from a wide base at lower rates. However, “to be able to collect the revenue from LIFO repeal, Congress must repeal it before firms adopt IFRS. If they wait, the revenue will become part of the base.”³² In order to facilitate the switch away from LIFO, analysts such as Professor Plesko suggest Congress attempt to create a large base (including all income with few deductions) taxed at a relatively low rate. In addition, Plesko and associates propose Congress provide firms with an extended time to pay tax on this uncollected revenue.³³ However, this needs to be done before the IFRS method is adopted because once IFRS is adopted, the unreported revenue will become part of the new base under IFRS and taxed as such thereafter and Congress would not be able to use that revenue to offset other tax charges.

Effects of Repeal

According to supporters of LIFO, the abolishment of LIFO would have a negative impact on the economy. For example, Alan Viard, of the American Enterprise Institute, suggests “that LIFO generally advances economic efficiency by preventing inventory from being taxed more heavily than other types of capital.” The argument rests on the assumption that inventory is an investment, similar to PP&E, and thus should be taxed as such. Viard claims that inventories are taxed at an effective rate similar to that of PP&E, but if FIFO is used (which will likely be the result if IFRS is adopted), inventory will be taxed at a higher effective rate. One solution the author proposes is to abolish the book tax conformity rule. As a result, firms would still be able to use the LIFO method to keep the effective tax rate similar to that of PP&E and firms would have the option of using FIFO for other aspects of financial accounting.³⁴

³² Ibid. 29

³³ Klienbard et al. at p. 252

³⁴ Viard at p. 4

Other concerns firms have over the abolishment of the LIFO method is their ability to pay all of the taxes they owe. Moreover, the increase in inventories could lead to consumer price increases which could have an adverse effect on the business. However, according to Klienbard, et al., LIFO repeal could be successfully implemented with few adverse effects for a number of reasons.

LIFO repeal will only affect a small number of companies. As stated previously, 4% of publicly traded firms report a LIFO reserve, therefore, relatively few firms will have to pay the additional tax. Moreover, Congress will likely work with firms to broaden the base, lower rates, and spread out payments over a reasonable period of time so that the company can find ways to pay without putting a great deal of strain on the immediate business. Also, the balance sheet will not be adversely affected. This is because inventories will be reported at appropriate values (higher values, which will strengthen the balance sheet). In addition, firms will be able to benefit from increases in cash once they adopt FIFO and begin to effectively manage smaller inventories through systems such as the JIT system. This may be expensive for firms; however, LIFO does not provide the same incentive to efficiently manage inventory because the revenues are simply matched against current market prices. The use of a JIT system is needed for firms using FIFO because these firms need to track inventory more closely. The JIT system can lead to reduced costs and a higher turnover ratio. Thus, in the long run, firms can save by implementing FIFO inventory method.

In terms of facing competition in the wake of LIFO repeal, firms who currently use LIFO will not be at a disadvantage when compared to firms who do not use LIFO because “firms using LIFO do not appear to use LIFO costs for pricing or other businesses decisions, implying the ability of a U.S. firm to compete is already independent of the availability of LIFO.”³⁵ Furthermore, multinational firms will not struggle under IFRS because they have grown accustomed to working with IFRS rules abroad. Therefore, firms’ concerns over the abolishment of LIFO should be able to be sufficiently addressed.

³⁵ Ibid. 33

Conclusion

In this paper I have examined the LIFO inventory accounting method and the financial statement effects. The implementation of LIFO came during a period of economic frustration, a rise in big business, and a rise in support from the accounting profession. The fact that LIFO aided firms against the volatile inventory fluctuations during the time of the Great Depression does not make it a proper accounting method.

The use of LIFO results in a significant amount of uncollected tax on profits because of the understatement of net income. Not only is the income statement affected because of the overstatement of the cost of goods sold and the understatement of net income, but the balance sheet is also affected because of the undervalued inventory. The effects to the income statement and balance sheet distort important financial ratios used in comparing firms. As a result, the transparency and comparability of the financial statements and the use of LIFO became a topic of debate. In recent years, proposals have been released that support the repeal of LIFO.

However, there have been legitimate concerns over the abandonment of LIFO. For example, the cost to each firm is a major issue Congress must address. Some feel that these concerns can be easily addressed with aid from Congress and that the abandonment of LIFO is necessary in order to increase comparability of financial statements. Charles Rangel's tax proposal has received a great deal of attention and is a major step in the direction of LIFO repeal. The future of LIFO is still uncertain, but there is a great deal of evidence that suggests LIFO may not continue into the future.

Works Cited

Ayres, Frances L., et al.. A Glimpse at a World without LIFO. N.p.: n.p., n.d.

Edward D. Kleinbard, George A. Plesko, and Corey M. Goodman, "Is It Time to Liquidate LIFO?" *Tax Notes*, Oct. 16, 2006, p. 237, *Doc 200620617, 2006 TNT 20029*

Kansas Structural Steel Company v. Lucas. U.S. Supreme Court. 14 Apr. 1930.

FindLaw. 5 Nov. 2008

<<http://caselaw.lp.findlaw.com/cgi-bin/getcase.pl?court=us&vol=281&invol=264>>.

Katz, David M. "How LIFO Could Stall Global Accounting." CFO 3 Dec. 2007. 4 Nov. 2008 <<http://www.cfo.com/article.cfm/10239047?f=singlepage>>.

Dennis-Escoffier, Shirley. "IRS Issues Guidance on Changes in Accounting Methods." Journal of Corporate Accounting & Finance. Vol. 9. Wiley Periodicals, Inc., 2006. 105-112. Wiley InterScience®. June 2008. 3 Dec. 2008

<<http://www3.interscience.wiley.com/journal/113441387/abstract?CRETRY=1&SRETRY=0>>.

Kewalramani, Sunil. "Convergence of Ifrs, US Gaap and Indian Gaap and Its Impact on Indian Companies Listing in U.s and American Companies Listing in India." Concept Paper, 2 Nov. 2008. Convergence with IFRSs in India. 21 Nov. 2008

<<http://www.articlesbase.com/accounting-articles/convergence-of-ifrs-us-gaap-and-indian-gaap-and-its-impact-on-indian-companies-listing-in-us-and-american-companies-listing-in-india-627587.html>>.

Lessard, Stephen Charles, Giving Life to LIFO: Adoption of the LIFO Method of Inventory Valuation by the Income Tax Code. *Tax Lawyer*, Vol. 60, No. 3, 2007 Available at SSRN: <http://ssrn.com/abstract=1048521>

McIntyre, Bob. "Congressman Rangel's Tax Bill Would Make the Tax Code Simpler & Fairer — and the Changes Are All Paid For." Citizens for Tax Justice 2 Nov. 2007. 21 Nov. 2008

< www.ctj.org/pdf/rangelbill.pdf >.

Miller, Paul B W, and Paul R Bahnson. "Fortress LIFO is crumbling: It's about time." Accounting Today. New York: Jan 28-Feb 10, 2008. Vol. 22, Iss. 2; pg. 13, 2 pgs. 11 Oct. 2008

< <http://www.webcpa.com/article.cfm?articleid=26594>>.

Plesko, George. Committee on Finance, United States Senate. 13 June 2006. 21 Nov. 2008 <www.nam.org/~media/Files/s_nam/docs/237100/237063.pdf.ashx>.

Plesko, George, "Does LIFO have a future?" Presentation at the University of Illinois Tax Symposium, October 2008.

Viard, Alan D. "Why LIFO Repeal Is Not the Way to Go." Tax Analysts 6 Nov. 2006. 5 Nov. 2008 <<http://www.google.com>>. "Why repeal LIFO".