

THE PENNSYLVANIA STATE UNIVERSITY  
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IFRS PROHIBITION OF LIFO IN THE UNITED STATES:  
THE FINANCIAL STATEMENT AND TAX IMPLICATIONS

BRIAN ROBERT MINK

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Reviewed and approved\* by the following:

Orie Barron  
Professor of Accounting  
Thesis Supervisor

Orie Barron  
Professor of Accounting  
Honors Adviser

Amy Sun  
Assistant Professor of Accounting  
Faculty Reader

\*Signatures are on file in the Schreyer Honors College.

## **Abstract**

This study investigates the financial and tax implications of the change from U.S. GAAP to IFRS as it relates to LIFO inventory accounting. I examined the impact that the elimination of LIFO would have on generic financial statements, using the income statement and balance sheet of Commercial Metals Co. for the year ended August 31, 2008 as a model. To illustrate the tax effects, I selectively sampled 40 publicly traded U.S. companies that LIFO elimination would likely have the largest impact on due to the size of their LIFO reserve in relation to assets. My primary objective was to estimate the total increase in tax liability of U.S. public companies.

In the scenario of all public companies adopting IFRS and eliminating LIFO in 2008, there is a \$23 billion increase in taxes owed. This 29% increase results from significantly higher pretax income under non-LIFO inventory methods. Companies report higher earnings and greater liquidity under alternative inventory accounting methods, but incur a higher tax liability and expense.

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## **Introduction**

The purpose of this study is to examine the financial statement and tax effects of the elimination of LIFO as an acceptable accounting practice under IFRS. Based on the material LIFO reserves that many U.S. firms report in order to avoid significant tax payments, I expect a shift from LIFO to result in a large transfer of tax revenue to the government. While it is difficult to estimate the total dollar impact prior to data analysis, I anticipate the potential outcome of LIFO elimination to warrant resistance from companies using LIFO, as well as strong consideration for the amendment of certain tax regulations. In this thesis, I essentially conduct two studies:

1. The impact that a switch from LIFO to FIFO has on relevant accounts listed on the income statement and balance sheet.
2. The total tax effect that a switch from LIFO to FIFO would have on 40 U.S. public companies with the highest LIFO reserve as a percentage of total assets.

Furthermore, I calculate the total U.S. tax increase resulting from the scenario of all public companies adopting IFRS and eliminating LIFO in 2008.

The income statement and balance sheet analyses were conducted using Commercial Metals Company's (CMC) August 31, 2008 financial statements as vehicles for illustration. The results were as expected: a switch from LIFO to FIFO necessitates a restatement that increases inventory on the balance sheet by the entire LIFO reserve and taxable income on the income statement by the change in LIFO reserve during the year. Since income statements tend to include materially lower monetary amounts than balance sheets, LIFO elimination has a much more significant impact on the income statement. CMC experienced marginal increases to its

balance sheet accounts (assets 11.8%, liabilities 6.3%, shareholders' equity 22.3%) compared to its income statement accounts (income tax expense 108.4%, net income 90.6%), which makes it clear that firms elect to use the LIFO valuation method for considerable tax benefits.

In order to assess the less-predictable monetary impact of LIFO elimination on sampled firms and the resulting total tax increase in the U.S., I examined financial statement data queried from the COMPUSTAT North America database. The total LIFO reserve reported by public companies in the U.S. is valued at \$66 billion. While a large portion (59%) of the LIFO reserve is concentrated in 15 companies, the 40 firms I sampled would experience the largest tax expense increase in relation to their total assets, placing them in a tougher financial position than those firms with simply the largest tax increase.

The 40 firms realized an average increase in their current ratio by 22.39% and earnings per share by 13.27%, but the average increase of 11.30% in taxes due is cause for concern. Improved financial ratios do not remedy a sudden tax expense hike for many of these companies during times where finances are already tight. As for the bigger picture, I found that taxes owed to the IRS would increase by nearly \$23 billion as a result of LIFO elimination, which is a positive injection of revenue for the government, but may add to the struggle and pressure placed on LIFO-users.

We have yet to see the reactions from firms currently using LIFO, as IFRS adoption is only in the beginning stages. Before we can accept IFRS as the proper direction for U.S. accounting policy, it is imperative that everyone – companies, government, and third parties – understand the implications that such a monumental change will have on financial and tax reporting practices.

## Preamble

Public companies in the United States are preparing to shift their accounting practices from U.S. Generally Accepted Accounting Principles (GAAP) to International Financial Reporting Standards (IFRS). In November of 2008, the Securities and Exchange Commission (SEC) proposed a roadmap for IFRS adoption that could lead to its required use by 2014 for all U.S. issuers of securities.<sup>1</sup> The objective to adopt IFRS in the U.S. spawned out of the Norwalk Agreement, which was a “Memorandum of Understanding” that was signed in September 2002 between the Financial Accounting Standards Board (FASB), the U.S. standard setter, and the International Accounting Standards Board (IASB). According to the agreement, both parties “acknowledged their commitment to the development of high-quality, compatible accounting standards that could be used for both domestic and cross-border financial reporting.”<sup>2</sup>

Essentially, representatives of the U.S. and foreign countries wanted to create a singular, common accounting language that would further encourage and enhance global commerce.

The globalization of business is a driving force in the U.S. adoption of IFRS. United States market capitalization made up 45% of world market cap in 2004. By 2008, that percentage shrunk to 30% and is still declining.<sup>3</sup> As investors continue to seek out foreign markets for new business opportunities, unifying financial reporting standards is crucial for overall transparency and investor protection.

While the prospect of U.S. companies adopting a new accounting standard to unify financial reporting throughout the world seems ideal, many companies are faced with complicated challenges that may delay their conversion to IFRS. Differences between the

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<sup>1</sup> Walter, Elisse B. “Roadmap for the Potential Use of Financial Statements Prepared in Accordance with International Financial Reporting Standards from U.S. Issuers.” *Securities and Exchange Commission* (2008): 33. Web. 23 Jan. 2010.

<sup>2</sup> “The Norwalk Agreement.” Financial Accounting Standards Board. 29 Oct. 2002. Web. 25 Jan. 2010.

<sup>3</sup> *Shrinking U.S.A.*. Bespoke Investment Group, June 2002. Web. 27 Jan. 2010.

reporting standards will change company accounting practices, reporting methods, and subsequently, will actually change the financial statements themselves.

One of the greatest differences between IFRS and U.S. GAAP is the accounting treatment for inventories. International Accounting Standard 2 (IAS 2) prohibits the Last-In, First-Out (LIFO) inventory method, which will force several companies to switch how they account for inventories.<sup>4</sup>

### **LIFO Method of Inventory Accounting**

The LIFO method is one of three ways under U.S. GAAP to account for inventory and the continuous, repetitive cycle of operations in which goods are acquired, created, and sold (330 10 05). As with all types of inventory accounting methods, LIFO operates under a cost flow assumption, which is used for financial reporting and tax purposes only and does not reflect the actual movement of goods.

As its name implies, the Last-In, First-Out method is used by companies that operate under the assumption that the goods being sold are the ones most recently acquired. Under LIFO, goods in inventory at the beginning of the period are assumed to remain in ending inventory. Accordingly, beginning period inventory may remain in ending inventory for decades. In a period of rising prices and inflation, the inventory that is sold is always the most expensive under LIFO. Therefore, the LIFO method understates inventory values, increases cost of goods sold (COGS), and lowers net income.

Compared to the First-In, First-Out (FIFO) and weighted average cost inventory accounting methods, the use of LIFO results in the lowest net income. Many companies find this method favorable, since reporting a lower net income decreases tax liability and permits

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<sup>4</sup> *IAS Plus, IAS 2: Inventories*. Deloitte, 2010. Web. 30 Jan. 2010.

companies to postpone paying taxes. As a result, companies improve their cash flow by saving money on income taxes.

## **Financial Statement Impact – LIFO**

### *Income Statement*

Company administrators who have elected to use the LIFO approach generally believe that costs will either remain stable or increase.<sup>5</sup> In a rising -price environment LIFO will create a lower gross profit, which results from markedly higher COGS. The lower gross profit generates lower pre-tax earnings and lower income tax.

Companies that use LIFO generally have costs that increase yearly and a large amount of inventory. Along with the associated tax benefits, companies also argue that LIFO reflects more conservative profits and more accurately matches current costs with current revenues. Below is an excerpt from the 2008 Imperial Oil Limited 10-K that illustrates this point:

“The cost of crude oil and products is determined primarily using the last-in, first-out (LIFO) method. LIFO was selected over the alternative first-in, first-out and average cost methods because it provides a better matching of current costs with the revenues generated in the period.”<sup>6</sup>

LIFO is also considered to have a smoothing effect on income, since it essentially eliminates inflationary profits from net income.<sup>7</sup>

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<sup>5</sup> Gibson, Scott C. “LIFO vs. FIFO: A Return to Basics.” *The RMA Journal* (2002): 1. Web. 29 Jan. 2010.

<sup>6</sup> Securities and Exchange Commission. “Imperial Oil Limited.” *Form 10-K Annual Report* (2008): F-7. Web. 1 Feb. 2010

<sup>7</sup> Mulford, Charles W., and Eugene E. Comiskey. “The Potential Consequences of the Elimination of LIFO as a Part of IFRS Convergence.” *Georgia Tech Financial Analysis Lab* (2008): 5. Web. 19 Jan. 2010.



### *Balance Sheet and Statement of Cash Flows*

LIFO-users appear to be less liquid than companies that use other valuation methods because the inventory on the books is valued at the original (lower) price at which it was purchased. As explained previously, ending inventory does not reflect current prices. Therefore, these businesses have a lower current ratio.

Unlike the perceived negative hit that the income statement and balance sheet take, operating cash flows are improved, caused by a significantly lower tax bill.

### **LIFO Reserve**

Those that have elected to externally report inventory using the LIFO method usually maintain the FIFO or average cost method for internal reporting purposes because both are more practical for valuing physical product flow. Companies that do so are required by the SEC to disclose the LIFO reserve in the notes of the consolidated financial statements.<sup>8</sup>

As defined in the textbook *Intermediate Accounting, Twelfth Edition*, “The difference between the inventory method used for internal reporting purposes and LIFO is the LIFO reserve.”<sup>9</sup> Publicly traded companies that employ the LIFO method disclose this figure in the notes to the financial statements of SEC filings. Below is an example of a note in Exxon Mobile’s 10-K:

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<sup>8</sup> “Regulation S-X, Rule 5-02: Balance Sheets.” *Securities Act of 1933 General Rules and Regulations*. Merrill Lynch, 2010. Web. 3 Feb. 2010.

<sup>9</sup> Kieso, Donald E., Jerry J. Weygandt, and Terry D. Warfield. *Intermediate Accounting*. 12th ed. NJ: John Wiley & Sons, Inc., 2008. 385. Print.

“The aggregate replacement cost of inventories was estimated to exceed their LIFO carrying values by \$10.0 billion and \$25.4 billion at December 31, 2008, and 2007, respectively.”<sup>10</sup>

The \$10.0 billion figure disclosed in the example is Exxon Mobile’s LIFO reserve as of December 31, 2008. Consequently, Exxon has avoided paying taxes over the years on \$10.0 billion worth of inventory.

### **Tax Conformity Rule**

The tax conformity rule is a key component in why the disallowance of LIFO inventory accounting under IFRS will have such a monumental tax impact on companies that use LIFO. The United States Internal Revenue Service (IRS) requires companies that use LIFO for financial reporting purposes to report identical LIFO inventories for tax reporting purposes. This is known as the tax conformity rule, which was enacted to restrict companies from paying less tax under LIFO and reaping the benefits of externally reporting a higher net income under FIFO or average cost method.<sup>11</sup>

If IFRS is adopted by the United States in the coming years, companies that currently use LIFO will be required to change their inventory valuation methods for financial reporting. Then, as the tax conformity rule dictates, companies will need to adjust their taxable income accordingly to match their inventories that were reported to the public.

The following sections will examine the financial statement impact of a change from GAAP to IFRS reporting standards as it relates to the elimination of the LIFO method, including

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<sup>10</sup> Securities and Exchange Commission. “Exxon Mobile Corporation.” *Form 10-K Annual Report* (2008): 64. Web. 6 Feb. 2010.

<sup>11</sup> The LIFO conformity rule is stipulated under IRS Reg. § 1.472-2. *Treasury Regulations, Subchapter A, Sec. 1.472-2*. Tax Almanac, 9 Mar. 1981. Web. 8 Feb. 2010.

the income statement, balance sheet and statement of cash flows. This will be followed by an analysis of the total tax impact in the United States on companies that will be forced to change from LIFO to FIFO.

### **Restating Inventories**

According to the Financial Accounting Standards Board (FASB) Accounting Standards Codification, changes in inventory valuation methods must be adjusted retrospectively, unless retrospective application is deemed impractical.<sup>12</sup> This rule is also stipulated in SFAS No. 154 and IAS No. 8.<sup>13</sup> The FASB Codification defines retrospective application as, “The application of a different accounting principle to the statement of financial position at the beginning of the current period, as if that principle had always been used.”<sup>14</sup> Therefore, companies will be required to adjust their beginning inventory upward in the year of IFRS adoption, since the accumulation of prior years’ costs under an alternative inventory method exceed LIFO.

The SEC requirement for companies to continually calculate and report a LIFO reserve aids in the efficiency of restating inventories. For example, if company ABC reported a LIFO reserve that reflected the difference between their inventory value under LIFO and FIFO, the company could generally add their LIFO reserve figure to beginning period inventory in order to determine the new inventory value under FIFO. Below is an illustrative example of the valuation difference between Sherwin-Williams’ 2008 LIFO and FIFO inventory:

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<sup>12</sup> For further information regarding retrospective application rules, see “Accounting Changes and Error Corrections 250-10-50.” *FASB Accounting Standards Codification*. American Accounting Association, Web. 7 Feb. 2010.

<sup>13</sup> Mulford, Charles W., and Eugene E. Comiskey. “The Potential Consequences of the Elimination of LIFO as a Part of IFRS Convergence.” *Georgia Tech Financial Analysis Lab* (2008): 11. Web. 19 Jan. 2010.

<sup>14</sup> “Glossary 250-10-50.” *FASB Accounting Standards Codification*. American Accounting Association, Web. 7 Feb. 2010.

### **Sherwin-Williams 2008 Inventory Valuation Difference (in thousands)<sup>15</sup>**

LIFO inventory	864,200
Plus LIFO reserve	3,231,000
<hr/>	<hr/>
FIFO Inventory	4,095,200

The company's inventory value nearly quadruples when restated retrospectively from LIFO to FIFO. This major, sudden increase in reported inventory will force companies to make up vast amounts of tax payments that they avoided by using LIFO, creating a massive transfer of wealth to the United States government.

### **Accounting Treatment for Restating Inventories**

Unlike the retrospective treatment of a change in inventory methods for financial reporting purposes, the Internal Revenue Code (IRC) requires the cumulative effects of inventory method changes to be treated prospectively for taxation purposes.<sup>16</sup> There are two possible tax accounting treatments for a valuation method change:<sup>17</sup>

1. Record all of the income tax payable in the year the adjustment is made. This treatment applies to companies that must make a change initiated by the IRS as part of an examination.
2. Record the income tax payable as a deferred liability to be paid over four years, beginning with the year of change. This treatment applies to changes initiated by the taxpayer.

The second possible treatment will ordinarily be applied by entities switching from LIFO to other inventory valuation methods. Therefore, it will be assumed throughout this analysis that

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<sup>15</sup> *Compustat North America*. Wharton Research Data Services, *COMPUSTAT*. Web. 13 Jan. 2010.

<sup>16</sup> Bloom, Robert, and William J. Censer. "The Death of LIFO?" *Journal of Accountancy* (2009). Web. 20 Jan. 2010

<sup>17</sup> Grimes, Scott E., Vectors Sanchez, and Marilyn K. Wiggam. "Accounting Method Changes." *Journal of Accountancy* (1998). Web. 10 Feb. 2010.

companies will defer the resulting tax liability over four years. Below is a simple example of the journal entry made during the first year of a change in inventory methods:

Dr.	Inventory	
	Cr.	Income Tax Payable
	Cr.	Deferred Tax Liability
	Cr.	Retained Earnings

In this case, all of the accounts are increasing in value. To illustrate an inventory method change, assume XYZ Co. switches from LIFO to FIFO as of January 1, 2010. The LIFO reserve is \$3 million and XYZ is taxed at 30%. XYZ will spread the adjustment over four years. The journal entry in year one is as follows:

Dr.	Inventory	3,000,000	
	Cr.	Income Tax Payable	225,000 (3 million x 30% x 1/4)
	Cr.	Deferred Tax Liability	675,000 (3 million x 30% x 3/4)
	Cr.	Retained Earnings	2,100,000

Instead of being required to record all of the payable taxes in the year of adjustment, XYZ can spread the income tax liability over four years, which lessens the blow of the accounting change to the company's financials. Each year, a quarter of the deferred tax liability will be reversed into income tax payable (current liability):

Dr.	Deferred Tax Liability	225,000
	Cr.	Income Tax Payable 225,000

When switching from LIFO to FIFO, the balance sheet measure of inventory is always higher under FIFO by the total balance in the LIFO reserve. Cost of sales will not necessarily be decreased by the entire LIFO reserve, though. In order to calculate Cost of sales under FIFO, the following equation is applied:<sup>18</sup>

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<sup>18</sup> *CFA Level 1 - Converting LIFO to FIFO*. Investopedia, Web. 13 Feb. 2010.

$$\text{FIFO COGS} = \text{LIFO COGS} - (\text{ending LIFO reserve balance} - \text{beginning LIFO reserve balance})$$

The entire LIFO reserve will eventually be decreased in Cost of sales when it is all sold, but that may not happen in the year when the inventory costing method is changed. In this case, pretax income will only be increased by the difference between ending period LIFO reserve and beginning period LIFO reserve in year one of the change. In the future reporting years, when the rest of the LIFO reserve is sold, income tax expense and net income will experience the remainder of the financial statement impact (greater under FIFO than it would have been under LIFO).

### **LIFO Liquidation**

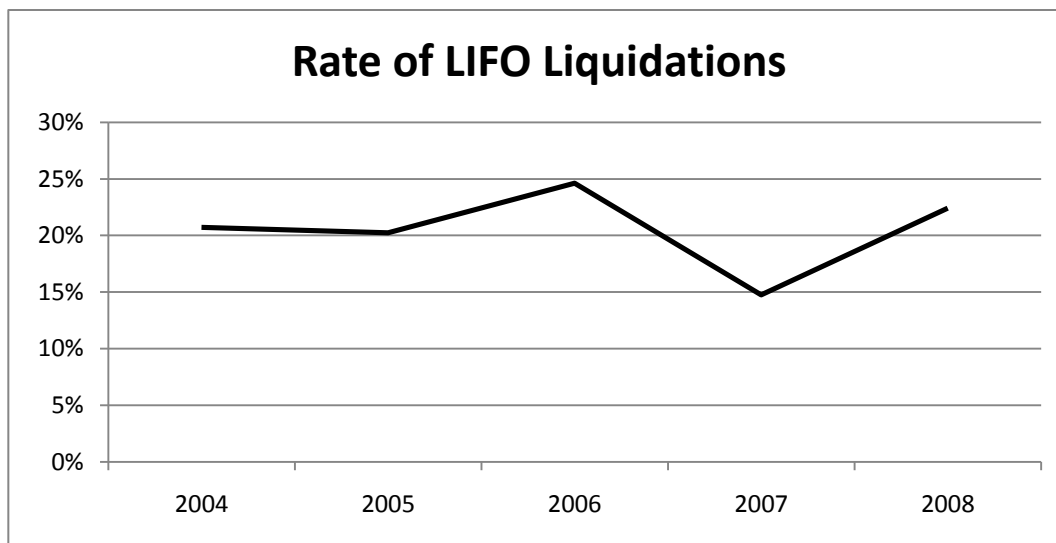
As previously stated, COGS traditionally decreases as a result of restatement from LIFO to FIFO. If we isolate the end of the equation applied to the restatement of COGS, we can see that LIFO COGS is decreased by (ending LIFO reserve balance – beginning LIFO reserve balance). As companies normally build up their LIFO reserve every year, ending LIFO reserve is usually greater than beginning LIFO reserve, which results in a decrease to COGS under FIFO.

However, when the beginning LIFO reserve exceeds the ending LIFO reserve balance, COGS would actually increase when applied to FIFO. In this situation, the LIFO reserve balance decreased during the year, which is called LIFO liquidation. LIFO liquidation occurs when there is a decline in inventory quantities, which might result because a company sold more goods than it purchased. Some firms use LIFO liquidation as a means of artificially increasing earnings because profits are inflated when LIFO (at a lower cost) replaces FIFO in COGS.

It is important for users of financial statements to recognize increases in net income that directly result from LIFO liquidations. To ensure transparency on this matter, the SEC requires companies to include the effect of LIFO liquidations in their disclosures.<sup>19</sup> Below is an example of such a disclosure in DOW Chemical Company's 2008 10-K:

“A reduction of certain inventories resulted in the liquidation of some of the Company's LIFO inventory layers, increasing pretax income \$321 million in 2007 and \$97 million in 2006.”<sup>20</sup>

Dr. Charles Mulford, author of “The Potential Consequences of the Elimination of LIFO as a Part of IFRS Convergence,” predicted that “with the sharp downturn in business in the later part of 2008, there may be increased reductions in inventory quantities and more LIFO liquidations.”<sup>21</sup> In order to assess this potential trend, I examined the rate of LIFO liquidations over the past five years:



<sup>19</sup> “Staff Accounting Bulletin No. 40.” *Securities and Exchange Commission* 46.FR.11513 (1981). Web. 17 Feb. 2010.

<sup>20</sup> Securities and Exchange Commission. “DOW Chemical Company.” *Form 10-K Annual Report* (2008): 83. Web. 1 Feb. 2010

<sup>21</sup> Mulford, Charles W., and Eugene E. Comiskey. “The Potential Consequences of the Elimination of LIFO as a Part of IFRS Convergence.” *Georgia Tech Financial Analysis Lab* (2008): 11. Web. 19 Jan. 2010.

As depicted in the chart, LIFO liquidations hit a five year low in 2007, but increased from 15% to nearly 23% in 2008. There will likely be an even larger increase in the percentage of LIFO-users liquidating LIFO reserves in 2009 due to the struggling economy and the coming adoption of IFRS.

When considering the financial statement impact of switching from LIFO to FIFO, firms that liquidated LIFO reserves in the year of FIFO adoption would actually experience a decrease to net income.

### **Financial Statement Impact – Restating Inventories**

As public companies begin to adjust their accounting methods for compliance with IFRS by 2014, the restatement of LIFO inventories will alter the public SEC filings of companies reporting their financial position, results of operations, and cash flows. These changes will impact the information that users of financial statements draw on to make decisions.

In order to assist with the study of the financial statement impact of the inventory adjustments under IFRS, we will examine the possible changes to the income statement and balance sheet of Commercial Metals Co. (CMC) for the period ended August 31, 2008.<sup>22</sup>

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<sup>22</sup>“Commercial Metals Co.” *Market Watch*. The Wall Street Journal, 2009. Web. 25 Jan. 2010.



## Exhibit 1

<b>Commercial Metals Company</b>				
<b>Reconciliation of Income Statement at August 31, 2008<sup>23</sup></b>				
(in thousands of \$)	Note	US GAAP (LIFO)	Effect of LIFO elimination	IFRS (FIFO)
<b>Operating Revenue</b>		10,427,378	-	10,427,378
Cost of Sales	(a)	9,325,724	(321,800)	9,003,924
<b>Gross Operating Profit</b>		1,101,654	321,800	1,423,454
<b>Operating Expenses</b>				
Research and Development		-	-	-
Selling General and Administrative		707,786	-	707,786
Non Recurring		-	-	-
<b>Operating Income or Loss</b>		393,868	321,800	715,668
Earnings before Interest and Taxes		393,868	321,800	715,668
Interest Expense		58,263	-	58,263
<b>Income before Tax</b>		335,605	321,800	657,405
Income Tax Expense	(b)	231,181	112,630	216,516
Minority Interest		(538)	-	(583)
Net Income from Continuing Ops		231,181	210,241	441,427
Discontinued Operations		785	-	785
<b>Net Income</b>	(c)	231,996	210,246	442,212

<sup>23</sup> The visual representations of the financial statement comparisons between US GAAP and IFRS are modeled after a PricewaterhouseCoopers study entitled, "Preparing Your First IFRS Financial Statements."

## Exhibit 2

<b>Commercial Metals Company</b>				
<b>Reconciliation of Balance Sheet at August 31, 2008</b>				
(in thousands of \$)	Note	US GAAP (LIFO)	Effect of LIFO elimination	IFRS (FIFO)
<b>Assets</b>				
Current Assets				
Cash and Cash Equivalents		219,026	-	219,026
Short Term Investments		-	-	-
Net Receivables		1,369,453	-	1,369,453
Inventory	(d)	1,400,332	562,300	1,962,632
Other Current Assets		228,632	-	228,632
<b>Total Current Assets</b>		<b>3,217,443</b>	<b>562,300</b>	<b>3,779,743</b>
Long Term Investments		-	-	-
Property Plant and Equipment		1,154,322	-	1,154,322
Goodwill		84,837	-	84,837
Intangible Assets		72,649	-	72,649
Accumulated Amortization		-	-	-
Other Assets		217,120	-	217,120
Deferred Long Term Asset Charges		-	-	-
<b>Total Assets</b>		<b>4,746,371</b>	<b>562,300</b>	<b>5,308,671</b>
<b>Liabilities</b>				
Current Liabilities				
Accounts Payable		1,031,269	-	1,031,269
Notes Payable		31,305	-	31,305
Current Deferred Income Taxes	(e)	156	49,201	49,357
Accrued Liabilities		563,424	-	563,424
Short Term Debt		-	-	-
Current Maturities of Long Term Debt		106,327	-	106,327
<b>Total Current Liabilities</b>		<b>1,732,481</b>	<b>49,201</b>	<b>1,781,682</b>
Long Term Debt		1,197,533	-	1,197,533
Other Liabilities		31,171	-	31,171
Deferred Income Taxes	(f)	143,160	147,604	290,746
Minority Interest		3,643	-	3,643
Negative Goodwill		-	-	-
<b>Total Liabilities</b>		<b>3,107,988</b>	<b>196,805</b>	<b>3,304,793</b>
<b>Stockholders' Equity</b>				
Common Stock		1,290	-	1,290
Retained Earnings	(g)	1,471,542	365,495	1,837,037
Treasury Stock		(319,143)	-	(319,143)
Capital Surplus		371,913	-	371,913
Other Stockholder Equity		112,781	-	112,781
<b>Total Stockholders' Equity</b>		<b>1,638,383</b>	<b>365,495</b>	<b>2,003,878</b>
<b>Total Liabilities and Stockholders' Equity</b>		<b>4,746,371</b>	<b>562,300</b>	<b>5,308,671</b>

## Explanation of the Effect of LIFO Elimination

Commercial Metals Co. reported on its August 31, 2008 SEC Annual Report a LIFO reserve of \$562.3 million. The reconciled financial statements are based on the assumption that CMC transitioned to IFRS on August 31, 2008. The financial statement reconciliations and subsequent explanations are in accordance with IFRS 1, *First-time Adoption of IFRSs*, but are only meant to represent the changes caused by IFRS adoption from LIFO to FIFO.<sup>24</sup>

Below are the journal entries that CMC would use to switch from LIFO to FIFO in 2008:

Dr.	Inventory	562,300,000	
	Cr.	Current Deferred Income Taxes	49,201,000
	Cr.	Deferred Income Taxes	147,604,000
	Cr.	Retained Earnings	365,495,000

The following section explains the material adjustments to the CMC income statement and balance sheet.

### (a) Cost of Sales

A switch from US GAAP (LIFO) to IFRS (FIFO) results in a decrease in cost of sales because it is assumed that the first goods purchased are the first sold. In a period of rising prices, the first goods purchased are cheaper than those recently purchased. In this case, cost of sales is decreased by only \$321.8 million of the LIFO reserve, which is the difference between CMC's 2008 LIFO reserve of 562.3 million and 2007 LIFO reserve of 240.5 million. The decrease to COGS results in a higher gross profit and pretax income. The latter is used to compute the company's income taxes to be paid to the IRS.

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<sup>24</sup> *IAS Plus, IFRS 1: First-Time Adoption of International Financial Reporting Standards*. Deloitte, 2010. Web. 30 Jan. 2010.

*(b) Income Tax Expense*

In 2008, CMC's effective tax rate was 30.9%. The increased taxable income under IFRS is multiplied by 35%, the statutory rate, which increases the company's 2008 tax expense by \$112.6 million; more than double the tax expense under LIFO.

*(c) Net Income*

In the year of change to IFRS, CMC reports a much larger net income. While the company will be required to pay more taxes, it will boast a net income that is \$201.2 million greater than under US GAAP. Therefore, switching from LIFO to FIFO appears to be positive for financial reporting purposes, but detrimental for tax reporting purposes.

*(d) Inventory*

In order to restate CMC's 2008 inventory, the entire LIFO reserve will be added back to the inventory account. The FIFO valuation method reflects a higher ending inventory because cost of sales was lower compared to LIFO. The increase in total assets as a result of IFRS inventory differences was \$562.3 million.

*(e) Current Deferred Income Taxes*

The increase to the current deferred income taxes account is based on the higher income tax expense that is incurred using FIFO. In compliance with IRC § 481 (a) rules, CMC will defer income taxes on the accounting method switch over a four year period, beginning in the year of change. The current deferred income taxes liability is a tax payable account, and the

\$49.2 million increase to this account is due to the deferred tax liability in year one (the year of change from US GAAP to IFRS), which is a quarter of the incurred tax expense.

*(f) Deferred Income Taxes*

The increase to the deferred income taxes account reflects the three years of tax liability deferred under IRC rule. The \$147.6 million of deferred, long-term taxes will be reversed evenly over three years into current deferred income taxes. The total increase in short-term and long-term deferred income tax accounts raises total liabilities by \$196.8 million. As referenced previously, the income tax expense on the income statement increased by only \$112.6 million. The remaining \$84.2 million of tax expense that was incurred as a liability will eventually be reflected on the income statement in a future period when CMC sells the rest of the LIFO reserve and accounts for it in COGS.

*(g) Retained Earnings*

The adjustment to the retained earnings account is the difference between the inventory adjustment and the total tax liability. The positive adjustment increases total stockholders' equity.

**Interpretation of CMC Example**

CMC would be required to retrospectively apply the inventory changes to prior period financial statements for comparative purposes. This illustration only reflects the account adjustments in the year of IFRS adoption.

The switch from LIFO to FIFO had the largest impact on CMC's income statement. While the company posted a much higher net income under FIFO, it doubled its income tax expense as displayed in Exhibit 3 below.

**Exhibit 3**

<b>Commercial Metals Company</b>				
<b>Inventory method change from IFRS conversion</b>				
<b>Summary of materially adjusted accounts</b>				
Account	US GAAP (LIFO)	IFRS (FIFO)	Adjustment	Percent Change Increase/(Decrease)
Cost of Sales	9,325,724	9,003,924	(321,800)	(3.5%)
Income Tax Expense	103,886	216,516	112,630	108.4%
Net Income	231,996	441,427	210,246	90.6%
Inventory	1,400,332	1,962,632	562,300	40.2%
Total Assets	4,746,371	5,308,671	562,300	11.8%
Total Liabilities	3,107,988	3,304,793	196,805	6.3%
Total Stockholders' Equity	1,638,383	2,003,878	365,495	22.3%

The increased net income under FIFO would also be reported on the company's tax returns due to the tax conformity rule. CMC appears to be a financially healthy organization, but the sudden increase in owed taxes is significant.

The United States adoption of IFRS and the elimination of LIFO as an acceptable inventory valuation method will lead to a noteworthy increase in tax payments to the IRS. The following section examines the implications of a change from GAAP to IFRS as it relates to LIFO inventory accounting.

## Financial and Tax Impact of LIFO Elimination on Sample Firms

I sampled 40 U.S. public firms registered with the SEC. The selection was based on the firms that reported the highest LIFO reserve as a percentage of total assets in 2008.<sup>25</sup> This percentage determines those entities that LIFO elimination will likely have the largest impact on, due to the size of their LIFO reserve in relation to assets. The data was retrieved from COMPUSTAT North America.

My research in the COMPUSTAT database indicates that 337 U.S. public companies reported a LIFO Reserve in 2008. Of those companies, 38% operate in either the consumer staples or consumer cyclical sector, while roughly 30% are in the capital goods industry (mostly manufacturing and machinery). While firms in these industries comprise a large portion of all LIFO-users, they do not account for the most significant amount of LIFO reserves. Companies in the energy (oil) industry reported 42% of all LIFO reserves, followed by the basic materials sector, which accounted for 19% of LIFO reserves. The LIFO-users in the basic materials sector were mainly from the chemicals and iron/steel industry.

Prior to looking at firms with the largest LIFO reserves and possible tax bill, we will analyze companies that will be individually impacted the greatest due to a hypothetical change from LIFO to FIFO. Please refer to Exhibit 4 for a comprehensive list of the sampled firms. The table displays each company's 2008 LIFO reserve to total assets percentage and the increased tax expense that each firm would incur if it switched from LIFO to FIFO in that year.

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<sup>25</sup> Sampling methodology is based on Georgia Tech Financial Analysis Lab. Exhibit 5. Mulford, Charles W., and Eugene E. Comiskey. "The Potential Consequences of the Elimination of LIFO as a Part of IFRS Convergence." *Georgia Tech Financial Analysis Lab* (2008): 13-14. Web. 19 Jan. 2010.

**Exhibit 4: LIFO Reserve and Tax Increase Relationships to Total Assets**  
**(All \$ amounts in millions)**

Company	2008 LIFO Reserve	2008 Total Assets	2008 LIFO Reserve % Total Assets	Tax Expense Increase due to FIFO	Tax Increase % Total Assets
AEP Industries Inc.	\$32	\$391	8%	\$11	3%
AK Steel Holding Corp.	822	4,682	18%	288	6%
Applied Industrial Tech Inc.	150	799	19%	53	7%
Brush Engineered Materials	75	582	13%	26	5%
Burnham Holdings Inc.	19	155	12%	6	4%
Carpenter Technology Corp.	448	1,712	26%	157	9%
Castle (A.M.) & Co.	134	679	20%	45	7%
Central Steel & Wire Co.	167	266	63%	59	22%
CHS Inc.	692	8,772	8%	242	3%
Commercial Metals	562	4,746	12%	197	4%
Cooper Tire & Rubber Co.	222	2,043	11%	78	4%
Eastman Chemical Co.	525	5,281	10%	184	3%
Farmer Bros Co.	27	313	9%	9	3%
Finlay Fine Jewelry Corp.	49	567	9%	17	3%
Friedman Industries Inc.	5	60	9%	2	3%
Genuine Parts Co.	426	4,786	9%	149	3%
Gorman-Rupp Co.	50	232	22%	17	8%
Grainger (W.W.) Inc.	317	3,515	9%	111	3%
Graybar Electric Co. Inc.	123	1,556	8%	43	3%
Hawkins Inc.	15	136	11%	5	4%
Hooker Furniture Corp.	14	153	9%	5	3%
Huttig Building Products Inc.	13	146	9%	5	3%
Keystone Cons Industries Inc.	34	250	14%	12	5%
Mestek Inc.	18	211	9%	6	3%
Nash Finch Co.	76	955	8%	27	3%
Omnova Solutions Inc.	33	352	9%	11	3%
Rite Aid Corp.	746	8,327	9%	261	3%
Seneca Foods Corp.	86	676	13%	30	4%
Sherwin-Williams Co.	3,231	4,416	73%	1,131	26%
SIFCO Industries	9	60	15%	3	5%
Standard Register Co.	34	413	8%	12	3%
Starrett (L.S.) Co.	28	250	11%	10	4%
Sturm, Ruger & Co. Inc.	44	113	39%	16	14%
Sunoco Inc.	1,400	11,150	13%	490	4%
Trex Co. Inc.	30	307	10%	10	3%
United Refining Co.	153	602	25%	54	9%
Virco Mfg. Corp.	10	118	8%	3	3%
Weis Markets Inc.	66	848	8%	23	3%
Weyco Group Inc.	15	191	8%	5	3%
Winnebago Industries	37	305	12%	13	4%



An abrupt, material increase in a company's recorded inventory pervades the financial statements. By increasing inventory and decreasing COGS by the entire LIFO reserve, the firms in this sample that have LIFO reserves comprising a significant amount of total assets will sustain an impactful change to their financial pictures. As illustrated in the CMC example (Exhibit 3), switching from LIFO to an acceptable inventory valuation method under IFRS increases pretax income, income tax expense, and net income. Net assets and retained earnings increase as well.

These financial statement adjustments are prevalent in common valuation ratios. Current ratio and earnings per share are positively affected. Nevertheless, firms originally employed LIFO to save money on taxes, so being forced to suddenly incur tax on LIFO reserves will impact firms in the short-term. The tables below indicate some key statistics related to the sample of firms.

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**Exhibit 5: Average Percentage (%) Increase of Balance Sheet Items**

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LIFO Reserve % Total Assets <sup>26</sup>	15.31%
Inventory	81.87%
Total Liabilities	13.03%
Total Shareholders' Equity	29.64%

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Sherwin-Williams (73%), Central Steel & Wire (63%), and Sturm, Ruger & Co (39%) had the highest LIFO reserve to total assets. These three firms would be impacted the most by the inventory method change, as they also had the highest percentage increase in inventory and tax increase as a percentage of total assets.

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<sup>26</sup> This percentage is identical to the average % increase in total assets.

On average, the sampled firms' total assets and shareholders' equity increased at a higher rate than total liabilities. This was caused by a reallocation of inventory costs between balance sheet inventory and cost of goods sold. The upward shift in inventory and decrease to COGS creates higher total assets and net income (retained earnings). Concurrently, most of the companies' accounting ratios improved. Exhibit 6 illustrates the average percentage changes of these ratios.

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**Exhibit 6: Average Percentage (%) Change of Ratios**

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Current Ratio <sup>27</sup>	22.39%
Return on Assets	6.11%
Profit Margin	18.48%
Earnings per Share	13.27%
Debt to Equity	(37.08%)

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The sample of firms' liquidity and profitability ratios increased considerably following the adoption of IFRS and FIFO. The improved liquidity metrics strengthens their working-capitals positions and the ability to meet short-term obligations. Higher profitability ratios increase perceived company efficiency and performance.

A large average decline in the debt-equity ratio is sparked by the major average increase to shareholders' equity.

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<sup>27</sup> The % increase of Sherwin-Williams' current ratio was excluded from this calculation because it was deemed an extreme outlier.

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**Exhibit 7: Average Percentage (%) Increase of Income Statement Items<sup>28</sup>**

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Pretax Income	10.48%
Taxes Due	11.30%
Net Income	8.36%

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Exhibit 7 is highlighted by the fact that companies in the sample, on average, increased net income by 8.36%. This statistic is overshadowed by the large increase in taxes due, which swelled by an average of 11.30% compared to taxes owed under LIFO. Cash flows will also be negatively affected by this change due to the major increase in cash outflows for tax payments.

While the sample of 40 firms illustrated in Exhibit 4 would be the most profoundly affected by the hypothetical adoption of IFRS in 2008, they would not necessarily account for the largest tax bills owed to the government following a switch from LIFO to FIFO. Exhibit 8 below illustrates the companies that would owe the most taxes to the IRS.

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<sup>28</sup> The percentage increases for AK Steel Holding Corp. and Omnova Solutions Inc. were excluded from the calculation of the averages because they are outliers in the data.

<b>Exhibit 8: Sample of 15 Firms with Largest Tax Increase due on Switch to FIFO</b>			
<b>(All \$ amounts in millions)</b>			
<b>Company Name</b>	<b>2008 LIFO Reserve</b>	<b>Increase in Taxes Due</b>	<b>LIFO Reserve % Total Assets</b>
Exxon Mobile Corp.	\$10,000	\$3,500	4.4%
Chevron Corp.	9,368	3,278	5.8%
Sherwin-Williams Co.	3,231	1,131	73.2%
Caterpillar Inc.	3,183	1,114	4.7%
ConocoPhillips	1,959	686	1.4%
Sunoco Inc.	1,400	490	12.6%
Deere & Co.	1,324	463	3.4%
Motors Liquidation Co.	1,233	432	1.4%
United States Steel Corp.	1,100	385	6.8%
Alcoa Inc.	1,078	377	2.9%
Walgreen Co.	1,067	373	4.8%
Imperial Oil Ltd.	994	348	5.8%
Nucor Corp.	923	323	6.7%
Du Pont De Nemours	908	318	2.5%
Ford Motor Co.	891	312	0.4%
<b>TOTAL</b>	<b>38,659</b>	<b>13,530</b>	

These 15 firms make up 59% percent of the total public company LIFO reserve in the United States, which is valued at \$66 billion.<sup>29</sup> Compared to the significantly impacted 40 firms, the companies in this sample averaged a 9.11% LIFO reserve to total assets. Even though this percentage is not as high, it still bears financial and cash flow implications.

### **Overall U.S. Tax Increase**

In the scenario of all public companies adopting IFRS and eliminating LIFO in 2008, there is a \$23 billion increase in taxes owed to the government over a four year period due to inventory valuation method changes, which represents a 29% increase.

<sup>29</sup> *Compustat North America*. Wharton Research Data Services, *COMPUSTAT*. Web. 16 Feb. 2010.

The \$23 billion increase worth of taxes to be paid evenly over a four year period would be first owed in fiscal year 2009. In 2009, the U.S. federal government collected \$2.1 trillion of tax revenue, which included \$138 billion of corporate income tax.<sup>30</sup> Based on the Congressional Budget Office’s projection of tax revenues, Exhibit 9 (below) shows the potential increase in taxes collected by the government caused by a switch from LIFO to FIFO.

<b>Exhibit 9: Projected Increase in U.S. Tax Revenues from LIFO Switch (All \$ amounts in billions)</b>			
	Corporate Income Taxes	FIFO Tax Increase	% Increase in Taxes Owed
2009 (Actual)	\$138.0	\$5.8	4.2%
2010	147.0	5.8	3.9%
2011	266.0	5.8	2.2%
2012	318.0	5.8	1.8%

The \$23 billion tax increase is paid evenly over four years, which amounts to \$5.75 billion per year. This is a relatively large percentage increase in corporate income taxes collected. Keep in mind that the \$23 billion only accounts for public companies.

## **Conclusion**

There is no doubt that most of the companies using LIFO will be reluctant to change their inventory accounting methods. Under current IRS law, these companies will be required to make up years worth of avoided taxes, and forgo all of the future tax benefits associated with LIFO. On the other hand, the U.S. perceives IFRS as a long-term benefit to all parties involved. From their standpoint, the IRS collects more taxes, firms report higher earnings, and the financial

<sup>30</sup> “CBO’s Projections of Corporate Income Tax Receipts and Tax Bases.” *The Revenue Outlook*. Congressional Budget Office, 2009. (Chapter 4, Table 4-1) Web. 5 Mar. 2010.

statements provide a more accurate picture of a firm's operating results and financial position for interested third parties.

While both sides build their cases for or against LIFO elimination, there still exists an inherent problem in inventory reporting: the tax conformity rule. Instead of the major focus being on transparent and fair reporting, the tax conformity rule has turned inventory reporting into an earnings manipulation environment where management is forced to choose between higher income or lower taxes. By removing LIFO as an option, IAS 2 leaves FIFO and average costing as the only plausible methods of inventory valuation, and eliminates management's decision-making dilemma. Nonetheless, the tax conformity rule will force companies phasing out LIFO to make up vast amounts of tax payments in the short run.

As laid out in this thesis, many large companies will take a significant hit as a result of the LIFO switch. While firms may be lobbying for the tax conformity rule to be relaxed, it would be in the best interest of the U.S. and these affected companies if the four year period for repaid taxes were at least extended, which would still ensure tax revenue for the government and give these companies some extra financial flexibility.

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**Brian Robert Mink**

*Academic Vitae*

1048 South Kimbles Road  
Yardley, PA 19067  
brm5055@psu.edu

**Education**

MACC and BS in Accounting, Penn State University, Fall 2010  
Honors in Accounting, Schreyer Honors College

**Professional Experience**

PricewaterhouseCoopers, New York, NY  
*Alternative Investments Assurance Intern*, Summer 2009

ACE Limited, Philadelphia, PA  
*Internal Audit Intern*, Summer 2008  
*IT Finance Intern*, Summer 2007

**Honors and Awards**

Evan Pugh Scholar  
President Sparks Award  
President's Freshman Award  
Dean's List, Every Semester  
Phi Eta Sigma National Honor Society

**Academic Involvement**

Teaching Assistant, Modern African History  
Consumer Discretionary Sector Analyst, Penn State Investment Association