PRACTICAL IMPEDIMENTS TO CONVERGENCE OF U.S. GAAP AND IFRS

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Abstract

The purpose of this paper is to examine one very important area in which convergence between accounting standards in the United States (U.S), which are referred to in the U.S. as generally accepted accounting principles (GAAP), and international financial reporting standards (IFRS) has not been achieved. We will try to explain the underlying reasons the U.S. has been unable to converge their accounting standards related to inventory valuation to international accounting standards and to examine the financial impact of a change in those standards on U.S-domiciled companies. The paper will examine the issues from the U.S. perspective. We will describe some of the differences between GAAP and IFRS on issues related to inventory. The disallowance of the LIFO cost assumption under IFRS, as well as the "lower of cost or net realizable value" rule used to determine the carrying value of inventory under IFRS rather than the "lower of cost or market" rule that is used under GAAP, are two major differences between the two sets of accounting standards related to inventory.

Keywords: Convergence, IFRS, Accounting Standards, Financing Reporting

Introduction

Since World War II, economic entities have expanded the markets for their products and for the sources of the raw materials for their products. Business entities, both large and small, are now operating in global markets. Simultaneously, capital markets have become more international. No longer are U.S.-domiciled companies seeking capital only in the U.S. capital markets. Foreign-domiciled companies also are seeking capital in the U.S. capital markets. As economic entities became more global so does the need for uniformity in financial reporting. In the 1950s the need for uniformity in financial reporting was based on the notion of *harmonization*—trying to achieve uniformity in the financial reporting standards established by the

various sovereign accounting and reporting standards bodies. The goal was to reduce the differences among the accounting principles/standards (these terms shall be used interchangeably throughout this paper) used in financial reporting, but to still recognize and maintain the sovereignty of the standard setters in each individual country. By the 1990s the notion of harmonization was replaced by a concept of *convergence*—the development of a unified set of high-quality international accounting standards that would be used in, at least, all major capital markets.

The International Accounting Standards Committee (IASC) was formed in 1973, the same year that the Financial Accounting Standards Board (FASB), operating under the Financial Accounting Foundation (FAF), was formed in the United States. The IASC was the first international standards-setting body. It was reorganized in 2001 and became an independent international standard setter. It was also renamed the International Accounting Standards Board (IASB). Since then, the use of international standards has progressed. As of 2013, the European Union (EU) and more than 100 other countries either require or permit the use of international financial reporting standards (IFRSs) issued by the IASB or a local variant of them.

The FASB and the IASB have been working together since 2002 to improve and converge U.S. generally accepted accounting principles (GAAP) and IFRS. Historically, the U.S. capital markets have been the dominant source of capital for expanding business organizations so their adoption of international standards would be important. As of 2013, Japan and China were also working to converge their standards with IFRSs. The U. S. Securities and Exchange Commission (SEC) consistently has supported convergence of global accounting standards. However, the SEC has not yet decided whether to incorporate IFRS into the U.S. financial reporting system. The SEC staff issued its final report on the issue in July 2012 without making a recommendation.

September 2002, the FASB and the IASB met jointly and agreed to work together to improve and converge U.S. GAAP and IFRS. That partnership is described in "The Norwalk Agreement," issued after that joint meeting. The Norwalk Agreement set out the shared goal of developing compatible, high-quality accounting standards that could be used for both domestic and cross-border financial reporting. It also established broad tactics to achieve their goal: develop standards jointly, eliminate narrow differences whenever possible, and, once converged, stay converged. Even with the Norwalk Agreement, the path to full convergence of GAAP to IFRS has not been smooth.

The standards that were very similar, or at least similar enough that the differences were not controversial, were addressed first and as of this

date many of these standards have been converged (meaning that GAAP and IRFS do not differ). Remember that convergence does not mean that the U.S., or any other country, would not have its own accounting standards—it means that the standards of any sovereign standard setter will not differ significantly from IFRS. There remain, however, many accounting standards on which there has not yet been an agreement between FASB and IASB.

The purpose of this paper is to examine one area in which convergence has not been achieved. We will try to explain the underlying reasons the U.S. has been unable to converge their standards and to examine the financial impact of those standards on U.S-domiciled companies. The paper will examine the issues from the U.S. perspective. We will describe some of the differences between GAAP and IFRS on issues related to inventory—inventory cost flow assumptions, carrying value of inventory, cost of goods sold. The disallowance of the LIFO cost assumption under IFRS, as well as the "lower of cost or net realizable value" rule used to determine the carrying value of inventory under IFRS rather than the "lower of cost or market" rule that is used under GAAP, are two major differences between the two sets of accounting standards related to inventory.

LIFO Cost Flow Assumption

The valuation of inventory can have a significant impact on a company's financial statements. For many companies, inventory represents a significant percentage of current assets. The costs assigned to inventory can significantly the companies' current ratio. In addition the costs assigned to inventory have a direct effect on cost of goods sold and can, therefor, impact operating profits. Inventory write-downs can significantly impact the reported profits of a company.

Data for firm filings for fiscal year 2013 (FY 2013) from the COMPUSTAT database are used to provide a real-world perspective on accounting for inventories. The research seeks to determine if U.S. firms actually use the accounting cost flow assumption that is believed to be most advantageous to business entities (LIFO). The primary difference between GAAP and IFRS in inventory valuation begins with choosing an inventory cost flow assumption. Under GAAP, the last-in-first-out (LIFO) assumption is a permissible option[85]; however, under IFRS, LIFO is not permitted[86]. The IASB does not permit the use of LIFO as a cost flow assumption because, in its opinion, LIFO does not accurately represent the actual flow of inventory and its related costs. The Board's *Basis for Conclusions on IAS 2 Inventories*

[85] FASB ASC 330-10-30-9.

[86] IFRS Foundation, *A Guide through IFRS* (London: IFRS Foundation Publications Department, 2010), A383 (*IAS 2-25*).

states LIFO's primary shortcoming as a "lack of representational faithfulness of inventory flows."[87] When a company uses LIFO, it often does so because it is attempting to minimize its tax liability. In an environment of rising inventory prices, using LIFO would generate a higher cost of goods sold expense than other cost flow assumptions such as FIFO or even average cost. Higher expenses lead to lower taxable income, which in turn leads to a lower tax liability. However, in the United States, the LIFO conformity rule requires that, when LIFO is used for tax purposes, a company must use the same cost flow assumption for the financial statements. Because using LIFO may make the company's net income on the financial statements lower, and therefore less desirable, than using another cost flow assumption such as FIFO, companies are generally motivated to use LIFO more for tax benefits than for improving operating profits. The IASB finds tax benefits to be insufficient justification for the use of a method that, in its opinion, does not appropriately represent inventory flows.[88]

Certain companies and industries where LIFO is frequently used have good reason to be concerned about the possibility of someday having to switch to another cost flow assumption, especially if inventory costs in their industry have been rising rapidly. Companies using the LIFO cost flow assumption must report the difference between the cost of inventory under LIFO and the cost of inventory under another acceptable costing method (usually FIFO) on their financial statements.[89] This amount is called the LIFO reserve,[90] and is an indication of how much a company's cost of goods sold would decrease and its net income would increase if it were to switch from LIFO to FIFO. Because the LIFO conformity rule would require these companies to report the increased net income for tax purposes as well as financial reporting purposes, companies with large LIFO reserves could see large increases in the amount of taxes that they pay due to a switch in cost flow assumptions.

Table 1 shows the industries that had the highest cumulative LIFO reserves in FY 2013. The data were collected from FY 2013 company filings on the COMPUSTAT database, sorted by four-digit SIC code, and aggregated by SIC code. During the data analysis process, 353 observations

[87] Id., B711 (*Basis for Conclusions on IAS 2 Inventories*, BC 19).

[88] IFRS Foundation, *A Guide through IFRS*, B711 (*Basis for Conclusions on IAS 2 Inventories*, BC 20).

[89] FASB ASC 210-10-S99-1, 6(c).

[90] Task Force on LIFO Inventory Problems, Accounting Standards Division, American Institute of Certified Public Accountants, "Issues Paper: Identification and Discussion of Certain Financial Accounting and Reporting Issues Concerning LIFO Inventories" (1984): 18, accessed May 2, 2014, http://clio.lib.olemiss.edu/cdm/compoundobject/collection/aicpa/id/10905/show/10796.

were eliminated from consideration here and in any other subsequent analysis because reported total assets were either zero or blank---a phenomenon which obviously cannot realistically occur, since every firm has to have some assets in order to exist. Since the data from these observations was therefore inconclusive, they were eliminated from consideration in the data analysis. The sample size in the data analysis was therefore reduced to 3,256 observations.

Table 1: Total LIFO Reserves Reported in 2013 (by Industry) (Source: COMPUSTAT)

Industry	SIC Code	No. Obs.	Total LIFO Reserve (in millions)
Petroleum Refining	2911	5	$ 39,758.98
Construction Machinery and Equipment	3531	1	2,504.00
Drug Stores and Proprietary Stores	5912	1	2,100.00
Farm Machinery and Equipment	3523	3	1,600.84
Plastics Materials and Synthetic Resins, Synthetic	2820	3	1,248.00
Steel Works, Blast Furnaces (Including Coke Ovens), and Rolling Mills	3312	2	1,222.40
Motor Vehicles and Passenger Car Bodies	3711	3	1,211.70
Cigarettes	2111	3	1,170.00

The small sample sizes in this table make it somewhat risky to draw any definitive conclusions, but the sheer magnitude of the cumulative LIFO reserve of the petroleum refining firms, $40 billion, is staggering. Clearly, the petroleum refining industry has a much larger LIFO reserve than any other industry. This figure can probably be attributed to the rapid and drastic increases in oil prices over the past several decades.[91] Large LIFO reserves also indicate that these companies have had a strong incentive to oppose disallowance of LIFO. LIFO remains a highly controversial topic in convergence issues.

In the Accounting Standards Codification (ASC) and preceding standards (of U.S. GAAP), the FASB comments neither on the representational faithfulness of LIFO nor on its reasoning for allowing LIFO as an acceptable costing method. However, there are justifiable reasons for using LIFO to expense inventory.[92] The goal of the matching principle is to match the revenues from one period with the expenses incurred to generate

[91] Given the rather sharp decline in oil prices over the past two years, an updated study on LIFO reserves would be appropriate.

[92] Raymond Hoffman, *Inventories* (New York: Ronald Press, 1962), 197: http://scholarship.law.marquette.edu/cgi/viewcontent.cgi?article=2608&context=mulr, (April 19, 2014)

those revenues as closely as possible.[93] In the case of inventory, the matching principle (which was, but is longer, a basic principle of U.S. GAAP) is fulfilled by matching inventory sales with inventory purchases. One of the primary uses of financial information is to estimate the value of future cash flows from a business[94], and the nature of LIFO is conducive to providing information for this purpose. LIFO matches the most recent inventory purchases with the most recent inventory sales, which makes it a better predictor of future costs (and associated income) than other cost flow assumptions (since the most recent purchase price is likely to be a good indicator of the future cost of the inventory).

Table 2: LIFO Analysis by Industry (Source: COMPUSTAT)

Industry	SIC Code	No. Obs.	Mean LIFO Reserve (in millions)	Mean Total Assets (in millions)	Mean Inventories to Assets
Agriculture, Forestry, and Fishing	0-999	1	169	20,664.00	0.1426
Mining & Construction	1000-1999	5	72.23	41,483.11	0.0387
Manufacturing (food, textiles, apparel, lumber, furniture, fixtures, printing/publishing, chemicals, petroleum refining)	2000-2999	46	992.67	27,443.96	0.1181
Manufacturing (rubber, leather, stone, clay, glass, concrete, primary metal, fabricated metal, industrial and commercial machinery and computer equipment, electronics, transportation equipment, miscellaneous)	3000-3999	55	181.12	13,886.35	0.1539
Transportation, Communications, Electric, Gas, and Sanitary Services	4000-4999	0	N/A	N/A	N/A
Wholesale Trade & Retail Trade	5000-5999	15	293.59	9,224.97	0.2506

[93] Raymond Hoffman, *Inventories*, 197: http://scholarship.law.marquette.edu/cgi/viewcontent.cgi?article=2608&context=mulr, (April 19, 2014)

[94] Financial Accounting Standards Board, *Statement of Financial Accounting Concepts No. 8, Conceptual Framework for Financial Reporting* (Norwalk: Financial Accounting Foundation, 2010), OB2, OB3, and OB5, http://www.fasb.org/cs/BlobServer?blobkey=id&blobnocache=true&blobwhere=1175822892635&blobheader=application%2Fpdf&blobheadername2=Content-Length&blobheadername1=Content-Disposition&blobheadervalue2=210323&blobheadervalue1=filename%3DConcepts_Statement_No_8.pdf&blobcol=urldata&blobtable=MungoBlobs, (April 6, 2014)

Finance, Insurance, and Real Estate	6000-6999	0	N/A	N/A	N/A
Services (hotels, personal services, business services, auto repair, miscellaneous repair, motion pictures, amusement and recreation services)	7000-7999	0	N/A	N/A	N/A
Services (health, legal, educational, social, museums, art galleries, botanical/zoological gardens, membership organizations, engineering/accounting/research/management/related services, private households, miscellaneous services)	8000-8999	0	N/A	N/A	N/A
Public Administration	9000-9999	0	N/A	N/A	N/A

Tables 2 and 3 show the results of more analysis of data acquired from the COMPUSTAT database for FY 2013 firm filings. The only companies reported in this particular set of analyses are ones that reported LIFO reserves in their 2013 filings. For these Tables, the information is aggregated based on the overarching SIC code categories---for SIC codes 0 through 999, 1000 through 1999, 2000 through 2999, and so forth, through 9999. Each category is listed in the tables in numerical order; that is, SIC codes 0 through 999 cover the agriculture industry, SIC codes 1000 through 1999 cover the mining and construction industries, and so forth.

The information has its limitations---such as the skewing effect of any outliers (especially in groups with smaller numbers of observations) as well as limited availability of information for certain industry categories. For example, it is likely that immaterial LIFO reserves were not reported. Although it is possible that there are five industries in which no company used LIFO and therefore would not be included in this data, it seems far more likely that companies in these industries do use LIFO and, for whatever reason, their information simply has not been reported in this database. Table 2 shows that LIFO treatment of inventory probably has the most impact on the manufacturing and wholesale/retail industries, since inventory comprises 11 to 25 percent of total assets of the average company in these industries (inventory to assets is computed by dividing a company's total inventories by its total assets). It appears that these companies tend to be quite large, since the average total assets of a company in these industries is in the billions; however, this estimate could be skewed by one or two extremely large companies being averaged with many smaller companies. Although companies like Chevron and ExxonMobil do have much higher total assets than most other companies in their SIC industry group, there appears to be a healthy balance of large, medium-sized, and small companies

in this set of data. At first glance, the data from the agriculture industry appears to place it in the same category with the manufacturing and wholesale/retail industries; however, it is probably unwise to draw conclusions from data that includes only one observation of LIFO usage in this industry.

Table 3: Effects of Full Convergence (Source: COMPUSTAT)

Industry	SIC Code	No. Obs.	Mean Change to COGS	Mean Change to Net Income	Mean Change to Inventories	Mean Change to ROA
Agriculture, Forestry, and Fishing	0-999	1	2.56%	6.81%	5.74%	-0.0999
Mining & Construction	1000-1999	5	9.68	7.19	10.83	-0.4664
Manufacturing (food, textiles, apparel, lumber, furniture, fixtures, printing/publishing, chemicals, petroleum refining)	2000-2999	46	3.09	62.68	28.35	-0.3329
Manufacturing (rubber, leather, stone, clay, glass, concrete, primary metal, fabricated metal, industrial and commercial machinery and computer equipment, electronics, transportation equipment, miscellaneous)	3000-3999	55	3.64	-302.38	16.01	-0.1898
Transportation, Communications, Electric, Gas, and Sanitary Services	4000-4999	0	N/A	N/A	N/A	N/A
Wholesale Trade & Retail Trade	5000-5999	15	2.75	37.85	19.69	-0.2098
Finance, Insurance, and Real Estate	6000-6999	0	N/A	N/A	N/A	N/A
Services (hotels, personal services, business services, auto repair, miscellaneous repair, motion pictures, amusement and recreation services)	7000-7999	0	N/A	N/A	N/A	N/A
Services (health, legal, educational, social, museums, art galleries, botanical/zoological gardens, membership organizations, engineering/accounting/research/management/related services, private households, miscellaneous services)	8000-8999	0	N/A	N/A	N/A	N/A
Public Administration	9000-9999	0	N/A	N/A	N/A	N/A

Table 3 lists the average monetary impacts of full convergence from U.S. GAAP to IFRS on inventory cost flow assumptions (that is, the elimination of LIFO). The changes to cost of goods sold, net income, and inventories are listed in millions of dollars. Eliminating a LIFO reserve would cause a company's cost of goods sold to increase by the amount of the eliminated LIFO reserve; consequently, its net income would decrease by the same amount. Because eliminating a LIFO reserve assumes that the first inventory purchased by the company was the first inventory sold, and that any inventory remaining at the end of the period was the last inventory purchased, eliminating a LIFO reserve increases the amount of inventory by the amount of the LIFO reserve (in an environment of rising inventory prices). These dollar amounts provide an interesting perspective on the magnitude of the dollar amounts in question here. Of course, the value of these figures is limited in that their relative value to the size of the company is not reflected in these aggregations---and in that any skew in the figures due to outliers is unaccounted for in this analysis.

The change in return on assets is more meaningful and better able to express the relative financial impact of convergence than the three dollar amounts. To compute the change in return on assets, the company's net income with the LIFO reserve is divided by the company's total assets. The resulting amount is subtracted from the amount calculated when the company's net income without the LIFO reserve is divided by the company's total assets. Again, the data indicate that the manufacturing and wholesale/retail industries would be deeply impacted by convergence, with ROA dropping by 18 to 34 percentage points. However, the mining and construction industry would register a drop of 46 percentage points---a performance-measure plummet unequaled by any other industry. This decline can be at least partly explained by the fact that the large oil companies are classified as mining and construction companies for the purposes of this analysis. As aforementioned, the rapid upward trend in oil prices over the past several decades causes oil companies to have very large LIFO reserves. This analysis demonstrates one of the measures of financial performance that would be drastically altered if LIFO were to be eliminated.

LIFO remains one of the topics on which the FASB and the IASB cannot agree.

Determining the Carrying Value of Inventory

Besides their opposing stances on LIFO as an acceptable costing method, GAAP and IFRS also differ on the measurement of the carrying amount of inventory---that is, the dollar value of the inventory on the balance sheet. Under both systems, inventory is generally carried at historical cost; however, when carrying the inventory at cost is no longer appropriate due to

a decrease in the value of the inventory, GAAP and IFRS prescribe different methods of determining the carrying amount.

Under IFRS, the carrying amount of inventory at cost is periodically compared to the carrying amount of inventory *at net realizable value*. Net realizable value is the amount remaining when the costs required to complete the sale of the inventory are subtracted from the revenues expected to be received from the sale of the inventory. If historical cost is lower than net realizable value, the carrying amount remains at cost. However, if net realizable value is lower than cost, the carrying amount is adjusted to net realizable value.[95]

Under GAAP, the carrying amount of inventory at historical cost is periodically compared to the carrying amount of inventory *at market value*. Market value is generally defined as the current replacement cost of the inventory---within certain parameters. The market value cannot be higher than the net realizable value, but it cannot be lower than the net realizable value decreased by a normal sales margin. If the current replacement cost is higher than the net realizable value, the net realizable value is used as the market value. Conversely, if the current replacement cost is lower than the net realizable value less a normal sales margin, the latter amount is used as the market value. The number that is selected as the market value is compared to the historical cost amount on the books.[96] If the market value is lower than the historical cost, the carrying amount of the inventory is adjusted to market value. This principle is known as the "lower of cost or market rule."[97]

Adjusting the carrying amount of inventory is intended to reflect the benefits that the entity expects to receive from the inventory. Conservative accounting does not allow the value of inventory to be written up to market value; but if the expected benefits of the inventory drop below the costs incurred to obtain the inventory (that is, the historical costs that are established as the initial carrying value), the carrying value of the inventory should be adjusted to the amount that best represents its current utility. Although GAAP and IFRS have different methods of deciding what amount to use for the measurement of the inventory's current benefits, the general idea is the same: inventory should be carried at cost, unless market conditions indicate that the benefits expected to be received from the inventory are lower than cost. In the latter situation, the carrying amount of

[95] IFRS Foundation, *A Guide through IFRS*, A384 (*IAS 2-28, 2-30*).

[96] Raymond Hoffman, *Inventories*, 195: http://scholarship.law.marquette.edu/cgi/viewcontent.cgi?article=2608&context=mulr, (April 19, 2014)

[97] FASB ASC 335-10-35-2, 335-10-35-3, 335-10-35-4.

the inventory should be adjusted to the amount of expected benefits indicated by the market conditions.

When the carrying amount of inventory is adjusted to market value, the difference between historical cost and the new carrying value is recorded as an impairment loss. The carrying value subsequent to the impairment loss leads to yet another difference between GAAP and IFRS. Under IFRS, the impairment loss can later be reversed if the inventory's net realizable value increases above the net realizable value from the previous period of measurement (which became the new carrying value after the impairment loss). However, the inventory cannot be written up by an amount larger than the impairment loss; that is, the carrying value cannot be increased above the original historical cost basis.[98] Under GAAP, on the other hand, impairment losses cannot be reversed. Recording the impairment loss establishes a new cost basis that cannot be written back up to the original cost basis, even if the inventory appreciates to the original cost basis after the impairment loss is recognized. This interpretation of the FASB rules was confirmed in a Staff Accounting Bulletin prepared for SEC Staff Guidance.[99]

Conclusion

As business becomes more global in scope, a single set of accounting standards becomes more important—whether this is accomplished through harmonization or acceptance of a sole accounting standard setter such as IASB. Although U.S. GAAP and IFRS have converged considerably over the past several decades, there are still significant differences between the two sets of standards on issues such as inventory valuation. Many of these differences are likely to exist well into the foreseeable future. Since the global economy makes interaction between GAAP and IFRS filers more likely than ever before, and because the accounting treatment of the issues presented in this paper can have significant impact on a company's financial statements, users of financial statements must understand the differences in treatment of these, and many other, financial statement items.

[98] IFRS Foundation, *A Guide through IFRS*, A385 (*IAS 2-33*).
[99] FASB ASC 335-10-S99.