Inventory Valuation Under IFRS and GAAP

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The Securities & Exchange Commission (SEC) is in the process of deciding whether U.S. companies can issue financial statements using International Financial Reporting Standards (IFRS). For management accountants, inventory valuation is of special concern. Though IFRS and U.S. Generally Accepted Accounting Principles (U.S.GAAP) have commonalities in inventory valuation requirements, they differ in initial measurement, subsequent measurement, disclosure requirements, and tax impact. Switching to IFRS wouldn't only require coordinating many regulatory authorities, such as the Public Company Accounting Oversight Board (PCAOB), the Internal Revenue Service (IRS), and the SEC, but it would also put pressure on changes to company information systems, internal controls, and tax planning.

We'll review the major milestones on the road to possible convergence, summarize the differences in inventory valuation between IFRS and GAAP, and identify major issues that companies switching to IFRS have to contend with.

According to the 2008 IFRS roadmap, the SEC was supposed to decide in 2011 whether U.S. companies can issue financial statements using IFRS from 2015 onward. In September 2009, the leaders of the G20 nations requested that the international accounting bodies create a single set of global accounting standards by June 2011. In November 2009, the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) reaffirmed that they would continue to harmonize their respective standards and try to meet the 2011 deadline. In February 2010, the SEC issued a "Statement in Support of Convergence and Global Standards" and issued a Work Plan highlighting six areas of concern commentators raised.

Although the SEC didn't decide by June 30, 2011, they sponsored a roundtable on July 7, 2011, to further analyze issues related to investor analysis and knowledge of IFRS, as well as the impact of IFRS on smaller public companies and the regulatory environment. In addition, the Office of the Chief Accountant at the SEC issued working papers in May and November 2011 on implementation issues, differences in GAAP vs. IFRS, and analysis of foreign issuers already using IFRS. In November 2011, the Division of Corporate Finance at the SEC also issued an analysis of IFRS in practice.

Currently, most U.S. companies aren't expected to be filing with IFRS for the next five years. Yet the SEC requires three years of comparative statements, which implies that if IFRS becomes applicable by 2015 (as per the SEC statement above), some companies may need to adopt the new standards in 2012. In a speech to the American Institute of Certified Public Accountants (AICPA) on December 5, 2011, SEC Chief Accountant James Kroeker indicated that they "are in the final stages of completion of the majority of the field work related to the Work Plan (2010)." He also said the SEC does need more time and that they are many months away from finalizing any decision related to IFRS (www.sec.gov/news/speech/2011/spch120511jlk.htm).

But the move to converge to IFRS has tentatively been set. Accounting practitioners and educators need to prepare for the transition now and learn the differences between these two sets of standards. Management accountants in particular need to educate themselves about inventory valuation. In manufacturing and merchandising industries with significant inventories, different valuation methods not only affect assets on a balance sheet, but they also result in different cost of goods sold (COGS) reported and have implications for tax planning. For example, Exxon Mobil Corp. reported that its replacement cost of inventories at 2010 and 2009 year-ends exceeded its last-in, first-out (LIFO) inventories by $21.3 billion and $17.1 billion, respectively. Because IFRS doesn't allow for the LIFO inventory valuation method, companies like Exxon Mobil, which adopts LIFO under GAAP, would face tremendous difficulty in the transition.

GAAP—Initial Measurement

GAAP primarily values inventory just like other assets—at cost of acquisition or production (Accounting Standards Codification® paragraph 330-10-30). Valuation for cost of acquisition includes all the costs incurred to bring inventory to a saleable condition and location, and production includes all variable overheads and allocation of fixed overheads. Interest can't be allocated to the cost of inventory during routine production. If the inventory items are specific and separately identifiable, the costs can be uniquely allotted, but if the inventory items are identical and interchangeable, then an assumption of the flow of costs can be made—first-in, first-out (FIFO), average costs, or LIFO. The method chosen should be the one that best reflects income. Standard costs are also accepted provided the company adjusts them to reflect current conditions. GAAP also requires the company to value inventory using the same procedure year after year (Codification paragraph 330-10-15).

GAAP—Subsequent Measurements

If there's evidence that disposing of inventory in the normal course of business will be at lower than cost, then the difference between cost and expected disposal price will be recognized as a loss in the current period (Codifica-

Table 1: Differences in GAAP and IFRS Regarding Inventory Valuation

ITEM	GAAP	IFRS
Applicable regulations	ARB 43, SFAS 34, SFAS 151, SEC Staff Accounting Bulletin 5-BB, and SEC Regulation S-X all summarized in Codification paragraph 330.	IAS 2, IAS 23
Initial measurement	Cost—specific cost, LIFO, average cost, FIFO.	Cost—specific cost, average cost, FIFO.
Expense allotted	Variable costs, allotted fixed costs. Interest costs not to be capitalized if inventory manufactured routinely.	Interest to be capitalized if production takes substantial time or financing element in purchase agreement. Foreign exchange differences not to be capitalized.
Consistency of measurement	All inventories having similar nature and use must be measured using same method.	No explicit guidance, so companies can use LIFO for U.S. inventory and FIFO for international inventory.
Subsequent measurement	Lower of cost or market where market is replacement cost not exceeding net realizable value and not less than net realizable value minus normal profit.	Lower of cost and net realizable value.
Assessment of inventory	Expense in the year market is lower than cost, resulting in new cost for subsequent period. No reversals allowed.	Net realizable value assessed every time period. Write-downs in year when net realizable value is less than cost. Reversal allowed when circumstances change. Reversal limited to original write-down—reduction in expense.
Intragroup sales of inventory	No deferred taxes can be recognized as the seller can't recognize profits until inventory sold to outsiders.	Deferred taxes can be recognized at buyer's tax rate.
Disclosure requirements	Required by the SEC, not the accounting standard. If LIFO used, LIFO reserve disclosure required.	IAS 2 requires specific detailed disclosure.
Tax implications	If LIFO is used for U.S. income tax reporting, LIFO must be used for financial reporting.	Firms with LIFO valuation need to switch to either FIFO or average cost valuation, resulting in an increase in current and deferred taxes.

tion paragraph 330-10-35). To do so, a company values inventory at market value (lower than cost), which is called the lower-of-cost-or-market rule. The market value is the current replacement cost subject to the following conditions:

- It doesn't exceed net realizable value (selling price in normal business minus reasonable costs of completion and disposal), and
- It isn't less than net realizable value minus a normal profit margin.

One exception to the lower-of-cost-or-market rule is that if there's any evidence that sales would occur at a fixed price, even if current replacement cost is lower than actual cost, then such a loss won't be recognized. If a company used fair value hedges to fix inventory costs, it should adjust the cost of inventory. If inventory has been written down under the lower-of-cost-or-market rule, then the new value would be the cost of inventory in the subsequent period. The lower-of-cost-or-market rule also applies to firm purchase commitments the company can't cancel. Also, the SEC Staff Accounting Bulletin (paragraph 330-10-S99-2) has interpreted that once the inventory has been written down below cost to a new value, it can't be written back up again to historical costs if facts and circumstances change.

GAAP considers income to have accrued at the time of sale, so profits can't be anticipated by valuing inventory at the current selling price (paragraph 330-10-35-15). But there are exceptions. When the selling price is controlled and costs aren't easily obtained, such as in agricultural products, metals, or minerals, a company can value such inventory at market price minus disposal costs.

GAAP—Disclosure Requirements

Regulation S-X rule 5 provides the disclosure requirements for balance sheet items (paragraph 210-10-S99-1). Inventories are disclosed under current assets. The classes of inventory and the basis of valuation are stated sepa-

Table 2: Sample Disclosures

PANEL A: MANUFACTURING SECTOR—OIL AND GAS INDUSTRY

GAAP

Exxon Mobil Corporation

Footnote 1 Summary of Accounting Policies

Inventories. Crude oil, products, and merchandise inventories are carried at the lower of current market value or cost (generally determined under the last-in, first-out method—LIFO). Inventory costs include expenditures and other charges (including depreciation) directly and indirectly incurred in bringing the inventory to its existing condition and location. Selling expenses and general and administrative expenses are reported as period costs and excluded from inventory cost. Inventories of materials and supplies are valued at cost or less.

Footnote 3 Miscellaneous Financial Information

In 2010, 2009, and 2008, net income included gains of $317 million, $207 million, and $341 million, respectively, attributable to the combined effects of LIFO inventory accumulations and draw-downs. The aggregate replacement cost of inventories was estimated to exceed their LIFO carrying values by $21.3 billion and $17.1 billion on December 31, 2010, and 2009, respectively.

Crude oil, products, and merchandise as of year-end 2010 and 2009 consist of the following:

	2010	**2009**
	(billions of dollars)	
Petroleum products	$3.5	$3.2
Crude oil	3.8	3.2
Chemical products	2.1	2.0
Gas/other	0.5	0.3
Total	**$9.9**	**$8.7**

IFRS

Royal Dutch Shell plc

Footnote 2 Accounting Policies

Inventories are stated at cost to Shell or net realizable value, whichever is lower. Cost comprises direct purchase costs (including transportation), cost of production, and manufacturing and taxes, and is determined using the first-in, first-out (FIFO) method for oil and chemicals and by the weighted-average-cost method for materials.

Footnote 13 Inventories

	$millions	
	Dec 31, 2010	**Dec 31, 2009**
Oil and chemicals	27,742	25,946
Materials	1,606	1,464
Total	**29,348**	**27,410**

The cost of inventories recognized in income includes net write-downs and reversals of write-downs, which are driven primarily by fluctuations in oil prices. In 2010, net reversals were $184 million (2009: $1,535 million net reversals; 2008: $1,770 million net write-downs).

Table 2: Sample Disclosures

PANEL B: MANUFACTURING SECTOR—PHARMACEUTICAL INDUSTRY

GAAP **Pfizer Inc.**

Footnote 1 I

Cost of sales and inventories: We value inventories at lower of cost or market. The cost of finished goods, work in process, and raw materials is determined using average actual cost.

Footnote 10

The components of inventories as of December 31 follow:

(millions of dollars)	2010	2009
Finished goods	$3,760	$5,249
Work-in-process	3,733	5,776
Raw materials and supplies	912	1,378
Total inventories(a)(b)	**$8,405**	**$12,403**

(a) The decrease in total inventories is primarily due to the inventory sold during 2010 that was acquired from Wyeth and had been recorded at fair value, as well as operational reductions and the impact of foreign exchange. Also, in the third quarter of 2010, we recorded, in cost of sales, a write-off of inventory of $212 million (which includes a purchase accounting fair value adjustment of $104 million) primarily related to biopharmaceutical inventory acquired as part of our acquisition of Wyeth that became unusable after the acquisition date.

(b) Certain amounts of inventories are in excess of one year's supply. These excess amounts are primarily attributable to biologics inventory acquired from Wyeth at fair value and the quantities are generally consistent with the normal operating cycle of such inventory. There are no recoverability issues associated with these quantities.

IFRS **GlaxoSmithKline plc**

Footnote 2

Inventories are included in the financial statements at the lower of cost (including raw materials, direct labor, other direct costs, and related production overheads) and net realizable value. Cost is generally determined on a first-in, first-out basis. Prelaunch inventory is held as an asset when there is a high probability of regulatory approval for the product. Before that point a provision is made against the carrying value to its recoverable amount; the provision is then reversed at the point when a high probability of regulatory approval is determined.

Footnote 9 Inventories

The following expenses were included in operating profit:

	2010	2009	2008 (£m)
Cost of inventories included in cost of sales	7,014	6,743	5,734
Write-down of inventories	305	276	298
Reversal of prior year write-down of inventories	(66)	(116)	(118)

The reversals of prior year write-downs of inventories principally arise from the reassessment of usage or demand expectations prior to inventory expiration.

Footnote 14

The group is required under IFRS to create a deferred tax asset in respect of unrealized intercompany profit arising on inventory held by the group at the yearend by applying the tax rate of the country in which the inventory is held (rather than the tax rate of the country where the profit was originally made and the tax paid, which is the practice under U.K. and U.S. GAAP). As a result of this difference in accounting treatment, the group tax rate under IFRS increased by 1.7% in 2010 (2009—0.5% increase, 2008—2.1% increase) arising from changes in work-in-progress and finished goods.

Footnote 23

	2010	2009 (£m)
Raw materials and consumables	1,466	1,153
Work-in-progress	751	1,437
Finished goods	1,620	1,474
	3,837	**4,064**

Table 2: Sample Disclosures

PANEL C: MERCHANDISE SECTOR—CONSUMER GOODS RETAILING

GAAP **Safeway Inc.**

Footnote A Merchandise Inventories

Merchandise inventory of $1,685 million at yearend 2010 and $1,629 million at yearend 2009 is valued at the lower of cost on a last-in, first-out (LIFO) basis or market value. Such LIFO inventory had a replacement or current cost of $1,720 million at yearend 2010 and $1,692 million at yearend 2009. Liquidations of LIFO layers during the three years reported did not have a material effect on the results of operations. All remaining inventory is valued at the lower of cost on a first-in, first-out (FIFO) basis or market value. The FIFO cost of inventory approximates replacement or current cost. The company performs physical counts of perishable inventory in stores every four weeks and nonperishable inventory in stores and all distribution centers twice a year. The company uses a combination of the retail inventory method and cost method to determine the cost of its inventory before any LIFO reserve is applied. The company records an inventory shrink adjustment upon physical counts and also provides for estimated inventory shrink adjustments for the period between the last physical inventory and each balance sheet date.

Footnote J Taxes on Income

	2010	2009
Deferred tax liabilities:		
Property	$(649.5)	$(626.3)
Inventory	(306.5)	(286.9)
Investments in foreign operations	(60.2)	(54.5)
	(1,016.2)	**(967.7)**

IFRS **TESCO plc**

Note 1 Accounting policies

Inventories

Inventories comprise goods held for resale and properties held for, or in the course of, development and are valued at the lower of cost and fair value less costs to sell using the weighted average cost basis.

Note 15 Inventories

	2/26/2011	2/27/2010
	£m	£m
Goods held for resale	3,142	2,726
Development properties	20	3
	3,162	**2,729**

rately. If any costs are allotted to inventory, they have to be disclosed separately, and if a company uses the LIFO method, then it has to disclose the difference between the stated and current value, which is the LIFO reserve.

GAAP—Tax Impact of Inventory Valuation

The IRS tax conformity rule IRC §472(c) requires that companies using LIFO for tax purposes have to use LIFO for income measurement in financial accounting, too. Typically, companies using LIFO tend to have lower tax expenses, but they also have lower financial income. A change in inventory methods can affect the company's taxable income. If the change results in lower taxes, then the company can deduct the entire change in the year of the change, but if the change results in the company owing taxes, then the IRS allows the company to defer the taxes for three years (IRC §481). Also, a gain on sale of inventory and any tax effects on such a gain between related companies can't be recognized until the inventory is sold to an outside party.

Switch to IFRS

IFRS adopted International Accounting Standard (IAS) 2, *Inventories*, which provides guidance on inventory valuation and applies to companies beginning January 1, 2005. Although the standard is similar to GAAP, the differences can result in substantially different inventory values. Table 1 summarizes the main differences in inventory valuation between GAAP and IFRS.

IFRS—Initial Measurement

Similar to GAAP, IFRS values inventory at the cost of acquisition or production. Cost of acquisition includes all costs incurred to bring inventory to a saleable condition and location, and production includes all variable overhead and allocation of fixed overhead. Paragraphs 16 to 18 in IAS 2, identify certain costs, such as storage and selling costs, that a company can't add to the inventory cost. When it takes the company substantial time to get the inventory ready for sale, IAS 23, *Borrowing Costs*, allows interest to be allocated to cost of inventory. Furthermore, IAS 2 specifies that when a company purchases inventory with deferred settlement terms, the difference between the amount actually paid and purchase price is considered interest, so the company can add it to the cost of inventory.

IFRS mandates that if inventory items are identical and interchangeable, an assumption of the flow of costs can be made of either FIFO or average costs. Unlike with GAAP, LIFO isn't an acceptable method of inventory valuation. In Panel A of Table 2, we present the inventory valuation disclosure of Exxon Mobil Corp. and Royal Dutch Shell plc. Exxon files under GAAP with LIFO cost-flow assumption and reports $9.8 billion inventory as of 2010 year-end. Shell follows IFRS with FIFO assumption and reports $29.34 billion inventory. We can compare the inventory of the two top oil and gas competitors if we add the LIFO reserve of $21.3 billion to Exxon's 2010 year-end inventory of $9.8 billion. Similarly, a comparison of inventory valuation between two merchandising firms, Safeway Inc. under GAAP and TESCO plc under IFRS, is provided in Panel C of Table 2.

If the company adjusts standard and retail costs to reflect current conditions, IFRS accepts them. There *are* exceptions to IAS 2. IFRS doesn't apply IAS 2 to agricultural produce, minerals, and mineral products and to brokers and dealers whose inventory is always valued at selling price minus costs of selling.

IFRS—Subsequent Measurement

IFRS requires a company to value inventory at the lower of cost or net realizable value (or fair value). Net realizable value is the estimated selling price minus the estimated costs necessary to make the sale. In the three panels of Table 2, companies under GAAP report inventories valued at the lower-of-cost-or-market rule, and companies under IFRS report inventories valued at the lower of cost and net realizable value.

If the market price is lower than cost, IFRS also recognizes an expense in that period. But unlike GAAP, IFRS allows companies to reverse the expense in the period when the market price goes back to above cost. Table 2 features an example of such reversals in Panel A (Royal Dutch Shell plc footnote 16) and Panel B (GlaxoSmithKline plc's footnote 9).

IFRS—Disclosure Requirements

IAS 2 paragraph 36 requires detailed disclosures of inventory classification; the accounting policy; cost formula used; fair value less costs to sell; inventory expense for the period; write-downs and reversals of write-downs, if any; reasons for reversals; and value of any inventory used as collateral. As IFRS doesn't allow LIFO, there's no need for any LIFO disclosures.

Although IFRS has far more disclosure requirements than GAAP, companies following GAAP have disclosures on inventory classification, accounting policy, cost basis, and LIFO disclosure, if necessary. They also provide voluntary disclosures on write-downs if they are material and inventory expenses for the period in the form of cost of goods sold in the income statement.

IFRS—Tax Impact of Inventory Valuation

Unlike GAAP, gain on sale of inventory between related companies requires that the seller recognizes deferred taxes at the buyer's tax rate. Consider GlaxoSmithKline plc. Its 2010 year-end statement footnote 14 illustrates the tax impact of switching from GAAP to IFRS (see Panel B of Table 2).

Implications of Switching to IFRS Inventory Valuation

The switch to IFRS will most impact companies using LIFO to value inventory. According to the "Incorporating IFRS into Intermediate Accounting" presentation at the 2008 American Accounting Association (AAA) annual meeting, the IRS estimates that removing LIFO will result in more than $10 billion in increased tax revenues. LIFO requires companies to include current inventory costs in income calculation. With a mild increase in inventory costs, LIFO methodology can result in lower taxable income and lower taxes—the higher the cost increase, the bigger the tax advantages. For the year 2010, Exxon Mobil had a LIFO reserve of $21.3 billion. Given the effective tax rate of 45% in footnote 18, if Exxon were to switch to IFRS reporting and use FIFO, its taxes would increase by $9.6 billion. Therefore, it would be all the more necessary for the IRS to remove the conformity rule and allow companies to report taxable income using LIFO and financial reporting with either FIFO or average costs. Robert Bloom and William Cenker suggested another option, which would be to encourage companies to reduce inventory reserves over the next few years while IFRS gets phased in (www.journalofaccountancy.com/Issues/2009/Jan/DeathOfLIFO.htm).

Implementing IFRS in the United States also requires coordinating many regulatory authorities. The PCAOB has to educate its employees so they can answer audit questions; the IRS, as mentioned earlier, should remove the conformity rule; and the SEC will have to educate employees on how to investigate companies that report using IFRS.

In the 2008 IFRS roadmap, the SEC allowed an option of early adoption of IFRS by the largest companies in the U.S. under certain conditions. In order to do so, the companies had to get a "no-objection" letter from the Division of Corporate Finance at the SEC. The letter would be valid for three years, and companies had to provide an IFRS-to-GAAP reconciliation. The earliest companies could do so was as of December 31, 2009. The rest of the companies would adopt IFRS by 2015, provided the SEC approved such an action in 2011. As we mentioned before, the chief accountant of the SEC stated that they need more time to analyze as to when to adopt IFRS. One note: Some commentators about the SEC roadmap objected to the early adoption by large companies on the grounds that a dual system would make it difficult to compare companies and, further, some companies may opportunistically decide which accounting system to adopt.

In addition to complying with the potential rule change to IFRS for reporting, companies must update information systems for new reporting structures and recheck internal controls. There are also implications in tax planning and changes to any contractual agreements, such as loan covenants. Since the Sarbanes-Oxley Act requires the CEO and CFO to sign a certificate taking responsibility for the financial statements, these executives have to understand the impact of the change. Transitioning to IFRS involves getting auditors, corporate accountants, corporate executives, and accounting students educated about the differences between IFRS and GAAP. **SF**

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