Teaching Note

Profit and Inventory under IFRS and GAAP

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Critical Incident Overview

The critical incident asks students to define inventory and net realizable value. The students are also required to execute calculations: the ending Inventory value using allowable cost flow assumptions as well as Gross Profit and Net Income. The critical incident requires the definitions and calculations as required by Generally Accepted Accounting Principles (GAAP), then International Financial Reporting Standards (IFRS).

This critical incident can be used as an in-class assignment or a homework assignment in an introductory accounting course when discussing inventory accounting using different financial reporting frameworks or when explaining earnings management. The critical incident can also be used in an accounting class for non-business majors or an entrepreneurship class.

Research Methods

The critical incident is based on the experience of a child running an ice cream stand. The names have been disguised.

Learning Outcomes

In completing this assignment, students should be able to

1. Analyze the importance of choosing an inventory method.
2. Compare and contrast accounting for inventory under US Generally Accepted Accounting Principles (GAAP) versus accounting for inventory under International Financial Reporting Standards (IFRS).
3. Examine how inventory valuation impacts earnings management.

Discussion Questions

1. What did Sabrina's mother mean when she said: "You did not really make $70.50"? (LO 1)
2. What costs should be included in inventory? What other costs could Sabrina's mother have required to be included in the cost of inventory? (LO 2)

3. Calculate the cost of ending inventory and the cost of goods sold under each of the three acceptable cost flow assumptions, then calculate gross profit. In addition, assume Sabrina was required to pay the neighbor $3.00 and calculate Net Income. (LO 2)
4. Using GAAP, how would Sabrina value the remaining ice cream bars if some of them had slightly melted and refrozen, while others were a little deformed from the handling? (LO 2)
5. Assume that the United States adopted IFRS. What is the definition of inventory and what costs are include under IFRS? (LO 2)
6. What are the allowed cost flow assumptions under IFRS? (LO 2)
7. Discuss how the value of the defrosted/refrozen and deformed ice cream bars would be determined under IFRS and identify important differences when compared to GAAP. (LO 2)
8. How can Sabrina use inventory to manage earnings? (LO 3)

Answers to Discussion Questions

1. **What did Sabrina's mother mean when she said: "You did not really make $70.50"? (LO 1)**

Sabrina's mother means that one must consider the costs incurred to generate the $70.50: the cost of the ice cream bars. When a business person says: "I made $70.50" he/she is referring to Net Income. According to the FASB Codification, "Net Income shall reflect all items of profit and loss" (225-10-45). To exclude the cost of the ice cream bars from this calculation would improperly report earnings. The cost of the ice cream bars Sabrina sold (COGS) must be subtracted from Sales ($70.05) to calculate Gross Profit. All additional expenses are subtracted from Gross Profit to calculate Net Income.

2. **What costs should be included in inventory? What other costs could Sabrina's mother have required to be included in the cost of inventory?(LO 2)**

According to the FASB Codification, inventory should include "the sum of the applicable expenditures and charges directly or indirectly incurred in bringing an article to its existing condition and location" (330-10-30). GAAP requires the cost of purchasing the ice cream bars to be included as inventory and calculated using one of the acceptable cost flow assumptions: first-in first-out (FIFO), average, and last-in first-out (LIFO) (330-10-30). Assigning a value (cost) to inventory is an important step in defining key financial measures used to assess business performance.

The value of the inventory is reported on the Balance Sheet and is often a substantial portion of Current and Total Assets. The Balance Sheet is a report used to examine the financial position of a business at a point in time. The ice cream bars are assets because they provide a future economic benefit. The future benefit is the future sale of the ice cream bars left over. Once the inventory is sold, the value of the inventory flows to the Income Statement as an expense via Cost of Goods Sold (COGS). The COGS figure is used to calculate Gross Profit (GP). GP is a

massively important financial figure and determines whether a business is able to generate enough to cover other business expenses.

In addition to the cost of the ice cream bars, other costs incurred to *ready* the ice cream bars for sale should also be classified as inventory until the items are sold. Such costs include vehicle depreciation and fuel consumed to transport ice cream bars from point of purchase to the sale location. The cost associated with the use of a cooler and the ice required to store the ice cream bars is another cost that should be classified as inventory. Sabrina's mother could require Sabrina to include these costs when calculating her earnings.

3. **Calculate the cost of ending inventory and the costs of goods sold under each of the three acceptable cost flow assumptions, then calculate gross profit. In addition, assume Sabrina was required to pay the neighbor $3.00 and calculate Net Income.(LO 2)**

Table 1: FIFO

Lemon		
Ending Inventory:	2 @ $1.25	$ 2.50
	2 @ $1.15	$ 2.30
		$ 4.80
COGS:	$21.55 - $4.80	**$ 16.75**
	COGS = cost of goods available for sale – cost of items left over (known as ending inventory)	
	[$21.55 = ($1.10 X 10) + ($1.15 X 7) + ($1.25 X 2)]	
GP:	$22.50 - $16.75	**$ 5.75**
	GP = Sales - COGS	
	Sales = selling price X # units sold	
	# units sold = # units purchased - # units left over[$22.50 = $1.50 X (19 – 4)]	

Vanilla		
Ending Inventory:	10 @ $1.10	$ 11.00
	1 @ $1.00	$ 1.00
		$ 12.00
COGS:	$25.00 - $12.00	**$ 13.00**
	COGS = cost of goods available for sale – cost of items left over (known as ending inventory)	
	[$25.00 = ($0.90 X 10) + ($1.00 X 5) + ($1.10 X 10)]	
GP:	$21.00 - $13.00	**$ 8.00**
	GP = Sales - COGS	
	Sales = selling price X # units sold	
	# units sold = # units purchased - # units left over[$21.00 = $1.50 X (25 – 11)]	

Chocolate		
Ending Inventory:	3 @ $1.10	$ 3.30
	2 @ $1.10	$ 2.20
		$ 5.50
COGS:	$24.80 - $5.50	**$ 19.30**
	COGS = cost of goods available for sale – cost of items left over (known as ending inventory)	
	[$24.80 = ($1.05 X 10) + ($1.10 X 10) + ($1.10 X 3)	
GP:	$27.00 - $19.30	**$ 7.70**
	GP = Sales - COGS	
	Sales = selling price X # units sold	
	# units sold = # units purchased - # units left over	
	[$27.00 = $1.50 X (23 – 5)]	

Net Income using FIFO:	$21.45 – 3.00	**$ 18.45**
	[$21.45 = $5.75 + $8.00 + $7.70]	

Table 2: Weighted Average

Lemon		
Ave. Per Unit	$21.55 / 19 Average cost per unit = Total Inventory cost / Total # units purchased [$21.55 = ($1.10 X 10) + ($1.15 X 7) + ($1.25 X 2)]	$ 1.13
Ending Inventory:	4 @ $1.13	**$ 4.52**
COGS:	$21.55 - $4.52 COGS = cost of goods available for sale – cost of items left over (known as ending inventory)[$21.55 = ($1.10 X 10) + ($1.15 X 7) + ($1.25 X 2)]	**$ 17.03**
GP:	$22.50 - $17.03 GP = Sales – COGS Sales = selling price X # units sold # units sold = # units purchased - # units left over[$22.50 = $1.50 X (19 – 4)]	**$ 5.47**

Vanilla		
Ave. Per Unit	$25.00 / 25 Average cost per unit = Total Inventory cost / Total # units purchased [$25.00 = ($0.90 X 10) + ($1.00 X 5) + ($1.10 X 10)]	$ 1.00
Ending Inventory:	11 @ $1.00	$ **11.00**
COGS:	$25.00 - $11.00 COGS = cost of goods available for sale – cost of items left over (known as ending inventory)[$25.00 = ($0.90 X 10) + ($1.00 X 5) + ($1.10 X 10)]	**$ 14.00**
GP:	$21.00 - $14.00 GP = Sales - COGS Sales = selling price X # units sold # units sold = # units purchased - # units left over[$21.00 = $1.50 X (25 – 11)]	**$ 7.00**

Chocolate		
Ave. Per Unit	$24.80 / 23 Average cost per unit = Total Inventory cost / Total # units purchased [$24.80 = ($1.05 X 10) + ($1.10 X 10) + ($1.10 X 3)]	$ 1.08
Ending Inventory:	5 @ $1.08	$ 5.40 **$ 5.40**
COGS:	$24.80 - $5.40 COGS = cost of goods available for sale – cost of items left over (known as ending inventory)[$24.80 = ($1.05 X 10) + ($1.10 X 10) + ($1.10 X 3)]	**$ 19.40**
GP:	$27.00 - $19.40 GP = Sales - COGS Sales = selling price X # units sold # units sold = # units purchased - # units left over[$27.00 = $1.50 X (23 – 5)]	**$ 7.60**

Net Income using Weighted-Average:	$20.07 – 3.00	**$ 17.07**

Table 3: LIFO

Lemon		
Ending Inventory:	4 @ $1.10	$ 4.40
		$ 4.40
COGS:	$21.55 - $4.40	**$ 17.15**
	COGS = cost of goods available for sale – cost of items left over (known as ending inventory)	
	[$21.55 = ($1.10 X 10) + ($1.15 X 7) + ($1.25 X 2)]	
GP:	$22.50 - $17.15	**$ 5.35**
	GP = Sales – COGS	
	Sales = selling price X # units sold	
	# units sold = # units purchased - # units left over	[$22.50 = $1.50 X (19 – 4)]

Vanilla		
Ending Inventory:	10 @ $0.90	$ 9.00
	1 @ $1.00	$ 1.00
		$ 10.00
COGS:	$25.00 - $10.00	**$ 15.00**
	COGS = cost of goods available for sale – cost of items left over (known as ending inventory)	
	[$25.00 = ($0.90 X 10) + ($1.00 X 5) + ($1.10 X 10)]	
GP:	$21.00 - $15.00	**$ 6.00**
	GP = Sales - COGS	
	Sales = selling price X # units sold	
	# units sold = # units purchased - # units left over	[$21.00 = $1.50 X (25 – 11)]

Chocolate		
Ending Inventory:	5 @ $1.05	$ 5.25
		$ 5.25
COGS:	$24.80 - $5.25	**$ 19.55**
	COGS = cost of goods available for sale – cost of items left over (known as ending inventory)	
	[$24.80 = ($1.05 X 10) + ($1.10 X 10) + ($1.10 X 3)	
GP:	$27.00 - $19.55	**$ 7.45**
	GP = Sales - COGS	
	Sales = selling price X # units sold	
	# units sold = # units purchased - # units left over	
	[$27.00 = $1.50 X (23 – 5)]	

Net Income using LIFO:	$18.80 - $3.00	**$15.80**
	[$18.80 = $5.35 + $6.00 + $7.45]	

4. **Using GAAP, how would Sabrina have to value the remaining ice cream bars if some of them had slightly melted and refrozen, while other were a little deformed from the handling ? (LO 2)**

When inventory is damaged, the historical cost principle should *not* be applied without considering the lower of cost or market rule. If the "utility of the goods is no longer as great as the cost," then the inventory must be reported at the reduced market value (330-10-35). Market is defined as replacement cost but cannot be lower than net realizable value minus a normal profit margin (floor) and cannot be higher than net realizable value (ceiling). Sabrina would need to determine the replacement cost of the damaged ice cream bars and compare this value with the estimated selling price (ceiling) and the estimated selling price minus a normal profit margin (floor). The dollar value in the middle (replacement cost, ceiling or floor) would become her market value which would then be compared to the original cost. Sabrina would have to write down her inventory to market if market value was lower than cost. In order to record the adjustment to inventory, Sabrina would recognize a current period loss to reflect the lost value of the inventory. The loss would be equal to the difference between the original cost of the inventory and lower market value. For the ice cream bars that were slightly melted and refrozen, perhaps the loss would be less substantial than for the deformed ice cream bars. If the deformation is so severe that the ice cream bars can no longer be sold, then the loss is equal to the entire cost of those ice cream bars.

5. **Assume that the United States adopted IFRS. What is the definition of inventory and what expenses are included under IFRS? (LO 2)**

Since Sabrina's business would be considered an SME (small and medium sized entity) under IFRS, the authors will use the IFRS for SMEs to answer the following three questions. According to Section 1.2 of IFRS for SMEs "(a) do not have public accountability, and (b) publish general purpose financial statements." Section 13.1 defines inventory the same as US GAAP. Inventories are assets held for sale in the ordinary course of business, items in production or items consumed in production. Sabrina's ice cream bars would certainly qualify as inventory under IFRS, as the ice creams were purchased for resale.

Section 13.5 states that the cost of inventories includes "all costs of purchase, cost of conversion and other costs incurred in bringing the inventories to their present location and condition." Section 13.6 further states that the cost of purchase includes the purchase price, taxes, including transportation and handling costs. The cost of Sabrina's ice cream bars would include the purchase cost, sales tax, and a portion of the cost of the gasoline that was used while driving to buy the ice cream bars.

6. **What are the allowed cost flow assumptions under IFRS? (LO 2)**

According to Section 13.18 an entity shall measure the cost of inventory by using first-in, first-out (FIFO) or the weighted average cost method. The same method should be used for inventories having a similar nature. IFRS does not allow the use of last-in, first-out (LIFO). Inventory items that are not interchangeable or that are produced for specific projects should be

accounted for using the specific identification method (Section 13.17). The ice cream bars should be accounted for either using FIFO or average cost.

7. **Discuss how the value of the defrosted/refrozen and deformed ice cream bars would be determined under IFRS and identify important differences when compared to GAAP. (LO 2)**

Section 27.2 addresses impairment of inventories. SMEs need to compare the carrying amount of each inventory item with its selling price less cost to complete and sell. If the carrying amount exceeds the selling price less cost to complete and sell, the inventory is written down. The offsetting debit is an impairment loss that is recognized in current period profit and loss. Unlike US GAAP, there is no ceiling or floor calculation. When the impairment no longer exists, the entity must reverse the previously recognized impairment loss. Under US GAAP, a reversal is not allowed. Sabrina would have to figure out for how much she could sell the defrosted/refrozen and deformed ice cream bars and deduct any costs to sell. This figure would then be used to record her ice cream bars if lower than the original cost.

8. **How can Sabrina use inventory to manage earnings?(LO 3)**

"Earnings" refers to profits or the bottom line. Earnings management uses accounting rules to manipulate profits legitimately. By carefully selecting from a number of allowable accounting rules, management (or in this case Sabrina) can influence the bottom line and the balance sheet as well.

Sabrina can use inventory to manage her earnings by evaluating how each cost flow assumption affects net income and selecting the more desirable method. Based on the inventory method chosen (LIFO, FIFO, Average Cost), she will show higher or lower net income depending on whether higher or lower cost inventory items are reported as COGS. When higher inventory costs are expensed, net income is lower. It is important to understand the relationship between COGS and the ending balance in inventory. If higher inventory costs are expensed (via COGS) then the lower inventory costs are reported in the current asset section of the balance sheet.

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