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Implication of Choice of Inventory Valuation Methods on Profit, Tax and Closing Inventory

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Abstract: The study examined the implication of the choice of inventory valuation methods on profit, tax and closing inventory. Calculations were made to find out the impact of the FIFO and Weighted Average methods of inventory valuation on profit, tax and closing inventory using practical illustration. Also 47 knowledgeable individual's opinions were sampled in testing the existence of significant correlation between the choice of inventory valuation method and profit, tax, and closing inventory using the Pearson product moment correlation. From the study, it was discovered that the choice of inventory valuation methods impact directly on the profit, tax and closing inventory of any company and also confirmed the existence of a very strong significant correlation between the choice of inventory valuation method and profit, tax and closing inventory. Consequently, the researchers concluded that choice of inventory method has much impact on the dependent variables of the study hence the need for companies to critically examine the methods of inventory valuation before making choice.

Key words: Inventory, Valuation methods, Profit, Tax

1. Introduction

Inventory, to Syanbola (2012), is one of the largest and most valuable current assets of any trading or manufacturing organisation. Omolechinwa (1991) defined inventory as the current asset represented by goods owned for the purpose of future sales or for the manufacturing of goods for sale. Pandy (1966) sees inventory as a product that a manufacturing company manufactures for sale and the components that make up the product. Inventories to a trading company are goods held for sale. To the manufacturers, they are materials or goods supplied to be used in the production process. Inventories are assets held for sale in the ordinary course of business, in the production process for sale; or in the form of material or supplied to be consumed in the process of production or service rendering. Inventories are held for sale and it comprises of raw materials, work-in-progress (unfinished goods) and finished goods. Inventories are valued in the "current asset" section of the statement of financial position (Boundless, 2016). The cost of inventory comprises of purchase cost, conversion cost and all other costs incurred to bring the inventory to its current state and location.

Justin wrote in Chron.com that inventory valuation methods are very vital concept of accounting and management that are used by companies in placing value on its inventory and raw materials. Neil, also in Chron.com defined inventory valuation as the process of assigning value to materials, work-in-progress and finished goods on financial reporting statements. The methods of valuation (Nosiru, 2015), are used for the purpose of determining the value of unsold inventory, value of cost of goods sold and also value of other transactions like inventory purchases needed to be reported at the end of the accounting period. Igben (2009) opined that inventory valuation deserves a special attention because the price at which raw materials are issued directly affects cost of production and it is therefore important that pricing be realistic and consistent. Inventory valuation has to do with the determination or estimation of the amount of inventory to be reported in the financial statements as it concern closing inventory (finished goods and work-in-progress) and cost of goods sold.

Since companies do not buy their inventories the same time there is likely to be differences in the prices of the inventory. As a result, the company have to choose from the different methods of inventory valuation to assess the value of her inventory at the end of the period. In choosing the accounting method of inventory valuation by a company, each of the methods has its inherent advantages and disadvantages.

The choice of any method of inventory valuation has an effect on the gross profit and net income according to Chirantin in Chron.com. Justin, in Chron.com, also shared the same view as he asserted that the valuation method

chosen by a company impact directly on the bottom line profit and tax liability of the company. Ibarra (2014) asserted that the cost of inventory sold impact on the income statement while the statement of financial position is affected by the closing inventory.

The aim of this study is to find out the impact of the FIFO and Weighted Average methods of inventory valuation on profit, tax and closing inventory. And also the correlation relationship between choice of inventory valuation method and profit, tax and closing inventory.

2. Statement of Hypothesis

Ho_1. There is no significant correlation between the choice of inventory valuation methods and profit, tax, and closing inventory.

3. First-In-First-Out (FIFO) Method of Inventory Valuation

This method of inventory valuation works under the assumption that items bought or produced first are the items sold or used first. That is, the items purchased or manufactured earlier are used or sold first before items purchased or manufactured later are considered for use or for sale. This method explains the order in which inventory is bought and then sold.

It is the most popular method of inventory valuation as it is easier and more practical – especially when it concerns perishable goods (Brittani, 2014). Companies selling perishable goods or units that are subject to obsolescence, commonly follow the FIFO inventory method (Arline, 2015).

Advantages of FIFO Method of Inventory

ValuationReduction in number of items of obsolete inventory. This method ensures that oldest inventory items are used or sold first before they become obsolete hence reducing the number of obsolete inventory. Accountants writes off obsolete inventory after a certain amount of times goes by and the item of inventory is not sold or used (Brittani, 2014). This action of accountants becomes possibly because such inventories have become obsolete.

The impact of inflation is reduced. The FIFO method can reduce the impact of inflation felt by the company since the oldest items of inventory are used or sold first before newer items. Since the company sell or use the oldest items for the current inflated price, makes the impact of inflation on the company reduced.

Some companies give preference to this method simply because in accounting for inventory, it is more orderly due to the fact that the first items of inventories received are accounted for as items first sold or used.

This method is the most widely accepted method of inventory valuation. The International Financial Reporting Standard (IFRS) also accepts the FIFO method but rejects the LIFO.

The FIFO method ensures that current ending inventory value on the statement of financial position reflects the current prices of such items of inventory. Since the oldest items of inventory are used or sold first, the items of inventory that will remain at the end of the period may reflect the current price in the market.

Disadvantages of FIFO Method of Inventory Valuation

Brittani (2014) outlined inconsistent prices given to clients and clerical errors as the two disadvantages of the FIFO method of inventory valuation.

An instance of inconsistent prices given to clients is seen when a company purchased a batch of an item of inventory for USD55 and the next batch for USD64 or USD49. The company will increase their asking price for USD64 and reduce it if it is USD49 to maintain her profit margin. This according to Brittani (2014) may be challenging a times to a repeat client. In the case of clerical errors, since inventory prices are not stable, it may become cumbersome to record the cost of goods, selling price of goods and any discrepancy that may occur due to rising and falling in the market price of items of inventory.

4. The Weighted Average Method of Inventory Valuation

In this method, the net purchase is added to the opening inventory and then divided by the units of inventory available to obtain a weighted average unit cost. That is, it divides the total purchase cost by the total units of inventory. This must be done any time in the year that inventories are purchased or produced to arrive at a new weighted average cost. The weighted average cost arrived at is then applied on the total sales unit (total unit issued) and the closing inventory to determine the cost of sales (cost of inventory issued) and the value of closing inventory. Steven (2017) asserted that the weighted average method is used in assigning the average production cost to a product. To him, the method is commonly used in circumstances where;

Items of inventory items are so intermingled such it is not possible to allocate a specific cost to an individual unit.

The system of accounting is not adequately sophisticated to track FIFO or LIFO inventory layers.

Items of inventory are so identical to each other that there is no way to assign a cost to individual units.

This method is accepted and allowed as an inventory valuation method under the GAAP (Generally Accepted Accounting Principles) and the IFRSs (International Financial Reporting Standards).

Advantages the Weighted Average Method of Inventory Valuation.

During price fluctuation, it gives a more satisfactory result

It is allowed and accepted by IFRSs

Same or identical inventories are valued at the same cost purchased differently with different amount and dates

Since the prices of inventory bought at the tail end of the year are added to arrive at the weighted average cost, the

value of closing inventory will be comparatively close to the current market price.

Disadvantages the Weighted Average Method of Inventory Valuation.

Different batches of purchase or production loses their identity.

In valuing inventory the price used may not bear any relationship with the price paid.

Inventories sold, issued or issued may not be at present economic value.

Increase in error risk resulting from rounding off of a number of decimals. When the volume of the inventory is large it may lead to distortion of profit declared.

5. Factors Affecting Choice of Inventory Valuation Method.

Tax savings. The choice of inventory valuation method chosen by an organisation impacts on the tax figure. Lower amount of closing inventory results in higher cost of sales. This will automatically lead to lower profit hence a lower tax.

Price instability. When there are consistent and regular instability and fluctuations in prices, the organisation may decide to choose the weighted average method.

Nature of inventory. Companies may choose the FIFO method if they deal with perishable inventories. This will enable them sell off or issue out the inventories that were purchased or manufactured first. Also if they deal with inventories that have expiring dates, the company will likely adopt the FIFO method.

Lack of adequate information. Onyekwelu & Uche (2014) opined that organisations that do not keep proper (adequate) record may not use the FIFO method. They may not be able to use this method because they lack information on the available inventory.

Onyekwelu & Uche (2014) listed ignorance, convenience, custom, capacity to borrow money or sell the business at the highest possible price, advice from auditors, etc, as factors that affect the choice of inventory valuation method.

6. Methodology

This study is in two parts. The first part is to find out the impact of the FIFO and Weighted Average methods of inventory valuation on profit, tax and closing inventory. Practical calculations were made to find out how the two methods impacts on a company's profit, tax and closing inventory.

The second part of the study is a correlation study. 47 knowledgeable individual's opinions were sampled. The data collected from them were subjected to analysis using the Pearson product moment correlation. The result from the PPMC formed the basis for accepting or rejecting the stated hypothesis.

7. Analysis using Case Question to find out the implication of Two Methods of Inventory Valuation on Accounting Profit, Tax and Closing Inventory

Case Question

D-VOPSU Limited trades on an item of inventory. During the period the following were purchased and sold

Date	Transaction	Quantity	Unit cost/price (USD)
Jan. 2017	Opening inventory	30,000	4.00
April 2017	Purchases	20,000	4.15
July 2017	Purchases	28,000	4.25
Sept. 2017	Purchases	21,000	4.40
Nov. 2017	Purchases	15,000	4.55
Feb. 2017	Sales	20,000	8.00
June 2017	Sales	28,000	8.00
Oct. 2017	Sales	15,000	8.00
Dec. 2017	Sales	10,000	8.00

The following information are vital

a. Operational expenses for the period stood at USD45,000
b. Assume a tax rate of 30%.

The above case will be used to analyse the implication of FIFO, LIFO and Weighted Average Methods on D-VOPSU accounting profit, tax and closing inventory.

Table 1: Calculation of Total Purchases and Total Revenue in Units and Amount (USD)

Date	Transaction	Quantity	Unit Cost USD	Unit Price USD	Total Cost USD	Total Revenue USD
Jan. 2017	Opening inventory	30,000	4.00		120,000	
April 2017	Purchases	20,000	4.15		83,000	
July 2017	Purchases	28,000	4.25		119,000	
Sept. 2017	Purchases	21,000	4.40		92,400	
Nov. 2017	Purchases	15,000	4.55		68,250	
	Total	**114,000**			**482,650**	
Feb. 2017	Sales	20,000		8.00		160,000
June 2017	Sales	28,000		8.00		224,000
Oct. 2017	Sales	15,000		8.00		120,000
Dec. 2017	Sales	10,000		8.00		80,000
	Total	**73,000**				**584,000**

A. Using the FIFO method of inventory valuation

As earlier explained, the inventory items purchased first are sold first. This means that out of the 30,000 units of the opening inventory of the tomato paste must be exhausted first before considering the April's purchase.

Table 2. Valuation of Cost of Sales using FIFO

Description	Quantity sold		Unit Cost USD		Total Amount USD
Feb. sales	20,000		4.00		80,000
June sales	28,000	10,000	4.00	40,000	
		18,000	4.15	74,700	
		28,000*		114,700**	114,700
Oct. sales	15,000	2,000	4.15	8,300	
		13,000	4.25	55,250	
		15,000*		63,550**	63,550
Dec. sales	10,000		4.25		42,500
Cost of Sales					**300,750**

Authors' calculation

* Total quantity of sales for June and October

** Total amount of sales for June and October

Table 3. Valuation of Unsold (Closing) Inventory using FIFO

Date	Quantity	Unit Cost USD	Amount USD
July 2017	5,000	4.25	21,250
Sept. 2017	21,000	4.40	92,400
Nov. 2017	15,000	4.55	68,250
Total	**41,000**		**181,900**

Authors' calculation

Statement of profit or loss account

	USD
Revenue	584,000
Less cost of sales	300,750
Gross Profit	283,250
Less operational cost	45,000
Profit for the year	238,250
Tax @ 30%	**71,475**
Net profit	**166,775**

B. Weighted Average Method of Inventory Valuation

In this method, inventory items are issued or sold using the average unit cost of all the available unit of the item of inventory.

Calculation of the Weighted Average Weighted Average = Total Cost / Total Quantity
USD482, 650 / 114,000
= USD 4.23 (Rounded) per unit

Table 4. Valuation of Sold Inventory (Cost of Sale) using Weighted Average

Quantity Sold	Weighted average Cost (USD)	Amount USD
73,000	4.23	308,790

Authors' calculation

Table 5. Valuation of Unsold (Closing) Inventory using Weighted Average

Quantity Unsold	Weighted average Cost (USD)	Amount USD
41,000	4.23	173,430

Statement of profit or loss account

	USD
Revenue	584,000
Less cost of sales	308,790
Gross Profit	275,210
Less operational cost	45,000
Profit for the year	230,210
Tax @ 30%	**69,063**
Net profit	**161,147**

Table 6. Result of Correlation Analysis between the Choice of Inventory Valuation on Accounting Profit, Tax and Closing Inventory.

	N	Profit	Tax	Closing Inventory
Choice of inventory valuation methods	42	.889**	.889**	.874**

**Correlation is significant at 0.01 level (2-tailed)

From the table 6, at correlation significance of 0.889**, 0.889** and 0.874** suggests a very strong correlation. We therefore reject the null hypothesis of no correlation and accept the alternative hypothesis. That is, there is a significant correlation between the choice of inventory valuation methods and profit, tax, and closing inventory.

8. Discussion of Findings

From table 3 and table 5, the closing inventory using FIFO stood at USD 181, 900 while the weighted average method closing inventory stood at USD 173, 430. Here the current asset of the company will be higher for a company using the FIFO method than that of the company using the weighted average method. This implies that the total current asset of a company using the FIFO method of inventory valuation will be higher than that of the company using the weighted average method.

From the two statements of profit or loss above the profit for the year, the net profit and the tax using FIFO method stood at USD 238,250 and USD 166,775 and USD 71, 475 respectively while that of the weighted average method stood at USD 230,210, USD 161,147 and USD 69, 063 respectively.

The implication is that when a company's choice of inventory valuation is the FIFO method, such company will declare a higher profit for the year than the company that her choice is the weighted average method. Invariably, the company using the FIFO method will pay a higher tax.

The FIFO method favours the company in terms of the amount declared as profit and Closing inventory. It also favours the government since the company will pay more tax and also favours shareholders since higher profit results in higher dividends. It also will attract more investors since a higher profit and dividend will be declared.

The correlation analysis (table 7) shows a very strong significant correlation between the choice of inventory valuation method and profit, tax and closing inventory. The correlation coefficient between choice of inventory valuation and profit, tax and closing inventory was 0.889**, 0.889** and 0.874** respectively.

The finding in this study is in line with the findings of Chirantin when he asserted that the choice of inventory valuation has an effect on the gross profit and net income and Justine that opined that the valuation method any company choose impact directly on the bottom line profit and tax liability of that company.

9. Conclusion

The study looked at the implication of the choice of inventory valuation method on profit, tax and closing inventory. Calculations were made using two methods of inventory valuation methods. Then correlation was also tested on the choice of inventory valuation method and profit, tax and closing inventory.

The researchers concluded that the choice of inventory valuation impacts directly on the profit, tax and closing inventory of any company and that there is a very strong correlation between the choice of inventory valuation and profit, tax and closing inventory.

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