RES MILITARIS
REVUE EUROPEENNE D ETUDES EUROPEAN JOURNAL OF MILITARY STUDIES
Social Science Journal

Variability Inventories' Accounting Measurement

By

Margarita Alekasandrovna Naslednikova
Associate Professor Basic Department of Financial Control, Analysis and Audit of the Main Control Department of the City of Moscow
Federal State Budgetary Educational Institution of Higher Education «Plekhanov Russian University of Economics» Stremyanny lane, 36, Moscow, 117997, Russian Federation
Email: naslednikova_ma@mail.ru
SPIN-code: 7228-86076
ORCID: 0000-0002-8907-6030

Natalia Alekseevna Prodanova
Doctor of Economics sciences, professor Basic Department of Financial Control, Analysis and Audit of the Main Control Department of the City of Moscow
Federal State Budgetary Educational Institution of Higher Education «Plekhanov Russian University of Economics» Stremyanny lane, 36, Moscow, 117997, Russian Federation
Email: prodanova-00@mail.ru
SPIN-code: 2085-6329
ORCID: 0000-0001-5140-2702
ResearcherID: AAJ-2228-2020
Scopus Author ID: 5719125112

Olga Nikolaevna Tarasova
Associate Professor Basic Department of Financial Control, Analysis and Audit of the Main Control Department of the City of Moscow
Federal State Budgetary Educational Institution of Higher Education «Plekhanov Russian University of Economics» Stremyanny lane, 36, Moscow, 117997, Russian Federation
E-mail: olgaklchv@rambler.ru
SPIN-code: 1023-8043
ORCID: 0000-0001-6089-0939
ResearcherID: ABA-4559-2020
Scopus Author ID: 57207848537

Lyudmila Viktorovna Sotnikova
Doctor of Economics, Professor, Professor of the Audit and Corporate Reporting Department of the Faculty of Taxes, Audit and Business Analysis
Federal State Educational Budgetary Institution of Higher Education "Financial University under the Government of the Russian Federation" 125167, Moscow, Leningradsky Avenue, 49/2
E-mail: LSotnikovs@fa.ru, Prof.Sotnikova@mail.ru
ORCID: 0000-0002-6582-3046

Olga Vladimirovna Saradzheva
A. N. Kosygin Russian State University,33, st. Sadovnicheskaya, Moscow, 115035

Anastasia Vasilyeva
Northern (Arctic) Federal University named after M.V. Lomonosov
163002, Russia, Arkhangelsk, embankment Northern Dvina, 17
Email: vasilieva_as@mail.ru

Published/ publié in ***Res Militaris*** (resmilitaris.net), **vol.12, n°6, Winter 2022**

Abstract

The growing acceptance of International Financial Reporting Standards (IFRS) as the basis for financial reporting represents a fundamental change for the accounting profession.

The purpose of this study is to divulge the existing features of inventory accounting in accordance with IFRS standards. The study, based on a literature review and analysis of standards, develops a theoretical framework aimed at facilitating the understanding of the inventory accounting process and the choice of a method for their evaluation.

The emphasis is maid on the implication of the choice inventory valuation methods on profit, tax and closing inventory. In order to investigate the impact of the FIFO and Weighted Average methods of inventory valuation on profit, tax and closing inventory using practical illustrations calculations were made. The study demonstrates the direct impact the chosen method inventory valuation on the profit, tax and closing inventory of the company and also confirmed the availability significant correlation between items mentioned. Consequently, companies should determine the methods of inventory valuation before making decisions concerning inventories.

Keywords: inventories, valuation, IFRS, financial statement, profit, tax, FIFO

Materials And Methods

In the course of the research, scientific materials and articles by foreign scientists, economists and financiers were used, the main characteristics of IFRS 2 were considered, and the following methods were used: comparative analysis, calculations and measurements.

Introduction

Accounting for inventory is intended to accurately reflect the entities' cost expensed. Accounting for inventory should also provide investors a basis with what to determine expected profit. IFRS aimed to provide guidance on "the amount of cost to be recognized as an asset and carried forward until the related revenues are recognized." International Accounting Standards (IAS 2-1).

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.

Literature Review

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. 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.

To value inventory, various methods may be implemented. Thus companies are allowed a choice of inventory valuation methods. IFRS allows the use of FIFO and weighted average cost methods.

As the name suggests, the FIFO (first-in, first-out) method works under the assumption that items bought or produced first are the items sold or used first, regardless of the actual physical flow. Consequently, the items remaining in inventory at the end of the period are those most recently purchased or produced. For this reason, FIFO appears as the closest approximation to actual cost flows (Biddle, 1980). 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.

Table 1. *Pros and Cons of the FIFO method*

Pros of FIFO	Cons of FIFO
Valuation Reduction in number of items of obsolete inventory	Manipulation of income and distortion of truth (Husband, 1940)
The impact of inflation is reduced	Misrepresents market conditions and up to date informations (Reineking et al., 2012)
More orderly	Failure to match physical flow, cost flow and financial records (Reinstein A. et al., 2008, Flood, 2019)

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 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.

However, this method also has disadvantages. Brittany (2014) cited inappropriate prices provided to customers and clerical errors as two shortcomings of the FIFO inventory valuation method. In the case of clerical errors, since inventory prices are unstable, accounting for the cost of goods, the selling price of goods and any discrepancies that may arise due to the rise and fall of the market price of inventory may be difficult.

Under the WAC method, the cost of each item is determined by dividing the cost of goods available for sale by the number of units available for sale. The average may be calculated periodically, or as each additional shipment is received, depending upon the circumstances of the entity (Alibhai et al., 2019).

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 acquisition 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.

Table 2. *Pros and Cons of the WAC method*

Pros of WAC	Cons of WAC
During price fluctuation, it gives a more satisfactory result	Different batches of purchase or production loses their identity
Same or identical inventories are valued at the same cost purchased differently with different amount and dates	In valuing inventory the price used may not bear any relationship with the price paid
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	Increase in error risk resulting from rounding off of a number of decimals

This method is a good representation of value if the purchase price of the items do not change much over the accounting period (Boydas Hazar, 2018, p. 63).

The choice of the costing method is a strategic decision-making tool. The cost of the inventory directly affects the cost of goods sold value, and hence, the profit of the period. High profits are desirable, but they lead to paying higher taxes. The entity may choose a method which would enable to show the net profit higher or lower.

Discussion

The choice of the inventory valuation method chosen by the organization affects the tax indicator. A smaller volume of closing stocks leads to a higher cost of sales. This will automatically lead to a decrease in profits, and therefore to a reduction in tax.

In the presence of constant and regular instability and price fluctuations, the organization may decide to choose the weighted average method. Companies can choose the FIFO method if they are dealing with perishable stocks. This will allow them to sell or

release inventory that was purchased or manufactured first. Also, if they are dealing with stocks that are expiring, the company is likely to adopt the FIFO method.

Onyekwelu & Uche (2014) expressed the opinion that organizations that do not keep proper records cannot use the FIFO method. They may not be able to use this method because they lack information about the available inventory. Onyekwelu & Uche (2014) listed ignorance, convenience, customs, the ability to borrow money or sell a business at the highest possible price, the advice of auditors, etc. as factors influencing the choice of the inventory valuation method.

Thus, there are many factors influencing the choice of the assessment method: tax savings, price instability, the nature of inventory, lack of adequate information, etc.

The objective of this study is to find out the impact of FIFO and weighted average inventory valuation methods on profit, taxes and inventory at the time of closing. Next, practical calculations will be carried out to find out how these two methods affect the company's profit, taxes and inventories at the end of the year.

Example: Company X trades on an item of inventory. During the period the following were purchased and sold:

Table 3. *Initial data*

Date	Transaction	Quantity	Unit cost/price (USD)
January	Opening inventory	30 000	4,00
February	Sales	20 000	8,00
April	Purchases	20 000	4,15
June	Sales	28 000	8,00
July	Purchases	28 000	4,25
September	Purchases	21 000	4,40
October	Sales	15 000	8,00
November	Purchases	15 000	4,55
December	Sales	10 000	8,00

The following information has paramount importance:

a. Operational expenses for the period stood at USD 45,000
b. Assume a tax rate of 30%.

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

Solution: Detailed calculations are presented in Tables 4.

Table 4. *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)
January	Opening inventory	30 000	4,00		120 000	
April	Purchases	20 000	4,15		83 000	
July	Purchases	28 000	4,25		119 000	
September	Purchases	21 000	4,40		92 400	
November	Purchases	15 000	4,55		68 250	
	Total	**114 000**			**482 650**	
February	Sales	20 000		8,00		160 000
June	Sales	28 000		8,00		224 000
October	Sales	15 000		8,00		120 000
December	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 must be exhausted first before considering the April's purchase. Detailed calculations are presented in Tables 5 and 6 (p.5).

Table 5. *Valuation of Cost of Sales using FIFO*

Description	Quantity sold		Unit Cost (USD)		Total Amount (USD)
February 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
October sales	15 000	2 000	4,15	8 300	
		13 000	4,25	55 250	
		15 000*		63 550**	63 550
December sales	10 000		4,25		42 500
Cost of Sales					**300 750**

Table 6. *Valuation of Unsold (Closing) Inventory using FIFO*

Date	Quantity	Unit cost (USD)	Amount (USD)
July	5 000	4,25	21 250
September	21 000	4,40	92 400
November	15 000	4,55	68 250
Total	**41 000**		**181 900**

* Total quantity of sales for June and October
** Total amount of sales for June and October

Based on the calculations obtained using the FIFO method, it is possible to compile a statement of profit or loss. Figure 1 is presented below.

	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**

Figure 1. *Statement of profit or loss (FIFO method)*

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 =
= USD 482, 650 / 114,000= USD 4.23 (Rounded) per unit

Further calculations are presented in Table 7 (p.6).

Table 7. *Valuation of Inventory using Weighted Average*

Valuation of Sold Inventory (Cost of Sale)		
Quantity Sold	**WAC (USD)**	**Amount (USD)**
73 000	4,23	308 790
Valuation of Unsold (Closing) Inventory		
Quantity Unsold	**WAC (USD)**	**Amount (USD)**
41 000	4,23	173 430

Based on the calculations obtained using the WAC method, it is possible to compile a statement of profit or loss. Figure 2 is shown below.

	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**

Figure 2. *Statement of profit or loss (WAC method)*

Result

From table 6 and table 7, the closing inventory using FIFO stood at $181900 while the weighted average method closing inventory stood at $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 $238 250, $166 775 and $71 475 respectively while that of the weighted average method stood at $230 210, $161 147 and $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 favors the company in terms of the amount declared as profit and Closing inventory. It also favors the government since the company will pay more tax and also favors shareholders since higher profit results in higher dividends. It also will attract more investors since a higher profit and dividend will be declared.

Accordingly, based on the conducted research, it can be concluded that the choice of inventory valuation affects gross profit and net income, as well as directly affects the final profit and tax liabilities of this company.

Conclusion

1. Accounting for inventory is intended to accurately reflect the cost expensed by an entity. Accounting for inventory should also provide investors a basis with what to determine expected profit.
2. The methods of valuation 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.
3. To value inventory, various methods are used. Companies are allowed a choice of inventory valuation methods. IFRS allows the use of FIFO and weighted average cost methods. The FIFO (first-in, first-out) method works under the assumption that items bought or produced first are the items sold or used first, regardless of the actual physical flow. Under the WAC method, the cost of each item is determined by dividing the cost of goods available for sale by the number of units available for sale. In choosing the accounting method of inventory valuation by a company, each of the methods has its inherent advantages and disadvantages.
4. Accordingly, based on the conducted research, it can be concluded that the choice of inventory valuation affects gross profit and net income, as well as directly affects the final profit and tax liabilities of this company.

References

Alibhai S., Bakker, E., & Balasubramanian, T. V. (2019). Interpretation and application of IFRS standards

Biddle, G. C. (1980). Accounting Methods and Management Decisions: The Case of Inventory Costing and Inventory Policy. Journal of Accounting Research, 18, 235-280

Boydas Hazer, H. (2018). End of Accounting Period Proceedings: Valuation of Accounts, Adjusting and Closing Entries and Preparing Financial Statements with Emphasis on Application

Ibarra, V. C. (2008). Choice of Inventory Costing Method of Selected Companies in the Philippines. Journal of International Business Research, 7(1)

Igben, R. O. (2009). "Financial Accounting Made Simple", Lagos, Roi Publishers

International Accounting Standards Board (IASB). IAS 2 Inventories [Electronic resource]- URL: http://eifrs.ifrs.org/eifrs/bnstandards/en/IAS2.pdf

Nosiru, A. A. (2015). The Tax Effect of FIFO and LIFO on the profitability of manufacturing

Omolechinwa, E. O. (1991) Coping with Cost Accounting", Lagos, Punmark Nigeria

Oyekwelu, U. L. & Uche, U. B. (2014). Effects of IFRS Adoption on Inventory Valuation and Financial Reporting in Nigeria. European Journal of Business and Management, 6(8), 29-34

Pandy, I. M. (1966).Financial Management, London, Vikas publishing Hse ltd.

Siyanbola, T. T. (2012). Impact of Stock Valuation on Profitability of Manufacturing Industries. International Journal of Advanced Research in management and Social Sciences 1(2), 35-46