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THE APPLICATION OF IAS 2 INVENTORIES STANDARD IN ACCOUNTING PRACTICES

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ABSTRACT

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In this study, IAS 2 Inventories standard is examined and the real-world accounting applications related to inventories are presented. IAS 2 Inventories is an accounting standard, which is part of the International Financial Accounting Standards (IFRS). It is the framework for the accounting treatment of inventories. Inventory makes up substantial part of the total asset value. Therefore, value determination and presentation of inventories is a fundamental part of accounting. The contribution of this work is highlighting the components which make up the value of inventories and the importance of choosing the inventory valuation method in managerial decision making. Moreover, accounts are suggested for journal entries to record inventory related costs.

MUHASEBE UYGULAMALARINDA UMS 2 STOK STANDARDININ KULLANIMI

ÖZ

Anahtar Kelimeler:

UMS 2

UFRS

Stoklar

Değerleme Yöntemleri

JEL Kodları:

M11, M41

Bu çalışmada, UMS 2 Stoklar standardı incelenmiş ve stoklarla ilgili muhasebe uygulamalarına yer verilmiştir. UMS 2 Stoklar, Uluslararası Finansal Muhasebe Standartlarının (UFRS) bir parçası olan bir muhasebe standardıdır. Stokların muhasebeleştirilmesi ile ilgili temel bilgileri verir. Stoklar, toplam varlık değerinin önemli bir bölümünü oluşturur. Dolayısıyla, stokların değer tespiti ve sunumu muhasebenin önemli bir parçasıdır. Bu çalışmanın katkısı, stokların değerini oluşturan bileşenleri ortaya çıkarmak ve yönetsel karar vermede stok değerlendirme yöntemini seçmenin önemini vurgulamaktadır. Ayrıca, stoklarla ilgili maliyetleri kaydetmek için yevmiye kayıtları örnekleri de verilmektedir.

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1. INTRODUCTION

IAS 2 Inventories is an International Financial Reporting Standard (IFRS), which regulates the accounting treatment of inventories. The main focus of this standard is to find the value of inventory and how it is shown in the financial statements.

This standard applies to all inventories, except financial instruments and agricultural products before they are harvested. All finished products that are produced or bought, work in progress goods, raw materials and supplies needed for production or rendering a service are considered inventories by this standard.

The cost of a service is accumulated in an inventory account until its related revenue is recognized (Greuning, Scott and Terblanche, 2013, p. 183). The costs incurred by the ongoing services, like the work in progress for auditors, are recorded as inventories. The cost of a service includes labor expenses and other costs of employees, who are directly related in rendering the service and overhead costs associated with them, but it does not include expenses that are not related to the production of these services (Gökçen, Ataman Akgül and Çakıcı, 2006, p. 58).

Net realizable value is the selling price, where the costs of completion and costs related to making the sale are deducted. Fair value is the sales price, which is negotiated between the related parties.

2. THE VALUE OF INVENTORIES

According to the conservatism principle of accounting, inventories cannot be recorded in the financial statements at a higher price than expected to be obtained as a result of their use or sale (Demir, 2019, p. 405). The Standard is in compliance with the conservatism principle. It states that the value of an inventory should be recorded with the lower of cost or net realizable value (IASB 2003, AIS 2: 9). Therefore, an inventory should be recorded with its acquisition (cost) value or with the selling price, where the costs of completion and costs related to making the sale are deducted (net realizable value), whichever one is lower.

The following example clarifies whether the cost value or the net realizable value is recorded as the inventory value at the valuation date (Ayluçarhan and Kaya, 2011, p. 42):

The inventory is recorded at its cost value, TL 60,000 at its acquisition date. At the end of the accounting period, which is also the valuation date, the estimated selling price of the inventory is TL 50,000. Moreover, the estimated expenses to sell the inventory are TL 4,000. As seen, its net realizable value (TL 46,000) is less than its cost (TL 60,000). Hence, the difference, TL 14,000, is written out as an expense of the period, leaving the books to show TL 46,000 as the value of the inventory. If the net realizable value were TL 65,000 at the valuation date, the cost value of TL 60,000 would have remained unchanged in the books.

3. COST OF INVENTORIES

Cost of an inventory includes all expenses related to purchasing, conversion and bringing the inventory to its present condition and location (Karacan and Uygun, 2017, p. 74).

3.1. Determining the Cost of Inventories

The fundamental characteristics that comprise the cost of an inventory are as follows:

- Purchasing costs are included. These costs are related to the acquisition of finished goods, materials and services. The following costs are included in the purchasing cost:
 - The purchase price
 - Import duties
 - Other taxes, except the ones which are recoverable from the taxing authorities
 - Transportation costs
 - Handling costs
 - Other costs related to the acquisition of the inventory.
 - Discounts and rebates are deducted from the purchasing costs.

- Costs of conversion are included. These costs are related to production. Following principles are valid when calculating the costs of conversion:
 - Direct costs of production, e.g. direct labor, are included.
 - Allocated portion of the general production expenses to the finished goods inventory is included. These are indirect costs. Some examples of these costs are as follows: indirect materials, indirect labor, general production expenses like depreciation of assets related to production site, maintenance of factory buildings, cost of factory management and administration.
 - Indirect fixed costs are allocated as if the production site is working at normal capacity. If the actual production is lower than the normal capacity, the increased overhead cost per unit is not allocated to the inventory. It is recognized as the period's expense. If the production is much higher than the normal, the overhead cost per unit of production is lower than normal periods. The allocated overhead cost is calculated using the actual costs.
 - Variable indirect costs are allocated with respect to the actual usage of the production site.
 - If more than one product is being produced, the allocation of general production expenses should be done on "a rational and consistent basis" (IASB, 2003, AIS 2: 14).
 - Sometimes the production process yields by-products. They are usually immaterial and are measured by net realizable value. Net realizable value is the selling price, where the costs of completion and costs related to making the sale are deducted. This value is deducted from the cost of the main product (Ataman and Gökçen, 2017, p. 92).
- Costs to bring the inventory to its present location and condition are included. Costs incurred to change the design of a product that is specific to a customer are included to the cost of the inventory. Indirect costs that are not related to the production are not part of the cost of the inventory.

- Agricultural products are considered as inventories after harvesting them. The initial recognition value of such inventories is equal to their fair value minus the selling costs.

The following costs are not included into the cost of an inventory:

- The costs related to wasted amounts: Costs due to the abnormal usage of materials, labor or other production costs are not included in the cost of the inventory.
- Storage costs: Costs related to storing the inventory should not be included. However, the storage costs necessary for the production process, such as storing materials or work in progress goods before a production stage, are included in the cost of the inventory.
- Administrative costs: If an administrative cost, which is not related to bringing inventories to their present location and condition, should not be included into the cost of the inventory.
- Sales costs: Costs related to the sale of the inventory are not included into the cost of the inventory.
- Financial costs: Interest expenses related to a purchase are not included in the purchasing costs (Örten, Kaval and Karapınar, 2018, p. 44). If an inventory is purchased on credit, the difference between the purchasing price and the amount that is paid is considered as an interest expense. This amount is not included in the cost of the inventory. However, an asset that requires a significant time for its production, namely a qualifying asset, is an exemption to this rule (IASB, 2007, AIS 23: 5). IAS 23 Borrowing Costs standard states that financial costs related to the acquisition, construction or production of a qualifying asset are included in the cost of the inventory. The financial expenses, which are not excluded from the cost of the inventory, are considered improper accounting application (Yüksel and Kayalı, 2019, p. 128).

3.2. Techniques to Measure the Cost of Inventories

The following methods can be used to measure the cost of inventories (IASB, 2003, AIS 2: 21, 22):

- Standard cost method
- Retail method

The standard cost method is a costing system that traces direct costs to the inventory by multiplying the standard prices by the standard quantities and allocates overhead costs using the standard overhead-cost rates multiplied by the standard quantities of the allocation bases (Horngren, Datar and Rajan, 2012, p. 855). The word standard here means planned or estimated. The standard quantities of materials, supplies and labor are what the entity estimates to use at its normal level of capacity utilization.

Reducing the sales value of an inventory by a margin to find its cost is called the retail method. The same percentage is used on homogenous items. This method is applicable when prices of inventory change with similar margins.

3.3. Assigning Costs to Inventories

Inventory value is material to the total asset value of the entity. Therefore, utmost care should be shown for accurate valuation (Çanakçıoğlu, Erkal and Durmuş, 2015, p. 185). The valuation methods are used to find the cost of inventory.

Specific identification, First-in, First-out (FIFO), Last-in, First-out (LIFO) and weighted average are methods to calculate the cost of inventories. The entity has to choose one of these methods and has to be consistent within the accounting year and the years to come for the comparability of its financial statements.

Last-in, First-out (LIFO) method states that inventory which is acquired last should be sold first. LIFO method usually causes highest value of cost of goods sold and the lowest profit. The International Accounting Standards Board does not allow the use of LIFO method on the basis that the value of the inventory is not presented fairly when the entity uses this method for calculating the cost of the inventory.

Specific identification method can be used for identifiable costs related to an inventory, which cannot be substituted with one another, or cost of goods that are produced or sold for special projects are assigned to that inventory (Yereli, Kayalı and Demirlioğlu, 2012, p. 29). For this to happen, the product or service has to have unique features and the costs can be attributed as the costs the inventory in question. This treatment of costs is valid for both bought and produced inventories.

It is not likely to assign costs to inventory when the inventory consists of large number of interchangeable items. The costs need to be calculated for this type of inventory. Two methods are allowed by the Standard, namely the first-in first-out (FIFO) method and weighted average method.

In First-in, First-out (FIFO) method, the value of the inventory is based on the cost of items bought earliest in the accounting period. FIFO method presumably calculates lower inventory values. Therefore, if the entity is using the FIFO method, it is expected that it will have lower cost of goods sold and higher profit values.

In the weighted average method, the value of the inventory is based on the weighted average cost of the items. This method is a good representation of value if the purchase prices of the items do not change much over the accounting period (Boydaş Hazar, 2018, p. 63).

The choice of the costing method is a strategic decision making tool. As it is seen, 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.

4. LOSS IN THE VALUE OF INVENTORIES

The values of inventories may decrease after their initial recognition. The reasons for the loss in value can be listed as follows:

- Damages
- Becoming obsolete
- Declined selling price
- Increased costs of completion and sales

Inventories should not be presented in the financial statements of the entity above their net realizable value. At the end of each accounting period, the impairment of inventories has to be assessed (Ersen Cömert, 2018, p. 80). It is considered a financial statements fraud not to take the impairment of inventories into account (Zengin, 2018, p. 222).

Industry factors may also cause material misstatements in inventory (Eilifsen et.al., 2010, p. 438). Improper valuation and obsolescence of inventory due to technology changes are the major industry risk factors.

The principals in setting the net realizable value of an inventory are as follows:

- Net realizable value is an estimate. This estimate should base on the most reliable evidence at the time of estimation.
- The reason to have that inventory should be taken into consideration.

If there is a change in the circumstances and the new assessment of net realizable value increases, the amount of write-down is reversed up to the original amount (Ataman Akgül and Akay, 2004, p. 59).

5. RECOGNITION AS AN EXPENSE

When an inventory is sold, its value is deducted from inventories and it becomes an expense of the period.

In case of any write-downs from the net realizable value, the amount is recognized as an expense of the period and this amount is deducted from the value of inventories.

6. ACCOUNTING APPLICATIONS

Some accounting applications for this standard are given below. The account codes and names of the Turkish Uniform Chart of Accounts are used in journal entries.

Application 1:

ABC Corporation buys trade goods with a list price of TL 10,000 (18% VAT not included). The value added tax (VAT) of the merchandise is TL 1,800. The goods are sent by cargo for TL 200, and insured for TL 100. The shipment costs are paid by the company. The company rents a storage room to put the merchandise, and pays TL 500 until the end of the current accounting year. The general administrative expenses for which the period the merchandise is owned by the company is TL 5,000.

The cost of the inventory is calculated as follows:

List price	TL 10,000
Transportation cost	<u>TL 300</u> (cargo TL 200 + insurance TL 100)
Total cost	TL 10,300

The rent and the administrative expenses are not related to the acquisition of the inventory. Therefore, they are not included in the cost. The value added tax on the merchandise will be deducted eventually. Hence, it is not included in the cost as well.

Application 2:

ABC Corporation buys trade goods on credit. Their list price is TL 20,000 (18% VAT not included). However, the company will pay TL 21,000 three months after the purchase.

As it is seen, the company is paying TL 1,000 extra for the three months between the purchase and the payment. This TL 1,000 is considered a borrowing cost, and is not included to the cost of the inventory. If the purchase and the payment are in the same accounting period, this purchase can be recorded as follows:

----- xx.xx.xxxx -----

153 Trade Goods	20,000	
780 Financial Expenses	1,000	
320 Suppliers		21,000

If the purchase and the payment are in different accounting periods, this transaction can be recorded as follows:

At the date that the trade goods are purchased:

----- xx.xx.xxxx -----

153 Trade Goods	20,000
182 Deferred Expenses	1,000
320 Suppliers	21,000

The date when the credit contract ends:

----- xx.xx+3.xxxx -----

780 Financial Expenses	1,000
182 Deferred Expenses	1,000

Application 3:

XYZ Corporation is in charge of a dam construction. The dam is considered as a qualifying asset. The company takes a bank loan for TL 100,000 for the construction. The interest expense, which is paid at the end of each month, is TL 2,000.

The bank loan is used for the construction of the dam, which is a qualifying asset. Therefore, the interest expense related to the loan is considered as a part of the asset, and it is capitalized. The interest expense paid from the company's bank account at the end of each month can be recorded as follows:

----- xx.xx.xxxx -----

730 General Production Expenses	2,000
102 Banks	2,000

Application 4:

ABC Corporation imports trade goods with a list price of TL 20,000. This amount is transferred from the company's bank account. The import duties are TL 1,500, and paid in cash. The handling expenses from the customs to the warehouse of the company are TL 500 + 18% VAT and are paid in cash.

All of these expenses are considered to be part of the inventory cost. Such expenses are accumulated in the 159 Advances to Suppliers account and the accumulated value is transferred to the 153 Trade Goods inventory account (Özbirecikli, Kıymetli Şen and Tüm, 2017, p. 115). Therefore, these expenses can be recorded as follows:

The payment of the trade goods:

----- xx.xx.xxxx -----

159 Advances to Suppliers	20,000	
102 Banks		20,000

----- / -----

The payment of the import duties:

----- xx.xx.xxxx -----

159 Advances to Suppliers	1,500	
100 Cash		1,500

----- / -----

The payment of the handling charges:

----- xx.xx.xxxx -----

159 Advances to Suppliers	500	
191 VAT Deductible	90	
100 Cash		590

----- / -----

The recording of the accumulated expenses as the cost of the inventory:

----- xx.xx.xxxx -----

153 Trade Goods	22,000	
159 Advances to Suppliers		22,000

----- / -----

Application 5:

In the following example, the calculations for the first in first out method (FIFO) and the weighted average method are stated, and their impact on the value of the inventory and the profit of the period is discussed.

XYZ Corporation buys inventory A, which is a trade good, from wholesalers and sells it to public.

The transactions of the inventory A during the accounting period are as follows:

	<u>Amount (kg)</u>	<u>Unit Price (TL)</u>
Inventory at the beginning:	30	3
Purchases:		
18 January	40	4
22 February	20	5
31 March	30	4
14 April	10	5
Sales:		
7 January	20	
10 March	40	
18 March	20	

If XYZ Corporation is using the first in first out method (FIFO), the following calculation is done:

Table 1. Calculation table for the first in first out method (FIFO)

Date	Explanation	In			Out			Remaining		
		Amount	Unit Cost	Total Value	Amount	Unit Cost	Total Value	Amount	Unit Cost	Total Value
01.01	Beginning	30	3	90				30	3	90
07.01	Sales				20	3	60	10	3	30
18.01	Purchase	40	4	160				10	3	30
								40	4	160
22.02	Purchase	20	5	100				10	3	30
								40	4	160
								20	5	100
10.03	Sales				10	3	30	10	4	40
					30	4	120	20	5	100
18.03	Sales				10	4	40	10	5	50
					10	5	50			
31.03	Purchase	30	4	120				10	5	50
								30	4	120
14.04	Purchase	10	5	50				10	5	50
								30	4	120
								10	5	50
	Total	130		520	80		300	50		220

Source: Created by the author.

After recording the transactions using the FIFO method, the account balances for inventory A are as follows:

153 Trade Goods: TL 220 (This account shows the cost of the remaining inventory A)

621 Cost of Trade Goods Sold: TL 300 (This account shows the cost of inventory A which is sold in the period)

If XYZ Corporation is using the weighted average method, the following calculation is done:

Table 2. Calculation of the cost of goods sold of inventory A using weighted average cost method

Date	Transaction	Production (units)	Sales (units)	Cost Per Unit (TL)	Total (TL)
01.01	Beginning	30		3	90
07.01	Sales		20		
18.01	Purchase	40		4	160
22.02	Purchase	20		5	100
10.03	Sales		40		
18.03	Sales		20	10	
31.03	Purchase	30		4	120
14.04	Purchase	10		5	50
	Total	130	80		520

Source: Created by the author.

Total cost of purchases in the period: TL 520

Total number of purchased units in the period: 130 units

Period ending weighted average cost per unit: $520 / 130 = \text{TL } 4 / \text{unit}$

Total number of units sold: 80 units

Cost of trade goods sold: $80 \text{ units} \times \text{TL } 4 / \text{unit} = \text{TL } 320$

Inventory remaining at the end of the period:

$$\text{beginning inventory} + \text{purchases} - \text{sales} = 130 - 80 = 50 \text{ units}$$

Value of the remaining inventory: $50 \text{ units} \times \text{TL } 4 / \text{unit} = \text{TL } 200$

After recording the transactions using the weighted average method, the account balances for inventory A are as follows:

153 Trade Goods: TL 200 (This account shows the cost of the remaining inventory A)

621 Cost of Trade Goods Sold: TL 320 (This account shows the cost of inventory A which is sold in the period)

80 units of inventory A is sold in the period. If the sales price is TL 5 /unit, total sales value is 400 TL (80 units x TL 5 /unit = TL 400).

If the entity is using the FIFO method, the gross sales profit is as follows:

Sales:	TL 400
Cost of Trade Goods Sold:	<u>TL 300</u>
Gross Sales Profit:	TL 100

If the entity is using the weighted average method, the gross sales profit is as follows:

Sales:	TL 400
Cost of Trade Goods Sold:	<u>TL 320</u>
Gross Sales Profit:	TL 80

As it is seen, the choice of the valuation method has an impact on the gross sales profit, and hence, on the period's profit. Therefore, the valuation method to find the cost of the inventory can be considered as a decision making tool of the management.

7. CONCLUSION

IAS 2 Inventories is an accounting standard, which is part of the International Financial Reporting Standards (IFRS). This standard regulates the accounting treatment of inventories. It sets the framework to determine the value of inventories and its presentation in the financial statements.

Products that are produced and bought, raw materials, work in progress and services in progress are considered inventories. Financial instruments and

agricultural products before harvesting are taken into account in different standards; hence, they are not included in IAS 2 Inventories standard.

Inventory is a major part of the total asset value. Therefore, value determination and presentation of inventories is an integral part of accounting. IAS 2 Inventories standard defines the components of the inventory value and gives options of valuation methods.

According to the standard, the value of the inventory is the cost value or the net realizable value, whichever one is lower. The cost includes purchasing costs, conversion costs and other costs related to bring the inventory to its present location and condition. Net realizable value is the selling price from which the costs of completion and costs related to making the sale are deducted.

The costs are assigned to inventory by using one of the three methods, namely, specific identification, first-in first-out and weighted average. The cost calculation slightly differs from one method to another one. Since inventory is part of the total asset value and it is written off as the cost of goods sold after its sale, the value of the inventory has an effect on the total asset value and the profit of the period. Therefore, the choice of the valuation method is related to the strategic managerial decisions.

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