

Implementation Of Triplex Raw Material Inventory Control In The Fine Arts Gallery

Nurafni Oktaviah¹, Masdar Ryketeng²,

¹Department of Accounting, Faculty of Economics and Business, Makassar Public University

²Department of Accounting, Faculty of Economics and Business, Makassar Public University

ABSTRACT

Abstract. Fine Arts Gallery has planned the supply of raw materials using only estimates, without proper planning, so the problem that the company always faces is that the costs incurred both for buying raw materials and storage costs are still very high. The type of data in this study uses qualitative data, namely data that is not in the form of numbers, such as information about the history of the company's establishment and quantitative data, namely data in the form of numbers, including data on the amount of raw material requirements in 2020, and data on ordering costs in 2020 Based on research conducted at the Fine Arts Gallery using the EOQ method, the most economical number of raw material purchases is 21 units with an order frequency of 24 times in one year with a total order cost in a year of IDR 3,552,000, the optimal total inventory cost is amounting to Rp 3,727,500, and a year's total inventory cost of Rp 7,279,500.

Keywords: economic quantities, raw materials, supplies

Abstrak. Fine Arts Gallery melakukan perencanaan persediaan bahan baku hanya menggunakan perkiraan, tanpa adanya perencanaan yang tepat, sehingga masalah yang selalu dihadapi oleh perusahaan tersebut adalah biaya yang dikeluarkan baik untuk membeli bahan baku maupun biaya penyimpanan masih sangat tinggi. Jenis data dalam penelitian ini menggunakan data kualitatif yaitu data yang tidak berupa angka, seperti informasi tentang sejarah berdirinya perusahaan dan data kuantitatif yaitu data yang berupa angka-angka, meliputi seperti data jumlah kebutuhan bahan baku pada tahun 2020 dan data biaya pemesanan pada tahun 2020. Berdasarkan penelitian yang dilakukan pada Fine Arts Gallery dengan menggunakan metode EOQ jumlah pembelian bahan baku yang paling ekonomis adalah 21 unit dengan frekuensi pemesanan sebanyak 24 kali pemesanan dalam satu tahun



dengan total biaya pesanan dalam setahun Rp 3.552.000, Total biaya persediaan yang optimal adalah sebesar Rp 3.727.500, dan total biaya persediaan setahun sebesar Rp 7.279.500.

Kata kunci: Bahan baku, persediaan, kuantitas ekonomi

* Corresponding Author at Department of Accounting, Faculty of Economics and Business, Universitas Negeri Makassar, Jl. Pendidikan Makassar, Sulawesi Selatan, Indonesia.

E-mail address: nurafni.oktaviyah@unm.ac.id , masdar.ryketeng@unm.ac.id

1. Introduction

Company control is something that is very important for a company because without proper inventory control the company will experience problems in meeting consumer needs both in the form of fields and services produced by the company. A company must be wise in determining the amount of inventory that will be used in the production process because without proper management the company will experience losses due to costs that should not be incurred by the company such as factory overhead costs, building costs, and costs of damage to goods due to excessive stored for a long time.

Basically, a company plans and controls raw materials with the aim of minimizing costs and maximizing the company's profits. To minimize inventory costs, the Economic Order Quantity (EOQ) analysis tool can be used. Fine Arts Gallery is a type of business that operates in the furniture sector which is located on Jln. Sultan Hasanuddin, Makassar City, which was founded by Mr. Mansyur. So far, Fine Arts Gallery has carried out raw material inventory planning only using estimates without proper planning, so the problem that the company always faces is that the costs incurred to purchase raw materials are still very high.

In writing this research the author limited the problem to controlling the supply of plywood raw materials for making calligraphy. The aim of this research is to find out the optimal amount of raw materials needed for plywood at the Fine Arts Gallery, to know the economical cost of raw materials for plywood at the Fine Arts Gallery, to know the costs of handling inventory at the Fine Arts Gallery and to know the total inventory costs by the Fine Arts Gallery .

Literature Review



Stock

Company control is monitoring and controlling the amount of raw material inventory available in the warehouse and finished product inventory. By implementing inventory control the company can avoid dependence on the production process on raw materials and plan optimal sales levels and regulate the purchase of raw materials. Inventory Cost or inventory is a number of materials/goods provided by the company, both in the form of finished goods, raw materials and goods in process, which are provided to maintain the company's smooth operations to meet consumer demand at any time (Margaretha, 2005).

Supplies of goods in adequate quantities, whether in trading or manufacturing companies, will create efficient costs. A high amount of inventory means, on the one hand, the company lacks inventory or minimizes the possibility that the company will not be able to meet customer demand. On the other hand, it will result in investment in the inventory sector, meaning funds will experience bottlenecks in inventory and the possibility of inventory damage will be greater (Arifin, 2007). Raw materials are one of the most important factors in the production process. Raw materials can be interpreted as basic materials or basic materials used to produce finished products (Asman, 2020).

Raw materials are raw or unprocessed materials used to make products. Raw materials are supplies purchased by a company to be processed into semi-finished goods and finally finished goods or final products from the company (Syamsuddin, 2001). According to Assauri (2008) raw materials are all raw materials including all materials used in the factory company, except for materials that will be physically combined with the products produced by the factory company. Inventory has the following types:

- a. Raw material inventory is the inventory of raw materials or materials that have been purchased by the company but have not yet entered the production process. Meanwhile, the inventory of intermediate goods, namely raw materials that have gone through the manufacturing process and have added value but have not yet been completed in the production process, still have to go into assembly or have not yet been completed to become products suitable for use.
- b. MRO inventory, namely inventory specifically intended as supplementary materials, usually consists of materials for maintenance, upkeep and materials to support the

smooth running of production activities.

- c. Finished goods inventory is inventory in the form of materials that have been completed through various manufacturing processes or products that have been completed and are awaiting delivery.

In ordering raw materials, the company will try to buy in the number of units or quantities that minimize inventory costs. The inventory quantity for one order with a minimum annual inventory cost is called the economic order quantity (EOQ).

When purchasing raw materials, companies must consider two types of costs in purchasing raw material inventory, namely inventory handling costs (cost of carrying inventory) and ordering costs. Inventory ordering costs are the costs of placing and receiving orders. There are trade-off conditions for these two inventory costs in relation to the quantity of raw materials purchased. If a company buys raw materials in large quantities for each purchase, handling costs will be high but ordering costs will be low because orders are not made frequently. On the other hand, if a company buys small quantities in each order, the company must make frequent orders so that ordering costs will be high but inventory handling costs will be low. Companies must strike a balance between these two costs to obtain minimum inventory costs. In an effort to balance these two costs, the emphasis is on minimizing investment in inventory and achieving a more efficient and effective production process.

Methods, Data, and Analysis

Research methods are the methods used by researchers to collect research data. This research uses several methods, namely descriptive and quantitative, which is done by analyzing and drawing conclusions from various conditions and situations. The data presented is in the form of figures from the results of field analysis as well as interviews with the owner of the Fine Arts Gallery or observations regarding the problem being studied.

The data collection method used was interviews and field studies regarding inventory problems. The interview process involved the owner of the Fine Art Gallery, so that the results of the interview were the data needed in this research such as:

1. Price for plywood raw materials per sheet



2. Data on storage costs for plywood raw materials

3. Data on the cost of ordering materials

Results and Discussion

Order Fees

Costs incurred by the company in placing orders between the company and the supplier. The costs that must be incurred by the Fine Arts Gallery include:

a. Order Processing Fees and Accommodation Fees

Costs incurred due to payment transactions and purchases of raw materials as well as accommodation costs from suppliers to the company. The cost data for a year can be seen in the following table:

Komponen Biaya	Biaya
Order Processing Fees	98.000
Accommodation costs	50.000
Total	148.000

Source: Fine Arts Gallery (2020)

b. Data on Raw Material Requirements

Fine Arts Gallery is a company engaged in the manufacturing industry which produces products in the form of calligraphy and mirrors. Fine Arts Gallery's raw material requirements in 2020 are 500 sheets of plywood at a price of IDR 355,000 per unit.

Calculating Average Purchases of Raw Materials

The average purchase of raw materials can be calculated based on company policy that is:

$$\begin{aligned}
 &= \frac{\text{Total raw material requirements}}{\text{Frequency of orders}} \\
 &= \frac{500}{12} \\
 &= 41,67
 \end{aligned}$$

So the average purchase amount of raw materials at the Fine Arts Gallery is 41.67

plywood sheets or 42 plywood sheets for production in one period.

EOQ method

The calculation steps using the Economic Order Quantity (EOQ) method are:

Selection of Economical Raw Materials

KU = required number of units in a year = 500 plywood sheets

BP = Ordering cost for each order placed = Rp. 148,000,-

BB = Cost or price of raw materials per unit = IDR 355,000

BPP = Inventory handling costs = -

Solution:

$$\begin{aligned}
 \text{EOQ} &= \sqrt{\frac{2 \times KU \times BP}{BPP \times BB}} \\
 &= \sqrt{\frac{2 \times 500 \times \text{Rp } 148.000}{\text{Rp } 355.000}} \\
 &= \sqrt{\frac{\text{Rp } 148.000.000}{355.000}} \\
 &= \sqrt{417} \\
 &= 21 \text{ unit}
 \end{aligned}$$

Based on calculations, the results showed that the economic quantity of purchases made at the Fine Art Gallery was 21 units.

Calculate a year's ordering costs

$$\text{Number of orders in a year} = \frac{\text{NUMBER OF UNITS REQUIRED A YEAR}}{21} = \frac{500}{21} = 24 \text{ Times}$$

$$\text{Annual order costs} = 24 \times 148,000 = \text{IDR } 3,552,000$$

Based on the calculation results, the number of orders in a year is 24 orders with an ordering cost of IDR 3,552,000 per year

Calculate annual inventory handling costs

$$\text{Average inventory quantity} = \frac{EOQ}{2} = \frac{21}{2} = 10.5 \text{ units}$$

$$\text{Raw material handling costs} = 10.5 \times 355,000 = \text{IDR } 3,727,500$$

Based on the calculation results, the average amount of inventory per year is 10.5 units with the cost of handling raw material inventory being IDR 3,727,500 per year.

Calculate annual inventory costs

$$\text{Annual inventory costs} = \text{IDR } 3,552,000 + \text{IDR } 3,727,500 = \text{IDR } 7,279,500$$

Based on the results of calculating annual inventory costs, it is obtained from the sum of annual ordering costs and annual inventory handling costs to obtain a result of Rp. 7,279,500.-.

Conclusion and Suggestion

Fine Arts Gallery is a type of business that operates in the furniture sector. The total purchase of plywood raw materials using the EOQ method is 21 units with a total annual ordering cost of IDR 3,552,000. The total annual inventory costs are IDR 7,279,500. This means that Fine Art Gallery prepares a budget for handling inventory so that it can estimate the amount of costs used to supply raw materials, especially plywood as the main raw material.

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