

CHAPTER I

INTRODUCTION

This chapter contains the research background, problem formulation, objectives, problem scopes, and outline of the research.

1.1 Background

One of the most attractive retail business sectors today is the retail business engaged in Fast Moving Consumer Goods (FMCG) (Ar and Kurniawan, 2021). FMCG products are defined as products that are consumed directly by many people in their daily needs and have a fast turnover cycle. The rapid turnover cycle is caused by the large number of product requests in a matter of days, resulting in a low shelf life in this type of product. Determination of the optimal amount of inventory needs to be considered to be able to meet demand at a low cost (Savitri et al., 2022)

Distribution business is a business activity to facilitate the delivery of products and services from producers to consumers. The aim of distribution is to facilitate the distribute products from producers to end consumer so that consumer could receive product on appropriate moment (Friera et al., 2022). Distribution activities side by side with production activities, also distribution actors must also be able to make products and services marketed can be spread well to the intended target consumers. Products distribution will certainly maintain the continuity of the production process so that products do not accumulate in warehouses, in addition to distribution to make it easier for consumers to get products and services, because not all of them have direct access to producers, especially products produced in large factories (Angki, 2021).

Inventory is an idle resource, the existence of which awaits further processing. The existence of inventory is not only on the production floor, but also

spread to systems outside manufacturing, such as distributor warehouses. Items in inventory cannot be obtained instantly, but it takes a period of time to obtain them. The period is calculated from the beginning of ordering products, the production time of products, to the processing time of products in the warehouse until they can be used (Bahagia, 2006). Inventory needs to be regulated and controlled as much as possible, because it affects the fulfillment of products with the right quantity, quality, and time, as well as minimum inventory costs to get maximum profit (Vikaliana et al., 2020).

PT XYZ is a products distribution company of PT KAO Indonesia. The types of products distributed include consumer products produced by PT KAO Indonesia, which consist of three categories. The first category is health and beauty, which consists of Biore face and body soap, Megrhythm eye mask, Liese hair dye, and Jergens body lotion. The second category is hygiene and living, which consists of Laurier pads & panty liners, Attack laundry detergents and softeners and Magiclean floor cleaners. The third category is the baby diapers category, which consists of Merries baby diapers. Examples of PT KAO Indonesia's products can be seen in **Figure 1.1** below.



Figure 1.1 Examples of PT KAO Indonesia Products

The procurement of PT XYZ products is carried out by ordering products directly to PT KAO Indonesia. The ordered products will come delivered by truck vehicle and arrived one week later. The distribution of PT XYZ products is carried out to minimarkets, stalls, and retail stores. The demand for each item in PT XYZ fluctuates and cannot be known with certainty. This is because the amount of demand for each consumer is different and adjusted to their respective needs.

Figure 1.2 below is a graph of the fluctuating demand for N146 products during 2023.

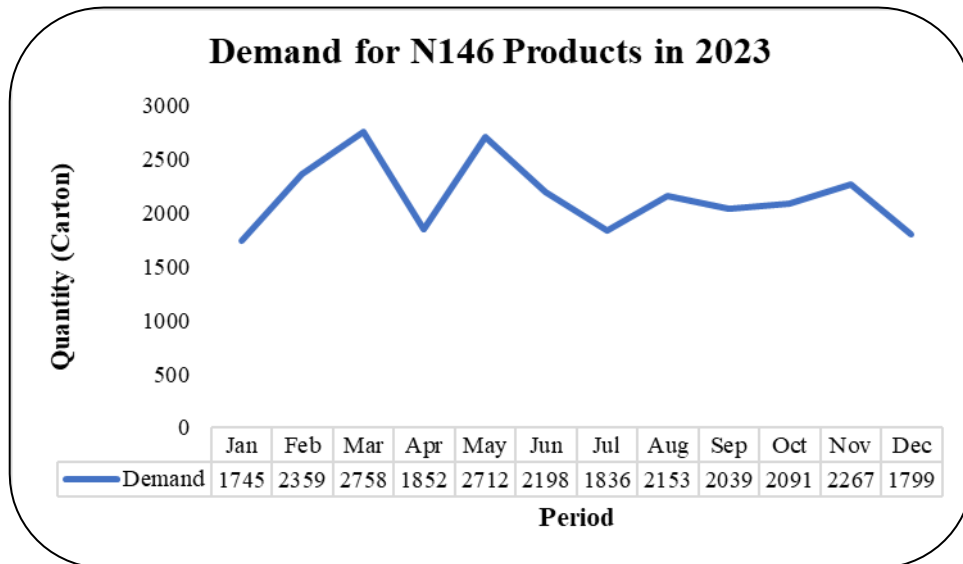


Figure 1.2 N146 Products Demand Graph in 2023

The determination of the number of orders for products at PT XYZ is carried out without any specific calculation regarding the quantity of orders and the time of reordering products. Determining the number of orders for products at PT XYZ is done by looking at how much the difference between the amount of inventory should be and the current inventory. The amount of inventory should be determined by looking at the average daily sales of a product in the previous month, then multiplied by twenty-one. That is, this amount is required to be able to meet the product inventory for twenty-one days. However, this policy is deemed inappropriate to be applied at PT XYZ. This is because there are many items that are rarely sold every month. In addition, for items that come out too often, they will often be ordered. The problem of products that are rarely sold every month is experienced by 44 items, with complete data contained in **Appendix A**.

Based on **Table A.1** on **Appendix A**, it can be seen that N1 products in 2023 were not sold in January, March, April, May, July, October, November, and December. This will cause no average sales of products in that month, so that the item will not be ordered again the following month. In addition, if there are items

that come out very often, then these items will be purchased very often to the company.

Each period of ordering products to PT KAO Indonesia is carried out to fulfill one vehicle. If the specified order quantity cannot fulfill one vehicle, then another order is placed for the fast moving products, products in promotion period, and products that have little stock until they can fulfill one vehicle. This condition will certainly cause overstock conditions on some products. In addition, products that are ordered because of low stock may not necessarily be sold in the following month. This will certainly cause losses in transportation costs and storage costs.

This overstock condition occurs when the amount of inventory exceeds the demand for the item. This is caused by the number of purchases of these products exceeding the number of requests, which will cause the products to overstock in the warehouse. This overstock condition will cause a buildup of products and warehouse conditions to become full, which will cause an increase in inventory costs. Based on inventory data, there are several items that indicate overstock. The following is a comparison chart of the number of incoming products and outgoing products for items that are indicated to experience overstock conditions which can be seen in **Figure 1.3**.

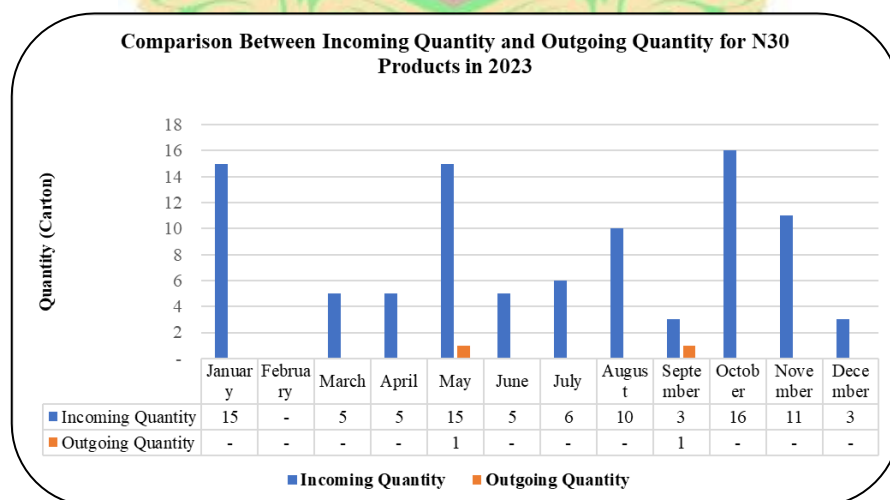


Figure 1.3 Comparison Chart Between the Number of Incoming Quantity and Outgoing Quantity for N30 In 2023

Figure 1.3 above is a comparison chart between the number of incoming quantity and outgoing quantity for N30 in 2023. Based on this figure, it can be seen that the number of incoming items of N30 always exceeds the number of outgoing items every month. It can be seen that in January the number of incoming items was 15 cartons, but there were no outgoing items in that month. Likewise in May, the number of incoming items is 15 cartons, and the number of outgoing items is only 1 carton. This shows that the number of incoming items is always more than the outgoing items, which causes an overstock condition in the warehouse.

Table 1.1 Comparison Table Between the Number of Incoming Quantity and Outgoing Quantity for N30 In 2023

Month	Incoming Quantity (Carton)	Outgoing Quantity (Carton)
January	15	-
February	-	-
March	5	-
April	5	-
May	15	1
June	5	-
July	6	-
August	10	-
September	3	1
October	16	-
November	11	-
December	3	-

Table 1.1 above is a table that contains the number of incoming items and outgoing items for N30. Based on the table, it can be seen that the comparison of the number of months in which there are incoming items and those in which there are items sold is very significant. Where, in 2023 for N30 there are 11 months that place orders, while the months that there are products sold are only 2 months. This certainly causes an imbalance in the amount of products in the warehouse and causes overstock conditions. The problems in **Figure 1.3** and **Table 1.2** do not only occur with one item, but with several items. Items that experience these problems can be seen in **Appendix A**.

Based on **Table A.3**, **Table A.4**, **Table A.5**, and **Table A.6** on **Appendix A**, it can be seen that there are 40 items that are frequently purchased but rarely sold. This will certainly cause a big difference in the value of incoming products and the value of products sold. The difference in the value of incoming products and the value of outgoing products can be seen in **Appendix A**.

Based on **Table A.7** and **Table A.8** on **Appendix A**, we can see a very significant difference between purchase value and value of products sold existing products purchased but rarely sold. In total, the value of all products entered or purchased amounted to IDR 1,788,190,352, and the value of products sold amounted to IDR 431,858,610. This difference is very significant, with a difference of IDR1,356,331,742. This large difference value indicates an imbalance between the products purchased and the products sold. This large difference will cause large funds to be deposited in inventory, resulting in high storage costs, lack of fund turnover, and opportunities to lose revenue.

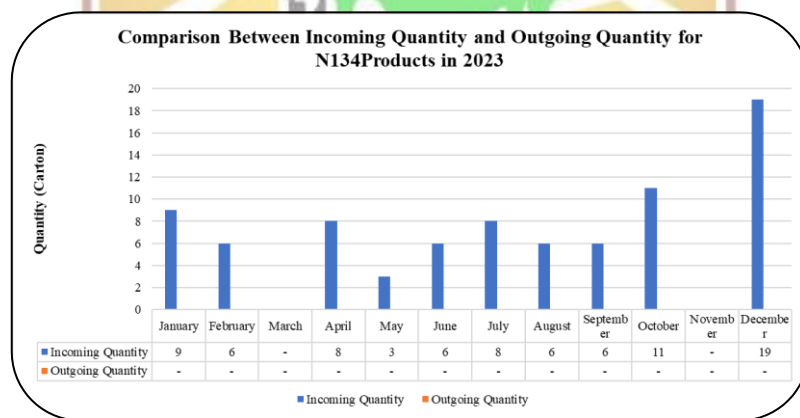


Figure 1.4 Comparison Chart Between the Number of Incoming Quantity and Outgoing Quantity of N134 Products In 2023

Figure 1.4 above is a comparison chart between the number of incoming items and outgoing items of N134 products in 2023. Based on this figure, it can be seen that the number of incoming items in January is 9 cartons, while there are no outgoing items or 0 cartons. Every month there are incoming items except March and November, and every month there are no outgoing items. This situation is certainly not optimal, because it certainly causes the accumulation of products in

the warehouse, because the products frequently purchased but never leave the warehouse. Items that experience these problems can be seen in **Appendix A**.

Based on **Table A.9** and **Table A.10** on **Appendix A**, it can be seen that there are 16 items that are frequently purchased but never sold. This means that every item purchased will come and will only be stored in inventory. As a result, these items will cause the deposition of funds in inventory, which results in high inventory costs, greater risk of damage to products, and risk of loss of revenue. In addition, this is definitely a serious problem, as more than one item experiences this condition. This condition causes a big difference in the value of products entered and the value of products sold. The difference in the value of incoming products and the value of outgoing products can be seen in **Table 1.2** below.

Table 1.2 Comparison Between Purchase Value and Value of Products Sold Existing Products Purchased But Never Sold

No	Item Name	Purchase Value	Value of Product Sold
1	N75	IDR 4,467,528	IDR -
2	N74	IDR 6,701,292	IDR -
3	N51	IDR 17,022,960	IDR -
4	N108	IDR 9,006,984	IDR -
5	N109	IDR 20,727,252	IDR -
6	N95	IDR 7,776,216	IDR -
7	N94	IDR 6,665,328	IDR -
8	N110	IDR 12,206,448	IDR -
9	N116	IDR 11,844,144	IDR -
10	N134	IDR 43,580,376	IDR -

Table 1.2 Comparison Between Purchase Value and Value of Products Sold Existing Products Purchased But Never Sold (Cont.)

No	Item Name	Purchase Value	Value of Products Sold
11	N135	IDR 37,818,144	IDR -
12	N38	IDR 8,823,168	IDR -
13	N39	IDR 12,376,944	IDR -
14	N44	IDR 8,823,168	IDR -
15	N41	IDR 6,862,464	IDR -
16	N43	IDR 7,533,792	IDR -
Total		IDR 222,236,208	IDR -

Based on **Table 1.2**, it can be seen that there is a very significant difference between purchase value and value of products sold existing products purchased but never sold. In total, the value of all incoming or purchased products is IDR 222,236,208, and the value of products sold is IDR 0. This means that the value of products sold is equal to the value of funds that will settle in inventory later. As a result, storage costs will increase for these items, lack of fund turnover, and the risk of lost revenue.

Based on these problems, it can be concluded that the inventory planning and ordering policies carried out by PT XYZ are not appropriate and not optimal. Therefore, proper inventory and order planning are needed at PT XYZ so that consumer demand is met optimally, minimize storage and transportation costs, and optimize truck delivery capacity. This research is expected to help PT XYZ in formulating the right inventory and order planning to optimize the capacity of shipping products at PT XYZ.

1.2 Problem Formulation

What are the inventory and order planning at PT XYZ in order to optimize the capacity of shipping products?

1.3 Research Objective

The objective of this study is to determine the right inventory and order planning at PT XYZ.

1.4 Problem Scopes

The scopes of the problem in this study are as follows.

1. The data used for research is 2023 data products.
2. The price of the products are assumed to be unchanged.
3. Controlled products have a long expiration period.
4. The ordered products are assumed to come in good condition and simultaneously.

1.5 Outline of The Research

The outline of the research report in general is as follows.

CHAPTER I INTRODUCTION

The introduction contains research background, problem formulation, research objectives, problem scopes, and outline of the research.

CHAPTER II LITERATURE REVIEW

The literature review section contains relevant theory and concept that guides this study and is used as a theoretical framework for thinking, as well as a foundation for problem solving.

CHAPTER III RESEARCH METHODOLOGY

This chapter contains stages and procedures of systematic research consisting of preliminary studies, problem

identification, problem formulation, data collection, method selection, data processing, data analysis, and closing.

CHAPTER IV

COLLECTION AND PROCESSING DATA

This section contains an explanation of the data collection required in the data processing to be carried out.

CHAPTER V

ANALYSIS

This section contains an analysis of the results that have been obtained from the results of data processing.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

This section contains conclusions based on the results of research that has been done and suggestions needed for future research.

