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# Inventory Management and Performance of SMEs in the Manufacturing Sector in West Java Province, Indonesia

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**Abstract.** This study is to assess the effectiveness of the inventory management system (IM) used by SMEs in the West Java province of Indonesia. Inventory management is one of the studies in management accounting. with the aim of providing convenience in checking the remaining stock inventory, reducing the risk of delays in shipping goods to consumers and production schedules can be adjusted by the company. This study consisted of a population of manufacturing SMEs whose respondents were selected purposively from the companies selected by the researcher. This study used a descriptive qualitative research design. This research also uses a purposive sampling technique. The sample size used was 102 respondents. The tool used in this research is SEM-PLS. The results showed that most SMEs in managing inventories used the Economic Order Quantity (EOQ) system which was based on previous sales data and there were still SMEs in managing their inventory that was not computerized so that SMEs using the EOQ method faced challenges in the supply chain due to the level of fluctuation in demand. Sales that change frequently Based on these findings, the researcher concludes as well and proposes a request for further study of the factors affecting EOQ in SMEs to increase clarity.The first section in your paper

## 1. Introduction

Inventory is an important asset for most businesses and businesses in the form of current assets of manufacturers and retailers (retail). In a competitive economic climate, inventory accounting methods and management practices have become tools for improving earnings. A better inventory system can increase profitability, while a bad system can erode profits and become a less competitive business. The existence of inventory in the company is very necessary because the operational activities of a company will not run if there is no inventory. companies must maintain inventory because inventory is no less important than cash. Inventory is one of the main factors in generating profits for the company. because with the company's inventory can avoid the risk of not meeting consumer demand.

The slowdown in household consumption occurred in line with the decline in income community as the impact of COVID-19 with high cases of layoffs and the laying off of workers in various economic sectors affected sincequarter I 2020. Investment in the form of Gross Fixed Capital Formation (GFC) growing below normal capacity, in line with declining investment physical, especially buildings and goods. Exports contracted due to the decline world trade volume due to weak global demand followed social distancing policy and travel warning to prevent disseminationCOVID-19. eanwhile, imports experienced a deeper contraction in line with this slowing economic performance of China as a major supplier of materials industrial raw material in West Java. [1]


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Broadly speaking, this Economic Order Quantity model manages inventory through precise calculations of everything concerning ordering costs and storage costs in the warehouse. Where the cost of ordering will be related to the costs of procuring goods, shipping, receiving, and settlement. Meanwhile, storage costs are included in the cost of warehouse rental, maintenance, and damage to raw materials.

Inventory management functions to manage every inventory in the company. Starting from how to obtain this inventory, how to store it, to how it is used or removed. Of course, inventory management is an important part of the company. Especially if the company is engaged in trading. Inventory management helps organize the company's inventory so that it doesn't run out. According to [2] defines inventory at a trading company as inventory purchased for the purpose of reselling. [3]) argue that inventory is the largest fixed asset owned by retail companies. [4]) state that merchandise inventory in the clothing retail business has different characteristics due to various types of inventory, many types of merchandise, and limited life of merchandise. However, there are two reasons having an inventory of merchandise is important for retail businesses. First, because the supply and demand from customers cannot exactly match. Second, having an inventory requires cash investment that is not productive [2]).

The aims and objectives of this study are solving problems related to supply management in SMEs as well as obtaining new information about the supply system in SMEs and confirming theories related to the supply system to explain and develop theories found based on theory or literature in accordance with research. If this type of research is descriptive and verification research carried out through field data collection, the method used in this research is an explanatory survey. According to [5] "states that" Explanatory surveys are carried out to explore problem situations, namely to get ideas and insights into the problems faced by management or researchers ". This survey is used to explain the causal relationship (causality) between the variables studied through hypothesis testing. The survey will be carried out in the field by distributing questionnaires to respondents to obtain relevant facts about causal relationships and hypothesis testing. Based on the timeframe used to conduct the research, the research method used was a cross sectional method, namely research conducted in less than one year.

## 2. Literature Review

### *2.1. The Concept of Inventory Management*

Several types of SMEs have different supply systems, depending on the type of business and the products produced, it will determine the inventory management system. In a trading business that provides daily necessities, for example, it must always keep the inventory varied (many choices), there is no damage, and does not expire that can harm customers. However, SMEs that produce products and services have different supply systems.

Quality, product engineering, price, overtime, overcapacity, customer responsiveness (due date performance), waiting time, and overall profitability are affected by inventory levels [6]). Companies with higher inventory levels than their competitors tend to be in a worse competitive position [6]). Inventory management is the ability of a company to organize and manage every need for goods, both raw goods, semi-finished goods, and finished goods so that they are always available both in stable and fluctuating market conditions). Inventories in manufacturing companies are defined as raw materials contained in the production process that are stored for the production process [7]. If the company stores a lot of raw materials, it will result in costs arising from storing the materials and the risks that arise if the raw materials have a validity period.

According to [8] Inventory Control Methods are important in a company, but if the inventory is too much it can cause costs that ultimately harm the company, for example the cost of damage to raw materials because they are stored too long in the warehouse. Companies need to control inventory to solve it, inventory control methods. Statistical control methods (Statistic Inventory Control). This method uses mathematics and statistics as the main tools in solving quantitative problems in an inventory system. Basically, this method seeks to find optimal answers in the Inventory Characteristics: Independent Demand and Dependent Demand determine EOQ, reorder point and


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safety stock [9] .Material requirements planning (MRP) method. This MRP method is oriented, which consists of a set of procedures, decision rules and a set of recording mechanisms designed to describe the Master Production Schedule (JIP). Just In Time (JIT) inventory method. In JIT, an inventory control technique called Kanban is used. In this system, the type and number of units required by the next process are taken from the previous process when needed [10].

Understanding MRP According to [10] "Material Requirements Planning Techniques (Material Requirement Planning) are used for planning and controlling item items (components) that depend on items at a higher level (level)." According to [11] The dependent technique used in a production environment is called Material Requirement Planning (MRP)". Based on the above understanding, it can be concluded that MRP (Requirements Planning Technique) is a technique used in the production process to plan and control components or supplies.

MRP and JIT MRP are related to JIT because MRP is used to plan and control inventory in line with the Just In Time System, namely to reduce inventory to a minimum. According to [11] "An MRP system combined with JIT provides the best for both. MRP provides a good master schedule and accurate requirements, then JIT quickly moves materials in smaller lots, reducing intermediate inventory ". MRP and JIT MRP are related to JIT because MRP is used to plan and control inventory in line with the Just In Time System, which is to reduce inventory to a minimum. According to [11] An MRP system combined with JIT provides the best for both. MRP provides a good master schedule and accurate requirements, then JIT quickly moves materials in small lots, reducing intermediate inventory.

### *2.2. The impact of inventory management strategies on financial performance*

Stock-out often occurs when there is demand from consumers and only a little stock then the goods that are in high demand from consumers, it will cause lost sales opportunities and customer loyalty. Furthermore, if the supply is high in the company compared to market needs this will result in higher storage costs, handling fees and interest from short-term loans. it will have an impact on when selling and losses can be experienced if the material is sold at a lower price than the purchase [[12]. According to [13] stated that SME owners must be able to improve their abilities regarding inventory management by checking stock and recording stock to increase sales and increase profits.

State that the amount and type of inventory held for resale is important for small businesses because (1) supply and demand from customers cannot precisely match, and (2) having inventory requires a moderate cash investment. not productive [14]. When the inventory is in the warehouse, money is needed to buy inventory and not give the business owner. According to [15] inventory turnover (inventory turnover) is a measure of inventory obtained by dividing annual sales costs by the average aggregate inventory value maintained during [16] states that evaluation Inventory turnover is a measure of the number of times a company's merchandise inventory has been sold and replaced during a year. argue that nothing is effective for an entity to take advantage of their investment in inventory [17].

## 3. Findings

### *3.1. Inventory management systems used by SMEs*

SMEs have a very important role in moving the wheels of the West Java economy. Management This business is carried out in a simple manner so that there are more choices as a place for businesses that generate economic value. This business is the main choice because it requires relatively small capital. Therefore, UMK activities are economic activities that cannot be separated in people's lives in fulfilling their daily needs. In other words, SMEs play a role as the basis for social economic development.The percentage of SMEs in West Java reaches 98.84 percent of the total number of non-agricultural enterprises in West Java. The number of SMEs is spread across all non-agricultural categories. Wholesaler and Retail Trade, Repair and Maintenance, dominate the number of SMEs with a total of around 2.1 million businesses or reaching 47.44 percent. Processing Industry Business (Category) and the business of providing accommodation and provision of food and drink (Category


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I) also had a large contribution, amounting to 860,312 businesses (18.93 percent) and more than 600,720 businesses (more The concentration of small and medium enterprises (SMes) is scattered in each district / city in West Java. There are three districts / cities where the SMEs percentage is more than 7 percent of the total SMEs in West Java. Bogor Regency, Bandung Regency, and Bandung City contributed 22.99 percent of the total SMEs in West Java
Table 2: Number and Percentage of SMEs by Regency / City in West Java

SMEs in Indonesia have informal characteristics, namely businesses characterized by no legal entity status, no financial recording system, run with limited capital and limited expertise, and the use of technology that is still simple. This simple management will certainly affect the income earned by SMEs. One of the efforts to improve performance and SMEs is to form partnerships with larger companies to get coaching, capital assistance, and others. These efforts are expected to increase the income of SMEs as well as improve the standard of living. From the 2018 data shows that the management of SMEs is carried out in a simple manner, reflected in the status of their legal entity, financial records, and computer use. In West Java, the number of SMEs that are not incorporated is still very dominant, reaching 95.15 percent. The majority of UKM also do not use computers and utilize the internet. Computers and the internet are not only useful for conducting financial reports, they are also useful for product design, marketing and others. SMEs who use computers and utilize the internet are less than 11 percent.

To increase the income of SMEs while increasing the competitiveness of their products, partnerships are one of the right ways. However, this business is still not an option for SMEs. Limited information is one of the obstacles to forming partnerships with large companies. Only about 6.97 percent of SMEs have formed partnerships with other companies. Among the non-agricultural sector in West Java, SMEs Educational Activities; Financial and Insurance Activities; and Human Health and Social Activities with the best management. This is reflected in the variables of business entity status, internet use and computer use. Meanwhile, from the aspect of establishing partnerships, almost all categories have not formed partnerships optimally (see Table 3).

**Table 3.** Percentage of IT usage

| Category | Incorporated | Using Information Technology | Using the Internet | Forging Partnerships |
|---|---|---|---|---|
| Processing Industry | 5,29 | 4,95 | 9,68 | 12.50 |
| Wholesale and Retail Trade; Repair and Maintenance of Cars and Motorcycles | 2,69 | 3,90 | 8,19 | 6,96 |
| Transport and warehousing | 2,79 | 2,02 | 7,26 | 3,22 |
| Provision of Accommodation and Provision of Food and Beverages | 1,47 | 1,54 | 4,68 | 2,55 |
| Information and Communication | 2,16 | 30,48 | 44,74 | 12.21 |
| Real Estate | 1,35 | 1,61 | 5,03 | 0,51 |
| Company Services | 10,53 | 31,25 | 31,90 | 12,02 |
| Education | 75,33 | 65,40 | 60,91 | 14,28 |
| Other Services | 3,92 | 9,72 | 16,69 | 6,23 |
| Other Categories | 26,92 | 21,44 | 23,58 | 15,11 |

Based on the data above, the level of use of information systems or information technology in SMEs in West Java is in the low category. So it can be said that the supply system used by SMEs in West Java still uses a manual calculation system and mostly uses a mathematical formula, namely EOQ.


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*3.2 The impact of inventory management on financial performance of SMEs of West Jawa*

The purpose of this study was to determine the effect or relationship between inventory management and financial performance in several. To achieve the research objectives, in this study, a series statement between the two variables can be obtained based on statistical analysis (see Table 4).

**Table 4.** Result Correlations

| Correlations | | | |
|---|---|---|---|
| | | Inventory management | Financial performance |
| Inventory management | Pearson Correlation | 1 | 0.765** |
| | Sig. (2-tailed) | 0 | 0 |
| | N | 92 | 92 |
| Financial performance | Pearson Correlation | 0.765 | 1 |
| | Sig. (2-tailed) | 0 | |
| | N | 92 | 92 |
| **Correlation is significant at the 0.01 level (2-tailed). | | | |

Based on the results of the analysis shown in Table 3, this indicates that there is a relationship between inventory management and financial performance. The result is r = 0.765 which provides a strong positive relationship between variables because the results of the impressions are greater than 0.50. The second objective, this study finds that there is a relationship between inventory management and financial performance. The results showed that the relationship between variables was a positive relationship because the obtained r = 0.765.

Based on the data, it can also be interpreted that if the inventory system has the effect of increasing productivity and minimizing inefficient costs. Then, UKM can minimize the waste that has happened so far. furthermore with the use of the EOQ production system. prove that using the EOQ system can increase the profitability of SMEs. This can show a comparison of the efficiency of inventory costs using the EOQ system with the previous supply system policy. If costs and time can be minimized, the company's productivity will increase, the product quality will also increase, with profitability.

Business performance is the result of exploiting the resources of a business which can be measured in various ways, one of which is operating profit. Based on data from continued results, the profit of Micro and Small Enterprises (SMEs) shows a stable condition. However, around 30.38 percent of SMEs in West Java stated that their business profits in 2018 increased when compared to the previous year. It was noted that the SME sector as a whole was able to generate revenues of more than Rp. 916 trillion. Apart from operating profit, the cost to income ratio is also used to see the level of efficiency of a business. The lower the ratio of a business, the better or more profitable the business is. In the infographic, it can be seen that SMEs in category Real Estate are the most profitable business field


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category with a ratio of 0.28. Furthermore, Category Wholesale and Retail Trade, Car and Motorcycle Repair and Maintenance) is the second profitable business with a ratio of 0.33.

However, Categories, are not businesses that provide the highest average remuneration for workers. In West Java, construction activities have the highest remuneration value for workers, which is around 25.54 million per worker in 2019. Furthermore, Category Human Health Activities and Social Activities provides remuneration reaching 24.24 million per worker in the year that same.

## 4. Conclusion

Based on the results of this study, it can be said that SMEs in West Java still have not used the supply system with the use of information technology or information systems so that it has an impact on inefficient inventory planning. also, most SMEs have not been able to create a balance between efficiency and responsiveness in managing them stock. As for the supply system used by SMEs in West Java, most of them use the inventory system using a mathematical formula, namely EOQ in managing their inventory. The study also concluded that inventory management has an effect on the financial performance of SMEs. it also shows that There is a correlation between the supply management system and financial performance.

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