



Analysis of the Inventory Accounting System at PT Yudhistira Ghalia Indonesia's Medan Branch

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Abstract. This study aims to evaluate the effectiveness of the inventory accounting system implemented at PT. Yudhistira Ghalia Indonesia Medan Branch in controlling inventory levels and minimizing overstock and stockout conditions. The research was conducted due to the importance of efficient inventory management in publishing companies to ensure product availability while controlling operational costs. This research applies a descriptive qualitative approach using a case study design. Data were collected through direct observation, interviews with employees, and documentation of inventory and sales records from 2022–2024. The analysis focuses on inventory recording procedures, internal control implementation, and the application of the Economic Order Quantity (EOQ) method to support purchasing decisions. The results indicate that the inventory accounting system is generally effective; however, manual recording still causes delays in information reporting. The use of EOQ helps reduce inventory costs, yet overstock and stock shortages still occur due to suboptimal purchasing planning and coordination. Computerized tools improve recording accuracy but are not fully integrated into a comprehensive system. This study provides practical evidence on the need for a fully integrated technology-based inventory accounting system in the publishing sector and suggests future research on digital inventory system adoption for real-time decision-making.

Keywords: EOQ; Inventory Accounting System; Inventory Control; Publishing Industry; Qualitative Study.

1. INTRODUCTION

In an increasingly competitive business environment, companies are required to manage their resources effectively and efficiently to maintain operational continuity and achieve optimal business performance. One of the critical aspects of business operations is inventory management, particularly for companies engaged in distribution and publishing, where product availability directly affects sales activities and customer satisfaction. Inventory represents assets held for sale in the ordinary course of business, in the process of production for sale, or in the form of materials and supplies consumed in production or service delivery (Ikatan Akuntan Indonesia [IAI], 2024). Effective inventory management is therefore essential for maintaining an appropriate balance between product availability and inventory-related costs. Inadequate inventory management may result in excess stock, shortages, increased storage expenses, and disruptions to distribution activities. Consequently, companies need reliable inventory management mechanisms supported by accurate accounting information and effective internal controls.

An inventory accounting system constitutes an important component of an accounting information system because it facilitates the recording, processing, monitoring, and reporting of inventory transactions. Romney and Steinbart (2022) explain that accounting information systems support the collection and processing of transaction data to produce information useful for organizational decision-making. In inventory management, such a system helps companies maintain accurate inventory records, monitor the movement of goods, and establish accountability for inventory-related activities. Mulyadi (2021) also emphasizes the importance of accounting procedures and records in supporting transaction documentation and organizational control. Accordingly, an effective inventory accounting system should integrate inventory recording procedures, authorization mechanisms, physical inventory monitoring, and periodic reconciliation to reduce discrepancies between recorded and actual stock. The effectiveness of this system is particularly important for distribution companies that manage diverse products and frequent inventory movements.

Nevertheless, accurate inventory recording alone does not necessarily ensure that inventory levels are economically optimal. Companies also need an appropriate inventory control method to determine when and how much stock should be replenished. One widely recognized approach is the Economic Order Quantity (EOQ) method, which determines an economically optimal order quantity by balancing ordering costs and inventory holding costs. The EOQ approach can support purchasing decisions by helping companies evaluate the trade-off between ordering frequency and the cost of maintaining inventory. Assauri (2022) and Handoko (2021) discuss the importance of production and operations management in coordinating purchasing, inventory, and operational activities. Similarly, Rangkuti (2023) addresses inventory management strategies and their application in business operations. These perspectives provide a conceptual basis for examining how quantitative inventory control methods can complement accounting information systems in supporting more efficient inventory management.

The relationship between inventory accounting systems and inventory control methods is particularly relevant because accounting records and quantitative inventory calculations serve complementary purposes. An inventory accounting system provides information about stock availability, inventory movements, and transaction values, whereas the EOQ method supports decisions concerning optimal replenishment quantities based on relevant cost components. When these functions are not adequately coordinated, purchasing decisions may rely on incomplete information or inconsistent procedures. Munyaka and Yadavalli (2022), in their study of inventory management practices and operational performance among

manufacturing firms in South Africa, examine the relevance of inventory management practices to organizational performance. Although their research concerns manufacturing firms, its focus provides a broader perspective for understanding the operational significance of inventory management. However, the applicability of particular inventory control practices must be considered in relation to the characteristics and operational requirements of each company.

These issues are relevant to PT Yudhistira Ghalia Indonesia's Medan Branch, which operates in the book distribution sector and must manage inventory comprising various titles and product quantities. Differences in product demand, stock availability, and replenishment requirements create challenges in maintaining an appropriate inventory balance. Excessive stock may increase inventory holding costs, while insufficient stock may disrupt order fulfillment and sales activities. An inventory accounting system is therefore needed to provide reliable information about inventory movements and balances, while an appropriate inventory control method can support purchasing decisions based on economic considerations. Examining both aspects within the same organizational setting is important for determining whether the existing inventory management practices adequately support operational requirements and cost efficiency.

Previous studies and theoretical discussions have addressed inventory accounting systems, internal controls, and inventory management methods from different perspectives. However, the practical relationship between the implementation of an inventory accounting system and the application of the EOQ method needs to be examined in the specific context of book distribution. In particular, an assessment of the existing accounting procedures alongside EOQ calculations can help identify potential differences between current purchasing practices and economically determined order quantities. This study addresses that issue by examining the implementation of the inventory accounting system at PT Yudhistira Ghalia Indonesia's Medan Branch and evaluating the potential contribution of the EOQ method to inventory control. Rather than assuming that the existing system is ineffective, the study evaluates its implementation and identifies opportunities for improvement based on the company's operational conditions and inventory-related cost information.

The theoretical foundation of this study draws on accounting information systems theory, internal control principles, and inventory management theory. These perspectives provide a framework for examining the adequacy of inventory recording procedures, the reliability of inventory information, and the role of quantitative methods in supporting purchasing decisions. Based on this framework, the study aims to analyze the existing inventory accounting system

at PT Yudhistira Ghalia Indonesia's Medan Branch, evaluate its implementation in relation to relevant accounting and internal control principles, and assess the application of the EOQ method in determining economical order quantities and supporting inventory cost efficiency. The findings are expected to contribute to the practical improvement of inventory management in book distribution companies and provide an additional case-based reference for research integrating inventory accounting systems with quantitative inventory control methods..

2. LITERATURE REVIEW

Inventory is a component of current assets that plays a strategic role in ensuring the continuity of an organization's operations. Effective inventory management contributes to operational efficiency, production stability, and improved financial performance. According to Munyaka & Yadavalli, (2022), inventory serves to maintain a balance between product demand and availability so that companies can meet consumer needs in a timely manner. From an accounting standards perspective, the Indonesian Institute Of Accountants, (2024), through PSAK No. 14, explains that inventory includes goods available for sale, goods in the production process, and raw materials to be used in the production process.

The concept of inventory is also emphasized by Rangkuti, (2023), who states that inventory consists of assets held for sale during a specific business period, including work-in-progress and raw materials. This view is reinforced by Handoko, (2021), who emphasizes that inventory is a resource held to anticipate demand uncertainty, as well as by Assauri, (2022), who asserts that inventory includes goods for sale, work-in-process, and raw materials to ensure production continuity.

The role of inventory is not only related to the availability of goods but also plays a part in cost efficiency and customer service. Hadiguna, (2022), emphasizes that inventory maintains a balance between demand and supply, while Nurulita, (2023), highlights the role of inventory in addressing uncertainty. Furthermore, Santoso, (2021), states that inventory ensures operational continuity, Hendayani, (2024), affirms its contribution to competitiveness, and Purnomo, (2020), mentions the role of inventory in working capital efficiency.

From a cost perspective, inventory management involves ordering, storage, and stockout costs. Kuncoro, (2023), explains that inventory costs encompass all costs associated with storing and maintaining goods, while Sari, (2024), emphasizes that inventory costs include procurement costs through to the point where goods are ready for sale. This view is reinforced by Riyanto, (2022), and Poerwanto, (2023), who state that inventory costs include capital, storage, ordering, and inventory risk costs.

In the context of information systems, the inventory accounting system serves as a mechanism for recording, controlling, and reporting inventory transactions. Mulyadi (2021) states that the inventory accounting system is a procedure for identifying and reporting inventory transactions. Romney & Steinbart, (2022), emphasize that this system is part of the accounting information system that supports decision-making. This aligns with Dewi & Kristanto, (2023), who state that an inventory accounting system integrates the recording and control of goods movements. Additionally, Hasanuh, (2021), emphasizes the importance of the system in providing accurate information, while Horngren et al., (2022), highlight the functions of recording, internal control, and financial reporting.

One of the key approaches in inventory control is the Economic Order Quantity (EOQ) method, which is a mathematical model used to determine the optimal order quantity in order to minimize total inventory costs. The EOQ model balances ordering costs and holding costs so that companies can maintain inventory availability efficiently. Additionally, according to Safitri & Agustawan, (2025), the objectives of an inventory accounting system include preventing asset manipulation, improving data accuracy, and supporting managerial decision-making.

Technological advancements have also enhanced the effectiveness of inventory accounting systems. Putri Mayasari Cilandak Siagian, (2020), demonstrates that technology improves internal controls. Sitanggang et al., (2023), emphasize the importance of technology in scientific documentation, and Silaen, (2025), shows that web-based systems improve the efficiency of recording and reporting.

Previous research has shown that inventory accounting systems play a crucial role in improving the efficiency and accuracy of inventory management. A study by Santoso & Pratiwi, (2020), found that many SMEs still have weaknesses in internal controls, particularly regarding the segregation of duties and documentation. These findings indicate that strengthening inventory accounting systems remains a critical need.

Nugroho, (2021), study shows that the implementation of the FIFO method improves inventory valuation accuracy and inventory management efficiency. Kusuma & Prasetyo, (2022), found that web-based accounting information systems improve operational efficiency and the accuracy of financial reports. Another study by Kusuma & Hartono, (2022), shows that the implementation of artificial intelligence can improve demand forecasting accuracy, reduce storage costs, and enhance customer service. In addition, Wijaya & Purnomo, (2023), demonstrate that blockchain technology significantly improves the transparency and accuracy of inventory reporting.

Based on the aforementioned prior research, it can be concluded that inventory control technologies and methods have been proven to improve efficiency and accuracy. However, most studies have focused on SMEs, manufacturing, or e-commerce, leaving a research gap regarding the application of EOQ-based inventory accounting systems in publishing companies. Therefore, this study is important to address that research gap.

Based on the theoretical framework and prior research, an effective inventory accounting system requires the integration of internal controls, the use of technology, and the application of the EOQ method. The relationships among the variables indicate that the implementation of a sound inventory accounting system and the EOQ method is expected to improve inventory cost efficiency, maintain stock availability, and support managerial decision-making. This framework underscores that the optimization of the inventory accounting system is a key factor in enhancing the effectiveness of a company's inventory management.

3. METHODOLOGY

This study employed a descriptive qualitative case study approach to analyze the inventory accounting system implemented at PT. Yudhistira Ghalia Indonesia Branch Medan. The qualitative approach was chosen to obtain an in-depth understanding of the procedures, practices, and effectiveness of the inventory accounting system in preventing overstock and stock-out conditions. The study focused on exploring processes, interactions, and operational practices related to inventory management and accounting within the company. The research used company data covering the period 2022–2024 and was limited to inventory of senior high school (SMA) textbooks.

The unit of analysis in this research was the inventory accounting system applied within the company. Rather than using population and sampling techniques, this study relied on organizational data and operational activities directly related to inventory management. The research examined inventory planning, purchasing procedures, receiving procedures, storage, recording, reporting, and internal control practices implemented by the company.

The operational research variables focused on the effectiveness of the inventory accounting system. The analysis included several key components, namely inventory recording procedures, transaction documentation, inventory valuation practices, inventory reporting, internal control implementation, physical inventory counting, and inventory management policies. In addition, the study evaluated the application of the Economic Order Quantity (EOQ) method as an analytical tool to determine optimal order quantities and minimize

inventory costs. Indicators used to assess the system included accuracy of recording, adequacy of procedures, effectiveness of internal control, and efficiency of inventory management.

The data used in this research consisted of primary and secondary data obtained directly from the company. Primary data were collected through interviews with employees involved in accounting and warehouse operations and through direct observation of inventory activities. Secondary data were obtained from company documents, including inventory transaction records, sales data, purchase data, inventory reports, and other supporting archives related to inventory management during the 2022–2024 period.

Data collection techniques included observation, interviews, and documentation. Observation was conducted by directly examining inventory management and recording procedures within the company. Interviews were conducted through verbal question-and-answer sessions with relevant employees to obtain detailed information about the implementation of the inventory accounting system. Documentation techniques involved reviewing written materials such as inventory reports, transaction documents, and company archives relevant to the research focus.

The data analysis technique used descriptive qualitative analysis supported by quantitative calculations using the Economic Order Quantity (EOQ) model. Qualitative analysis was applied to evaluate the effectiveness of inventory accounting procedures and internal control practices. The EOQ model was used to determine the optimal order quantity using the formula:

$$\sqrt{\frac{2DS}{H}}$$

EOQ = where D represents annual demand, S represents ordering cost per order, and H represents holding cost per unit per year. The results of the EOQ calculation were used to compare the company's existing inventory practices with optimal inventory control conditions and to support recommendations for improving inventory management. All calculations and data processing were performed using Microsoft Excel to ensure accuracy and efficiency.

4. RESULTS AND DISCUSSION

The results of this study were obtained through observation, interviews, and documentation of inventory activities at PT. Yudhistira Ghalia Indonesia Medan Branch during the 2022–2024 period. The analysis focused on evaluating the implementation of the inventory

accounting system, internal control practices, inventory movement patterns, and the application of the Economic Order Quantity (EOQ) method as a decision-support tool.

Table 1. Book Sales and Inventory Data for PT. Yudhistira Ghalia Indonesia Medan City Branch (2022-2024).

Years	Sales Target	Purchase Orders	Gross (Sold)	Returns	Ending Stock
2022	1.900	3.294	3.231	65	2.414
			Total = 3.166		
2023	86.480	16.670	16.220	1.499	6.674
			Total = 14.721		
2024	119.900	16.670	38.242	2.405	12.315
			Total = 35.837		

Source: Processed data, 2025.

The sales and inventory data further demonstrated the dynamic movement of inventory during the observation period. In 2022, gross sales reached 3,231 units with returns of 65 units, resulting in net sales of 3,166 units and ending inventory of 2,414 units. In 2023, sales activity increased significantly, with gross sales of 16,220 units and returns of 1,499 units, producing net sales of 14,721 units and ending inventory of 6,674 units. The growth became more pronounced in 2024, when gross sales reached 38,242 units and returns amounted to 2,405 units, resulting in net sales of 35,837 units and ending inventory of 12,315 units. The consistent increase in ending inventory each year indicated that inventory accumulation occurred alongside rising demand, suggesting that purchasing planning had not yet fully achieved optimal balance between supply and demand.

Table 2. Book Return Rate.

Year	Gross (Sold)	Returns	Return Rate
2022	3.231	65	2,01%
2023	16.220	1.499	9,24%
2024	38.242	2.405	6,29%

Source: Processed data, 2025.

The return rate analysis revealed fluctuations in product returns over time. The return rate was recorded at 2.01% in 2022, increased sharply to 9.24% in 2023, and declined to 6.29% in 2024. The spike in returns during 2023 indicated mismatches between distribution planning and actual market demand, possibly caused by inaccurate forecasting or distribution timing. Although the return rate decreased in 2024, the level remained relatively high, indicating that improvements in inventory planning and distribution were still required.

The improvement of inventory management efficiency was further analyzed through the application of the Economic Order Quantity (EOQ) method.

Year 2022 :

D : 3.294 units

S : Rp 500.000 per order

H : Rp 15.000

$$EOQ = \sqrt{\frac{2 \times 3.294 \times 500.000}{15.000}} = \sqrt{\frac{3.294.000.000}{15.000}} = \sqrt{219.600}$$

$$= 468,6$$

$$EOQ = 469 \text{ units}$$

With the demand frequency for books, the company requires :

$$\frac{3.294}{469} = 7,0266 = 7,03$$

$$= 7,03 = 7 \text{ times}$$

To meet the annual demand of 3,294 units, the company needs to place orders 7 times per year.

The optimal ordering interval is:

$$\frac{365}{7} = 52,14 = 52$$

This means the company is advised to place orders every 52 days in a year consistently to maintain inventory stability and cost efficiency.

Year 2023 :

D : 16.670 units

S : Rp 550.000 per order

H : Rp 15.000

$$EOQ = \sqrt{\frac{2 \times 16.670 \times 550.000}{15.000}} = \sqrt{1.222.466,67} = 1.105 \text{ units}$$

With the demand frequency for books, the company requires :

$$\frac{16.670}{1.105} = 15,09 = 15$$

To meet the annual demand of 16.670 units, the company needs to place orders 15 times per year.

The optimal ordering interval is:

$$\frac{365}{15} = 24,33 = 24$$

This means the company is advised to place orders every 24 days in a year consistently to maintain inventory stability and cost efficiency.

Year 2024 :

D : 38.242 units

S : Rp 600.000 per order

H : Rp 15.000

$$EOQ = \sqrt{\frac{2 \times 38.242 \times 600.000}{15.000}} = \sqrt{\frac{45.890.400.000}{15.000}} = \sqrt{3.059.360} = 1.749 \text{ units}$$

With the demand frequency for books, the company requires :

$$\frac{38.242}{1.749} = 21,87 = 22$$

To meet the annual demand of 38.242 units, the company needs to place orders 22 times per year.

The optimal ordering interval is:

$$\frac{360}{22} = 16,36 = 16$$

This means the company is advised to place orders every 16 days in a year consistently to maintain inventory stability and cost efficiency.

5. CONCLUSIONS

Based on the results and discussion of the study on inventory accounting system analysis and the application of the Economic Order Quantity (EOQ) method in companies, it can be concluded that the research objectives have been achieved, namely to evaluate the effectiveness of inventory management and to determine the optimal order quantity to minimize total inventory costs. The research results indicate that the conventional inventory management previously in use carries the risk of both excess and stock shortages, which lead to increased storage costs, inefficient ordering frequency, and the risk of disrupting the company's operational smoothness. The application of the EOQ method has proven capable of providing a basis for calculating a more optimal order quantity, thereby minimizing total inventory costs comprising ordering costs and storage costs—more effectively. Additionally, the use of EOQ supports improved inventory planning, timely reordering, and assists management in making more rational and data-driven decisions.

In practical terms, the results of this study indicate that companies need to consistently implement the EOQ method in their inventory management systems, accompanied by the establishment of more structured inventory policies, such as determining reorder points, maintaining minimum stock levels, and conducting periodic physical counts. Companies are also advised to increase the use of information technology in their inventory accounting systems so that the processes of recording, monitoring stock, and preparing reports can be carried out more accurately, quickly, and in an integrated manner.

From a theoretical perspective, this study reinforces the concept that integrating quantitative methods such as the Economic Order Quantity (EOQ) with inventory accounting systems can improve operational efficiency and the quality of managerial decision-making. This study also underscores the importance of technology and internal controls as supporting factors in optimizing inventory management.

For future research, it is recommended that models be developed that take into account factors such as demand uncertainty, lead time fluctuations, and quantity discounts, as well as the implementation of information technology based on integrated systems or automation. Further research could also expand the scope of study to different industrial sectors or employ more complex quantitative approaches to obtain more comprehensive results and broader generalizations.

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