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Internal Control and Ceramic Inventory Management in Building Material Distributors in Cirebon City: Insights from an Educational Learning Approach

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ABSTRACT

This study aimed to analyze the implementation of internal control over ceramic inventory at a building materials distributor in Cirebon City from an educational learning perspective. The findings reveal that although the internal control system has been designed and partially implemented, its practical application remains suboptimal. Key issues identified include the lack of segregation of duties, limited human resources, reliance on manual inventory recording, and the absence of regular internal audits. These weaknesses increase the risk of recording errors, inventory discrepancies, and potential fraud. The study recommends strengthening the organizational structure, providing targeted staff training and learning opportunities, implementing a digital inventory management system, and conducting periodic supervisory reviews to improve accountability and control effectiveness. By incorporating an educational learning perspective, this research contributes not only to understanding internal control practices in the distribution sector but also to supporting capacity-building and organizational learning for sustainable improvements in inventory management.

Keywords: *Internal control; inventory management; ceramic inventory; distribution company; digital system; fraud prevention; educational learning; organizational learning*

INTRODUCTION

Infrastructure development is a top priority in Indonesia's national development agenda, given its strategic role in driving economic growth and achieving equitable development. The construction sector, as a key component of infrastructure, makes a significant contribution to the national Gross Domestic Product (GDP). According to data from Statistics Indonesia (Badan Pusat Statistik/BPS), in the third quarter of 2024, the construction sector contributed 10.06% to Indonesia's GDP. This contribution positions the construction sector as the fourth-largest contributor to the national GDP, following the manufacturing industry, agriculture, and trade sectors (BPS, 2024). According to Siswantoro (2024), the growth of production activities within the construction sector, which aligns with the recovery and improvement of national economic performance, is projected to have a positive impact on public welfare. This increase in welfare is expected to drive rising demand for various building materials, including ceramic products, which are widely used in the sector.

Ceramics are materials made from inorganic, non-metallic compounds that are formed and hardened through high-temperature firing. In the construction industry,

ceramics play a vital role due to their durability, strength, and aesthetic appeal, making them a preferred choice for applications such as flooring, wall coverings, and roofing. The importance of ceramics in construction lies not only in their function as structural elements but also as decorative components that enhance a building's aesthetic value. In addition, ceramics offer resistance to fire and moisture, which contributes to the safety and longevity of building structures.

A study by Hariadi et al. (2020) demonstrated that the thickness of alumina ceramics significantly affects their ability to withstand direct heat exposure, highlighting their thermal resistance in construction applications. This finding suggests that ceramics not only provide fire protection but also contribute to the thermal efficiency of buildings. The following figure shows the growth of national ceramic production in 2023 and 2024, along with projections for 2025:

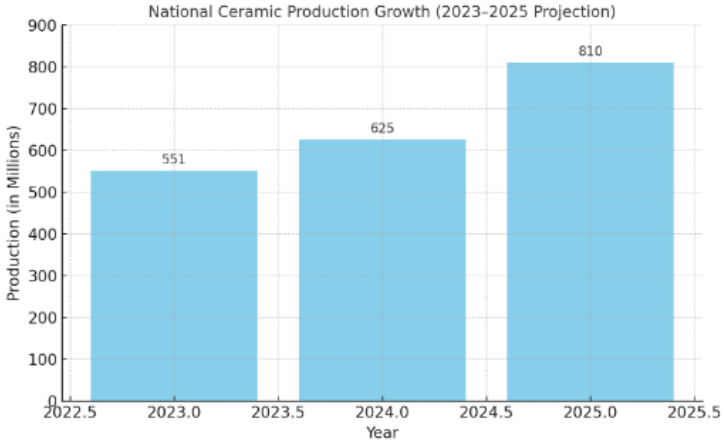

Figure 1.1. Growth of National Ceramic Production in 2023–2024 and Projection for 2025

Source: ASAKI (2023)

The Indonesian Ceramic Industry Association (ASAKI) projects that national ceramic production will increase from 551 million square meters in 2023 to 625 million square meters in 2024. This upward trend is expected to continue, reaching 810 million square meters by 2025. These figures indicate a growing market demand for ceramic products, both domestically and internationally. Research by Nugraheni et al. (2021) shows that the construction services sector in Indonesia still holds significant potential for growth, as evidenced by excess demand, reflecting a high need for construction services that domestic industry players have yet to fully meet. This condition serves as an indicator that Indonesia's construction sector still has ample room to grow and develop.

This growth also creates a ripple effect on supporting industries, such as building materials—ceramics being one of the essential components in construction projects for buildings, housing, and other infrastructure. This indicates that growth in the construction sector is positively correlated with the increasing contribution of supporting sectors to the Gross Regional Domestic Product (GRDP). Thus, the synergy between the growth of the construction sector and the rise in ceramic production demonstrates mutually reinforcing industrial development and serves as a positive indicator for the economic prospects of the real sector in Indonesia.

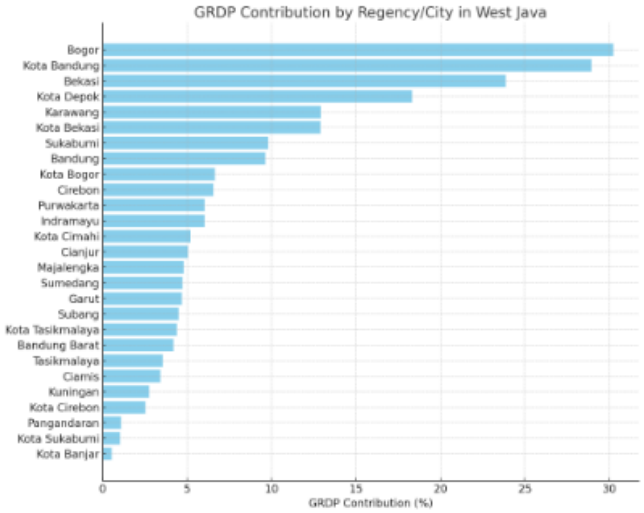

Figure 1.2 Regional Gross Domestic Product (GRDP) by Regency/City in West Java Province

(Source : (Badan Pusat Statistik Provinsi Jawa Barat, 2024a)

Based on data from the Gross Regional Domestic Product (GRDP) in the construction sector at current prices for 2023, there exists a notable disparity among regencies and cities in West Java Province. Bogor Regency recorded the highest GRDP at Rp30.23 trillion, followed by Bandung City with Rp28.93 trillion, and Bekasi Regency with Rp23.87 trillion. These high figures reflect intensive infrastructure development, driven by rapid population growth, industrial expansion, and strategic positioning as economic hubs.

In addition, buffer areas such as Depok City, Karawang, and Bekasi City also contributed significantly to the construction sector, indicating a spillover effect from development in metropolitan regions. In contrast, areas located in the eastern and southern parts of West Java, including Cirebon City (Rp2.53 trillion), Kuningan (Rp2.75 trillion), Pangandaran (Rp1.10 trillion), and Banjar City (Rp0.53 trillion), showed relatively low GRDP values in the construction sector. This reflects a spatial imbalance, where development remains concentrated in economically advanced western and northern regions, while others face infrastructure development challenges.

These disparities underscore the urgent need for equitable development strategies to ensure balanced and sustainable growth throughout the province (BPS West Java, 2024b).

Figure 1.2 shows that in 2024, ceramic sales at a building material distributor in Cirebon City exhibited a fluctuating pattern but an overall positive growth trend. Total ceramic sales for the year reached Rp6,830,402,635. Monthly fluctuations in sales indicate the dynamic nature of ceramic demand in the region. These variations can be attributed to seasonal trends, construction intensity, and external factors such as weather conditions and local economic cycles. In the first quarter (January–March 2024), sales showed an upward trend from Rp425,017,177 in January to Rp509,655,093 in March, despite a slight dip in February. This suggests a promising start to the year. However, April saw a significant drop to Rp371,115,177, the second-lowest point of the year—likely due to the rainy season, which tends to delay construction and renovation activities.

Between May and July, sales rebounded strongly, rising from Rp676,455,266 in May to a peak of Rp811,680,936 in July. This growth was likely driven by drier weather conditions and heightened construction activity during the dry season. In August and

September, sales began to decline modestly but remained relatively high at Rp631,032,614 and Rp642,177,093, respectively. In the final quarter, a sharp decline occurred in November, where sales dropped to Rp387,520,192, the lowest since April. This may reflect reduced construction activity toward the year's end or a shift in focus toward completing ongoing projects. Nonetheless, December saw a recovery to Rp518,236,037, potentially due to end-of-year project completions or restocking by customers ahead of the new year.

Table 1. Product Category – Inventory Data (Boxes)

Product Category	Inventory (Boxes)
20x40	3,763
25x25	930
25x40	8,110
30x60	1,132
40x40	6,203
50x50	14,582
60x60	2,596
Total	37,316

The product category with the highest inventory is ceramic tiles of size 50x50, with a total inventory of 14,582 boxes. This figure reflects a market preference for larger sizes, which are typically used for residential and commercial projects. This tile size is attractive because it is commonly used in various types of spaces, both for flooring and walls, and is favored by consumers seeking ease of installation and long-term durability. On the other hand, ceramic tiles sized 25x40 and 40x40 have inventories of 8,110 boxes and 6,203 boxes respectively, indicating that these sizes are also in considerable demand in the market. These two sizes are often used in home or building construction that requires variation in design and aesthetics. Although their quantities are lower compared to the 50x50 size, demand for these tiles remains significant and they are chosen for specific design needs.

The product category with the lowest inventory is 25x25 sized ceramic tiles, with only 930 boxes. While this size is still used in smaller projects or as complementary elements in interior design, its volume is much lower than other sizes. This may indicate a shift in market preference toward larger tiles, which are more efficient to use and install. Therefore, a proper inventory management strategy for this category will be essential to avoid overstocking or stock shortages that could affect distribution efficiency.

Internal control is a system implemented by companies to ensure that operations, financial reporting, and legal compliance are carried out efficiently and effectively. According to the Committee of Sponsoring Organizations of the Treadway Commission

(COSO), internal control consists of policies and procedures designed to provide reasonable assurance that organizational objectives are achieved in terms of operational effectiveness and efficiency, reliability of financial reporting, and compliance with applicable laws and regulations.

Internal control involves various aspects such as segregation of duties, transaction authorization, direct supervision, and transparent reporting systems. Companies need to ensure that their internal control systems are properly designed and implemented to guarantee the reliability of financial statements and operational efficiency. Effective internal control also plays a crucial role in minimizing the risk of loss due to fraud, recording errors, or other irregularities. Therefore, implementing adequate internal control is a critical responsibility of management in supporting financial reporting objectives and regulatory compliance. (Arens et al., 2017, pp. 377–378)

A strong internal control system improves the reliability of financial reports, ensures compliance with company policies, and prevents fraud in inventory management. COSO outlines five key components of an internal control system: control environment, risk assessment, control activities, information and communication, and monitoring. (Saputra & Abrar, 2022). In the context of inventory control, applying these five components can help companies maintain stock balance, reduce the risk of item loss, and improve opeational efficiency.

Good internal control in operational aspects, such as timely product availability, plays a vital role in enhancing customer satisfaction. This satisfaction not only influences repeat purchases but also strengthens customer loyalty and creates mutually beneficial long-term relationships. This depends on the company's ability to manage a value delivery system effectively, encompassing the entire customer experience in acquiring and using a product or service. (Philip & Lane, 2016, pp. 215–216). Strong internal control also contributes to compliance with established accounting standards and regulations. Likewise, companies won't need to worry about financial losses from audits or future legal issues. Effective internal control facilitates the prevention and detection of possible fraud. Tight restrictions foster trust from various stakeholders. Moreover, these controls validate the legitimacy of the company's financial reports in the eyes of external parties.

Furthermore, an effective internal control system should include segregation of duties among warehouse, recordkeeping, and supervisory functions to prevent potential misuse. Control activities such as regular audits and the use of technology-based recording systems can enhance the accuracy of inventory data and reduce discrepancies during stocktaking. Research by Dince & Wangga (2022) highlights that weaknesses in monitoring and documentation often lead to discrepancies between records and physical stock, increasing the risk of fraud or item loss. Therefore, implementing internal control based on the COSO framework not only helps maintain the integrity of inventory data but also ensures that operational procedures run efficiently and according to accounting standards.

Inventory internal control is a strategic process designed to ensure that all aspects of inventory management are conducted efficiently, accurately, and in line with the company's established policies. This process includes a set of policies and procedures aimed at protecting company assets, preventing losses, and ensuring that all inventory-related transactions are accurately recorded in financial statements (Saputra & Abrar, 2022). Thus, internal control not only helps maintain the integrity of inventory data but also serves as a tool to enhance transparency and accountability in managing company resources. This is essential for management to make decisions based on accurate and relevant data.

Companies need to conduct inventory internal control to reduce the risk of mismatches between system records and physical quantities in the warehouse. These mismatches can lead to significant financial losses and disrupt company operations, such as delayed deliveries or stock shortages that may impact customer satisfaction. (Dince & Wangga, 2022). Moreover, good internal control also helps companies comply with applicable regulations and accounting standards, thereby increasing the company's credibility and reputation in the eyes of stakeholders. In an increasingly competitive business environment, a company's ability to maintain inventory accuracy is a key factor in sustaining competitive advantage and operational continuity.

The implementation of effective internal control includes segregation of duties among employees involved in inventory management. This separation of duties is important to prevent potential fraud or abuse of authority that could harm the company (Marshall & John, 2018a, pp. 384–385). With clear separation of responsibilities, each individual has a distinct role, making the inventory management process more transparent and accountable. Additionally, segregation of duties allows for cross-checking among different functions, reducing the likelihood of errors and enhancing overall operational efficiency.

Table 1.2 Discrepancy Data of Ceramic Products at Building Material Distributor in Cirebon City (March 2024 to January 2025)

MONTH	INVENTORY REPORT	STOCK OPNAME	UNIDENTIFIED DISCREPANCY (-/+)
MARCH	37,950	37,433	-170
APRIL	34,210	32,515	-5
MAY	37,826	37,826	0
JUNE	32,703	32,698	0
JULY	23,578	23,578	0
AUGUST	27,106	26,851	-30
SEPTEMBER	27,106	26,851	0
OCTOBER	29,336	29,311	-1
NOVEMBER	27,203	36,969	-17
DECEMBER	27,884	27,884	0
JANUARY 2025	27,086	26,647	-4

MONTH	INVENTORY REPORT	STOCK OPNAME	UNIDENTIFIED DISCREPANCY (-/+)
TOTAL	—	—	**-227**

The results of an interview with Mr. Sapta Santosa, Branch Head of a Building Materials Distributor in Cirebon City, which has been operating for nearly two years, revealed that inventory issues are a top priority in boosting sales. Besides human error, ineffective control systems often cause discrepancies during stocktaking. He further explained that ceramic inventory requires more control due to its large volume. If left unchecked and poorly managed, ceramic inventory issues can potentially lead to financial losses, a decline in customer trust, and disruptions in the company's cash flow. Therefore, a strong internal control system is necessary to ensure inventory is optimally managed and supports sustainable business growth.

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TOTAL	—	—	**-227**

Source: (Building Materials Distributor, 2025)

Table 1.2 presents a comparison between the recorded inventory figures and the results of stock opname (physical inventory count), including the discrepancy in ceramic product inventory from March 2024 to January 2025. These differences indicate inconsistencies between the quantities recorded in the system and the actual quantities found during physical inspections in the warehouse. In March 2024, a significant discrepancy of 170 boxes was identified. Based on an interview with Mr. Sapta Santosa, Branch Manager of a building materials distributor in Cirebon City, the discrepancy was caused by poor coordination in the inventory recording and control process, including errors in inputting ceramic sample data into the system. As a result, the reported inventory did not accurately reflect the actual stock, and the discrepancy could not be further traced.

In the following months, the differences between the inventory report and stock opname were smaller or even nonexistent. For example, in April 2024, there was a discrepancy of 5 boxes, while in May and June, there were no differences at all. However, in August 2024, another significant discrepancy of 30 boxes occurred, during which the inspection was conducted alongside an internal audit. Discrepancies were also recorded in October (1 box), November (17 boxes—also audited internally), and January 2025 (4 boxes), although these were smaller compared to March and August. Overall, this data indicates that the inventory recording and control system still needs improvement for better accuracy. Repeated discrepancies, even in small amounts, highlight the need for further evaluation of stock opname procedures and inventory recording practices. To reduce potential errors, the company could implement a stricter control system, ensuring that inventory records better reflect actual warehouse conditions, minimizing the risk of lost items, and improving operational efficiency.

Previous studies have extensively examined internal inventory control across various business sectors, such as cooperatives, trading companies, and the pharmaceutical industry. Several studies focused on the recording system and inventory valuation methods. For instance, research by Dince & Wangga (2022) highlighted the effectiveness of internal control in warehouse systems, emphasizing organizational structure and transaction documentation. Their findings show that many companies still face challenges in implementing effective internal control systems, particularly regarding task separation and adequate documentation. The research suggests that inaccurate inventory records often stem from weak management systems, potentially resulting in financial losses and discrepancies between system records and physical stock.

Additionally, research by Fitriana et al. (2024) evaluated the implementation of accounting information systems in hotel inventory control, identifying weaknesses in monitoring and control activities. The results show that even though many hotels have implemented accounting information systems, significant weaknesses in inventory monitoring remain. While these studies provide valuable insights into internal inventory control systems, none specifically investigate the application of internal control in the building materials distribution industry—particularly ceramics—which has unique characteristics in terms of stock volume, demand patterns, and the risk of product loss.

Furthermore, studies on inventory control in the distribution sector tend to focus on technical aspects of recording and stock valuation methods without considering operational challenges frequently faced by ceramic distributors, such as price fluctuations, high product damage rates, and discrepancies during stock opname. Research by Ayu Cahyaningsih et al. (2021) indicated that even when companies apply internal controls based on the COSO framework, weaknesses in implementation consistency and transaction authorization still exist, potentially leading to stock data discrepancies. This is relevant to the issues faced by ceramic distributors, where inventory discrepancies often result from insufficient control in recording and physical verification of goods. Therefore, this study aims to fill the gap in the literature by analyzing the effectiveness of internal control systems for ceramic inventory at a building

materials distributor in Cirebon City, in order to provide recommendations that are more aligned with the challenges of this industry.

Research on internal control of merchandise inventory can contribute to both management theory and practice. Analyzing various methods and techniques used in internal control can offer valuable insights for companies managing inventory (Garrison et al., 2018, pp. 507–508). From an academic perspective, this research aims to provide a better understanding of internal control in the context of merchandise inventory. By analyzing the strengths and weaknesses of the existing system, areas for improvement can be identified. Furthermore, effective internal control helps companies prevent and detect fraud. The presence of strong controls reduces the likelihood of deviations and increases stakeholder trust in the company.

METHOD

This study uses a qualitative method. According to Jaya (2020), qualitative research is a comprehensive investigation of an object. In qualitative research, the researcher serves as the main instrument. This type of research emphasizes meaning rather than generalization. The current study is a case study using a descriptive analysis method, with the research object being building material distributors in the city of Cirebon. Data were obtained through interviews with branch heads of the distributors and direct field observations to gather information regarding sales activities.

The population in this study includes all activities and processes related to the management and internal control of ceramic inventory at building material distributors in the city of Cirebon. This population encompasses the entire system, procedures, documents, reports, and all parties involved in operational activities directly related to the recording, storage, and supervision of ceramic inventory at the Building Material Distributors in Cirebon. The sample selected in this study consists of individuals who hold strategic roles and possess direct knowledge of the inventory control system at Building Material Distributors in the city of Cirebon. The informants in this study include the Branch Manager, administrative staff, and warehouse personnel at the ceramic distributor that serves as the research object This research was conducted from February to July 2025. The study took place at a Building Material Distributor in the city of Cirebon.

Before collecting data in the field, the first stage carried out was the locating and gaining access and making report stage, which involved first informing the target informants about the purpose of conducting the research. Then, the researcher proceeded to the data collection stage according to the predetermined time frame. In this stage, the researcher made efforts to establish communication with the research informants in order to obtain the necessary information. Next, the researcher compiled and explored data from interviews with informants and inventory documents. The main sources of data in a qualitative approach are words and actions, obtained through direct observation and interviews. The application refers to the accounting software used by imported meat distributors in Cirebon Regency, which helps facilitate data processing—from data entry and processing to the preparation of financial reports. Important data or

information is then recorded and stored for further processing or analysis. This final stage constitutes the resolving field issues stage and the data storing stage. This data collection process is illustrated as described by Creswell (in Noviriani et al., 2022):

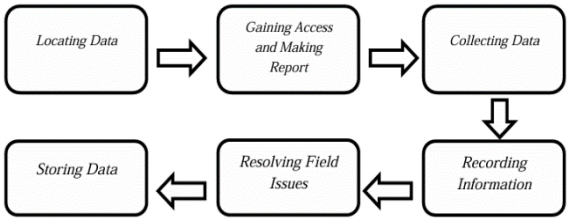

Figure 3.1 Data Collection Stages

Source: Creswell (as cited in Noviriani et al., 2022)

Data validity testing in qualitative research is essential to establish the standard of truth for the findings obtained. In this study, data validity was tested using the methods outlined by Jaya (2020), including: Triangulation and Member Checking.

Triangulation is a test of data credibility conducted by combining various data collection techniques namely observation, interviews, and document analysis—from multiple existing data sources. Member checking is a test of data credibility performed to ensure that the data collected in the field is valid or consistent with the information provided by the informants.

Data analysis in qualitative research consists of three concurrent activity streams: data reduction, data display, and conclusion drawing, as illustrated in the figure below.

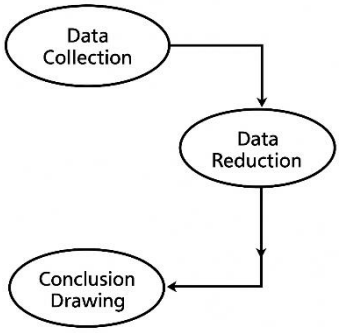

Figure 3. Research Framework

1. Data Reduction

Data reduction is a form of analysis conducted by sorting, focusing, simplifying, and organizing the data obtained in the field, based on notes made by the researcher from interviews with data sources (informants).

2. Data Presentation

The next step is data presentation, which can take the form of diagrams, tables, graphs, and so on.

3. Drawing Conclusions

The final step is drawing conclusions. The conclusions made by the researcher may change if new evidence is found during field research. This allows the researcher to arrive at a more convincing final conclusion.

FINDINGS AND DISCUSSION

Based on the results of observations, interviews, and analysis using the COSO (Committee of Sponsoring Organizations of the Treadway Commission) framework, internal inventory control at the building materials distributor in Cirebon City shows that while a formal system is already in place, its implementation in the field is still suboptimal. In the Control Environment component, overlapping job roles and lack of functional separation increase the risk of abuse of authority. The Risk Assessment component has not been conducted systematically, as evidenced by recurring stock discrepancies without adequate root cause analysis. Control Activities are present in the form of procedures, but their implementation remains manual and relies heavily on individual accuracy, making it prone to errors. Regarding Information and Communication, the recording system is not yet fully integrated in real-time and depends on a single individual who handles multiple roles, causing delays and inaccuracies in information. Finally, the Monitoring Activities component is still reactive and lacks internal audits and regular evaluation indicators.

In general, it can be concluded that the internal inventory control system at the distributor still needs to be strengthened across all COSO components, particularly in task separation, digitalization of records, risk identification, and the implementation of continuous monitoring. Enhancing human resources capacity, implementing an integrated ERP system, and establishing an internal audit team will be strategic steps toward building an effective, accurate, and accountable internal control system.

Expanded Conclusion Based on the COSO Framework at the Building Materials Distributor in Cirebon City

This study evaluated the internal control system for inventory management at a building materials distributor in Cirebon City through the lens of the COSO internal control framework, which consists of five core components: Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring Activities. The findings indicate that, while the distributor has established formal procedures and systems, the implementation remains insufficient in practice, leading to inefficiencies and control vulnerabilities.

Control Environment

The control environment sets the tone for the organization and greatly influences how control activities are executed. At the distributor, the organizational structure has been formally defined, but there are significant weaknesses in task delegation. One example is the overlapping roles where the Sales Admin also performs warehouse administrative duties. This lack of clear task separation not only blurs lines of

responsibility but also increases the potential for conflicts of interest, data manipulation, or errors going undetected. Furthermore, the standard operating procedures (SOPs) that exist are not fully implemented or supported with adequate training, making internal controls inconsistent across different work units.

Risk Assessment

The distributor has yet to implement a structured and proactive risk assessment process. Monthly stock discrepancies are a recurring issue, with no clear mechanism in place for identifying root causes or evaluating the underlying risks. This reactive approach fails to prevent issues before they escalate, such as losses due to misplacement, damage, or theft. Risk awareness and risk-based decision-making have not been integrated into the organization's day-to-day inventory practices, and there is no established risk register or periodic evaluation system.

Control Activities

Control activities are procedures that help ensure risk responses are effectively carried out. Although the company has standard documents like delivery notes and stock opname reports, the execution is largely manual, lacks real-time system integration, and depends heavily on the diligence of individual employees. Additionally, the warehouse head does not have direct access to the accounting software (Accurate), which restricts real-time control. These operational gaps increase the likelihood of reporting delays and data inconsistencies, especially during peak warehouse activity or when physical conditions prevent thorough checks.

Information and Communication

A robust internal control system relies on timely, relevant, and reliable information sharing. In the current situation, stock information is sometimes communicated informally (e.g., through verbal messages or personal chats), which is not documented or traceable. This undermines data accuracy and accountability. The limited use of technology and the overload on multi-tasking personnel result in delayed updates and reduce the reliability of inventory data. A fully integrated real-time information system is urgently needed to enhance transparency, accuracy, and decision-making efficiency.

Monitoring Activities

The distributor performs monthly stock opname as a form of inventory monitoring, but this is done with limited human resources and is only triggered reactively, especially when discrepancies are already apparent. There is no ongoing or scheduled internal audit, and post-stock opname actions (such as adjustments to system data) are not consistently executed or documented. Without a structured performance evaluation or monitoring team, errors may go undetected and systemic weaknesses may persist. Effective monitoring should include routine audits, clear performance indicators (KPIs), and regular reviews of inventory management effectiveness.

Final Assessment

Overall, the analysis shows that the distributor has laid down the foundation of an internal control system, but several areas require significant improvement. The control environment is weak due to overlapping roles, while risk assessment and monitoring are not conducted in a preventive or strategic manner. Control activities are performed manually without the support of digital systems, and communication suffers from a lack of integration and proper documentation.

To address these challenges, the distributor should:

a. Restructure its organizational roles to ensure proper segregation of duties.
b. Conduct regular risk identification and mapping.
c. Transition to a fully integrated accounting and inventory system (e.g., ERP).
d. Improve communication flows through standardized digital reporting templates.
e. Establish a dedicated internal audit and monitoring unit to evaluate inventory performance regularly.

By implementing these recommendations, the distributor can build a more effective, reliable, and accountable internal control system that aligns with best practices outlined in the COSO framework.

Inventory Data Discrepancies and Monitoring (Based on COSO Framework)

One of the primary causes of inventory data discrepancies lies in the lack of information integration between the sales department, warehouse, and record-keeping. The existing communication system is not yet supported by an adequate accounting information system, which results in presented data that does not reflect the actual conditions on the ground.

To address this issue, the company needs to adopt an integrated accounting information system capable of supporting real-time recording. This will ensure that any stock changes are immediately recorded and monitored. A study by Fitriana et al. (2024) concluded that an accurate and well-documented accounting information system serves as a vital tool in ensuring the reliability of inventory data. In addition, it is crucial to establish two-way and responsive communication channels among departments. These should include daily stock reporting, regular and scheduled reconciliation, and a transparent and well-documented system for reporting errors or losses.

The final component of the COSO framework is monitoring, which functions to periodically evaluate the overall control activities that have been implemented. The analysis revealed that there is currently no formal evaluation mechanism in place to assess the effectiveness of inventory control at the distributor. Consequently, the company lacks early awareness when weaknesses or deviations in the system occur.

Therefore recommended that the company form an internal monitoring team tasked with conducting internal audits and periodic evaluations of inventory procedures. These audits should be performed both on a scheduled and incidental (sudden) basis to ensure that all processes align with Standard Operating Procedures (SOPs). Findings by Ayu Cahyaningsih et al. (2021) emphasize that consistent monitoring can effectively

close gaps in weaknesses and ensure continuous improvement. Moreover, the performance evaluation of staff responsible for inventory should be treated as a critical indicator in assessing the effectiveness of the implemented internal control system.

State of Art

In the era of digital transformation, inventory control can no longer rely solely on manual recording or conventional systems. The state of the art in inventory control emphasizes the application of integrated and real-time accounting information systems (AIS) that ensure any changes in inventory data are immediately reflected in financial and operational reports.

Recent studies, such as those by Fitriana et al. (2024), indicate that the accuracy and reliability of inventory data depend greatly on how well the information system is documented and automated. Modern AIS support horizontal and vertical integration across departments—such as sales, warehouse, finance, and management—thereby minimizing the risk of data discrepancies due to miscommunication or duplicate entries. Furthermore, the current approach underlines the importance of continuous and adaptive monitoring, as suggested by Ayu Cahyaningsih et al. (2021). Monitoring is not only conducted periodically but must also be responsive to anomalies detected by the system. This includes data-driven internal audits, automated error reporting, and early warning systems to prevent stockouts or overstocking.

From a technological standpoint, the use of Enterprise Resource Planning (ERP) systems or cloud-based platforms integrated with analytical dashboards has become the new standard in inventory management. These systems go beyond mere recording by analyzing demand patterns, stock turnover, and potential operational risks.

The modern development of accounting information systems (AIS) has significantly transformed the way organizations manage inventory. Traditionally, inventory control relied on periodic manual checks and separate recording systems, often leading to discrepancies, data duplication, and delayed reporting. Today, the state of the art in inventory control integrates AIS with advanced technologies to achieve real-time accuracy, automation, and strategic decision-making.

Real-Time Data Integration

Modern AIS enables real-time data entry and synchronization between procurement, warehouse, and finance departments. According to Wibowo & Siregar (2023), real-time systems reduce the risk of data manipulation and enhance transparency, allowing decision-makers to respond promptly to changes in stock levels and demand trends.

Automation and Error Reduction

The use of automated barcode scanning, RFID tagging, and cloud-based platforms has become a new standard for minimizing human error and streamlining inventory processes. Susanto (2022) emphasizes that automation through AIS can reduce

transaction processing time by up to 40%, while also improving the accuracy of financial statements.

Predictive Analytics and Forecasting

Inventory control is no longer reactive; it is predictive. Current AIS platforms are equipped with predictive analytics, which use historical data and AI algorithms to forecast inventory needs. This allows companies to prevent overstocking or stockouts, optimize warehouse space, and manage costs efficiently. Research by Rahmawati et al. (2024) supports the idea that predictive inventory systems increase operational efficiency and competitiveness.

Internal Control and Audit Trails

A critical aspect of AIS-based inventory control is its support for internal control mechanisms. Systems now feature audit trails, access restrictions, and error logs, which help organizations monitor user activity and enforce accountability. This aligns with the findings of Cahyaningsih et al. (2021), who argue that effective internal control through AIS significantly improves compliance and reduces fraud risk.

Mobile Access and Decentralization

With the increasing use of mobile accounting systems and remote access, inventory control is no longer confined to a physical office. Managers can approve transactions, check stock levels, and generate reports from any location. This flexibility supports faster response times and more agile decision-making, as highlighted by Prasetyo & Nugroho (2023).

Integration with ERP and SCM Systems

State-of-the-art AIS is typically integrated into broader Enterprise Resource Planning (ERP) and Supply Chain Management (SCM) systems. These integrations allow seamless coordination across multiple functions and provide a holistic view of inventory in relation to production, distribution, and customer demand.

CONCLUSION

Based on the research findings on internal control analysis of ceramic inventory at a Building Materials Distributor in Cirebon City, it can be concluded that although the internal control system has been developed and implemented, its execution in the field has not been fully effective. A prominent issue is the lack of clear separation of duties, where certain positions are still held by one individual, such as the sales admin who also functions as the warehouse admin. This overlap increases the risk of inaccuracies in stock recording and weakens inventory oversight. While monthly stock-taking is conducted, it often faces challenges due to limited manpower and the high volume of items, resulting in discrepancies between system data and the actual stock. The Warehouse Head cited that the small team and intense workload reduce the accuracy of inventory checks, and the Branch Manager admitted that supervision still relies heavily

on warehouse team reports without routine internal audits. These issues highlight the need for improvements in task segregation, physical inventory control, and monitoring mechanisms to ensure more reliable and accountable inventory management.

The primary challenge lies in the weak separation of duties among warehouse personnel, which not only increases the risk of errors and inventory losses but also opens potential for fraud due to the absence of cross-functional checks. Heavy workload on certain individuals further hampers supervision and documentation processes. The lack of skilled human resources in warehouse operations also hinders effective internal control, and stock records are still manually maintained due to limited use of digital systems, making them prone to human error. Moreover, the absence of regular internal audits and inadequate monthly discrepancy monitoring indicates that the evaluation process is not systematic. In response to these challenges, it is recommended that the distributor strengthen its organizational structure by clearly separating administrative, sales, warehouse, and supervisory functions to prevent conflicts of interest and enhance control.

Developing and documenting standard procedures for inventory receipt, storage, and release, including stock-taking and discrepancy handling, is also essential. Implementing a digital inventory system with real-time tracking capabilities can significantly improve efficiency and accuracy. Assigning an internal audit team or conducting periodic supervision is also vital to maintain the integrity of the control system.

The study also acknowledges its limitations in scope and methodology; therefore, future researchers are encouraged to include multiple distributors from other regions for a more comprehensive analysis of internal control effectiveness in the industry. Employing quantitative or mixed methods in future studies could yield more objective and measurable results, while incorporating variables such as the impact of inventory control on operational efficiency or financial performance would further enrich theoretical contributions, especially in accounting and industrial inventory management.

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