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Impact of Inventory Management on Financial Performance of MSMEs in Santiago City

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ABSTRACT

The study aims to investigate the impact of inventory management on the operational efficiency and financial performance of micro, small, and medium enterprises (MSMEs) in Santiago City. A correlational descriptive cross-sectional survey design was utilized on a sample of randomly selected 314 participants belonging to the merchandising MSMEs from Santiago City. Primary data was collected using self-administered questionnaires analyzed using frequency and percentage, mean and standard deviation, and linear regression. The results showed that MSMEs are efficient in inventory management, operation and have good financial performance. It further suggests a strong positive relationship between inventory management and operational efficiency and a moderate positive relationship between inventory management and financial performance. The study offers practical guidance to MSMEs on optimizing their operational efficiency and maintaining good financial performance through effective inventory management practices. It gives owners and managers valuable insights into specific areas that need improvement and the underlying factors that inventory management affects. Furthermore, the research deepens the understanding of the intricate relationship between inventory management, operational efficiency, and financial performance within the context of MSMEs in Santiago City, thus enriching the existing knowledge for researchers and practitioners.

INTRODUCTION

Despite its significance, many firms still fail to manage their inventory efficiently, resulting in stockouts, excess inventory, higher costs, and lost sales. Given the fast-paced and highly competitive contemporary business environment, it is essential to have efficient and effective inventory management techniques in place (Gyawali & Acharya, 2020). Therefore, understanding the current state or condition of inventory management in businesses is essential for identifying gaps and opportunities for improvement. Future research may assist firms in developing better inventory management strategies, gaining a competitive edge, and achieving sustainable growth through a thorough review of inventory management methods and their influence on firm performance. Consequently, several studies have focused on inventory management as a critical issue.

Kenyan manufacturing enterprises are facing competition from other manufacturing companies where they need to implement effective methods of regulating and analyzing the inventory by decreasing waste in the production process, lowering holding costs, purchasing costs, and many other factors. Even though many businesses in underdeveloped nations like Kenya have implemented inventory management systems to enhance corporate operations continue to face difficulties with inventory management and rising operating expenses (Kimuthai et al., 2019). Considering this, their study investigated how inventory management systems affect Kenyan manufacturing enterprises' performance.

Although inventory investment represents many Ethiopian small businesses' overall expenditures, inventory management is one of the most neglected management activities. Small businesses have increased their spending on inventory management systems rather than taking advantage of how they might reduce related expenses (Atnafu & Balda, 2018). Businesses struggle to meet customer demands because of a lack of inventory, which affects how well they function (Atnafu & Balda, 2018; Eshun, 2013). In this view, their studies evaluated how inventory management techniques affected manufacturing companies' organizational performance and competitiveness.

Additionally, most Small and Medium Enterprises (SMEs) in Zimbabwe's manufacturing sector misalign supply and demand, leading to excess inventory or stockouts. Different inventory management methods are used by manufacturing companies, which could reduce productivity (Muchaendepi *et al.*, 2019). Their investigation has focused chiefly on how inventory management methods are used and how well they perform in the real world. Furthermore, the inventory-related issue is misrepresentation made by employees of Somalian companies or individuals from other groups, which may result from negligence or poor inventory management (Anshur *et al.*, 2018).

The stock management systems of Mogadishu's industrial enterprises demonstrate that the efficacy of information technology influences inventory management, in contrast to e-wallets, which demonstrate no correlation between usefulness and satisfaction with mobile payment (Anshur *et al.*, 2018; Karim, Chowdhury & Haque, 2022).

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Also, several African business units and firms have failed, and ineffective inventory management contributes to these failures (Orobia *et al*., 2020). Holding too much inventory resulted in more capital being tied up, which caused deterioration, obsolescence, and damage. Conversely, a lack of inventory is linked to sales interruption brought on by stockouts, poor customer service, and underused machinery and equipment (Dong & Su, 2010; Gul *et al*., 2013; Karim *et al.,* 2017; Orobia *et al*., 2020). In connection with this, their investigations examined whether inventory management influences the link between managerial skill and profitability.

Meanwhile, Malaysian SMEs struggle with irregular inventory, inaccurate estimates, slow customer response times, and improper accounting recording processes that lead to poor performance (Mohamad et al., 2016). Similarly, Abdulrasheed et al. (2013) noted that poor performance from ineffective inventory management solutions causes firms to struggle with irregular delivery, decreasing consumer productive capacity, and excessive production costs. Since there are not enough materials to satisfy the unexpected rise in consumer demand, there needs to be more profits to cover costs and returns on equity; there are material wastes and thefts brought on by surplus stock, and most businesses have communication chains that are not active. Thus, inventory management has become essential for managers in charge of production. Therefore, the focus of their research is on how inventory management affects the profitability of SMEs.

Effective inventory management in warehouses is presently a top priority for Indian firms. Operation managers must address concerns, including reducing inventory carrying costs and product availability (Panigrahi *et al*., 2021). The results of their research are used to establish how effective inventory management strategies affect steel manufacturing businesses' operational performances. Their study focuses on how inventory automation and inventory distribution turnover approaches may give large steel manufacturing enterprises a competitive edge and boost operational performance. The same problem is experienced by most Nepalese public manufacturing enterprises, resulting in massive losses due to inefficient inventory management (Risal & Acharya, 2021). Eliminating future hurdles would satisfy public manufacturing enterprises. Inventory management is a broad topic that has received little attention in the Nepalese context (Risal & Acharya, 2021; Sunday & Joseph, 2017). Thus, their studies analyzed public enterprises' inventory management and profitability.

In Saudi Arabia, inventory errors significantly impact a company's financial reports. Most errors result from poor inventory data management, but they can also be brought on by staff needing to count the goods physically. A proper inventory control system must be implemented to minimize costs while maximizing profit. However, many issues still arise, such as a lack of consistency due to no standard operating procedures, a fixed management system, and material discrepancies (Althaqafi, 2020). Therefore, the study investigated how inventory management affects financial performance.

Parilla *et al.* (2022) assert that one of the crucial management dilemmas for various companies in the Philippines is how they manage their inventory. Poor customer service, dwindling resources that might prohibit things from being sold, and unused gear and equipment are all problems with inventory management in healthcare institutions. Higher rates of inefficiency characterize this, declining productivity, rising operational expenses, bolstered working capital, significant declines in reaching customer service goals, and a precarious bottom line. Poor stock management puts firms in a logistical and financial bind by reducing their efficiency, negatively impacting their financial performance. As such, their research examines how hospitals' and clinics' inventory management strategies affect their ability to provide services to customers.

Additionally, numerous manufacturing companies in the Philippines still perform manual inventory counts, which presents a significant problem in encoding errors from manual paper-based counting. If these manual transactions are transferred to an Excel file, inaccurate data encoding will result from human error. Due to inefficient check-in logistical operations, inbound delivery vehicles may have to wait between arrival and check-in, adding unnecessary costs to the business in the form of delays and inaccurate inventory. Prolonged truck delays will make it more difficult for the business to serve clients effectively (Apolonio & Norona, 2021). Accordingly, their study assessed the activities of the incoming and outgoing processes that impacted the inventory accuracy and the check-in check-out (CICO) cycle time. By strengthening the inbound truck reception process, they were able to reduce the lengthy processing times and minimize inventory inaccuracy.

This study defines inventory management, operational efficiency, and financial performance with the problems identified by past studies. Operational efficiency refers to arranging all production units within a company to guarantee that they operate harmoniously to accomplish critical business objectives (Panigrahi *et al*., 2021). Additionally, Yu *et al.* (2018) clarify that operational efficiency refers to the firm's capacity to enhance results by establishing regular routines and standard operating procedures across functional domains. This study defines operational efficiency as evaluating how well a company uses its resources to provide the greatest results. A separate study conducted by Kwon and Lee (2019) and Panigrahi *et al.* (2021) concluded that different factors have an impact on operational efficiencies, such as Research and Development (R&D) and Inventory Automation Practices (IAP). The studies concluded that these factors (R&D and IAP) significantly positively affect operational efficiencies and influence a firm's operational efficiency and overall performance.

Albertini (2013) defined financial performance as a meta-construct highlighting a firm's profitability by

differentiating between market-based, accounting-based, and organizational measurements. A company's performance that can be measured regarding money and financial operations is referred to as financial performance (Nguyen *et al.*, 2021). For the study, financial performance measures how well a business uses its resources and earns a profit. It reviews its financial standing concerning assets, liabilities, equity, costs, and revenues. Jayeola *et al.* (2022) found that government financial support (GFS) indirectly explains financial performance (FP) by acquiring a resource that, when employed correctly and in line with a company's strategic goals, gives SMEs a competitive edge and, as a result, improves financial performance. Nigerian firms exhibit peculiar flexibility, aggressive lean thinking, and lean improvement, indicating higher firm effectiveness with better flexibility in value creation, value capture, and wealth creation among enterprises that deal with product development and services (Harry, Ugo, & Mary, 2023).

Stevenson (2010) described inventory management as a paradigm businesses use to regulate their interest in inventories. Deveshwar and Dhawal (2013) indicated that inventory management is a method firms use to organize, keep, and update to ensure an adequate supply of goods while decreasing expenses. Therefore, inventory management pertains to how a firm maintains its entire stock, including materials, components, work in progress, and finished products, and sells it to the market to earn a profit. Furthermore, Khan and Siddiqui (2019) concluded that inventory control management significantly impacts the company's profitability and performance by enabling a qualitative and quantitative measure of the stock flow, making strategic decisions that boost supply chain efficiency, and minimizing costs. Furthermore, inventory control indicators enable a firm to assemble, handle, and employ the best stock control model to enhance merchandise flow. With the problems mentioned above, the purpose of inventory management is to maintain a sufficient level of inventory to meet customer demand while minimizing costs associated with holding excess inventory (Waters, 2021). Effective inventory management enables businesses to achieve higher levels of customer service, lower costs, and improved operational efficiency (Chase *et al.*, 2021).

Realizing the expenses of effective inventory management is still essential for Micro, Small, and Medium-Sized Enterprises (MSMEs) in the Philippines to maximize profit. After reviewing the related literature, there are few studies and insufficient data on the impact of inventory management on operational efficiency and financial performance (Elsayed, 2015; Kljenak *et al.*, 2013; Shockley & Turner, 2015). All of these studies are conducted in other countries. Other studies conducted are only focused on inventory management or the relationship between inventory management and operational efficiency or the relationship between inventory management and financial performance (Abdulrasheed *et al.*, 2013; Risal & Acharya, 2021; Agu *et al.*, 2016; Anshur *et al.,* 2018; Atnafu & Balda, 2018; Eshun, 2013; Khan & Siddiqui, 2019; Kimuthai *et al.*, 2019; Mohamad *et al.*, 2016; Muchaendepi *et al.*, 2019; Panigrahi *et al.*, 2021; Sunday & Joseph, 2017). To the best of the researchers' knowledge, they do not find evidence of studies investigating the impact of inventory management on the operational efficiency and financial performance of MSMEs using evidence from the Philippines. Studies conducted in the Philippines related to the issues are only a few, focusing on just one or a single firm or sector, such as distributors, restaurants, banks, manufacturers, and healthcare facilities. These studies did not discuss the impact of inventory management on operational efficiency and financial performance (Apolonio & Norona, 2021; Baylen, 2020; Ofrecio, 2021; Parilla *et al.*, 2022; Rosario, 2022).

The impact of inventory management on the operational efficiency and financial performance of Micro, Small, and Medium Enterprises (MSMEs), particularly in merchandising business, was investigated in the present study. Compared to previous studies, this study departs by focusing on the MSMEs merchandising business in Santiago City due to the lack of studies on inventory management and its impact on operational efficiency and financial performance in the proposed study site. Examining the current state of inventory management in MSMEs in Santiago City highlighted the gaps in previous research. Thus, this study aimed to investigate the impact of inventory management on the operational efficiency and financial performance of MSMEs in Santiago City.

Specifically, it sought to answer the following questions:

1.What is the inventory management efficiency of MSMEs?

2.What is the operational efficiency of MSMEs?

3.What is the financial performance of MSMEs?

4.What is the impact of inventory management on the operational efficiency of MSMEs?

5.What is the impact of inventory management on the financial performance of MSMEs?

LITERATURE REVIEW

Inventory Management

Hedrick *et al.* (2008) assert that businesses keep inventories of all resources and products to fulfill future requests. Viloria and Robayo (2016) expanded upon this description by categorizing them as "work in process," "finished goods," and "raw materials" that are physically available to the organization and are utilized by the company to start or finish the supply chain. One of the topics most frequently explored in studies on business management is inventory management, as it can either make or break a business. Issues with inventory management might lead to a company's bankruptcy.To avoid or reduce the issues caused by inventory, efficient and effective inventory management is vital.

Inventory management is a process that assists companies in determining the appropriate timing and quantity of stock to order. It monitors inventory from the moment of purchase until the goods are sold. By analyzing trends, it can anticipate demand and ensure enough stock

is available to meet customer orders. It also alerts the company in advance if there is a shortage, allowing them to take corrective measures (NetSuite, 2020).

Inventory management is crucial and frequently consumes a significant portion of an organization's operational budget; thus, it has to be closely regulated. It has been acknowledged that keeping accurate inventory records and using efficient inventory control strategies are crucial. It is also found that state firms adopted technology less readily than other industries in inventory management, which may impact how well they manage their inventories (Gatari *et al.,* 2022).

Similarly, Khan and Siddiqui (2019) assert that effective inventory management does not treat every product similarly; instead, it utilizes control and analytical techniques by the relative economic relevance of each good. In addition, proper inventory planning and control is one of the most critical aspects of a company that requires skill and ability to increase overall performance. Inventory planning and management benefits include improved contract compliance, lower procurement costs, better worker engagement, and lower handling costs (Namusonge *et al.*, 2015).

In addition, Islam *et al.* (2019) examined the elements contributing to poor inventory management in SMEs. They discovered that the lack of a cohesive firm information system and qualified human resources impede effective inventory management. An integrated information system is essential for providing management with real-time information. Furthermore, it enhances departmental cooperation. To enable the creation of an integrated information system, qualified human resources are needed. Employers must continue to train and retain their workers. By improving quality, saving time, and reducing prices, efficient inventory management may distinguish the business from competitors. From the consumers' perspective, due to daily price increases, society would face economic backwardness due to high inflation, resulting in product shortages and consumer hoarding (Anagaw, 2023). Businesses must lower the number of inventories in the supply chain to rationalize storage costs and maintain them (Hugos, 2018). A robust inventory management system's advantages include efficient stock storage, simple warehouse product access, elimination out-of-date inventory, and a general reduction in stock expenditures (Mulandi & Ismail, 2019).

Lastly, inventory management is essential for a firm to succeed, and numerous strategies have been devised to maximize stock levels. Some of the inventory management techniques used by businesses are Just-in-time (JIT), First in, First out (FIFO), ABC analysis, Economic Order Quantity (EOQ), and Vendor-Managed Inventory (VMI). For retailers, Just-In-Time (JIT) is a technique that involves receiving inventory just before selling it rather than keeping it on hand for weeks or months until the business needs it (Cvetkovic, 2022). JIT stresses a lean manufacturing system and reduces inventory waste and handling costs (Patterson *et al.*, 2010).

The utilization of the First-In-First-Out (FIFO) strategy is prevalent in inventory management as it guarantees the consumption or sale of the oldest inventory before newer ones. Adopting this method allows companies to mitigate the potential risks associated with inventory becoming obsolete or spoiled while enhancing the accuracy of their financial reporting. FIFO facilitates preserving product freshness, reducing carrying costs, and providing more precise inventory valuation in financial statements (Smith & Johnson, 2019).

In contrast, ABC analysis made effective inventory control possible by categorizing inventory based on significance and assigning priority levels to goods (Kumar & Garg, 2017). The Economic Order Quantity (EOQ) approach determines the right number of orders to place to reduce overall inventory expenses (Wang *et al.*, 2017). Vendor Managed Inventory (VMI) is another technique where the supplier manages inventory levels for the buyer, allowing for a more efficient supply chain (Prajogo & Olhager, 2012).Understanding the benefits and limitations of these inventory management techniques is essential for businesses to choose the most appropriate technique for their specific needs, as it significantly impacts a firm's profitability and ability to meet customer demand (Smith & Johnson, 2019).

Operational Efficiency

Operational efficiency is a crucial factor in the success of businesses. It is defined as the ability of a company to utilize its resources to achieve maximum productivity and profitability with minimal waste.Operational efficiency is expressed in terms of productivity (which compares an output unit to the input needed to produce it), profitability as measured by gross profit, and growth, an increase in customer service, quality, and adaptability in the face of change. Management-related elements and organizational efficiency assessments are crucial (Bhattacharya *et al.*, 2005). Academicians have offered numerous recommendations for various metrics that can be used to evaluate an organization's operational efficiency, including innovations in the form of new services, new technology, and managerial systems and procedures (Richard, 2011).

Singh and Singh (2018) noted that operational efficiency is vast and covers all aspects of business operations, including production, supply chain, inventory management, marketing, and human resource management.The authors argue that operational efficiency should be organizations' primary focus since it reduces costs, increases revenue, and improves customer satisfaction. Furthermore, they emphasize that operational efficiency should be constantly monitored and improved through various tools and techniques. The scope of operational efficiency is, therefore, crucial for the long-term success of businesses. Operational efficiency is critical for businesses to achieve maximum production and profitability while avoiding waste (Dobija, 2021) and understanding and analyzing the aspects affecting operational efficiencies, such

as production processes, supply chain management, personnel management, technology, and performance indicators (Chiarini, 2015; Jarkas, 2019; Kummer & Walter, 2018). Moreover, various methods and approaches, including lean manufacturing, Six Sigma, continuous improvement, and Total Quality Management (TQM), can increase operational efficiency (Kumar *et al.*, 2020; Lee & Ko, 2018). Thus, having a thorough grasp of operational efficiency and the variables that affect it may aid firms in identifying areas for development and putting into practice efficient tactics to increase performance.

In addition, operational efficiency is a critical factor in the success of businesses across industries. Businesses that emphasized operational efficiency often had better levels of productivity, lower costs, and higher customer satisfaction (Karia *et al.*, 2018). Businesses must be completely aware of their processes, resources, and goals to achieve and sustain operational efficiency. This entails choosing and tracking key performance indicators (KPIs) such as cycle time, throughput, and inventory turnover, as well as routine monitoring and analyzing data to spot areas for improvement. Moreover, successful teamwork, ongoing improvement, and good communication are essential for establishing and maintaining operational efficiency (Sohal, 2016). Overall, firms may gain a considerable competitive edge by realizing the value of operational efficiency and putting out effective plans to accomplish it.

Ejike (2020) determined that working capital management components (accounts receivables, account payables, cash conversion cycle, and debt-equity management) influence Nigerian manufacturing sectors' operational efficiency. A further study by Alarmouti *et al.* (2019) examined modern inventory management strategies and how they affected the operating effectiveness of the retail sector in the United Arab Emirates (UAE). They discovered that the absence of the essential cash flow for company scale development dramatically reduces the operational effectiveness of the retail sector firms in the UAE regarding the inventory management practices that are required and followed by the government. This is supported by Rahman *et al.* (2021), in which there is a positive relationship between information technology, a lean inventory system, and inventory management techniques to Bangladesh's garment manufacturers' organizational and operational performance. In addition, Ntarindwa (2022) discussed another aspect that affects operating efficiency in his study on the impact of cost-management techniques on the operational efficiency of the Bank of Kigali in Rwanda. Their findings demonstrated that technology, business process re-engineering, and recruiting and training impact operational efficiency, demonstrating a favorable relationship between operational efficiency and cost management measures.

Financial Performance

Financial performance measures how well a business uses resources and generates income (Stevenson, 2011). It reviews its financial standing regarding assets, liabilities, equity, revenues, and expenses. Financial performance also demonstrates how a business uses resources to accomplish its economic goals. Financial reports are essential in communicating how firms accountably and financially position themselves and are used to analyze financial performance. Ratio analysis is the quantitative assessment of data from financial reports expressed as profits or returns, such as return on assets (Alfiana & Husnunnida, 2019). Many financial ratios, including gross profit margin, net profit margin, return on asset, current ratio, debt asset ratio, and others, can be used to evaluate a company's liquidity, profitability, leverage, and market value (Vaidya, 2022).Suparlinah *et al.* (2019) investigated financial performance as it was measured through financing and other factors, including financial literacy. Regression analysis was used to show that financing significantly negatively impacts performance. In contrast, financial literacy significantly positively impacted the performance of 75 MSMEs in Banyumas Regency, Indonesia.

Ratnawati (2020) found that financial inclusion significantly affects the financial performance of 100 MSMEs in Malang City, Indonesia, directly and indirectly. The quality of the financial services and access to financial funding boost these businesses' workforce expansion, higher profitability, growth in market share, and increased sales.Market penetration and improved service quality are significant for enhancing the impact of financial inclusion on financial success. Similarly, Ombongi and Long (2018) examined the financial performance of 682 MSMEs in Kenya using profits regressed on bank credit, employee expenses, technical costs, and gross domestic products. They discovered through regression that these regressors have a substantial direct link with the financial performance of MSMEs.

Cammayo and Cammayo (2020) examined financial performance through return on assets. In Isabela, Philippines, there was a regression in financial practices among 227 MSMEs. They discovered that Isabela MSMEs had very low returns on assets and performed poorly. Due to their difficulty obtaining loans, their operating capital is constrained to the profits generated by the company. Therefore, if MSMEs are given enough cash, their profitability and development will increase and be sustained.

Moreover, they also found a strong correlation between financial practices, shown mainly by budgeting and bookkeeping, and financial success, primarily indicated by return on assets. Their study is further elaborated by Cammayo and Perez (2021). They discovered that MSMEs use marketing strategies only to a "poor" level. Due to a lack of technological know-how, they continue to use traditional methods of gaining and keeping clients. The financial success of MSMEs is directly and significantly correlated with ICT-related marketing techniques. This suggests that when ICT-related marketing tactics are implemented at a higher rate, the financial performance

of the MSME sector will also improve (Cammayo & Perez, 2021; Ogohi, 2018).

Inventory Management and Operational Efficiency

Inventories can be categorized using a variety of methodologies to increase the operational effectiveness of warehouse operations and reduce investment costs. When managing staff operations, precise demand forecasts, safety stock levels, and consumption trends are regularly monitored, the operational efficiency of the warehouses may be significantly increased (Gizaw & Jemal, 2021). Oballah *et al.* (2015) explored how inventory management techniques impacted organizational performance in a Kenyan public health institution. They discovered that procedures like investment in inventory and inventory record accuracy favorably affected the operational performance and efficiency of the Kenyatta National Hospital.In addition, separate studies conducted on Kenyan government and commercial state corporations have shown more inventory management factors that affect operational efficiency. The studies' findings demonstrate that several factors have a significant impact on operational efficiency, including supply accuracy, the impact of stock classification on inventory for customer support, constant flow of goods for order fulfillment, low inventory levels, prompt replenishment of stock to the relevant department, JIT inventory system, and MRP (Otundo & Bichanga, 2015; Mulandi & Ismail, 2019). Chebet & Kitheka (2019) concluded that System Application and Product Software (SAP) system greatly influences a firm's operational efficiency.

Furthermore, intelligent Radio Frequency Identified (RFID) systems may manage customer demand in the manufacturing sector in real-time, and their integration with management information systems enhances the supply chain's operating efficiency. The results of the studies indicate that the front-end and back-end applications of cloud information services built using RFID technology will have higher operational efficiency (Fang & Chen, 2021). Rahman *et al.* (2021) determined that effective inventory management techniques led to the firm's use of modern technology, resulting in on-time deliveries of goods and services that satisfied customers' needs. These developments allowed Bangladesh's chosen garment industries to achieve and maintain significant levels of competitive edge. For steel inventories, Shinde and Ramdasi (2021) found that by utilizing a straightforward Load Distance-Approach, a practical Facility Planning technique utilized to reduce material handling and transit time, processes are made more efficient.

While studies on inventory management generally concentrate on manufacturing industries, Leaven et al. (2017) have demonstrated that inventory management in the medical industry is also crucial. Medical reserves are frequently placed outside the main medical facility to conserve and use medical supplies in the case of a natural catastrophe.The volume of inventory stock is so large that local warehouses cannot retain it all at once. High stockpiles of medical supplies will thus raise the cost of maintaining inventories and reduce operating effectiveness. Moreover, Chuang *et al.* (2019) discovered that demand uncertainty and business size significantly affect the complicated link between inventory leanness and retailer operating efficiency for public U.S. retailers.

Contrary to prior research in industrial contexts, which indicates that being lean positively enhances operational performance, the study found that not being lean is connected to higher operational efficiency under severe demand uncertainty, independent of firm size. This comparison makes sense since manufacturing production facilities differ fundamentally from retail establishments, where realized consumer demand may be inventory-dependent. It is also demonstrated that the link between inventory leanness and operational efficiency is significantly altered by demand uncertainty. Demand uncertainty represents environmental dynamism and market volatility. In addition, inventory shrinkage has a detrimental impact on Kenyatta National Hospital's organizational effectiveness and efficiency (Oballah *et al.*, 2015).

Inventory Management and Financial Performance

Inventory management aims to prevent excess and inadequate stock levels from maintaining continuous production and sales, lower carrying costs, and better customer service.When this is accomplished, the company's status regarding liquidity and profitability is enhanced (Olowolaju, 2013; Nyabwanga *et al.*, 2012). Good budgeting and planning techniques and accurate sales projections are necessary for effective inventory management (Atrill, 2006; Pandey, 2006). Organizations must employ efficient reporting systems and inventory management techniques like EOQ and ABC analysis procedures to increase inventory levels. Khan and Siddiqui (2019) discovered that inventory management significantly influences a firm's performance and profitability, enabling strategic decisions to improve productivity. The same results were obtained by Muchaendepi *et al.* (2019), in which a cumulative majority of 93% of respondents agreed that the inventory management tactics employed had a favorable influence on the financial performance of SMEs in the manufacturing sector throughout the study period. This indicates a significant relationship between SMEs' working capital and inventory management techniques.Similarly, Golas and Bieniasz (2016) discovered that the financial effectiveness of enterprises is directly correlated with inventory management, and it should be subject to optimization. Also, they found out that improving managerial effectiveness in the food industry in Poland may be a significant source of financial performance improvement, as assessed by the length of inventory cycles.

Danlami (2016) examined how inventory management affected the financial performance of Nigerian conglomerate companies and discovered a strong and positive association between inventory management and financial performance. Inefficient inventory management

processes impede business sales and profit levels. Similarly, Hamza *et al.* (2015) investigated the impact of inventory management on the financial performance of SMEs in Ghana's northern area. Their studies showed that inventory management techniques improved the financial performance of SMEs. Organizations find inventory most challenging to manage due to its susceptibility to theft and obsolescence due to changing consumer tastes and preferences (Peel *et al.*, 2000; Howorth & Westhead, 2003). Thus, it is critical to monitor inventory movements and avoid unnecessary losses that might eventually harm a company's financial performance (Ogbo & Onekanma, 2014).

Furthermore, Orobia *et al.* (2020) looked at the connections between inventory management, managerial skill, and financial performance to see if inventory management is a mediator in the relationship between managing skill and financial success. Their study suggested a connection between better financial performance and managerial ability. The results of their study implied that improvements in management competency are linked to improvements in financial performance. As such, having personnel with specialized knowledge, skills, and capacities to do diverse management tasks enhances a company's financial performance since they may start initiatives that provide the company an advantage over its competitors (Ahmad *et al.*, 2010; Kamukama *et al.*, 2017; Moreau & Mertens, 2013; Olawale, 2014; Ssekakubo *et al.,* 2014; Zacca & Dayan, 2018).

Contrary to the prior studies, Roumiantsev and Netessine (2007) looked at the relationship between effective inventory management practices and the financial performance of businesses. They found no correlation between inventory management and financial performance measured by the return on assets. Koumanakos (2008) investigated how inventory management affected Greek businesses' performance. There are 1,358 manufacturing companies, primarily in the food, textile, and chemical sectors. The results revealed that the return rate would decline when the firm's inventory level rose (departing from lean operations).

MATERIALS AND METHODS

The study used a quantitative research approach, specifically a correlational descriptive cross-sectional survey design. The correlational design aims to determine the connection between two or more variables. However, it was emphasized that a relationship between two variables did not always imply that one variable caused the other (Marczyk *et al.*, 2005). The study employed a cross-sectional survey, which involved gathering standardized data from a cross-section of the predetermined population at a specific period (Blumberg *et al.*, 2014). This study used a correlational descriptive cross-sectional survey design to collect data from a cross-section of the predetermined population to describe inventory management, operational efficiency, and financial performance and measure the relationship among these variables. The researchers opted for this design to provide a more detailed description of the variables (Kothari, 2004). Furthermore, the study investigated how inventory management affects operational efficiency and financial performance (Demeter & Matyusz, 2011). Similar research designs were also used in related studies (Atnafu & Balda, 2018; Cammayo & Cammayo, 2020; Cammayo & Perez, 2021; Khan & Siddiqui, 2019; Orobia et al., 2020; Panigrahi *et al.*, 2019; Risal & Acharya, 2021). Data collection was done using a survey questionnaire.

The study was conducted in Santiago City due to limited studies regarding inventory management and its impact on operational efficiency and financial performance. Santiago City, a first-class independent component city in Cagayan Valley, is known as the region's commercial hub or commercial center.The city's leading businesses are found in the service sector, particularly in the wholesale and retail industries (merchandising), accounting for 84% of the city's economic output, with manufacturing coming in second at 16% and agricultural coming in third at 0.22% (City of Santiago, 2018).

The study participants were the managers or owners of MSMEs, particularly merchandising businesses, based on the given list of MSMEs in Santiago City by the City Permit and License Inspection Office (CPLIO). A merchandising business is a type of business that engages in the buying and selling of products (distribution) rather than in the production of goods. These businesses typically operate in the retail industry, including department stores, specialty stores, and online retailers. The participants were randomly selected from 1692 businesses using the Raosoft Sample Size Calculator. Random sampling was chosen to reduce sampling bias and ensure that all population members had an equal chance of being selected. It was determined that the sample size was n= 314, and the margin of error was E= 0.05, based on the assumption that the response rate was r= 50%. The 314 sample size was sufficient to satisfy the study objectives. The inclusion criteria in determining the participants of the study were the Republic Act No. 9501 or the Magna Carta for MSMEs based on the total assets exclusive of the land of the business, not the number of employees. To qualify as a Micro business, the total assets exclusive of the land should not be more than P3,000,000. Small businesses should have P3,000,000 to P15,000,000, while Medium businesses should have P15,000,001 to P100,000,000. Large Enterprises were excluded from the study because of the difficulty accessing the data needed. Shown in Table 1 is the frequency and percentage of the business profile in terms of size, type of business, and years of operation.

A quantitative data collection method, specifically a survey, was utilized for the study's data collection. A structured questionnaire was the primary tool for obtaining data for the study. The survey questionnaire is divided into four sections. Part one is the inventory management scale adapted from the study of Gatari, Shale, and Osoro (2022) and Orobia, Nakibuuka, Bananuka, and Akisimire (2020).

Table 1: Frequency and Percentage on the Business Profile.

Business Profile	Frequency	Percentage
Size of the Business		
Micro	243	77.4%
Small	52	16.6%
Medium	19	6%
Type of Business		
Sole Proprietorship	270	86.0%
Partnership	1	.3%
Corporation	43	13.7%
Years of Operation		
Less than one year	34	10.8%
1 - 3 years	30	9.6%
3 - 5 years	62	19.7%
More than five years	188	59.9%

The questionnaire consists of 16 items with a Likert scale of 1 as Strongly Disagree, 2 as Disagree, 3 as Neutral, 4 as Agree, and 5 as Strongly Agree. The questionnaire was tested for pilot testing to measure the reliability of the questionnaire as there is no reliability coefficient given in the study, and some modifications were made to make it more appropriate for the study. A total of 50 participants were recruited and completed a 16-item questionnaire. The data were collected through face-to-face interviews with the participants over two days.

The questionnaire showed good internal consistency with a Cronbach's alpha coefficient of 0.863. The results suggest that the questionnaire is reliable and suitable for the main study. No significant issues or problems were identified during the pilot testing. The questionnaire was used to determine the efficiency of inventory management of MSMEs. It supports the inventory management efficiency factors identified in the literature review, hence has the potential usefulness for understanding the inventory management efficiency of MSMEs. Part two is about the operational efficiency of business adopted from the study of Inman, Sale, Green, and Whitten (2011) with a Cronbach alpha of 0.80 and Stoll (2007) with a composite reliability of 0.89. This Cronbach alpha coefficient and composite reliability are deemed reliable as they indicate a good internal consistency level (Salkind, 2015). The questionnaire is divided into four categories, namely quality and customer service, productivity, adaptability in the face of change, and profitability, with five items, each with 20 questions. These various metrics can be used to evaluate an organization's operational efficiency identified in the literature review.

The five-point Likert scale is also utilized, with 1 as Strongly Disagree, 2 as Disagree, 3 as Neutral, 4 as Agree, and 5 as Strongly Agree. They utilized the questionnaire to assess the operational efficiency of the firms; thus, it may be helpful to comprehend the operational efficiency of MSMEs. The third part measures the company's financial performance scale, adapted from the study of Orobia, Nakibuuka, Bananuka, and Akisimire (2020), with a Cronbach alpha of 0.929. This Cronbach alpha coefficient was deemed reliable as it indicates an excellent level of internal consistency (Salkind, 2015). There are five items on a four-point Likert scale where 1 is Less than 5%, 2 is 5-7%, 3 is 8-10%, and 4 is over 11%. It may be helpful to understand the financial performance of MSMEs as they utilized the questionnaire to assess the financial performance of small businesses. The fourth part is about the demographic profile of the participants, which includes the line, size, type of business, and years of operation.

Quantitative analysis was employed to present and interpret the collected data through descriptive and inferential statistics. All collected data was encoded, tallied, and organized using Microsoft Excel. Statistical Product and Service Solutions (SPSS) Version 28 was utilized to analyze and present the data. Descriptive research questions 1 and 2 were analyzed using mean and standard deviation to examine MSMEs' inventory management and operational efficiency. Research question 3 used frequency and percentage to determine the financial performance of MSMEs.

Meanwhile, inferential research questions 4 and 5 were analyzed using linear regression to determine the relationship between inventory management and operational efficiency and inventory management and financial performance. Before the analysis, the normality of the data set was tested using the Shapiro-Wilk test. Additionally, several assumptions were considered to utilize linear regression, such as linearity, no significant outliers, homoscedasticity, and approximately normally distributed residuals (errors) of the regression line.

The researchers sought the participants' approval to distribute survey questionnaires through written informed consent. Detailed information about the study and where the data would be used was provided to the participants to facilitate their understanding of the study. If participants withdrew during the survey, they were free to

do so without conflicts between them and the researchers. The study did not physically, intellectually, emotionally, or spiritually harm the participants. The researchers protected the participants' anonymity and the confidentiality of all information gathered during the survey. They ensured the free flow of information to promote the improvement of the study. The researchers maintained objectivity throughout the study while analyzing and interpreting the collected data.

RESULTS AND DISCUSSION

This study investigated the relationship of inventory management to the operational efficiency and financial performance of MSMEs. The findings of the study provided empirical support for the proposed research questions. The first research question indicated that MSMEs manage their inventory efficiently (M=3.99, SD=0.15). This means that MSMEs recognized the importance of maintaining stock and keeping accurate records, regularly checking and reviewing stock levels, and using inventory systems and technology to monitor stock and project future. However, there is room for improvement in implementing advanced inventory management techniques and enhancing overall efficiency. The findings shed light on the diverse range of inventory management strategies and highlight the reliance on personal experience in managing their inventory. Despite this, the owners/managers of MSMEs generally perceive their inventory management as efficient, indicating a level of confidence in their processes. This finding supports the previous studies which emphasized the significance of accurate inventory records, the adoption of technology, qualified human resources, and the utilization of various inventory management techniques such as JIT, FIFO, ABC analysis, EOQ, and VMI (Cvetkovic, 2022; Gatari *et al.*, 2022; Hedrick *et al.*, 2008; Hugos, 2018; Islam *et al.,* 2019; Khan & Siddiqui, 2019; Kumar & Garg, 2017; Mulandi & Ismail, 2019; Namusonge et al., 2015; Patterson *et al.*, 2010; Prajogo & Olhager, 2012; Smith & Johnson, 2019; Viloria & Robayo, 2016; Wang *et al.*, 2017).

Evidence supports the second research question, which states that MSMEs are operationally efficient (M=3.96, SD=0.12). This means that MSMEs demonstrate good quality and customer service, productivity, adaptability to change, and profitability. This highlights the importance of operational efficiency among MSMEs and their ability to effectively utilize resources, optimize performance, gain a competitive advantage, attract and retain customers, respond to market changes, and achieve sustainable financial returns. These findings align with previous studies that emphasized the importance of operational efficiency in various aspects of business operations, including production, supply chain management, marketing, and human resource management. Achieving operational efficiency leads to reduced costs, increased revenue, improved customer satisfaction, and long-term success (Alarmouti et al., 2019; Dobija, 2021; Ejike, 2020; Karia *et al.*, 2018; Ntarindwa, 2022; Rahman *et al.*, 2021; Singh & Singh, 2018).

The findings of this study also revealed that MSMEs have good financial performance in response to the third research question. This implies that MSMEs, as indicated by their high profitability ratios (such as gross profit margin, operating profit margin, and return on assets) and a good liquidity ratio (inventory turnover), efficient utilization of resources, and effective management of operations by MSMEs. These findings emphasize the importance of financial management practices, such as cost control, pricing strategies, and efficient inventory management, in achieving good financial performance for MSMEs. The findings of this study are consistent with previous studies, which emphasized the significance of factors such as financial literacy, financial inclusion, financial practices, and marketing strategies in influencing MSMEs' financial performance. The positive impact of financial literacy and financial inclusion supports the notion that access to financial resources and financial knowledge is beneficial for MSMEs in making informed financial decisions (Cammayo & Cammayo, 2020; Cammayo & Perez, 2021; Ombongi & Long, 2018; Ratnawati, 2020; Suparlinah *et al.,* 2019). These findings contribute to the existing understanding by reinforcing the role of various financial and managerial factors in shaping the financial performance of MSMEs.

Concerning the fourth research question, the finding of this study provided a strong positive relationship between inventory management and operational efficiency among MSMEs, $R2 = 0.539$, $F(1) = 365.377$, $p = .001$. From the study findings, it is safe to conclude that efficient inventory management is essential for enhancing operational efficiency. This supports the findings of previous studies. Previous studies have shown that effective inventory management techniques (e.g., precise demand forecasting, safety stock levels, and monitoring consumer trends) can significantly enhance operational efficiency in various industries (Gizaw & Jemal, 2021; Oballah *et al.*, 2015; Otundo & Bichanga, 2015; Mulandi & Ismail, 2019). Additionally, integrating advanced technologies like RFID systems and management information systems has improved supply chain efficiency and facilitated on-time deliveries (Fang & Chen, 2021; Rahman *et al.*, 2021). However, it is essential to consider contextual factors such as demand uncertainty and business size, as they can influence the relationship between inventory leanness and operational efficiency in different industry settings (Chuang *et al.*, 2019). These findings contribute to the understanding that effective inventory management is crucial in enhancing operational efficiency across industries, including MSMEs.

Finally, the study's findings regarding the fifth research question stated a moderately positive relationship between inventory management and financial performance $R2 = 0.343$, $F(1) = 163.176$, $p = .001$. This means that efficient inventory management contributed to enhancing profitability and liquidity, increasing the financial performance of MSMEs. This finding is consistent with the previous studies. Effective inventory management has been widely recognized as a critical factor in improving

financial performance as it minimizes carrying costs, prevents excess stock, and optimizes resource utilization which enhances liquidity and reduced expenses, ultimately increasing profitability (Danlami, 2016; Golas & Bieniasz, 2016; Khan & Siddiqui, 2019; Muchaendepi *et al*., 2019; Nyabwanga *et al*., 2012; Olowolaju, 2013). However, it is inconsistent with the findings of Roumiantsev and Netessine (2007), who did not find a significant correlation between inventory management and financial performance measured by the return on assets. This discrepancy may be attributed to different industry contexts and specific operational factors. Koumanakos (2008) also observed that a higher inventory level was associated with a decline in the return rate of manufacturing business performance. This suggests that other factors might come into play when assessing financial performance.

CONCLUSION

The study sought to investigate the relationship between inventory management and operational efficiency and the financial performance of MSMEs in Santiago City. The study showed that MSMEs are efficient in inventory management and operation and have good financial performance. In addition, effective inventory management boosts the MSMEs' operational efficiency, reflected in their quality and customer services, productivity, adaptability to change, and profitability. Furthermore, effective inventory management could increase profitability measured by sales, operating margin, return on assets, and profit, and liquidity measured by inventory turnover, thus improving the MSMEs' financial performance. This may signify that operations would be improved once a business efficiently manages and controls its inventory, and financial performance would result in a substantial increment. The findings also denote that for every improvement in inventory management, there is a corresponding improvement in the MSMEs' operational efficiency and financial performance. This study provides empirical evidence and insights into the specific context of MSMEs in Santiago City. This study offers practical implications for MSMEs, providing them with guidance on sustaining their inventory management practices to optimize operational efficiency and maintain good financial performance. With this, owners and managers may give attention to the factors that are impacted by inventory management so that they would know which areas need improvement and why these areas gave rise to such outcomes. Overall, this study deepens the understanding of the interplay between inventory management, operational efficiency, and financial performance in the specific context of MSMEs in Santiago City, offering valuable insights for researchers and practitioners in the field.

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