Jurnal Ekonomi
Volume 13, Number 04, 2024, DOI 10.54209/ekonomi.v13i01
ESSN 2721-9879 (Online)
https://ejournal.seaninstitute.or.id/index.php/Ekonomi

Inventory Management and Performance of Smes in the Manufacturing Sector in Makassar City

Zulkifli Syamsuddin[1], Ramlawati [2], Serlin Serang [3]
[1,2,3]Management Sciences, Universitas Muslim Indonesia, Makassar , Indonesia

Article Info

Keywords:
Inventory Management,
Just-In-Time,
Supply Chain Challenges.

ABSTRACT

The research evaluated inventory management (IM) strategies employed by small and medium-sized enterprises (SMEs) in Makassar City manufacturing sector, Indonesia. The study drew its participants from industrial zones including Sudiang, Perintis, Bumi Taman Permai, and Uripsumuarjo. Respondents were purposefully selected from companies within these areas. A qualitative, descriptive research design was adopted, utilizing purposive sampling. From a sample size of 244 participants, data was gathered through completed questionnaires. The study revealed that the majority of SMEs rely on the Just-In-Time (JIT) inventory management approach, with limited familiarity with other computerized inventory systems. Given the reliance on JIT, SMEs experience supply chain difficulties, as they must maintain consistent communication with suppliers and minimize material delivery times. However, due to a lack of computerized systems, orders are often placed only when needed, causing delays for customers. Based on these findings, the researchers suggested that further research be conducted to explore specific areas in greater depth.

Corresponding Author:
Zulkifli Syamsuddin
Management Sciences,
Universitas Muslim Indonesia, Makassar , Indonesia
Jl. inspeksi PAM lorong VI, Batua, Kec. Manggala, Kota Makassar, Sulawesi Selatan Indonesia 90234
zulkifli23pipmks@gmail.com

INTRODUCTION

Small and medium enterprises (SMEs) are widely recognized as key drivers of economic growth and job creation (Benzazoua et al., 2015; Beyene, 2002). SMEs help reduce unemployment and fill market gaps by offering products not provided by large corporations (Lukács, 2005). Despite their role in supporting economic growth through job creation, SMEs face challenges in delivering efficient and high-quality services to customers (Bowen et al., 2009). Issues like insufficient business funding have led to debates about their sustainability in promoting broader economic growth, given their limitations in serving local customers (Beck & Demirguc-Kunt, 2006). With the growth of global trade, SMEs have integrated into global value chains, enabling their participation in the international economy. They play a crucial role in services, trade, and manufacturing, fostering technological advancements, product innovation, and expansion into local, regional, and international markets (Oyelaran & Lal, 2006). However, the impact of the SME sector varies globally, depending on the economic development stage, trends, and growth rates in each country (Naudé & Havenga, 2002).

In Indonesia, the 2008 economic downturn led to the closure of many businesses, creating opportunities for SME growth (Maseko & Manyani, 2011). However, hyperinflation and high-interest rates adversely affected manufacturing SMEs, reducing their purchasing power for production and increasing the risk of buying materials that could quickly become obsolete due to fluctuating demand (Mufudza et al., 2013). The 2007-2009 economic crisis also impacted SME performance, with issues such as theft and poor handling of materials and production systems resulting in low profitability and reduced services (Nyamwanza, 2014). The 2007 economic collapse and the shift to a multi-currency system in 2009 imposed logistical challenges on SMEs, significantly affecting their operational performance and service quality. The annual Competitiveness of the Manufacturing Sector report (2010-2012) revealed that capacity utilization across vital sectors remained below 60%, largely due to the collapse of agro-industrial clusters, which had supplied key agricultural inputs. This collapse forced

Jurnal Ekonomi
Volume 13, Number 04, 2024, DOI 10.54209/ekonomi.v13i01
ESSN 2721-9879 (Online)
https://ejournal.seaninstitute.or.id/index.php/Ekonomi

manufacturers to import raw materials, adding pressure to meet demand accurately. Effective inventory management became difficult, as it was challenging to align supply with demand. Inaccurate inventory estimates led to issues such as productivity loss, overproduction, high storage costs, and lower customer satisfaction (Meyer, 1991).

Efficient inventory management is essential for business operations (Basin, 1990). Customers seek flexibility, and SMEs must remain competitive to survive in the market. In a competitive environment, only companies with superior logistics management can outperform others. Inventory, a core component of logistics, has driven SMEs to adopt various inventory management strategies tailored to optimize outcomes and efficiently control stock (Koh & Simpson, 2007). However, many manufacturing SMEs struggle to balance demand with supply, often resulting in overstocking or stockouts. Although manufacturing firms use different inventory management systems, this can impact their performance. The primary focus of the research is to assess the extent and effectiveness of these methods within the industry. A significant gap remains between theoretical inventory management concepts and their practical application in manufacturing, highlighting the need to align these approaches.

Inventory management systems often rely on established inventory concepts, models, and techniques. Theoretically, these methods remain relevant in the contemporary business landscape. Despite certain limitations, inventory techniques can positively impact overall company performance (Van et al., 2007; Bessant et al., 2005). For example, ABC analysis categorizes inventory into three groups based on annual cost volume: highly critical components (class A), moderately critical (class B), and less critical (class C) (Dumas, 2008; Heizer & Render, 2006). According to Chase et al. (2006), 'A' items make up 70-80% of the total inventory value, though they comprise only 15% of total inventory items. Conversely, 'B' items have an intermediate annual total value, accounting for 15-25% of total inventory value, while 'C' items represent about 5% of annual costs but make up at least 55% of inventory items (Braglia et al., 2004). High-priority 'A' items require careful inventory tracking, whereas lower-priority 'C' items have lower usage rates (Hughes, 2005). The classification system aims to ensure proper control over each item (Carenzo & Turolla, 2010), making ABC analysis ideal for long-term decision-making. SMEs benefit from this method as it provides essential guidance regardless of company size, helping managers in critical inventory management decisions. However, SMEs have been slower to adopt ABC analysis compared to larger companies due to unique challenges faced by small businesses (Chiu & Chiu, 2006).

The Economic Order Quantity (EOQ) model is another well-known method, particularly for single-item inventory management (Thakkar et al., 2012). EOQ helps determine the optimal order size for inventory items, balancing ordering and holding costs. The model assumes constant ordering, holding, and acquisition costs, single-order delivery, and an average inventory level of half the stock. EOQ finds the balance between ordering and holding costs, with the ideal order size effectively minimizing these costs.

SMEs face challenges in communication, computation, and information management, leading to greater competition and emerging threats (Nachtmann et al., 2006). According to Garrison et al. (2006), the effectiveness of an inventory management (IM) system depends on the quality of information input and the company's capacity in Information Technology, which enhances business operations efficiency. High implementation costs often make ERP systems unaffordable for SMEs. Major ERP providers include SAP, Oracle, JDEdwards, and PeopleSoft. Nonetheless, SMEs have turned to simpler systems like Alliance Manufacturing (Exact Software), MFG/PRO (QAD), and SAP All-in-One. For better results, many SMEs integrate these systems with Just-In-Time (JIT), optimized production technology, and advanced production scheduling. Although adopting simpler ERP systems, SMEs have gained limited competitive advantage, particularly in managing changes and uncertainties in a competitive market (Xu et al., 2001).

Just-In-Time (JIT) is seen as a more comprehensive approach than traditional IM systems (Morse, 1981). Under JIT, only the necessary amount of materials is delivered just in time, minimizing inventory investment and related costs. Smaller batch sizes and lower inventory levels result from

Jurnal Ekonomi
Volume 13, Number 04, 2024, DOI 10.54209/ekonomi.v13i01
ESSN 2721-9879 (Online)
https://ejournal.seaninstitute.or.id/index.php/Ekonomi

purchasing materials solely for the production process. SMEs typically implement JIT to meet specific existing demand. As suggested, JIT can reduce carrying, handling, and storage costs, but it can also expose businesses to risks in case of supply chain disruptions. Although JIT offers many operational benefits, its success depends on strong, reliable supplier relationships to ensure system effectiveness.

Material Requirements Planning (MRP) assists businesses in determining optimal timing and quantity for material purchases. When SMEs adopt MRP, they can maintain adequate inventory levels to meet production needs and fulfill demand under typical operating conditions. Although MRP can be conducted manually, it is generally implemented through commercial software. For effective MRP functioning, it relies on accurate and reliable data from the master production schedule, bill of materials, lead times, and inventory records. The main goal of MRP is to calculate material needs by transforming input data—such as the bill of materials, inventory information, and master production schedule—into two primary outputs: planned order releases and rescheduling notifications. However, MRP can be challenging for SMEs to adopt due to high implementation costs, which may outweigh the benefits for smaller businesses (Lazaridis & Dimitrios, 2005).

Vendor-Managed Inventory (VMI) enhances internal supply chain efficiency and facilitates better coordination of product flow to customers. As noted, VMI can address supply-demand imbalances by promoting extensive information sharing, where the vendor assumes responsibility for managing the customer's inventory. Traditionally, organizations order from manufacturers based on demand, but with VMI, manufacturers and customers are connected through electronic data interchange, allowing suppliers to monitor inventory levels and manage replenishment directly. This collaboration reduces storage and handling costs for customers, although these costs remain unchanged for suppliers. If suppliers handle warehousing tasks, they can align stock levels with demand, supporting a smoother production process with minimal buffering. However, despite VMI increasing flexibility, it does not necessarily reduce inventory costs for suppliers and may even increase inventory levels as suppliers manage combined inventories. SMEs face challenges in implementing VMI due to limited expertise and management skills.

Inventory management (IM) plays a crucial role in a business's financial performance, being among the most valuable physical assets on the balance sheet. Effective IM requires careful management, including specific replenishment rules for each item to ensure the right stock is available at the right time, location, quantity, and at the lowest cost. Stockouts, often occurring when demand is high but popular items quickly run out of stock, can lead to lost sales and reduced customer loyalty. Conversely, overstocking results in higher storage, handling, and potential interest costs from short-term loans, and materials may eventually be sold at a loss if prices drop below normal. The main goal of IM is to minimize total inventory costs while maximizing operational profitability. Effective IM and inventory planning models help optimize inventory decisions, balancing acquisition and holding costs, which greatly impact profitability. IM systems typically determine order quantities and reorder points to support profit maximization. For instance, ordering Economic Order Quantity (EOQ) in large quantities may reduce annual ordering costs but increase holding costs, while smaller, more frequent orders raise ordering costs but lower holding costs. To boost profitability, businesses can benefit from increasing order sizes to gain volume discounts while minimizing holding costs, achieving optimal profitability from holding and ordering costs.

Since inventory cannot always be ordered and received immediately, orders must be placed at a level ensuring continuity without overstocking (Pandey, 1999). Additional orders should be placed before current inventory runs out, with the reorder point accounting for lead time for replenishment. Monitoring daily demand and inventory levels helps avoid stockouts, which can result in lost sales and production delays due to varying lead times. Stockouts also incur additional processing costs for backorders and opportunity costs from unsold sales. These opportunity costs become more significant if customers switch to competitors. This situation can threaten organizational profitability, potentially leading to declines if adequate IM control is not implemented. To maximize the positive impact of effective IM on profits, fostering a supportive corporate culture among employees is essential.

Jurnal Ekonomi
Volume 13, Number 04, 2024, DOI 10.54209/ekonomi.v13i01
ESSN 2721-9879 (Online)
https://ejournal.seaninstitute.or.id/index.php/Ekonomi

METHODS

This study employs a descriptive research design to examine how inventory management strategies impact the performance of SMEs in the manufacturing sector of Makassar City. The focus is on SMEs with fewer than 100 employees, including key stakeholder groups such as suppliers, creditors, and the Ministry of Small and Medium Enterprises Development. The prominent small business centers in Makassar City are included. A list of 667 SMEs in the manufacturing sector within these clusters was obtained from the Ministry of Small and Medium Enterprises Development. Using the Krejcie and Morgan method (1970), a sample size of 244 SMEs was determined. Researchers chose purposive sampling, a method where participants are selected based on their ability to answer the research questions, as supported by the literature.

Data were collected through questionnaires and observations, with closed- and open-ended questions used to gather responses. Additionally, researchers consulted management and audit reports, inventory management records, and financial statements. Thematic analysis was used as the data analysis approach, allowing data to be categorized into themes and sub-themes. This method facilitates the identification of key concepts and enables researchers to draw general conclusions. Thematic analysis is particularly suited for this research due to its flexibility and inductive nature.

RESULTS AND DISCUSSION

The study's findings regarding the inventory management systems used by SMEs in the manufacturing sector in Makassar City are presented in Figure 1.

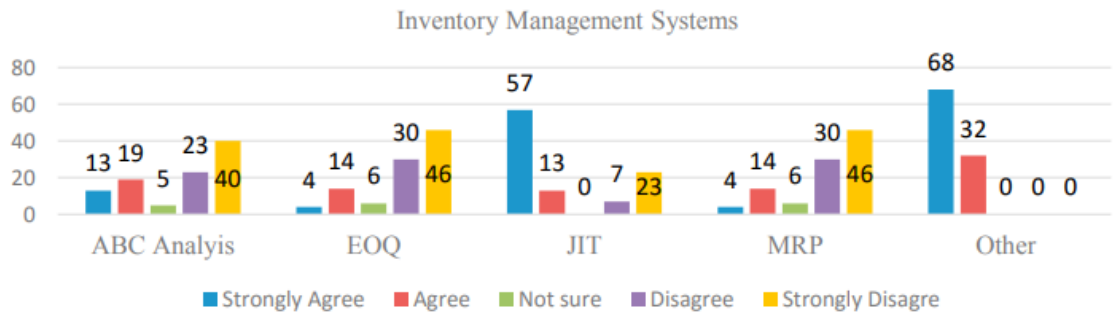

Figure 1. Inventory Management System

The study findings related to the impact of inventory management strategies on the financial performance of SMEs in the manufacturing sector in Makassar City are illustrated in Figure 2.

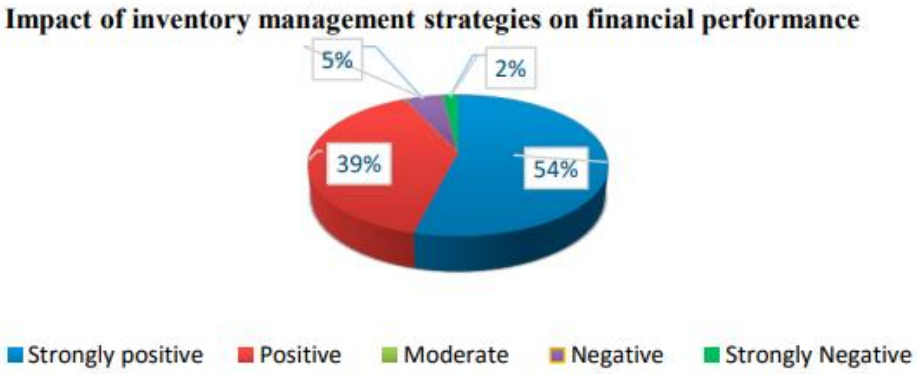

Figure 2. The impact of inventory management strategies on finance

Jurnal Ekonomi
Volume 13, Number 04, 2024, DOI 10.54209/ekonomi.v13i01
ESSN 2721-9879 (Online)
https://ejournal.seaninstitute.or.id/index.php/Ekonomi

The study's findings reveal that 70% of respondents indicated that SMEs in Makassar City's manufacturing sector use the Just-in-Time (JIT) inventory management system, which reduces inventory costs by receiving goods just when needed. Additionally, Figure 1 shows that 76% of respondents disagreed that SMEs use Material Requirements Planning (MRP), while 18% agreed, and 6% were uncertain. This low adoption of MRP is likely due to financial constraints faced by many SMEs, making computer-based inventory and production planning challenging. As noted, although MRP offers benefits for SMEs, the high costs of implementation and maintenance are barriers. Supporting this, a study on Ghanaian SMEs found that small businesses often avoid computerized inventory systems due to these costs.

Furthermore, 63% of respondents disagreed that SMEs use ABC analysis, while only 32% agreed, likely reflecting limited financial capacity to adopt this method. This aligns with observations that SMEs often lag behind larger companies in using ABC analysis due to the relatively high costs of implementation and maintenance. Findings in Figure 2 indicate that 93% of respondents agreed that the inventory management strategies used positively impact the financial performance of SMEs in the manufacturing sector during the study period. This suggests a strong correlation between inventory management strategies and SMEs' working capital. Conversely, a minority of 7% believe that these strategies negatively affect financial performance. According to the literature, there is an important relationship between working capital management and company profitability, with inventory management strategies impacting working capital and profitability levels. They emphasize that poor inventory management can result in excess tied-up capital, thus limiting profitable operations.

CONCLUSION

Based on the study's findings, it can be concluded that SMEs in the manufacturing sector of Makassar City primarily adopt the Just-in-Time (JIT) approach for inventory management. The study further concludes that inventory management strategies positively impact the financial performance of SMEs during the study period, indicating a strong relationship between inventory management practices and financial decision-making, particularly in areas such as working capital and return on investment. However, SMEs face increased operational costs due to holding excess stock to maintain customer service levels. This is largely attributed to inadequate inventory planning and the ongoing struggle to balance efficiency with responsiveness in inventory management.

The study recommends enhancing professionalism and education in inventory management to improve the knowledge, skills, and competencies of those overseeing inventory in SMEs. It suggests that SMEs adopt ERP and MRP systems, as MRP provides precise guidance on the timing and quantity of material purchases, reducing uncertainty and ensuring adequate inventory for production needs without overstocking. Although ERP and MRP software can be expensive, SMEs may consider alternatives such as Pastel Evolution. Comprehensive training on ERP, MRP, and Pastel systems is essential for effective inventory management. Additionally, manufacturing SMEs in Makassar City should refine their inventory management practices to better and more profitably meet customer demand by selecting strategies that balance responsiveness with efficiency.

REFERENCE

Basin, W. M. (1990). A technique of applying EOQ model to retail cycle stock inventories. *Journal of Small Business Management*.

Beck, T., & Demirguc-Kunt, A. (2006). *Small and medium-size enterprises: Access to finance as a growth constraint*. Journal of Banking & Finance, 30(11), 2931–2943.

Benzazoua B. A., Ardjouman, D., & Abada, O. (2015). Establishing the factors affecting the growth of small and medium-sized enterprises in Algeria. *American International Journal of Social Science, 4*(2), 101–115.

Bessant, J., Jones, P., & Lamming, R. (2005). *Strategic operations management*. Oxford, UK: Elsevier Butterworth-Heinemann.

Beyene, A. (2002). Enhancing the competitiveness and productivity of SMEs in Africa: An analysis of differential roles of national governments through improved support services. *African Development Journal, 27*(3), 130–156.Lukács, E. (2005). The economic role of SMEs in world economy, especially in Europe. *European Integration Studies, 1*(4), 3–12.

Bowen, M., Morara, M., & Mureithi, S. (2009). Management of business challenges among small and micro enterprises in Nairobi-Kenya. *KCA Journal of Business Management, 2*(1), 16–31.

Braglia, M., Grassi, A., & Montanari, R. (2004). *Multi-attribute classification method for spare parts inventory management*. Journal of Quality in Maintenance Engineering, 10(1), 55–65.

Carenzo, P., & Turolla, A. (2010). *The diffusion of management accounting systems in manufacturing companies: An empirical analysis of Italian firms*. Performance Measurement and Management Control: Innovative Concepts and Practices Studies in Managerial and Financial Accounting, 20, 457–499.

Chase, R., Jacobs, F., & Aquilano, N. (2006). *Operations management for strategic advantage*. New York: McGraw-Hill/Irwin.

Dumas, C. (2008). *Effective inventory management in small to medium-sized enterprises*. Pretoria, South Africa: Charl Dumas.

Garrison, R. H., Noreen, E. W., & Brewer, P. C. (2006). *Management accounting* (11th ed.). New York: McGraw-Hill/Irwin.

Hughes, A. (2005). *ABC/ABM-activity-based costing and activity-based management: A profitability model for SMEs manufacturing clothing and textiles in the UK*. Journal of Fashion Marketing and Management: An International Journal, 9(1), 8–19.

Koh, S., & Simpson, M. (2007). *Could enterprise resource planning create a competitive advantage for small businesses?* Benchmarking: An International Journal, 14(1), 59–76.

Lazaridis, I., & Dimitrios, T. (2005). The relationship between working capital management and profitability of listed companies in the Athens Stock Exchange. *Journal of Financial Management and Analysis, 19*(1), 26–35.

Maseko, N., & Manyani, O. (2011). Accounting practices of SMEs in Zimbabwe: An investigative study of record keeping for performance measurement (A case study of Bindura). *Journal of Accounting and Taxation, 3*(8), 171–181.

Meyer, H. (1991). An eight-step approach to inventory accuracy: A case study at Leviton Manufacturing Company. *Production and Inventory Management Journal, 32*(2), 40–42.

Morse, D. (1981). Price and trading volume reaction surrounding earnings announcements: A closer examination. *Journal of Accounting Research*, 374–383.

Mufudza, T., Jengeta, M., & Hove, P. (2013). The usefulness of strategic planning in a turbulent economic environment: A case of Zimbabwe during the period 2007-2009. *Business Strategy Series, 14*(1), 24–29.

Nachtmann, H., Waller, M. A., & Hunter, J. (2006). *Measuring the impact of inaccurate inventory information on a retail outlet*. The International Journal of Logistics Management, 17(3), 355–376.

Naudé, W., & Havenga, J. J. D. (2002). Directions in African entrepreneurship research in *Entrepreneurship and SME Research in Africa: A selected bibliography. 1963-2001*. PU for CHE, Potchefstroom, South Africa.

Nyamwanza, T. (2014). Strategy Implementation for survival and growth among small to medium-sized enterprises (SMEs) in Zimbabwe.

Oyelaran-Oyeyinka, B., & Lal, K. (2006). Learning new technologies by small and medium enterprises in developing countries. *Technovation, 26*(2), 220–231.

Pandey, I. (1999). *Financial Management*. Ahmedabad: Indian Institute of Management.

Van Dijk, E., de Leeuw, S., & Durlinger, P. (2007). Voorraadbeheer in perspectief: Zeven invalshoeken van het vak. Slimstock.

Xu, K., Dong, Y., & Evers, P. T. (2001). Towards better coordination of the supply chain. *Transportation Research Part E: Logistics and Transportation Review, 37*(1), 35–54.