

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

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THE INFLUENCE OF INVENTORY MANAGEMENT PRACTICE ON FIRMS'
COMPETITIVENESS AND ORGANIZATIONAL PERFORMANCE.

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A THESIS SUBMITTED TO THE DEPARTMENT OF SUPPLY CHAIN AND
INFORMATION SYSTEMS IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE
(LOGISTICS AND SUPPLY CHAIN MANAGEMENT)

NOVEMBER, 2023

DECLARATION

'I hereby declare that this submission is my own work towards the **Master Of Science Logistics And Supply Chain Management** degree and that, to the best of my knowledge, it contains no material previously published by another researcher which has been accepted for the award of any other degree of the University except where due acknowledgement has been made in the text'.

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DEDICATION

I dedicated this thesis to my wife, Madam Yakubu Salima, my children and my principal.

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ACKNOWLEDGEMENT

All thanks and praises go to the Almighty God for making this work a success. I wish to express my heartfelt gratitude to my supervisor, Dr. Emmanuel Anim, for his immense contribution and guidance in the success of this work. Also, my gratitude to Mr. Richard Wiredu for his contribution in the thesis write-up and all those who in diverse ways contributed to the completion of this study. Finally, I thank colleagues and staff of KNUST IDL Tamale center for their support.



ABSTRACT

The goal of the study is to determine how inventory management practices affect organizations' ability to compete and their ability to perform as an organization. SMEs in Tamale Metropolis, which has roughly 386 registered SMEs, are included in the study population. Due to the size of the population, some SMEs are being sampled using the Slovin formula. A sample random sample method was used to analyse the population by obtaining data and examining it. The main instrument for gathering data for the study is a formal questionnaire. It makes use of a closed-ended questionnaire. In SPSS, the Cronbach's alpha is used to assess the reliability of the research instrument. The study employed factor analysis. The survey found that the SMEs used vendor-managed inventory, economic order quantity, just-in-Time, A-B-C Models, and demand forecasting as their inventory management techniques. It was also shown that inventory management procedures had a favourable and considerable impact on the organizations' competitiveness. The study concludes that SMEs use inventory management techniques in their business operations, which has improved their competitive advantage and improved organizational performance. The findings of this study generally show that enhanced levels of inventory management practice may have been a result of stronger organizational performance and competitive advantage. It is recommended that manufacturing firms in developing nations like Ghana keep inventory management in mind while creating comprehensive and strategic business plans.

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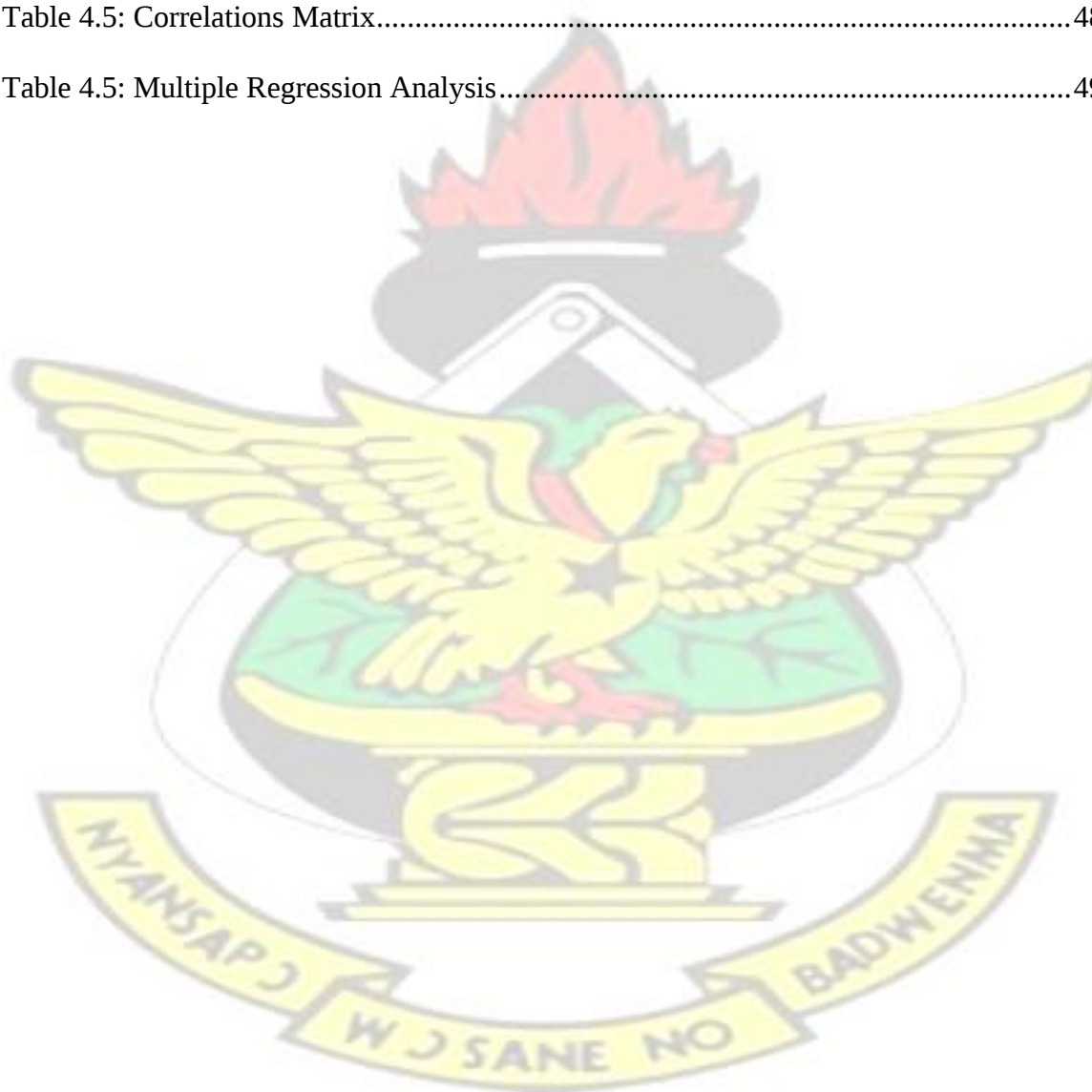
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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Tracking inventory from purchase to sale, inventory management helps businesses determine what and how much product to order at any one time. Recognizing and responding to patterns, the method ensures there is always enough stock to meet customer orders and gives advance notice of a potential shortage. Inventory management affects every part of a business, from storage costs to order fulfilment times and precision. Raw materials to finished products, everything in a business needs to be handled. Unfortunately, it is a difficult business operation to manage stocks manually. According to Bidgoli (2010), "inventory management" is a catchall term for your method of tracking throughout the product's life cycle. Sales forecasting, product ordering, supply chain management, and customer satisfaction could also be included.

The effectiveness with which a company maintains its inventory is one of several elements that contribute to its success. Numerous elements at the national, corporate, and industrial levels are also important. Ismail (2016) found that despite being one of the most undervalued facets of management, small businesses spend a disproportionate amount of money on inventories. Because of ineffective inventory management or a lack of staff to adequately monitor the stock, many smaller businesses have too much cash stashed away in their inventories. According to Atnafu and Balda (2017), poor inventory management immediately affects a company's ability to manage its cash flow. The researcher believes that neither

academics nor policymakers in Ghana have expressed significant interest in the characteristics of small and medium-sized firms connected to inventory (SMEs).

The economy is significantly impacted by small and medium-sized businesses (SMEs), notably those in the industrial sector. Therefore, SMEs' competitiveness, productivity, and efficiency would be extremely important to any emerging country's economy. According to the literature, formal inventory management systems can be implemented as a strategy to increase competitiveness. Inventory control may be used to stop the company from suffering avoidable losses as a result of the actions of several departments. One example of such a measure is stock-taking, the monthly accounting of stock to record the lost and available stock, as well as having enough site supervision when constructing a building to prevent worker material theft. By giving the company's procurement executives and store managers detailed instructions on how to buy and stock products, inventory loss can be prevented (Amahalu et al., 2018).

Inventory management is necessary at various stages inside an organization or along a supply chain to avoid either running out of supplies or products or retaining too much inventory, which would result in increased costs. Manufacturing firms that have sufficient stockpiles can streamline their production processes (Abd Karim et al., 2018). Having an effective inventory management system in place helps boost a business's productivity. The success of enterprises can be improved by cutting expenses and raising revenues (Agustia et al., 2020). Effective inventory management practice techniques can help with this. Now that most businesses compete in globally competitive industries and sectors, efficient inventory management is essential to success. However, management has treated inventory as

a nuisance rather than an asset that needs attention, ignoring the resulting savings opportunities.

1.2 Problem Statement

The ability to manage inventory flow efficiently and effectively across the value chain is crucial to the success of organizations of all sizes. Managing inventories can be challenging since it requires keeping supply and demand in equilibrium. In a perfect world, a company would have plenty of stock to fulfill orders and prevent sales from dropping because of shortages. However, the company would rather not retain too much stock on hand due to the high cost of doing so. The supply chain management of a company is very susceptible to and impacted by inventory decisions. According to Atnafu and Balda (2017), inventory management processes have finally been recognized as a crucial issue deserving of top priority. Most manufacturing companies invest up to half of their total product cost in direct materials like inventory, which can have a negative effect on their bottom line and capacity to compete.

But traditionally, businesses have ignored the savings opportunities presented by effective inventory management, treating stock as more of a burden than an advantage (Ajayi et al., 2021). Because of this, several IM systems resort to using rules of thumb. Craighead et al. (2020) state that proper inventory management is essential to the success of any company. Small and medium-sized enterprises (SMEs), particularly those in the industrial sector, have significant effects on the economy. The small and medium-sized enterprise sector is the second largest employment in Ghana, behind only agriculture (Forson et al., 2022). However, these organizations face challenges in monetary and other areas as well. Many small businesses fail for reasons other than cash flow, claim Portes and Guarnizo (2019).

Furthermore, insufficient record-keeping and a lack of core business management knowledge and competencies were identified as two main causes of small business failure in a study conducted by Bushe (2019).

Micro and small-scale manufacturers often worry about not having enough supplies of raw materials and spare components on hand. Due to frequent production schedule disruptions, equipment breakdowns, and low capacity utilisation, these shortages acted as a barrier to their efficient expansion. Flour factories need to use scientific models of inventory management to deal with situations like material shortages, product stockouts, component accumulation, and the associated fines. While some studies have found a positive correlation between effective inventory management and improved organizational performance, other studies have found no such correlation.

The results of Atnafu and Balda suggest that higher levels of inventory management practice, for example, may result in an improved competitive advantage and increased organizational performance (2018). Furthermore, according to Karada's (2018) research, a favorable correlation exists between a company's financial success and its viability. The empirical results of Nyabwanga and Ojera (2012) demonstrated a positive significant correlation between efficient inventory management practices and business success at the 0.05 level of significance.. Significant gaps were also found between efficient inventory management and optimum operational performance, according to research by John et al. (2015). Some businesses have better material resource utilization because they use best practice inventory management systems, such as those that boost service levels and decrease lead times. The Shippers Council of Eastern Africa (SCEA) released a report in 2016 showing that Africa's inventory performance lags below that of other continents. To be more

specific, the report found that Africa is performing poorly in inventory management techniques, with Rwanda (a score of 2.04), Namibia (a score of 2.02), Sierra Leone (a score of 1.97), Eritrea (a score of 1.70), and Somalia (a score of 1.34). One may argue that poor inventory performance continues to have a chilling impact on the industrial sectors' overall performance and their overall contributions to economic advances across Africa.

There has been a significant decline in the significance of the manufacturing sector to emerging economies during the previous quarter century, according to a study published in 2016 by the United Nations Industrial Development Organisation (UNIDO). For instance, the industry's contribution to GDP and job creation in the expanding economy of Ghana has been steadily declining over time, from 8.2% to 5.5%. This portends the doom of the industry [2]. The sector's share of Ghana's GDP fell from 9.1% in 2007 to 4.5% in 2017, according to a 2018 estimate by the Ghana Statistical Service. Inadequate inventory management practices could keep the industry operating at a subpar level.

Despite the research into this issue, the role of inventory management on a company's competitiveness and performance remains unclear. In the case of Ghana, a developing country, not much has been done either. The Ghana Statistical Service (2018) reports that the percentage of GDP contributed by small and medium-sized enterprises (SMEs) fell from 9.1% in 2007 to 4.5% in 2017. In light of this, the research analyzed the inventory management practices and operational effectiveness of Ghanaian factories. The research also evaluated the most popular and effective methods of inventory management among Ghanaian manufacturers. It also looked into how various inventory management strategies affected the operational efficiency and competitiveness of manufacturing businesses.

1.3 Objective of the study

The study is to examine the relationship between the influence of inventory management practice on firms' competitiveness and organizational performance.

1. To examine the inventory management practices followed by SMEs in Manufacturing Sub-Sector.
2. To examine the influence of inventory management practice on firms' competitiveness among Manufacturing Sub-Sector.
3. To examine the influence of inventory management practice on organizational performance among Manufacturing Sub-Sector.

1.4 Research Questions

The study sought to answer the following question

1. What are the Inventory Management practices followed by MSEs in Manufacturing Sub-Sector?
2. What is the influence of inventory management practice on firms' competitiveness among Manufacturing Sub-Sector?
3. What is the influence of inventory management practice on organizational performance among Manufacturing Sub-Sector?

1.5 Significance of the Study

The study's findings should have broad implications for academic research on inventory management and its effect on manufacturing companies' bottom lines. The study will provide the policymaker with the foundational knowledge inventory control personnel need to design user-friendly policies and processes for stocking and monitoring inventory. The findings will influence the decision-making of individuals

in industry tasked with developing strategies for addressing inventory issues, which should help ensure consistent performance in inventory management.

It is intended that the study's results would help pinpoint opportunities to cut costs without sacrificing productivity. Finally, it is intended that the study results would serve as a foundation for future research in the field of inventory.

1.6 Scope of the Study

The scope of the study is structured into context and geography. Geographically, the study would be limited to SMEs in Tamale, Ghana. Contextually, the study would be limited to determining the effect of inventory management practices on firms' competitiveness and organizational performance.

1.7 Overview of Methodology

With this design, the study will gather quantifiable data for statistical analysis of the population sample. The study will use a descriptive research design, more precisely, a quantitative descriptive research design. SMEs are among the population in Tamale Metropolitan. To represent each SME, the owners and management will be chosen. To study the population by gathering information and analyzing that data, simple random sampling technique was employed. The sample will be determined using the Slovin formula. The data will be sourced from primary sources using questionnaires.

1.8 Organisation to the Study

For the sake of clarity, this project will be broken down into five (5) distinct sections. In the first chapter, you'll learn about the research's background, the problem, the study's aims, the researchers' main concerns, the methodology, the study's significance, and its limits. In chapter two, we'll break down the relevant material into manageable chunks.

Methodology, including study, population, and sample testing design, and instruments used for data collecting and analysis, will be discussed in Chapter 3. Chapter 4 focuses on the presentation and discussion of the research findings. Tables and figures are used to present and explain the results of the questionnaire analysis and the table. Finally, the study's conclusions, recommendations, and proposals will be discussed in Chapter 5.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter examines pertinent conceptual, theoretical, and empirical works in order to create a link between the research challenge and current scholarly thought. The conceptual literature explains the basic concepts that form the basis of the investigation. The theoretical examination also covers theoretical stances on how inventory management practice affects businesses' competitiveness and overall organizational effectiveness. In the end, the empirical literature reports the findings of earlier study.

2.2 Conceptual Review

2.2.1 Inventory Management Practice

Businesses can benefit from inventory management by understanding when and how much stock to order, according to Muchaendepi et al. (2019). Stock levels are monitored from arrival to departure. The process recognizes patterns and makes adjustments as necessary to ensure sufficient supply to meet demand and early notification of imminent shortages.

Most inventory management software is built on common inventory ideas, designs, and practices. These techniques are still useful today, theoretically speaking. Muchaendepi et al. (2019) discovered that using inventory procedures and concepts had an impact on organizations' bottom lines despite their shortcomings. According to Muchaendepi et al. (2019), ABC analysis divides stock into three groups based on annual cost volume. Three categories—those with the highest priority (A-class), those with moderate importance (B-class), and those with the lowest priority—are

used by ABC analysis to categorize manufacturing facilities (C-class). Gallino et al. (2017) find that 'A' items account for 70 percent to 80 percent of total value consumption even if they only make up 15 percent of stock. 'C' items account for less than 5% of annual cost value but at least 15% of annual value retained in inventory, whereas 'A' products account for less than 15% of annual cost value but 25% or more of annual value consumed, and 'B' items account for at least 55% of total inventory. According to Stojanovi and Regodi (2017), "A" items denote a high usage rate and demand an accurate inventory record, whereas "C" items are utilized less frequently. These classifications were allegedly developed to help decide how much control should be exerted over various facets of daily life. ABC analysis is thought to be the best suitable for long-term judgments because the classification is only based on annual rate use. This is particularly pertinent to small and medium-sized firms (SMEs), as the principles will aid the management team in decisions regarding the method used for inventory storage, regardless of the size of the company.

Small and medium-sized businesses (SMEs) have adopted ABC analysis more slowly than bigger businesses have (Atnafu & Balda, 2018). According to Gallino et al. (2017), the Economic Order Quantity (EOQ) model is the most fundamental and basic one that has been developed over time for particular commodities. Reduced ordering and storage costs are achieved by determining the EOQ for each inventory item (Riza et al., 2018). The advantage of this model is that it offers precise forecasts for a large range of parameter values (Gallino et al., 2017). According to Sebatjane and Adetunji (2019), EOQ is based on the following presumptions: orders are filled all at once; on average, half of the inventory is available at any one moment; and ordering cost, holding cost, and acquisition cost per unit remain constant. The point

at which two prices are equal is known as the Economic Order Quantity (EOQ). The ideal order size is related to the highest holding and ordering costs.

2.2.1.1 Role of Inventory

According to Tao et al. (2018), the inventory acts as a buffer between production and sales, ensuring a steady flow of items and satisfying client demand. To reach this objective, businesses need to keep tight control over inventory levels, which may require investing in new software. Organizations rely on inventory management to keep them stocked with the materials they require at the lowest possible cost (Oluwaseyi et al., 2017). It could determine whether or not your business turns a profit. For this reason, it is essential for your company's performance to have accurate financial data regarding your inventory (Tao et al., 2018).

Inventory management helps businesses by determining how much of each product to order when and when to order it. An inventory management system keeps track of the movement of products from purchase to sale. The approach analyzes trends and makes adjustments in response to them to guarantee that there is always adequate inventory to fulfill client orders and that customers are promptly notified if there is a shortage. The inventory is all about having a constant supply of products (Oluwaseyi et al., 2017). To fulfill this responsibility effectively, a business should try to find the balance between having too much stock on hand and too enough. This equilibrium is beneficial since it boosts a company's cash flow and profits and ensures that operations can continue uninterrupted.

The goal of an inventory, as stated by Oluwaseyi et al. (2017), is to ensure that you never collect more resources than you can use and that you always have access to the resources you require. Keep only as much cash on hand as your business may realistically expect to turn through in a specific time period. There are averages across

industries that can be used as guidelines for inventory turnover rates. While meeting averages is important, the success of your business will depend more on keeping adequate stock levels while minimizing clutter.

If you buy and hold too much inventory, you may find that your cash flow is hampered since you have to put money into things that may never sell, such rent and wages.

2.2.1.2 Types of Inventory

According to Willems et al. (2017), inventory can be classified into three types which include;

Raw Material Inventory: All products that the business purchases for processing are included in this. For instance, a confectionary company's raw materials inventory includes flour, yeast, eggs, and other ingredients.

Work-In-Progress Inventory: The plant needs to complete this level of raw material inventory before moving on to the next stage of processing. These are materials that have only partially undergone processing.

Finished Goods Inventory: This is the finished goods inventory. The level of finished goods stock depends on coordination between the organization's production and sales departments. These may be goods in the warehouse or in stock of goods awaiting shipping.

2.2.1.3 Inventory Management Process

It is crucial to make sure you have the fundamental processes covered before you can optimise your inventory management process. According to Choi et al. (2018), the five necessary steps for any inventory management process are outlined below:

The first step in the inventory management process is to receive and inspect the products ordered from the supplier (Choi et al., 2018). It is crucial to get this part perfect so that the subsequent phases can go as easily as possible. Checking the quality of the delivered items should be the first step after receiving an order. Verifying the correctness of the quantity, item, and serial numbers is essential. Perishable goods require special care, thus it's important to check that everything is in good condition and that the temperature is correct throughout handling (Choi et al., 2018).

The next step in effective inventory management is accepting customer orders. Typically, a point of sale (POS) system is used to manage orders and collect payments. According to Choi et al. (2018), the POS system's inventory management capability, which is either incorporated into or connected to an inventory management programme, will allow warehouse personnel to check the order data. After a customer puts an order, the next step is to rapidly and accurately fulfill that order by sourcing the necessary products, packaging them, and sending them on their way (Alicke et al., 2017). If the second part of the procedure was enhanced, finding and selecting the products in the warehouse would be relatively simple. It's important to think about how the packaging will be used, how long it will last, and the impact it will have on the environment. As soon as the product has been dispatched, the client should receive an email confirming the shipment and providing tracking details (Alicke et al., 2017).

When restocking your stock, it is crucial to double-check the quantity of items ordered and the timeliness of the new orders. Stockouts and dead inventory are costly to businesses, but with the reorder point strategy, you can minimize both (Alicke et

al., 2017). Some inventory management systems may automatically place reorders, which saves time and prevents human error.

2.2.2 Firms' Competitiveness

Competitiveness is "a multi-tiered and multi-faceted idea," according to Chikán et al. (2022), and it is intimately related to Michael Porter's seminal work. Ungerman et al. (2018) provide the results of a national-level competitiveness investigation of the extraordinary performance of businesses and industries across nations. His "diamond" paradigm clarifies the causal factors that affect a company's capacity to thrive in a global marketplace. Poon evaluates Porter (1990)'s scholarly outputs as well as related and later research findings (2018). With this approach, a company is viewed as a whole with a distinct strategy for competing in the market, however Ungerman et al. (2018) note that internal company characteristics were not investigated. The evolution and discussion of these aspects are covered in length in both of Porter's prior works (Porter, 1980, 1985). Ivanova and Kordos examine the national, regional, and commercial levels of competitiveness in a global context and offer recommendations for future research (2017).

Firm-level competitiveness was used as a euphemism for business performance in strategic management studies on the role and impact of functional strategies (such those in the production and operations management sectors) (Avella et al., 2001; Demeter, 2003). (Taouab and Issor, 2019). Chikán et al. (2022) defined and modeled firm competitiveness (FC), and they also looked at how FC and national competitiveness are related. This phrase is a starting point for several research that examine how competitive businesses are (Taouab and Issor, 2019; Bayon and Aguilera, 2021). In these competitiveness papers, surveys of firm-level investigations centered on the chief executive officer (CEO) or top-level decisions frequently

employ the RBV of the firm as a starting point (Barney 1991; Teece et al., 1997; Ungerman et al., 2018). Research in operations management has also started to support the use of RBV in business (Ungerman et al., 2018).

According to Baumann et al. (2019), economics, business, and management research look into firm competitiveness (FC) as a concept where the firm serves as the analytical unit and is embedded in its macro-level environments. The interconnectedness of these two ideas was underscored in our definition of "firm competitiveness," which reads, "firm competitiveness is a competence of a firm to sustainably perform its dual purpose: meeting customer demand at profit." To do this, one strategy is to offer consumers goods and services that are in greater demand than those offered by competitors. In order for a company to compete, it must be able to adapt quickly to changing social and economic norms and conditions. the two Aguileras Bayon (2020).

2.2.2.1 Determinants of Competitiveness

The literature has identified a number of elements that affect competitiveness (Mentel and Hajduk-Stelmachowicz, 2021; Braja and Gemzik-Salwach, 2019). In this context, macroeconomic and microeconomic traits were distinguished by Braja and Gemzik-Salwach (2019). The microeconomic basis, which policymakers have up until now ignored, is the cornerstone of macroeconomic reforms that support long-term economic progress. The financial-economic performance, fundamental needs, efficiency-improving elements, innovation, sophistication factors, institutions, and innovation were among the additional competitiveness-affecting aspects that were explored in earlier research (Sigüe and Barry, 2020). (Ibragimov et al., 2019).

Studies including the global competitiveness index, the economic freedom index, the global innovation index, and the human development index examine how economic

factors affect a country's sustainability and competitiveness (Khan et al., 2019). Noting the enormous effects the COVID-19 outbreak has had on national growth and competitiveness (Braja and Gemzik-Salwach, 2019). The macroeconomic environment is the key factor determining competitiveness (Musyoka and Ocharo, 2018).

2.2.2.2 Competitive Strategies

According to Khan et al. (2019), a competitive strategy can be created by evaluating the benefits and drawbacks of competing companies and spotting market opportunities and threats. Businesses must create specialized marketing plans for each of their target markets if they want to remain competitive (Sebastian et al., 2017). In other words, a company's competitive strategy is its plan for how it plans to gain and keep a competitive advantage over its competitors. A competitive advantage is the ability to continually outperform the competition in terms of profit over time. In relation to a company's competitive strategy within a certain market, both the development of a competitive advantage and the maintenance of that advantage are studied.

Both proactive and reactive competitive strategies can lead to the development of a competitive advantage, as outlined by Singjai (2018). According to Singjai (2018), proactive strategies can be either (a) an effort to improve performance (a new game competitive strategy) or (b) an attempt to alter the rules of the game altogether (a different game competitive strategy). Finally, we look at three more types of competitive strategies: (a) developing a brand-new industry from scratch, (b) expanding into adjacent markets, and (c) entering into whole new markets altogether. The company's success is heavily influenced by its competitive strategy, which is in

turn largely determined by the nature of the market in which it operates. The market structure of a given sector could be advantageous or undesirable.

2.2.3 Firm Performance

According to Fitria (2018), successful performance involves achieving goals that contribute to the organization as a whole. It's not enough to achieve results; performance also depends on how well they align with the organization's overall mission. According to Milosevic et al. (2018), an organization's performance should be established from within its own operations, taking into account both its own goals and the fundamental and observable context in which it operates.

In a similar vein, Anwar and Abdullah (2021) argued that performance is tied to value and productivity, arguing that an organization can only claim success when all of its activities yield the intended result at a low cost, after accounting for waste and errors. It can also be thought of as a collection of separate actions that, taken together, make for a useful whole. Any organization can be considered successful if it is capable of and consistently succeeds in accomplishing its stated mission and objectives.

Efficiency, worth, minimizing waste, equity, and impact are all facets of organizational success. Competency, efficacy, value, uniqueness, the worth of the product, and cost-effectiveness are some of the metrics used to evaluate performance (Khalid, Haron, & Masron, 2018). In agreement with Taouab and Issor's (2019) view that performance should be achieved via assessing, direction, value, and worth.

Leito, Pereira, and Gonçalves (2019) state that there are two ways to evaluate an organization's efficacy: objectively and subjectively. One is objective and based on the organization's financial and accounting ratios at the end of the fiscal year; the other is subjective and relies on the opinions of those who had a hand in running the business and can attest to the quality of the results they saw (Isichei, Emmanuel, &

Odiba, 2020). Where there are publicly available reports on the organizations, the financial method is preferable; otherwise, the subjective method is more acceptable (Taouab and Issor, 2019). Since most telecommunication companies do not release their financials publicly, this study had to rely on anecdotal evidence to gauge their success.

2.2.3.1 Measures of Firm Performance

According to Kang et al. (2016), key performance indicators (KPIs) are measures that demonstrate how well an organization is performing in regard to a specific objective. The progress made toward the strategic objectives, which are frequently depicted on a strategy map, is tracked using key performance indicators (KPIs). To aid top management, the board, and other stakeholders in focusing on the metrics that are most important to the success of the firm, key performance indicators (KPIs) are frequently included in reporting scorecards or dashboards (Badawy et al., 2016). Financial key performance indicators, according to Kang et al. (2016), can also show changes in sales growth (by product family, channel, or customer segment). Typically, they are based on components of an income or balance sheet. Non-financial Key Performance Indicators (KPIs) are used in addition to financial KPIs to measure the activities that a company considers essential to the accomplishment of its strategic goals. Non-financial KPIs are defined by Haddouch et al. (2019) to encompass measures including contacts with customers, staff, operations, quality, cycle time, and the company's supply chain or pipeline.

Some prefer the word "extra-financial" over "non-financial," which implies that all such measurements are ultimately monetary in origin, to characterize indicators that contribute to an organization's performance (Haddouch et al., 2019). Beyond financial and non-financial ones, other typical groupings of performance indicators

include quantitative vs qualitative, leading versus trailing, short-term versus long-term, input, output, or process indicators, etc. According to Badawy et al. (2016), developing KPIs necessitates determining what is "key" to the organization. Operational metrics, sometimes known as "performance indicators" (PIs) to differentiate them from "key performance indicators", are equally significant (KPIs). Creating key performance indicators (KPIs) should be a step in a larger strategic management process that links the organization's mission, goals, and objectives to the specific strategic business goals it is working to attain. A critical initial step in this strategy is to comprehend the firm's value drivers as well as the fundamental activities and knowledge that support its value proposition.

By ensuring that corporate initiatives and individual actions are synchronized, key performance indicators (KPIs) aid in the implementation of strategies. Instead of concentrating just on financial performance as an outcome, well-designed KPIs can give management and the board a way to monitor the company's essential operations. Incorporating both financial and non-financial KPIs can increase the emphasis on long-term success rather than short-term financial performance, claim Badawy et al. (2016).

In today's competitive business world, every company, corporation, and organization must adhere to a set of standards in order to prosper (Jose et al., 2021). Performance optimization should be a company's top goal. A phase of organizational change may be decided upon by management if they are serious about increasing productivity. Analysts and investors frequently take into account ratio analysis and other non-traditional financial measurements. Performance assessment systems are crucial for planning, determining whether organizational goals have been reached, and rewarding managers (Badawy et al., 2016).

Potential investors may gain insight into a company's general health via its financial results. It offers a complete picture of the effective governance and current economic situation of the nation. Financial documents including the balance sheet, income statement, and cash flow statement can be used to assess the financial health of a company. A company is assessed using financial performance indicators based on quantifiable metrics. According to Badawy et al. (2016), it is inappropriate to gauge a company's financial success using just one statistic.

2.3 Theoretical Review

2.3.1 Resource-Based View (RBV)

Competitors in the manufacturing sector use their resources and expertise to gain an edge. The RBV, as described by Shafeey and Trott (2014), provides a framework for understanding how Manufacturing firms might achieve a competitive advantage. When a manufacturer can provide more value to its customers than its rivals while their rivals are unable to copy this innovation, the manufacturer has a competitive advantage (Eniola and Ektebang, 2014). According to the RBV, different types of manufacturing companies have access to different types of resources. When competitors have a hard time replicating an organization's resources, that organization has a competitive advantage, according to Shafeey and Trott (2014). If a resource meets these four criteria, it can be used to gain a competitive edge in the market. The characteristics for a strategic asset are that it be valuable, scarce, distinctive, and exploitable by the business (Coleman et al., 2013).

Companies in the industrial sector might acquire an edge in the market by allocating substantial resources. Kozlenkova et al. (2013) state that resources are valuable if they help a Manufacturing firm minimize costs or increase income. According to Barney (1999), a resource is valuable if it helps a manufacturing company take

advantage of possibilities or protect itself from threats from the outside world. To obtain an edge over the competition, you need more than just access to external chances, as your rivals may already be aware of them or even replicate them (Barney, 1999). When resources are scarce, a small number of companies tend to own monopolies over them, and the resources are imperfectly imitable (Kozlenkova et al., 2013).

Businesses get an edge when they make use of scarce, valuable resources, but only if they have the systems in place to fully use such assets (Barney, 1999). Companies strive to establish and make use of systems and assets that provide them an advantage over rivals. Business owners in Manufacturing have come to know that most conventional techniques for competing in the industry are easily imitated and transferred without providing a sustainable edge. Companies in the manufacturing sector are constantly on the lookout for strategies to obtain a competitive advantage (Coleman et al., 2013).

According to the RBV, the company possesses the assets necessary to give it an edge in the market and steer it toward sustainable success. The RBV examines and interprets a company's internal resources, placing a premium on those that can help it attain and maintain competitive advantage over the long term. One way of looking at resources is as inputs that help businesses function.

A company's financial health can be evaluated by analyzing its financial performance. These metrics are used to assess a business's efficiency in bringing in constant revenue and maintaining operational profitability. Measuring a company's success in ways other than its financial health is known as non-financial performance measurement. These indicators assess how well and how long an organization performs in the long run. Simply said, non-financial performance indicators are

metrics that measure a company's success in areas other than finances. Non-financial measures are also demanded by management because of how easily they can be connected to the overall business strategy. The success of a firm can be gauged by how well it manages its finances and how much money it brings in from its core operations.

2.3.2 Stochastic Inventory Theory

In the face of demand uncertainty and/or other system-related variables, stochastic inventory control is used to determine when to issue replenishment orders and the appropriate order amount (Ngo, 2020). The primary purpose of inventory theory is to optimize product supply in order to meet customer demand. We contend that buyers express requests for goods, and sellers provide those goods, regardless of whether or not monetary exchange takes place.

In order to quickly respond to customer needs, businesses must maintain an inventory of products available for sale. The purpose of inventory theory is to provide management with guidance for minimizing inventory costs without sacrificing service to customers. Inventory refers to the stock of a product at any given time. A customer's order is considered fulfilled if the quantity ordered has been transferred from the available inventory to the buyer. Shortages occur when demands are not promptly met (Sutcher et al., 2019). Shortages are backorders if clients are willing to wait; otherwise, they represent revenue losses. Backorders go by a few different names, including backlogs and backlogged demand. There will inevitably come a moment when inventory management needs to restock on this item.

If an order is placed with an external supplier or a facility that produces goods for internal use, the order amount is a run, batch, or lot of the product (Peymankar et al., 2018). The order lead time is the time it takes to go from placing an order to receiving

the full quantity of goods ordered. That description is purposefully vague to allow for partial order fulfillment at different periods. On order refers to the quantity of the good that the inventory management has ordered but has not yet received. Available stock + orders minus backorders equals system stock, often known as inventory position (Sutcher et al., 2019). It indicates the amount on hand to satisfy potential demands without placing additional orders.

2.4 Empirical Review

2.4.1 Inventory Management Practices

The goal of Atnafu and Balda's (2018) study was to conduct an experimental investigation of how inventory management practices affect a company's performance and ability to compete. The study used data gathered from 188 MSEs in the manufacturing sub-sector to evaluate the relationships and hypotheses proposed in the conceptual framework using structural equation modeling (SEM).

The results demonstrate that improved inventory management can boost an organization's performance and competitive advantage. Gaining an edge over rivals can also increase productivity within a company. Giving MSEs the resources and training they require to enhance their inventory management procedures can increase their competitiveness and organizational performance. It is advised that those in charge of making policy, academic institutions, non-governmental organizations, and other interested parties cooperate to help MSEs in this way. They would have a greater favorable effect on the economy as a result. Please keep in mind that the results of this study can only be generalized to larger or more generalized sectors; they are only applicable to industrial MSEs.

In order to accomplish this, Panigrahi et al. (2022) looks into how knowledge of inventory management impacts both operational and commercial

outcomes. This study focused on manufacturing-related Indian SMEs in order to elucidate the function of OPs as a bridge between KIMP and BP. By examining data from 351 senior executives at 170 Indian SMEs, this study evaluated the aforementioned connection. The comprehensive study, which included reliability, validity, and hypothesis testing, was conducted using cutting-edge SmartPLS-SEM 3.3.3 software.

The findings show that KIMP has a direct impact on OP, and as a result, a firm's OP has a significant impact on its overall BP. Blood pressure is barely impacted by the KIMP. The findings support this by demonstrating the significant mediating role that OPs play in the link between KIMP and BP.

The goal of Odhiambo and Kihara's (2018) study was to examine how supply chain efficiency at public health facilities in Kisumu County was impacted by inventory management strategies. The 12 government health facilities at levels 4 and 5 in the Kenyan county of Kisumu served as the research's unit of analysis because they had a degree of autonomy over their inventory and supply chain management. The sample size of 84 consisted of procurement officers, store clerks, logistics officers, and information technology employees from those hospitals. For this investigation, researchers gathered data in 2018. A recent census counted all 12 hospitals in the city. A semi-structured questionnaire was used to collect primary data, and a procurement cost data sheet was used to collect secondary data. The quantitative data were analyzed using percentages, means, standard deviations, and frequencies, and the inferential statistics were analyzed using regression and correlation.

The statistical analysis was performed using SPSS version 21, and charts, tables, and graphs were used to present the findings. A regression analysis revealed that while demand forecasting had no significant impact on supply chain performance, lean

inventory procedures, the accuracy of inventory records, and information technology did. The study discovered that information technology, accurate inventory records, and lean inventory approaches had the biggest impacts on the supply chain performance of public health facilities in Kisumu County.

A mathematical model for Post-Disaster Humanitarian Logistics (PD-HL), developed by Loree and Aros-Vera in 2018, can be used to determine where PODs should be located and how supplies should be dispersed. The idea of having many PODs serve demand nodes while reducing the costs of facility location, logistics, and deprivation (the cost imposed on survivors due to the lack of access to key supplies).

This is crucial in situations where a single POD might not have enough inventory to satisfy all of the demand points that have been allocated to it. The social costs and advantages of facility placement must be considered in light of the system's time dimension, as this study emphasizes.

2.4.2 Influence of inventory management practice on Firms' Competitiveness

Atnafu and Balda's (2018) study set out to conduct an experimental investigation of how inventory management practices affect a company's ability to compete and perform well. With data gathered from 188 MSEs in the manufacturing sub-sector, the study used structural equation modeling (SEM) to evaluate the connections and hypotheses proposed in the conceptual framework.

The results demonstrate that improved inventory management can boost an organization's performance as well as its ability to compete. A business's productivity can be increased by having an advantage over the competitors. By giving MSEs the tools and resources they require to enhance their inventory management procedures, it is possible to increase their competitiveness and organizational performance. Because of this, it is advised that those in charge of making policy, as well as

academic institutions, non-governmental organizations, and other interested parties, work to promote MSEs. Thus, their beneficial effect on the economy would be amplified. The results of this study cannot be generalised to more expansive or generalized sectors; they are restricted to the industrial MSEs.

The study by Panigrahi et al.(2022) aims to do this by examining how knowledge of inventory management impacts both operational and financial outcomes. This study tried to define the function of OPs as a middleman between KIMP and BP, focusing on Indian SMEs in the manufacturing sector. Data from 351 high-level employees at 170 Indian SMEs were analyzed for this study to explore the aforementioned connection. Reliability, validity, and hypothesis testing were all performed as part of the comprehensive study using cutting-edge SmartPLS-SEM3.3.3 software.

The findings demonstrate that KIMP has a direct impact on OP, and as a result, a firm's OP significantly influences its overall BP. On blood pressure, the KIMP has a very small effect. According to the findings, OPs play a significant mediating role in the link between KIMP and BP.

In their 2018 study, Odhiambo and Kihara sought to understand how inventory management strategies affected the effectiveness of the supply chain at public health facilities in Kisumu County. Due to its semi-autonomous inventory and supply chain management, the county of Kisumu in Kenya was chosen as the study's analysis unit, together with its 12 government health facilities at levels 4 and 5. A total of 84 employees from those hospitals made up the sample, including procurement officers, store clerks, logistics officers, and information technology staff. Researcher data for this analysis were acquired in 2018. A recent census included data from all 12 hospitals in the city. A semi-structured questionnaire and a procurement cost data sheet were used to collect the primary and secondary data, respectively. Inferential

statistics were analyzed using regression and correlation analysis, whereas the quantitative data were analyzed using percentages, means, standard deviations, and frequencies.

The statistical analysis was conducted using SPSS version 21, and the outcomes were presented using graphs, tables, and charts. The accuracy of inventory records, information technology, and lean inventory practices were found to have a substantial impact on supply chain performance, while demand forecasting did not. The research discovered that lean inventory practices, accurate inventory records, and information technology had the biggest impacts on the supply chain performance of public health facilities in Kisumu County.

As part of their 2018 research, Loree and Aros-Vera develop a mathematical model for Post-Disaster Humanitarian Logistics (PD-HL) that may be used to determine where PODs should be located and how supplies should be dispersed. The idea of serving demand nodes through a large number of PODs while reducing the expenses of facility location, logistics, and deprivation (the cost imposed on survivors due to the lack of access to key supplies).

This is particularly significant in cases when a single POD might not have enough stock to satisfy the demands of all the demand points that have been assigned to it. This study highlights the need of evaluating the social benefits and costs of facility placement in light of the system's time dimension.

2.4.3 Inventory Management Practice and Organizational Performance

At order to determine if inventory control practices in public hospitals act as a moderator between competency and organizational effectiveness, Hashmi et al. (2021) conducted a study. For this quantitative investigation, information from 200

individuals was gathered via multistage cluster sampling. Both exploratory and confirmatory factor analyses supported the model of structural equation modeling.

The findings of this study demonstrate that efficient inventory control systems positively affect the study variables and completely moderate their interactions. The sign also stated that improved service quality and cheaper costs as a result of competent and skilled staff members managing inventory effectively had led to an improvement in the organization's success. An integrated second-order model based on this research will be beneficial for public hospitals, the healthcare sector as a whole, businesses managing mega-structured inventories, and the body of knowledge as a whole.

In a study, Muchaendepi et al. investigated the inventory management (IM) strategies used by small and medium-sized firms (SMEs) in Harare, Zimbabwe's manufacturing sector (2019). The research population was given by the industrial areas of Glevue Complex, Siya So Mbare, Kuwadzana, Gazaland, and Magaba. Participants from each of the companies under investigation were selected using purposeful sampling. For this study, qualitative, descriptive research techniques were employed. A deliberate sampling strategy was also used in the study. 244 respondents were used to create the sample. To get the data, the returned surveys were examined. The results show that the majority of SMEs only utilize the Just-In-Time method for inventory management and are unaware of or do not employ any other automated systems or processes. Due to just-in-time production (JIT), which requires constant communication with suppliers and a reduction in material delivery periods, small and medium-sized businesses (SMEs) struggle in the supply chain.

However, without any form of electronic communication, they'll have to place orders manually, which will inevitably cause delays for the customer. Researchers came to

a conclusion based on their findings and asked for additional research into some grey areas.

Simon and Njoku's (2018) research analyzes the relationship between inventory management and productivity at Dansa Food Limited. Inventory control issues have been poorly addressed, resulting in inefficiency and uncharted inconsistency. In order to ensure consistent output, maximize the use of resources like labor and machinery, and promptly respond to the needs of individual clients, it is crucial to design and maintain an optimal inventory system. A non-probabilistic, but intentional, sampling strategy was used in the survey research. A standardized questionnaire with clear questions and a weighted 5-point scale were used to collect and analyze the results. A t-test for independent samples was used to analyze the data and verify the assumptions. According to the findings, inventory management positively affects key performance indicators within businesses, which in turn helps Dansa Food Limited produce an optimal quantity and quality of goods within budget, deliver them to customers on time, and generate a healthy profit. The study concludes that a strong strategy and policy framework for successful inventory control and its sustainability is essential for the ongoing enhancement of organizational performance.

Musau et al. (2017) conducted their research to better understand how inventory management affects the efficiency, effectiveness, and profitability of supply chains in Kenya's textile manufacturing industry. The theory of inventory management served as a framework for the research. The research method was a convergent parallel mixed-methods approach. A total of 196 participants were interviewed for the study, all of whom worked in the procurement departments or reported to the department heads of one of 15 textile manufacturing firms in Nairobi County. As a result, 139 people were included in the sample. Employees from each textile

company's procurement divisions were selected using a combination of stratified and basic random selection. The information from primary sources was gathered with the help of questionnaires and interview guides.

Both qualitative and quantitative data were collected and analyzed using SPSS Version 22, a social science statistical software.

We used inferential statistics, namely hierarchical multiple regression and correlation analysis, to examine the connection between the variables and our hypotheses. Tables, graphs, and charts were used to display the final analyzed data. Based on the results, it was determined that inventory management is being used by textile manufacturing companies in Kenya. The research finds that inventory management can have a positive impact on Textile companies' performance, so the industry has implemented clear mechanisms and invested in advanced material flow systems to ensure a steady stream of goods that can be tracked as they move through the supply chain.

2.5 Conceptual Framework

The conceptual framework of a study generally seeks to outline the variables of interest and the focus of the research. Its purpose is to make a study meaningful and manageable. The conceptual framework of this study is depicted in Figure 2.1:

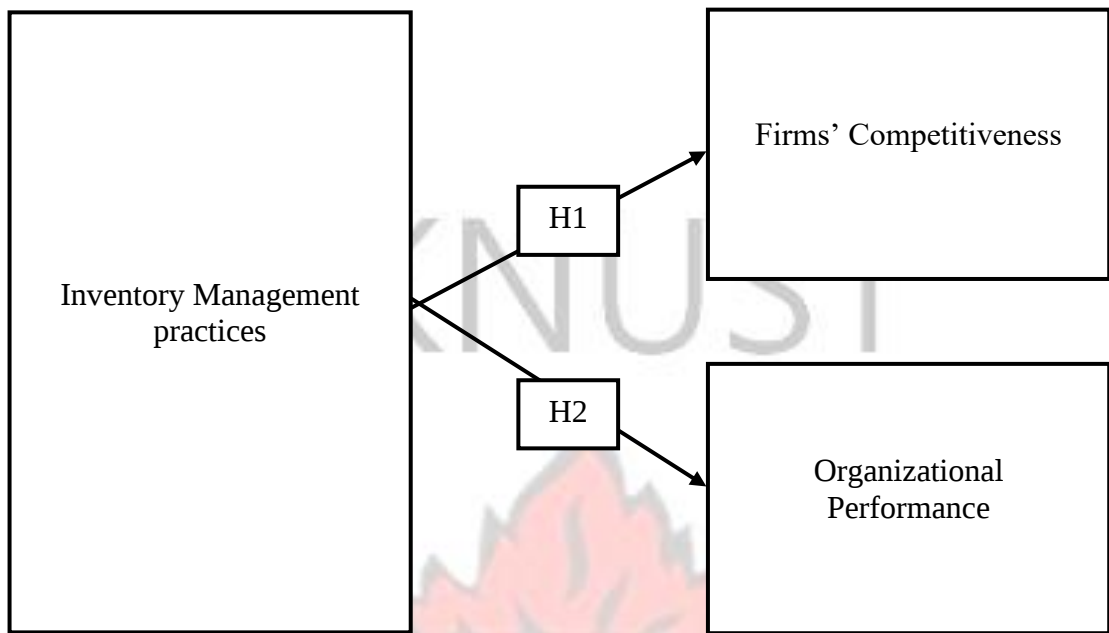


Figure 2.1: Conceptual Framework

Source: Author's Construction (2023).

Figure 2.1 is showing the relationship between the independent variable (Inventory Management Practices) and the dependent variables (firms' competitiveness and organizational performance). Therefore the study is to examine the relationship between the influence of inventory management practices on firms' competitiveness and organizational performance.

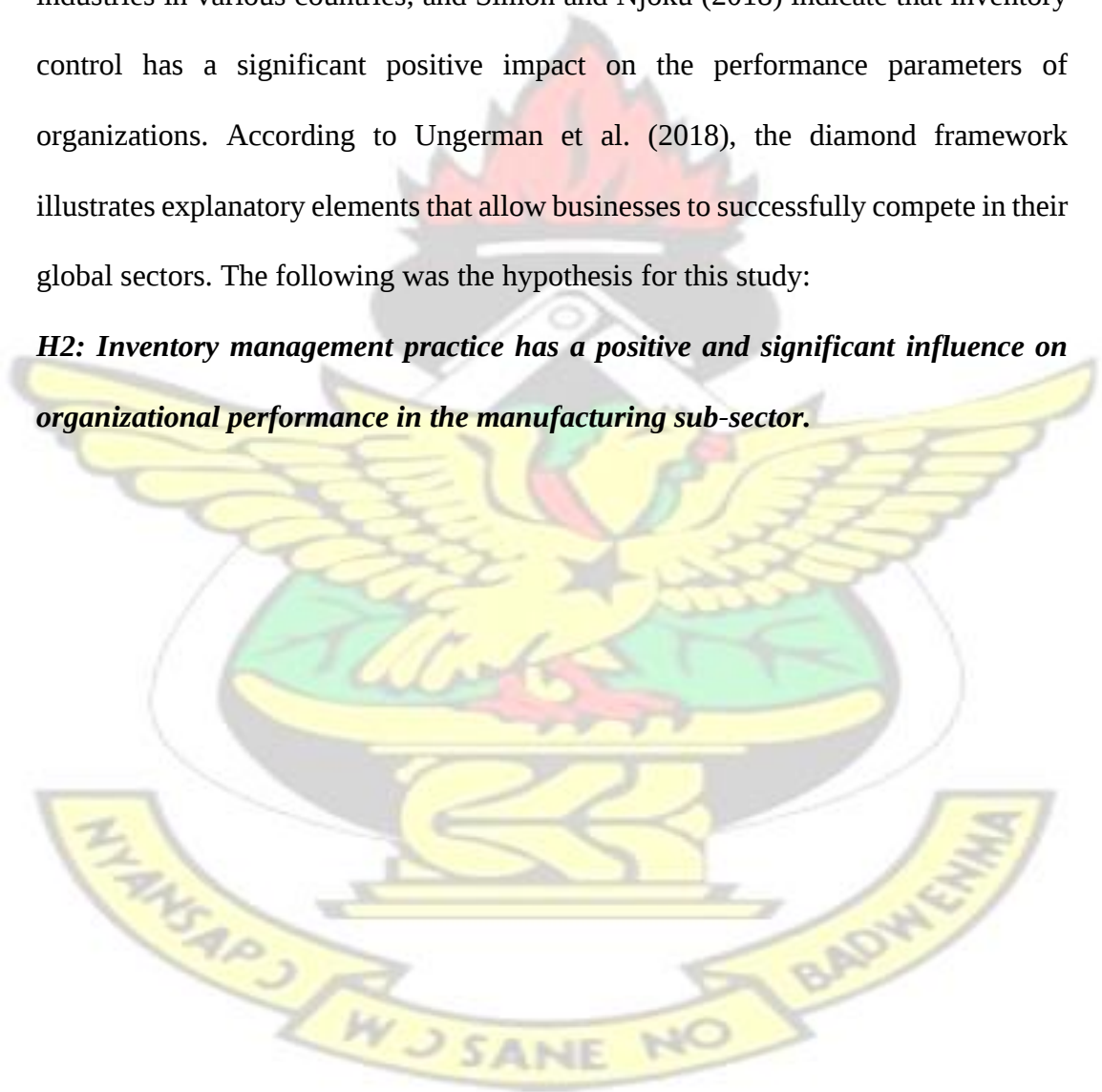
2.6 Hypothesis Formulation

Two hypotheses are developed in light of the literature and the study's goals. For example, Chikán et al. (2022) discovered a favorable influence of dynamic production capacities on the firm's perceived competitiveness, while Kurdi et al. (2022) indicated a strong beneficial impact of blockchain and smart inventory systems on SC performance. The following was the hypothesis for this study:

H1: inventory management practice has a positive and significant influence on firms' competitiveness among Manufacturing Sub-Sector.

A considerable positive effect and full mediation of inventory control procedures between the study variables have been established in another situation by researchers like Hashmi et al. (2021). Ungerman et al. (2018) present the findings of a national-level competitiveness inquiry on the exceptional performance of firms and their industries in various countries, and Simon and Njoku (2018) indicate that inventory control has a significant positive impact on the performance parameters of organizations. According to Ungerman et al. (2018), the diamond framework illustrates explanatory elements that allow businesses to successfully compete in their global sectors. The following was the hypothesis for this study:

H2: Inventory management practice has a positive and significant influence on organizational performance in the manufacturing sub-sector.



CHAPTER THREE

METHODOLOGY

3.0 Introduction

This section presents the analytical techniques and practices that are employed to meet the research's goals. This chapter covers the methods used in data analysis, such as the description of the data obtained, data type, source, technique, and so on. This chapter also discusses the research design, study population, sample size, sampling methodologies, and data collection and analysis processes.

3.1 Research Design

The study specifically employs a quantitative descriptive research strategy, with which it will gather quantifiable data for the population sample's statistical analysis. The purpose of quantitative descriptive research is to aid in statistically describing, aggregating, and presenting the relevant constructs or relationships between them.

3.2 Population Size

SMEs in Tamale Metropolis are included in the study population. According to Lundberg et al. (2021), specifying the characteristics of the people who are eligible for the study gives the sample size calculation the scope of the complete population or universe. Issahaku (2015) asserts that SMSs have a significant role in lowering unemployment in the Tamale metropolitan, significantly boosting tax income collection for the Metropolis, and generally enhancing the quality and quantity of goods and services produced and consumed in the Metropolis.

Alhassan et al. (2016) estimate that the Tamale Metropolis has 386 registered SMEs. Since the focus of the study is SMEs in the Tamale Metropolis, 386 people make up

the study's population. The study makes use of SMEs in the service, manufacturing, and trading sectors.

3.3 Sample Size

Rahman (2020) claims that if your sample is too small, you run the danger of including an abnormally large number of people, which could distort your results. However, a much larger sample might give you far more accuracy, but the added effort and money might mean the advantages aren't worth it.

Since the population is large some of the SMEs are being sampled based on the Slovin formula. According to Tejada and Punzalan (2012) is used to calculate the sample size (n) given the population size (N) and a margin of error (e).

It is computed as
$$n = \frac{N}{1+N(e)^2}$$

Whereas:

n = no. of samples

N = total population which is 386 for this study

e = error margin/margin of error which is also 0.05 (confidence level of 95 per cent).

$$\frac{386}{1 + 386 (0.05)^2}$$

190

Therefore the sample size for the study is 190.

3.4 Sampling Technique

A straightforward random sample method was used to analyze the population by obtaining data and examining it. Simple random sampling is a sort of probability

sampling where the researcher randomly chooses a subset of participants from a population, according to Mweshi and Sakyi (2020).

Each SME has an equal chance of being chosen for this study using a straightforward random sampling procedure. Then, data are gathered from as much of this random selection as possible (Mweshi and Sakyi, 2020). It is typically easier to choose a smaller sample size from the existing bigger population because basic random sampling requires a large sample frame.

3.5 Source of Data

The researcher will learn from the respondents, who are SME owners or managers, and use the information they provide to further the study by using data collection devices to gather pertinent information from them. In this study, questionnaires are used as the main data collection method. The main instrument for gathering data for the study is a formal questionnaire. It makes use of a closed-ended questionnaire. A closed-ended questionnaire, according to Mweshi and Sakyi (2020), is quicker to complete, which boosts response rates. It's also simpler to analyze the data and quantify overall sentiment, which allows for quicker action on the feedback. Four components, numbered A through D, make up the questionnaire.

3.6 Variable Description and Measurement

It is essential for the researcher to comprehend the different levels of measurement because these levels of measurement, coupled with how the research question is written, decide what type of statistical analysis is appropriate (Norman, 2010). A variable is a quality that may be measured and assigned a range of values. Table 3.2 displays the sources of the measuring tool and a description of how each study variable is measured.

Table 3.2: Variable Description and Measurement

Variable	Construct	Measure	Number of Items	Source
Inventory Management Practices	Vendor Managed Inventory	5 Likert scale questionnaires	4	Wanyonyi (2017)
	Economic Order Quantity	5 Likert scale questionnaires	3	Wanyonyi (2017)
	Just-in-Time	5 Likert scale questionnaires	4	Wanyonyi (2017)
	A-B-C Model	5 Likert scale questionnaires	3	Wanyonyi (2017)
	Demand Forecasting	5 Likert scale questionnaires	4	Wanyonyi (2017)
Firms' Competitiveness	Delivery	5 Likert scale questionnaires	5	Farida and Setiawan (2022)
	Price	5 Likert scale questionnaires	5	Farida and Setiawan (2022)
	Quality	5 Likert scale questionnaires	4	Farida and Setiawan (2022)
Firm Performance	Financial Performance	5 Likert scale questionnaires	6	Fatihudin (2018)
	Operational Performance	5 Likert scale questionnaires	6	Kaydos (2020)
Firm Age	Years	If Below 10 =1, 10 - 19 =2, 20-39 =3 and Above 30=4	n/a	Fatihudin (2018)
Firm Size	Number of employees	If 1- 5 = 1, 6 – 29= 2, 30 – 99 =3 and 100+ = 4	n/a	Fatihudin (2018)
Legal Status	n/a	If : sole proprietorship=1, limited company= 2 and joint stock company =3	n/a	Kaydos (2020)

Source: Author's Construction (2023).

3.7 Model Specification

The specification of the model is being used for determining which independent variables include and exclude the equation for regression. The researcher desires to find the relation between the independent and the dependent variable, and the need for model selection always begins.

The analysis below is demonstrating the connection between the dependent variable and all other relevant variables to help understand the general purpose of this study and in trying to evaluate the impact of changes in all the independent variables on the dependency variable.

$$FIP = a + \beta_1 FAGE + \beta_2 FSIZE + \beta_3 LES + \beta_4 IMP + e_i \dots\dots\dots$$

Model 1

$$FIC = a + \beta_1 FAGE + \beta_2 FSIZE + \beta_3 LES + \beta_4 IMP + e_i \dots\dots\dots$$

Model 2

Where

FIP = Firm Performance

FIC = Firms' Competitiveness

FAGE = Firm Age

FSIZE = Firm Size

LES = Legal Status

IMP = Inventory Management Practices

e_i = error Term

a = Represents the y-intercept and

β_1 to β_4 = Coefficients of Determination

3.8 Robustness Test

In SPSS, the Cronbach's alpha is used to assess the reliability of the research instrument. Cronbach's alpha is influenced by the total variance, the number of test items, and the average covariance between item pairings. Most frequently, the internal consistency of a survey or questionnaire with numerous Likert-type scales and questions is evaluated using Cronbach's alpha (Vaske et al., 2017).

If two items measure the same thing, it can be determined by Cronbach's alpha. In order to be considered good, Cronbach's alpha must be at least 0.70; if it is less, the common range's internal consistency is poor. The highest projected value is 0.90, and anything greater is seen as unnecessary.

3.8 Data Analysis

Statistical methods from the Statistical Package for the Social Sciences are being used by the researchers to produce the data analysis based on the study's objectives and queries (SPSS). The gathered data will be sorted, categorised, and tabulated for convenience of analysis. Descriptive statistics make up a significant portion of the data analysis.

The results of the data processing are then examined, conclusions drawn, and submissions made. Additionally, the study made use of factor analysis. A technique called factor analysis is used to break down a large number of variables into a smaller number of elements. This method creates a common score by taking the most common variance possible from all the variables.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents and analyses data. It begins with the analysis of the demographic data of respondents. The chapter ends with a discussion of the results linking the results with other literature.

4.1 Demographic Information

To understand the background characteristics of the respondents, their demographic information is inquired. The demographic information inquired about are gender, level of education of the respondents, number of years in business, economic sector and size of business the responses are presented in Table 4.1 using frequency and percentage.

4.1.1 Firms Characteristics

Three characteristics of the farms were inquired about, these include the firm legal status, years of operating and the firm size which was measured by the number of employees working in the firm.

In the case of the legal status, it was revealed that firms which are sole proprietorships were 103 (54%), those that were limited companies were 56 (29%) and those that were joint stock Companies were 31 (16%). This implies that the majority of the firms are sole proprietorships which is above 50%.

Table 4.1: Demographic Information

Particulars		Freq.	Percent
Firms Characteristics	Legal Status		
	Sole Proprietorship	103	54%
	Limited Company	56	29%
	Joint Stock Company	31	16%
	Total	190	100%
	Years of Operating FAGE		
	Below 10 years	34	18%
	10 - 19 years	86	45%
	20 and 39	40	21%
	Above 30 years	30	16%
	Total	190	100%
	Firm Size		
	Micro	79	42%
	Small	72	38%
	Medium	28	15%
	Large	11	6%
	Total	190	100%
Respondent Characteristics	Work Position		
	Owner	79	42%
	General Manager	70	37%
	Sales/Finance Manager	29	15%
	Other	12	6%
	Total	190	100%
	Education Level		
	No formal education	5	3%
	Certificate	42	22%
	Diploma/HND	54	28%
	Degree and above	89	47%
	Total	190	100%
	Gender		
	Male	131	69%
	Female	59	31%
	Total	190	100%

Source: Field Work (2023)

In the case of the years of operating, the study revealed that firms that have operated for less than 10 years were 34 (18%), those between 10 and 19 years were 86 (45%), between 20 and 39 was also 40 (21%) and those above 30 years were 30 (16%), this indicates that majority of the firm has operated for 10 - 19 years.

With respect to the size of the firms, it was revealed that firms at the micro level were 79 (42%), small-level firms were 72 (38%), medium-level firms were 28 (15%) and the large-level firms were 11 (6%). This implies that the majority of the firms are at the micro level.

4.1.2 Respondent Characteristics

The demographic characteristics inquired about the respondents include their work position, the highest level of education and their gender. In the case of the work position, the study found that those that are owners were 79 (42%), general managers were 70 (37%), those that are sales/finance managers were 29 (15%) and other positions were 12 (6%). This implies that the majority of the respondents are the owners of the businesses.

Also the highest level of education of the respondents, it was revealed that those without formal education were 5 (3%), those with certificates were 42 (22%), those with Diploma/HND were 54 (28%) and those with a degree and above were 89 (47%). This result indicates that the majority of the respondents are degree and above holders.

In the case of their gender, the study found that those that were males were 131 which represents 69%, and those that are females were 59 which also represents 31%. This means the majority of the respondents are male.

4.2 Validity and Reliability

This section presents the validity and reliability analysis which includes exploratory factor analysis and the Cronbach alpha test.

4.2.1 Reliability Test

The reliability test is carried out in SPSS using Cronbach Alpha as suggested, and the results are shown in Table 4.2. Cronbach's alpha is most commonly used to assess the internal consistency of a questionnaire (or survey) that has several Likert-type scales and items (Ekolu & Quainoo, 2019).

Table 4.2 Reliability Test

S/N	Variable	N of Items	Cronbach's Alpha
1	Inventory Management Practices	0.691	18
2	Firms' Competitiveness	0.610	14
3	Firm Performance	0.738	12

Source: Field Work (2023).

As shown in Table 4.2, the independent variable which is inventory management practices recorded a Cronbach's Alpha value of 0.691, while the two dependent variables which are the firms' competitiveness and firm performance recorded Cronbach's Alpha values of 0.610 and 0.738 respectively. According to Ekolu and Quainoo (2019), a variable is reliable when the P-value is more than 0.8 and unreliable when the P is less than 0.6. Therefore the Cronbach's Alpha values recorded for these three variables are accepted, indicating that the data is reliable.

4.2.2 Exploratory Factor Analysis

Exploratory factor analysis is a statistical method for reducing the number of summary variables from the original set of data and examining the theoretical underpinnings of a phenomenon. It is employed to ascertain the framework of the relationship between the variable and the respondent.

By performing a factor analysis, the study provides empirical data to check whether the constructs are indeed properly represented by the items. With the confirmatory factor analysis, four results items are expected which include Bartlett's test of sphericity, the Kaiser-Meyer-Olkin (KMO), Communalities (C) of each item, and the Total Variance Explained (TVE) of each variable. All relevant data are evaluated simultaneously using the KMO and Bartlett tests and the results are presented in Table 4.3.

Table 4.3: KMO and Bartlett's Test

S/N	Variables	KMO	Bartlett's	df	P Value
1	Inventory Management Practices	0.758	831.315	153	0.000
2	Firms' Competitiveness	0.698	511.919	91	0.000
3	Firm Performance	0.786	627.335	66	0.000

Source: Field Work (2023).

To ascertain whether a dataset is suitable for a data reduction technique, Bartlett's Test of Sphericity is used. According to Ekolú and Quainoo (2019), the dataset is suitable for a data reduction strategy if the p-value from the Bartlett's Test of Sphericity is lower than the selected significance threshold (0.05 in this case). According to the study's conclusions, a dataset is appropriate for a data reduction strategy if the p-value is less than 0.05.

The KMO test aids in evaluating the reliability of variable factor analyses. Since factor analysis always produces factors, the objective is to verify that the resulting factor structure is objective by supplying a minimal amount of correlation within a set of variables. The results of the KMO test are 0.758, 0.698, and 0.786 for the practices of inventory management, firm competitiveness, and firm performance, respectively. If the KMO score is more than 0.50, it can be considered acceptable; if it is higher than 0.70, it can be considered superior. The relevance indicates that factor analysis is appropriate.

The Bartlett's sphericity test can be used to check whether the correlations in the data are strong enough to be used with a dimension-reduction technique like principal components analysis or common factor analysis. If the KMO value is higher than 0.5 and the significance level of the Bartlett's test is lower than 0.05, there may be a significant correlation in the data. Variable collinearity is the degree to which one variable is correlated with another. It is evident that the population correlation matrix is not an identical matrix because the P values obtained are less than 0.05.

When it comes to communalities, values between 0.25 and 0.4 have been proposed as acceptable cutoff values, with ideal communalities being 0.7 or higher. As shown in Table 4.4 all the items recorded communalities value between 0.45 and 0.84 means all the items meet the accepted values.

Another value assessed in Table 4.4 is the Total Variance Explained (TVE) which indicates the percentage at which the items explain the variable, 62%, 62%, and 59% are recorded for inventory management practices, firms' competitiveness and firm performance respectively. These results imply that the research instrument is regarded as a trustworthy instrument for the study.

Table 4.4: Communalities and Descriptive Statistics

VARIABLES/STATEMENT	Mean	SD	Ext.	TVE
INVENTORY MANAGEMENT PRACTICES				62%
Vendor Managed Inventory	3.91	0.91		
This firm provides vendors with all inventory information necessary for replenishment	4.01	0.86	0.78	
This firm vendor uses this information to monitor inventory or place new orders in a continuous manner	3.94	0.83	0.64	
Our vendor is given access to the firm inventory and demand information	3.88	0.92	0.61	
The vendor has the authority and the obligation to replenish the purchaser's inventory according to collectively agreed on inventory concepts and targets	3.81	1.02	0.65	
Economic Order Quantity	4.02	0.79		
The firm knows with certainty the replenishment period of its items	3.94	0.82	0.62	
The stocks or sales made by a firm remain unchanged throughout the period	4.12	0.78	0.60	
When stocks reach zero level, an order for replenishment is placed without further delay	3.99	0.76	0.55	
Just-in-Time	3.36	0.92		
The firm employs a zero-stock level of its inventory	3.81	0.73	0.51	
The ownership of the inventory does not belong to this firm	3.25	1.03	0.46	
There is a shared product design with suppliers and clients	3.01	1.00	0.68	
A-B-C Model	3.36	0.97		
There exists preventive protection in this firm	3.34	1.02	0.69	
The management has separated items with the high value from those of lesser value	3.14	0.97	0.63	
There is a dedicated supervisor who manages the high-value products	3.59	0.94	0.58	

Demand Forecasting	3.47	1.04	
Their low-value products are less supervised by the firm management	4.23	1.01	0.59
Our firm adjusts forecasts for seasonality	1.96	1.19	0.63
Our firm looks out for trends in the historical demand data and adjusts inventory forecasts accordingly to trends	3.07	1.16	0.77
Our firm inputs any sales and marketing insights into the inventory forecasts to make them as accurate as possible.	4.23	0.97	0.61
Our firm adjusts inventory forecasting intervals	3.87	0.89	0.63

FIRMS' COMPETITIVENESS

62%

Delivery	3.97	0.87	
Ability to rapidly change production volumes.	4.08	0.82	0.52
Manufacture a broad product mix within the same facilities.	4.11	0.86	0.65
Ability to rapidly modify methods for materials.	4.19	0.74	0.59
Ability to rapidly modify methods for components.	3.96	0.80	0.69
Being able to provide fast-response deliveries from order to end customer.	3.48	1.11	0.65
Price	3.23	1.10	
Ensure that the price of a product is in line with the market price	2.68	1.30	0.58
Attach importance to the distinctiveness of the company brand in its pricing.	3.08	1.18	0.62
Price some products according to the customer's perception of value.	3.19	1.14	0.70
Ensure that the price of a product is in line with the market price	3.64	0.97	0.63
Offering lower-priced products.	3.57	0.91	0.60
Quality	3.37	1.08	
Conformance quality (i.e., the degree to which a product's operating characteristics meet established standards).	4.23	1.01	0.48

Product durability (i.e., the amount of time or use before the product breaks down and replacement is preferred to continued repair).	1.96	1.19	0.73
Product reliability (i.e., the probability of a product malfunctioning or failing within a specified time period).	3.07	1.16	0.77
Performance quality (i.e., a product's primary operating characteristics).	4.23	0.97	0.51
FIRM PERFORMANCE			57%
Financial Performance	3.09	1.11	
our company is able to make cost reduction efforts	3.51	1.03	0.563
High return on capital	3.05	1.06	0.577
Net profits continue to increase	3.11	1.06	0.581
our company has good liquidity (cash)	2.83	1.14	0.573
Assets have a good rate of return	3.01	1.20	0.697
Sales increase	3.03	1.16	0.628
Operational Performance	3.72	0.98	
The ability to handle varied customer/market needs	4.03	0.96	0.553
Consistency in meeting the needs of customers	3.97	0.94	0.508
The nature of product/service support to customers	4.19	0.74	0.570
The extent of variety in products/services offered to customers	3.96	0.80	0.443
our company is able to utilize our resources (e.g. human skills, time)	3.48	1.11	0.829
there is flexibility in production/service delivery processes	2.68	1.30	0.559
<i>SD= standard deviation: Ext. = Extraction and TVE= Total Variance Explained</i>			

Source: Field Work (2023).

4.3 Correlations Matrix

Table 4.5 displays the correlations of the variables. The correlations, in this case, Pearson's Correlation, are represented by the values. The significance level is indicated by the stars.

The values show that there is a relationship between the variables.

Table 4.5: Correlations Matrix

		FAGE	FSIZE	LES	IMP	FIC	FP
FAGE	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	190					
FSIZE	Pearson Correlation	.102	1				
	Sig. (2-tailed)	.163					
	N	190	190				
LES	Pearson Correlation	.015	.656**	1			
	Sig. (2-tailed)	.639	.000				
	N	190	190	190			
IMP	Pearson Correlation	.010	-.059	-.071	1		
	Sig. (2-tailed)	.891	.415	.332			
	N	190	190	190	190		
FIC	Pearson Correlation	-.040	.038	-.016	.386**	1	
	Sig. (2-tailed)	.583	.606	.826	.000		
	N	190	190	190	190	190	
FIP	Pearson Correlation	-.111	-.069	-.025	.469**	.501**	1
	Sig. (2-tailed)	.126	.346	.730	.000	.000	
	N	190	190	190	190	190	190

FIP = Firm Performance, **FIC**=Firms' Competitiveness, **FAGE**=Firm Age, **FSIZE**=Firm Size, **LES**=Legal Status and **IMP**=Inventory Management Practices

******. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Work (2023).

As shown in Table 4.5, firm performance is found to correlate with firms' competitiveness ($r=.501$, $p=0.000$) and inventory management practices ($r=0.469$, $p=0.000$). Also, it was

revealed that firms' competitiveness correlate with inventory management practices ($r=0.386$, $p=0.000$).

4.4 Regression Analysis

In this section regression analysis is performed. This includes the relationship between the control variables, the independent variable, and the dependent variables. Multiple regression is used to conduct the analysis. The results are presented in Table 4.6.

Table 4.6: Multiple Regression Analysis

VARIABLES	MODEL 1	MODEL 2
Firm Age	-0.062** (-1.707)	-0.020 (-0.787)
Firm Size	-0.038 (-0.736)	0.04 (1.134)
Legal Status	0.036 (0.598)	-0.025 (-0.611)
Inventory Management Practices	0.671*** (7.295)	0.361*** (5.743)
(Constant)	1.133*** (3.165)	2.241*** (9.159)
R Square	0.336	0.257
F	14.28	8.61
P-Value	0.000	0.000
n	190	190

Dependent Variable: firm performance and firms' competitiveness

*** $p<.01$, ** $p<.05$, * $p<.1$.

Source: Field Work (2023).

The control variable used in the regression analysis includes the firm age, firm size and legal Status, while the independent variables were inventory management practices and

two independent variables which are firm performance and firms' competitiveness. Since the dependent variables are two, the study used two models as shown in Table 4.5.

Model 1 has firm performance as the dependent variable while firms' competitiveness was used as the dependent variable in Model 2. In the case of model 1, an r-square of 0.336 was recorded while 0.257 was recorded for model 2. This implies that the model explains the dependent variables by 33.6% and 25.7%. Both models recorded the same p-value of 0.000, this indicated that the model explain both dependent significantly.

The study also revealed that, in model 1, one of the control variables firm age ($\beta=-0.062$, $t=-1.707$, $p<0.05$) was found to be to have a significant influence, but firm Size ($\beta=-0.038$, $t=-0.736$, $p>0.05$) and legal status ($\beta=0.036$, $t=0.598$, $p>0.05$). In the case of model 2, none of the control variables was found to have a significant influence. But the independent variable was found to have a positive and significant influence on the dependent variables.

4.5 Discussion of the Results

The primary purpose of the research was to analyze the methods of inventory management used by SMEs in the Manufacturing Sector. Muchaendepi et al. (2019) state that businesses can benefit from inventory management by learning when and how much stock to order. It keeps tabs on stock levels from arrival to departure. The method recognizes patterns and adjusts accordingly to guarantee adequate supply to meet demand and advance notice of impending shortages.

Table 4.4 shows that when it comes to inventory management, the majority of respondents agree with the use of vendor-managed inventory (Mean=3.91, SD=0.91), economic order quantity (Mean=4.02, SD=0.79), Just-in-Time (Mean=3.36, SD=0.92), the A-B-C Model (Mean=3.36, SD=0.97), and demand forecasting (Mean=3.47, SD=1.04). That's why

manufacturing SMEs use methods like economic order quantity, just-in-time, alternating-basis models, and demand forecasting when it comes to inventory management.

Similarly, Atnafu and Balda (2018a) claimed that small and medium-sized enterprises (SMEs) have been slower to implement ABC analysis than major corporations. Economic Order Quantity (EOQ) is regarded by Gallino et al. (2017) as the most fundamental and basic model that has been created throughout the years for specific commodities. Finding the EOQ for each inventory item helps cut down on ordering and storage fees (Riza et al., 2018). This model has the benefit of providing accurate predictions across a wide range of parameter values (Gallino et al., 2017).

In order for EOQ to work, it is assumed that the following conditions hold true, as stated by Sebastian and Adetunji (2019): ordering cost, holding cost, and acquisition cost per unit are all constant; orders are supplied all at once; and on average, half of the inventory is available at any one moment. The Economic Order Quantity (EOQ) is located at the point where two prices are equalized. Maximum holding and ordering expenses are associated with the optimal order size.

Moreover, Muchaendepi et al. (2019) found that most SMEs employ the Just-In-Time method of inventory management and are unaware of the other digital systems and techniques. SMBs confront supply chain difficulties due to the JIT methodology, which necessitates continual communication with suppliers and a reduction in the time it takes to obtain goods.

The second goal was to see how enterprises in the Manufacturing Subsector could benefit from better inventory management. According to Chikán et al. (2022), competition is a multi-level and multi-faceted idea that is inextricably linked to Michael Porter's key work. According to Taouab and Issor (2019), competitiveness at the company level is

synonymous with business performance from a strategic management perspective. The RBV of the company is a staple in these types of competitiveness articles (Barney 1991; Teece et al. 1997; Ungerman et al. 2018).

Model 2's dependent variable was found to be positively and significantly influenced by inventory management procedures ($\beta=0.361$, $t=5.743$, $p<0.05$). This suggests that effective inventory management has a direct and beneficial effect on a company's ability to compete. The findings suggest that small and medium-sized enterprises (SMEs) might gain a competitive edge through better inventory management. Therefore, better inventory management practices are associated with a competitive advantage for businesses.

Many studies, including those by Panigrahi et al. (2022) and Kurdi et al. (2022), have come to the same conclusion. Panigrahi et al.'s (2022) research is one example that demonstrates how KIMP has an immediate effect on OP, and how this, in turn, has a sizable bearing on a firm's BP. The KIMP has a negligible impact on blood pressure. Consistent with this, the results show that OPs mediate heavily in the relationship between KIMP and BP. While Kurdi et al. (2022) concluded that businesses have a lot of opportunities to use blockchain technology to gain an edge over rivals and grow their market share.

Atnafu and Balda (2018) also demonstrated that better inventory management results in a competitive advantage and superior performance for the organization. However, Chikán et al.'s (2022) research reveals that dynamic production capabilities have a favorable impact on the firm's perceived competitiveness, but conventional production capabilities have no meaningful association with firm-level competitiveness.

When competitors have a hard time replicating an organization's resources, that organization has a competitive advantage, according to Shafeey and Trott (2014). If a resource meets these four criteria, it can be used to gain a competitive edge in the market.

The characteristics for a strategic asset are that it be valuable, scarce, distinctive, and exploitable by the business (Coleman et al., 2013).

Third, we wanted to look at how different approaches to inventory management affect business performance in the Manufacturing Industry. According to Fitria (2018), successful performance involves achieving goals that contribute to the organization as a whole. It's not enough to achieve results; performance also depends on how well they align with the organization's overall mission. According to Milosevic et al. (2018), an organization's performance should be established from within its own operations, taking into account both its own goals and the fundamental and observable context in which it operates.

In addition, model 1's dependent variable was found to be positively and significantly influenced by inventory management procedures ($\beta=0.671$, $t=7.295$, $p<0.05$). This suggests that effective inventory management strategies significantly affect business outcomes. Higher levels of inventory management practice were found to be associated with improved organizational performance among SMEs. This suggests that better inventory management practices result in enhanced organizational effectiveness.

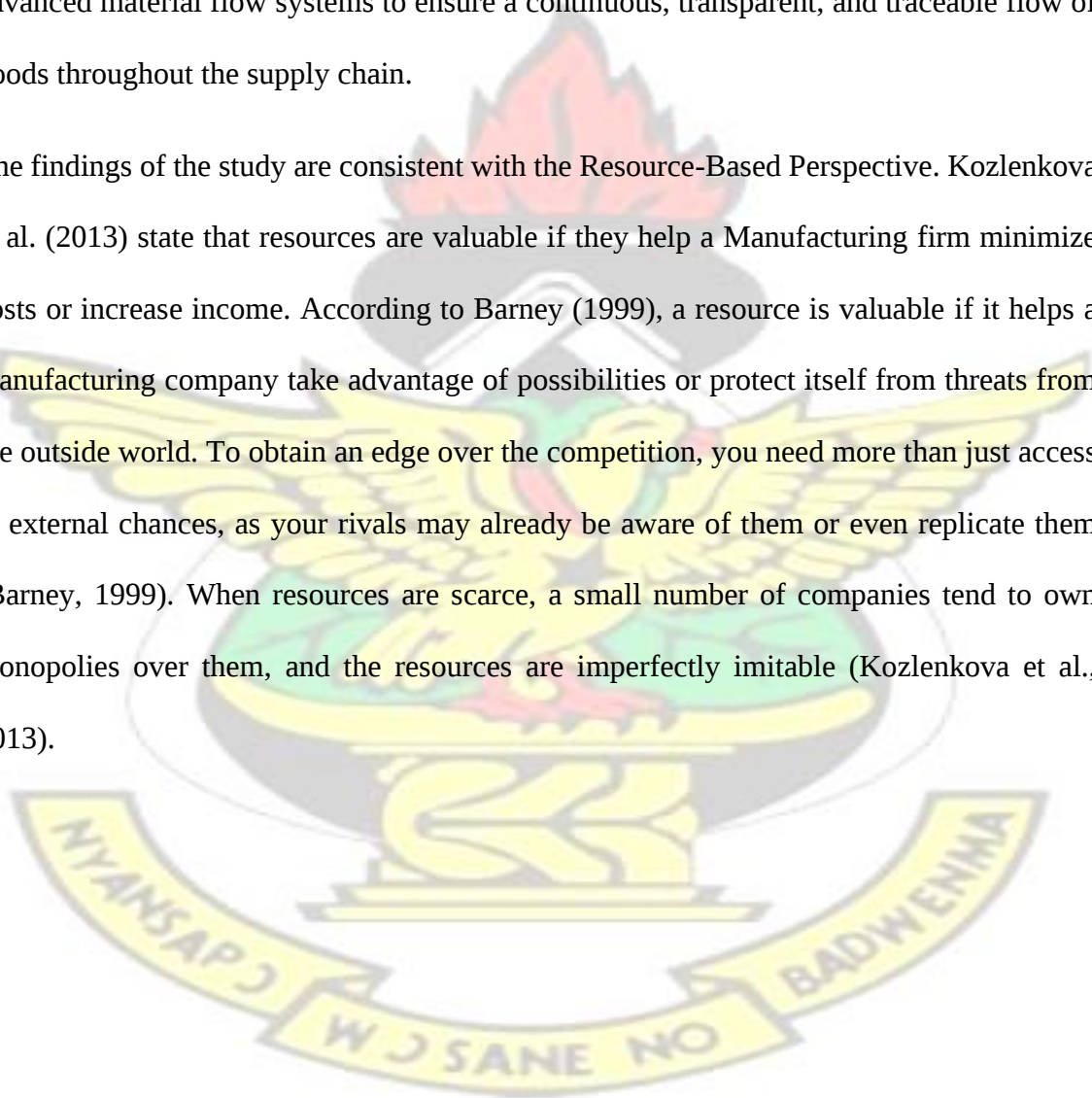
Inventory control practices were found to have a significant positive effect and full mediation of the study variables in a similar study by Hashmi et al. (2021), which aimed to determine the mediating role of inventory control practices in proficiency and organizational performance at public hospitals. Muchaendepi et al.'s (2019) research shows that inventory control procedures have a highly substantial positive effect and fully mediate the relationships between the study variables.

According to Simon and Njoku's (2018) research, proper inventory management has a positive effect on many different aspects of an organization's performance, including its

ability to produce a sufficient quantity of high-quality goods within budget, deliver those goods on time, and turn a profit.

Inventory management was found to be an influential element in the success of textile manufacturing enterprises in Kenya by Musau et al. (2017). According to the findings, effective inventory management has the potential to positively affect the performance of Textile firms. As a result, the industry has implemented clear mechanisms and invested in advanced material flow systems to ensure a continuous, transparent, and traceable flow of goods throughout the supply chain.

The findings of the study are consistent with the Resource-Based Perspective. Kozlenkova et al. (2013) state that resources are valuable if they help a Manufacturing firm minimize costs or increase income. According to Barney (1999), a resource is valuable if it helps a manufacturing company take advantage of possibilities or protect itself from threats from the outside world. To obtain an edge over the competition, you need more than just access to external chances, as your rivals may already be aware of them or even replicate them (Barney, 1999). When resources are scarce, a small number of companies tend to own monopolies over them, and the resources are imperfectly imitable (Kozlenkova et al., 2013).



CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary of the findings from the questionnaires administered to respondents. The study's primary goal is to examine the relationship between the influence of inventory management practices on firms' competitiveness and organizational performance.

5.1 Summary of Findings

This section presents a summary of findings gathered from the study based on the objective outlined above. In this section, the researcher gives accounts of the outcome of the fieldwork.

5.1.1 Inventory Management Practices

Examining the inventory management strategies used by SMEs in the manufacturing sub-sector was the study's initial goal. Vendor-managed inventory, economic order quantity, Just-in-Time, A-B-C Model, and demand forecasting showed means above the median value of 3, which shows that the respondents agree that these inventory management strategies are being used, according to the study's findings. This indicates that the SMEs in the manufacturing sub-sector use vendor-managed inventory, economic order quantity, just-in-Time, A-B-C Models, and demand forecasting inventory management techniques.

5.1.2 Inventory Management Practices and Firms' Competitiveness

The study's second goal was to investigate how firms' competitiveness in the manufacturing sub-sector is impacted by inventory management techniques. The research discovered that the dependent variable in Model 2 is positively and significantly influenced by inventory

management strategies. This indicates that inventory management practices have a positive and significant influence on the firms' competitiveness. The findings show that SMEs with greater levels of inventory management practice may have a competitive edge. According to this, the competitive advantage of the company grows when inventory management practices are increased.

5.1.3 Inventory Management Practices and Organizational Performance

Examining how inventory management techniques affect businesses' competitiveness in the Manufacturing Sub-Sector was the study's second goal. The results of the study revealed that Model 2's dependent variable is positively and significantly impacted by inventory management strategies. This suggests that the methods used to manage inventories have a positive and considerable impact on the competitiveness of the firms. According to the findings, SMEs may have an improved competitive advantage if they apply better levels of inventory management. This suggests that improving inventory management practices boosts a firm's competitive edge.

5.2 Conclusion

The goal of the study is to determine how inventory management practices affect organizations' ability to compete and their ability to perform as an organization. SMEs in Tamale Metropolis, which has roughly 386 registered SMEs, are included in the study population. Due to the size of the population, some SMEs are being sampled using the Slovin formula. 190 people made up the study's sample size. A straightforward random sample method was used to analyze the population by obtaining data and examining it.

The main instrument for gathering data for the study is a formal questionnaire. It makes use of a closed-ended questionnaire. In SPSS, the Cronbach's alpha is used to assess the reliability of the research instrument. The study employed factor analysis. A technique

called factor analysis is used to break down a large number of variables into a smaller number of elements. This method creates a common score by taking the most common variance possible from all the variables.

The survey found that the SMEs used vendor-managed inventory, economic order quantity, just-in-Time, A-B-C Models, and demand forecasting as their inventory management techniques. It was also shown that inventory management procedures had a favorable and considerable impact on the organizations' competitiveness.

The study concludes that SMEs use inventory management techniques in their business operations, which has improved their competitive advantage and improved organizational performance. The findings of this study generally show that enhanced levels of inventory management practice may have been a result of stronger organizational performance and competitive advantage. Due to the increased pressure to continually outperform its competitors and preserve its competitive position, a firm may be able to implement higher levels of inventory management procedures as a result of its increased competitiveness. On the other hand, increased organizational performance provides a company with additional resources to use a variety of cutting-edge inventory management techniques. This study provides empirical evidence to support the literature on the effects of inventory management strategies.

5.3 Recommendations

Based on the finding of the study the following recommendations are made:

The promotion of SMEs' use of inventory management will help them become more competitive and operate better as an organisation, hence it is advised that policymakers, universities, and NGOs supporting SMEs work to provide the necessary skills and resources. That would increase their contribution to the nation's economic growth.

Additionally, it is advised that manufacturing firms in developing nations like Ghana keep inventory management in mind while creating comprehensive and strategic business plans. It is revealed that more than 70% of all production assets are in inventory, therefore adequate attention and focus are required. Manufacturing businesses may dedicate adequate resources to implement and create efficient procedures that will improve operational and overall performance levels if they give inventory management a high priority in their strategic goals. Manufacturing firms in developing nations, such as Ghana, should engage more in supplier development and cooperation if they want to increase their operational performance levels in terms of product quality, operational flexibility, reliability, speed, and production costs.

5.4 Limitations and Recommendations for Future Research

Like every other study, this one has some limitations. The questionnaire used to measure the measuring constructs does not contain any standardized items. But following a careful review of the literature, they have been statistically supported and abstained. The measurement scales utilized in this work should, however, be revalidated using more representative data in subsequent research.

When it came to the broad use of inventory management, only one respondent from a corporation was contacted. The truth is, nobody in a corporation actually oversees the inventory management processes. Future research should try to include a number of responders from each participating company to enhance the research findings. In this study, a relatively limited sample size was used with the structural equation model. Future researchers can therefore use a larger sample size to account for it and produce better results.

SMEs in Tamale's manufacturing sector were also consulted for information. Therefore, it shouldn't be applied to the entire country or the northern region as a whole. This study is

being conducted in the context of SMEs that are manufacturers. Though it's possible that medium- and large-scale manufacturing firms won't be affected by the conclusion. The context of the large- and medium-sized manufacturing industry should be considered by upcoming researchers.

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APPENDIX A: QUESTIONNAIRES

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY BUSINESS SCHOOL

Introduction: Dear Respondent, as part of my MSc. research at the Kwame Nkrumah University of Science and Technology, I am undertaking a study to assess the **Influence of Inventory Management Practice on Firms' Competitiveness and Organizational Performance**. I would be grateful for your participation in the completion of this questionnaire. Please answer as frankly as possible. All information obtained in this survey will be used strictly for academic purposes. Please rate the academic performance of your school in the last three years in each of the following aspects.

Section A: Characteristics

1. What is the legal status of your company?
Sole Proprietorship ☐
Limited Company ☐
Joint Stock Company ☐
2. How long has your company been operating?
Below 10 years ☐
10 - 19 years ☐
20 and 39 ☐
Above 30 years ☐
3. How many people are employed by your firm
Micro (1- 5 employees) ☐
Small (6 – 29 employees) ☐
Medium (30 – 99 employees) ☐
Large (100+ employees) ☐
4. Which title best describes your work position and responsibilities?
Owner ☐
General Manager ☐
Sales/Finance Manager ☐
Other ☐
5. What is your highest level of education?
No high-school Diploma ☐
High-School Diploma ☐
University Graduate ☐
Masters/PhD Graduate ☐
6. What is your gender?
Male ☐
Female ☐

Section B**INVENTORY MANAGEMENT PRACTICES**

Please indicate the extent to which you concur with the following statements concerning the extent to which your firm adopts in your operations, using a Likert scale of 1 – 5 (**Very Great Extent** -5, **Great Extent** -4, **Moderate Extent** -3, **less extent** -2 and **No Extent**-1).

S/N	Statement	1	2	3	4	5
Vendor Managed Inventory						
1	This firm provides vendors with all inventory information necessary for replenishment					
2	This firm vendor uses this information to monitor inventory or place new orders in a continuous manner					
3	Our vendor is given access to the firm inventory and demand information					
4	The vendor has the authority and the obligation to replenish the purchaser's inventory according to collectively agreed inventory concepts and targets					
Economic Order Quantity						
1	The firm knows with certainty the replenishment period of its items					
2	The stocks or sales made by a firm remain unchanged throughout the period					
3	When stocks reach zero level, an order for replenishment is placed without further delay					
Just-in-Time						
1	The firm employs a zero-stock level of its inventory					
2	The ownership of the inventory does not belong to this firm					
3	There is a shared product design with suppliers and clients					
4	There exists preventive protection in this firm					
A-B-C Model						
1	The management has separated items with high value from those of lesser value					
2	There is a dedicated supervisor who manages the high-value products					
3	Their low-value products are less supervised by the firm management					
Demand Forecasting						
1	Our firm adjusts forecasts for seasonality					
2	Our firm looks out for trends in the historical demand data and adjusts inventory forecasts accordingly to trends					
3	Our firm inputs any sales and marketing insights into the inventory forecasts to make them as accurate as possible.					
4	Our firm adjusts inventory forecasting intervals					

Section C.**FIRMS' COMPETITIVENESS**

What is your level of agreement with the following statement in relation to your **Firms' Competitiveness**? Use a scale of 1-5 where 1= **Never**, 2= **Rarely**, 3=**Sometimes**, 4=**Very Often**, 5= **Always**.

S/N	Statement	1	2	3	4	5
	Delivery					
1	Ability to rapidly change production volumes.					
2	Manufacture a broad product mix within the same facilities.					
3	Ability to rapidly modify methods for materials.					
4	Ability to rapidly modify methods for components.					
5	Being able to provide fast-response deliveries from order to end customer.					
	Price					
1	Ensure that the price of a product is in line with the market price					
2	Attach importance to the distinctiveness of the company brand in its pricing.					
3	Price some products according to the customer's perception of value.					
4	Ensure that the price of a product is in line with the market price					
5	Offering lower-priced products.					
	Quality					
1	Conformance quality (i.e., the degree to which a product's operating characteristics meet established standards).					
2	Product durability (i.e., the amount of time or use before the product breaks down and replacement is preferred to continued repair).					
3	Product reliability (i.e., the probability of a product malfunctioning or failing within a specified time period).					
4	Performance quality (i.e., a product's primary operating characteristics).					

Section D.**Firm Performance**

Please indicate your level of agreement with the following statements by ticking the corresponding number on the Likert Scale. Where 1= **Strongly Disagree** 2= **Disagree** 3= **Neutral**, 4= **Agree** and 5= **Strongly Agree**.

S/N	Statement	1	2	3	4	5
	Financial Performance					
1	our company is able to make cost reduction efforts					
2	High return on capital					
3	Net profits continue to increase					
4	our company has good liquidity (cash)					
5	Assets have a good rate of return					
6	Sales increase					
	Operational Performance					
1	The ability to handle varied customer/market needs					
2	Consistency in meeting the needs of customers					
3	The nature of product/service support to customers					
4	The extent of variety in products/services offered to customers					
5	our company is able to utilize our resources (e.g. human skills, time)					
6	there is flexibility in production/service delivery processes					