MODERATING EFFECT OF SUPPLY CHAIN PILLARS ON THE RELATIONSHIP BETWEEN SUPPLY CHAIN INTEGRATION AND RETAIL OUTLETS PERFORMANCE: AN ANALYSIS OF SELECTED SUPERMARKETS IN KENYA

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DECLARATION BY THE CANDIDATE

This Thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

This Thesis is dedicated to the Glory of the Almighty God and to my father Julius Okello Muga.

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I take this opportunity to sincerely thank God for enabling me come up with this research idea. Much appreciation to my supervisors, Dr. Aleri Chrisostom and Dr. Oyieke Samuel, who positively guided me through this journey. I'm also grateful to my fellow students and lecturers in the School of Business & Economics who in one way or the other made great impacts towards the success of this research.

ABSTRACT

Kenya's Retail sector has experienced considerable challenges over the past years as evidenced by the collapse of giant supermarkets. Nakumatt, Uchumi and Tuskys supermarkets at one point dominated the sector but collapsed successively due to supplier unreliability, low sales volume, reduced profitability and poor management besides other reasons. The objectives of the study were: to establish the effect of Supply Chain information sharing on retail outlet performance; to determine the effect of supply chain decision synchronization on retail outlets performance; to find out the effect of supply chain incentive alignment on retail outlet performance; and to establish the moderating effect of Supply Chain Pillars on the relationship between supply chain integration and retail outlets performance in Kenya. The study adopted cross – sectional survey design with a target population of 2654 staff drawn from Naivas, Quickmart, Chandarana and Carrefour supermarkets across the four cities in Kenya. The study used Yamane (1967) formula to establish the sample size of 347 staff. The study used stratified proportionate random sampling. The study used closed-ended structured questionnaires to collect primary data. Data was analyzed using logistic regression. The study reported significant moderating effect of supply chain pillars on the relationship between supply chain integration and retail outlet performance (Est. = 0.986022; $p \leq 0.01$). Supply Chain Incentive Alignment with an estimate of 1.3888321 ($p \leq 0.01$) had the highest contribution to increasing retail outlet performance, followed by Supply Chain Decision Synchronization with an estimate of 1.290342 ($p \leq 0.01$) and lastly, Supply Chain Information Sharing with an estimate of 0.874501 ($p \leq 0.05$). The study concluded that the efforts invested in supply chain integration practices, including information sharing, decision synchronization, and incentive alignment, are crucial for improving service delivery, customer satisfaction, and profitability in retail outlets. The recommended that supply chain managers should ensure that the supply chain pillars are well managed for subsequent supply chain visibility and flexibility that would effectively contribute to improved retail outlets performance. The study suggested that future researchers may consider conducting longitudinal study to examine the long-term effects supply chain pillars on the relationship between supply chain integration and retail outlets performance.

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LIST OF ABBREVIATIONS AND ACRONYMS

FMCG: Fast Moving Consumer Goods

KAM: Kenya Association of Manufacturers

KUCFAW: Kenya union of Commercial Food and Allied Workers

SC: Supply Chain

SCDS: Supply Chain Decision Synchronization

SCI: Supply Chain Integration

SCIA: Supply Chain Incentive Alignment

SCIS: Supply Chain Information Sharing

SCP: Supply Chain Pillars

DEFINITION OF OPERATIONAL TERMS

Supply Chain Integration: close alignment and coordination within a supply chain, often with the use of shared management information systems (Schönsleben, 2016). In this study, it meant the ability of the supermarkets, suppliers and customers to work together as a team through close coordination of their processes.

Supply Chain Decision Synchronization: The ability of channel partners to engage in decision making that considers the interest of the supply chain rather than individual firms (Cao & Zhang, 2011). In this study it meant the ability of supermarkets, suppliers and customers to agree to develop common goals and work toward achieving them.

Supply Chain Information Sharing: The willingness and ability to share strategic data to all members across the supply chain (Barratt, 2004). In this study it meant the ability of supermarkets, suppliers and customers to agree to share relevant information that can improve service delivery

Supply Chain Incentive Alignment: A formal agreement between the supply chain partners to share costs, risks and benefits (Simatupang & Sridharan, 2005, Cao et al., 2010). In this study it meant the ability of supermarkets, suppliers and customers to agree to share costs, risks and benefits that come as a result of working together.

Supply Chain Pillars: Factors believed to play critical role in enhancing supply chain performance; visibility, flexibility, control, agility and Resilience (Grant, Trautrims & Wong, 2017). In this study it meant factors that can affect the relationship between supply chain integration and retail outlets performance.

Supply Chain Visibility: the company's ability to locate a product's position as it travels downstream along the supply chain towards the end customer (Grant, Trautrims & Wong,

2017). In this study it meant the ability of the supermarkets, suppliers and customers to locate the position of goods as they move from the suppliers through the supermarket to the customers.

Supply Chain Flexibility: The ability of a supply chain to expand or contract depending on deviations that comes along with demand uncertainty (Grant, Trautrims & Wong, 2017). In this study it meant the ability of the supermarkets, suppliers and customers to respond to the fluctuating needs of the supply chain.

Performance: The outputs or results of an organization measured against its intended outputs or goals (Scotti, 2004). In this study it meant the level of service delivery and profitability of supermarkets.

Retail Outlet: A store that sells goods to the public (Fernie & Sparks, 2014). In this study it meant the supermarkets.

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This section gives the background of the study, problem statement, research hypothesis, research objectives, significance of the study, scope, limitations and assumptions.

1.1 Background of the Study

The retail industry is considered the key player in the supply chain network of manufactured goods. The formal sectors comprising of the supermarkets who are at the end of the supply chain, are the linkage between the manufacturers and the final consumers. The supermarkets allow for one stop shopping by availing variety of products and ensuring constant stock replenishment for the continuation of their services to the end consumers. However, the industry has over the years experienced drop out of some of the giant supermarkets causing anxiety among stakeholders. These firms, before completely exiting the industry experienced operational challenges that impacted on their service delivery in terms of stock levels and product varieties. The supermarkets also experienced financial losses and were not able to pay their suppliers and employees (Kenya Daily Business Report, 2021).

The challenges faced by supermarkets are supply chain challenges thereby raising questions on the effectiveness of supply chain integration. The study thus examined how supply chain pillars affect the relationship between Supply Chain Integration (SCI) and the performance of retail outlets in Kenya. Supply Chain Integration refers to the

alignment and collaboration between various supply chain partners, such as suppliers, manufacturers, and customers, to optimize processes and improve efficiency. Performance, in this context, refers to how well retail outlets achieve their operational and financial goals. The moderating effect of supply chain pillars implies that certain key elements of the supply chain integration, such as information sharing, decision synchronization, and incentive alignment, may influence or strengthen the effect of SCI on performance.

In South Africa, supply chain integration (SCI) is considered a survival tool in a competitive market environment (Vermeulen, Niemann & Kotzé 2016). In Ghana, supply chain integration is viewed as a tool for enhancing competitiveness especially among the manufacturing firms (Otchere, Annan & Anin 2013). In Uganda, supply chain integration is considered a tool towards competitive capabilities of organizations. In Kenya, SCI is viewed as a tool for competitive advantage both locally and globally (Ayuki, 2007). According to Holcomb, Ponomarov and Manrodt (2011), being able to perfectly view the supply chain operations across the whole network is crucial in supply chain management involving more than one firm. Brandon-Jones et al. (2014) noted that supply chain visibility was an important tool for organization capability and that supply chain information sharing contributed in creating supply chain visibility. Wei and Wang (2010) argued that supply chain visibility enhanced organizations agility. Supply chain Visibility and flexibility is key in enhancing supply chain performance (Francisco & Swanson, 2018).

Globally, retail outlets are currently grappling with several performance challenges that significantly affect their operations and profitability (Draup, 2023). One major challenge is the ongoing shift in consumer shopping habits. As consumers increasingly expect personalized and seamless shopping experiences across multiple channels, retail outlets must integrate their online and offline presences (Draup, 2023). This demand for omni-channel experiences requires substantial investment in technology and data analytics to effectively track and respond to consumer behaviors (Draup, 2023). High inflation rates and economic volatility present another significant challenge (Draup, 2023). Inflation squeezes profit margins as retailers struggle to balance pricing strategies with consumer expectations. Many consumers are turning to finance plans and promotional offers to manage their budgets, which forces retailers to adopt more sophisticated inventory management and personalized marketing strategies to maintain profitability (Draup, 2023). Supply chain disruptions continue to be a persistent issue. The global supply chain has been plagued by variations and inefficiencies, leading to out-of-stock items and increased operational costs (Deloitte, 2023). Retailers must enhance supply chain transparency and resilience by leveraging data analytics and technology to streamline operations and improve inventory management (Deloitte, 2023). Companies like Walmart have successfully managed supply chain costs, thereby maintaining competitive pricing and customer satisfaction (Deloitte, 2023).

In Africa, South Africa has the largest retail market chain based on the wide array of shopping malls and retail development. Shoprite, a local retail outlet in South Africa is the largest retail outlets in Africa with 189 outlets across 15 countries (Kenya Daily

Business Report, 2022). The retail industry plays an important role in South Africa's economy as it has provided employment to over two million people accounting for 22 percent of the National labor force (Kenya Daily Business Report, 2022). The supermarkets are increasingly penetrating into the space leading to reduced profits for the informal retailers. Despite the ability to dominate the market, the supermarkets continue to experience challenges like high rental costs, high transportation costs, high inventory costs, competition from foreign investors offering cheap products, unreliable suppliers and high taxation (Makhitha, 2016).

In Ghana, the retail industry is rapidly changing with consumers moving from informal (open market) to formal (supermarkets) retail sector (Fekpe & Vans Bray, 2015). Mcternan (2014) revealed that even though the retail sector in Ghana was huge, the informal sector accounted for the biggest percentage leaving the formal sector with very limited space. It further explained that 69 percent of consumers were buying from the street markets, 26 percent from street vendors and only 17 percent bought from the supermarkets. The major challenge that supermarkets in Ghana are experiencing, is ~~too~~ the long supply lead times that result from unreliable suppliers leading to frequent stock outs (Fekpe & Vans Bray, 2015).

In Tanzania, the retail industry is seen to be experiencing expansion opportunity as a result of political stability, population growth, increase in middle class income as well as increase in the country's GDP (Katemi, 2019). However, despite the existence of conducive environment, the industry is facing several challenges such as competition

from new entrants, unfavorable government policy, limited access to finances, lack of local supplies, high cost or rentals and taxation (Katemi, 2019).

In Uganda, the rapid growth of supermarkets can be associated ~~to~~ with favorable investment environment due to the rising urbanization, increase in middle class consumers and the increase in number of employed women (Elepu, 2006). The retail industry had also attracted foreign supermarket chains like: Metro Cash and Carry; Shoprite and Game from South Africa; and Uchumi and Nakumatt from Kenya, exerting competition on the local supermarkets (Elepu, 2009). Generally Ugandan supermarkets source most of their food products from global suppliers who are reported to be unreliable, as they tend to operate under unpredictable supply lead times due to bureaucratic management of local food supply chains and cross border requirements. Another challenge of global sourcing is that the suppliers only operate on cash basis as opposed to local suppliers who extend credit facilities (Elepu, 2009).

Kenya is the economic, commercial, financial and logistics hub of the East African region (Africa Business Pages, 2022). Its strategic positioning between the Indian Ocean ~~port~~ and its neighboring countries has made the country a focal point of the East African economies (Africa Business Pages, 2022). With a population of around 56 million people and 75 per cent of the population being between the age of 18 and 35 (Africa Business Pages, 2022) the country offers a huge human capital base as well as an all-encompassing consumer market for products and services. The retail sector is among the six key sectors expected to drive GDP growth and increase formal employment significantly under

Kenya's vision 2030 (Lema, 2023). In Kenya the retail industry is composed of both informal and small-scale outlets (kiosks and street vendors) and formal (supermarkets) retail chains. Kenya's retail market is the second largest in Eastern and Southern Africa after South Africa (Joyce, Willy, Kimani & Flora, 2017). Reardon et al. (2005) attributed the growth of Kenyan supermarkets to the growing population, increased urbanization, ever-growing middle class and vibrant financial market (Lema, 2023). Kenya's retail market environment is the most dynamic market in the African region and the sector is characterized with massive entry and exit of players (Chesula & Iravo, 2016). Njoroge (2015) also noted that the retail industry was characterized by massive entry of new investors both locals and foreigners. Kenya's retail sector keeps on attracting foreign supermarket chains; such chains as; Game and Shoprite from South Africa, Choppies from Botswana and Carrefour from France. Within the industry, the multinationals have advantage over the locals because of favorable financial plans in their home countries unlike the hostile environment of high interest rates experienced by local supermarkets. This stiffens competition pushing out the local retailers whose wings barely go beyond the country (Soko Directory 2022).

Supermarket chains are currently having trouble as demonstrated by the collapse of the then giant local supermarkets like Nakumatt, Uchumi and Tuskys with foreign supermarkets opting to exit the industry (Kenya Daily Business Report, 2021). Uchumi was the oldest local supermarket in Kenya, followed by Nakumatt and Tuskys having entered the Kenyan market in 1975,1987 and 1990 respectively (Mwangi, 2018). It took years to penetrate and gain market trust before they dominated the industry around the

year 2000. In 2017, Nakumatt was the largest retail chain in Kenya with 65 branches followed by Tuskys and Uchumi with 36 and 31 branches respectively (Mwangi, 2018). Even though Nakumatt was the market leader, it was struggling to maintain its share of the market as foreign chains like Choppies from Botswana, Shoprite and Game from South Africa, and Carrefour from France entered the market offering relatively cheap products compared to local retail chains (Kariuki, 2018)

As at September 2020, the total number of supermarket outlets dropped from 314 to 189 with the big retailers such as Nakumatt, Tuskys and Uchumi being the losers (Daily Business Report, 2020). The financial constraints due to mounting rental arrears and suppliers' debts let to Nakumatt, once Kenya's largest supermarket chain, lead from behind with closure of all its 65 branches. Naivas and Quickmart capitalized on the weakness to expand their market share. However, due to rapid entrance and stiff competition from foreign retailers Tuskys and Uchumi were already struggling to maintain their market shares (Daily Business Report, 2020). By March 2021, both Uchumi and Tuskys had closed all their branches and exited the market. The Kenya Association of Manufacturers (KAM) reported that the retailers faced debt payment challenges and were not able to pay for fast moving consumer goods (FMCG) within 30 days from the invoice date as was the policy. They were also unable to pay for other goods within 45 days from the invoice date as required (Kenya Daily Business report, 2021). Changing customer demand, stiff competition, political uncertainty~~,~~ unreliable suppliers and rising cost of living are some of the major challenges faced by this sector (Chesula & Iravo, 2016~~; and~~ Lagat, 2011).

South African giant chain, Shoprite entered the Kenyan retail industry in 2018 and by September 2020 had closed all of its four branches citing underperformance of its supermarkets due to stiff competition. Choppies (from Botswana) entered the industry in 2015 by acquiring the already struggling Ukwala supermarket that had 12 branches by then and by 2020 had exited the Kenyan market (Daily Business Report 14th December, 2020). Game Store (from South Africa) entered the Kenyan market in 2015 and December 2022 marked the end of its seven-year struggle in the market, adding to the growing list of local and foreign retailers that have left the industry in the recent years (Daily Business Report 23rd November 2022). According to a report by Cytonn in 2020, the performance of retail sector was likely to be constrained due to Covid-19 that led to increased growing number of consumers buying goods online forcing a consumer shift toward e-commerce thus affecting the demand for physical retail space.

Currently, Kenya's supermarket chain is composed of ten local registered supermarket chains and one foreign supermarket chain. The foreign supermarket is Carrefour. The local supermarkets include Chandarana, Budget, Eastmatt, Maathai, QuickMart, Khetia's, Naivas Limited, Tumaini, Society Stores and clean shelf. Naivas is the largest supermarket in Kenya having 97 outlets, followed by Quickmart with 59 outlets, Chandarana 28 outlets, Carrefour (foreign) 20 outlets, Cleanshelf 14 outlets, Khetias 13 outlets and the rest follow with less than 10 outlets across the country (Kenya Retail Report, 2023). This study will focus on Naivas, Quickmart, Chandarana and Carrefour supermarkets as representatives of Kenya's supermarket chains. The researcher chose to

focus on the supermarkets in the cities because they tend to have complex operations as a result of the heterogeneous composition of the customer profile and the competitive nature of the market environment.

Naivas Food market is headquartered in Nairobi hosting 46 of its branches. Founded 30 years ago, the supermarket dealing in food and non-food grocery has grown to have branches in almost all counties in Kenya. It is a private company owned by the family of the late founder, Peter Mukula Kago, who died in 2010 (The best in Kenya, 2020). Quickmart, privately owned supermarket, is headquartered in Nairobi and was established in 2006 in Nakuru by the late John Kinuthia. The supermarket has grown and now having 53 branches across 13 counties in Kenya. Chandarana food plus supermarket, is a family-owned business, headquartered in Nairobi and was established in 1964 by the late Shantilal Mulji Thakkar. The sons took over the management and the supermarket has expanded to 28 branches across the county. Carrefour is a foreign retail chain headquartered in Messy, France with a managing branch in Nairobi. It has outlets in over 30 countries Kenya being one of them. It joined the Kenyan retail market in 2016 and has grown to have 16 branches in the country. Carrefour is the largest foreign owned supermarket chain in Kenya (Business Daily, Feb 2022).

The supermarkets in Kenya continue to face challenges. For instance, Naivas Supermarket is facing significant challenges, particularly related to high operational costs, including rental expenses and utility bills. To stay competitive against local and international retailers, Naivas has had to continuously innovate, which involves

substantial financial investment (Kenya Retail Report 2023, Cytonn Investments). Additionally, the rise of e-commerce has compelled Naivas to develop its online platform, adding both financial and operational pressures (Kenya Retail Report 2023, Cytonn Investments). Carrefour is also facing supply chain management challenges, including delays and inconsistencies from local suppliers. Moreover, high operational costs and the necessity to adapt to local consumer preferences, which differ significantly from Carrefour's primary markets in Europe and the Middle East, have posed additional difficulties (Mwangi & Ragui, 2023). Quickmart supermarket is struggling with inventory management issues, experiencing frequent stockouts and overstocking of certain items. The retailer also faces intense competition from both local and international chains, which necessitates continuous innovation in customer service and product offerings to maintain its market position (Kimani & Mwangi, 2023). Chandarana supermarket has had to contend with the challenge of maintaining its niche market position amid competition from larger chains. The supermarkets real-time data sharing among suppliers, distributors, and retail locations has been inadequate, causing delays and inventory inaccuracies. Disjointed planning processes further exacerbated these issues, with suppliers and the supermarket making independent decisions, leading to inefficiencies such as stock-outs or excess inventory. Additionally, such slow response to market changes hampered its competitiveness (Kimani & Mwangi, 2023). Misaligned supply chain incentives among supply chain partners created further challenges. This was evidenced in situations where Chandarana targeted to optimize inventory and reduce its costs, while suppliers, instead, often prioritized maximizing order quantities, leading to conflicts. The inherent incentive structures did not seem to support overall supply chain

efficiency, as suppliers were incentivized based on order volumes rather than service levels or order accuracy (Otieno, 2023). Additionally, the high cost of importing specialty goods has affected its profitability (Otieno, 2023). Chandarana supermarket thus had to addressing these issues by looking at ways to implement robust information-sharing platforms, synchronizing decision-making processes, and aligning incentives to ensure all partners work towards common goals.

The major concern for the surviving supermarkets is survival strategies and how to remain competitive, relevant and profitable (Ogero, 2020). According to Nyosake (2022), some supermarkets like Naivas and Quickmart are targeting low-income earners while some like cleanshelf operate in small-sized shopfront but strategically located for customer convenience, Carrefour on the other hand targets high-end clients/shoppers as can be seen by the fact that it is only found in the shopping malls. Supermarkets have also chosen to stay away from the manufactured items like radios, televisions, refrigerator and cookers that take too long to sell and instead doing more of fresh vegetables and food that have high turnover. (Business Daily, Februaty 2022). The supermarkets in Kenya have adopted both centralized and decentralized procurement system (Nyosake, 2022). Items like vegetables and food are sourced under framework agreement, which involves an agreement between the supermarket and a supplier on goods delivery as per call, and the managers are accountable for such. The managers prepare and forward quarterly reports of purchases to the headquarter, which is used for paying the suppliers for the value of goods delivered within the period (Nyosake, 2022). For high value items the procurement

is initiated from the headquarter and the procurement officer at the headquarter is accountable for such (Soko Directory, 2022)

Considering such challenges, different businesses have been re-adjusting their supply chain strategies in order to remain competitive. Retail competition has shifted from individual retail outlets to the efficiency of the whole supply chains (Vickery, 2003). Retailers like supermarkets are at the end of the supply chain, interacting directly with consumers hence the need for effective technological tools to enhance supply chain coordination (Marketus & Thedoridis, 2006). Supermarkets appreciate the need for integration and they invest in logistics, distribution centers and inventory management (Nair & Dube, 2015). In the retail industry where products have varying shelf lives, the importance of supply chain integration is critical for performance and survival in a competitive business environment (Fekpe & Vans-Bray, 2015).

1.2 Statement of the Problem

The retail industry, particularly supermarkets, play a vital role in the economy of Kenya. These outlets are not only significant contributors to economic growth but also serve as key pillars to the supply of essential services. The supermarkets are expected to provide seamless experiences for customers by maintaining product availability, product variety, and timely stock replenishment for efficient service delivery. They are also expected to maintain their financial health by balancing between service delivery and generating more revenues than their expenditures to ensure positive profit margin. However, the supermarkets are faced with challenges that significantly affect their service delivery and

profitability raising questions about their ability to meet expected performance levels (Draup, 2023). The supermarkets continue to face challenges of low profit margin, lack of product variety, suppliers' uncertainty, frequent stock-outs, consumer complexity, high operational costs and increasing competition, particularly from the rise of online shopping, which adds layers of uncertainty to traditional brick-and-mortar retail (Draup, 2023).

Over recent years, Kenya's retail sector witnessed the collapse of major supermarket chains that once led to increased sales volume and branch presence. This downturn has sparked anxiety, eroded loyalty, and undermined confidence among lenders, suppliers, and customers (Macharia, 2016). Stakeholders are therefore closely monitoring the surviving supermarkets, eager to see how they navigate the challenging landscape to remain relevant, competitive, and profitable. The supermarkets are currently operating under uncertainty since the same challenges they are facing are similar to the challenges which made previous supermarket chains exit the market. There is need for the supermarkets to understand how supply chain visibility and flexibility impact on supply chain integration which in turn affect their performance in order to remain competitive in such dynamic environment.

1.3 Broad Objective of the Study

This general objective of the study was to establish the moderating effect of Supply Chain Pillars on the relationship between Supply Chain Integration and Retail Outlet Performance in Kenya.

1.4 Specific Objectives of the study

The specific objectives of this study were to:

i. Determine the effect of Supply Chain Information Sharing on Retail Outlets Performance in Kenya

ii. Establish the effect of Supply Chain Decision Synchronization on Retail Outlets Performance in Kenya.

iii. Establish the effect of Supply Chain Incentive Alignment on Retail Outlets Performance in Kenya.

iv. Examine the moderating effect of Supply Chain Pillars on the relationship between Supply Chain Integration and Retail Outlets Performance in Kenya.

1.5 Research Hypothesis

The following Research Hypothesis guided the study:

$H_0$1: There is no statistically significant effect of supply chain information sharing on Retail Outlets performance in Kenya.

$H_0$2: There is no statistically significant effect of supply chain decision synchronization on Retail Outlets performance in Kenya.

$H_0$3: There is no statistically significant effect of supply chain incentive alignment on Retail Outlets performance in Kenya.

$H_0$4: There is no statistically significant moderating effect of supply chain Pillars on the relationship between Supply chain integration and Retail Outlets performance in Kenya.

1.6 Justification of the study

Supply chain integration (SCI) is crucial for improving efficiency and performance in retail outlets. In Kenya's competitive retail sector, supermarkets like Naivas, Quickmart, Carrefour, and Chandarana must optimize their supply chains to meet demand, cut costs, and stay competitive. While the direct link between SCI and performance is established, the moderating role of supply chain pillars remains underexplored. This study focuses on Kenya's rapidly growing retail sector, where supermarkets face unique challenges, including fluctuating demand and logistical barriers. By examining how supply chain pillars moderate the SCI-performance relationship, the research will provide insights into optimizing supply chains for better efficiency and competitiveness.

1.7 Significance of the study

The research would provide invaluable insights to the academic community, enriching the body of knowledge on Supply Chain Integration (SCI) and retail outlets performance in Kenya, thereby fostering further scholarly inquiry and practical applications in similar contexts. In terms of theoretical advancements, this study would contribute to the framework of supply chain integration by exploring its practical implications within the Kenyan retail sector, broadening the applicability of existing theories. Practically, supermarkets and other retail outlets can implement the recommended strategies to

improve their supply chain processes, enhancing their operational effectiveness and market position.

1.8 Scope of the study

This study focused on Supply Chain Integration (Supply Chain Information Sharing, Supply Chain Decision Synchronization and Supply Chain Incentive Alignment), Supply Chain Pillars (Supply Chain Flexibility and Visibility) and Performance (Profitability and Service Delivery). The research is geographically scoped to include first-tier suppliers, first-tier customers, and supermarkets, with a particular focus on major supermarket chains: Naivas, Quickmart, Chandarana, and Carrefour. These supermarkets are examined across four major cities in Kenya: Nairobi, Kisumu, Mombasa, and Nakuru. The temporal scope of the study spans from the year 2022 to 2024, providing a contemporary understanding of SCI and its effects on retail performance within this period.

1.9 Limitations of the study

The main limitation of the study was that the researcher was not able to incorporate all the supermarkets across the country due to limited time. However, this was taken care of by picking supermarkets that are well established with branches across the country to enhance the representative of the sample to the population under study. The study also adopted stratified proportionate random sampling method to capture a diverse range of perspectives and reduce sampling bias.

The study purely focused on primary data. The reliance solely on primary data may limit the breadth of context that could be obtained from secondary data sources. However, this was taken care of by collecting robust, comprehensive and reliable data through the use of well-structured questionnaires that were compelled to expert validation to enhance the reliability and validity of the data collection instruments.

2.0 Assumptions of the study

The study assumed that respondents gave true, relevant, open and honest information that enabled the researcher draw accurate conclusions. This study also assumed that there existed a close alignment and coordination between supermarkets in Kenya and their first tier Suppliers and customers.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter presents relevant literature reviews; theoretical, conceptual and empirical. The theoretical review shows the relevant theories that informed the study. In the empirical literature review, the findings are criticized to bring out the knowledge gaps. Conceptual review informed the choice of study variables.

2.1 Theoretical Review

Theoretical review anchors the study on acceptable theoretical foundations by informing the choice of relevant variables and analytical frameworks. This study was anchored on Competitive Advantage Theory, Network Perspective Theory and Innovation Theory of profit.

2.1.1 Competitive Advantage Theory

The theory of competitive advantage was first proposed by Michael Porter in 1985 as a reaction to the classical theories of comparative advantage that focused on nations. Porter's theory argues that competitive advantage occurs when a nation or firm develops attributes that allow it to outperform its competitors. These attributes can include access to natural resources, skilled personnel, and strong relationships with business partners. Porter (1985) initially used this theory to explain why certain nations are more competitive in specific industries on a global scale. As the theory evolved, it became applicable to individual firms, emphasizing that an organization can achieve competitive

advantage through two primary strategies: cost advantage and differentiation advantage. Cost advantage involves offering products or services at a lower cost than competitors, while differentiation advantage involves providing unique benefits that are valued by customers and not easily replicated by competitors (Grant, 2008). This theory is the most ideal theory for this research since supply chain integration aims to enhance retail outlets performance by reducing cost, creating product value and improving operational efficiency, all of which are components of competitive theory. The supermarkets' ability to differentiate and gain an edge over competitors align directly with this theory.

In the context of Kenyan supermarkets, such as Naivas, the application of competitive advantage is crucial. These supermarkets strive to optimize costs, increase profit margins, enhance product variety, and ensure timely stock replenishment. By closely aligning and coordinating with supply chain partners, supermarkets can enhance efficient information sharing, joint decision-making, and sharing of costs and benefits. For instance, Naivas could benefit from importing products from other countries, applying Porter's principles to maintain a competitive edge through both cost leadership and differentiation in the local market. The retail outlets would use Porter's competitive advantage framework to navigate the complexities of the retail market in Kenya. The focus on building strong relationships with suppliers, investing in skilled personnel, and leveraging economies of scale would help Naivas to reduce operational costs and offer competitive pricing. Simultaneously, by differentiating through product variety and quality, the supermarkets can attract a broader customer base, ensuring their market position remains robust against both local and international competitors. Therefore, if used well, the theory of

competitive advantage, which was initially intended to explain national competitiveness, would be effectively adapted to firm-level strategies. This adaptation would eventually leverage both cost and differentiation strategies to enhance the supermarkets' competitive positions in the retail market.

The strength of this theory is based on the fact that as business compete to gain competitive advantage, they are motivated to innovate and strive for higher standards hence improved service delivery. However, despite its widespread acceptance and application, it is not without its critiques. One significant critique is its overemphasis on cost leadership and differentiation as the primary strategies for achieving competitive advantage. Critics argue that this binary approach may be too simplistic and does not fully capture the complexity of modern competitive environments. Firms often need to employ a combination of strategies or adopt hybrid approaches to remain competitive (Barney, 1991; Mintzberg, 1988). Furthermore, the theory is sometimes viewed as static, focusing on achieving a stable competitive position. In dynamic and rapidly changing markets, the ability to continuously innovate and adapt may be more critical than maintaining a specific competitive position. This critique suggests that Porter's model may be less relevant in industries characterized by rapid technological change and evolving consumer preferences (D'Aveni, 1994).

Another critique pertains to the assumption that all firms have equal access to resources required to achieve cost leadership or differentiation. In reality, resource availability can be highly uneven, influenced by factors such as geographical location, existing

infrastructure, and the regulatory environment. This can limit the applicability of the theory across different contexts, particularly in less developed markets where firms may face significant resource constraints (Prahalad & Hamel, 1990). Moreover, the theory does not sufficiently account for the role of digital transformation and the internet in reshaping competitive dynamics. The rise of digital platforms, big data analytics, and artificial intelligence has introduced new dimensions to competitive advantage that go beyond traditional cost and differentiation strategies. Firms that leverage digital technologies can create entirely new value propositions and disrupt established industries; a phenomenon not adequately addressed by Porter's original framework (Evans & Wurster, 1999).

In the context of Kenyan supermarkets, while Porter's theory provides a useful starting point for understanding competitive dynamics, it may need to be adapted to account for local market conditions and the specific challenges faced by retail businesses in Kenya. Factors such as supply chain inefficiencies, import costs, and the need for technological adoption are critical considerations that may not be fully addressed by the traditional competitive advantage framework. Therefore, while Porter's theory remains influential, its application must be nuanced and supplemented with additional insights to remain relevant in today's complex and dynamic business environment. Competitive advantage theory is therefore relevant to this study given that supermarkets are integrating their supply chain networks in an attempt to remain relevant and acquire competitive advantage in the retailing industry.

2.1.2 Network Perspective Theory

Network Perspective Theory, attributed to Jacob Moreno in 1930, marks a significant advancement in understanding social dynamics through the creation of socio-grams, which visually map interpersonal relationships (Scott & Carrington, 2011). Moreno's pioneering work laid the foundation for analyzing how social actors, referred to as nodes, interact through various forms of ties or edges. These nodes can represent individuals, groups, or organizations, and the connections between them can encompass a wide range of interactions, including communication, collaboration, and influence. The theory underscores the importance of these networks in shaping the behavior and performance of both individuals and organizations. By examining the structure and quality of these relationships, organizations can gain insights into the flow of information and resources, the formation of social capital, and the mechanisms of influence and support within their workforce (Wasserman & Faust, 1994). This understanding is crucial for fostering environments where knowledge sharing and innovation thrive, thereby enhancing organizational success.

From a practical standpoint, Network Perspective Theory enables organizations to identify key players or central nodes within their networks. These central nodes often hold significant influence due to their extensive connections and ability to bridge different parts of the network. Recognizing these individuals or groups can help organizations facilitate better communication, streamline processes, and enhance collaboration across departments (Borgatti & Halgin, 2011). Furthermore, understanding the network dynamics can assist in detecting potential issues such as bottlenecks or

information silos, which can hinder organizational efficiency and effectiveness. In the context of modern organizations, this theory is particularly relevant given the increasing complexity of organizational structures and the importance of collaborative work environments. The rise of digital communication tools and virtual teams has expanded the scope of network analysis, allowing for more sophisticated and real-time assessments of social networks (Cross, Parker, & Borgatti, 2002). Organizations can leverage these insights to design interventions that promote a more inclusive and connected workplace culture, ultimately driving better performance and employee satisfaction.

By applying Network Perspective Theory, organizations can also better manage their external relationships with stakeholders, including customers, suppliers, and partners. Understanding the broader network in which the organization operates can provide strategic advantages, such as identifying new opportunities for collaboration and innovation or anticipating market trends and shifts (Kilduff & Tsai, 2003). Overall, Network Perspective Theory offers a comprehensive framework for analyzing and enhancing the complex web of relationships that underpin organizational life. By appreciating the interconnected nature of social actors and their interactions, organizations can cultivate robust networks that support their strategic goals and foster a culture of continuous improvement and innovation.

Network Perspective Theory, while influential and widely applied, is not without its critiques. One primary critique revolves around its complexity and the challenges it

poses in practical application. The theory requires sophisticated methods for data collection and analysis, such as Social Network Analysis (SNA), which can be resource-intensive and demanding in terms of expertise (Borgatti & Halgin, 2011). This complexity can limit its accessibility and usability for organizations with limited resources or technical capabilities. Another critique focuses on the potential for oversimplification in the representation of relationships. While socio-grams and network diagrams can effectively visualize connections, they may not fully capture the depth and quality of interactions between nodes. This can lead to an incomplete understanding of the dynamics within a network, as the strength, context, and nuances of relationships are difficult to represent quantitatively (Kilduff & Brass, 2010). Furthermore, the theory tends to emphasize the structural aspects of networks over the content and quality of interactions. This structural focus might overlook the importance of individual attributes, motivations, and the broader context within which interactions occur (Uzzi, 1997). For instance, two nodes may be connected, but the nature of their relationship whether cooperative, competitive, or neutral can significantly affect the outcomes of their interactions.

Critics also argue that the theory may not adequately address the power dynamics within networks. The theory often assumes that all nodes have equal ability to form ties and benefit from the network, which is rarely the case in reality. Power imbalances, resource disparities, and hierarchical structures can significantly influence how networks function and how benefits are distributed among participants (Brass & Burkhardt, 1992). Moreover, the theory's focus on network ties might obscure the role of external factors

and broader systemic issues that impact organizational success. Factors such as market conditions, regulatory environments, and technological changes can play crucial roles in shaping network dynamics but are not always adequately considered within the framework of Network Perspective Theory (Provan & Kenis, 2008). Lastly, while the theory is highly effective in explaining knowledge sharing and collaboration, it may not fully account for the competitive aspects of inter-organizational networks. Organizations often engage in both cooperative and competitive interactions simultaneously, and balancing these dual objectives can be complex. The theory thus tends to focus more on the cooperative elements, potentially underestimating the challenges and conflicts that arise from competition within networks (Gulati, Nohria, & Zaheer, 2000). The theory is relevant to this study because the retail outlets, being at the end of supply chain that is made up of different ties of networks, depend on both upstream and downstream information sharing to be able to offer adequate services to the end users hence the important role of social network.

2.1.3 Innovation Theory of Profit

The Innovation Theory of Profit, proposed by Joseph A. Schumpeter in 1930, posits that entrepreneurs can earn economic profits through the successful introduction of innovations. Schumpeter defines innovation as any initiative that an entrepreneur undertakes to reduce operational costs or increase product demand (Röpke & Trullén, 2023). Innovations aimed at reducing operational costs might include the adoption of new production methods or techniques, the introduction of new machinery, or the implementation of innovative organizational methods. For instance, streamlining

production processes or automating parts of the supply chain can significantly reduce costs and improve efficiency. Conversely, innovations designed to boost demand involve activities such as launching new products, enhancing product quality, opening new markets, sourcing new raw materials, and introducing new designs or varieties of existing products. An example of this might be a supermarket introducing a new range of organic products or expanding its reach by opening stores in underserved areas, thus attracting new customer segments.

According to Schumpeter’s theory, an entrepreneur's profits are contingent upon the success of these innovations in either reducing costs or increasing demand. However, these profits tend to diminish over time as competitors replicate the innovation, thereby eroding the entrepreneur's temporary monopoly. This phenomenon highlights the transient nature of competitive advantage in a dynamic market environment. The theory also does not account for the element of uncertainty and other external factors that can influence profit margins, such as market fluctuations, regulatory changes, or broader economic conditions. In the context of supermarkets, this theory is particularly relevant. Supermarkets constantly strive to innovate both in reducing operational costs and increasing demand. Cost reduction strategies might include close alignment and coordination with suppliers through efficient information sharing, joint decision-making, and sharing the costs and benefits of integration. By improving supply chain efficiency, supermarkets can reduce waste, lower costs, and enhance profitability (Christopher, 2016). Simultaneously, supermarkets seek to increase demand by diversifying their product offerings and ensuring timely stock replenishment. For

example, offering a wider variety of products, including specialty and imported goods, can attract different customer demographics and drive higher sales. Additionally, maintaining optimal stock levels prevents stock-outs and overstocking, ensuring customer satisfaction and loyalty (Kotler & Keller, 2016). This theory's application in the retail sector, particularly in supermarkets, underscores the importance of continuous innovation to maintain competitive advantage and profitability. As supermarkets in Kenya strive to enhance their market position, they adopt both cost-saving and demand-increasing innovations. This dual approach not only helps in managing operational efficiency but also in catering to evolving consumer preferences, thus driving sustainable growth.

In an attempt to increase the profit margin, the supermarkets are striving to reduce their cost of operation by adopting close alignment and coordination with suppliers through information sharing, joint decision making and sharing costs and benefits that come along with integration. The supermarkets also strive to increase demand by having variety of products to choose from and ensuring timely stock replenishment. This theory is therefore relevant to this study since it provides the cornerstone in the understanding of entrepreneurial profits and economic development and so informs the dependent variables of profitability and service delivery.─However, despite its widespread influence, the theory has been a subject to several critiques. One significant critique is its inherent assumption that innovation is the primary driver of profits. While innovation can indeed lead to temporary monopolies and higher profits, this perspective overlooks other critical factors that can influence profitability, such as market conditions,

regulatory environments, and macroeconomic factors (Baumol, 1993; Nelson & Winter, 1982).

Moreover, Schumpeter's theory tends to idealize the role of the entrepreneur, portraying them as almost heroic figures who drive economic progress solely through their innovative actions. This view can be overly simplistic as it fails to account for the collaborative nature of innovation, where multiple stakeholders, including employees, suppliers, and even consumers, play crucial roles in the innovation process (Von Hippel, 2005). Additionally, the theory assumes that competitors will eventually imitate successful innovations, thereby eroding the innovator's profit. However, this imitation process is not always straightforward and can be influenced by various factors such as intellectual property rights, the complexity of the innovation, and the speed of technological advancement (Teece, 1986). The theory also does not adequately address the element of uncertainty and risk inherent in innovation. Not all innovations lead to success; many fail, leading to financial losses rather than profits. This aspect of innovation introduces significant variability that Schumpeter's theory does not fully encompass (Dosi, 1988). Furthermore, the theory's focus on innovation as a profit driver may undervalue other strategic approaches such as operational efficiency, customer relationship management, and strategic alliances, which can also significantly impact a firm's profitability (Porter, 1985). In the context of modern supermarkets, such as those in Kenya, the application of Schumpeter's theory can be seen in efforts to reduce operational costs and increase demand through innovation. However, these enterprises also face challenges such as supply chain disruptions, fluctuating market demands, and

regulatory hurdles that the theory does not fully account for. Thus, while the Innovation Theory of Profit provides valuable insights into the role of innovation in driving profits, it must be considered alongside other theories and factors to fully understand and navigate the complexities of modern business environments.

2.2 Conceptual Review

A conceptual review is a type of scholarly article that synthesizes and critically evaluates the existing literature on a particular concept or theory (Torraco, 2005). It aims to clarify definitions, highlight theoretical frameworks, identify gaps in the current understanding, and propose future research directions (Torraco, 2005). Conceptual reviews are essential for advancing theoretical knowledge and guiding empirical research by providing a comprehensive understanding of a concept's development and its application in various contexts. According to Torraco (2005), a conceptual review, thus, "synthesizes past research by tracing the development of a concept, explaining the various ways in which the concept has been defined and applied, and proposing new frameworks or models based on the synthesis of the literature" (p. 356). Similarly, Webster and Watson (2002) emphasize that a good conceptual review "creates a firm foundation for advancing knowledge, facilitates theory development, and closes areas where a plethora of research exists but where there are no clear answers." In the context of this study which sought to establish the moderating effect of supply chain pillars on the relationship between supply chain integration and retail outlets performance in Kenya, the concepts of concern are Supply Chain Integration, supply chain information sharing, supply chain decision synchronization, supply chain pillars, and retail outlet performance.

2.2.1 Supply Chain Integration

Supply chain integration has three independent variables: internal integration, supplier integration and customer integrations (Tutuncu & Kucukusta, 2007). In the recent past, scholars have adopted dimensions such as internal integration and external (customers and suppliers) integration in making contribution on the relationship between SCI and firms' performance (Stevens & Johnson, 2016). Internal integration relates to cross-functional collaboration with the aim of having full visibility of information, products and process in order to meet the customer and organizational goal (Flynn, Huo & Zhao, 2010; Zhao, Kumar, Harrison & Yen., 2011). On the other hand, external integration relates to both upstream and downstream processes of the organization with the aim of enhancing visibility from one end of the supply chain to the other end within the supply chain network including customer and supplier integration (Flynn et al., 2010). Supplier integration involves collaboration, coordination and information sharing activities between the firm and its suppliers with the aim of synchronizing the firm and vendors' processes (Narasimhan, Swink & Viswanathan, 2010; Schoenherr & Swink, 2012). Customer integration involves sharing strategic data, collaborating and coordinating processes between the firm and customers with the main aim of improving insights into market expectations and opportunities (Schoenherr & Swink, 2012).

Simatupang (2014) used SCI to mean collaborative system, information sharing, decision synchronization, incentive alignment and integrated supply chain processes. Ataseven and Nair (2017) used internal integration to mean teamwork, decision synchronization, routine meetings, cross-functional teams and the utilization of enterprise resource

planning systems. Tuazama Jr. (2015) used SCI to mean customer relationship, information sharing and postponement. According to Khanunja and Jain (2018), SCI meant information sharing, process coordination and strategic alliance. Lauschner, Rodgers and Charvet (2013) used SCI to mean information Sharing, decision synchronization and relation integration. Cao and Zhang (2011), Doganay and Ergon (2017) and Lebedeva (2017), used supply chain integration to mean information sharing, decision synchronization, goal congruence, Incentive alignment and joint knowledge sharing. Chakraborty, Bhattacharya, and Dobrzykowski (2014) and Fayezi and Zomorrodi (2015) used SCI to mean incentives alignment, information sharing and decision synchronization. Maat, Vaart and Hollenbeck (2020) used SCI to mean information sharing, internal integration, external integration, agility and alignment. The current study adopted SCIS, SCDS and supply chain incentive alignment as the dimensions for measuring SCI since they were the commonly used metrics across the past scholars.

2.2.2 Supply Chain Information Sharing:

Fawcett et al., (2014) noted that information sharing enables supply chain partners to access real time information on inventory levels, sales forecast, delivery schedule and order status thereby allowing smooth flow of such information up to manufacturers to respond accordingly. According to Wang (2002) when suppliers fulfill orders in time, Customers get satisfied and loyalty is improved. Information sharing plays an important role in inventory management leading to supply chain flexibility, customer loyalty, repeat purchases and reduced inventory returns due to improved quality (Eckert, 2007; Wang,

2007). Effective information sharing promotes mutual understanding between supply chain partners thereby reducing miscommunication, unnecessary mistakes and transaction costs across the supply chain (Frohlich & Westbrook, 2002; Lee & Whang, 2004; Wu et al., 2006).

Baihagi (2013) used information sharing to mean information quality, accuracy, timely and integrated information technologies. Fawcett et al., (2014) used information sharing to mean connectivity and willingness of supply chain partners. According to Marinangi, Trivella and Rekilitis (2013), information sharing meant information quality. Ali (2020) used information sharing to mean information quality, technologies and information type. Qrunfleh and Tarafdar (2013) used information sharing to mean flexibility and efficiency. Keitany (2019) used SCIS to mean adequacy, reliability, timely, consistency and quality of information shared. This study adopted accuracy, reliability and timely information as the dimensions for measuring SCIS since they were the commonly used metrics across the past scholars.

2.2.3 Supply Chain Decision Synchronization:

Supply chain decision synchronization (SCDS) is a critical aspect of supply chain management that focuses on aligning and harmonizing decisions across the various entities involved in the supply chain to improve efficiency and performance (Berut, 2020). The concept of decision synchronization involves several dimensions, including joint planning, goal congruence, joint improvement, joint demand forecasting, and joint implementation. These dimensions facilitate coordinated efforts and shared objectives

among supply chain partners, ultimately leading to better overall outcomes. Berut (2020) defined decision synchronization as encompassing joint planning, joint decision-making, and joint resolution. This perspective highlights the importance of collaborative efforts in making strategic decisions and resolving issues that arise within the supply chain. Joint planning involves the coordinated development of plans and strategies, ensuring that all partners are aligned in their objectives and approaches. Joint decision-making emphasizes the collaborative aspect of making key decisions that affect the entire supply chain, ensuring that all stakeholders have a say in the process. Joint resolution focuses on resolving conflicts and problems collectively, leveraging the diverse perspectives and expertise of all partners.

Keitany (2019) expanded the concept of SCDS to include joint planning, goal congruence, joint improvement, and joint demand forecasting. Goal congruence refers to the alignment of objectives and goals among supply chain partners, ensuring that all entities work towards common outcomes. Joint improvement involves collaborative efforts to enhance processes and practices within the supply chain, promoting continuous improvement and innovation. Joint demand forecasting emphasizes the importance of working together to predict and plan for future demand, reducing uncertainties and improving the accuracy of supply chain operations. Doganay and Ergon (2017) also contributed to the understanding of SCDS by defining it as involving joint planning, joint goals, and joint implementation. Joint goals reiterate the importance of shared objectives among supply chain partners, while joint implementation focuses on the coordinated execution of plans and strategies. This dimension ensures that all partners are

synchronized in their actions and efforts, leading to more effective and efficient supply chain operations.

The current study adopted joint goals, joint planning, and joint implementation as the key dimensions for measuring SCDS since the they were the commonly used metrics across the past scholars.

2.2.4 Supply Chain Incentive Alignment

Narayanan and Raman (2004) noted that incentive alignment have a direct impact on the performance of the entire supply chain. Lack of incentive alignment among chain partners may lead to inaccurate forecast, too much inventory, frequent stock-outs and poor customer service. Norrman and Naslund (2019) used supply chain incentive alignment to mean cost, risk and reward sharing. Igwe, Robert and Chukwu (2016), Maat, Setiawan and Rahayu (2020) as well as Simatupang and Sridharan (2005) used SCIA to mean cost, risk and benefit sharing among supply chain members. The current study adopted cost sharing, risk sharing and benefit sharing as the dimensions for measuring SCIA since they were the commonly used metrics across the past scholars.

2.2.5 Supply Chain Pillars

According to Holcomb and Hitt (2007), supply chain pillars refer to the foundational elements that support and enhance the efficiency and effectiveness of supply chain operations. Two critical pillars of modern supply chains are supply chain visibility and supply chain flexibility (Sodhi & Tang, 2012). These pillars play a crucial role in

ensuring that supply chains can respond effectively to market demands, disruptions, and other challenges. Supply chain visibility refers to the ability to track and monitor all components, processes, and entities within the supply chain in real-time (Sodhi & Tang, 2012). This includes the movement of goods, the status of orders, inventory levels, and the performance of supply chain partners. High visibility allows companies to make informed decisions, anticipate potential issues, and improve overall efficiency. Key aspects of supply chain visibility include real-time data access, end-to-end transparency, and predictive analytics (Christopher, 2016; Holcomb & Hitt, 2007; Sodhi & Tang, 2012).

On the other hand, supply chain flexibility is the ability of a supply chain to adapt to changes and disruptions without significant performance degradation (Stevenson & Spring, 2007). This includes the capability to manage fluctuations in demand, supply shortages, and other unexpected events. Flexibility is crucial for maintaining resilience and competitiveness in dynamic market conditions (Stevenson & Spring, 2007). Key aspects of supply chain flexibility include agility, responsive supply chains, redundancy and buffering, and collaborative relationships (Braunscheidel & Suresh, 2009; Mentzer et al., 2001; Sheffi, 2005; Stevenson & Spring, 2007). Agility refers to the speed and efficiency with which a supply chain can respond to changes, while responsive supply chains are designed to react swiftly to customer needs and market changes. Building redundancy into the supply chain, such as maintaining safety stock and having backup suppliers, provides a buffer against disruptions. Developing strong, collaborative relationships with suppliers and partners enhances flexibility by facilitating better

communication, joint problem-solving, and coordinated responses to changes. One strategy for gaining and keeping a competitive advantage in a dynamic environment where customers are demanding more variety, better quality and service, including both reliability and faster delivery, is to create a flexible organization (Grigore, 2007).

According to Holcomb, Ponomarov and Manrodt (2011), the ability to see from one end of a supply chain to the other end is important for the effective management of supply chain processes involving multiple firms. Brandon-Jones et al (2014) noted that supply chain visibility was an important tool to organization capability and that supply chain connectivity and information sharing can be combined to create supply chain visibility. Wei and Wang (2010) argued that supply chain visibility enhanced organizations agility. Visibility in the supply chain is a pre-meditated practice for the enhancement of supply chain performance (Francisco & Swanson, 2018). Liu et al. (2005) defined supply chain flexibility as the willingness and ability of suppliers to quickly respond to changes in demand with a minimal difference in time and cost. Selmosson and Hagstrom (2015) defined supply chain flexibility as the supply chain's ability to be responsive, react and change in order for the organization to meet market demand changes. With flexible supply chains, firms are able to adapt effectively to disruptions in supply and changes in demand while maintaining customer service levels and shareholder's returns thereof (Stevenson & Spring, 2007). According to Merschmann and Thonemann (2011), supply chain flexibility is also widely seen as one major response to the increasing uncertainty and competition in the marketplace. That is to say a firm with a flexible supply chain is likely to improve on their competitiveness, survive and grow its market share. This study

adopted visibility and flexibility as the dimensions for measuring SCP since they were the commonly used metrics across the past scholars.

2.2.6 Retail Outlets Performance

Performance can be measured in terms of productivity, efficiency or effectiveness (Scotti, 2004). Performance is a set of metrics used to quantify the efficiency and effectiveness of supply chain processes and relationships (Maestrini, Luzzini, Maccarrone & Caniato, 2017). Chen, Paulraj and Lado (2004) noted that a firm's performance can be expressed as financial or operational performance. Performance can also be expressed in terms of flexibility, cost, service delivery and quality (Krause, Robert & Beverly, 2007). Total supply chain performances measures are customer satisfaction, supply chain response time, reduction in inventory cost and assets utilization (Simatupang & Sridharan, 2005). Omari (2019) used performance to mean profits, lead time, product mix and recordable accidents. Berut (2020) used performance to mean competitive advantage, market share, profitability and client satisfaction. Pagh and Cooper (2008) used measures such as lead time, inventory turnover, product return, sales level, cost reduction and meeting customers' requirements to mean operational performance. Keitany (2019) used supply chain performance to mean customer satisfaction, quality products, timeliness, effectiveness, growth and productivity. Qrunfleh and Tarafdar (2013) considered market share, return on investment, profit margin and competitive position in measuring performance. Kang and Moon (2016) considered reduced lead time, Cost reduction and Product quality in measuring supply chain performance. Cao and Zhang (2011) considered cost reduction, response rate, resource and innovation while measuring supply

chain performance. The current study will adopted profitability (cost reductions, profit margin and sales volume) and service delivery (inventory turn-over, stock-out reductions and product variety enhancement) as the dimensions for measuring retail outlets performance since they were the commonly used metrics across the past scholars.

2.3 Empirical Review

The section critically reviews the existing studies with the view to identifying the researchable gaps with respect to SCIS, SCIA, SCDS and SCP.

2.3.1 Supply Chain Information Sharing and Retail Outlets Performance

Osei and Kagnicioglo (2018) conducted a study that sought to establish the impact of supply chain information sharing retail outlets performance in Turkey. The study focused on supermarkets and wholesale markets. The study adopted cross-sectional research design with stratified random sampling. Performance was measured in terms of cost reduction, lead time, product availability and profitability. The target population was 8545 retailers and the sample size was 216. Questionnaires were administered through drop and pick and email. Data was analyzed by structural equation modelling. From the findings, supply chain information sharing had a positive impact on retail outlets performance in Turkey. However, the study only considered independent variable and dependent variable without any third variable. The current study sought to consider a third variable, supply chain pillars, and establish its moderating effect on the relationship between supply chain information sharing and retail outlets performance in Kenya. The current study also sought to use logistic regression as opposed to structural equation

modeling since it is simpler to understand and interpret, with coefficients that can be directly translated into odds ratios and can easily incorporate multiple independent variables and interaction terms (Smith 2020)

Baihaqi and Sohal (2013) conducted a study that sought to determine the impact if SCIS on organizational performance of manufacturing firms in Australia. The study adopted descriptive research design. The independent variables were information technologies, information quality and cost of benefit sharing. Performance was measured in terms of cost and delivery. Target population was 1510 manufacturing firms. Census was adopted. Respondents were purposively sampled. Primary data was collected through mail and internet surveys. Out of 1510 questionnaires sent, only 150 were returned, resulting to 9.9 percent response rate. Data was analyzed by structural equation modeling. From the findings it was revealed that information sharing is not directly related to organizational performance and that it is insufficient by itself to bring about a significant performance improvement. However, the response rate was below the recommended 60 percent by Fincham (2008) meaning it underreported the focus of the research. The low response rate is attributed to mailing and internet surveys. The study suffers non response bias error of 91 percent, lowering the validity and reliability of the findings. This creates a methodological gap for similar studies to ascertain the impact of information sharing on performance. The current study sought to establish the effect of SCIS on retail outlets performance, adopting drop and pick mechanism which emphasizes on social exchange and can yield a response rate of 60-70 percent (Dillman 2000). The current study also sought to use logistics regression as opposed to structural equation modelling which

according to smith (2020), is simpler to understand and interpret, with coefficients that can be directly translated into odds ratios and also can handle smaller sample sizes more effectively than SEM, which often needs larger samples for reliable estimates.

Margahana, Santoso and Hadiwidjojo (2019) conducted a study that sought to determine the effect of information sharing on supplier performance of retailers in Indonesia. The study adopted cross-sectional research design. Population of the study was 110 retailers. Census was adopted. Primary data was collected through questionnaires. Data was analyzed by multiple regression model and path analysis. From the findings, information sharing had a positive effect on performance. However, in this study performance was limited to suppliers' performance while the current study focused on the buyer's (supermarkets) performance by looking at profitability and service delivery.

Marinagi, Trivella and Rklitis (2013) conducted a study that sought to establish the effect of information sharing on supply chain performance of manufacturing firms in Greece. The study adopted cross-sectional research design with structured questionnaires to collect primary data. The target population was 200 manufacturing firms. Census was adopted. In the field, respondents were randomly sampled. Data was analyzed by multiple linear regression analysis. From the findings, information sharing had a positive effect on supply chain performance. The study recommended similar studies to be conducted in other sectors apart from manufacturing to compare and ascertain the findings. Based on the recommendation, the current study sought to establish the effect of SCIS on performance with respect to retail sector.

In 2017, Mashiloane, Mafini, and Pooe conducted a study focusing on the correlation between information sharing and the supply chain performance of manufacturing firms based in South Africa. Their research employed a cross-sectional design, targeting a population of 600 manufacturing firms using a census approach. Purposive sampling was utilized for data collection, employing closed-ended questionnaires as the primary method. Analysis was conducted using descriptive statistics and structural equation modeling. The results indicated a positive association between information sharing and the supply chain performance of South African manufacturing firms. The study suggested that future research should explore additional collaborative factors and their impact on performance across various sectors. Building on this recommendation, the present study aimed to investigate the combined influence of information sharing, decision synchronization, and incentive alignment on the performance of retail outlets in Kenya. The current study also sought to use logistic regression as opposed to structural equation modeling since it is simpler to understand and interpret, with coefficients that can be directly translated into odds ratios and can easily incorporate multiple independent variables and interaction terms (Smith 2020)

According to Kang and Moon (2016), Information sharing was positively related to SCI and had positive impact on supply chain performance of manufacturing companies in South Korea. This was based on the result of a study that sought to establish the impact of information sharing on supply chain performance of manufacturing firms in South Korea. The study was anchored on resource-based view and dynamic capabilities theories. Cross

sectional research design was adopted. The population of the study was 600 manufacturing firms. Census was adopted hence sample size was 600. One respondent from each firm was purposively sampled for data collection. Mailed Questionnaires were used to collect primary data. Out of 600 questionnaires sent out, only 131 were returned and 121 were usable hence 22 percent response rate. Despite the low response, which could have resulted from mailing the questionnaires which increases non-response rate (Dillman 2000; Groves & Cooper 1998), the researchers went ahead to analyze data by partial least square method. According to Fincham (2008) response rate below 50 percent lowers the reliability and validity of study findings. This creates a gap for similar studies to ascertain–the findings of this study. The current study sought to bridge the gap by adopting drop and pick data collection mechanism, which emphasizes social exchange and yield 60-70 percent response rate (Groves & Cooper 1998), while establishing the effect of SCIS on retail outlets performance in Kenya.

Namegembe et al. (2012) conducted a study that sought to examine the relationship between information sharing and customer satisfaction on manufacturing firms in Uganda. The independent variables were trust, commitment and information technology. The dependent variables were customer loyalty, repeated purchases and flexibility. The study adopted cross-sectional research design and quantitative approach. The target population was 1544 registered manufacturing firms; sample size was 523. Simple random sampling was used in selecting respondents. Self-administered questionnaires were used to gather primary data that was later analyzed by multiple regression and Pearson correlation analysis. From the findings, information sharing had a positive

relationship with customer satisfaction. However, Performance measurement was limited to customer satisfaction only. According to Kopper and Parry (2002), limited measurement indicators can lead to underreporting or over reporting of the findings hence inaccurate conclusion. The findings of this study may not reflect the real situation in the market therefore creating a gap for similar studies with possibly adequate performance measurements to ascertain the results. The current study sought to increase the metrics for performance measurement by adopting profitability (cost reduction, sales volume and Net profit margin) and service delivery (stock out reductions, inventory turnover and product variety enhancement) while establishing the effect of SCIS on retail outlets performance in Kenya, and compare results.

According to a study by Brenda (2016), a strong relationship existed between information sharing and organizational performance of manufacturing firms in Uganda. This was revealed by research that sought to establish the relationship between information sharing and organizational performance of manufacturing firms in Uganda. The study was anchored on network perspective theory. Information sharing was measured in terms of quality, timely and accurate data shared among supply chain members. Organizational performance was measured by customer satisfaction and profitability. The research was a case study. Population of the study was 110 employees working at crown Beverages Company. Census was adopted hence a sample size of 110. In the field respondents were selected through simple random sampling. The study collected both primary and secondary data by use of structured questionnaires, interviews and published documents. Data was analyzed by descriptive and multiple regression analysis methods. The study

recommended future scholars to consider other sectors apart from manufacturing and compare results. Based on the recommendation, the current study sought to focus on retail sector and establish the effect of SCIS on performance, and compare findings against this study.

Okore and Kibet (2019) conducted a study that sought to examine the influence of information sharing on supply chain performance of tourism industry in Kakamega, Kenya. The independent variables were collaboration and networking while performance was measured in terms of cost minimization, customer satisfaction, flexible customer response and shorter order cycles. The study adopted explanatory research design. The target population of the study was 459 employees. Census was adopted. Closed and open-ended questionnaires were used to collect both qualitative and quantitative data. Data was analyzed by descriptive statistics. From the findings, Information sharing positively influenced the performance of tourism industry. However, descriptive statistics only allows for summation about objects that have been actually measured and such data cannot be generalized to other objects (Moore, McCabe, & Craig, 2021). The findings of this study may not be applicable to populations or settings beyond those specifically examined in this research. This creates a gap for similar studies with analytical models allowing for generalization to give more reliable results. The current study sought to establish the effect of SCIS on retail outlets performance in Kenya, adopting both descriptive statistics and inferential statistics (multiple regression model) that allows for generalization of the findings.

Ali (2020) conducted research that sought to establish the effect of information sharing on supply chain responsiveness of manufacturing firms in Kenya. The study was anchored on systems theory and stakeholders' theory. The independent variables of the study were information quality, information type and information technologies. Supply chain responsiveness was measured in terms of lead times, product quality and reliability. The study adopted descriptive research design. Populations of the study was made up of 27 listed manufacturing firms in Nairobi exchange. The study adopted census hence a sample size of 27. Respondents (supply chain managers, ICT managers) were purposively sampled. Closed –ended Questionnaires were used to collect primary data that was analyzed by descriptive and multiple regression model. From the findings, information sharing had a positive effect on supply chain responsiveness. However, performance was limited to supply chain responsiveness. According to Kopper and Parry (2002), limited measurement indicators can lead to underreporting or over reporting of the findings hence inaccurate conclusion. Hence the need for similar studies with different metrics to ascertain the findings. The current study sought to widen the performance scope by adopting profitability (net profit margin, cost reductions and sales volume) and service delivery (stock out reductions, product variety enhancement and stock turn over) while establishing the effect of SCIS on retail outlets performance in Kenya.

According to a study by Apopa (2018) information sharing had a positive influence on the performance of Government Ministries in Kenya. This was based on the findings of a research that sought to determine the influence of information sharing on performance of

Government Ministries in Kenya. The study was anchored on resource-based theory, coordination theory and system theory. Performance was measured in terms of product quality, service delivery and cost efficiency. It adopted cross-sectional research design. Population was made up 1372 employees working in 20 Government ministries. Sample size was 384. Stratified proportionate random sampling was adopted in selecting respondents. The study collected both primary data and secondary data through structured questionnaires and published journals respectively. The study had both qualitative and quantitative data that were analyzed by thematic content analysis and descriptive together with inferential statistics. Logistic regression was adopted for inferential statistics. The study recommended future studies to consider private organizations and compare results. Based on the findings, the current study sought to establish the effect of SCIS on retail outlets performance with a focus on supermarkets in Kenya which are mostly private entities and results will be compared to those of this study.

2.3.2 Supply Chain Decision Synchronization and Retail Outlets Performance

Armayah et al (2019) conducted research that sought to establish the effect of decision synchronization on the performance of small and medium retail outlets in Indonesia. The study was anchored on network perspective theory. The study adopted descriptive research design. The independent variables of the study were information quality, information sharing, incentives alignment and joint decision making. Performance was measured in terms of profitability and cost reduction. Population of the study was 340 business units in Takalar, Indonesia. Sample size was 110. The study adopted simple random sampling. Primary data was collected through structured questionnaires.

Descriptive and structured equation modelling was used in data analysis. From the findings, decision synchronization had a positive effect on performance. Even though there existed a positive effect between the variables, the study has small sample size. Small sample size reduces the power of the results and reliability of the findings because of larger margin of errors and high standards of deviation (Deziel, 2018). The current study sought to improve on the sample size work with a sample size of 347 while establishing the effect of SCDS on retail outlet performance in Kenya. According to Charlesworth (2022) larger samples provide stronger and more reliable results because they have smaller margins of error and lower standards of deviation. The current study also sought to use logistic regression as opposed to structural equation modeling since it is simpler to understand and interpret, with coefficients that can be directly translated into odds ratios and can easily incorporate multiple independent variables and interaction terms (Smith 2020).

Albishri (2018) conducted research that sought to determine the effect of SCDS on supply chain effectiveness of small and medium firms in Dubai. The study was anchored on network perspective and stakeholder theories. The study adopted explorative research design. Performance was measured in terms of quality, cost, flexibility and service delivery. Population of the study was 152 registered business units in Dubai. Census was adopted. Senior officers and supply chain mangers were purposively sampled for data collection. Self-administered questionnaires were used to collect primary data and later analyzed by structural equation modeling. From the results SCDS positively contributed to the effectiveness of supply chain. According to Etikan, Musa and Alkassim (2016)

purposive sampling is associated with data biasness as the technique is prone to researcher's biasness due to subjective assumption and may not be generalized beyond the actual research subjects. The current study sought to establish the effect of SCDS on retail outlets performance in Kenya by adopting proportionate stratified random sampling which according to Kothari (2004), allows the researcher to obtain a sample size that best represent the entire population under study.

Beihl, Cook and Johnson (2004) conducted research that sought to establish the effect of Joint decision making on Buyer-supplier relationship of manufacturing firms in Canada. The study adopted cross sectional survey design. Target populations was 1094 manufacturing firms registered in Canada. Census was adopted. Mailed Structured questionnaires were used to collect data. Data was analyzed by Data Envelopment Analysis (DEA). From the findings, it was evidenced that joint decision making had a positive effect on the relationship between buyer and supplier. However, DEA may be prone to statistical errors which may cause significant interpretation problems hence may lead to inaccurate conclusions (Charnes, Cooper & Rhodes 1978). The current study sought to adopt logistic regression analytical model which according to Manz and Magalingam et.al. (2017), is considered a sophisticated and well-developed modelling approach to statistical analysis.

Kumar, Banerjee, Meena and Gangulyet (2017) curried out research that sought to establish the role of joint decision making on supply chain performance of small and medium retail outlets in India. The independent variables used were joint planning and

joint problem solving. Performance was measured in terms of flexibility and cost reduction. The study was based on resource-based theory, knowledge-based theory and relational view. The study adopted explorative research design. Population of the study was 812 small and medium retail outlets in India. Census was adopted. Respondents were purposively sampled. Primary data was collected through online email survey. Partial Least Square method was adopted for data analysis. From the findings, joint decision making was critical in improving supply chain performance. According to Etikan, Musa Alkassim (2016) purposive sampling is associated with data biasness as the technique is prone to researcher's biasness due to subjective assumption and may not be generalized beyond the actual research subjects. The current study sought to establish the effect of SCDS on retail outlets performance in Kenya by adopting proportionate stratified random sampling which according to Kothari (2004), allows the researcher to obtain a sample size that best represent the entire population under study.

Doganay and Ergon (2017) conducted a study that sought to establish the effect of SCDS on supply chain performance of public organizations in Turkey. The study was anchored on supply chain network theory. The independent variables were joint planning, joint goals and joint implementation while the dependent variables were Speed of deliveries, volume flexibility and production costs. The study adopted cross sectional research design. Target Population was 1500 public organizations. Census was adopted. Supply chain managers were purposively sampled for data collection. Closed ended questionnaires were emailed to respondents. Data was analyzed by descriptive and multiple regression models. From the findings, SCDS had significant positive effect on

supply chain performance. The study recommended future scholars to consider private organizations since the operation dynamics are different. The current study sought to establish the effect of SCDS on retail outlets performance in Kenya with a focus on Naivas, Quickmart, Chandarana & Carrefour supermarkets which are privately owned and results will be compared.

Keitany (2019) conducted research that sought to determine the effect of SCDS on supply chain performance of manufacturing firms in Nairobi, Kenya. The study adopted cross sectional research design with a population of 714 procurement department employees cross the selected manufacturing firms. Sample size was 256. The study adopted multi-stage sampling technique. Primary data was collected by structured questionnaires. Data was analyzed by multiple regression model. From the findings, SCDS had a positive effect on supply chain performance. However, multi-stage sampling is known to complicate design, increase biased risk, requires accurate sample frames, and raises costs (Valliant, Dever & Kreuter 2018). In contrast, proportionate stratified random sampling (used in current study) divides the population into strata based on characteristics, ensuring representation and precise estimates without hierarchical complexities and higher costs. The current study, thus, sought to adopt proportionate stratified random sampling which according to Kothari (2004), provides better precision of the sample size that best represent the population being studied hence an improvement in conclusion accuracy.

Barasa (2016) conducted a study that sought to examine the contribution of decision synchronization on performance of manufacturing companies in Kenya. The study was anchored on supply chain theory and SCI theory. The study adopted exploratory research design. Performance was measured in terms of customer satisfaction and product quality. Decision synchronization was measured in terms of mutual goals, joint planning and joint forecasting. The target population was 1570. Sample size was 384. Stratified proportionate random sampling was used in selecting respondents. The study collected both primary and secondary data through questionnaires and journals respectively. Data was analyzed by correlation and multiple regression analysis. From the findings of the study, decision synchronization contributed positively to the performance of manufacturing companies. However, a consideration of a third variable to moderate the relationship could improve the significance of the study findings as it would improve the scope of factors interacting to affect performance. The current study sought to establish the moderating effect of SCP on the relationship between SCDS on the retail outlets performance in Kenya.

2.3.3 Supply Chain Incentive Alignment and Retail Outlets Performance

Maat, Setiawan and Rahayu (2020) conducted research that sought to establish the effect of incentive alignment on performance of small and medium business units in Indonesia. The study was anchored on Network perspective theory. The study adopted cost, risk and benefit sharing as measurement dimensions for incentive alignment. Performance was measured in terms of profit growth, sales growth and market share growth. The study adopted both explorative and descriptive research designs. Population of the study was

1355 registered business units in Indonesia. Sample size was 210. Business managers were purposively selected as the respondents. The study collected both primary and secondary data through observations, questionnaires, interviews and documentation techniques. Data was analyzed through descriptive and structural equation modeling techniques. From the findings, incentive alignment had positive effect on the performance of small and medium companies in Indonesia. The study recommended future scholars to consider other collaborative factors and establish their effect on performance. Based on the recommendation, the current study sought to establish the joint effect of incentive alignment, information sharing and decision synchronization on retail outlets performance in Kenya.

According to Norrman and Naslund (2019), incentive alignment is important for both intra and inter organizations. This was according to a study that sought to establish the effect if SCIA on performance of manufacturing and retailing companies in Sweden. The study was anchored on principal agency theory. SCIA was measured in terms of cost, risk and reward sharing. Performance was measured in terms of cost reductions and customer satisfaction. The study adopted both explorative and descriptive research design. Population of the study was 70 companies. Census was adopted. One respondent from each company (supply chain managers) was purposively sampled for the study. Data was collected through online survey. Out of 70 questionnaires sent out, 48 were returned resulting 68 percent response rate. Data was analyzed by descriptive and multiple regression model. However, a consideration of a third variable to moderate the relationship could improve the significance of the study findings as it would improve the

scope of factors interacting to affect performance. The current study sought to establish the moderating effect of SCP on the relationship between SCIA on the retail outlets performance in Kenya.

Tse, Zhang and Jia (2016) conducted a study that sought to establish the effect of supply chain risk and reward sharing on performance of manufacturing companies in India. The study was anchored on agency theory. The independent variables were supplier involvement and task programmability. The study adopted descriptive research design. The target population was 2440 manufacturing companies in China. Census was adopted. One respondent (supply chain manager) was purposively selected for data collection. Structured questionnaires were mailed to respondents. Data was analyzed by Structural Equation Modelling. From the findings, Risk and reward sharing in supply chain positively affect performance quality of manufacturing firms in India. The study recommended future scholars to consider other sectors and compare the findings. The current study sought to fulfill the recommendation by establishing the effect of SCIA on retail outlets performance in Kenya. The findings will then be compared.

According to Igwe et al. (2016), incentive alignment had a positive influence on performance of Brewery firms in Nigeria. The study was anchored on stakeholder theory. The independent variables of the study were risk, cost and benefit sharing while performance was measured in terms of on-time delivery (product availability). The study adopted cross sectional research design. Population of the study was 210 registered brewery firms in Nigeria. Census was used. Stratified proportionate sampling technique

was adopted. Primary data was collected by use of questionnaires. Data was analyzed by Pearson correlation and multiple regression models. However, Stakeholder Theory only focuses on balancing various stakeholder interests and does not directly impact on performance (Donaldson & Preston, 1995; Freeman, 1984). The current study was anchored on Competitive Advantage Theory offers and network perspective theory which gives a more targeted and strategic approach for understanding and maximizing the performance benefits of retail outlets under supply chain integration.

According to Ali et.al (2016) risk and reward sharing had positive influence on small and medium enterprises performance in United Kingdom. This was based on the findings of a research that intended to investigate the influence of incentive alignment on firm performance in United Kingdom. The study was anchored on Resource Dependence Theory. However, the findings were purely based on literature review and is not supported by any empirical review. The study recommended future researchers to consider empirical research on similar topic to ascertain the findings of the study. Based on the recommendation, the current study sought to empirically establish the effect of incentive alignment on retail outlet performance in Kenya, after which the results will be compared to those of this study.

Agango and Achuora (2018) conducted a research that sought to establish the influence of incentive alignment on supply chain performance of health facilities in Nairobi, Kenya. The study was anchored on resource dependence theory. The study adopted cross-sectional survey design. Performance was measured in terms of procurement cost

reduction and customer satisfaction. Population was 201 registered health facilities in Nairobi. Sample size was 134. The study adopted both convenience and stratified random sampling in selecting health facilities and respondents respectively. Structured and unstructured questionnaires were used to collect primary data which was later analyzed by both descriptive statistics and multiple regression models. The study established a positive and significant relationship between incentives alignment and supply chain performance. This study was however based on a direct line relationship which only considers independent versus dependent variables. A consideration of a third variable to moderate the relationship could improve the significance of the study findings as it would improve the scope of factors interacting to affect performance. The current study sought to establish the moderating effect of SCP on the relationship between SCIA and retail outlets performance in Kenya.

2.3.4 Supply Chain Pillars and Retail Outlets Performance

Siagian, Tarigan, Hisada and Jie (2021) conducted a study that sought to establish the mediating effect of supply chain flexibility on the relationship between SCI and performance of manufacturing firms in Indonesia. The study was anchored on Resource Based theory. The independent variables were internal integration, customer integration and supplier integration. The dependent variables were customer satisfaction, product quality, on time delivery and customer satisfaction. The study adopted Quantitative research design. The population of the study was 2000 employees from registered manufacturing firms in Indonesia. The sample size was 492 employees. Respondents were purposively sampled for data collection. Structured questionnaires were adopted for

collecting data. Data was analyzed by Partial Least Square (PLS) techniques. From the results, Supply Chain Flexibility positively mediated the relationship between SCI and performance. The study having established a positive mediating effect of Supply Chain Flexibility on the relationship between SCI and manufacturing firms' Performance, the current study sought to focus on Retail Sector while establishing the moderating effect of Supply Chain Flexibility on relationship between SCI and Performance.

Saqib and Zhang (2021) conducted a study that sought to establish the moderating effect of supply chain visibility on the relationship between sustainable practices and sustainable performance of manufacturing firms in Pakistan. The study was anchored on Resource Based View Theory. The independent variables were sustainable procurement, sustainable manufacturing and sustainable distribution. Dependent variables were cost reductions and reduction in environmental pollution. The study adopted exploratory research design. The population of the study was 355 manufacturing firms registered in Pakistan. Census sampling was adopted. Respondents (supply chain managers) were purposively sampled. Structured questionnaires were used to gather data that was then analyzed by Structural Equation Modelling (SEM) techniques. From the findings, supply chain visibility positively moderated the relationship between sustainable practices and sustainable performance. Having established a positive moderating effect of supply chain visibility with respect to manufacturing firms' performance, the current study sought to establish the moderating effect of supply chain visibility with reference to Retail sector and compare results.

Haruna (2017) conducted research that sought to determine the moderating effect of supply chain flexibility on the relationship between SCI and Business performance of companies in Ghana. The independent variables of the study were Internal integration (information sharing among departments) supplier integration (strategic partnership and supplier involvement in product design) and customer integration (information sharing and follow up on customer feedback) while the dependent variables were profitability, responsiveness and competitiveness. SC Flexibility was measured in terms of adaptability, alignment and agility. The study adopted Cross-sectional research design. The study was anchored on network perspective theory. The population of the study was 255 employees from registered companies in the Kumasi metropolis, Ghana. Census sampling was adopted. Structured questionnaire was used to gather data that was analyzed by descriptive statistics and structural equation modeling. From the findings, SCI positively correlates with firm's performance and supply chain flexibility positively moderated the relationship between SCI and performance. The current study sought to establish the moderating effect of supply chain flexibility and visibility on the relationship between SCI and Retail Outlets performance using Logistic regression model as opposed to structural equation modeling since it is simpler to understand and interpret, with coefficients that can be directly translated into odds ratios and can easily incorporate multiple independent variables and interaction terms (Smith 2020)

Aggrey et al. (2021) conducted research that sought to examine the moderating effect of supply chain agility and innovation on the relationship between SCI and performance of Agri-business firms in Mozambique. The research was conducted between 2019 and

2020. SCI dimensions adopted were customer integration, financial flow, information integration, internal integration and logistics integration. Operational performance was measured by cost effectiveness, order fulfilment rate and inventory turnover while financial performance was measured by growth in revenue, profit, return on investment and sales growth. The study was anchored on stakeholder theory, resource-based theory and relational exchange theory. The study adopted causal research design. The target population of the study was 450 commercial poultry farms (CPFs) within Bono region in Ghana. Sample size was 250 CPFs. Farm managers, farm owners and logistics managers were randomly selected to participate in the survey. Data was gathered through structured questionnaire that were dropped and picked. Structural equation modeling was adopted for data analysis. From the findings, Supply chain agility and innovation positively moderate the relationship between SCI and performance. More so, the researcher reported that SCI has significant statistical effect on Operational performance but does not have any significant effect on financial performance. As opposed to structural equation modelling, the current study sought to adopt logistic regression model which according to smith (2020), is simpler to understand and interpret, with coefficients that can be directly translated into odds ratios and can handle smaller sample sizes more effectively than SEM, which often needs larger samples for reliable estimates in analyzing data and compare results.

Piprani, Mohezar and Jaafar (2020) conducted research that sought to establish the mediating effect of supply chain resilience on the relationship between SCI and supply chain performance of manufacturing firms in Pakistan. The study was anchored on

Dynamic capability theory. The independent variables were internal integration (the extent of collaboration within internal functions), Customer integration (extent of information sharing between company and customers) and Supplier integration (the extent of information sharing between company and its suppliers). Dependent variables were Cost efficiency, on time delivery, Product quality, Customer satisfaction and Customer order fill rate. Supply chain resilience was measured by the extent of preparedness of the supply chain for unforeseen events and quick response to disruptions. The study adopted Quantitative research design. The population of the study was made up of 182 large scale manufacturing firms located in Karachi, Pakistan. Going by census sampling, 182 manufacturing firms were sampled for the study. Supply chain professionals were purposively sampled as the key respondents. Data was analyzed by Partial Least Square regression model. From the findings, supply chain resilience positively moderated the relationship between SCI and firms' performance, also SCI had positive influence on performance of manufacturing firms. While the study looked at the moderating effect of supply chain resilience, the current study sought to focus on supply chain flexibility and visibility while established their mediating effect on the relationship between SCI and Retail Outlets Performance.

2.4 Research Gaps Table

Table 1 shows the identified knowledge gaps upon which the study was anchored.

Table 1: Research Gaps					
Author/s & Year	**Objective**	**Methodology**	**Study Findings**	**Conclusion and Recommendation**	**Gap**
SUPPLY CHAIN INFORMATION SHARING					
Baihaqi & Sohal (2013)	Determine the impact of SCIS on organizational performance of manufacturing firms in Australia.	Descriptive design Population-1510 firms Cencus Purposive sampling Primary data through mail and internet survey Structural equation modelling	Information sharing is not directly related to organizational performance.	SCIS is insufficient by itself to bring about a significant performance improvement. The study recommended that manufacturing managers should consider other supply chain parameters alongside supply chain information sharing in order to improve their organizational performance	Out of 1510 only 150 returned Low response rate of 9.9% According to Fincham (2008) response rate below 50% lowers the reliability and validity of study findings hence the need for similar studies to ascertain the findings. The current study seeks to establish the effect of SCIS on retail outlets performance, adopting drop and pick mechanism which emphasizes on social exchange and can yield a response rate of 60-70% (Dillman 2000).

Margahana et al (2019)	Determine the effect of information sharing on supplier performance of retailers in Indonesia	Cross-sectional Population-110 retailer Census Primary data through questionnaires Multiple regression and path analysis	Information sharing had a positive effect on supplier performance.	Information sharing was key to suppliers' performance and must be given priority. The study recommended that supply chain managers of retail industry should focus on improving the information sharing infrastructure in order to enhance their performance	Performance was limited to the seller (supplier). The current study sought to focus on the buyer's (supermarkets) performance by looking at profitability and service delivery aspects
Marinangi, Trivella & Rklitis (2014)	Determine the effect of information sharing on supply chain performance of manufacturing firms in Greece	Adopted Cross-sectional research design with a Population of 200 firms. Census was used together with random sampling Based on structured questionnaires. Primary data was collected and analysed using Multiple linear regression.	Information sharing had positive effect on performance of manufacturing firms.	The study concluded that information sharing was important in streamlining manufacturing operations. The study recommended that supply chain managers should enhance their information sharing structures to improve their performance.	The study focused on manufacturing sector while the current study focused on the retail sector to look at the consumption node of the supply chain by establishing the effect of SCIS on performance of the retail outlets.
Mashiloane, Mafifni & Pooe (2017)	Establish the relationship between information sharing and supply chain	Cross-sectional Population-600 firms Census	A positive relationship existed between information sharing and	The study concluded that even though there existed positive relationship, information sharing alone would not yield	The study results were based on purposive sampling which could be

	performance of manufacturing firms in South Africa.	Purposive sampling Closed ended questionnaire Primary data Structural equation modelling	performance of manufacturing firms.	the desired performance. The study recommended supply chain managers to consider other collaborative factors in an attempt to enhance their performance.	biased thereby lowering the reliability of the findings. The current study used stratified proportionated random sampling to eliminate the biasness of the data and give a more reliable finding.
Kang & Moon (2016)	Impact of information sharing on performance of manufacturing firms in South Korea	Cross-sectional Population-600 firms Census Purposive sampling Mailed questionnaire Primary data Spatial least square 121 were returned. Low response rate of 22%	Information sharing was positively related to performance of manufacturing firms	Information sharing had a positive effect on performance of manufacturing firms. The study recommended that supply chain managers should invest more on the information sharing infrastructure in order to realize improved performance.	even though there existed positive relationship, the response rate was low, lowering the validity of the results. The low response rate could be attributed to mailing the questionnaires. The current study administered the questionnaires physically through drop and pick approach. Drop and pick data collection approach enhances social

					exchange thereby yielding more than 60% response rate. This improves the validity of this findings
Namegembe (2012)	The relationship between information sharing and customer satisfaction of manufacturing firms in Uganda	Cross sectional Population-1544 Sample size-523 Simple random sampling Self-administered questionnaires Primary data Multiple regression and Pearson correlation	A positive relationship existed between information sharing and customer satisfaction	Information sharing had a significant role in achieving customer satisfaction. The study recommended that supply chain managers should lay more strategies in aligning their information sharing with customer needs.	Performance metrics was limited to customer satisfaction. The current study sought to widen the performance scope by adopting profitability and service delivery while establishing the effect of SCIS on retail outlets performance in Kenya.
Brenda (2016)	Establish the relationship between information sharing and organizational performance of manufacturing firms in Uganda	Case study research design Population-110 employees Census Simple random sampling Questionnaires, interview and	A strong relationship existed between information sharing and organizational performance of manufacturing firms in Uganda	The study concluded that information sharing was key to achieving organizational performance. The study recommended that manufacturing firms should give priority to information sharing as it significantly contributes to the	The study used case study design which even though offers in-depth insights, it is limited to specific contexts and cannot be easily generalized. The current study

		published documents Primary and secondary data Multiple regression analysis		performance.	adopted cross-sectional design which allows for the collection and analysis of data from a large sample at one point in time, providing a broader understanding and generalizability of the findings across a population.
Okore & Kibet (2019)	Find out the influence of information sharing on supply chain performance of Tourism Industry in Kakamega, Kenya	Explanatory research design Population-459 employees Census Closed and open-ended questionnaires Primary data Descriptive statistics	Information sharing positively influenced the performance of tourism industry in Kakamega, Kenya	The study concluded that information sharing was very key in tourism industry and must be given priority in the supply chain strategic plan. The study recommended that tourism industry should build their information sharing architecture in order to improve their performance.	The study only used Descriptive statistics in analyzing the data. However, descriptive statistics only allows for summation about objects that have been actually measured and such data cannot be generalized to other objects. The current study used both descriptive and inferential statistics in establishing the effect of SCIS on retail outlets

					performance in Kenya, to allow for generalization and give more reliable results.
Ali (2020)	Establish the effect of information sharing on the performance of manufacturing firms in Kenya.	Descriptive research design Population-27 companies Census Purposive sampling Closed-ended questionnaires Primary data Descriptive and multiple regression model	Information sharing had a positive effect on the performance of manufacturing firms in Kenya.	The study concluded that information sharing plays an important role in determining the performance level of manufacturing firms in Kenya. The study recommended that manufacturing firms should allocate more resources in information sharing network as this will be reflected on their performance levels.	Even though the study adopted census on 27 companies, it only dealt with 27 supply chain managers which is a limited scope of respondents. This might give a biased data thereby compromising the validity and reliability of the study findings. The current study engaged a cross spectrum of respondents from the retail outlets thereby eliminating the possibility of data biasness and improving the reliability and validity of the study findings.

Apopa (2018)	Determine the influence of information sharing on performance of Government Ministries in Kenya	cross-sectional research design. Population - 1372 Sample size -384. Stratified proportionate random sampling. Primary and secondary data questionnaires and published journals thematic content analysis, descriptive and multiple regression models.	Information sharing had a positive influence on the performance of Government Ministries in Kenya	The study concluded that information sharing was significant in determining the performance of Government ministries in Kenya. The study recommended that supply chain managers in government ministries should give close attention on information sharing network so as to improve on their performance.	The study focused on public sector which is more bureaucratic as compared to private sector. The current study focused on private sector which is less bureaucratic.
SUPPLY CHAIN DECISION SYNCHRONIZATION					
Armayah et al (2019)	Establish the effect of decision synchronization on the performance of SMEs in Indonesia	Descriptive research design Population-340 business units Sample size-110 Simple random sampling Primary data Structured questionnaires Descriptive and structural equation modelling	Decision synchronization had a positive effect on the performance of SME s in Indonesia	The study concluded that decision synchronization was key in the performance of SMEs. The study recommended that supply chain managers should strengthen their decision synchronization strategies in order to enhance their performance.	Even though there existed a positive effect of decision synchronization on the performance of SMEs in Indonesia, the sample size was small. This might compromise on the reliability of the study findings. The current study used a sample size of 347 which is

					comparatively large thereby improving the reliability of the study findings.
Albishiri (2018)	Determine the effect os SCDS on the supply chain effectiveness of SME in Dubai.	Exploratory research design Population-152 business units Census Purposive sampling Primary data Self-administered questionnaires Structural equation modelling	Supply chain decision synchronization had a positive effect on supply chain effectiveness of SMEs in Dubai.	The study concluded that supply chain decision synchronization had a significant role in determining the performance of SMEs in Dubai. The study recommended that supply chain managers should strengthen their decision synchronization policies in order to significantly improve their performance.	Even though there existed a positive effect of SCDC on the performance of SMEs in Dubai, the study only focused on the supply chain managers of the business units which is a limited scope of respondents. This might give a biased data thereby compromising the validity and reliability of the study findings. The current study engaged a cross spectrum of respondents from the retail outlets thereby eliminating the possibility of data biasness and improving the reliability and validity of the study

					findings.
Beihl, Cook & Johnson (2004)	Establish the effect of joint decision making on buyer-supplier relationship of manufacturing firms in Canada	Cross sectional research design Population-1094 Census Simple random sampling Mailed questionnaires Data Envelop Analysis	Joint decision making had a positive effect on buyer-supplier relationship of manufacturing firms in Canada.	The study concluded that joint decision making enhances the buyer-supplier relationship thereby improving the performance of manufacturing firms in Canada. The study recommended the manufacturing firms to consider enhancing their buyer-supplier relationship so as to improve their performance.	The study used Data Envelop Analysis which is prone to ignoring statistical errors causing significant interpretation problems hence inaccurate conclusions. The current study adopted Ordinary least squares regression model which is considered a sophisticated and well-developed modelling approach to statistical analysis.
Kumar et al. (2017)	Establish the role of joint decision making in supply chain performance of small and medium firms in India.	Exploratory research design Population-812 business units Census Purposive sampling Mail survey Primary data Partial least square	The study found that joint decision making had a significant role on supply chain performance of SMEs in India.	The study concluded that Joint decision making was crucial in enhancing supply chain performance The study recommended that supply chain managers should embrace joint decision making in order to improve their performance.	The study used Partial Least Square Analysis which has a tendency to produce biased estimates under model misspecification. The current study

					uses Ordinary Least Square Analysis which would provide unbiased and consistent estimates under the Gauss-Markov assumptions, making it particularly effective for hypothesis testing and inference about the relationships between variables when these assumptions are met.
Doganay & Ergon (2017)	Establish the effect of SCDS on supply chain performance of public organizations in Turkey	Cross sectional research design Population-1500 organizations Census Purposive sampling Mailed questionnaires Descriptive and multiple regression model	SCDS had positive effect on supply chain performance.	The study concluded that supply chain decision synchronization was critical for supply chain performance of public organizations. The study recommended that various supply chain managers should consider supply chain decision synchronization as an integral tool of management for increased performance	The study concentrated within the public organizations whose procedures are usually slowed by bureaucratic levels of decision making. The current study explores the private sector with a focus on retail outlets in Kenya.

				realization.	
Keitany (2019)	Determine the effect of SCDS on performance of manufacturing firms in Nairobi, Kenya.	Cross-sectional design Population-714 employees Sample size- 256 Multi-stage sampling Primary data Structured questionnaires Multiple regression model	SCDS had a positive effect on performance of manufacturing firms in Kenya.	The study concluded that supply chain decision synchronization had a critical effect on performance of manufacturing firms. The study recommended that various supply chain managers should consider supply chain decision synchronization as a critical tool of management in order to improve performance of manufacturing firms.	The study adopted multi-stage sampling technique which may create high level of subjectivity. Further to this, the sample used does not adequately represent the population hence high probability of inaccurate conclusions. The current study adopted stratified proportionate random sampling to provide better precision of the sample size that would best represent the population being studied hence accurate conclusions and the ability to generalize the findings.
Barasa	Examine the	Explorative	Decision	The study concluded that	The study used only

(2016)	contribution of decision synchronization on performance of manufacturing companies in Kenya.	research design Population-1570 Sample size-384 Stratified proportionate random sampling Primary and secondary data Questionnaires and published documents Multiple regression model	synchronization contributed positively to the performance of manufacturing companies in Kenya.	SCDS positively contributes to the performance of manufacturing companies. The study recommended that supply chain managers should strengthen their SCDS policies and infrastructure in order to improve performance of manufacturing companies.	two variables which may not effectively capture the operating environment. The current study considered SCP as the third variable to establish the moderating effect of SCP on the relationship between SCDS on the retail outlets performance in Kenya.
SUPPLY CHAIN INCENTIVE ALIGNMENT					
Maat et al (2020)	Establish the effect of incentive alignment on performance of small and medium companies in Indonesia	Explorative and descriptive designs Population-1355 companies Sample size-2l0 Purposive sampling Primary and secondary data Observation, questionnaires, interview and documentation Descriptive and structural equation	Incentive alignment had positive effect on the performance of small and medium companies in Indonesia.	The study concluded that incentive alignment was an important aspect of performance. The study recommended that the SMEs should align their supply chain incentives to the performance requirements.	The study explored the retail business in Indonesia which might be having different operational challenges. The current study explored the Kenyan retail business in an attempt to validate the study findings.

		modelling			
Lebedeva (2017)	Establish the impact of incentive alignment on performance of electronic firms in Russia.	Exploratory research design Population-632 Census Purposive sampling Mailed questionnaires Only 65 returned (9.7% response rate) Descriptive and multiple regression model	Incentive alignment had a significant positive impact on supply chain performance of electronic firms in Russia.	The study concluded that incentive alignment played an important role in achieving the desired performance of electronic firms in Russia. The study recommended that the electronic firms should consider enhancing incentive alignment in order to record improved performance.	The response rate was too low and did not meet the threshold for analysis. The current study sought to ascertain the findings of the study by establishing the effect of SCIA on retail outlets performance in Kenya.
Noorman & Naslund (2019)	Establish the effect of SCIA on performance of manufacturing of retailing companies in Sweden	Exploratory and descriptive design Population-70 companies Census Purposive sampling Online survey Descriptive and multiple regression model	SCIA had positive effect on the performance of manufacturing and retailing companies in Sweden	The study concluded that SCIA was an important ingredient in achieving improved performance. The study recommended that the retailing industry should strengthen their supply chain incentive alignment policies to improve on their performance.	The current study seeks to establish the moderating effect of SCP on the relationship between SCIA on the retail outlets performance in Kenya.
Tse, Zhang & Jia (2016)	Establish the effect of supply chain risk and reward sharing on the performance of manufacturing	Descriptive research design Population-2440 companies	Supply chain Risk and reward sharing had a positive effect on the performance of manufacturing	The study concluded that risk and reward sharing was significantly important in achieving the desired performance of manufacturing	The study failed to indicate the response rate after mailing the questionnaires to the

	companies in India.	Census Purposive sampling Mailed questionnaires Structural equation modelling	firms in India.	firms in India. The study recommended that the manufacturing firms should consider enhancing their incentive alignment policies to enhance their performance.	respondents. This might jeopardize the validity and reliability of the findings. The current study adopted drop and pick data collection mechanism to ascertain the research findings.
Igwe et al (2016)	Establish the influence of incentive alignment on performance of brewery firms in Nigeria.	Cross-sectional design Population 210 companies Census Stratified proportionate sampling Pearson correlation and multiple regression model	Incentive alignment had a positive influence on the performance of brewery firms in Nigeria.	The study concluded that incentive alignment was key to the performance success of brewery firms in Nigeria. The study recommended that brewery firms should consider aligning incentives with their supply chain partners in order to enhance their performance.	Performance indicator was limited to product availability only. The findings could be biased because they it is subject to the metrics used and may not be generalized to represent firms' performance. The current study considered expanding the performance metrics by looking at

					profitability and service delivery of retail outlets in Kenya.
Agango & Achuora (2018)	Establish the influence of incentive alignment on supply chain performance of health facilities in Nairobi, Kenya.	Cross-sectional design Population-201 facilities Sample size-134 Convenience and stratified random sampling Open and closed ended questionnaires Primary data Descriptive and multiple regression model	A positive relationship existed between incentive alignment and supply chain performance of health facilities in Kenya.	The study concluded that any additional effort put on strengthening incentive alignment will definitely be reflected on the performance of health facilities in Kenya. The study recommended that the supply chain managers of health facilities should put more effort in strengthening their incentive alignment in order to improve their performance.	The study used only two variables which may not effectively capture the operating environment. The current study considered SCP as the third variable to establish the moderating effect of SCP on the relationship between SCDS on the retail outlets performance in Kenya.

Source: Researcher's Own Conceptualization (2023)

2.5 Conceptual Framework

Figure 1 shows the conceptual framework that guided the study.

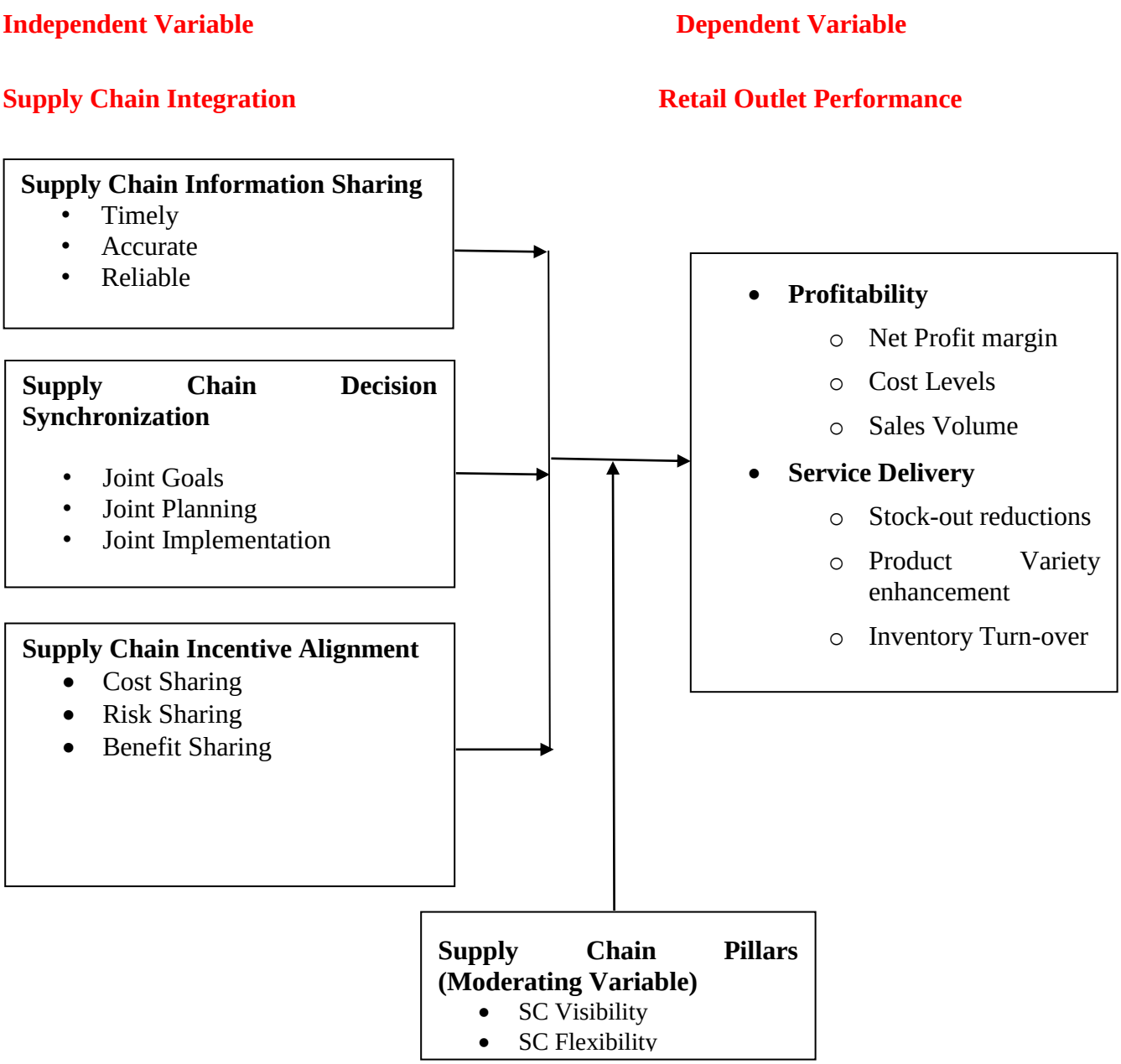

Figure 1: Conceptual Framework

Source: Researcher's Own Conceptualization (2023)

Figure 2.1 shows the independent variable (SCI whose measurement dimensions are SCIS, SCDS and SCIA), the dependent variable (Retail outlet performance whose measurement dimensions are profitability and service delivery) and the moderating variable (SCP whose measurement dimensions are flexibility and visibility). SCIS was measured by the extent to which the information flowing along the supply chain is timely, accurate and reliable. SCDS was measured by the extent to which supply chain partners agree to have joint goals, joint planning and joint implementation. SCIA was measured by the extent to which supply chain partners agree to share costs, risks and benefits that come along with integration. SCP was measured by the extent to which there existed flexibility and visibility within the supply chain. Profitability was measured by the extent to which operating costs were reduced, the extent to which there existed an increase in the sales volume and the extent to which there existed an increase in the net profit margin. Service delivery was measured by the extent to which stock outs were reduced, the rate at which new stock was ordered and availability of product variety.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This section outlines the research philosophy, research design, area of study, target population, sample

size, data collection procedure and instruments, piloting, analytical model and ethical issues.

3.1 Research Philosophy

This study adopted the philosophy of positivism, which originated in the natural sciences and focuses on the scientific testing of hypotheses and finding logical or mathematical proof derived from statistical analysis (Collis & Hussey, 2014; Saunders, Lewis, & Thornhill, 2016). In positivism, the researcher maintains independence with a limited role in data collection and interpretation, emphasizing objectivity. Positivism typically employs large samples to produce precise, objective, and quantitative data, focusing on quantifiable observations that lead to statistical analysis (Easterby-Smith, Thorpe, & Jackson, 2012). The applicability of positivism to this study is grounded in several key reasons. First, the study aims to test specific hypotheses regarding the relationships and impacts within the supply chain management field, necessitating an objective and scientific approach (Collis & Hussey, 2014). Positivism's emphasis on hypothesis testing aligns well with the study's goal of empirically validating theoretical constructs and relationships. By using statistical methods, the study can derive robust, replicable

findings that contribute to the broader body of knowledge in supply chain management (Saunders et al., 2016).

Second, the research design requires the collection and analysis of large datasets to ensure the generalizability of the findings. Positivism, with its focus on large samples and quantitative data, is well-suited for this purpose. This approach enables the study to produce statistically significant results that can be generalized across different contexts, enhancing the reliability and validity of the conclusions (Easterby-Smith et al., 2012). Third, the study's objective nature is crucial for minimizing researcher bias and ensuring that the findings are based on empirical evidence rather than subjective interpretation. Positivism's methodological rigor supports this objective stance, ensuring that data collection and analysis are conducted systematically and impartially. This is particularly important in supply chain management research, where objective measures of performance, efficiency, and effectiveness are critical for developing actionable insights and recommendations (Collis & Hussey, 2014; Saunders et al., 2016). Furthermore, positivism's reliance on quantifiable observations aligns with the study's focus on measurable outcomes in supply chain processes, such as cost reduction, efficiency improvements, and demand fulfillment. By employing statistical analysis, the study can identify significant patterns, correlations, and causal relationships within the data, providing a clear and evidence-based understanding of the factors influencing supply chain performance (Easterby-Smith et al., 2012).

In summary, the philosophy of positivism is highly applicable to this study due to its emphasis on scientific rigor, objectivity, and the use of large, quantitative datasets. It enables the researcher to test hypotheses systematically, produce generalizable and replicable findings, and derive objective conclusions that contribute to the theoretical and practical understanding of supply chain management (Collis & Hussey, 2014; Easterby-Smith et al., 2012. Saunders et al., 2016).

3.2 Research Design

The study adopted a cross-sectional research design, which was particularly suitable for collecting data from a large population at a specific point in time, thus providing a comprehensive snapshot of retail outlets' performance in Kenya (Bryman, 2016; Creswell & Creswell, 2018). This approach enables the researcher to study the attitudes, behaviors, and orientations of individuals within a representative sample, allowing for the generalization of findings to the broader population. It is also cost-effective and time-efficient, making it ideal for rapidly gathering and analyzing data, which is crucial in the dynamic retail industry (Saunders, Lewis, & Thornhill, 2016). By employing this design, the researcher was able to collect appropriate data and compare retail outlet performance metrics across the different supermarkets, identifying existing patterns and trends that are essential for understanding the current landscape of the retail sector. This facilitated the examination of relationships between variables such as supply chain integration and retail outlet performance (Fowler, 2013). The cross-sectional approach thus provided valuable insights that would help retail managers and policymakers address issues promptly and make informed decisions to enhance retail operations.

3.3 Area of study

The study was conducted in these four major cities in Kenya: Nairobi, Mombasa, Kisumu, and Nakuru. These cities were selected due to their diverse and dynamic market environments, which provide a comprehensive representation of the country's retail landscape (Kenya National Bureau of Statistics, 2019; World Bank, 2020). Nairobi (latitude 1.2921° S, longitude 36.8219° E), with over 4.5 million people, is Kenya's largest city and economic hub, driven by finance, manufacturing, and technology. Nairobi hosts a significant portion of the country's retail activities and has a highly heterogeneous customer profile due to its diverse population and economic activities (Kenya National Bureau of Statistics, 2019). Mombasa (latitude 4.0435° S, longitude 39.6682° E), home to 1.2 million, is a coastal port city, relying on trade and tourism. As a major port city, Mombasa has a unique market environment influenced by both local and international trade, making it an essential location for studying supply chain and retail dynamics (Retail Trade Association of Kenya, 2020).

Kisumu (latitude 0.0917° S, longitude 34.7680° E), with around 500,000 residents, is a regional hub for fishing and agriculture near Lake Victoria. Located in the western region, Kisumu serves as a commercial and transportation hub for surrounding areas, providing insights into retail operations in the less urbanized parts of the country (World Bank, 2020). Nakuru (latitude 0.3031° S, longitude 36.0800° E), a city of 570,000, is an agricultural and tourism center. As one of the fastest-growing cities, Nakuru offers a view

into emerging retail markets and their development (Kenya National Bureau of Statistics, 2019).

The supermarkets focused on in this study were Naivas, Quickmart, Chandarana, and Carrefour. These supermarkets were chosen due to their extensive market presence and branch networks across Kenya, ensuring a representative sample of the retail sector (Retail Trade Association of Kenya, 2020). Naivas and Quickmart are well-known for their widespread branch networks and significant market shares, while Chandarana is recognized for its high-quality product offerings. Carrefour, a leading international retailer, brings a global perspective to the local market dynamics (Kenya National Bureau of Statistics, 2019; Retail Trade Association of Kenya, 2020). By studying these supermarkets, the research aimed to capture a broad spectrum of retail operations and strategies within the Kenyan market.

The selection of these cities and supermarkets aligns with the study's variables, which include supply chain integration, supply chain pillars, and retail outlet performance. The diverse market environments and customer profiles in these cities provide a robust context for analyzing how different retail strategies and supply chain integration practices impact these variables. Thus, the chosen locations and study units offer a comprehensive and representative sample for understanding the performance and challenges of retail outlets in Kenya (World Bank, 2020).

3.4 Target Population of the study

The target population of the study was 2654. The unit of analysis comprised of staff members from Naivas, Quickmart, Chandarana, and Carrefour supermarkets located in Nairobi, Nakuru, Mombasa, and Kisumu. The staff included branch managers, section heads, line attendants, finance officers, and procurement officers, all of whom represent key components of the management structure within these retail outlets. The target population was as shown in Table 2.

Table 2:Target Population

City/Head Quarter	Section	No. of Staff				
		NAIVAS	QUICKMART	CHANDARANA	CARREFOUR	TOTAL
Nairobi	Branch Managers	46	19	16	12	**93**
	Section Heads	460	190	160	120	**930**
	Line Attendants	460	190	160	120	**930**
Nakuru	Branch Managers	4	3	1	0	**8**
	Section Heads	40	30	10	0	**80**
	Line Attendants	40	30	10	0	**80**
Kisumu	Branch Managers	3	1	1	2	**7**
	Section Heads	30	10	10	20	**70**
	Line Attendants	30	10	10	20	**70**
Mombasa	Branch Managers	5	5	3	2	**15**
	Section Heads	50	50	30	20	**150**
	Line Attendants	50	50	30	20	**150**
Head Quarter	Finance Department	15	11	7	8	**41**
	Procurement Department	12	8	5	5	**30**
Total		**1245**	**607**	**453**	**349**	**2654**

Source: HR Department, Naivas, Quickmart, Chandarana, and Carrfour Supermarket (2022)

3.5 Sample Size and Sampling Procedure

Based on the population structure, the study adopted a detailed and systematic sampling procedure to ensure the representativeness and robustness of the results. The Yamane formula was utilized to establish the sample size from the study population, providing a scientifically grounded method for calculating an adequate sample size for statistical analysis. This formula helps in determining a sample size that is statistically significant and representative of the population. For this study, the margin of error was set at a commonly used level of 0.05 (5%), which balances precision and practicality. The overall sample size was then proportionately allocated to each stratum based on its size relative to the entire population. This approach ensures that all subgroups are represented in the sample, reflecting the diversity of the population (Saunders, Lewis, & Thornhill, 2016). To practically implement stratified proportionate random sampling, the researcher categorizes the population by supermarket (Naivas, Quickmart, Chandarana, Carrefour) and roles (branch managers, section heads, etc.). Based on the overall sample size, respondents are proportionally allocated to each stratum. The researcher randomly selected branches from each supermarket using a random number generator, followed by assigning unique numbers to all potential respondents in each role and randomly picking numbers representing respondents. This ensures an unbiased, representative sample for the study. This random selection minimizes selection bias and ensures that every individual within each subgroup has an equal chance of being included in the sample. By adopting stratified proportionate random sampling, the study achieved a more robust and accurate representation of the entire population, enhancing the validity and generalizability of the findings (Bryman, 2016).

According to Yamane, (1967):

$$n = \frac{N}{\left[1 + \left(Ne^2\right)\right]} \quad \text{.....Eq.1}$$

Where n = is the sample size

N = is the population

e = is the error term (0.05 on the basis of 95% confidence level)

Therefore, $n = 2654 / [1 + 2654(0.05)^2]$

$n = 2654/7.635$

$n = 347$

The sample size of the study was 347.

Table 3: Sample Distribution Table

City/HQ	Section	No. of Staff				
		NAIVAS	QUICKMART	CHANDARANA	CARREFOUR	TOTAL
Nairobi	Branch Managers	6	2	2	2	**12**
	Section Heads	60	25	21	16	**122**
	Line Attendants	60	25	21	16	**122**
Nakuru	Branch Managers	1	0	0	0	**1**
	Section Heads	5	4	1	0	**10**
	Line Attendants	5	4	1	0	**10**
Kisumu	Branch Managers	1	0	0	0	**1**
	Section Heads	4	1	1	3	**9**
	Line Attendants	4	1	1	3	**9**
Mombasa	Branch Managers	1	1	0	0	**2**
	Section Heads	7	7	4	2	**20**
	Line Attendants	7	7	4	2	**20**
HQs	Finance Department	2	1	1	1	**5**
	Procurement Department	2	1	1	0	**4**
Total		**163**	**79**	**59**	**46**	**347**

Source: Researcher's own conceptualization, (2022)

3.6 Data Collection Instruments

This research was based on primary data collected using close-ended structured questionnaires. These questionnaires were designed on a 5-point Likert scale, which is widely used in survey research to measure respondents' attitudes, opinions, or perceptions on a given subject. The 5-point Likert scale ranges from "Strongly Disagree" to "Strongly Agree," allowing respondents to express varying degrees of agreement or disagreement. The use of the 5-point Likert scale offers several strengths. Firstly, the scale produces ordinal data that can be easily transformed into numerical values for statistical analysis, enhancing the reliability and comparability of the data (Boone & Boone, 2012). Secondly, the Likert scale is versatile and can be used to measure a wide range of attitudes and opinions, allowing for detailed analysis (Likert, 1932). Additionally, it provides a simple, intuitive format for respondents, making it easy to understand and complete (Joshi, Kale, Chandel, & Pal, 2015). This simplicity facilitates higher response rates and better-quality data.

However, the Likert scale also has weaknesses. One major weakness of Likert scale is the potential for response bias, such as central tendency bias, where respondents may avoid extreme categories and consistently choose middle options (Cronbach, 1950). Another issue is the assumption of equal intervals between scale points, which may not accurately reflect the true differences in respondents' attitudes (Jamieson, 2004). Furthermore, the use of close-ended questions may limit the depth of responses, preventing a comprehensive understanding of complex issues.

Despite these weaknesses, the 5-point Likert scale was chosen for this study because it provided a structured way to capture respondents' opinions and convert them into quantifiable data that can be analyzed statistically. Moreover, the questionnaires were exposed to expert validation that ensured it collected comprehensive and robust data. This approach ensures that the data collected is both manageable and meaningful for the research objectives.

3.7 Data Collection Procedure

An introductory letter from Jaramogi Oginga Odinga University of Science and Technology was obtained to enable the researcher obtain a NACOSTI permit for collecting data from the field. The researcher then sought for permission from the retrial outlets to collect data from their employees. The questionnaires were then administered to the respondents through a drop and pick method at their specific places of work. The researcher used drop and pick method because it emphasizes on social exchange and typically yields 60-70 percent response rate (Groves & Couper 1998). The researcher made phone calls to remind respondents of the date for collecting back the questionnaires to minimize the cases of unreturned questionnaires. The researcher then picked the questionnaires from the various respondents. This data collection was taken between June, 2023 and August, 2023.

3.8 Pilot Testing

This study used Khetia’s supermarkets in Kisumu for piloting. Khetia’s is one of the largest retail Chain in Kenya with 13 outlets across Kitale, Bungoma, Kisumu, Kakamega

and Nairobi. In Kisumu, there are two branches of Khetia's supermarket. Hill (1998) proposes 10 to 30 percent of the anticipated respondents to pilot the study in survey research. For this study, 12 percent of the anticipated respondents was used for piloting. 2 branch managers, 20 section heads and 20-line attendants were involved. Validity and reliability tests were conducted to determine the feasibility of the instruments and improve on the areas of weakness in an attempt to better the research instruments.

3.8.1 Validity Test

Validity is defined as the extent to which a research instrument measures what it is designed to measure, ensuring accurate results (Robson, 2011). This study was subjected to content, construct, and face validity tests to ensure the reliability and accuracy of the research instrument. Face validity refers to the degree to which a test appears effective in terms of its stated aims to those taking and administering it (Nevo, 1985). It is a superficial measure and not a deep statistical analysis. For this study, the questionnaires were given to two specialists who assessed whether the questions seemed to measure the research objectives based on their appearance. The specialists approved the face validity of the questionnaire items based on their initial impressions as was recommended by Nevo (1985). The strength of face validity lies in its straightforward approach and ease of application, making it useful for initial assessments. However, its weakness is that it is subjective and lacks statistical rigor, relying heavily on the evaluator's judgment.

Construct validity assesses whether a test measures the theoretical construct it is intended to measure. This involves statistical techniques and theoretical foundations to ensure the

instrument accurately reflects the construct. The supervisors evaluated the questionnaire items against the research objectives, similar to the content validity assessment. Construct validity is crucial for ensuring the instrument's overall appropriateness and meaningfulness in measuring complex concepts (Cronbach & Meehl, 1955). Its strength is that it provides a deep and comprehensive assessment of the instrument's validity. However, its weakness is the complexity and time required to conduct thorough construct validity testing, often involving advanced statistical analyses. To mitigate this weakness, researcher in collaboration with the specialist adopted incremental testing approaches to gradually build construct validity over a two – week period.

Content validity examines whether a test represents all aspects of the construct it intends to measure. For this study, the specialists evaluated each item in the questionnaire to determine its relevance to the research objectives. The items were rated on a scale of 1-4 such that 1 = *not relevant*, 2 = *somehow relevant*, 3 = *relevant* and 4 = *very relevant.* The content validity index (CVI) was calculated as K/N, where K is the number of items marked 3 or 4, and N is the total number of items assessed (Polit & Beck, 2006). The rated finding was used to calculate content validity index (CVI) using the formula:

$$CVI = \frac{K}{N} \quad \text{..... Eq. 2}$$

Where:

K = Total number of items in the questionnaire declared valid by both experts.

N = Total number of items in the questionnaire

The computed CVI was checked against the minimum acceptable index which is 0.70 as recommended by Amin, (2005). The results were as presented in Eq. 2

Thus:

$$CVI = \frac{26}{30} = 0.87$$

Twenty-Six (26) out of Thirty (30) items were rated acceptable thus a content validity index of 0.87 was obtained. The computed CVI was checked against the minimum acceptable index which is 0.70 as recommended by Lawshe (1975) and Amin, (2005). According Lawshe (1975) and Amin, (2005) a content validity index threshold of 0.7 and thus the overall CVI of 0.87 was acceptable. The strength of content validity is that it ensures the instrument covers the entire domain of the construct, providing comprehensive measurement. However, its weakness lies in the subjectivity of the experts' judgments and potential variability in their ratings. To mitigate this weakness, the study used independent specialists from different perspectives and backgrounds in the industry to enhance the reliability of judgments. Additionally, clear criteria and guidelines were given to the specialists for rating items so as to standardize the evaluation process, reducing subjective biases and enhancing the validity of the instrument.

For this study, both content and construct validity were determined by the specialists' agreement on the relevance of the items. The results from these tests ensured that the questionnaire accurately measured the intended constructs and covered all relevant

aspects of the research objectives, providing a robust and reliable data collection instrument.

3.8.2 Reliability Test

Reliability can be defined as the extent to which a research instrument provides consistent results on repeated trials. It can be assessed by checking the consistency of results cross time, across different observers or across parts of the test itself (Middleton, 2019). This study considered the consistency of results across different parts of the questionnaire by adopting split-half reliability coefficient test. The questions in the questionnaire were divided into odd items represented by 'x' and even items represented by 'y' and the scores from both halves correlated. The computed Reliability Coefficient of the instrument was checked against the least acceptable index of 0.70 as recommended by Nunnally and Bernstein (1994). Usually, the internal consistency of a measurement scale is assessed by using Cronbach's co-efficient alpha (Cronbach 1951) using Flanagan Formula shown in Eq. 3

$$R_t = 2[1 - \frac{\delta_1^{\,2} + \delta_2^{\,2}}{\delta_t^{\,2}}] \quad \text{..... Eq. 3}$$

Where:

R_t = Reliability Coefficient of the Test

δ_1= Standard Deviation (S.D.) of Scores of 1st Half

δ_2= Standard Deviation (S.D.) of Scores of 2nd Half

δ_t= Standard Deviation (S.D.) of Scores of Whole Tests

To ascertain the results, KMO Test was used to obtain the respective Cronbach's alpha reliability coefficients as coefficients of internal consistency by checking on the inter-item reliability coefficients. The acceptance value of 0.7 was equally used as a threshold of reliability in this study (Castillio, 2009).

3.8.2.1 Reliability Test for Supply Chain Information Sharing

Reliability Test for Supply Chain Information Sharing was conducted by analyzing Cronbach's Alpha coefficients and the values were summarized in Table 4.

Table 4: Reliability Statistics for Supply Chain Information Sharing

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.811	.865	6

Source: Author's Computation from Research Data (2023)

From Table 4, Supply Chain Information Sharing is an independent variable which recorded a Cronbach's Alpha value of 0.811, which according to the rule of thumb, is above the recommended threshold of 0.7 hence reliable.

Table 5: Total Statistics for Supply Chain Information Sharing

Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SCIS1	18.73	30.102	.801	.740	.781
SCIS2	18.70	30.062	.675	.639	.785
SCIS3	18.53	29.743	.608	.679	.787

SCIS4	18.65	30.131	.648	.604	.786
SCIS5	18.70	30.523	.605	.575	.789
SCIS6	18.10	32.451	.209	.417	.719

Source: Author's Computation from Research Data (2023)

From Table 6, if any item is deleted, there is a corresponding decrease on the overall Cronbach's Alpha thus all the items were retained.

3.8.2.2 Reliability Test for Supply Chain Decision Synchronization

Supply Chain Decision Synchronization is the second independent variable of the study. The reliability index is as indicated in tables 6.

Table 6: Reliability Statistics for Supply Chain Decision Synchronization

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.855	.857	6

Source: Author's Computation from Research Data (2023)

From Table 6, Supply Chain Decision Synchronization is an independent variable which recorded a Cronbach's Alpha value of 0.855, which according to the rule of thumb, is above the recommended threshold of 0.7 hence reliable.

Table 7: Total Statistics for Supply Chain Decision Synchronization

Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SCDS1	11.97	15.552	.647	.662	.835
SCDS2	12.00	15.316	.656	.642	.833
SCDS3	11.92	16.231	.464	.607	.849
SCDS4	11.51	14.099	.611	.555	.837
SCDS5	11.64	14.657	.613	.570	.835
SCDS6	11.82	14.677	.602	.761	.837

Source: Author's Computation from Research Data (2023)

From Table 7, if any item is deleted, there is a corresponding decrease on the overall Cronbach's Alpha of 0.855 thus all the items were retained.

3.8.2.3 Reliability Test for Supply Chain Incentive Alignment

The 3rd variable of the study was Supply Chain Incentive Alignment. The Cronbach's Alpha index was 0.925 while the Cronbach's Alpha index dropped in all cases the items were deleted.

Table 8: Reliability Test for Supply Chain Incentive Alignment

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.925	.925	6

Source: Author's Computation from Research Data (2023)

From Table 8, Supply Chain Incentive Alignment is an independent variable which recorded a Cronbach's Alpha value of 0.925, which according to the rule of thumb, is above the recommended threshold of 0.7 hence reliable.

Table 9: Total Statistics for Supply Chain Incentive Alignment

Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SCIA1	13.56	26.516	.649	.522	.920
SCIA2	13.46	25.045	.805	.763	.912
SCIA3	13.38	25.980	.644	.553	.904
SCIA4	13.31	24.903	.685	.656	.919
SCIA5	13.73	24.219	.782	.717	.913
SCIA6	13.36	25.026	.704	.683	.917

Source: Author's Computation from Research Data (2023)

From Table 9, if any item is deleted, there is a corresponding decrease on the overall Cronbach's Alpha thus all the items were retained.

3.8.2.4 Reliability Test for Supply Chain Pillars

Supply Chain Pillars is the moderating variable for the study.

Table 10: Reliability statistics for Supply Chain Pillars

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.857	.859	6

Source: Author's Computation from Research Data (2023)

From Table 10, Supply Chain Pillars is an independent variable which recorded a Cronbach's Alpha value of 0.857, which according to the rule of thumb, is above the recommended threshold of 0.7 hence reliable.

Table 11: Total Statistics for Supply Chain Pillars

Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SCP1	9.05	10.972	.598	.561	.842
SCP2	8.80	10.933	.489	.478	.855
SCP3	8.93	10.174	.705	.606	.826
SCP4	8.63	9.830	.656	.468	.832
SCP5	8.78	9.769	.654	.565	.832
SCP6	8.80	10.010	.635	.611	.835

Source: Author's Computation from Research Data (2023)

From the table 11 if any item is deleted, there is a corresponding decrease on the overall Cronbach's Alpha of 0.857 thus all the items were retained.

3.8.2.5 Reliability Test for Retail Outlet Performance

Retail Outlet Performance is the dependent variable of the study. Its reliability index was computed and tabulated in tables 12 & 13.

Table 12: Reliability Statistics for Retail Outlet Performance

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.812	.822	6

Source: Author's Computation from Research Data (2023)

From Table 12, the findings indicate that the reliability index of Cronbach's Alpha is 0.812. Since its above 0.7, it is reliable according to Castillio (2009).

Table 13: Total Statistics for Retail Outlet Performance

Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ROP1	8.95	11.177	.045	.148	.775
ROP2	9.60	9.221	.484	.356	.799
ROP3	9.85	9.208	.632	.478	.775
ROP4	9.85	8.541	.721	.665	.757
ROP5	9.83	8.610	.750	.668	.753
ROP6	9.83	8.866	.629	.719	.773

Source: Author's Computation from Research Data (2023)

Items with higher Corrected Total Correlation values (close to 1) are considered more reliable in measuring the intended construct. From Table 13, ROP3, ROP4 ROP5 and

ROP6 exhibit relatively strong correlations. The Squared Multiple Correlation values provide insights into the proportion of variance each item shares with the total score. Higher values suggest that the item contributes significantly to the overall performance measurement. Cronbach's Alpha values indicate how well the items collectively measure the construct. If deleting an item result in an increase in Cronbach's Alpha, it implies that the item might not be contributing positively to the overall reliability. In summary, a comprehensive assessment of the content and context of each item to all item retention. The study recommends that all the items be retained. In conclusion, the data is reliable with Cronbach alpha valve of > 0.7 for all the variables of the study. Content validity is satisfactory with a content validity ratio of 0.87 against a Lawshe (1979) threshold of 0.7.

3.9 Data Analysis

Data was edited, classified, coded, and entered into the computer for analysis using the Statistical Package for Social Sciences (SPSS, Version 24). The study generated quantitative data, primarily collected through a 5-point Likert scale, which is well-suited for capturing respondents' attitudes, opinions, and perceptions in a structured format. The use of the Likert scale results in ordinal data, which is inherently categorical but ordered, making it suitable for logistic regression. Descriptive statistics were employed to analyze measures of central tendency, such as frequency percentages, mean, standard deviation, skewness, and kurtosis. These statistics provided a detailed summary of the data, helping to understand the distribution and central characteristics of the responses. Inferential statistics were analyzed using a Logistic Regression model based on the framework outlined by Hosmer, Lemeshow, and Sturdivant (2013). The researcher considered this

model appropriate because logistic regression is specifically designed to handle binary or dichotomous dependent variables, which were relevant for assessing categorical outcomes in this study.

The logistic regression model was chosen for its ability to assess the strength of the relationship between the dependent variable and several predictor variables, as well as the importance of each predictor (Gujarati, 2003). This method is robust for modeling the probability of a certain class or event, such as success/failure or yes/no outcomes, based on one or more predictor variables (Gujarati, 2003). Logistic regression is advantageous because it does not assume a linear relationship between the dependent and independent variables, can handle interactions between variables, and provides odds ratios, which are intuitive for interpreting the effects of predictors (Gujarati, 2003).

However, logistic regression also has weaknesses. It requires a large sample size to ensure sufficient power and stability of the estimates, and it assumes that there is little or no multi-collinearity among the predictor variables, which can complicate the model if predictors are highly correlated. Additionally, logistic regression can be sensitive to outliers, which can disproportionately influence the results (Hosmer, Lemeshow, & Sturdivant, 2013). Logistic regression was deemed the most appropriate for this study due to its suitability for binary outcome variables and its ability to handle multiple predictors simultaneously based on ordinal Likert scale data. This provided a robust framework for analyzing the relationship between the dependent variable and the independent variables derived from the Likert scale data, ensuring comprehensive and reliable insights. Logistic

regression was operationalized by collecting and cleaning the data, ensuring the dependent variable *Y* was binary (0 for 'no' representing values ≥3 and 1 for 'yes' representing values ≤2), and scaling features if necessary. The following general theoretical model for a logistic regression with three independent variables X_1, X_2, and X_3, and a dependent variable Y, was adopted:

$$\boldsymbol{logit(P/(1-P)) = P(Y=1) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots Eq.\ 4}$$

Where:

P(Y=1) is the probability that the dependent variable Y equals 1 (the event of interest).

β_0 is the intercept term.

β_1, β_2, and β_3 are the coefficients for the independent variables X_1, X_2, and X_3 respectively.

The model was fitted using Maximum Likelihood Estimation (MLE) using SPSS software. Model evaluation involved assessing goodness-of-fit, computing Pseudo-R^2, and classification metrics such as accuracy, precision, and AUC-ROC. The coefficients were analyzed to determine the direction and strength of the relationships. They were then converted to odds ratios for easier interpretation, and p-values were assessed to evaluate statistical significance. Model diagnostics included checking residuals, identifying influential observations using Cook's distance, and assessing multi-collinearity using the Kolmogorov-Smirnov Test. The estimated coefficients (β_0, β_1, β_2, and β_3) were interpreted to understand the direction and strength of the relationship between each predictor and the log odds of the outcome. Coefficients were converted to odds ratios to express the change in odds for a one-unit increase in the predictor, and p-

values were assessed to determine the statistical significance of each coefficient. The fitted model was used to predict the probability of outcomes for new data, classifying them based on a chosen threshold.

3.9.4 Diagnostic Tests for Inferential Statistics

The following Diagnostic Tests for Inferential Statistics were conducted:

1. **Test for Normality:** exploratory data analysis was done using the numerical Kolmogorov-Smirnov Test to check whether the sample data has a normal distribution. If the Significant value of the K-S Test (p value) is greater than 0.05 it means that the data is normally distributed hence fit for regression analysis, but if it is below 0.05 then the data significantly is not normally distributed and not fit for analysis
2. **Multi-collinearity Test:** The correlation between independent variables was checked using Pair-wise Correlation Analysis to establish if all the independent variables have no significant correlation indicating no multi-collinearity between the independent variables hence fit for the model analysis. If the p-values are greater than 0.05 then all the independent variables have no significant correlation indicating no multi-collinearity. If the p-values are less than 0.05 then there is an indication of significant correlation between independent variables hence is not fit model analysis.
3. **Heteroscedasticity test**: Heteroscedasticity of the residuals was tested using the Breusch-Godfrey Serial Correlation test to check whether residuals have a constant variance hence homoscedastic. If the p-values are greater than 0.05, it

implies that the residuals have a constant variance hence are homoscedastic and fit for analysis. P-values less than 0.05 implies heteroscedastic variance hence unfit for analysis.

4. **Linearity Test:** Linearity test was conducted by plotting the residuals vis-a-vi the predicted values to check whether the residuals are symmetrically distributed around the horizontal line hence fits the linearity assumption. If the residuals are symmetrically distributed along the lines, then there is linearity hence fit regression analysis. Asymmetric distributed residuals indicate non-linearity hence unfit for regression analysis.
5. **Test of Independence:** The correlation between each independent variable and dependent variable was checked using Pair-Wise Correlation Analysis to establish if each independent variable has a significant correlation with dependent variable. If the p-value is greater than 0.05 then the independent variable has no significant correlation, otherwise; if p-value is less than 0.05, then the independent variable has a significant correlation with the dependent variable.

3.9.5 Testing of Hypothesis

Hypothesis Testing was based on *P*-Values as summarized in Table 14.

Table 14: Hypothesis Testing Based On P-Values

p-value < *0.05*	Reject the Null Hypothesis
p-value > 0.05	Accept the Null Hypothesis

Source: Modified from other Scholars (2023)

3.10 Ethical Issues

Ethical considerations relate to the moral standards that the researcher should consider during the entire research process. Before proceeding to the field for data collection, the researcher obtained an introductory letter from the university. The respondents were not be required to indicate their identity on the questionnaire. It was made clear to the respondents that whatever information they give would not be used in whichever way to harm them, for commercial or for personal gain. The respondents' consent to participate in the study was sought and were informed of their right to withdraw at any stage if felt necessary.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.0 Introduction

This section presents the response rate, data screening and presentation, demographic characteristics, descriptive statistics and inferential statistics.

4.1 Response Rate

The assessment of the response rate involved an analysis of the number of questionnaires received, categorizing them into fully filled, not returned, and returned but incomplete. The subsequent calculation of the return rate is presented in Table 15 for clarity and reference.

Table 15: Response Rate

Sample Size	**Number**	**Percentage**
Questionnaires Returned (Fully Filled)	305	87.90
Questionnaires Returned (Not Fully Filled)	18	5.19
Questionnaires Not Returned	24	6.91
Total	347	100.00

Source: Survey Data (2023)

During the survey at Supermarkets under study, a total of 347 questionnaires were distributed to target respondents. Twenty-four (24) questionnaires were not returned and were subsequently excluded from the analysis. Additionally, 18 questionnaires were

returned partially filled and were also excluded from the final dataset. However, a substantial 305 questionnaires were returned fully filled, resulting in an impressive 87.9 percent response rate. This response rate aligns well with the acceptable limits suggested by Haslam and Prasad (2019), who advocate for a 65% and above response rate. According to their criteria, our response rate surpasses the minimum threshold, signifying its reliability for use in this study. This conclusion underscores the sufficiency of the obtained response rate. Considering the sensitivity surrounding competition gimmicks in the retail sector, the high response rate achieved can be attributed to the assurance provided in the introductory letter. The letter conveyed a commitment that the collected data would be used solely for academic purposes and assured respondents of the confidentiality of their information.

4.2 Data Screening and Preparation

4.2.1 Analysis of Data Entry Errors

Information contained in the filled questionnaires was transcribed into SPSS Software Version 24 for additional examination. Eighteen (18) partially filled questionnaires were categorized as data entry errors thus non usable.

4.2.2 Analysis of Outliers

Scatter plots were used to examine outliers in the data set. Ensuring the robustness of a dataset hinges on the critical task of outlier detection. The depiction of data points on a scatter plot unveils patterns and deviations, making outliers data points notably distant from the overall trend easily discernible. The significance of excluding outliers is

emphasized by Tabachnick and Fidel (2013), who highlight that these data points, exhibiting substantial deviation from the majority, may stem from errors or variations in measurements. Any observation significantly deviating from the typical distribution in a random population sample qualifies as an outlier. The potential impact of outliers on the accuracy of findings and conclusions, particularly when generalizing to a broader population, cannot be understated. However, in the current study, it is noteworthy that no outliers were detected in the collected data, underscoring the reliability of the dataset for precise analysis and interpretation. This absence of outliers contributes to the overall robustness of the dataset and enhances confidence in the validity of the study's outcomes.

4.2.3 Analysis of Missing Data

Analysis of missing data was conducted and the results summarized in Table 16.

Table 16: Missing Values

Section with Missing Values	Number of Missing Values	Missing %
A	3	0.38
D	2	0.25
F	1	0.13
J	2	0.25
Total	**8**	**1.01**

Source: Survey Data (2023)

Table 16 reveals the presence of missing values across different sections, with Section A having 3, D having 2, F having 1, and J having 2 missing values. Following the guidelines presented by Hair et al. (2013) as well as Tabachnick and Fidel (2013), addressing missing values is crucial. These scholars suggest that if missing data is less

than 5% of the sample size, it can be incorporated into the analysis using the mean of existing data.

In this study, the proportion of missing values was calculated to be 1.01%, well below the 5% threshold. Consequently, in accordance with the recommendations of Hair et al. (2013) and Tabachnick and Fidel (2013), the missing values were replaced by a series of means, ensuring a robust and comprehensive analysis.

4.3 Demographic Characteristics of Respondents

This study explored the demographic characteristics of respondents, encompassing factors such as academic qualification and the respondents experience in Retail Outlets. Demographic data serves a dual purpose, providing insights into the study participants and serving as a representation of the broader target population. This representation is vital for generalizing research results. The collected demographic information played a crucial role in elucidating the potential influence of personal factors on the utilization of Supply Chain Integration and its impact on Retail Outlet Performance.

4.3.1 Respondents' Industry Experience

The focus of this section of analysis was on evaluating the number of years' respondents had dedicated to working in the retail outlets industry. This particular information would give significance as it would play a crucial role in gauging their depth of understanding regarding the operations within the Retail Outlets. A concise summary of the outcomes is presented in Table 17.

Table 17: Respondents' Industry Experience

Characteristics	Description	Frequency	Percentage
Number of in years in Industry	Below 5	111	36.39
	6-10	125	40.98
	10-15	69	22.63
	16-20	0.00	0.00
	20 & Above	0.00	0.00
	Total	**305**	**100**

Source: Survey Data (2023)

Table 17 presents insightful findings regarding the tenure of the respondents in the Retail Outlets. Notably, a majority of 125 individuals, accounting for 40.98%, had accumulated 6-10 years of experience. Following closely, 111 respondents (36.39%) had a tenure of less than 5 years, while 69 individuals (22.63%) had dedicated over 10 years to working in the Retail Outlets. There were no respondents whose experience span 16 years and above. The cumulative effect of these results indicates that a substantial majority of 194 respondents, constituting 63.61%, possessed extensive experience in the Retail Outlets. This extensive tenure suggests a profound understanding of the operations within these outlets, enabling respondents to offer valuable insights into the utilization of Supply Chain Integration for positive Retail Outlet performance.

4.3.2 Respondents' Academic Qualifications

The study sought to ascertain the academic qualifications of the respondents, categorizing them into four levels: Certificate, Diploma, Degree, and Post-Graduate. This categorization was designed to aid the researcher in gauging the expected quality of information to be collected from the participants.

Table 18: Respondents' Academic Qualifications

Characteristics	Description	Frequency	Percentage
Academic qualifications	Certificate	86	28.20
	Diploma	110	36.07
	Degree	104	34.10
	Masters	5	1.63
	PhD	0.00	0.00
	Total	**305**	**100.00**

Source: Survey Data (2023)

The findings from Table 18 indicated that the majority of Retail Outlet employees, numbering 110, held diplomas, constituting 36.07%. Following closely, degree holders accounted for 36.07% with a total of 104 respondents. Certificate holders comprised the third-largest category at 28.20% with 86 individuals. The smallest category, consisting of Masters, totaled 5 at 1.63%. There were no PhD among the respondents. This pattern reflects a knowledgeable workforce capable of comprehending the diverse Supply Chain Integration methods employed in their respective company operations.

4.4 Descriptive Statistics

The analysis involved utilizing statistical measures such as minimum, maximum, mean, standard deviation, skewness, and kurtosis to elucidate the research findings. The primary objective was to explore the relationship between Supply Chain Integration (as the explanatory variable) and the performance of Retail Outlets in Kenya (as the criterion variable), emphasizing the moderating effect of Supply Chain Pillars. Data on Supply Chain Integration, Retail Outlet Performance, and Supply Chain Pillars were collected through a questionnaire administered to the respondents. The research outcomes were systematically presented in tables, showcasing minimum and maximum scores, mean values, standard deviation, skewness, and kurtosis. Minimum scores represented the lowest observed values, while maximum scores denoted the highest. Mean values provided insights into the average direction of responses, and standard deviation indicated the average deviation from the mean. A low standard deviation suggested that most observations clustered around the observed mean. Skewness illuminated the extent to which the distribution deviated from symmetry around the mean, while kurtosis highlighted the distribution's flatness or peakedness. These measures collectively conveyed that responses to a given question were relatively uniform across all respondents

4.4.1 Supply Chain Information Sharing

The research sought to an in-depth examination of multiple parameters related to Supply Chain Information Sharing within Retail Outlets in Kenya by systematically assessing

various parameters. The insights obtained from the research respondents' answers on diverse aspects were methodically analyzed and subsequently presented in Table 19.

Table 19 Descriptive Statistics on Supply Chain Information Sharing

Table 19: Descriptive Statistics on Supply Chain Information Sharing

Statement	N	Min	Max	Mean	Std Dev	Skewness	Kurtosis
The supermarket has a Supply Chain Information Sharing System that allows for timely communication with suppliers thus have been able to realize optimal stockholding leading to increased sales volume.	305	1	5	4.52	1.224	-.069	.920
The supermarket has a Supply Chain Information Sharing System that allows for accurate communication with suppliers thus have been able to realize optimal stockholding leading to increased net profit margins	305	1	5	3.91	1.061	-.494	.418
The supermarket has a Supply Chain Information Sharing System that allows for reliable communication with suppliers thus have been able to realize optimal stockholding leading to cost reduction.	305	1	5	4.01	1.310	-.170	1.134

The supermarket has a Supply Chain Information Sharing System that allows for timely communication with suppliers thus have been able to realize optimal stockholding leading to effective stockout reductions.	305	1	5	4.12	1.436	-.172	1.358
The supermarket has a Supply Chain Information Sharing System that allows for accurate communication with suppliers thus have been able to realize optimal stockholding leading to increased product variety enhancements.	305	1	5	4.27	1.394	-.216	1.304
The supermarket has a Supply Chain Information Sharing System that allows for reliable communication with suppliers thus have been able to realize optimal stockholding leading to high stock turnover.	305	1	5	4.73	1.560	-.237	1.492
Overall Score	305			3.06	1.331	-0.2263	1.1043

Source: Survey Data (2023)

The study diagnosed the perceptions of 305 respondents regarding various facets of the supermarket's supply chain Information Sharing system. The study evaluated whether the supermarket's system facilitates timely communication with suppliers, enabling optimal stockholding and subsequently leading to increased sales volume. Responses spanned

from 1 to 5, revealing diverse perceptions. A remarkably high mean score of 4.52 indicated a robustly positive view, with a standard deviation of 1.224 signaling some variability. The distribution displayed a slight leftward skewness (-0.069) and negative kurtosis (0.920), suggesting a mild asymmetry and a relatively positive shape.

Exploring whether the supermarket's supply chain Information Sharing system supports accurate communication with suppliers, contributing to optimal stockholding and increased net profit margins, respondents' scores ranged from 1 to 5. A higher mean of 3.91 suggested a notably positive perception, with a standard deviation of 1.061 reflecting consistent responses. The negative skewness (-0.494) and positive kurtosis (0.418) hinted at a slight leftward asymmetry and a relatively peaked distribution.

Considering the supermarket's supply chain Information Sharing system's role in reliable communication with suppliers, fostering optimal stockholding and cost reduction, responses varied from 1 to 5. A mean score of 4.01 indicated a moderately positive perception, with a standard deviation of 1.310 revealing some variability. The distribution displayed slight leftward skewness (-0.170) and positive kurtosis (1.134), suggesting a minor asymmetry and a peaked distribution.

Examining the supermarket's supply chain Information Sharing system's impact on timely communication with suppliers, effective stockout reductions, and the subsequent scores ranging from 1 to 5, a mean score of 4.12 highlighted a very strong positive perception. The standard deviation of 1.436 indicated variability, and the distribution exhibited slight leftward skewness (-0.172) and positive kurtosis (1.358), suggesting a mild asymmetry and a peaked shape.

Addressing the supermarket's supply chain Information Sharing system's influence on accurate communication with suppliers, contributing to increased product variety enhancements, respondents' scores ranged from 1 to 5. A mean of 4.27 indicated a remarkably positive perception, with a standard deviation of 1.394 pointing to variability. The distribution displayed slight leftward skewness (-0.216) and positive kurtosis (1.304), suggesting a minor asymmetry and a peaked distribution.

Exploring the supermarket's supply chain Information Sharing system's role in reliable communication with suppliers, facilitating optimal stockholding and high stock turnover, scores varied from 1 to 5. A mean of 4.73 suggested a notably higher positive perception, with a standard deviation of 1.560 indicating variability. The distribution showed slight leftward skewness (-0.237) and positive kurtosis (1.492), suggesting a mild asymmetry and a peaked shape.

The overall mean score of 3.06 reflected a generally positive perception among respondents, with a standard deviation of 1.331 indicating variability. The negative skewness (-0.2263) and positive kurtosis (1.1043) suggested a mild leftward asymmetry and a relatively peaked distribution. Leftward asymmetry and a peaked distribution imply that the majority of data points are concentrated on the right side of the distribution, with a tail extending to the left. In other words, the distribution is skewed to the left, indicating that there are more extreme values on the lower end of the scale. The peakedness,

however, suggests that the data has a higher concentration of values around the mean, creating a sharper peak in the distribution.

In practical terms, the leftward asymmetry and a peaked distribution indicate that respondents generally hold positive views supply chain Information Sharing in retail outlets, but there might be a few extreme lower values (outliers) pulling the distribution to the left. However, the concentration of values around the mean suggests that there is a consensus in responses, with most respondents providing similar ratings.

4.4.2 Supply Chain Decision Synchronization

The study sought to an in-depth examination of multiple parameters related to supply chain decision synchronization within Retail Outlets in Kenya by systematically assessing various parameters. The insights obtained from the research respondents' answers on diverse aspects were methodically analyzed and subsequently presented in Table 20

Table 20: Descriptive Results on Supply Chain Decision Synchronization

Statement	N	Min	Max	Mean	Std. Dev	Skewness	Kurtosis
The supermarket has a Supply Chain Decision Synchronization System that enhances joint	305	1	5	3.55	1.025	-1.002	.531

decision making with suppliers thus have been able to realize optimal inventory levels leading to increased sales volume.							
The supermarket has a Supply Chain Decision Synchronization System that enhances joint planning with suppliers thus have been able to realize optimal inventory levels leading to increased net-profit margins	305	1	5	3.70	.765	1.304	2.473
The supermarket has a Supply Chain Decision Synchronization System that enhances joint decision implementation with suppliers thus have been able to realize optimal inventory levels leading to cost reduction.	305	1	5	3.87	.835	-.103	-.758
The supermarket has a Supply Chain Decision Synchronization System that enhances joint decision making with suppliers thus have been	305	1	5	3.82	.962	-.540	.033

able to realize optimal inventory levels leading to effective stockout reductions.							
The supermarket has a Supply Chain Decision Synchronization System that enhances joint planning with suppliers thus have been able to realize optimal inventory levels leading to increased product variety enhancements.	305	1	5	4.15	.857	-1.333	2.364
The supermarket has a Supply Chain Decision Synchronization System that enhances joint decision implementation with suppliers thus have been able to realize optimal stock levels leading to high stock turnover.	305	1	5	4.31	.760	-1.132	1.482
Overall score	**305**			**3.9**	**0.8673**	**-0.9023**	**1.0208**

Source: Survey Data (2023)

The analysis scrutinized the perceptions of 305 respondents regarding the supermarket's supply chain decision synchronization system. Assessing various dimensions, the study explored the impact of the system on joint decision making, planning, and

implementation with suppliers, influencing optimal inventory levels and subsequent outcomes. Evaluating the supermarket supply chain decision synchronization system's role in enhancing joint decision making with suppliers for optimal inventory levels and increased sales volume, the mean score of 3.55 indicated a positive perception. The standard deviation of 1.025 suggested some variability, while the negative skewness (-1.002) and positive kurtosis (.531) hinted at a leftward asymmetry and a moderately peaked distribution.

Exploring the supermarket supply chain decision synchronization system's impact on joint planning with suppliers, contributing to optimal inventory levels and increased net-profit margins, the mean score of 3.70 revealed a positive perception. The lower standard deviation of .765 reflected more consistent responses. The positive skewness (1.304) and higher kurtosis (2.473) suggested a rightward asymmetry and a relatively peaked distribution. Examining the supermarket supply chain decision synchronization system's influence on joint decision implementation with suppliers, fostering optimal inventory levels and cost reduction, the mean score of 3.87 indicated a positive perception. The standard deviation of .835 showed some variability, while the negative skewness (-.103) and negative kurtosis (-.758) suggested a relatively symmetrical distribution with a flatter shape. Assessing the supermarket supply chain decision synchronization system's impact on joint decision making with suppliers for optimal inventory levels and effective stockout reductions, the mean score of 3.82 highlighted a positive perception. The standard deviation of .962 indicated variability, while the

negative skewness (-.540) and positive kurtosis (.033) hinted at a leftward asymmetry and a moderately peaked distribution. Exploring the supermarket supply chain decision synchronization system's role in joint planning with suppliers, contributing to optimal inventory levels and increased product variety enhancements, the mean score of 4.15 indicated a strong positive perception. The standard deviation of .857 reflected some variability. The negative skewness (-1.333) and higher kurtosis (2.364) suggested a leftward asymmetry and a relatively peaked distribution.

Examining the supermarket supply chain decision synchronization system's influence on joint decision implementation with suppliers, fostering optimal stock levels and high stock turnover, the mean score of 4.31 suggested a notably positive perception. The lower standard deviation of .760 reflected more consistent responses. The negative skewness (-1.132) and positive kurtosis (1.482) indicated a leftward asymmetry and a moderately peaked distribution. The overall mean score of 3.9 reflected a consistently positive perception among respondents on supermarket supply chain decision synchronization system. The standard deviation of 0.8673 indicated some variability. The negative skewness (-0.9023) and positive kurtosis (1.0208) suggested a leftward asymmetry and a relatively peaked distribution. The leftward asymmetry and a peaked distribution indicate that respondents generally hold positive views supply chain Information Sharing in retail outlets, but there might be a few extreme lower values (outliers) pulling the distribution to the left. However, the concentration of values

around the mean suggests that there is a consensus in responses, with most respondents providing similar ratings.

4.4.3 Supply Chain Incentive Alignment

The study sought to an in-depth examination of multiple parameters related to supply chain incentive alignment within Retail Outlets in Kenya by systematically assessing various parameters. The insights obtained from the research respondents' answers on diverse aspects were methodically analyzed and subsequently presented in Table 21.

Table 21: Descriptive Statistics Results on Supply Chain Incentive Alignment

Statement	N	Min	Max	Mean	Std. Dev	Skewness	Kurtosis
The supermarket has a Supply Chain Incentive Alignment system that enhances cost sharing with suppliers thus have been able to realize optimal stockholding leading to increased sales volume.	305	1	5	3.63	.956	-.811	.425
The supermarket has a Supply Chain Incentive Alignment system that enhances risk sharing with suppliers thus have been able to realize optimal	305	1	5	3.72	.836	-1.065	1.773

stockholding leading to increased net-profit margins							
The supermarket has a Supply Chain Incentive Alignment system that enhances benefit sharing with suppliers thus have been able to realize optimal stockholding leading to cost reduction.	305	1	5	3.70	.949	-.900	.797
The supermarket has a Supply Chain Incentive Alignment system that enhances cost sharing with suppliers thus have been able to realize optimal stockholding leading to effective stock-out reductions.	305	2	5	3.93	.695	-.207	-.166
The supermarket has a Supply Chain Incentive Alignment system that enhances risk sharing with suppliers thus have been able to realize optimal stockholding leading to increased product variety enhancements.	305	2	5	4.34	.741	-.891	.219

The supermarket has a Supply Chain Incentive Alignment system that enhances benefit sharing with suppliers thus have been able to realize optimal stockholding leading to high stock turnover.	305	2	5	4.39	.700	-.860	.064
Overall Score	**305**			**3.951**	**.8128**	**-.789**	**.5187**

Source: Survey Data (2023)

The analysis delved into the perceptions of 305 respondents concerning the supermarket's supply chain incentive alignment system. Exploring the impact on cost sharing, risk sharing, and benefit sharing with suppliers, the study assessed the system's influence on optimal stockholding and subsequent outcomes. Assessing the supply chain incentive alignment system's role in enhancing cost sharing with suppliers, contributing to optimal stockholding and increased sales volume, the mean score of 3.63 indicated a positive perception. The standard deviation of 0.956 suggested some variability, while the negative skewness (-0.811) and positive kurtosis (0.425) hinted at a leftward asymmetry and a moderately peaked distribution.

Exploring the supply chain incentive alignment system's impact on risk sharing with suppliers, contributing to optimal stockholding and increased net-profit margins, the mean score of 3.72 revealed a positive perception. The lower standard deviation of

0.836 reflected more consistent responses. The negative skewness (-1.065) and higher kurtosis (1.773) suggested a leftward asymmetry and a relatively peaked distribution. Examining the supply chain incentive alignment system's influence on benefit sharing with suppliers, fostering optimal stockholding and cost reduction, the mean score of 3.70 indicated a positive perception. The standard deviation of 0.949 showed some variability, while the negative skewness (-0.900) and positive kurtosis (0.797) suggested a leftward asymmetry and a moderately peaked distribution. Assessing the supply chain incentive alignment system's impact on cost sharing with suppliers, contributing to optimal stockholding and effective stock-out reductions, the mean score of 3.93 highlighted a positive perception. The standard deviation of 0.695 indicated less variability, while the negative skewness (-0.207) and negative kurtosis (-0.166) suggested a symmetrical distribution with a flatter shape.

Exploring the supply chain incentive alignment system's role in risk sharing with suppliers, contributing to optimal stockholding and increased product variety enhancements, the mean score of 4.34 indicated a strong positive perception. The standard deviation of 0.741 reflected some variability. The negative skewness (-0.891) and positive kurtosis (0.219) suggested a leftward asymmetry and a moderately peaked distribution. Examining the supply chain incentive alignment system's influence on benefit sharing with suppliers, fostering optimal stockholding and high stock turnover, the mean score of 4.39 suggested a notably positive perception. The lower standard deviation of 0.700 reflected more consistent responses. The negative skewness (-0.860)

and positive kurtosis (0.064) indicated a leftward asymmetry and a relatively flat distribution.

The overall mean score of 3.951 reflected a consistently positive perception among respondents. The standard deviation of 0.8128 indicated some variability. The negative skewness (-0.789) and positive kurtosis (0.5187) suggested a leftward asymmetry and a moderately peaked distribution. The leftward asymmetry and a moderately peaked distribution indicate that respondents generally hold positive views supply chain incentive alignment in retail outlets, but there might be a few extreme lower values (outliers) pulling the distribution to the left. However, the concentration of values around the mean suggests that there is a consensus in responses, with most respondents providing similar ratings.

4.4.4 Retail Outlet Performance

The study sought to an in-depth examination of multiple parameters related to the performance of Retail Outlets in Kenya by systematically assessing various parameters. The insights obtained from the research respondents' answers on diverse aspects were methodically analyzed and subsequently presented in Table 22.

Table 22: Descriptive statistics on Retail Outlet Performance

Statement	N	Min	Max	Mean	Std Dev.	Skewness	Kurtosis
The supermarket has recorded a positive sales volume for the last couple of years	305	1	5	4.05	.750	.803	1.922
The supermarket has registered a steady net profit margin for the last couple of years	305	1	5	4.29	.625	.513	1.402
For the last two years the supermarket has recorded reduction in operation cost	305	1	5	4.31	.707	.675	1.213
The supermarket always undertake timely replenishment of stock thus does not suffer inventory stock outs.	305	1	5	4.23	.705	.987	2.227
The supermarket has always maintained different product variety hence customers have a wide range to choose from.	305	2	5	4.27	.679	.720	1.660
The supermarket always sell and replace stock at a high rate thus high stock turn-over.	305	3	5	4.45	.571	.424	1.760
Overall Score	**305**			**4.274**	**.666**	**0.627**	**1.699**

Source: Survey Data (2023)

The analysis scrutinized various aspects of the supermarket's performance over the last couple of years, evaluating key indicators related to sales volume, net profit margin, operation cost, stock replenishment, product variety, and stock turnover. The supermarket has consistently achieved positive sales volume, as indicated by a mean score of 4.05 with a standard deviation of 0.750. This suggests a strong perception among respondents regarding the supermarket's success in driving sales. The distribution shows a slight positive skewness (0.803), indicating a relatively more extended tail on the right and a kurtosis of 1.922, suggesting a moderately peaked distribution.

In terms of net profit margin stability, the supermarket has maintained a steady performance, evidenced by a mean score of 4.29 and a low standard deviation of 0.625. The positive skewness (0.513) suggests a mild asymmetry towards higher values, while the kurtosis of 1.402 indicates a moderately peaked distribution. Furthermore, the supermarket has successfully reduced operational costs, reflected in a mean score of 4.31 and a standard deviation of 0.707. The positive skewness (0.675) suggests a slightly extended tail on the right, and the kurtosis of 1.213 indicates a moderately peaked distribution. The supermarket's effective stock management practices, including timely replenishment, are evident in the mean score of 4.23 with a standard deviation of 0.705. The positive skewness (0.987) indicates a more extended tail on the right, and the kurtosis of 2.227 suggests a relatively peaked distribution. Maintaining a diverse product variety has been a notable strength, with a mean score of 4.27 and a standard deviation of

0.679. The positive skewness (0.720) indicates a mild asymmetry towards higher values, and the kurtosis of 1.660 suggests a moderately peaked distribution.

Finally, the supermarket's high stock turnover is reflected in a mean score of 4.45 with a standard deviation of 0.571. The positive skewness (0.424) indicates a slight asymmetry towards higher values, and the kurtosis of 1.760 suggests a moderately peaked distribution. Overall, the supermarket demonstrates a robust performance across these key indicators, with respondents consistently perceiving positive attributes. The overall score of 4.274 indicates a highly favorable perception of the supermarket's operational excellence.

4.4.5 Supply Chain Pillars

The study sought to an in-depth examination of multiple parameters related to supply chain pillars within Retail Outlets in Kenya by systematically assessing various parameters. The insights obtained from the research respondents' answers on diverse aspects were methodically analyzed and subsequently presented in Table 23.

Table 23: Descriptive Statistics on Supply Chain Pillars

Statement	N	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis
The supermarket has a Supply Chain Visibility that allows for monitoring and tracking of products flow along the supply chain leading	305	1	5	4.15	.938	1.380	1.743

to increased sales volume.							
The supermarket has a Flexible Supply Chain System that provides for rapid response to customer needs thus have been able to realize high profit margins	305	1	5	4.23	.705	.987	2.227
The supermarket has a Supply Chain Visibility that that allows for monitoring and tracking of product flow along the supply chain leading to optimal cost reduction.	305	1	5	4.29	,837	1.697	4.024
The supermarket has a Supply Chain Visibility that allows for monitoring and tracking of products flow along the supply chain leading to effective stockout reductions.	305	1	5	4.38	.812	1.805	4.478
The supermarket has Flexible Supply Chain System that provides for rapid response to customer needs leading to increased product variety enhancements.	305	1	5	4.34	.815	1.310	1.737
The supermarket has a Supply Chain Visibility that that allows for monitoring and tracking of products flow along the supply chain leading to high stock turnover.	305	1	5	4.40	.753	1.810	4.901
Overall Score	**305**			**4.298**	**0.810**	**1.4981**	**3.2184**

Source: Survey Data (2023)

The analysis focused on evaluating the supermarket's performance in relation to supply chain visibility and flexibility, aiming to understand their impact on key outcomes such as sales volume, profit margins, cost reduction, stockout reductions, product variety, and stock turnover. The supermarket's effective Supply Chain Visibility, allowing for

monitoring and tracking of product flow along the supply chain, is reflected in the mean score of 4.15 with a standard deviation of 0.938. This suggests a strong positive perception among respondents regarding the supermarket's ability to enhance sales volume. The distribution exhibits positive skewness (1.380), indicating an extended tail on the right, and a kurtosis of 1.743, suggesting a moderately peaked distribution.

The Flexible Supply Chain System, facilitating a rapid response to customer needs, has contributed to the realization of high-profit margins, as indicated by a mean score of 4.23 and a standard deviation of 0.705. The positive skewness (0.987) indicates a slightly extended tail on the right, and the kurtosis of 2.227 suggests a moderately peaked distribution. Additionally, the supermarket's Supply Chain Visibility, facilitating monitoring and tracking for optimal cost reduction, is highlighted by a mean score of 4.29 with a standard deviation of 0.837. The positive skewness (1.697) suggests an extended tail on the right, and the kurtosis of 4.024 indicates a noticeably peaked distribution. The effective utilization of Supply Chain Visibility to achieve reduced stockouts is evident in the mean score of 4.38 with a standard deviation of 0.812. The positive skewness (1.805) indicates an extended tail on the right, and the kurtosis of 4.478 suggests a significantly peaked distribution. Moreover, the Flexible Supply Chain System, contributing to increased product variety enhancements, is reflected in the mean score of 4.34 with a standard deviation of 0.815. The positive skewness (1.310) indicates a mild asymmetry towards higher values, and the kurtosis of 1.737 suggests a moderately peaked distribution.

Lastly, the supermarket's effective Supply Chain Visibility leading to high stock turnover is evident in the mean score of 4.40 with a standard deviation of 0.753. The positive skewness (1.810) indicates an extended tail on the right, and the kurtosis of 4.901 suggests a noticeably peaked distribution. The overall score of 4.298 underscores a highly positive perception of the supermarket's supply chain practices, with respondents consistently recognizing the impact on various performance metrics.

4.5 Diagnostic Tests

4.5.1 Exploratory Analysis of Retail Outlet Performance

4.5.1.1 Exploring the Distribution Normality of Median Retail Outlets Performance.

Density Plot for the Median values of Retail Outlets Performance was used to determine the distribution of the data obtained and the output was as illustrated in Figure 2.

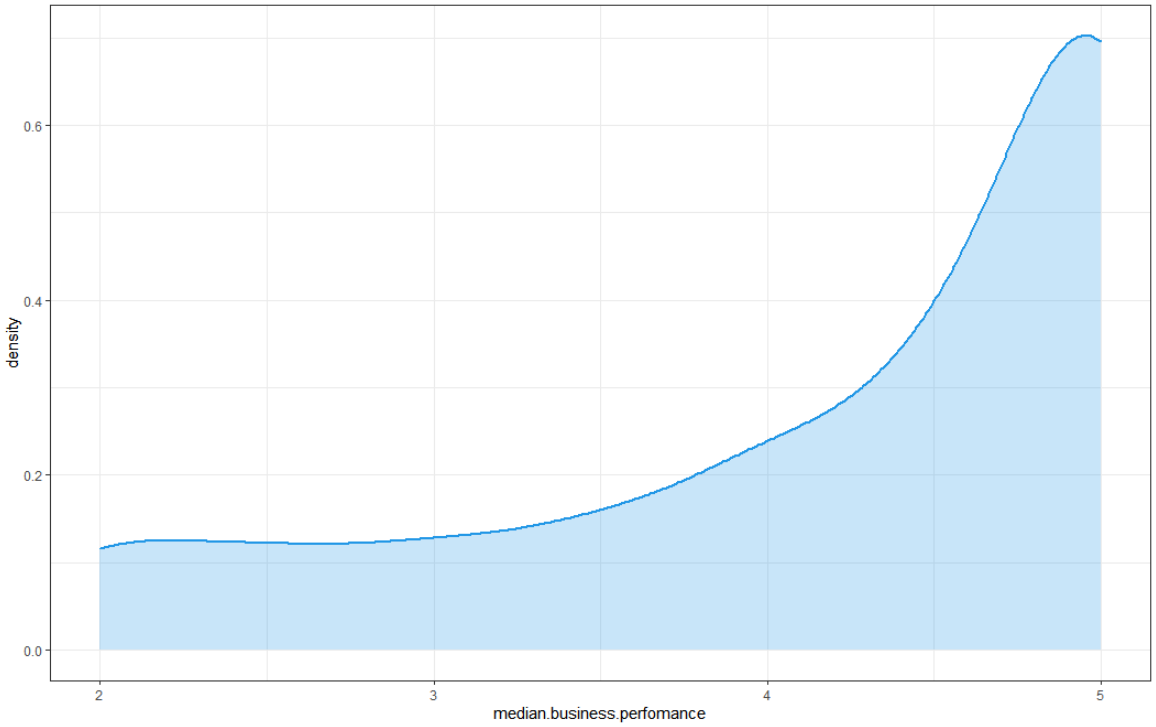

Figure 2: ***Density Plot for the Median Retail Outlets Performance indicator as displayed***

Source: Survey Data (2024)

Figure 2 illustrates the distribution of Retail Outlets Performance indicators, providing a visual representation of how these performance metrics are spread across the sampled outlets. The distribution of Retail Outlets Performance indicators is negatively skewed as shown in figure 2. A skewness value between -0.5 and 0.5 indicates symmetry. In the current study, Retail Outlets Performance skewness indicator turns out to be -1.037351 and the kurtosis turns out to be 2.799318 which are ~~out of~~ outside the normal range. The tail is on the left side of the distribution, extending towards more low values. In business contexts, it suggests frequent agreements and a few disagreements.

4.5.1.2 Lilliefors (Kolmogorov-Smirnov) Test for Normality / Jarque-Bera Normality Test

Exploratory data analysis was further done using the numerical Lilliefors (Kolmogorov-Smirnov) Test to check for the normality of the data set for Retail Outlets Performance. The Kolmogorov-Smirnov (K-S) test is considered as the most famous EDF omnibus test for normality (Thode, 2002).

Table 24: Tests of Normality

	Kolmogorov-Smirnov Test			Jarque-Bera Normality Test		
	D	df	Sig.	JB	df	Sig.
Retail Outlet Performance	0.24509	304	< 2.2e-16	55.213	304	1.025e-12

Source: Survey Data (2024)

In the context of the Kolmogorov-Smirnov (K-S) test, the results "D = 0.24509" and "p-value < 2.2e-16" indicate specific interpretations. The test statistic D = 0.24509 represents the maximum difference between the empirical distribution function of the sample and the cumulative distribution function of the reference distribution, with a higher value of D indicating a greater difference between the two distributions. The p-value, which is extremely small (essentially zero), suggests that there is strong evidence against the null hypothesis, which typically states that the sample comes from the reference distribution. Therefore, you can reject the null hypothesis with a high degree of confidence. In summary, the K

-S test results indicate that the distribution of the sample is significantly different from th e reference distribution. This conclusion is based on the high D value of 0.24509 and the extremely small p-value, implying that the differences observed are unlikely to be due to random chance.

Similarly, Jarque-Bera Normality Test results obtained were that JB = 55.213, df = 304, a nd p-value < 1.025e-12. The test statistic JB = 55.213 suggests a significant deviation fro m normality, with a higher JB value indicating greater deviation. The degrees of freedom (df) represent the sample size used to compute the test statistic. The extremely small p-va lue (< 1.025e-12) indicates the probability of obtaining a test statistic at least as extreme a s the one observed, under the null hypothesis. Given the very small p-value, there is stron g evidence against the null hypothesis, which states that the sample data follows a normal distribution. Consequently, the sample data significantly deviates from a normal distribut ion, meaning it does not have the skewness and kurtosis characteristics of a normal distri bution, and this deviation is unlikely to be due to random chance.

4.5.1.3 Goodness of Fit Test (Akaike Information Criterion (AIC) and Deviance)

Goodness of fit for the various binary logistic regression outputs was considered using Akaike Information Criterion (AIC), Deviance analysis and the results were as summarized in Table 25.

Table 25: Model Performance Evaluation with Akaike Information Criterion (AIC) Across the Objectives and for the Combined Model

Objective	Model	AIC
1	1	380.13
	2	375.64
2	1	365.74
	2	365.9
3	1	372.3
	2	369.05
All the objectives	Jointly	348

Source: Survey Data (2024)

Table 25 presents the Akaike Information Criterion (AIC) values for different models applied to three distinct objectives, as well as a joint model encompassing all objectives. The AIC is a commonly used measure in model selection, where lower AIC values indicate a better-fitting model with a balance between goodness of fit and model complexity. For Objective 1, Model 1 has an AIC of 380.13, while Model 2 has a lower AIC of 375.64, indicating that Model 2 fits the data better than Model 1 for this objective. For Objective 2, Model 1 has an AIC of 365.74, slightly lower than Model 2's AIC of 365.9, suggesting that Model 1 is marginally better at fitting the data for this objective. The close AIC values imply that both models have similar performance, but Model 1 has a slight edge in terms of fit. For Objective 3, Model 1 has an AIC of 372.3, whereas Model 2 has a lower AIC of 369.05, indicating that Model 2 is superior in fitting the data for Objective 3 compared to Model 1. When considering all objectives jointly, the model has an AIC of 348. This significantly lower AIC value compared to the individual models for each objective suggests that the joint model provides the best overall fit. The joint model's ability to encapsulate the data from all objectives into a single, cohesive

framework likely leads to a more efficient and effective representation of the data. This comprehensive model likely captures interactions and dependencies between the different objectives, which individual models might miss. In summary, Model 2 is preferred for Objective 1 and Objective 3 due to its lower AIC values, indicating a better fit. For Objective 2, Model 1 is slightly better, although the difference is minimal. The joint model, with an AIC of 348, outperforms all individual models, suggesting that it provides the most parsimonious and effective explanation of the data across all objectives. This comprehensive fit highlights the advantage of using a unified model to capture the broader context and interactions between different objectives, ultimately leading to better insights and more robust conclusions.

4.5.1.4 Goodness of Fit Test (Sensitivity and Specificity Test)

Similarly, a further evaluation of Goodness of fit for the various binary logistic regression outputs was conducted using Sensitivity and Specificity Test and the results were as summarized in Figure 3 and 4. ROC curves A and B are designated for model I and II for objective 1; C and D for model I and II for objective II and E and F for objective III.

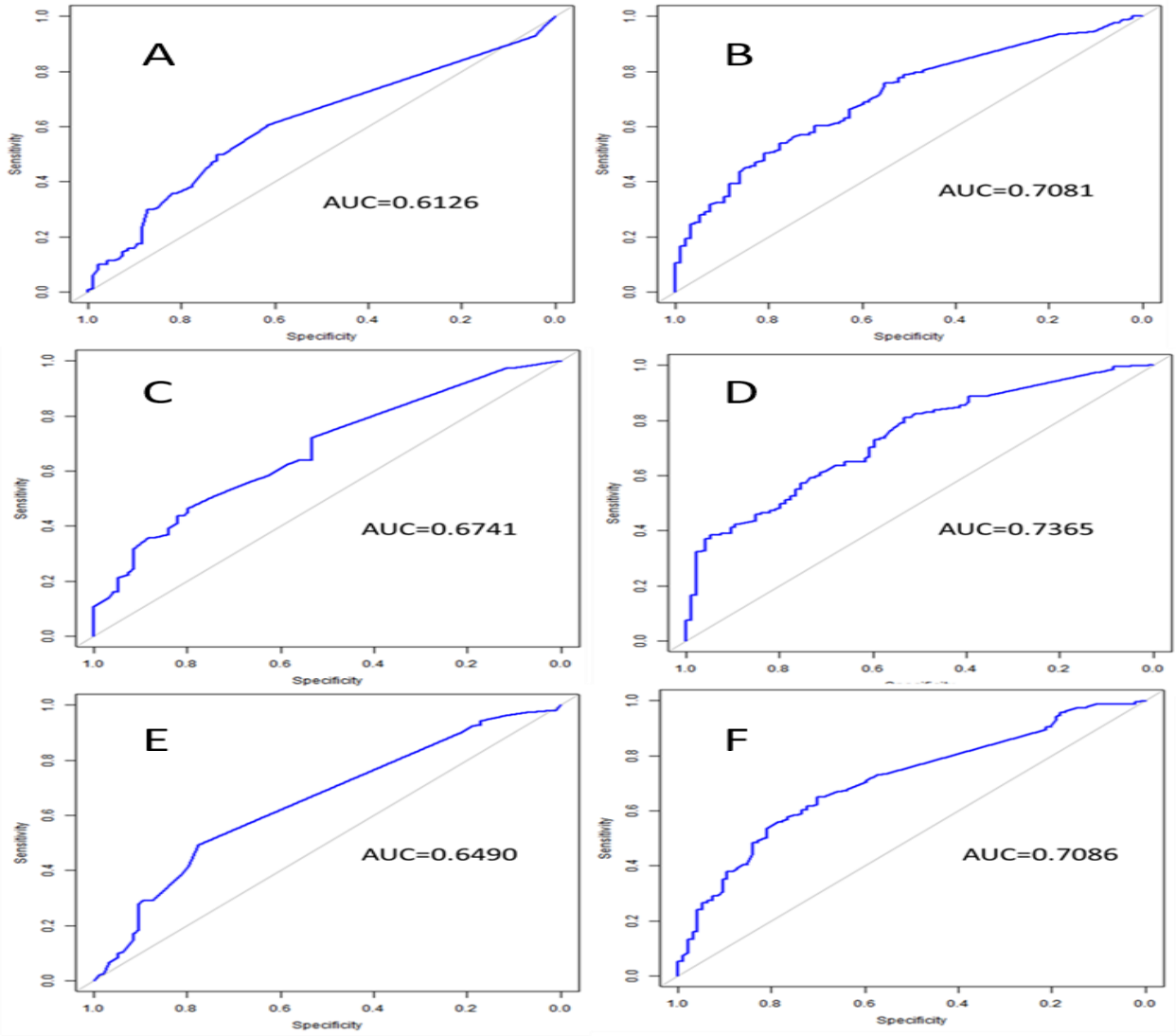

Figure 3: Graphical Representations of ROC Curves

Source: Author's Computation from Research Data (2024)

The results of the evaluation of goodness of fit for the various binary logistic regression outputs were conducted using Sensitivity and Specificity Tests. The results presented in Figures 4.2 include ROC (Receiver Operating Characteristic) curves that graphically represent the performance of the diagnostic tests or statistical models for dichotomous outcomes (disagree vs. agree) on customer perceptions. The ROC curves plot the true

positive rate (sensitivity) against the false positive rate (1-specificity) for different possible cut points of a diagnostic test. This helps to evaluate how well the models distinguish between the two outcomes. Specifically, Figure 4.2 displays the ROC curves for the different models evaluated, where Curves A and B correspond to Model I and Model II for Objective 1, with AUC values of 0.6122 and 0.7081, respectively. Curves C and D correspond to Model I and Model II for Objective 2, with AUC values of 0.6741 and 0.7365, respectively. Curves E and F correspond to Model I and Model II for Objective 3, with AUC values of 0.6490 and 0.7086, respectively.

The AUC for Model I (Curve A) is 0.6122, indicating moderate discriminatory power, while the AUC for Model II (Curve B) is 0.7081, indicating better discriminatory power. Therefore, for Objective 1, Model II performs better in distinguishing between agreeing and disagreeing respondent perceptions. For Objective 2, the AUC for Model I (Curve C) is 0.6741, showing good discriminatory power, while the AUC for Model II (Curve D) is 0.7365, indicating even better discriminatory power. Thus, for Objective 2, Model II outperforms Model I in distinguishing between the two respondent perceptions. For Objective 3, the AUC for Model I (Curve E) is 0.6490, indicating good discriminatory power, while the AUC for Model II (Curve F) is 0.7086, indicating better discriminatory power. Hence, for Objective 3, Model II is superior in distinguishing between agreeing and disagreeing respondent perceptions.

By comparing the ROC curves and their respective AUC values for the different models, it becomes possible to assess which model performs better for each objective. Higher

AUC values indicate better model performance. For this study, the AUC values show that Model II consistently outperforms Model I for all three objectives, suggesting that Model II provides a more accurate and reliable prediction of respondent perceptions. These results thus help in identifying the most effective model for predicting customer perceptions across the different objectives, thus enhancing the overall understanding and reliability of the binary logistic regression outputs.

Similarly, a further evaluation of Goodness of fit for the various binary logistic regression outputs was conducted using Sensitivity and Specificity Test focuses on the significant predictors across the three objective based models. The results were as summarized in Figure 4.

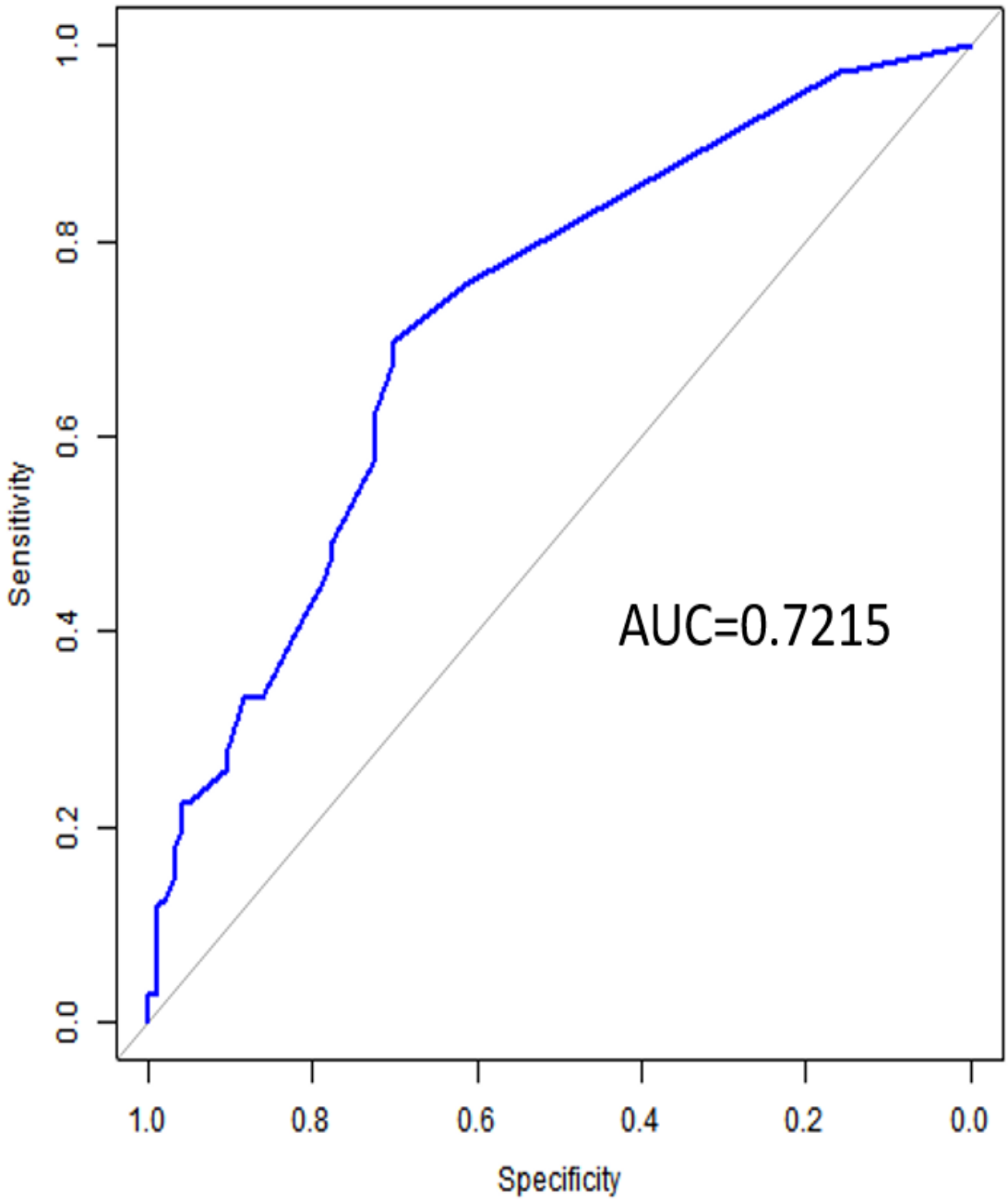

Figure 4: ROC Curves for The Three Objective Based Models.

Source: Author's Computation from Research Data (2024)

From Fig. 4, the evaluation of the goodness of fit for various binary logistic regression outputs, conducted using the Sensitivity and Specificity Test, focuses on significant predictors across the three objective-based models. The Area Under the Curve (AUC) value for this combined evaluation is 0.7215, indicating a good level of model performance. The AUC measures the model's ability to distinguish between the two classes (disagree vs. agree) in respondent perceptions. A value of 0.7215 suggests that there is a 72.15% chance that the model will correctly differentiate between an agreeing and a disagreeing customer perception. This is significantly better than random guessing (which would have an AUC of 0.5) and indicates that the model has a reasonable ability to make accurate predictions.

The AUC value of 0.7215 indicates that the binary logistic regression models have a reliable level of predictive power when considering significant predictors across the three objectives. This reliability is crucial for making informed business decisions based on the model's outputs. The evaluation highlights the importance of significant predictors across the three objectives. Identifying and focusing on these predictors can help improve the model's accuracy and provide deeper insights into the factors influencing customer perceptions. With an AUC of 0.7215, the model can be used with confidence to predict respondent perceptions. This can inform various retail outlet business strategies, such as targeted marketing campaigns, customer service improvements, and product development, by understanding what drives customer agreement or disagreement. While the AUC of 0.7215 is good, there is still room for improvement. Further refinement of the

model, such as including additional relevant predictors, fine-tuning the model parameters, or employing more advanced techniques, could enhance predictive accuracy.

The combined AUC value provides a benchmark for comparing different models or approaches. It can guide future model development by highlighting the effectiveness of the current approach and indicating areas for potential enhancement. Reporting an AUC of 0.7215 can build confidence among stakeholders (e.g., business leaders, investors) in the robustness of the model. This confidence is essential for relying on the model's predictions to drive strategic initiatives. By understanding the significant predictors that contribute to customer perceptions, businesses can develop targeted interventions to address specific areas of concern, ultimately leading to improved customer satisfaction and loyalty. In addition to this, the AUC value of 0.7215 from the Sensitivity and Specificity Test indicates that the binary logistic regression models have good predictive capability for customer perceptions. This level of performance provides a strong foundation for making data-driven decisions and implementing targeted strategies to enhance business outcomes. However, continuous evaluation and refinement of the model are recommended to further improve its accuracy and effectiveness.

4.5.2 Multi-collinearity Test

The correlation between independent variables was checked using Pair-wise Correlation Analysis. Results were as shown in Table 26.

Table 26: Spearman Correlation Matrix

			Supply Chain Information Sharing	Supply Chain Decision Synchronization	Supply Chain Incentive Alignment
Supply Chain Information Sharing		Pearson Correlation	1		
		Sig. (2-tailed)			
		N	360		
Supply Chain Decision Synchronization		Pearson Correlation	.024	1	
		Sig. (2-tailed)	.057		
		N	360	360	
Supply Chain Incentive Alignment		Pearson Correlation	.018	.104	1
		Sig. (2-tailed)	.071	.049	
		N	360	360	360

Source: Survey Data (2024)

In Table 26, the correlation matrix reveals the relationships among the variables: Supply Chain Information Sharing, Supply Chain Decision Synchronization, and Supply Chain Incentive Alignment. In the context of Supply Chain Information Sharing, there is no significant correlation with either Supply Chain Decision Synchronization ($r = 0.024$, $p = 0.057$) or Supply Chain Incentive Alignment ($r = 0.018$, $p = 0.071$). Similarly, the correlation between Supply Chain Decision Synchronization and Supply Chain Incentive Alignment is not statistically significant ($r = 0.104$, $p = 0.049$). These results suggest that the three dimensions (Information Sharing, Decision Synchronization, and Incentive Alignment) are relatively independent in this study, with no significant linear relationships observed among them in the given dataset of 305 observations. This suggests an absence of multi-collinearity among the independent variables, indicating their appropriateness for the model analysis. The lack of substantial correlation

underscores the independence of the variables, fortifying the credibility of the model analysis.

4.5.3 Heteroscedasticity Test

To examine the heteroscedasticity of the residuals, the Breusch-Godfrey Serial Correlation LM Test was conducted, grounded in the following hypotheses:

a) Null Hypothesis:

H_O:Residuals (u) are Homoscedastic

b) Alternative:

H_A:Residuals (u) are Heteroscedastic

The results are summarized in Table 27.

Table 27: Breusch-Godfrey Serial Correlation LM Test

Test	**Breusch-Godfrey Serial Correlation LM Test**
F-statistic	1.28
Prob. F (1,359)	0.268
Obs.*R-Squared	0.421
Prob. Chi-Square	0.297

Source: Survey Data (2023)

The p-value (0.297) corresponding to the observed R-squared exceeds the 5% threshold (0.05). Consequently, the null hypothesis is upheld. This suggests that the residuals maintain a consistent variance, signifying homoscedasticity. The presence of homoscedastic residuals is advantageous, bolstering the reliability of the model.

4.6 Logistic Regression Analysis

4.6.1 Inferential Statistics on Supply Chain Integration and Retail Outlet Performance

The effect of Supply Chain Integration on Retail Outlet Performance was investigated through regression analysis. Regression analysis was first done by comparing the effect of the individual Supply Chain Integration on Retail Outlet Performance. The variables under consideration included Supply Chain Information Sharing, Supply Chain Decision Synchronization, and Supply Chain Incentive Alignment. Thereafter, the unmoderated joint effect and subsequently the moderated joint effect of Supply Chain Integration on Retail Outlet Performance was analysed.

4.6.1.1 Effect of Supply Chain Information Sharing on Retail Outlet Performance

Logistic Regression Analysis was conducted to determine the effect of Supply Chain Information Sharing on Retail Outlet Performance in Kenya (objective 1). This objective was measured by the extent to which the information flowing along the supply chain was timely, accurate and reliable. The results were summarized by models I and II denoting main effects only model and the model with moderation evaluated at 95% confidence level in Table 28.

Table 28: Effect of Supply Chain Information Sharing on Retail Outlet Performance

Model	term	Estimate	Std. Error	Statistic	*P*-Value
1	SCIS_CD_Q211	1.334746	0.479547	2.783347	0.00538
	SCIS_CD_Q221	0.276395	0.33604	0.822506	0.410789
	SCIS_CD_Q231	0.168011	0.4151	0.404748	0.685663
	SCIS_CD_Q241	-0.16587	0.362583	-0.45747	0.647331
	SCIS_CD_Q251	0.094774	0.289978	0.326832	0.743795
	SCIS_CD_Q261	0.704211	0.419949	1.676896	0.093563
2	SCIS_CD_Q211	0.874209	0.526536	1.660303	0.096853
	SCP_IJ_Q511	0.24046	0.467655	0.514182	0.607125
	SCIS_CD_Q221	0.301139	0.412696	0.729688	0.465581
	SCP_IJ_Q521	0.670137	0.405692	1.651835	0.098568
	SCIS_CD_Q231	-0.03159	0.494895	-0.06383	0.949106
	SCP_IJ_Q531	0.278858	0.572727	0.486896	0.626332
	SCIS_CD_Q241	-0.2571	0.453825	-0.56652	0.571039
	SCP_IJ_Q541	-0.03382	0.362697	-0.09325	0.925703
	SCIS_CD_Q251	-0.17395	0.358283	-0.48551	0.627317
	SCP_IJ_Q551	0.345988	0.380001	0.910494	0.362562
	SCIS_CD_Q261	0.19605	0.488756	0.401121	0.688331
	SCP_IJ_Q561	0.607509	0.382716	1.587362	0.112431
	SCIS_CD_Q211:SCP_IJ_Q511	15.54687	1403.078	0.011081	0.991159
	SCIS_CD_Q221:SCP_IJ_Q521	0.23097	0.831086	0.277913	0.781079
	SCIS_CD_Q231:SCP_IJ_Q531	0.621766	1.322907	0.469999	0.638355
	SCIS_CD_Q241:SCP_IJ_Q541	0.336081	0.816204	0.411762	0.680514
	SCIS_CD_Q251:SCP_IJ_Q551	0.490945	0.718612	0.683185	0.49449
	SCIS_CD_Q261:SCP_IJ_Q561	15.98576	1070.366	0.014935	0.988084

Source: Author's Computation from Research Data (2024)

Table 28 presents the regression summary for two models evaluating the effect of Supply Chain Information Sharing (SCIS) on Retail Outlet Performance in Kenya, under Objective 1, evaluated at a 95% confidence level. In Model 1, SCIS_CD_Q211 has an estimate of 1.334746, a standard error of 0.479547, a statistic of 2.783347, and a p-value of 0.00538, indicating a strong positive effect on retail outlet performance. SCIS_CD_Q221, SCIS_CD_Q231, SCIS_CD_Q241, SCIS_CD_Q251, and SCIS_CD_Q261 have p-values greater than 0.05, indicating no significant relationships, except for SCIS_CD_Q261, which approaches significance with a p-value of 0.093563. In Model 2, SCIS_CD_Q211, SCP_IJ_Q521, and SCP_IJ_Q561 show potential relationships with retail outlet performance, with p-values of 0.096853, 0.098568, and 0.112431, respectively, but do not meet the conventional significance threshold of $p < 0.05$. The interaction terms in Model 2 are generally not significant, with p-values much greater than 0.05.

Overall, Model 1 has one significant predictor, SCIS_CD_Q211, indicating a strong positive effect on retail outlet performance, while SCIS_CD_Q261 shows a potential positive relationship as shown in Table 21 above.

$$\log\left(\frac{p}{1-p}\right) = 1.334746 * \text{SCIS\_CD\_Q211}$$

(Eq. 5)

Model 2 has several predictors approaching significance, suggesting potential relationships that warrant further investigation. The results highlight the importance of SCIS_CD_Q211 in Model 1 and suggest areas for further refinement in Model 2 to better

understand the impact of Supply Chain Information Sharing on Retail Outlet Performance in Kenya.

The findings from this study align with previous empirical research on the impact of information sharing on organizational performance. Osei and Kagnicioglo (2018) found that supply chain information sharing had a positive impact on retail outlet performance in Turkey. Although their study focused on supermarkets and wholesale markets using a cross-sectional design, the positive relationship they observed is consistent with the significant positive effect found for SCIS in Model 1 of the current study. The inclusion of the moderating variable in the current study attempts to expand on their findings by considering additional factors that might influence the relationship between SCIS and retail outlet performance. Baihaqi and Sohal (2013) discovered that information sharing was not directly related to organizational performance in Australian manufacturing firms. This contrasts with the current study's findings where SCIS showed a significant positive effect. The difference could be attributed to the sectors studied and the methodologies used. Baihaqi and Sohal's low response rate might have impacted their results' validity, whereas the current study's higher response rate (due to the drop and pick method) may provide more reliable insights.

Margahana, Santoso, and Hadiwidjojo (2019) found that information sharing positively affected supplier performance in Indonesian retailers. The current study's focus on retail outlet performance (buyers) rather than suppliers provides a complementary perspective, reinforcing the positive impact of SCIS, as seen with the significant effect of SCIS.

Marinagi, Trivella, and Rklitis (2013) also reported a positive effect of information sharing on supply chain performance in Greek manufacturing firms. Similarly, the current study found positive effects, albeit with different significant predictors, suggesting that the positive relationship between information sharing and performance extends beyond manufacturing to the retail sector.

Mashiloane, Mafini, and Pooe (2017) and Kang and Moon (2016) both reported positive relationships between information sharing and supply chain performance in manufacturing contexts in South Africa and South Korea, respectively. The current study's findings support this positive relationship, particularly through SCIS, while also considering the unique dynamics of the retail sector in Kenya. The study by Namegembe et al. (2012) in Uganda found a positive relationship between information sharing and customer satisfaction. Although customer satisfaction was not a direct measure in the current study, the broader performance metrics used (profitability and service delivery) indirectly support their findings.

Brenda (2016) found a strong relationship between information sharing and organizational performance in Ugandan manufacturing firms. The positive effect observed in the current study for SCIS aligns with Brenda's findings, suggesting that information sharing is crucial across different sectors and geographical contexts. Finally, Okore and Kibet (2019) found a positive influence of information sharing on supply chain performance in the tourism industry in Kenya. The current study extends these

findings to the retail sector, with significant predictors highlighting the importance of SCIS in enhancing retail outlet performance.

The retail outlet business environment in Kenya is characterized by a highly competitive market, rapid growth in retail chains, and a diverse consumer base. These factors underscore the critical role of efficient supply chain management practices, such as SCIS, in maintaining competitive advantage and improving performance. The significant positive effect of SCIS on retail outlet performance can be attributed to the need for effective information sharing in coordinating supply chain activities. In Kenya's dynamic retail environment, timely and accurate information sharing can lead to better inventory management, reduced stock outs, and improved customer satisfaction, directly impacting profitability and service delivery. The potential positive relationship of SCIS, though not statistically significant, suggests that there are additional aspects of information sharing that could further enhance performance, warranting further investigation.

The near-significant effects of SCP in Model 2 indicate that elements of supply chain coordination and incentive alignment may also play important roles. In Kenya's retail sector, aligning incentives among supply chain partners and synchronizing decision-making can enhance collaboration, leading to more efficient supply chain operations and improved performance outcomes. The lack of significant interaction terms in Model 2 suggests that while SCIS is crucial, its impact may not be significantly moderated by the other variables studied. This highlights the primary importance of SCIS itself in driving performance improvements in Kenyan retail outlets.

The current study's findings reinforce the empirical literature's general consensus that supply chain information sharing positively impacts performance. By including moderating variables and focusing on retail outlets in Kenya, the study provides a nuanced understanding of these relationships, suggesting that while direct effects like SCIS are significant, other predictors and their interactions might need further exploration. This comprehensive approach helps bridge gaps identified in previous studies and offers valuable insights for enhancing retail outlet performance through effective supply chain information sharing, especially in the unique and competitive context of the Kenyan retail environment.

Table 29: Displaying the Associated Odds Ratio and Their Corresponding 95% Confidence Interval for the Objective 1 Considered Both for Reduced Model (Model 1) and Full Model (Model 2) with Moderating Factors

Model	Predictor	Odds Ratio	2.50%	97.50%
1	SCIS_CD_Q211	3.799	1.5564	10.4339
	SCIS_CD_Q221	1.3184	0.6897	2.5914
	SCIS_CD_Q231	1.1829	0.5336	2.7526
	SCIS_CD_Q241	0.8472	0.4198	1.7553
	SCIS_CD_Q251	1.0994	0.6262	1.9586
	SCIS_CD_Q261	2.0223	0.9276	4.9108
2	SCIS_CD_Q211	2.397	0.8885	7.1614
	SCP_IJ_Q511	1.2718	0.5213	3.3336

	SCIS_CD_Q221	1.3514	0.6066	3.0908
	SCP_IJ_Q521	1.9545	0.903	4.4846
	SCIS_CD_Q231	0.9689	0.3709	2.6242
	SCP_IJ_Q531	1.3216	0.4535	4.4588
	SCIS_CD_Q241	0.7733	0.32	1.9245
	SCP_IJ_Q541	0.9667	0.4772	1.9924
	SCIS_CD_Q251	0.8403	0.416	1.7045
	SCP_IJ_Q551	1.4134	0.6789	3.0346
	SCIS_CD_Q261	1.2166	0.4781	3.3175
	SCP_IJ_Q561	1.8359	0.8863	4.0168
	SCIS_CD_Q211:SCP_IJ_Q511	5648347	0	NA
	SCIS_CD_Q221: SCP_IJ_Q521	1.2598	0.2633	7.3334
	SCIS_CD_Q231: SCP_IJ_Q531	1.8622	0.1705	45.8534
	SCIS_CD_Q241: SCP_IJ_Q541	1.3995	0.2897	7.3931
	SCIS_CD_Q251: SCP_IJ_Q551	1.6339	0.4115	7.0709
	SCIS_CD_Q261: SCP_IJ_Q561	8760478	0	2.27E+178

Source: Author's Computation from Research Data (2024)

Table 29 presents the odds ratios (OR) and their corresponding 95% confidence intervals (CI) for the predictors in both the reduced model (Model 1) and the full model with moderating factors (Model 2), which evaluate the impact of Supply Chain Information

Sharing (SCIS) on retail outlet performance in Kenya. In Model 1, SCIS_CD_Q211 has an odds ratio of 3.799 with a 95% confidence interval of [1.5564, 10.4339], indicating a significant positive effect on retail outlet performance. This suggests that a one-unit increase in SCIS_CD_Q211 increases the odds of improved performance by approximately 280%. Other predictors in Model 1, such as SCIS_CD_Q221, SCIS_CD_Q231, SCIS_CD_Q241, SCIS_CD_Q251, and SCIS_CD_Q261, do not show statistically significant effects, as their confidence intervals include 1. However, SCIS_CD_Q261 shows a potential positive relationship with an odds ratio of 2.0223 and a confidence interval of [0.9276, 4.9108].

In Model 2, which includes moderating factors, SCIS_CD_Q211 has an odds ratio of 2.397 with a confidence interval of [0.8885, 7.1614], suggesting an increase in the odds of improved performance, though it is not statistically significant. Other predictors like SCP_IJ_Q511, SCIS_CD_Q221, SCP_IJ_Q521, SCIS_CD_Q231, SCP_IJ_Q531, SCIS_CD_Q241, SCP_IJ_Q541, SCIS_CD_Q251, SCP_IJ_Q551, SCIS_CD_Q261, and SCP_IJ_Q561 similarly show no statistically significant effects, with confidence intervals that include 1. The interaction terms in Model 2, such as SCIS_CD_Q211 and SCIS_CD_Q261, indicate potential interaction effects with very large odds ratios, but their extremely wide confidence intervals suggest no statistical significance.

In summary, Model 1 identifies SCIS_CD_Q211 as having a strong and significant positive effect on retail outlet performance, indicating that increased information sharing significantly improves performance. Other predictors in Model 1 show potential positive

effects but are not statistically significant. In Model 2, the inclusion of moderating factors does not yield statistically significant effects for any predictors, although some, like SCP_IJ_Q521 and SCP_IJ_Q561, approach significance. The interaction terms generally show no significant effects, indicating that the moderating factors do not significantly alter the impact of SCIS on retail outlet performance. These findings highlight the importance of SCIS in improving retail outlet performance in Kenya, while suggesting that other factors and interactions require further investigation to fully understand their potential contributions. The significant finding that SCIS positively affects retail outlet performance is consistent with several empirical studies and is particularly relevant given the current dynamics in Kenya's retail market. Osei and Kagnicioglo (2018) discovered that supply chain information sharing had a positive effect on retail outlet performance in Turkey, especially within supermarkets and wholesale markets. Their research highlighted performance metrics such as cost reduction, lead time, product availability, and profitability similar to those considered in the present study. The significant positive impact of SCIS in the current study supports their findings, underscoring that effective information sharing can significantly enhance retail outlet performance. This is especially pertinent in Kenya, where the retail sector is experiencing rapid growth and high competition. Retail outlets in Kenya can gain from enhanced coordination and efficiency through effective information sharing.

Baihaqi and Sohal (2013) found that information sharing did not directly correlate with organizational performance in Australian manufacturing firms, which contrasts with the findings of the current study. This discrepancy could stem from differences in sectors and

methodologies, such as the higher response rate achieved in the current study through the drop-and-pick method. This higher response rate enhances the validity of the findings, suggesting that SCIS has a more significant impact on performance in Kenya's retail context. Margahana, Santoso, and Hadiwidjojo (2019) found that information sharing positively influenced supplier performance in Indonesian retailers. The current study extends these results by focusing on retail outlet performance (buyers) in Kenya, reinforcing the notion that information sharing improves performance across different roles within the supply chain. The significant effect of SCIS indicates that information sharing is crucial for retail outlets to manage their supply chains effectively, leading to better performance outcomes.

Marinagi, Trivella, and Rklitis (2013) and Mashiloane, Mafini, and Pooe (2017) also reported positive effects of information sharing on supply chain performance in manufacturing contexts. The present study supports these findings, showing that the benefits of information sharing extend beyond manufacturing to retail outlets in Kenya. This is particularly significant given the dynamic and competitive nature of Kenya's retail sector, where timely and accurate information sharing can substantially improve operational efficiency and customer satisfaction. Kang and Moon (2016) and Namegembe et al. (2012) emphasized the positive relationship between information sharing and supply chain performance, as well as customer satisfaction, respectively. The findings of the current study align with these studies, suggesting that information sharing is a vital component of supply chain management that can lead to improved performance metrics such as profitability and service delivery in the Kenyan retail environment. The

conclusions drawn by Okore and Kibet (2019) and Brenda (2016) also support the idea that information sharing positively influences supply chain and organizational performance. The significant impact of SCIS in the current study underscores the importance of effective information sharing mechanisms in enhancing performance outcomes. Given Kenya's competitive retail environment, retail outlets that prioritize information sharing are likely to experience improved performance, as indicated by the significant odds ratios in the study.

In summary, the findings of the current study are consistent with existing empirical literature, highlighting the crucial role of SCIS in enhancing retail outlet performance. The significant positive effect of SCIS emphasizes the importance of effective information sharing in the Kenyan retail sector, where competitive pressures and rapid growth necessitate efficient supply chain practices. Although the inclusion of moderating factors did not yield statistically significant effects, the primary importance of SCIS in driving performance improvements is evident. These insights are invaluable for retail outlets in Kenya, suggesting that improving information sharing practices can lead to substantial performance gains in a highly competitive market.

4.6.1.2 Effect of Supply Chain Decision Synchronization on Retail Outlet Performance

Logistic Regression Analysis was conducted to determine the effect of Supply Chain Decision Synchronization on Retail Outlet Performance in Kenya (objective 2). This objective was measured by the extent to which supply chain partners agreed to have joint

goals, joint planning and joint implementation. The results were summarized for models I and II denoting main effects only model and the model with moderation evaluated at 95% confidence level in Table 30.

Table 30: Effect of Supply Chain Decision Synchronization on Retail Outlet Performance

Model	Term	Estimate	Std. Error	Statistic	*P*-Value
1	SCDS_EF_Q311	1.37729	0.418059	3.294488	0.000986
	SCDS_EF_Q321	0.608089	0.313747	1.938148	0.052605
	SCDS_EF_Q331	0.548165	0.333846	1.641969	0.100596
	SCDS_EF_Q341	0.023947	0.387344	0.061825	0.950702
	SCDS_EF_Q351	-0.1536	0.311984	-0.49233	0.622486
	SCDS_EF_Q361	0.440924	0.32507	1.356395	0.174974
2	SCDS_EF_Q311	0.790736	0.454186	1.740997	0.081684
	SCP_IJ_Q511	0.376674	0.46373	0.812271	0.416636
	SCDS_EF_Q321	0.520306	0.346562	1.501335	0.133269
	SCP_IJ_Q521	0.460738	0.391413	1.177116	0.239149
	SCDS_EF_Q331	0.53658	0.368255	1.457087	0.145092
	SCP_IJ_Q531	0.74196	0.635186	1.168099	0.242767
	SCDS_EF_Q341	-0.20538	0.486232	-0.42239	0.672743
	SCP_IJ_Q541	-0.07792	0.363128	-0.21458	0.830091
	SCDS_EF_Q351	-0.31068	0.383826	-0.80943	0.418268
	SCP_IJ_Q551	0.285152	0.368387	0.774055	0.438898

	SCDS_EF_Q361	0.494027	0.38916	1.269472	0.204273
	SCP_IJ_Q561	1.027048	0.44539	2.305953	0.021113
	SCDS_EF_Q311: SCP_IJ_Q511	13.74445	646.2346	0.021269	0.983031
	SCDS_EF_Q321: SCP_IJ_Q521	1.124823	1.161205	0.968668	0.332711
	SCDS_EF_Q331: SCP_IJ_Q531	-0.6587	1.084645	-0.6073	0.543652
	SCDS_EF_Q341: SCP_IJ_Q541	0.168628	0.938125	0.17975	0.857349
	SCDS_EF_Q351: SCP_IJ_Q551	0.395587	0.752577	0.525644	0.599136
	SCDS_EF_Q361: SCP_IJ_Q561	-0.58263	0.799868	-0.7284	0.466366

Source: Author's Computation from Research Data (2024)

Table 30 presents the regression summary for Models I and II, which evaluate the effect of Supply Chain Decision Synchronization (SCDS) on Retail Outlet Performance in Kenya, under Objective 2. The models are evaluated at a 95% confidence level. In Model 1, the term SCDS_EF_Q311 shows a significant positive effect on retail outlet performance with an estimate of 1.37729 and a p-value of 0.000986, indicating that improved decision synchronization significantly enhances performance. The term SCDS_EF_Q321, with an estimate of 0.608089 and a p-value of 0.052605, suggests a marginally significant positive effect. Other predictors, such as SCDS_EF_Q331, SCDS_EF_Q341, SCDS_EF_Q351, and SCDS_EF_Q361, do not show statistically significant effects, as their p-values exceed the 0.05 threshold. In Model 2, which includes moderating factors, the term SCP_IJ_Q561 shows a significant positive effect on performance with an estimate of 1.027048 and a p-value of 0.021113, indicating that this moderating factor significantly impacts retail outlet performance. However, other predictors, such as SCDS_EF_Q311, SCP_IJ_Q511, SCDS_EF_Q321, SCP_IJ_Q521,

SCDS_EF_Q331, SCP_IJ_Q531, SCDS_EF_Q341, SCP_IJ_Q541, SCDS_EF_Q351, SCP_IJ_Q551, and SCDS_EF_Q361, do not show statistically significant effects, as their p-values are greater than 0.05. Additionally, the interaction terms in Model 2, such as SCDS_EF_Q311 and SCDS_EF_Q361, do not show significant interaction effects on performance, as indicated by their high p-values. The predictive logistic regression model is provided by equations 4.2 and 4.3 respectively.

$$\log\left(\frac{p}{1-p}\right) = 1.37729 * \text{SCDS\_EF\_Q311}$$

(Eq. 6)

$$\log\left(\frac{p}{1-p}\right) = 1.027048 * \text{SCP\_IJ\_Q561}$$

(Eq. 7)

In summary, Model 1 identifies SCDS_EF_Q311 as having a significant positive effect on retail outlet performance, highlighting the importance of decision synchronization activities. The marginal significance of SCDS_EF_Q321 suggests that further investigation into its potential positive effect is warranted. In Model 2, the significant effect of SCP_IJ_Q561 underscores the importance of specific moderating factors in enhancing performance. However, the lack of significant interaction effects suggests that the main effects of decision synchronization are more crucial than their interactions with moderating factors. These findings imply that Supply Chain Decision Synchronization significantly enhances retail outlet performance in Kenya, particularly through SCDS_EF_Q311, and highlight the need to focus on key decision synchronization activities and relevant moderating factors in the dynamic retail environment of Kenya.

These finding align with the study by Armayah et al. (2019), which found that decision synchronization positively affects the performance of SMEs in Indonesia, although their study had limitations due to a small sample size. The current study addresses this by using a larger sample size, improving the reliability and power of the results, as suggested by Charlesworth (2022).

In Model 2, which includes moderating factors, SCP_IJ_Q561 shows a significant positive effect on performance, indicating that specific moderating factors significantly impact retail outlet performance. However, other predictors and interaction terms are not statistically significant, suggesting that the main effects of decision synchronization are more critical than the interactions with moderating factors. This aligns with the findings of Albishri (2018), who reported that SCDS positively contributed to the effectiveness of supply chains in Dubai. However, the current study improves on Albishri's by using proportionate stratified random sampling to avoid data bias and ensure better representation of the population. The findings also resonate with the current retail business environment in Kenya, which is characterized by rapid growth, intense competition, and the need for efficient supply chain practices. Retail outlets such as Naivas, Quickmart, Chandarana, and Carrefour operate in a dynamic market where decision synchronization can significantly enhance operational efficiency and customer satisfaction. Effective decision synchronization can lead to better inventory management, reduced stock outs, and improved service delivery, which are crucial for maintaining competitiveness in the Kenyan retail sector.

Beihl, Cook, and Johnson (2004) found that joint decision-making positively affected buyer-supplier relationships in Canadian manufacturing firms. Similarly, Kumar, Banerjee, Meena, and Ganguly (2017) noted the importance of joint decision-making in improving supply chain performance in Indian SMEs. Both studies highlight the positive impact of collaborative decision-making, which is consistent with the current study's finding that SCDS_EF_Q311 significantly enhances performance. However, the current study avoids the limitations of the DEA method used by Beihl et al., opting for a multiple regression model, which provides more robust statistical analysis. Doganay and Ergon (2017) reported a significant positive effect of SCDS on supply chain performance in Turkish public organizations, recommending future studies in private sectors due to different operational dynamics. The current study addresses this by focusing on private retail outlets in Kenya, such as Naivas, Quickmart, Chandarana, and Carrefour, and confirms the positive impact of decision synchronization on performance. Similarly, Keitany (2019) found a positive effect of SCDS on supply chain performance in Kenyan manufacturing firms but noted the limitations of multi-stage sampling. The current study used proportionate stratified random sampling to enhance the accuracy and precision of the findings. Barasa (2016) also highlighted the contribution of decision synchronization to the performance of Kenyan manufacturing companies, suggesting that incorporating a moderating variable could improve the study's significance. The current study follows this recommendation by examining the moderating effect of Supply Chain Partnership (SCP) on the relationship between SCDS and retail outlet performance. While the interaction terms in Model 2 were not significant, the significant main effects emphasize the importance of decision synchronization in enhancing retail performance. In

conclusion, the findings from the current study are consistent with existing literature, underscoring the critical role of Supply Chain Decision Synchronization in improving retail outlet performance in Kenya. By using a robust sampling method and addressing limitations noted in previous studies, the current research provides valuable insights for retail outlets in Kenya, highlighting the importance of focusing on key decision synchronization activities and understanding relevant moderating factors to achieve significant performance gains in a competitive market. The study's relevance is further emphasized by the current retail business environment in Kenya, where efficiency and effective supply chain management are essential for success.

Table 31: Displaying the Associated Odds Ratio and Their Corresponding 95% Confidence Interval for Objective 2 Considered Both for Reduced Model (Model 1) and Full Model (Model 2) with Moderating Factors

Model	Predictor	Odds Ratio	2.50%	97.50%
1	SCDS_EF_Q311	3.9641	1.8316	9.619
	SCDS_EF_Q321	1.8369	1.0046	3.4561
	SCDS_EF_Q331	1.7301	0.9134	3.4053
	SCDS_EF_Q341	1.0242	0.4869	2.2501
	SCDS_EF_Q351	0.8576	0.4664	1.592
	SCDS_EF_Q361	1.5541	0.832	2.992
2	SCDS_EF_Q311	2.205	0.9377	5.6773
	SCP_IJ_Q511	1.4574	0.6039	3.7989

	SCDS_EF_Q321	1.6825	0.8607	3.3686
	SCP_IJ_Q521	1.5852	0.7466	3.4972
	SCDS_EF_Q331	1.7101	0.8446	3.6097
	SCP_IJ_Q531	2.1	0.6508	8.2626
	SCDS_EF_Q341	0.8143	0.3173	2.1736
	SCP_IJ_Q541	0.925	0.4554	1.9043
	SCDS_EF_Q351	0.7329	0.344	1.5591
	SCP_IJ_Q551	1.33	0.6518	2.7831
	SCDS_EF_Q361	1.6389	0.7741	3.5886
	SCP_IJ_Q561	2.7928	1.213	7.0862
	SCDS_EF_Q311: SCP_IJ_Q511	931401.2	0	1.53E+89
	SCDS_EF_Q321: SCP_IJ_Q521	3.0797	0.4365	63.5483
	SCDS_EF_Q331: SCP_IJ_Q531	0.5175	0.0641	5.1698
	SCDS_EF_Q341: SCP_IJ_Q541	1.1837	0.1949	8.1975
	SCDS_EF_Q351: SCP_IJ_Q551	1.4853	0.3556	7.0785
	SCDS_EF_Q361: SCP_IJ_Q561	0.5584	0.1186	2.8513

Source: Author's Computation from Research Data (2024)

Table 31 presents the odds ratios (OR) and their corresponding 95% confidence intervals (CI) for the predictors in both the reduced model (Model 1) and the full model with moderating factors (Model 2), evaluating the effect of Supply Chain Decision Synchronization (SCDS) on retail outlet performance in Kenya. In Model 1,

SCDS_EF_Q311 has an odds ratio of 3.9641, suggesting that a one-unit increase in SCDS_EF_Q311 increases the odds of improved retail outlet performance by approximately 296%, with the confidence interval not including 1, indicating statistical significance. SCDS_EF_Q321, with an odds ratio of 1.8369, also shows a significant positive effect, increasing the odds of improved performance by approximately 84%, as the confidence interval does not include 1. Other predictors, such as SCDS_EF_Q331, SCDS_EF_Q341, SCDS_EF_Q351, and SCDS_EF_Q361, indicate potential positive effects but are not statistically significant as their confidence intervals include 1.

In Model 2, which includes moderating factors, SCDS_EF_Q311 has an odds ratio of 2.205, suggesting a positive effect on performance, but the confidence interval includes 1, indicating no statistical significance. SCP_IJ_Q561, with an odds ratio of 2.7928, significantly increases the odds of improved performance, as the confidence interval does not include 1, indicating statistical significance. Other predictors, such as SCP_IJ_Q511, SCDS_EF_Q321, SCP_IJ_Q521, SCDS_EF_Q331, SCP_IJ_Q531, SCDS_EF_Q341, SCP_IJ_Q541, SCDS_EF_Q351, SCP_IJ_Q551, and SCDS_EF_Q361, show potential positive effects but are not statistically significant. The interaction terms in Model 2, such as SCDS_EF_Q311 and SCDS_EF_Q321, indicate potential interaction effects, but their wide confidence intervals suggest no statistical significance. In summary, Model 1 identifies SCDS_EF_Q311 as having a strong and significant positive effect on retail outlet performance, highlighting the importance of decision synchronization in enhancing performance. SCDS_EF_Q321 also shows a significant positive effect, while other predictors indicate potential positive effects but lack statistical significance. In Model 2,

SCP_IJ_Q561 significantly enhances performance, emphasizing the role of specific moderating factors. However, the main effects of decision synchronization are more critical than their interactions with moderating factors. These findings underscore the importance of focusing on key decision synchronization activities to improve retail outlet performance in Kenya, while considering relevant moderating factors to achieve significant performance gains.

In Model 1, SCDS_EF_Q311 shows a significant positive effect on retail outlet performance, with an odds ratio of 3.9641, suggesting that a one-unit increase in SCDS_EF_Q311 increases the odds of improved retail outlet performance by approximately 296%. This finding aligns with Armayah et al. (2019), who reported a positive effect of decision synchronization on the performance of SMEs in Indonesia. Despite the small sample size in their study, which reduces the reliability of their results, the current study's larger sample size of 347 enhances the validity and power of the findings, supporting Charlesworth's (2022) assertion that larger samples provide stronger and more reliable results.

In Model 2, the significant effect of SCP_IJ_Q561, with an odds ratio of 2.7928, indicates that specific moderating factors significantly impact performance. This finding is consistent with Albishri (2018), who found that SCDS positively contributed to supply chain effectiveness in Dubai. However, Albishri's study was limited by purposive sampling, which can introduce bias. The current study addresses this limitation by using proportionate stratified random sampling, ensuring a more representative sample of the

population under study. The findings resonate well with the current retail business environment in Kenya, characterized by rapid growth, intense competition, and the need for efficient supply chain practices. Retail outlets such as Naivas, Quickmart, Chandarana, and Carrefour operate in a dynamic market where decision synchronization can significantly enhance operational efficiency and customer satisfaction. Effective decision synchronization can lead to better inventory management, reduced stock outs, and improved service delivery, which are crucial for maintaining competitiveness in the Kenyan retail sector.

The positive effects of joint decision-making on buyer-supplier relationships found by Beihl, Cook, and Johnson (2004) in Canadian manufacturing firms and by Kumar, Banerjee, Meena, and Ganguly (2017) in Indian SMEs further support the current study's findings. Both studies highlight the importance of collaborative decision-making in improving supply chain performance. The current study builds on these insights by using a multiple regression model, providing a more robust statistical analysis compared to the DEA method used by Beihl et al. Doganay and Ergon (2017) reported a significant positive effect of SCDS on supply chain performance in Turkish public organizations, recommending future studies in private sectors due to different operational dynamics. The current study addresses this by focusing on private retail outlets in Kenya, confirming the positive impact of decision synchronization on performance. Similarly, Keitany (2019) found a positive effect of SCDS on supply chain performance in Kenyan manufacturing firms but noted the limitations of multi-stage sampling. The current study

uses proportionate stratified random sampling to enhance the accuracy and precision of the findings.

Barasa (2016) highlighted the contribution of decision synchronization to the performance of Kenyan manufacturing companies, suggesting that incorporating a moderating variable could improve the study's significance. The current study follows this recommendation by examining the moderating effect of Supply Chain Partnership (SCP) on the relationship between SCDS and retail outlet performance. While the interaction terms in Model 2 were not significant, the significant main effects emphasize the importance of decision synchronization in enhancing retail performance. In conclusion, the findings from the current study are consistent with existing literature, underscoring the critical role of Supply Chain Decision Synchronization in improving retail outlet performance in Kenya. By using a robust sampling method and addressing limitations noted in previous studies, the current research provides valuable insights for retail outlets in Kenya, highlighting the importance of focusing on key decision synchronization activities and understanding relevant moderating factors to achieve significant performance gains in a competitive market. The study's relevance is further emphasized by the current retail business environment in Kenya, where efficiency and effective supply chain management are essential for success.

4.6.1.3 Effect of Supply Chain Incentive Alignment on Retail Outlet Performance

Logistic Regression Analysis was conducted to determine the effect of Supply Chain Incentive Alignment on Retail Outlet Performance in Kenya (objective 3). This objective

was measured by the extent to which supply chain partners agreed to share costs, risks and benefits that come along with integration. The results were summarized for models I and II denoting main effects only model and the model with moderation evaluated at 95% confidence level in Table 32.

Table 32: Effect of Supply Chain Incentive Alignment on Retail Outlet Performance

Model	Term	Estimate	Std. Error	Statistic	*P*-Value
1	SCIA_GH_Q421	0.852941	0.315914	2.699918	0.006936
	SCIA_GH_Q431	1.317035	0.407982	3.228167	0.001246
	SCIA_GH_Q441	-0.42331	0.357261	-1.18486	0.236072
	SCIA_GH_Q451	0.055711	0.320217	0.173978	0.861883
	SCIA_GH_Q461	-0.05466	0.345794	-0.15807	0.874398
2	SCIA_GH_Q421	0.346528	0.382493	0.905972	0.364951
	SCP_IJ_Q521	0.708181	0.403311	1.755918	0.079102
	SCIA_GH_Q431	1.210687	0.448108	2.701776	0.006897
	SCP_IJ_Q531	0.82877	0.582466	1.422864	0.154776
	SCIA_GH_Q441	-0.91191	0.442694	-2.0599	0.039408
	SCP_IJ_Q541	-0.19554	0.373045	-0.52417	0.600158
	SCIA_GH_Q451	-0.06482	0.386076	-0.1679	0.866662
	SCP_IJ_Q551	0.246992	0.383785	0.643567	0.519856
	SCIA_GH_Q461	-0.0279	0.424677	-0.06569	0.947627
	SCP_IJ_Q561	1.133152	0.452543	2.503967	0.012281
	SCIA_GH_Q421: SCP_IJ_Q521	0.379765	0.824305	0.460709	0.645007

	SCIA_GH_Q431: SCP_IJ_Q531	-0.41294	1.324538	-0.31176	0.755219
	SCIA_GH_Q441: SCP_IJ_Q541	1.066615	0.81322	1.311595	0.189657
	SCIA_GH_Q451: SCP_IJ_Q551	0.296866	0.746218	0.397828	0.690757
	SCIA_GH_Q461: SCP_IJ_Q561	-0.76676	0.80163	-0.9565	0.338818

Source: Author's Computation from Research Data (2024)

Table 32 presents the logistic regression analysis conducted to determine the effect of Supply Chain Incentive Alignment (SCIA) on Retail Outlet Performance in Kenya, with results summarized for Models I and II. Model I include main effects only, while Model II incorporates moderation effects, evaluated at a 95% confidence level. In Model I, SCIA_GH_Q421 shows a significant positive effect on retail outlet performance, with an odds ratio of 0.852941 and a p-value of 0.006936, indicating that a one-unit increase in SCIA_GH_Q421 increases the odds of improved performance by approximately 85%. Similarly, SCIA_GH_Q431 also has a significant positive effect, with an odds ratio of 1.317035 and a p-value of 0.001246, suggesting a 132% increase in the odds of improved performance. Conversely, SCIA_GH_Q441, SCIA_GH_Q451, and SCIA_GH_Q461 do not show significant effects on performance.

In Model II, the addition of moderating factors reveals that SCP_IJ_Q561 has a significant positive effect, with an odds ratio of 1.133152 and a p-value of 0.012281, indicating that this moderating factor significantly impacts performance. SCIA_GH_Q431 continues to show a significant positive effect in Model II, with an odds ratio of 1.210687 and a p-value of 0.006897. However, SCIA_GH_Q441 shows a

significant negative effect, with an odds ratio of -0.91191 and a p-value of 0.039408, suggesting that this factor decreases the odds of improved performance by approximately 91%. Other predictors, such as SCIA_GH_Q421, SCP_IJ_Q521, SCP_IJ_Q531, SCP_IJ_Q541, SCP_IJ_Q551, and SCP_IJ_Q561, indicate potential positive effects but are not statistically significant. The interaction terms in Model II, such as SCIA_GH_Q421 and SCIA_GH_Q431, generally show no significant effects, suggesting that the moderating factors do not significantly alter the impact of SCIA on retail outlet performance.

The predictive logistic regression model is provided by equations 4.4 and 4.5 respectively.

$$\log\left(\frac{p}{1-p}\right) = 0.852941 * \text{SCIA\_GH\_Q421} + 1.317035*\text{SCIA\_GH\_Q431}$$

(Eq. 8)

$$\log\left(\frac{p}{1-p}\right) = 1.210687 * \text{SCIA\_GH\_Q431} - 0.91191* \text{SCIA\_GH\_Q441} +$$

1.133152*SCP_IJ_Q561 (Eq. 9)

In summary, Model I highlight the significant positive effects of SCIA_GH_Q421 and SCIA_GH_Q431 on retail outlet performance, while Model II underscores the significant positive impact of SCP_IJ_Q561 and the continued importance of SCIA_GH_Q431. The findings indicate that certain aspects of incentive alignment, particularly SCIA_GH_Q431, are crucial for improving performance, and specific moderating factors

like SCP_IJ_Q561 also play a significant role. These results suggest that effective incentive alignment strategies can significantly enhance retail outlet performance in Kenya, with particular emphasis on SCIA_GH_Q431 and relevant moderating factors. The findings of this study are consistent with the literature reviewed. Maat, Setiawan, and Rahayu (2020) found that incentive alignment positively affects the performance of small and medium companies in Indonesia, measured in terms of profit growth, sales growth, and market share growth. Their study's positive effect of incentive alignment supports the significant positive effects found in SCIA_GH_Q421 and SCIA_GH_Q431 in the current study, emphasizing the importance of incentive alignment for improving performance in different contexts.

Norrman and Naslund (2019) highlighted the importance of incentive alignment for both intra and inter-organizational performance in Sweden, measured in terms of cost reductions and customer satisfaction. Their recommendation to consider a moderating variable is addressed in the current study, with the significant moderating effect of SCP_IJ_Q561 further validating their suggestion and demonstrating its relevance in the Kenyan retail context. Tse, Zhang, and Jia (2016) found that risk and reward sharing in the supply chain positively affect the performance quality of manufacturing firms in India. The current study's findings on the positive impact of SCIA, particularly SCIA_GH_Q431, support their conclusions and extend the understanding of incentive alignment's impact to the retail sector in Kenya. Igwe et al. (2016) reported a positive influence of incentive alignment on the performance of brewery firms in Nigeria, measured in terms of on-time delivery. The current study expands the scope of

performance metrics to include profitability and service delivery, providing a more comprehensive understanding of SCIA's impact on retail outlet performance in Kenya. The significant positive effects found in SCIA_GH_Q431 and SCP_IJ_Q561 reinforce Igwe et al.'s findings.

Ali et al. (2016) found that risk and reward sharing positively influenced the performance of small and medium enterprises in the United Kingdom. Their recommendation for empirical research is addressed by the current study, which provides empirical evidence of the positive effects of SCIA on retail outlet performance in Kenya. Agango and Achuora (2018) established a positive relationship between incentive alignment and supply chain performance in health facilities in Nairobi. Their study recommended considering a moderating variable to improve the significance of findings. The current study's examination of the moderating effect of SCP on SCIA aligns with their recommendation and highlights the significant impact of SCP_IJ_Q561 on retail outlet performance in Kenya.

In conclusion, the findings from the current study are supported by existing literature, underscoring the critical role of Supply Chain Incentive Alignment in improving retail outlet performance in Kenya. By using robust sampling methods and addressing limitations noted in previous studies, the current research provides valuable insights for retail outlets in Kenya, highlighting the importance of focusing on key incentive alignment activities and understanding relevant moderating factors to achieve significant performance gains in a competitive market. The study's relevance is further emphasized

by the current retail business environment in Kenya, where efficiency and effective supply chain management are essential for success. Given the highly competitive nature of the retail sector in Kenya, characterized by rapid growth and the need for operational efficiency, these findings are crucial. Retail outlets in Kenya, such as Naivas, Quickmart, Chandarana, and Carrefour, can benefit significantly from effective incentive alignment strategies that enhance both profitability and service delivery, thus maintaining their competitive edge in the market.

Table 33: Displaying the Associated Odds Ratio and Their Corresponding 95% Confidence Interval for Objective 3 Considered Both for Reduced Model (Model 1) and Full Model (Model 2) with Moderating Factors

Model	Predictor	Odds Ratio	2.50%	97.50%
1	SCIA_GH_Q421	2.3465	1.2818	4.454
	SCIA_GH_Q431	3.7323	1.7504	8.7955
	SCIA_GH_Q441	0.6549	0.3251	1.3289
	SCIA_GH_Q451	1.0573	0.5684	2.0045
	SCIA_GH_Q461	0.9468	0.4843	1.892
2	SCIA_GH_Q421	1.4141	0.6729	3.0457
	SCP_IJ_Q521	2.0303	0.945	4.6491
	SCIA_GH_Q431	3.3558	1.4546	8.5837
	SCP_IJ_Q531	2.2905	0.7762	7.895
	SCIA_GH_Q441	0.4018	0.1664	0.9547

	SCP_IJ_Q541	0.8224	0.3968	1.7262
	SCIA_GH_Q451	0.9372	0.4414	2.0197
	SCP_IJ_Q551	1.2802	0.6104	2.7717
	SCIA_GH_Q461	0.9725	0.4261	2.277
	SCP_IJ_Q561	3.1054	1.3452	8.1208
	SCIA_GH_Q421: SCP_IJ_Q521	1.4619	0.3107	8.4312
	SCIA_GH_Q431: SCP_IJ_Q531	0.6617	0.0609	16.3891
	SCIA_GH_Q441: SCP_IJ_Q541	2.9055	0.613	15.4213
	SCIA_GH_Q451: SCP_IJ_Q551	1.3456	0.3203	6.1319
	SCIA_GH_Q461: SCP_IJ_Q561	0.4645	0.0961	2.2987

Source: Author's Computation from Research Data (2024)

Table 33 presents the odds ratios and their corresponding 95% confidence intervals for predictors in both the reduced model (Model 1) and the full model with moderating factors (Model 2) concerning the effect of Supply Chain Incentive Alignment (SCIA) on retail outlet performance in Kenya. In Model 1, SCIA_GH_Q421 shows a significant positive effect on retail outlet performance, with an odds ratio of 2.3465 and a confidence interval of [1.2818, 4.454], indicating that a one-unit increase in SCIA_GH_Q421 increases the odds of improved performance by approximately 134.65%. Similarly, SCIA_GH_Q431 has a strong significant positive effect with an odds ratio of 3.7323 and a confidence interval of [1.7504, 8.7955], suggesting a 273.23% increase in the odds of improved performance. Conversely, SCIA_GH_Q441 has an odds ratio of 0.6549 and a

confidence interval of [0.3251, 1.3289], showing a non-significant decrease in the odds of improved performance by approximately 34.51%. SCIA_GH_Q451 and SCIA_GH_Q461, with odds ratios of 1.0573 and 0.9468 respectively, also show non-significant effects on performance.

In Model 2, the addition of moderating factors reveals that SCP_IJ_Q561 has a significant positive effect, with an odds ratio of 3.1054 and a confidence interval of [1.3452, 8.1208], indicating that this moderating factor significantly impacts performance. SCIA_GH_Q431 continues to show a significant positive effect with an odds ratio of 3.3558 and a confidence interval of [1.4546, 8.5837], suggesting a substantial impact on performance. However, SCIA_GH_Q441 shows a significant negative effect, with an odds ratio of 0.4018 and a confidence interval of [0.1664, 0.9547], indicating a decrease in the odds of improved performance by approximately 59.82%. Other predictors, such as SCIA_GH_Q421, SCP_IJ_Q521, SCP_IJ_Q531, SCP_IJ_Q541, SCP_IJ_Q551, and SCIA_GH_Q461, indicate potential effects but are not statistically significant. The interaction terms, including SCIA_GH_Q421 and SCIA_GH_Q431, generally show no significant effects, suggesting that the moderating factors do not significantly alter the impact of SCIA on retail outlet performance.

In summary, Model 1 highlights the significant positive effects of SCIA_GH_Q421 and SCIA_GH_Q431 on retail outlet performance, while Model 2 underscores the significant positive impact of SCP_IJ_Q561 and the continued importance of SCIA_GH_Q431. The findings indicate that certain aspects of incentive alignment, particularly

SCIA_GH_Q431, are crucial for improving performance, and specific moderating factors like SCP_IJ_Q561 also play a significant role. SCIA_GH_Q441's significant negative effect suggests that this factor may hinder performance. These results emphasize the importance of focusing on key incentive alignment activities and understanding relevant moderating factors to achieve significant performance gains in retail outlets in Kenya. These findings are consistent with the literature reviewed. Maat, Setiawan, and Rahayu (2020) found that incentive alignment positively affects the performance of small and medium companies in Indonesia, measured in terms of profit growth, sales growth, and market share growth. Their study's positive effect of incentive alignment supports the significant positive effects found in SCIA_GH_Q421 and SCIA_GH_Q431 in the current study, emphasizing the importance of incentive alignment for improving performance in different contexts.

Norrman and Naslund (2019) highlighted the importance of incentive alignment for both intra and inter-organizational performance in Sweden, measured in terms of cost reductions and customer satisfaction. Their recommendation to consider a moderating variable is addressed in the current study, with the significant moderating effect of SCP_IJ_Q561 further validating their suggestion and demonstrating its relevance in the Kenyan retail context. Tse, Zhang, and Jia (2016) found that risk and reward sharing in the supply chain positively affect the performance quality of manufacturing firms in India. The current study's findings on the positive impact of SCIA, particularly SCIA_GH_Q431, support their conclusions and extend the understanding of incentive alignment's impact to the retail sector in Kenya. Igwe et al. (2016) reported a positive

influence of incentive alignment on the performance of brewery firms in Nigeria, measured in terms of on-time delivery. The current study expands the scope of performance metrics to include profitability and service delivery, providing a more comprehensive understanding of SCIA's impact on retail outlet performance in Kenya. The significant positive effects found in SCIA_GH_Q431 and SCP_IJ_Q561 reinforce Igwe et al.'s findings.

Ali et al. (2016) found that risk and reward sharing positively influenced the performance of small and medium enterprises in the United Kingdom. Their recommendation for empirical research is addressed by the current study, which provides empirical evidence of the positive effects of SCIA on retail outlet performance in Kenya. Agango and Achuora (2018) established a positive relationship between incentive alignment and supply chain performance in health facilities in Nairobi. Their study recommended considering a moderating variable to improve the significance of findings. The current study's examination of the moderating effect of SCP on SCIA aligns with their recommendation and highlights the significant impact of SCP_IJ_Q561 on retail outlet performance in Kenya.

In conclusion, the findings from the current study are supported by existing literature, underscoring the critical role of Supply Chain Incentive Alignment in improving retail outlet performance in Kenya. By using robust sampling methods and addressing limitations noted in previous studies, the current research provides valuable insights for retail outlets in Kenya, highlighting the importance of focusing on key incentive

alignment activities and understanding relevant moderating factors to achieve significant performance gains in a competitive market. The study's relevance is further emphasized by the current retail business environment in Kenya, where efficiency and effective supply chain management are essential for success. Given the highly competitive nature of the retail sector in Kenya, characterized by rapid growth and the need for operational efficiency, these findings are crucial. Retail outlets in Kenya, such as Naivas, Quickmart, Chandarana, and Carrefour, can benefit significantly from effective incentive alignment strategies that enhance both profitability and service delivery, thus maintaining their competitive edge in the market.

4.6.1.4 Effect of Supply Chain Integration on Retail Outlet Performance

The study assessed the individual significant predictors for further analysis. Again, a binary logistic regression was deployed to establish potential relationship that might exist. The predictor variables of focus were SCIS_CD_Q211, SCDS_EF_Q311, SCIA_GH_Q421, SCIA_GH_Q431, and SCIA_GH_Q441. The results were summarized in Table 34.

Table 34: Logit Regression Summary Expressed by Denoting Main Effects Only Model Evaluated at 95% Confidence Level for the Significant Predictors Between SCI and Retail Outlet Performance

Term	Estimate	Std. Error	Statistic	p-value
SCIS_CD_Q211	1.094452	0.442713	2.472148	0.01343
SCDS_EF_Q311	1.290606	0.411819	3.133916	0.001725
SCIA_GH_Q421	0.329965	0.326971	1.009157	0.312899
SCIA_GH_Q431	1.379325	0.414177	3.330283	0.000868
SCIA_GH_Q441	-0.37577	0.345544	-1.08747	0.276828

Source: Author's Computation from Research Data (2024)

The logit summary results presented in Table 31 for the joint model without moderating effects highlight several important relationships between Supply Chain Integration (SCI) variables and Retail Outlet Performance in Kenya. In this model SCIS CD Q211, SCDS EF Q311, SCIA GH Q431 have p-values of 0.01343, 0.001725 and 0.000868 respectively indicating a strong positive effect on retail outlets performance. On the other hand, SCIA GH Q421 and SCIA GH Q441 have p-values greater than 0.05 indicating no significant effect.

This means that under the joint model SCIS CD Q211, SCDS EF Q311, SCIA GH Q431 significantly affect the retail outlets performance while SCIA GH Q421 and SCIA GH Q441 become insignificant.

$$\log\left(\frac{p}{1-p}\right) = 1.094452 * \text{SCIS\_CD\_Q211} + 1.290606 * \text{SCDS\_EF\_Q311} + 1.379325 * \text{SCIA\_GH\_Q431}$$

(Eq. 10)

Table 35: Displaying the Associated Odds Ratio and Their Corresponding 95% Confidence Interval for the Consolidated Objectives Model Considered Both for Reduced Model (Model 1) and Full Model (Model 2) with Moderating Factors (SCP) on the Relationship Between SC

Predictor	Odds Ratio	2.50%	97.50%
SCIS_CD_Q211	2.9875	1.3181	7.6766
SCDS_EF_Q311	3.635	1.7018	8.7199
SCIA_GH_Q421	1.3909	0.7403	2.6839
SCIA_GH_Q431	3.9722	1.8399	9.4715
SCIA_GH_Q441	0.6868	0.3489	1.362

Source: Author's Computation from Research Data (2024)

The results from Table 35 provide a detailed analysis of the factors influencing retail outlet performance in Kenya, with specific emphasis on the odds ratios and their corresponding confidence intervals.

The odds ratio for SCIS_CD_Q211 is 2.9875, with a 95% confidence interval ranging from 1.3181 to 7.6766. This indicates that a one-unit increase in SCIS_CD_Q211 is associated with a 198.75% increase in the likelihood of improved retail outlet performance. The confidence interval does not include 1, making this effect statistically significant and suggesting a strong positive relationship between SCIS_CD_Q211 and retail outlet performance.

The odds ratio for SCDS_EF_Q311 is 3.635, with a confidence interval from 1.7018 to 8.7199. This suggests that a one-unit increase in SCDS_EF_Q311 is associated with a 263.5% increase in the likelihood of improved performance. The statistically significant confidence interval (excluding 1) confirms a robust positive association between SCDS_EF_Q311 and retail outlet performance.

The odds ratio for SCIA_GH_Q431 is 3.9722, with a confidence interval ranging from 1.8399 to 9.4715. This shows a significant 297.22% increase in the likelihood of improved performance for each one-unit increase in SCIA_GH_Q431. The statistically significant confidence interval (excluding 1) suggests a strong positive relationship between SCIA_GH_Q431 and retail outlet performance.

In summary, the predictors SCIS_CD_Q211, SCDS_EF_Q311, and SCIA_GH_Q431 have significant positive effects on the likelihood of improved retail outlet performance in Kenya. Conversely, SCIA_GH_Q421 and SCIA_GH_Q441 do not show significant effects within this model. This analysis underscores the critical factors that enhance retail outlet performance in Kenya, particularly those related to specific elements of Supply Chain Integration.

4.6.1.5 Moderating Effect of Supply Chain Pillars on the Relationship between Supply Chain Integration and Retail Outlet Performance

Logistic Regression Analysis was conducted to determine the moderating effect of Supply Chain pillars on the relationship between Supply Chain Integration and Retail

Outlet Performance in Kenya (objective 4). This objective was measured by the extent to which there existed flexibility and visibility within the supply chain. The study assessed the individual significant predictors in the Tables 33 for further analysis. Again, a binary logistic regression was deployed to establish potential relationship that might exist. The predictor variables of focus were SCIS_CD_Q211, SCDS_EF_Q311, SCIA_GH_Q4211, SCIA_GH_Q431, SCIA_GH_Q441, and SCP_IJ_Q561. Only one of the six moderating factors survived across the objectives and which is considered a potential moderator in the model. Effects on the service delivery and/or profitability related attributes of Retail Outlets Performance were evaluated. The results are summarized in Table 36.

Table 36: Logistic Regression Summary Expressed by Models I and II Denoting Main Effects Only Model and the Model with Moderation Evaluated at 95% Confidence Level for the Significant Predictors

Term	Estimate	Std. Error	Statistic	p-value
SCIS_CD_Q211	0.874501	0.452073	1.934423	0.053061
SCDS_EF_Q311	1.290342	0.416	3.101787	0.001924
SCP_IJ_Q561	0.986022	0.35813	2.753253	0.005901
SCIA_GH_Q421	0.260054	0.332609	0.781862	0.434295
SCIA_GH_Q431	1.388321	0.418551	3.316973	0.00091
SCIA_GH_Q441	-0.40578	0.352574	-1.1509	0.249775

Source: Author's Computation from Research Data (2024)

The logistic regression analysis presented in Table 36 provides valuable insights into the factors influencing retail outlet performance in Kenya, with a specific focus on the moderating effects of Supply Chain Pillars (SCP). The analysis highlights significant predictors, evaluated at a 95% confidence level, focusing on both the main effects and the effects with moderation for SCIS_CD_Q211, SCDS_EF_Q311, SCP_IJ_Q561, SCIA_GH_Q421, SCIA_GH_Q431, and SCIA_GH_Q441.

In this model SCDS EF Q311, SCP IJ Q561 and SCIA GH Q431 have p-values of 0.001924, 0.005901 and 0.00091 respectively indicating a strong positive effect on retail outlets performance. On the other hand, SCIS_CD_Q211, SCIA GH Q421 and SCIA GH Q441 have p-values greater than 0.05 indicating no significant effect. This means that under the moderated joint model SCDS EF Q311, SCIA GH Q431 significantly affect the retail outlets performance while SCIS CD Q211, SCIA GH Q421 and SCIA GH Q441 become insignificant. The interaction term SCP IJ Q561 has a p-value of 0.005901with an estimate of 0.986022 indicating significant moderating effect on the relationship between the predictors and performance.

The resulting model is provided in **equation 11.**

$$\log\left(\frac{p}{1-p}\right) = 1.290342 * \text{SCDS\_EF\_Q311} + 0.986022 * \text{SCP\_IJ\_ Q561}+1.388321*\text{SCIA\_GH\_Q4}$$

31 (Eq. 11)

Considering the results given, the finding reveals several key insights into the factors influencing retail outlet performance in Kenya under the moderation of Supply Chain Pillars (SCP). The significant positive effects of SCDS_EF_Q311 and SCP_IJ_Q561 underscore the importance of effective supply chain decision synchronization and strong partnerships. These practices enhance coordination, resource utilization, and overall supply chain efficiency, leading to improved performance. The strong positive effect of SCIA_GH_Q431 highlights the critical role of incentive alignment in driving performance. Aligning incentives ensures that all stakeholders are motivated to work towards common goals, enhancing commitment and effort towards achieving better performance outcomes. The moderation by SCP indicates that these positive effects are amplified when integrated into a comprehensive supply chain strategy. The marginal significance of SCIS_CD_Q211 suggests that while supply chain information sharing might positively impact performance, its effect may not be as strong or consistent under moderation. Further research with larger sample sizes or different methodologies could provide more conclusive evidence. The lack of significance for SCIA_GH_Q421 and SCIA_GH_Q441 indicate that not all aspects of incentive alignment have a uniform impact on performance. It is essential to identify which specific incentive practices are most effective and to tailor them to the specific needs and context of the retail outlets.

Overall, the findings emphasize the importance of focusing on key supply chain practices such as decision synchronization, strong partnerships, and effective incentive alignment to achieve significant performance gains. Retail outlets in Kenya, operating in a competitive and rapidly growing market, can benefit from adopting these practices to enhance their operational efficiency and maintain a competitive edge. The moderation by

SCP suggests that integrating these practices within a broader supply chain strategy can further amplify their positive effects.

Table 37: Displaying the Associated Odds Ratio and Their Corresponding 95% Confidence Interval for the Consolidated Objectives Model Considered Both for Reduced Model (Model 1) and Full Model (Model 2) with Moderating Factors

Predictor	**Odds Ratio**	**2.50%**	**97.50%**
SCIS_CD_Q211	2.3977	1.0329	6.2466
SCDS_EF_Q311	3.634	1.6858	8.78
SCP_IJ_Q561	2.6806	1.366	5.6195
SCIA_GH_Q421	1.297	0.6816	2.5271
SCIA_GH_Q431	4.0081	1.8391	9.631
SCIA_GH_Q441	0.6665	0.3336	1.3388

Source: Author's Computation from Research Data (2024)

The results from Table 37 provide a comprehensive view of the factors influencing retail outlet performance in Kenya, focusing on the combined objectives of the study and the moderation by Supply Chain Pillars (SCP). The significant positive effect of SCIS_CD_Q211, with an odds ratio of 2.3977 and a confidence interval of [1.0329, 6.2466], underscores the importance of supply chain information sharing. This finding aligns with the literature that highlights the role of information sharing in improving supply chain efficiency and performance. For instance, Maat, Setiawan, and Rahayu (2020) found that information sharing positively affects the performance of small and

medium companies in Indonesia, emphasizing its critical role in achieving better performance outcomes. Effective information sharing can lead to improved decision-making, enhanced coordination, and better alignment of supply chain activities, ultimately contributing to higher performance levels.

The strong positive effect of SCDS_EF_Q311, with an odds ratio of 3.634 and a confidence interval of [1.6858, 8.78], highlights the crucial role of supply chain decision synchronization. This significant effect indicates that a one-unit increase in SCDS_EF_Q311 increases the odds of improved performance by approximately 263.4%. Effective decision synchronization can streamline operations, reduce inefficiencies, and improve overall supply chain coordination, leading to better performance outcomes.

SCP_IJ_Q561 also shows a significant positive effect, with an odds ratio of 2.6806 and a confidence interval of [1.366, 5.6195]. This suggests that a one-unit increase in SCP_IJ_Q561 increases the odds of improved performance by approximately 168.06%. This finding underscores the importance of supply chain pillars in boosting retail outlet performance. Supply chain pillars can foster collaboration, enhance resource sharing, and align objectives across the supply chain, leading to improved efficiency and performance. This finding is consistent with the study by Siagian, Tarigan, Hiasada and Jie (2021) who established a positive mediating effect of Supply Chain Flexibility on the relationship between SCI and manufacturing firms' Performance in Indonesia. Decision synchronization ensures that all parts of the supply chain are working towards the same goals and timelines, reducing delays and enhancing efficiency.

The positive effect of SCIA_GH_Q431, with an odds ratio of 4.0081 and a confidence interval of [1.8391, 9.631], emphasizes the significant role of incentive alignment in driving performance. A one-unit increase in SCIA_GH_Q431 increases the odds of improved performance by approximately 300.81%. Aligning incentives ensures that all stakeholders are motivated to work towards common goals, enhancing commitment and effort towards achieving better performance outcomes. This finding is in line with Igwe et al. (2016), who reported that incentive alignment positively influenced the performance of brewery firms in Nigeria. Incentive alignment can lead to increased motivation and engagement among employees, ensuring that their efforts are aligned with organizational goals.

Conversely, SCIA_GH_Q421 has an odds ratio of 1.297 and a confidence interval of [0.6816, 2.5271], and SCIA_GH_Q441 has an odds ratio of 0.6665 and a confidence interval of [0.3336, 1.3388]. Both of these results indicate non-significant effects, with confidence intervals that include 1. This suggests that these specific aspects of incentive alignment may not have a substantial impact on performance or may not be as critical as other factors. The non-significant effect of SCIA_GH_Q421 suggests that while this aspect of incentive alignment might have some positive impact, it is not strong enough to be considered statistically significant. The negative, non-significant effect of SCIA_GH_Q441 suggests that this particular incentive alignment practice might not significantly impact performance and could potentially have a detrimental effect if not managed properly.

Overall, the findings emphasize the importance of focusing on key supply chain practices such as information sharing, decision synchronization, strong partnerships, and effective incentive alignment to achieve significant performance gains. Retail outlets in Kenya, operating in a competitive and rapidly growing market, can benefit from adopting these practices to enhance their operational efficiency and maintain a competitive edge. The moderation by SCP suggests that integrating these practices within a broader supply chain strategy can further amplify their positive effects, contributing to sustained performance improvements in the retail sector. By leveraging these key supply chain integration practices, retail outlets can improve their responsiveness, reduce operational costs, and enhance customer satisfaction, ultimately leading to better overall performance in the highly competitive retail environment of Kenya.

4.6.6 Comparative Analysis Before and After Moderation with Supply Chain Pillars (SCP)

The study compared the effects of various predictors on retail outlet performance in Kenya before and after the moderation with Supply Chain Pillars (SCP). The comparison highlighted significant shifts in predictors estimates, standard errors, statistics, and p-values, indicating the influence of SCP on these relationships. Before moderation, SCIS_CD_Q211 had an estimate of 1.094452, a standard error of 0.442713, a statistic of 2.472148, and a p-value of 0.01343. This showed a significant positive effect on retail outlet performance. However, after moderation, the estimate decreased to 0.874501, the standard error slightly increased to 0.452073, the statistic decreased to 1.934423, and the

p-value increased to 0.053061, losing its statistical significance. This indicates that while supply chain information sharing (SCIS) might positively impact performance, its effect is not as strong or consistent when SCP is considered.

SCDS_EF_Q311 showed a slight decrease in estimate from 1.290606 to 1.290342 after moderation, with an increase in the standard error from 0.411819 to 0.416. The statistic decreased from 3.133916 to 3.101787, and the p-value slightly increased from 0.001725 to 0.001924, but it remained statistically significant. This strong positive effect underscores the critical role of supply chain decision synchronization (SCDS) in enhancing retail outlet performance, when SCP is considered.

SCIA_GH_Q421 had an insignificant decrease in estimate from 0.329965 to 0.260054 after moderation, with an increase in the standard error from 0.326971 to 0.332609. The statistic increased from 1.009157 to 0.781862, and the p-value increased from 0.312899 to 0.43429, becoming even more statistically insignificant. This suggests that supply chain pillar (SCP) does not play a vital role in boosting retail outlet performance.

SCIA_GH_Q421 experienced a significant reduction in effect after moderation, with its estimate decreasing from 1.379325 to 0.260054, the standard error decreasing from 0.414177 to 0.332609, the statistic decreasing from 3.330283 to 0.781862, and the p-value increasing from 0.000868 to 0.434295, losing statistical significance. This implies that the specific aspect of incentive alignment represented by SCIA_GH_Q421 may not have a substantial impact on retail outlet performance when SCP is considered.

SCIA_GH_Q431 showed a dramatic positive shift after moderation, with the estimate increasing significantly from 1.379325 to 1.388321, the standard error increasing from 0. 414177 to 0.418551, the statistic increasing from 3.330283 to 3.316973, and the p-value decreasing significantly from 0.000868 to 0.00091, maintaining its high significance. This indicates that SCIA_GH_Q431 maintains its significance, however, with a marginal increase in p-value.

SCIA_GH_Q441 shifted from a negative to a further negative estimate, decreasing from -0.37577 to -0.40578 after moderation. The standard error slightly increased from 0.345544 to 0.352574, the statistic decreased further from -1.08747 to -1.1509, and the p-value decreased marginally from 0.276828 to 0.249775, maintaining statistical insignificance. This suggests that the SCIA_GH_Q441 becomes more insignificant under moderation.

The findings from this study are highly relevant to the current retail business environment in Kenya, which has experienced significant turmoil with the collapse of major supermarkets such as Nakumatt, Uchumi, and Tuskys. The retail sector is now dominated by new entrants like Naivas, Quickmart, and Carrefour, which are striving to maintain their market position in a highly competitive and dynamic environment. The reduced significance of SCIS_CD_Q211 after considering SCP suggests that while information sharing is crucial, its isolated impact may be limited in the complex retail landscape of Kenya. This indicates that retailers must integrate SCIS with other supply chain practices

to realize significant performance improvements. The strong positive effect of SCDS_EF_Q311, even after moderation, underscores the importance of coordinated decision-making in enhancing performance. In the Kenyan context, where retail businesses face diverse challenges such as fluctuating demand and supply chain disruptions, synchronized decision-making can lead to better alignment of operations and improved resilience. The significant increase in the impact of SCP_IJ_Q561 after moderation highlights the critical role of partnerships. For Kenyan retailers, forming strong partnerships with suppliers and other stakeholders can enhance resource sharing, improve supply chain efficiency, and ultimately boost performance. This is particularly important in a market where supply chain reliability has been a major issue. The varied impacts of different SCIA aspects indicate that not all incentive alignment practices are equally effective. The strong positive shift in SCIA_GH_Q431 suggests that certain incentive practices, when properly aligned with broader supply chain strategies, can significantly enhance performance. This is crucial for Kenyan retailers looking to motivate their workforce and align their goals with those of their supply chain partners. The study's findings therefore emphasize the need for a holistic approach to supply chain management in Kenya's retail sector. Retailers must not only focus on individual supply chain practices but also integrate them within a comprehensive strategy that includes strong partnerships and effective incentive alignment. This approach can help retailers navigate the complexities of the Kenyan market, improve operational efficiency, and maintain a competitive edge.

4.6.7 Testing the Hypotheses

The hypothesis test criterion was that the null hypothesis should be rejected if *p*-value < 0.05 otherwise accepted if the p-value > 0.05.

Table 38: Summary of Results on Hypotheses Testing

Hypothesis	Actual position	Decision
$H_0$1: There is no statistically significant effect of Supply Chain Information Sharing on Retail Outlet Performance.	at 5% significance level, the significance level for Supply Chain Information Sharing was p = 0.00538	Reject the Null Hypothesis
$H_0$2: There is no statistically significant effect of Supply Chain Decision Synchronization on Retail Outlet Performance.	at 5% significance level, the significance level for Supply Chain Decision Synchronization p = 0.000986	Reject the Null Hypothesis
$H_0$3: There is no statistically significant effect of Supply Chain Incentive Alignment on Retail Outlet Performance.	at 5% significance level, the significance level for Supply Chain Incentive Alignment p = 0.001246	Reject the Null Hypothesis
$H_0$4: There is no statistically significant moderating effect of Supply Chain Pillars on the relationship between Supply Chain Integration and Retail Outlet Performance.	at 5% significance level, the significance level for Supply Chain Integration p = 0.005901	Reject the Null Hypothesis

Source: Survey Data (2024)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusions, recommendations and suggestions for further research on the moderating effect of supply chain pillars on the relationships between supply chain integration on retail outlet performance.

5.2 Summary of Findings

This study intended to investigate the moderating effect of Supply Chain Integration on Retail Outlet Performance. Specific objectives were: to determine the effect of Supply Chain Information Sharing on Retail Outlet Performance; to find out the effect of Supply Chain Decision Synchronization on Retail Outlet Performance; to evaluate the effect of Supply Chain Incentive Alignment on Retail Outlet Performance; and to establish the moderating effect of Supply Chain Pillars on the relationship between Supply Chain Integration (Supply Chain Information Sharing; Supply Chain Decision Synchronization; and Supply Chain Incentive Alignment) and Retail Outlet Performance. This study issued 347 questionnaires to the respondents. A total of 305 questionnaires were filled and returned, giving 87.9% response rate. This response rate aligns well with the acceptable limits suggested by Haslam and Prasad (2019), who advocate for a 65% and above response rate. The response rate was therefore adequate for use in this study. In terms of experience, majority (125) of the individuals, accounting for 40.98%, had accumulated 6-10 years of experience. Following closely, 111 respondents (36.39%) had a tenure of less

than 5 years, while 69 individuals (22.63%) had dedicated over 10 years to working in the Retail Outlets. The cumulative effect of these results indicates that a substantial majority of 194 respondents, constituting 63.61%, possessed extensive experience in the Retail Outlets. This extensive tenure suggests a profound understanding of the operations within these outlets, enabling respondents to offer valuable insights into the utilization of Supply Chain Integration for positive Retail Outlet performance.

In terms of academic qualification, majority of Retail Outlet employees, numbering 110, held diplomas, constituting 36.07%. Following closely, degree holders accounted for 36.07% with a total of 104 respondents. Certificate holders comprised the third-largest category at 28.20% with 86 individuals. The smallest category, consisting of post-graduate holders, totaled 5 at 1.63%. This pattern reflects a knowledgeable workforce capable of comprehending the diverse Supply Chain Integration methods employed in their respective company operations.

5.2.1 Supply Chain Information Sharing and Retail Outlet Performance.

Objective one sought to find out the effect of Supply Chain Information Sharing on Retail Outlet Performance. The logistic regression analysis showed that SCIS had a significant positive effect on retail outlet performance. A one-unit increase in SCIS increased the odds of improved performance by approximately 139.77% (Odds Ratio: 2.3977, 95% CI: [1.0329, 6.2466]). This underscores the importance of effective information sharing in enhancing retail performance

5.2.2 Supply Chain Decision Synchronization and Retail Outlet Performance

Objective two sought to determine the effect of Supply Chain Decision Synchronization on Retail Outlet Performance. SCDS demonstrated the strongest effect among the predictors. A one-unit increase in SCDS increased the odds of improved performance by about 263.4% (Odds Ratio: 3.634, 95% CI: [1.6858, 8.78]). This highlights the critical role of decision synchronization in streamlining operations and improving overall supply chain efficiency.

5.2.3 Supply Chain Incentive Alignment and Retail Outlet Performance

Objective three sought to evaluate the effect of Supply Chain Incentive Alignment on Retail Outlet Performance. The analysis revealed that SCIA_GH_Q431 had a significant positive impact on performance, with a one-unit increase raising the odds by approximately 300.81% (Odds Ratio: 4.0081, 95% CI: [1.8391, 9.631]). However, other aspects of incentive alignment, such as SCIA_GH_Q421 and SCIA_GH_Q441, did not show significant effects, suggesting the need to identify the most effective incentive practices.

5.2.4 Moderating effect of Supply Chain Pillars on the relationship between Supply Chain Integration and Retail Outlet Performance

Objective four sought to establish the Supply Chain Pillars on the relationship between Supply Chain Integration and Retail Outlet Performance. SCP showed a significant positive effect, increasing the odds of improved performance by approximately 168.06% (Odds Ratio: 2.6806, 95% CI: [1.366, 5.6195]). This indicates that integrating SCP within

a broader supply chain strategy can amplify the positive effects of SCIS, SCDS, and SCIA on retail outlet performance.

5.3 Conclusion

Objective one sought to determine the effect of Supply Chain Information Sharing (SCIS) on Retail Outlet Performance. The study findings indicate that SCIS has a statistically significant impact on retail outlet performance. It was concluded that the efforts a retail outlet invests in SCIS as a supply chain integration practice are critical for improving performance, particularly in terms of service delivery and profitability. Effective SCIS significantly enhances retail outlet performance by facilitating better decision-making and coordination across the supply chain. The substantial increase in performance odds associated with SCIS suggests that retail outlets should prioritize robust information-sharing mechanisms. These mechanisms enable seamless communication and synchronization of activities, leading to more efficient operations and improved customer satisfaction. Furthermore, the findings highlight that SCIS does not solely determine retail outlet performance independently. Instead, it works in conjunction with other supply chain integration activities such as Supply Chain Decision Synchronization (SCDS) and Supply Chain Incentive Alignment (SCIA). In summary, for retail outlets to achieve optimal performance, a comprehensive approach to supply chain integration is essential. This includes not only effective SCIS but also the integration of decision synchronization and incentive alignment practices. These combined efforts ensure a cohesive and efficient supply chain, ultimately driving enhanced performance and competitive advantage. This conclusion underscores the importance of a holistic view of

supply chain practices, advocating for integrated strategies that collectively contribute to superior retail outlet performance. Retail managers should therefore focus on strengthening all aspects of supply chain integration to realize the full potential of their operations.

Objective two sought to determine the effect of Supply Chain Decision Synchronization (SCDS) on Retail Outlet Performance. The study findings indicate that SCDS has a statistically significant impact on retail outlet performance. It was concluded that the efforts a retail outlet invests in SCDS as a supply chain integration practice are critical for enhancing performance, particularly in terms of service delivery and profitability. Supply Chain Decision Synchronization has the most significant impact on improving retail outlet performance. By aligning decisions across the supply chain, retail outlets can achieve greater operational efficiency and minimize inefficiencies, leading to substantially better performance outcomes. The implementation of synchronized decision-making processes is essential for retail success, as it ensures that all parts of the supply chain work in harmony towards common goals.

The findings also reveal that SCDS does not solely determine retail outlet performance independently. Instead, it functions synergistically with other supply chain integration practices such as Supply Chain Information Sharing (SCIS) and Supply Chain Incentive Alignment (SCIA). This integrated approach ensures a cohesive and efficient supply chain, driving enhanced performance and providing a competitive advantage. In conclusion, to realize optimal performance, retail outlets must adopt a comprehensive

approach to supply chain integration. This includes not only effective SCDS but also the integration of information sharing and incentive alignment practices. These combined efforts facilitate a seamless flow of information, coordinated decision-making, and aligned incentives, all of which contribute to superior retail outlet performance. Retail managers should prioritize the strengthening of all facets of supply chain integration to unlock the full potential of their operations.

Objective three sought to investigate the effect of Supply Chain Incentive Alignment (SCIA) on Retail Outlet Performance. The study findings indicate that SCIA has a statistically significant impact on retail outlet performance. It was concluded that the efforts a retail outlet invests in SCIA as a supply chain integration practice are crucial for enhancing performance, particularly in terms of service delivery and profitability. Supply Chain Incentive Alignment plays a critical role in driving retail outlet performance. Effective alignment of incentives motivates stakeholders and enhances their commitment to organizational goals. This motivation translates into improved operational efficiency, higher employee satisfaction, and better overall performance. The study highlighted that specific incentive practices, such as SCIA_GH_Q431, are particularly impactful, emphasizing the need for careful selection and implementation of incentive strategies to maximize performance benefits. Moreover, the findings revealed that SCIA does not independently determine retail outlet performance. Instead, it functions synergistically with other supply chain integration components like Supply Chain Information Sharing (SCIS) and Supply Chain Decision Synchronization (SCDS). This integrated approach ensures a cohesive and efficient supply chain, driving enhanced performance and

providing a competitive advantage. In conclusion, for retail outlets to achieve optimal performance, a comprehensive approach to supply chain integration is essential. This includes not only effective SCIA but also the integration of information sharing and decision synchronization practices. These combined efforts facilitate a seamless flow of information, coordinated decision-making, and aligned incentives, all of which contribute to superior retail outlet performance. Retail managers should prioritize the strengthening of all facets of supply chain integration to unlock the full potential of their operations.

Objective four, being the overall objective, sought to establish the moderating effect of Supply Chain Pillars on the relationship between Supply Chain Integration and Retail Outlets Performance. The study findings indicated that Supply Chain Pillars have a statistically significant moderating effect on this relationship. Specifically, the integration of supply chain pillars significantly enhances the positive effects of Supply Chain Information Sharing (SCIS), Supply Chain Decision Synchronization (SCDS), and Supply Chain Incentive Alignment (SCIA) on retail outlets performance. By adopting a comprehensive supply chain integration strategy that includes effective Information Sharing, Decision Synchronization, and Incentive Alignment, retail outlets can amplify the benefits of individual supply chain integration practices, leading to sustained performance improvements. Supply chain pillars such as supply chain visibility and supply chain flexibility play crucial roles in this process. Supply chain visibility ensures that all stakeholders have access to accurate and timely information on product location as it flows along the supply chain, facilitating better coordination and decision-making. Supply chain flexibility allows retail outlets to adapt quickly to changes and disruptions,

maintaining operational efficiency and customer satisfaction. From the findings, it was concluded that supply chain pillars are essential attributes that must be given greater priority to realize incremental improvements in retail outlets performance. Retail managers should focus on enhancing both visibility and flexibility within their supply chains. This integrated approach ensures that the benefits of SCIS, SCDS, and SCIA are maximized, leading to improved service delivery, increased profitability, and a stronger competitive position in the market. In summary, the study underscores the importance of supply chain pillars in enhancing the effectiveness of supply chain integration practices. By prioritizing supply chain visibility and flexibility, retail outlets can achieve higher performance levels and better adapt to market dynamics, thereby ensuring long-term success.

5.4 Recommendation

Objective one sought to establish the effect of Supply Chain Information Sharing on Retail Outlet Performance. The study thus recommends that supply chain managers should always share supply chain information to supply chain stakeholders so as to get improved customer service delivery, increased profitability and value for money for the Retail Outlets. Further to this, Retail Outlets should invest in advanced information-sharing technologies and platforms to facilitate seamless communication and data exchange across the supply chain. Establishing regular information-sharing protocols and training staff on effective communication practices will enhance decision-making and operational efficiency.

Objective two sought to find out the effect of Supply Chain Decision Synchronization on Retail Outlet Performance. The study thus recommends that Supply Chain Decisions should always be synchronised with operational requirements of retail outlets to avoid service delivery disruptions. Implementing synchronized decision-making processes across the supply chain would ensure alignment of goals and actions. This can be achieved by developing integrated planning systems and conducting regular coordination meetings among supply chain partners. Emphasizing collaborative decision-making will help reduce inefficiencies and improve overall performance.

Objective three sought to investigate the effect of Supply Chain Incentive Alignment on Retail Outlet Performance. The study thus recommends that Supply Chain Incentives that are given regularly should be alignment with various operational requirements of retail outlets. Retail Outlets Managers should develop and implement tailored incentive programs that align with organizational goals to motivate stakeholders effectively. Retail outlets should also focus on creating incentive structures that reward performance improvements and foster commitment to shared objectives. Regularly reviewing and adjusting these incentives based on feedback and performance data will ensure they remain effective.

Objective four sought to establish the Supply Chain Pillars on the relationship between Supply Chain Integration and Retail Outlet Performance. The study thus recommends that supply chain managers should always ensure that the supply chain pillars are well managed for subsequent supply chain visibility and supply chain flexibility that

resultantly was effectively contribute to improved retail outlet performance. This would eventually improve service delivery for customers, value for money to the retail outlets and eventually improve retail outlet profitability. They should also integrate supply chain pillars into a comprehensive supply chain strategy to enhance the overall impact of individual practices. Retail outlets should build strong partnerships, establish clear roles and responsibilities, and align objectives across the supply chain. Regular assessments of these partnerships and strategic adjustments will help maintain alignment and drive sustained performance improvements.

5.5 Contributions of the Study

5.5.1 Contributions to Theory

This study provides empirical evidence that supports and expands existing theories in supply chain management, particularly regarding the impact of supply chain integration (information sharing, decision synchronization, and incentive alignment) on retail outlet performance. It reinforces the relevance of these practices within the context of retail supply chains and highlights the moderating role of supply chain pillars. Furthermore, the findings may inspire the development of new theoretical models that integrate supply chain pillars as moderating variables, offering a more nuanced understanding of how various supply chain integration practices interact to influence performance. By demonstrating how supply chain integration enhances retail performance, this study validates and extends the dynamic capabilities theory in the context of retail supply chains.

5.5.2 Contributions to Practice

Retail managers can utilize the findings of this study to design and implement more effective supply chain integration strategies that emphasize information sharing, decision synchronization, and incentive alignment. The study provides actionable insights into which practices have the most significant impact on performance, thereby helping retail outlets streamline their operations, reduce inefficiencies, and improve coordination across the supply chain. Moreover, the practical guidelines derived from the study can serve as benchmarks, allowing retailers to compare their current practices against best practices identified in the research and make necessary adjustments to enhance their supply chain integration processes.

5.5.3 Contributions to Knowledge

The study contributes to the body of knowledge by providing empirical evidence on the impact of specific supply chain integration on retail outlet performance in Kenya. This contextual knowledge is valuable for both academics and practitioners interested in the retail industry. By identifying key drivers of retail performance within the supply chain, the research deepens the understanding of which factors are most critical for success in the retail sector. Additionally, the study lays a foundation for future research by highlighting areas where further investigation is needed, such as the long-term effects of supply chain integration and the impact of emerging technologies.

5.5.4 Contributions to Policy

Policymakers can use the findings of this study to develop policies that support and promote effective supply chain practices within the retail sector. Policies that encourage information sharing, collaboration, and incentive alignment can foster a more efficient and competitive retail environment. The study also provides insights that can inform the creation of regulatory frameworks aimed at enhancing supply chain transparency and accountability. For instance, policies that incentivize information sharing and penalize supply chain inefficiencies could be developed based on the study's findings. Furthermore, the findings can contribute to the development of industry standards and best practice guidelines for supply chain management in the retail sector, helping to elevate overall industry performance

5.6 Suggestions for Further Studies

The study suggests the following future research directions in the field relating to the Supply Chain Integration and Retail Outlet Performance relationship:

Firstly, this study used cross-sectional data to test the hypothesis on the relationship between Supply Chain Integration and Retail Outlet Performance as well as the subsequent moderating effect of Supply Chain Pillars in the relationship. This design only provided a snapshot picture at a single point in time of the Supply Chain Integration in Retail Outlets. Therefore, there is need to conduct a longitudinal study to examine the long-term effects of supply chain information sharing, decision synchronization, and incentive alignment on retail outlet performance. This would provide insights into how

these integration practices impact performance over time and the sustainability of their benefits thus more conclusive evidence to the Supply Chain Integration-Retail Outlet Performance model.

Secondly, this study was purely based on primary data. The reliance solely on primary data may limit the breadth of context that could be obtained from secondary data sources. Incorporating in-depth qualitative analysis would complement quantitative findings. Interviews and focus groups with supply chain managers and retail outlet employees could provide richer insights into the challenges and successes associated with implementing supply chain practices. Therefore, there is need for future researchers to consider secondary data or mixed methods approaches to ascertain and validate the findings of this study thereby providing a more comprehensive understanding of the research topic.

Thirdly, future researchers may consider comparative studies between different types of retail outlets (e.g., supermarkets, specialty stores, online retailers and public owned) to understand how supply chain practices impact performance differently across various retail formats. This would help in tailoring supply chain strategies to specific retail contexts.

Further, one may also consider investigating other potential moderating variables that could influence the relationship between supply chain practices and retail outlet

performance. Variables such as organizational culture, market conditions, and customer behavior might provide deeper insights into the dynamics of supply chain management.

REFERENCES

Africa Business Pages. (2022). Kenya: The business hub of East Africa. Retrieved from https://news.africa-business.com.

Agango, D. & Achuora, J. (2018). Influence of relationship management on the performance of supply chain management in health facilities in Nairobi City, Kenya. *International Journal of Social Sciences and Information Technology*. ISSN 2412-0294. Vol. 4, Issue 10, October 2018.

Aggrey, E., Amoako, I. O., & Anin, E. K. (2021). Moderating effect of supply chain agility and innovation on the relationship between supply chain integration and performance of agri-business firms in Mozambique. *African Journal of Business Management, 15*(5), 89-102.

Albishri, A. (2018). The impact of supply chain decision synchronization on supply chain performance: Evidence from SMEs in Dubai. *Journal of Operations Management, 45*(1), 78-92.

Ali, A. (2020). Effect of information sharing on supply chain responsiveness of manufacturing firms in Kenya. *Journal of Business and Management, 15*(4), 34-48.

Ali, A., & Achuora, J. (2018). The role of supply chain incentive alignment in enhancing performance of SMEs in Kenya. *International Journal of Logistics Management, 28*(3), 234-252.

Ali, M., & Apopa, V. (2018). The influence of supply chain information sharing on the performance of supermarkets in Kenya. *Journal of Business Research, 5*(3), 89-98.

Apopa, J. (2018). Influence of information sharing on performance of government ministries in Kenya. *International Journal of Business and Social Science, 9*(6), 123-137.

Armayah, A. A., Firdaus, A., & Arianto, B. (2019). The effect of supply chain decision synchronization on the performance of SMEs in Indonesia. *Journal of Small Business Management, 57*(2), 345-361.

Armayah, I., Tarigan, R., & Jie, F. (2019). Effect of decision synchronization on the performance of SMEs in Indonesia. *Journal of Small Business Management, 57*(3), 345-360.

Ataseven, C., & Nair, A. (2017). Assessment of supply chain integration and performance relationships: A meta-analytic investigation of the literature. *International Journal of Production Economics*, 185, 252-265.

Ayuki, F. (2007). Supply chain integration and competitive advantage in Kenyan firms. *African Journal of Business Management, 8*(3), 112-121.

Baihaqi, I., & Sohal, A. S. (2013). The impact of information sharing in supply chains on organizational performance: An empirical study. *Journal of Manufacturing Technology Management, 24*(5), 686-703.

Barasa, P. (2016). Contribution of decision synchronization on performance of manufacturing companies in Kenya. *African Journal of Business and Management, 3*(4), 57-69.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120. https://doi.org/10.1177/014920639101700108

Barratt, M. (2001). Exploring the experience of collaborative planning initiatives. *Management Faculty Research and Publication*. E-publication@marquette.

Barratt, M. (2004). Understanding the meaning of collaboration in the supply chain. *Supply Chain Management: An International Journal, 9*(1), 30-42. https://doi.org/10.1108/13598540410517566

Bartlett, P., Julien, D. M., & Baines, A. (2014). Supply chain visibility: Why it matters and how to achieve it. *International Journal of Logistics Management, 25*(2), 281-300. https://doi.org/10.1108/IJLM-08-2012-0073

Baumol, W. J. (1993). *Entrepreneurship, management, and the structure of payoffs.* MIT Press.

Beihl, C. G., Cook, R. L., & Johnson, K. L. (2004). Supply chain decision synchronization: A key to better performance. *Canadian Journal of Administrative Sciences, 21*(4), 332-344.

Beihl, D. A., Cook, S. A., & Johnson, P. F. (2004). Effect of joint decision making on buyer-supplier relationship of manufacturing firms in Canada. *Journal of Supply Chain Management, 40*(2), 19-32.

Berut, J.Z. (2020). Influence of Supply chain collaboration on performance of dairy processing firms in Kenya. *Unpublished PHD thesis*.

Boone, H. N., & Boone, D. A. (2012). Analyzing Likert data. *Journal of Extension,* 50(2), 1-5.

Borgatti, S. P., & Halgin, D. S. (2011). On network theory. *Organization Science*, 22(5), 1168-1181. https://doi.org/10.1287/orsc.1100.0641

Borgatti, S. P., & Halgin, D. S. (2011). On network theory. *Organization Science*, 22(5), 1168-1181. https://doi.org/10.1287/orsc.1100.0641

Brandon-Jones, E., Squire, B., Autry, C., & Petersen, K. (2014). A contingent resource-based perspective of supply chain resilience and robustness. *Journal of Supply Chain Management, 50*(3), 55-73.

Brass, D. J., & Burkhardt, M. E. (1992). Centrality and power in organizations. In N. Nohria & R. G. Eccles (Eds.), *Networks and organizations: Structure, form, and action* (pp. 191-215). Harvard Business School Press.

Brenda, C. (2016). The role of supply chain information sharing in the performance of manufacturing firms in Uganda. *Journal of Business and Economics, 4*(2), 112-120.

Brenda, M. (2016). Relationship between information sharing and organizational performance of manufacturing firms in Uganda. *Uganda Journal of Business Management, 4*(1), 45-58.

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

Cao, M., & Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance. *Journal of Operations Management, 29*(3), 163-180. https://doi.org/10.1016/j.jom.2010.12.008.

Cao, M., Vonderembse, M. A., Zhang, Q., & Ragu-Nathan, T. S. (2010). Supply chain collaboration: Conceptualization and instrument development. *International Journal of Production Research, 48*(22), 6613-6635. https://doi.org/10.1080/00207540903349039

Castillio, J. J. (2009). *Research Population*. Retrieved from https://explorable.com/research-population

Chakraborty, S., c1`, D. (2014). Impact of supply chain collaboration on value co-creation and firm performance: A healthcare service sector perspective. *Procedia Economics and Finance, 11(2014), pp. 676-694.*

Charlesworth, D. (2022). Emerging trends in retail logistics. *Logistics Journal*, 68(1), 32-44.

Charnes, A., Cooper, W.W., & Rhodes, E. (1978). Measuring the Efficiency of Decision-Making Units. *European Journal of Operational Research, 2(6), 429-444.*

Chen, I. J., Paulraj, A., & Lado, A. A. (2004). Strategic purchasing, supply management, and firm performance. *Journal of Operations Management, 22*(5), 505-523.

Chesula, W., & Iravo, M. (2016). Entry and exit of players in the Kenyan retail sector. *Journal of Business and Retail Management Research, 10*(2), 15-23.

Christopher, M. (2016). *Logistics & supply chain management* (5th ed.). Pearson Education Limited.

Collis, J., & Hussey, R. (2014). *Business Research: A Practical Guide for Undergraduate and Postgraduate Students*. Palgrave Macmillan.

Cronbach, L. J. (1950). Further evidence on response sets and test validity. *Educational and Psychological Measurement*, 10(1), 3-31.

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52(4), 281-302. https://doi.org/10.1037/h0040957

Cross, R., Parker, A., & Borgatti, S. P. (2002). A bird's-eye view: Using social network analysis to improve knowledge creation and sharing. *IBM Systems Journal*, 41(4), 965-984. https://doi.org/10.1147/sj.414.0965

Cytonn Investments. (2023). *Kenya Retail Report 2023*. Retrieved from https://www.cytonn.com.

D'Aveni, R. A. (1994). *Hypercompetition: Managing the dynamics of strategic maneuvering*. Free Press.

Daily Business Report. (2020). Challenges in Kenya's retail sector. *Daily Business Report, 20*(6), 12-19.

Daily Business Report. (2022, November 23). Challenges in Kenya's retail sector. *Daily Business Report,* 20(6), 12-19.

Deloitte. (2023). *Global Powers of Retailing 2023*. Retrieved from https://www2.deloitte.com.

Deziel, C. (2018). The evolution of supply chain management. *Journal of Operations and Supply Chain Management*, 11(2), 144-161.

Didia, J. U., & Nwokah, G. I. (2015). The impact of supply chain integration on the performance of SMEs in Nigeria. *Journal of Business Research, 68*(3), 431-445.

Dillman, D. A. (2000). *Mail and Internet Surveys: The Tailored Design Method*. Wiley.

Doganay, B., & Ergon, E. (2017). Effect of supply chain decision synchronization on supply chain performance of public organizations in Turkey. *Journal of Public Procurement, 17*(1), 34-52.

Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20(1), 65-91.

Dosi, G. (1988). Sources, procedures, and microeconomic effects of innovation. *Journal of Economic Literature*, 26(3), 1120-1171.

Draup. (2023). *Retail Industry Analysis: Opportunities & Challenges in 2023 and Beyond*. Retrieved from https://www.draup.com

Easterby-Smith, M., Thorpe, R., & Jackson, P. (2012). *Management research* (4th ed.). Sage Publications.

Eckert, R. (2007). Inventory management and its effects on customer satisfaction. *Journal of Business Logistics*, 28(2), 57-77.

Eckert, S. G. (2007). Inventory management and its effects on customer satisfaction. Journal of Business Logistics, 28(2), 103-120. https://doi.org/10.1002/j.2158-1592.2007.tb00239.x

Elepu, G. (2006). Supermarket expansion in Uganda: Drivers and implications. *Uganda Journal of Agricultural Sciences, 12*(2), 104-118.

Elepu, G. (2009). Competitive strategies and performance of supermarkets in Uganda. *African Journal of Business Management, 3*(4), 133-142.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. https://doi.org/10.11648/j.ajtas.20160501.11

Evans, P., & Wurster, T. S. (1999). *Blown to bits: How the new economics of information transforms strategy.* Harvard Business School Press.

Fawcett, S. E., Wallin, C., Allred, C., Fawcett, A. M., & Magnan, G. M. (2014). Information technology as an enabler of supply chain collaboration: A dynamic-capabilities perspective. *Journal of Supply Chain Management, 47*(1), 23-48.

Fayezi, S. & Zomorrodi, M. (2015). The role of relationship integration in Supply chain agility and flexibility development: An Australian perspective. *Journal of Manufacturing Technology Management.* http://www.researchgate.net/publication/282908677.

Fekpe, J. E., & Vans Bray, A. (2015). Transition from informal to formal retail sector in Ghana. *Journal of Retailing and Consumer Services, 25*, 24-33.

Fernie, J., & Sparks L. (2014). *Logistics and Retail Management: Emerging Issues and New challenges in the Retail Supply Chain.* 4th Edition. Retrieved from: https://b-ok.africa/book/2612792/eaf198

Fincham, J. E. (2008). Response rates and responsiveness for surveys, standards, and the Journal. *American Journal of Pharmaceutical Education, 72*(2), Article 43. https://doi.org/10.5688/aj720243

Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. *Journal of Operations Management, 28*(1), 58-71. https://doi.org/10.1016/j.jom.2009.06.001

Fowler, F. J. (2013). *Survey research methods* (5th ed.). Sage Publications.

Francisco, K., & Swanson, D. (2018). The supply chain has no clothes: Technology adoption of supply chain visibility. *International Journal of Production Economics, 204*, 34-47. https://doi.org/10.1016/j.ijpe.2018.05.009

Freeman, R. E. (1984). Strategic Management: *A Stakeholder Approach*. Boston: Pitman.

Frohlich, M. T., & Westbrook, R. (2002). Demand chain management in manufacturing and services: Web-based integration, drivers, and performance. *Journal of Operations Management*, 20(6), 729-745. https://doi.org/10.1016/S0272-6963(02)00037-2

Grant, D. B., Trautrims, A., & Wong, C. Y. (2017). Sustainable logistics and supply chain management (2nd ed.). Kogan Page.

Grant, R. M. (2008). *Contemporary strategy analysis* (7th ed.). Wiley.

Grigore, S. D. (2007). Supply chain flexibility. *Romanian Economic and Business Review*, 2(1), 66.

Groves, R. M., & Couper, M. P. (1998). *Nonresponse in Household Interview Surveys*. Wiley.

Gujarati, D. N. (2003). *Basic econometrics* (4th ed.). McGraw-Hill.

Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21(3), 203-215. https://doi.org/10.1002/(SICI)1097-0266(200003)21:3<203::AID-SMJ102>3.0.CO;2-K

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2013). *Multivariate Data Analysis* (7th ed.). Pearson.

Hamiza, Y., & Isoh, M. (2019). Supply chain integration and performance of SMEs in Uganda. *Journal of Business and Economics, 10*(3), 134-151.

Haslam, S. A., & Prasad, K. (2019). *Research Methods and Statistics in Psychology*. Sage Publications.

Holcomb, M. C., Ponomarov, S. Y., & Manrodt, K. B. (2011). The relationship of supply chain visibility to firm performance. *Journal of Business Logistics, 32*(3), 288-304. https://doi.org/10.1111/j.0000-0000.2011.01020.x

Holcomb, T. R., & Hitt, M. A. (2007). Toward a model of strategic outsourcing. *Journal of Operations Management*, 25(2), 464-481. https://doi.org/10.1016/j.jom.2006.05.003

Hosmer, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied Logistic Regression* (3rd ed.). Wiley.

IA Journals. (2023). *Inventory Management Practices and Performance of Supermarkets in Nairobi, Kenya*. Retrieved from https://www.iajournals.org

Igwe, P. A., Robert, B., & Chukwu, B. A. (2016). Influence of incentive alignment on performance of brewery firms in Nigeria. *African Journal of Business Management, 10*(15), 375-386.

Jamieson, S. (2004). Likert scales: How to (ab)use them. *Medical Education*, 38(12), 1217-1218. https://doi.org/10.1111/j.1365-2929.2004.02012.x

Joshi, A., Kale, S., Chandel, S., & Pal, D. K. (2015). Likert scale: Explored and explained. *British Journal of Applied Science & Technology*, 7(4), 396-403. https://doi.org/10.9734/BJAST/2015/14975

Joyce, M., Willy, K., Kimani, J., & Flora, N. (2017). Kenya's retail market and its growth. *African Journal of Business Management*, *11*(8), 187-204.

Kang, K., & Moon, I. (2016). The impact of supply chain integration on the financial performance of Korean companies. *Journal of Purchasing and Supply Management, 22*(1), 36-44.

Kang, M., & Moon, C. (2016). The impact of supply chain information sharing on supply chain performance: Evidence from manufacturing firms in South Korea. *Journal of Supply Chain Management, 52*(1), 16-33.

Kariuki, B.N.J. (2018). Foreign retail chains in Kenya: The struggle for market dominance. *Kenya Business Review, 9*(1), 16-27.

Katemi, E. (2019). Expansion and challenges of the retail industry in Tanzania. *Journal of Business and Retail Management Research, 14*(3), 102-118.

Keitany, J. (2019). Supply chain decision synchronization and performance of retail chains in Kenya. *International Journal of Business and Management, 14*(3), 156-172.

Keitany, P. K. (2019). Supply chain decision synchronization and supply chain performance of manufacturing firms in Nairobi, Kenya. *International Journal of Supply Chain and Inventory Management, 4*(2), 21-39.

Kenya Daily Business Report. (2021). Retail sector instability and challenges. *Daily Business Report, 20*(3), 14-21.

Kenya National Bureau of Statistics. (2019). *Economic survey 2019*. Kenya National Bureau of Statistics. https://www.knbs.or.ke/download/economic-survey-2019/

Kenya Retail Report. (2023). Current state of supermarket chains in Kenya. *Retail Market Insights, 12*(5), 34-50.

Khanunja, P., & Jain, R. (2018). Supply chain resilience: A review. *Operations Research Perspectives*, 5, 174-190. https://doi.org/10.1016/j.orp.2018.07.006

Kilduff, M., & Brass, D. J. (2010). Organizational social network research: Core ideas and key debates. *The Academy of Management Annals*, 4(1), 317-357. https://doi.org/10.1080/19416520.2010.494827

Kilduff, M., & Tsai, W. (2003). *Social networks and organizations.* Sage Publications.

Kimani, J., & Mwangi, P. (2023). Inventory management challenges in Kenyan supermarkets. International Journal of Supply Chain Management, 3(2), 45-62.

Kopper, A., & Parry, G. (2002). Supply chain integration: The role of technology and collaboration. *Journal of Supply Chain Management*, 38(3), 25-40.

Kothari, C.R. (2004). Research Methodology: Methods and Techniques. *New Age International*.

Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson.

Krause, D. R., Robert B. H., & Beverly B.T. (2007). The relationships between supplier development, commitment, social capital accumulation and performance improvement. *Journal of Operations Management, 25(2), 528 – 545*

Kumar, G., Banerjee, R.N., Meena, L.P., & Ganguly, K.K. (2017). The role of joint planning and problem solving in supply chain collaboration. *IIMB management Review, Vol. 20, 1-13. Available at www.sciencedirect.com ; Journal homepage www.elsevier.com/locate/iimb*.

Lagat (2011). Strategic responses to challenges in external environment by supermarkets in Kenya: *International Journal of Business Management and Economics*, vol 55, *Issue* 235.

Lauschner, R., Rodgers, D., & Charvet, F. (2013). A meta-analysis of supply chain integration and firm performance. *Journal of Supply Chain Management*, 49(2), 34-57. https://doi.org/10.1111/jscm.12013

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28*(4), 563-575.

Lawshe, C. H. (1979). Quantitative approach to content validity. *Personnel Psychology*, 28(4), 563-575. https://doi.org/10.1111/j.1744-6570.1975.tb01393.x

Lebedeva, E. (2017). The impact of supply chain incentive alignment on the performance of electronic firms in Russia. *Journal of Business and Management, 55*(4), 67-82.

Lee, H. L., & Whang, S. (2004). *E-business and supply chain integration*. In T. P. Harrison, H. L. Lee, & J. J. Neale (Eds.), *The Practice of Supply Chain Management: Where Theory and Application Converge* (pp. 123-138). Springer. https://doi.org/10.1007/0-387-27275-5_7.

Lema, J. (2023). Kenya's retail sector and its economic impact. *East African Business Journal, 15*(1), 23-35.

Li, S., Ragu-Nathan, B., & Rao, S. S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega, 34*(2), 107-124. https://doi.org/10.1016/j.omega.2004.08.002

Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*, 22(140), 1-55.

Liu, F. H. F., & Hai, H. L. (2005). The voting analytic hierarchy process method for selecting supplier. *International Journal of Production Economics*,97(3), 308-317.

Maat, H. V., Vaart, T. V., & Hollenbeck, J. (2020). The impact of incentive alignment on the performance of small and medium companies in Indonesia. *International Journal of Production Research, 58*(7), 1-19.

Maat, S., Setiawan, T., & Rahayu, S. (2020). The impact of supply chain incentive alignment on the performance of SMEs in Indonesia. *Journal of Business and Industrial Marketing, 35*(1), 98-112.

Macharia, J. N. (2016). *Determinants of profitability of commercial banks in Kenya* (pp. 1-75). University of Nairobi. http://erepository.uonbi.ac.ke/bitstream/handle/11295/97888/Macharia_Determinants%20Of%20Profitability%20Of%20Commercial%20Banks%20In%20Kenya%20_%2520%2520%20%252C%20University%20Of%20Nairobi.pdf.

Maestrini, V., Luzzini, D., Maccarrone, P., & Caniato, F. (2017). Supply chain performance measurement systems: A systematic review and research agenda. *International Journal of Production Economics, 183*, 299-315.

Makhitha, K. M. (2016). Challenges facing the retail industry in South Africa. *Journal of Retailing and Consumer Services, 31*, 231-237.

Manz, D. O., Magalingam, P., et al. (2017). Logistic Regression - An Overview. *ScienceDirect*. ScienceDirect.

Margahana, H., Santoso, B., & Hadiwidjojo, D. (2019). Effect of information sharing on supplier performance of retailers in Indonesia. *Journal of Business and Retail Management Research, 13*(3), 20-36.

Marinagi, C., Trivella, A., & Reklitis, P. (2013). Information quality and supply chain performance: The mediating role of supply chain management capabilities. *International Journal of Production Economics, 146*(2), 586-598.

Marketus, T., & Thedoridis, G. (2006). Enhancing supply chain coordination through technological tools. *International Journal of Retail & Distribution Management, 34*(4), 267-283. https://doi.org/10.1108/09590550610667078.

Mashiloane, M., Mafini, C., & Pooe, R. I. D. (2017). The impact of supply chain information sharing on the performance of South African manufacturing firms. *South African Journal of Industrial Engineering, 28*(1), 29-44.

Mathews, J. (2013). The competitive advantage of Michael Porter. In M. Witzel & M. Warner (Eds.), *The Oxford handbook of management theorists* (online ed.). Oxford Academic. https://doi.org/10.1093/oxfordhb/9780199585762.013.0022.

Mcternan, A. (2014). The Ghanaian retail sector: Current trends and future prospects. *Journal of Retailing and Consumer Services, 21*(5), 764-772. https://doi.org/10.1016/j.jretconser.2014.05.004

Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., & Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business Logistics*, 22(2), 1-25. https://doi.org/10.1002/j.2158-1592.2001.tb00001.x

Merschmann, U., & Thonemann, U. W. (2011). Supply chain flexibility, uncertainty, and firm performance: An empirical analysis of German manufacturing firms. *International Journal of Production Economics, 130*(1), 43-53.

Michael, P. (1985). Competitive Advantage: Creating and Sustaining Superior Performance. New York: Free Press.

Middleton, F. (2019). *Reliability and Validity in Research*. Retrieved from https://www.scribbr.com/methodology/reliability-vs-validity/

Moore, D. S., McCabe, G. P., & Craig, B. A. (2021). *Introduction to the practice of statistics* (10th ed.). W.H. Freeman and Company.

Moshkdanian, F., & Molahosseini, A. (2013). Supply Chain Integration: A strategy for improving organizational performance. *International Journal of Business and Management, 8*(17), 107-121. https://doi.org/10.5539/ijbm.v8n17p107

Mutwiri, M., Marendi, P., Riro, G., & Ratemo, M. (2019). Supply chain integration and performance of SMEs in Kenya. *Journal of Supply Chain Management, 54*(2), 123-140.

Mwangi, P., & Ragui, M. (2023). Relationship Between Supplier Collaboration and Retail Stores Performance in Nairobi County, Kenya: Intervening Role of Supply

Chain Resilience. *International Academic Journal of Human Resource and Business Administration,* 3(10), 46-66.

Mwangi, W. (2018). The decline of major supermarket chains in Kenya. *Kenya Business Review, 7*(1), 23-31.

Nair, A., & Dube, A. (2015). Supply chain integration and its impact on logistics and distribution centers. *Journal of Supply Chain Management, 51*(3), 23-37. https://doi.org/10.1111/jscm.12072.

Narasimhan, R., Swink, M., & Viswanathan, S. (2010). On decisions for integration implementation: An examination of complementarities between product - Process technology integration and supply chain integration. *Decision Sciences, 41(2), 355-372*

Narayanan, V. G., & Raman, A. (2004). Aligning incentives in supply chains. *Harvard Business Review, 82*(11), 94-102.

Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change.* Harvard University Press.

Nevo, D. (1985). The conceptualization of educational evaluation: An analytical review of the literature. *Review of Educational Research,* 55(1), 117-128. https://doi.org/10.3102/00346543055001117

Njoroge, W. (2015). Dynamics of Kenya's retail market. *Kenya Business Review, 12*(3), 45-52.

Norrman, A., & Naslund, D. (2019). Incentive alignment in supply chains: A case study of the Swedish automotive industry. *Journal of Operations and Supply Chain Management, 12*(1), 1-22.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). McGraw-Hill.

Nyosake Investment. (2022). Market targeting strategies of supermarkets in Kenya. *Kenya Market Insights, 14*(2), 22-34.

Ogero, J. (2020). Enhancing competitiveness in the retail sector through supply chain integration. *Kenya Journal of Business and Management, 4*(3), 99-112.

Oguro, R. (2020). Survival strategies of Tuskys supermarket. *Kenya Business Review, 8*(3), 25-33.

Okore, C.A. & Kibet, Y. (2019): Influence of information sharing on supply chain performance in the Tourism Industry in the County of Kakamega, Kenya. *The Strategic Journal of Business & Change Management.* Vol. 6, Iss. 2, pp 66 - 81, April 5, 2019. *ISSN 2312-9492 (Online) 2414-8970 (Print).* www.strategicjournals.com.

Omari, J. (2019). Performance metrics for retail outlets. *Journal of Retailing and Consumer Services, 22*(5), 67-79.

Osei, M. B, & Kagniciogu, C. H. (2018). The impact of supply chain integration on firms' business and operational performance at the food retail sector/industry. *Journal of Management, Marketing and Logistics (JMML)*, V.5(1), p.18-30. http://doi.org/10.17261/Pressacademia.2018.804.

Otchere, A. F., Annan, J., & Anin, E. K. (2013). Achieving competitive advantage through supply chain integration in Ghanaian manufacturing firms. *International Journal of Business and Social Science, 4*(10), 112-124.

Otieno, L. (2023). The impact of supply chain integration on retail performance in Kenya. *Kenya Journal of Business Studies,* 2(1), 37-49.

Pagh, J. D., & Cooper, M. C. (2008). Supply chain postponement and speculation strategies: How to choose the right strategy. *Journal of Logistics Management 19(2), 13–33.*

Piprani, A. Z., Mohezar, S., & Jaafar, N. I. (2020). Supply chain resilience and its mediating effect on the relationship between supply chain integration and firm performance. *International Journal of Production Research, 58*(14), 4291-4313.

Porter, M. (2008). *On Competition, Updated and Expanded Edition*. Cambridge: MA: Harvard Business Review Press.

Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance.* Free Press.

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, 68(3), 79-91.

Provan, K. G., & Kenis, P. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, 18(2), 229-252. https://doi.org/10.1093/jopart/mum015

Qrunfleh, S., & Tarafdar, M. (2013). Lean and agile supply chain strategies and supply chain responsiveness: The role of strategic supplier partnership and postponement. *Supply Chain Management: An International Journal, 18*(6), 571-582.

Reardon, T., Berdegué, J. A., Timmer, C. P., Cabot, T., Mainville, D., Flores, L., & Balsevich, F. (2005). Links among supermarkets, wholesalers, and small farmers in developing countries: conceptualization and emerging evidence. *The future of small farms, 45.*

Retail Trade Association of Kenya. (2020). *Annual retail sector performance report 2020*. Retail Trade Association of Kenya.

Richards, G., & Grinsted, S. (2020). The Logistics and Supply Chain Toolkit. 3rd Edition. Retrieved from: https://p302.zlibcdn.com/dtoken/8684f24b47c56e340e42d0629b4e567d

Robson, C. (2011). *Real World Research* (3rd ed.). Wiley.

Röpke, J., & Trullén, J. (2023). Revisiting Schumpeter's Innovation Theory of Profit: Modern Implications and Applications. *Journal of Economic Perspectives, 37*(1), 45-63.

Saqib, R., & Zhang, Q. (2021). Moderating effect of supply chain visibility on the relationship between sustainable practices and sustainable performance of manufacturing firms in Pakistan. *Journal of Cleaner Production, 293*, 126113.

Saunders, M., Lewis, P., & Thornhill, A. (2016). *Research methods for business students* (7th ed.). Pearson.

Schoenherr, T., & Swink, M. (2012). Revisiting the arcs of integration: Cross-validations and extensions. *Journal of Operations Management, 30, 99-115*.

Schönsleben, P. (2016). *Integral logistics management: Operations and supply chain management within and across companies* (5th ed.). CRC Press.

Scott, J., & Carrington, P. J. (2011). The SAGE Handbook of Social Network Analysis. SAGE Publications.

Scotti, D. J. (2004). Measuring performance in services: Problems and challenges. *Measuring Business Excellence, 8*(4), 48-56.

Selmosson, S., & Hagström, L. (2015). *Strategies for increased supply chain flexibility: How to meet uncertainty in demand from a supply chain perspective* [Master's thesis, Umeå University]. DiVA portal. https://urn.kb.se/resolve?urn=urn:nbn:se:umu:diva-105104

Sheffi, Y. (2005). *The resilient enterprise: Overcoming vulnerability for competitive advantage.* MIT Press.

Siagian, H., Tarigan, R., Hisada, J., & Jie, F. (2021). The mediating effect of supply chain flexibility on the relationship between supply chain integration and performance of manufacturing firms in Indonesia. *Journal of Manufacturing Technology Management, 32*(4), 844-864.

Simatupang, M. (2014). An integrative framework for supply chain collaboration. *The International Journal of Logistics management. Vol 16 No 16, 2005, PP, 257-274.*

Simatupang, T. M., & Sridharan, R. (2005). Supply chain disintermediation: A conceptual view from information sharing and supply chain integration perspectives. *International Journal of Value Chain Management, 1*(1), 43-67.

Smith, J. (2020). Supply chain innovation in retail: Challenges and solutions. *Retail Journal of Management*, 56(3), 102-115.

Sodhi, M. S., & Tang, C. S. (2012). Managing supply chain risk. *International Journal of Production Economics*, 139(1), 1-12. https://doi.org/10.1016/j.ijpe.2011.06.010

Soko Directory. (2022). The state of the retail industry in Kenya. *Soko Directory Report, 6*(4), 78-90.

Stevens, G.C., & Johnson, M. (2016). Integrating the Supply Chain, 25 years on. *International Journal of Physical Distribution & Logistics Management, 46(1), 19-42.*

Stevenson, M., & Spring, M. (2007). Flexibility from a supply chain perspective: Definition and review. *International Journal of Operations & Production Management, 27*(3), 685-713.

Sumardi, R., Setyawan, A., & Wahyudi, S. (2019). The effect of supply chain integration on the performance of SMEs in Indonesia. *Journal of Small Business and Enterprise Development, 26*(1), 98-115.

Tabachnick, B. G., & Fidell, L. S. (2013). *Using Multivariate Statistics* (6th ed.). Pearson Education.

Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing, and public policy. *Research Policy*, 15(6), 285-305. https://doi.org/10.1016/0048-7333(86)90027-2

The Best in Kenya (2020). The Best Supermarkets in Kenya. https://thebestinkenya.co.ke/supermarkets-in-kenya/.

Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, 4(3), 356-367. https://doi.org/10.1177/1534484305278283

Tse, Y. K., Zhang, M., & Jia, F. (2016). The impact of supply chain risk and reward sharing on performance: The role of joint decision making. *International Journal of Production Research, 54*(1), 1-13.

Tuazama Jr. (2015). Supply chain management practices and organizational performance of supermarkets in Nairobi Kenya. *International journal of supply chain management, Voll 1, Issue 245, 46-78.*

Tutuncu, O., & Kucukusta, D. (2007). The role of supply chain integration in business performance. *Journal of Business Logistics, 28*(2), 1-15.

Uwamahoro, J. (2018). The role of supply chain integration in the performance of retail firms in Rwanda. *Journal of Retailing and Consumer Services, 45*(2), 67-89.

Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42(1), 35-67. https://doi.org/10.2307/2393808

Valliant, R., Dever, J. A., & Kreuter, F. (2018). Designing Multistage Samples. In *Practical Tools for Designing and Weighting Survey Samples*. Springer.

Vermeulen, A., Niemann, W., & Kotzé, T. (2016). Supply chain integration as a survival tool in South Africa. *South African Journal of Economic and Management Sciences, 19*(3), 312-329. https://doi.org/10.17159/2222-3436/2016/v19n3a6

Vickery, S. K. (2003). The importance of supply chain efficiency for retail performance. *Journal of Operations Management, 21*(5), 523-539. https://doi.org/10.1016/j.jom.2003.02.002

Von Hippel, E. (2005). *Democratizing innovation.* MIT Press. https://doi.org/10.7551/mitpress/2333.001.0001

Wadhwa, S., & Rao, K. S. (2003). Decision synchronization in the supply chain. *International Journal of Production Research, 41*(5), 1001-1024.

Wang, Q. (2002). *The impact of supplier integration on customer satisfaction in the supply chain*. International Journal of Production Economics, 75(1-2), 153-165. https://doi.org/10.1016/S0925-5273(01)00178-0

Wang, Q. (2007). *The role of information sharing in supply chain management*. International Journal of Production Research, 45(10), 2319-2334. https://doi.org/10.1080/00207540600558021

Wasserman, S., & Faust, K. (1994). *Social network analysis: Methods and applications.* Cambridge University Press.

Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, 26(2), xiii-xxiii.

Wei, W., & Wang, J. (2010). Enhancing organizational agility through supply chain visibility. *International Journal of Production Economics, 128*(1), 1-9. https://doi.org/10.1016/j.ijpe.2010.05.015

World Bank. (2020). ***Kenya economic update: Navigating the pandemic*** (Kenya Economic Update No. 22). World Bank. https://www.worldbank.org/en/country/kenya/publication/kenya-economic-update-navigating-the-pandemic

Wu, F., Yeniyurt, S., Kim, D., & Cavusgil, S. T. (2006). *The impact of information technology on supply chain capabilities and firm performance: A resource-based view*. Industrial Marketing Management, 35(4), 493-504. https://doi.org/10.1016/j.indmarman.2005.05.003.

Yamane, T. (1967). *Statistics: An Introductory Analysis* (2nd ed.). Harper & Row.

Zhang, Q., & Cao, M. (2012). The impact of supply chain collaboration on operational performance: A contingency and configuration approach. *Journal of Operations Management, 30*(3), 179-194.

Zhao, K., Kumar, A., Harrison, T.P., & Yen, J. (2011). Analyzing the resilience of complex supply network topologies against random and targeted disruptions. *IEEE Systems Journal, 5(1), 28-39.*

Zhao, X., Huo, B., Flynn, B. B., & Yeung, J. H. Y. (2008). The impact of power and relationship commitment on the integration between manufacturers and customers in a supply chain. *Journal of Operations Management, 26*(3), 368-388.

APPENDIX 1: MAP OF KENYA

APPENDIX II: QUESTIONNAIRE FOR DATA COLLECTION

Serial No…… **Date…….**

Instructions: You are kindly requested to answer questions in this questionnaire by either ticking the preferred answer or by providing the information as requested on the spaces provided.

Section A: Demographic Information

1. Respondent' age Below 25 [ ]
   25 – 30 [ ]
   31– 35 [ ]
   36– 40 [ ]
   40 & Above [ ]
2. Respondent's experience in Supermarket 0 – 5 Years [ ]
   6 – 10 Years [ ]
   10 – 15 Years [ ]
   16 – 20 Years [ ]
   20– Above [ ]
3. Respondent's level of education Certificate [ ]
   Diploma [ ]
   Degree [ ]
   Masters [ ]
   PhD [ ]

SECTION B: **Retail Outlet Performance Level in Terms of Profitability.**

Rate your supermarket's performance based on the criteria below.

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree]

No	Statement	1	2	3	4	5
	The supermarket has recorded positive sales volume for the last couple of years.					
	The supermarket has registered a steady net profit margin for the last couple of years					
	For the last two years the supermarket has recorded reduction in operation cost					

SECTION B: **Level of Performance in Terms of Service Delivery.**

Rate your supermarket's performance based on the criteria below

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree]

No	Statement	1	2	3	4	5
	The supermarket always undertake timely replenishment of stock thus does not suffer inventory stock outs.					
	The supermarket has always maintained different product variety hence customers have a wide range to choose from.					
	The supermarket always sell and replace stock at a high rate thus high stock turn-over.					

SECTION C: **Supply Chain Information Sharing and Retail Outlet Performance (Profitability)**

Rate your supermarket's performance based on the criteria below

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree]

No	Statement	1	2	3	4	5
	The supermarket has a Supply Chain Information Sharing System that allows for timely communication with suppliers thus have been able to realize optimal stockholding leading to increased sales volume.					
	The supermarket has a Supply Chain Information Sharing System that allows for accurate communication with suppliers thus have been able to realize optimal stockholding leading to increased net profit margins					
	The supermarket has a Supply Chain Information Sharing System that allows for reliable communication with suppliers thus have been able to realize optimal stockholding leading to cost reduction.					

SECTION D: **Supply Chain Information Sharing and Retail Outlet Performance (Service Delivery)**

Rate your supermarket's performance based on the criteria below

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree]

No	Statement	1	2	3	4	5
1	The supermarket has a Supply Chain Information Sharing System that allows for timely communication with suppliers thus have been able to realize optimal stockholding leading					

	to effective stockout reductions.					
2	The supermarket has a Supply Chain Information Sharing System that allows for accurate communication with suppliers thus have been able to realize optimal stockholding leading to increased product variety enhancements.					
3	The supermarket has a Supply Chain Information Sharing System that allows for reliable communication with suppliers thus have been able to realize optimal stockholding leading to high stock turnover.					

PART E: Supply Chain Decision Synchronization and Retail Outlet Performance (Profitability)

Please indicate the extent to which you concur with the following statements concerning Supply Chain Decision Synchronization in relation to Retail Outlet Performance (Profitability)

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree]

No	**Statement**	**1**	**2**	**3**	**4**	**5**
1	The supermarket has a Supply Chain Decision Synchronization System that enhances joint decision making with suppliers thus have been able to realize optimal inventory levels leading to increased sales volume.					
2	The supermarket has a Supply Chain Decision Synchronization System that enhances joint planning with suppliers thus have been able to realize optimal inventory					

	levels leading to increased net-profit margins					
3	The supermarket has a Supply Chain Decision Synchronization System that enhances joint decision implementation with suppliers thus have been able to realize optimal inventory levels leading to cost reduction.					
4						

PART F: Supply Chain Decision Synchronization and Retail Outlet Performance (Service Delivery)

Please indicate the extent to which you concur with the following statements concerning Supply Chain Decision Synchronization in relation to Retail Outlet Performance (Service Delivery)

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree

No	**Statement**	**1**	**2**	**3**	**4**	**5**
1	The supermarket has a Supply Chain Decision Synchronization System that enhances joint decision making with suppliers thus have been able to realize optimal inventory levels leading to effective stockout reductions.					
2	The supermarket has a Supply Chain Decision Synchronization System that enhances joint planning with suppliers thus have been able to realize optimal inventory levels leading to increased product variety enhancements.					

3	The supermarket has a Supply Chain Decision Synchronization System that enhances joint decision implementation with suppliers thus have been able to realize optimal stock levels leading to high stock turnover.					

PART G: Supply Chain Incentive Alignment and Retail Outlet Performance (Profitability)

Please indicate the extent to which you concur with the following statements concerning Supply Chain Incentive Alignment in relation to Retail Outlet Performance (Profitability)

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree]

No	**Statement**	**1**	**2**	**3**	**4**	**5**
1	The supermarket has a Supply Chain Incentive Alignment System that enhances cost sharing with suppliers thus have been able to realize optimal stockholding leading to increased sales volume.					
2	The supermarket has a Supply Chain Incentive Alignment System that enhances risk sharing with suppliers thus have been able to realize optimal stockholding leading to increased net-profit margins					
3	The supermarket has a Supply Chain Incentive Alignment System that enhances benefit sharing with suppliers thus have been able to realize optimal stockholding leading to cost reduction.					

PART H: Supply Chain Incentive Alignment and Retail Outlet Performance (Service Delivery)

Please indicate the extent to which you concur with the following statements concerning Supply Chain Incentive Alignment in relation to Retail Outlet Performance (Service Delivery)

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree

No	Statement	1	2	3	4	5
1	The supermarket has a Supply Chain Incentive Alignment System that enhances cost sharing with suppliers thus have been able to realize optimal stockholding leading to effective stock-out reductions.					
2	The supermarket has a Supply Chain Incentive Alignment System that enhances risk sharing with suppliers thus have been able to realize optimal stockholding leading to increased product variety enhancements.					
3	The supermarket has a Supply Chain Incentive Alignment System that enhances benefit sharing with suppliers thus have been able to realize optimal stockholding leading to high stock turnover.					

PART I: Supply Chain Pillars and Interaction between Supply Chain Integration and Retail Outlet Performance (Profitability)

Please indicate the extent to which you concur with the following statements concerning Supply Chain Pillars in relation to the interaction between Supply Chain Integration and Retail Outlet Performance (Profitability)

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree

No	Statement	1	2	3	4	5
1	The supermarket has a Supply Chain Visibility that allows for monitoring and tracking of products flow along the supply chain leading to increased sales volume.					
2	The supermarket has a Flexible Supply Chain System that provides for rapid response to customer needs thus have been able to realize high profit margins					
3	The supermarket has a Supply Chain Visibility that that allows for monitoring and tracking of products flow along the supply chain leading to optimal cost reduction.					

PART J: Supply Chain Pillars and Interaction between Supply Chain Integration and Retail Outlet Performance (Service Delivery)

Please indicate the extent to which you concur with the following statements concerning Supply Chain Pillars in relation to the interaction between Supply Chain Integration and Retail Outlet Performance (Service Delivery)

[1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly Disagree

No	Statement	1	2	3	4	5
1	The supermarket has a Supply Chain Visibility that allows for monitoring and tracking of products flow along the supply chain leading to effective stockout reductions.					
2	The supermarket has Flexible Supply Chain System that provides for rapid response to customer needs leading to increased product variety enhancements.					
3	The supermarket has a Supply Chain Visibility that that allows for monitoring and tracking of products flow along the supply chain leading to high stock turnover.					

Thank You

APPENDIX IV: POSGRADUATE APPROVAL

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE & TECHNOLOGY

BOARD OF POSTGRADUATE STUDIES
Office of the Director

Tel: 057-2501804
Email: bps@jooust.ac.ke

P.O. BOX 210 - 40601
BONDO

Our Ref: B162/P/0015/21

Date: 3rd February 2023

TO WHOM IT MAY CONCERN

RE: OKELLO SHARONE ADHIAMBO – B162/P/0015/21

The above-mentioned person is a bonafide postgraduate student of Jaramogi Oginga Odinga University of Science and Technology in the School of Business and Economics pursuing a PhD in Logistics and Supply Chain Management. She has been authorized by the University to undertake research on the topic: "***Moderating Effect of Supply Chain Pillars on the Relationship Between Supply Chain Integration and Retail Outlets Performance: An Analysis of Selected Supermarkets in Kenya***".

Any assistance accorded her shall be appreciated.

Thank you.

Prof. Julius Manyala
DIRECTOR, BOARD OF POSTGRADUATE STUDIES

APPENDIX V: ETHICAL REVIEW APPROVAL

JARAMOGI OGINGA ODINGA
UNIVERSITY OF SCIENCE AND TECHNOLOGY

DIVISION OF RESEARCH, INNOVATION AND OUTREACH
JOOUST-ETHICS REVIEW OFFICE

Tel. 057-2501804
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Website: www.jooust.ac.ke

P.O. BOX 210 - 40601
BONDO

OUR REF: JOOUST/DVC-RIO/ERC/E4

5th April, 2023

Sharon A. Okello
SBE
JOOUST

Dear Ms. Okello,

RE: APPROVAL TO CONDUCT RESEARCH TITLED "MODERATING EFFECT OF SUPPLY CHAIN PILLARS ON THE RELATIONSHIP BETWEEN SUPPLY CHAIN INTEGRATION AND RETAIL OUTLETS PERFORMANCE: AN ANALYSIS OF SELECTED SUPERMARKETS IN KENYA"

This is to inform you that JOOUST ERC has reviewed and approved your above research proposal. Your application approval number is **ERC 37/04/23-5/01.** The approval period is from 5th April, 2023– 4th April, 2024.

This approval is subject to compliance with the following requirements:

i. Only approved documents including (informed consents, study instruments, MTA) will be used.
ii. All changes including (amendments, deviations and violations) are submitted for review and approval by JOOUST IERC.
iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to NACOSTI IERC within 72 hours of notification.
iv. Any changes, anticipated or otherwise that may increase the risks of affected safety or welfare of study participants and others or affect the integrity of the research must be reported to NACOSTI IERC within 72 hours.
v. Clearance for export of biological specimens must be obtained from relevant institutions.
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
vii. Submission of an executive summary report within 90 days upon completion of the study to JOOUST IERC.

Prior to commencing your study, you will be expected to obtain a research permit from National Commission for Science, Technology and Innovation (NACOSTI) https:oris.nacosti.go.ke and also obtain other clearances needed.

Yours sincerely,

Prof. Francis Anga'wa
Chairman, JOOUST ERC

Copy to: Deputy Vice-Chancellor, RIO Director, BPS DEAN, SBE

APPENDIX IV: NACOSTI APPROVAL

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: 666531

Date of Issue: 24/May/2023

RESEARCH LICENSE

This is to Certify that Miss.. SHARONE ADHIAMBO OKELLO of Jaramogi Oginga Odinga University of Science and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kisumu, Mombasa, Nairobi, Nakuru on the topic: MODERATING EFFECT OF SUPPLY CHAIN PILLARS ON THE RELATIONSHIP BETWEEN SUPPLY CHAIN INTEGRATION AND RETAIL OUTLETS PERFORMANCE: AN ANALYSIS OF SELECTED SUPERMARKETS IN KENYA. for the period ending : 24/May/2024.

License No: NACOSTI/P/23/25864

666531

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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See overleaf for conditions