

INVENTORY MANAGEMENT AND CUSTOMER SATISFACTION OF PETROLEUM MARKETING FIRMS IN RIVERS STATE: THE MODERATING ROLE OF MARKET ORIENTATION

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Abstract

Inventory management is regarded as a fundamental component of the logistics system which helps to secure coherent supply of products to customers and achieve organizational objectives. In a strong competitive environment, it ensures that customers are retained and satisfied. Therefore, it is important to explore how adequate management of inventory can enhance customer satisfaction. This study investigated the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State and how market orientation moderated the relationship. A cross sectional survey research design was adopted. Based on a population size of (13) quoted petroleum marketing firms in Rivers State as listed on the Nigerian Stock Exchange (NSE). To ensure proper coverage of the aforementioned firms, three (3) respondents were drawn from each of the firms for the survey. Thirty-nine (39) copies of the structured questionnaire representing the respondents were appropriately administered on a five (5) point Likert scale to our respondents comprising three categories of our unit of analysis – Dealers, Supervisors and Pump attendants. The validity of the questionnaire was confirmed through the opinion of a group of professionals; scholars and business practitioners with sufficient knowledge of the subject of the study. And the Cronbach's Coefficient Alpha reliability measure was applied to determine the internal consistency of items in the questionnaire using Statistical Package for Social Sciences (SPSS) version 22. Out of this number, thirty (30) copies of the questionnaire were retrieved and found usable. The Pearson Moment correlation coefficient was used to determine the relationship between the dimensions of inventory management (Inventory planning and optimization) and customer satisfaction. And Partial Correlation was used to determine the extent of moderation of market orientation on the relationship between inventory management and customer satisfaction. Findings show that inventory management has a positive and significant relationship with customer satisfaction of petroleum marketing firms in Rivers State. And market orientation has a positive effect on the relationship. Therefore, the study recommends that Petroleum marketing firms Rivers State should adopt a market orientation as they plan and optimize their inventory to achieve and sustain consistent customer satisfaction.

Keywords: Customer Satisfaction, Inventory Management, Inventory Optimization and Market Orientation.

Introduction

Rivers, one of the most vibrant oil-producing States in the Niger Delta region of southern Nigeria is fabled to be the commercial centre of the Nigerian oil and gas industry. The Nigerian National Petroleum Corporation (NNPC) has four refineries, two in Port Harcourt, located at Alesa Eleme, Rivers State, and one each in Kaduna State and Delta State, Nigeria. The (NNPC) through the Pipeline and Product Marketing Company (PPMC), a subsidiary of the corporation supplies gasoline, jet fuel, diesel, fuel oil and liquefied petroleum gas to “bulk customers”, these “bulk customers” are petroleum marketing firms who in turn meet the petroleum needs of Nigerians (Nigerian National Petroleum Corporation 2020). As soon as

petroleum products were introduced into the Nigerian export trade, the petroleum industry became the main hub of her economy (Poi 2018). Petroleum marketing firms are saddled with the responsibility of ensuring the security of supply of petroleum products/services, as well as providing consistent customer service and satisfaction for the Rivers people (Ekakite-Emonena & Ehimem 2016). However, Poi & Ogonu (2019) averred that petroleum marketing firms in Rivers State can only achieve their goals and objectives when they can align their inventory management practices with target market need and wants to enhance customer satisfaction (being market-oriented).

Inventory management is the systematic procedure of planning, organizing, monitoring and controlling inventory levels to ensure adequate stock replenishment and meet customers' demands (Priniotakis & Argyropoulos, 2019). It ensures that stock is available in the right quantity, the right quality, at the right time and sold out to the final consumers at the lowest possible cost. Minimizing inventory costs while maintaining and improving product/service quality to enhance customer satisfaction and loyalty is the essence of inventory management (Solvaxis, 2015). Kotler & Armstrong, (2013) indicate that customer satisfaction is a product's perceived performance relative to customers' expectations. In other words, when the product's perceived performance is below customers' expectations, the customer is dissatisfied. The given context is therefore pertinent to how business organizations respond to dynamic customers' demands by harnessing appropriate market orientation. Customer sophistication has made the effective application of inventory management practices and market orientation in organizations inevitable (Alexander, Emelia & Ireen, 2016). Market orientation is the marketing concept in tangible form; it gives life to the marketing concept (Kohli & Jaworski, 1990; Rueket, 1992). And strategic marketing is enhanced by market orientation (Bello, Fairol & Ahmad, 2018).

Anumihe, (2021) indicate that Nigeria is the 12th largest producer of petroleum products acts in the world and has the largest natural gas reserves in Africa but the problems with petroleum marketing firms in Rivers State are many as most customers are left dissatisfied. Some researchers have identified insufficient supply, poor storage and disorganized distribution as impediments to healthy petroleum marketing in Nigeria (Onigbinde, 2012; Egede & Uzonna, 2013; Agbalajobi & Alaba, 2014). Abdulmalik & Omokoghio, (2009) propose bad roads, poor road networks, unreliable deliveries and high lead time as barriers to consistent distribution of petroleum products to customers on daily basis. Akpan & Nnamseh, (2014) argue that petroleum marketing firms in Nigeria lack the marketing strategies needed to make petroleum products available for local consumption. Relatedly, Obasanjo & Nwankwo, (2014) indicate that most customers of petroleum marketing firms are dissatisfied due to excessive freight cost, traffic delays, en-route truck breakdowns and armed robbery attacks. Gillies, (2009) subsequently quoted in (Donwa, Mgbame & Ogbeide, 2015) further explained that bunkering or thefts of crude oil directly from pipelines, flow stations, and export facilities have also disrupted the availability of petroleum products (Ofem & Ajayi, 2008). Consequently, Olagunju, (2011) argue that unnecessary delays at police, military, state revenue agencies and bogus customs check points obstruct efficient and effective flow of petroleum products to customers at the right time. These have in turn led to late and poor deliveries, inconsistency in product delivery leading to customer dissatisfaction. Creating a balance between over- stocking and under stocking has been a challenge for these firms because of their inability to sustain a consistent market orientation.

Literature is awash with studies on inventory management, customer satisfaction and different perspectives on the moderating effect of market orientation are given with empirical

bases and implications. Eckert, (2007) tried to establish the effect of inventory management on customer satisfaction, Thogori & Jane, (2014) investigated the role of inventory management on customer satisfaction among manufacturing firms in Kenya, Kamau & Kagiri, (2015) examined the influence of inventory management practices on organizational competitiveness, Adamu, (2016) studied the effect of inventory management on financial performance: Evidence from Nigerian conglomerate companies, Ogonu, Ikegwuru & Nwokah, (2016) researched the effects of inventory management on customer satisfaction; evidence from the supermarket industry of Nigeria, Akinlabi, (2017) determined the relationship between internal inventory management practices and operational performance of flour mills companies in Nigeria while Poi & Ogonu, (2019) investigated the relationship between inventory control and customer satisfaction of petroleum marketing firms in Rivers State. Several marketing scholars have found that market orientation improves firms' performance and gives an edge over competitors (Jang, 2013; Kajalo & Lindblom, 2015; Zehir, Köle & Yıldız, 2015). Surprisingly, none of these studies attempted to investigate the impact of market orientation on the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State. This is leaving a gap in knowledge needed to be filled; hence, this paper examined how the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State is moderated by market orientation. The conceptual framework Figure 1, illustrates the relationship between the research variables:

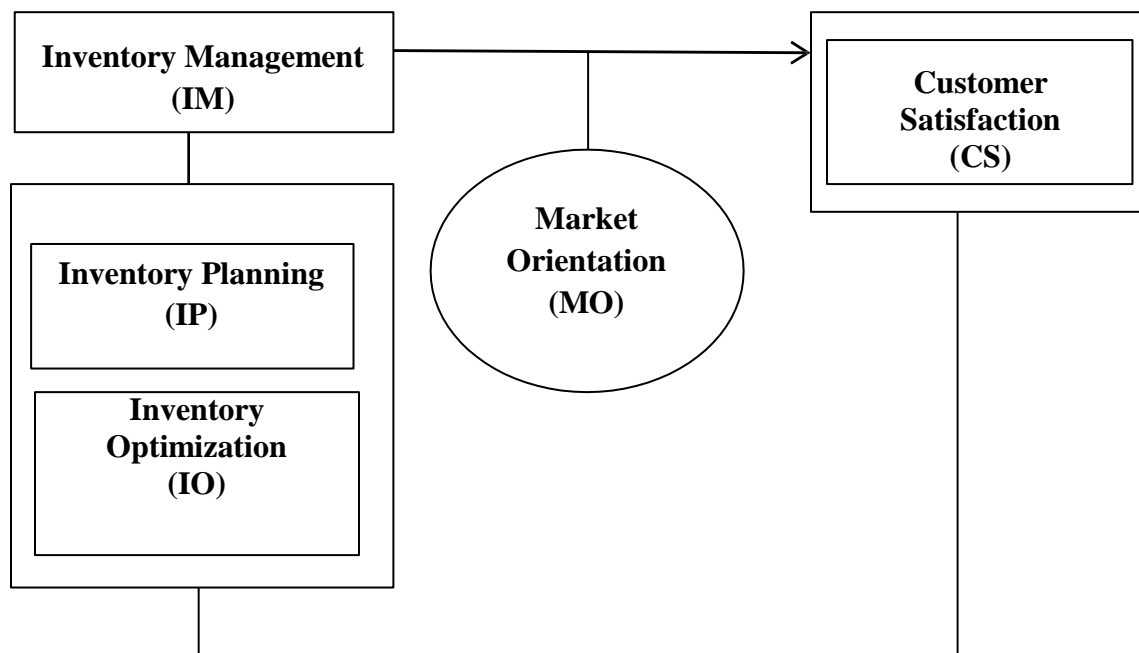


Figure 1: Conceptual Framework of Inventory Management and Customer Satisfaction of Petroleum Marketing Firms in Rivers State: The Moderating Role of Market Orientation.
Source: Researchers' Conceptualization (2021) as adapted from (Valarie, Zeithaml, Bitner & Gremler, 2006; Adeyemi & Salami, 2010; Scolari, 2015; Melanie, 2018)

Literature Review

Related literature on the study variables is provided to give a comprehensive understanding of the concepts in the conceptual framework presented in Figure 1.

Theoretical Review

A theory is a set of philosophies developed, tested and widely accepted to expound a phenomenon (Popper, 1963). This study is premised on the Theory of Constraints (TOC) as its theoretical foundation.

Theory of Constraints

The theory of Constraints (TOC) was introduced by Goldratt, (1984) in his book titled “The Goal”, it is a management philosophy that aids the investigation of core conventional assumptions, industrial rules, policies, and processes (Stein, 1997). Akinlabi, (2017) opine that a constraint is any hurdle that prevents a system from achieving its goals and objectives. Goldratt introduced two types of constraints; internal and external constraints. An internal constraint is a physical or policy hurdle which occurs when a system is unable to maximize its internal resources to produce and deliver adequate satisfaction to its target market. While an external constraint occurs when a system generates and provides more than its market expectations. The theory of Constraints (TOC) proposes that a firm is a system, and every system has at least one constraint restraining it from accomplishing its set goals and objectives. And to enhance firms’ performance, these constraints must be recognized, understood and remedial measures taken (a prescription). According to Lakshmi & Ramakrishna, (2012), the theory of Constraints (TOC) offers a global system approach that promotes the achievement of organizational goals and objectives because identifying the constraints helps the firm to concentrate its resources on profitable goals. Goldratt indicate that there are three ways organizations can achieve its goals and objectives, they include: throughput (T), inventory (I) and operating expenses (OE). Throughput is the degree to which the firm achieves its goals and objectives through exchange and production. Inventory is only considered an asset when it adds value through exchange. Operating expenses (OE) include all the resources used to transform inventory into throughput.

Simatupang, Wright and Sridharan, (2004) used the theory of Constraints (TOC) to detect problems in the logistics management system and proposed the solution of integrating different managers from various organizations to collaborate in improving the overall performance of the firms. Conversely, Cyplik, Hadaś & Domański, (2009) indicate that the theory of Constraints (TOC) approach could be used to guide an organization to focus and exploit its resources to minimize logistics cost along the supply chain. On the other hand, Goldratt, Eli & Carol, (2000) conceptualized performance measures to maintain trust amongst members of the firm in order to achieve a higher level of performance (Wwangangi et al. 2015). Essential to this study is the belief that inventory management and customer satisfaction of petroleum marketing firms in Rivers State are weighed down with some internal and external constraints and to achieve its goals and objectives, they must be identified and tackled.

Conceptual Review

Concept of Inventory Management

The term inventory also referred to as “stock” in British English has been explained in various ways by different authors, as indicated in literature. Stephen & Jaideep, (2016) opine that inventory is a list of items; quantity of goods in stock or stock of product(s) which a firm

offers for use or sale. While stock consists of a wide range of goods or materials, for instance; stationery, office equipment, plant, machinery, consumables, etc available for use and sales. Therefore, the terms “inventory and stock” are distinctively similar. Donald, (2017) consider inventory an archive of items retained in “stock”, they consist of; raw materials, work-in-progress, and finished goods. Stock management is often associated with understanding the inventory mix of a firm and the different levels of demand on them, depending on diverse external and internal factors that can exert demand for goods in a given period (Yusuf, 2003; Adebayo, Enikanselu, & Oyende, 2012). The concept of inventory management involves an elaborate range of activities that support the planning, implementation, control and the inventory delivery processes right from the source of raw material to where the final product is utilized (Pardoe & Stone, 2007).

Inventory management is a subset of the logistics system that incorporates all activities involved in developing and controlling inventory levels, to ensure adequate supplies, satisfaction and inventory cost effectiveness (Kotler, 2000 ; Coyle, Langley, Novack & Gibson, (2016). Inventory management is the process and decisions used in ascertaining and regulating which goods to order, when to order and how many to be kept in stock (Toomey,2000; Stevenson, 2009). Angel, Gomathi & Chitra, (2014) opine that inventory management is a holistic process of planning, organizing and controlling of inventory in order to reduce cost while creating equilibrium between supply and demand. Inventory management involves methods used for organizing, holding and replenishing stock (Ain 2014). Odiri (2015) agreeing with Ain (2014), argue that inventory management is the application of management tools to ensure that the needed quality and quantity of stock is available at the right time, place and at the lowest cost possible. Alexander, Emelia & Ireen, (2016) observe that inventory management is basically about specifying the size and placement of stocked goods. It is considered a mechanism for the optimal use of inventory for achieving overall operational efficiency across organizations through planning and optimization (Akindipe 2014).

Inventory Planning

Planning is a process rather than a behavior, which determines the future based on present decisions with regards to goals setting, building strategies to achieve set goals, converting strategies into operational programs and ensuring implementation (Aluko, et al, 2004). Lu, Song, & Regan, (2006) opine that inventory planning is basically focused on demand forecasting especially when the demand environment is highly dynamic and competitive and the procurement lead times are long. Inventory planning is determining the optimum level of inventory needed for today and the future (Geoff & Catherine, 2015). This involves understanding demand patterns, what value-add is needed for each product (eg manufacturing requirements, retail volumes and sales locations, consumption levels), and deciding what inventory category each product should be in. Aarti & Dhawal, (2013) indicate that inventory planning is ascertaining the kind and number of quantities of inventory items that would be required in the future to maintain production schedules and sales. Stitch Labs, (2018) insist that inventory planning is both steeped in data analytics and dependent upon unpredictable macro and micro economic trends and ever-changing shopping behaviors or patterns.

Adeyemi & Salami, (2010) indicate that inventory planning is a process of recording and monitoring the level of inventory, forecasting future demand and mapping out ways on when

and how order could be executed. Inventory planning is figuring out what an organisation's inventory should be (not just counting what is in stock). Accurate data and careful management of these activities is essential to the planning function to calculate a meaningful output. The essence of inventory planning is to determine and maintain the lowest stock levels possible and determine adequate buffer stocks that will satisfy customers' requirements at all times (Edward, 2002). Scolari, (2015) indicate that in planning inventory, demand forecasting is paramount to ensure that even with minimal stock levels, you never run out of products when the need arises. Holding onto too much inventory unnecessarily incurs cost and stocking too little inventory may lead to firm's inability to meet customers' needs and wants (Valogix, 2015). Demand may fluctuate due to changes in taste, income, seasons and business trends; to adapt easily to these changes inventory planning is paramount. Inventory planning is the systematic management of stock that includes creating forecasts to determine how much inventory should be on hand to meet organizational objectives (Osmond, 2018).

Inventory Optimization

Inventory optimization is an aspect of inventory management which uses applications to aid in the enhancement of inventory control across an extended supply chain network through organized techniques and technologies (Radhakrishnan, Prasad & Gopalan, 2009). Melanie, (2018) opine that inventory optimization tend to proffer solutions to the stock control problem of getting the balance right to meet the challenge of matching supply volumes to customers' demand. Inventory optimization is also a mindset, strategy, goal and software which ultimate goal is having the perfect amount of inventory, in just the perfect places, to meet target customers' needs and wants at a profit (Dan, 2018). Inventory optimization is also a strategy used to create efficient balance in the amount of working capital that is tied up in inventory with service-level goals across several stock keeping units while paying keen attention on changes in demand and supply. Inventory optimization is the art and science of ascertaining the appropriate inventory level across the supply chain (Sean, 2011).

Rouse, (2017) submit that data accuracy is essential for adequate optimization of inventory as it moves through a physical process that needs to be tracked by system transactions to accurately reflect where inventory is in the process and the quantity needed per time. Organizations are now expanding into multiple sales channels because traditional supply chain tools are not able to keep up with the digital world. Thus, contemporary research has stressed the need to support inventory optimization systems with specific software, especially in big enterprises (Suvittawat, 2015; Lin & Song, 2015). Computer-based inventory optimization is considered to be more accurate in dealing with the deterministic and provisory approaches because it is designed to take logistical uncertainties and the volatility of demand into account digitally (Rouse, 2014).

Similarly, inventory optimization has proven to be a mechanism to provide competitive advantage by reducing safety stock, freeing up working capital and improving customer service level (Melanie, 2018). In the same vein, Jinmei, Hui & Jun, (2000) emphasize that optimization of inventory helps to enhance customer service, reduce lead times, cost and satisfy market demand. Tom, Akhilesh & Sijo, (2013) analyze different inventory optimization techniques for effective and efficient inventory management. And found that inventory optimization is one of the most important functions of inventory management and it forms the nerve center in any successful organization. Stephen & Jaideep, (2016) similarly, studying

contemporary inventory management techniques concluded that the adoption of an appropriate combination of emerging inventory optimization approaches can improve corporate service delivery in terms of ensuring steady flow of materials while minimizing the attendant carrying/handling costs.

Concept of Customer Satisfaction

The concept of customer satisfaction is about the relationship between the customers, products/services and the providers of the market offering (s). A satisfied customer gets significant added value through goods and services purchased with their resources (Cengzi, 2010). The customers are considered profitable assets to the firm because no business can exist without them. These assets according to the New York Times, May 22nd 2010, are difficult to put a precise value on. Concurring, Kabu & Soniya, (2017) submit that fulfilled customers are scarce resources and they often rebound, purchase more and network to reach other prospects by sharing positive experiences (Hague & Hague, 2016). Customer satisfaction researchers insist that the goal of the marketing concept is to satisfy profitable customers by determining and fulfilling their needs, wants, preferences, tastes etc (Raymond & Clifford 1985). Gundersen, Heide & Olsson, (1996) describe customer satisfaction as a post-consumption evaluative judgment concerning a specific product or service. Oliver, (1997) considers customer satisfaction as the result of an evaluative process that contrasts repurchase expectations with perceptions of performance during and after the consumption experience.

Swan, Trawick and Carol, (1982) argue that customer satisfaction is an evaluative and cognitive opinion by the users which explains whether the product or service depicts a fulfilling or poor result for them. Relatedly, Valarie, Zeithaml, Bitner & Gremler, (2006) opine that customer satisfaction is the customer's assessment of products and services to ascertain whether the market offering(s) meets his/her needs and expectations. Bastos & Galle, (2008) also referred to customer satisfaction as a post-choice evaluative judgment of a particular transaction. Hill, Roche & Allen, (2007) consider customer satisfaction as a barometer that foretells the future behavioural pattern of customers. Customer satisfaction (CSAT) is often considered a reliable metric of how well a business's products, services, and overall customer experience meet their target markets' expectations. It reflects the overall business' health by displaying how well products and services are resonating with buyers. It enhances repeat purchase intentions, customer retention, loyalty, and brand awareness (Gupta, 2022).

Concept Market Orientation

Market orientation originated from a management philosophy referred to as "the marketing concept", it was first used by McKitterick, (1958), though, Peter Drucker is often acknowledged as the source (Drucker, 1954; Webster, 1998; Ruekert, 1992). Market orientation is the marketing concept in tangible form as it gives life to the marketing concept (Kohli & Jaworski, 1990; Ruekert, 1992). Youn, Sungmin & Hye, (2019) indicate that market orientation is a management thought that encompasses processes of discerning and understanding the needs/want of customers and prospects, discerning and coping with the activities of competitors and maximizing organizational resources in achieving goals and objectives. Nevertheless, McCarthy & Perreault, (1990) separated market orientation from marketing orientation; they maintained that marketing orientation is solely implementing the marketing concept and market orientation is concerned with instituting the marketing concept (Lafferty & Hult, 2001). Market orientation is a set of activities used by organizations to monitor, examine, respond and adapt to changes in the market while paying keen attention to customer satisfaction, competitive strategies and internal coordination of the firm's operation.

Market orientation is hinged on the marketing concept (Agarwal, Erramilli & Dev, 2003; Mansoor,2019).

Liu et al. (2002) subsequently cited by Ahmad & Iqbal, (2013) indicate that market orientation is an organizational culture that requires that customer satisfaction is placed at the focal point of business activities. Market orientation is a business philosophy that focuses on identifying target markets' wants/needs and then meeting them (MSN 2020). Market orientation is conceived through five points of view, they include; the decision making perspective which suggests that a market-oriented firm thrives on its ability to make and implement relevant decisions (Shapiro,1988) as cited in (Pelham, 1997), the market intelligence perspective, an extension of the decision making perspective that incorporates intelligence formation, intelligence diffusion and firm's responsiveness to intelligence as indicators of market orientation (Kohli & Jaworski, 1990), the strategic marketing focus perspective which opines that market-oriented firms thrive on adequate strategy formulation and implementation (Ruekert, 1992), the culturally based behavioural perspective which identifies customer orientation, competitor orientation and inter-functional coordination as elements of market orientation (Narver & Slater, 1990) and the customer orientation perspective which considers market orientation as a belief system that organizational success and survival are hinged on the satisfaction of its major stakeholders (Deshpande, Farley & Webster, 1993). Jangl, (2016) argue that market orientation involves information acquisition, dissemination and integration in the firm as well as feedback. For this study, we consider market orientation in consonance with Narver & Slater, (1990) quoted accordingly in Owino & Kibera, (2015) as an aspect of a firm's culture that is customer-centric, competitor focused and co-ordinates inter-functional operations for effective and efficient customer satisfaction. In agreement with Ahmad & Iqbal, (2013), we are inclined to define market orientation as the lifeblood of the marketing concept as it contends that customer satisfaction is considered the focal point of business activities.

Inventory Management and Customer Satisfaction

Inventory management is essential for organizations to achieve their operational requirements. Tomašić et al. (2013) suggests that inventory management helps to create a balance between the forces of demand and supply which protects the final consumers from the uncertainties and disturbances that may occur in the supply chain and ultimately ensures customer satisfaction. According to (Shim & Siegel, 2008; Kontuš, 2014), adequate inventory management reduces inventory, and cost and improves profitability. Companies are keen on managing their inventory to reduce costs, improve service quality, enhance product availability and ultimately ensure customer satisfaction. Planning and optimizing inventory in the value chain and individual firms has a positive effect on the company's profitability and long-term sustainability (Vijay, 2010). Inventory management is relevant in three major areas; customer service, cash flow (working capital management) and competitive advantage (Jones & Riley, 1987; Augustine et al. 2004) as cited in (Victoria & Maria, 2012). Inventory management is therefore indispensable especially due to the dynamic business environment, some items might be overstock and other stock which leaves the customer dissatisfied (Lee & Billington, 1992).

Eckert, (2007) studied "inventory management and its effects on customer satisfaction". The research sought to examine inventory management, and its influence on customer service levels. Findings showed a positive significant relationship between inventory management

practices and customer satisfaction due to a reduced number of stock-outs. Thogori & Jane, (2014) investigated the roles of inventory management on customer satisfaction among manufacturing firms in Kenya". They found that long lead time disrupts effective management of inventory which in turn has hurt customer satisfaction. Therefore, they noted that to improve customer satisfaction firms should work towards reducing lead-time. Akinlabi, (2017) studied "inventory management practices and operational performance of selected flour mills companies in Nigeria" adopting a cross-sectional survey and causal research design. A stratified random sampling technique was used to select the sample size and a structured self-administered very questionnaire was adapted, to validate lead times for collecting data for the study. Data were analyzed with Pearson Product Moment Correlation and Regression statistics. The study concluded that inventory management practices significantly influenced the operational performance of flour mill companies in Nigeria.

Ahmad & Iqbal, (2013) examined "the impact of market orientation and brand orientation on strengthening brand performance: an insight from the beverage industry of Pakistan". A standardized questionnaire was distributed through emails among distributors, whole sellers, retailers, sales force and employees etc of the beverage industry of Pakistan. A model with hypotheses of the relationships between the constructs was built and a structural equation model test revealed that customer orientation and inter-functional co-ordination has a positive effect on brand orientation, while competitor orientation has a non-significant effect. Moreover, the study concludes that brand orientation has a substantial impact on strengthening brand performance. Owino & Kibera, (2015) studied "the influence of organizational culture and market orientation on performance of microfinance institutions in Kenya". They used a cross-sectional survey design and collected primary data from microfinance institutions that are members of the Association of Microfinance Institutions (AMFI) in Kenya using a structured questionnaire and tested the hypotheses with regression analysis. The study found that organizational culture and market orientation are factors under the control of management, and concluded that the presence of market orientation is critical to performance. Results of the study revealed that managers need to emphasize the creation and adoption of forces-oriented culture to achieve and sustain superior performance. Based on the above discussions, we, therefore, propose the following hypotheses:

H₀₁: Inventory planning has no significant relationship with customer satisfaction.

H₀₂: Inventory optimization has no significant relationship with customer satisfaction.

H₀₃: Market orientation does not moderate the relationship between inventory management and customer satisfaction.

Research Methodology

A cross-sectional survey research design was used in this study and thirteen (13) quoted Petroleum marketing firms in Rivers State as listed on the Nigerian stock exchange (NSE) constituted the population (NigerianWiki 2021). We adopted the whole population as a census; however, three (3) respondents were drawn from each of the firms for the survey. Thirty-nine (39) copies of structured self-administered questionnaires representing the respondents were appropriately administered on a five (5) point Likert scale to our respondents comprising three categories of our unit of analysis – Dealers, Supervisors and Pump attendants from petroleum marketing firms in Rivers State. The validity of the questionnaire was confirmed through the opinion of a group of professionals; scholars and business practitioners with sufficient knowledge of the subject of the study. And the Cronbach's Coefficient

reliability measure was applied to determine the internal consistency of items in the questionnaire using Statistical Package for Social Sciences (SPSS) version 22. Out of this number, thirty (30) copies of the questionnaire were retrieved and found usable. The Pearson Moment correlation coefficient was used to determine the relationship between the dimensions of inventory management (inventory optimization and invent relationships) and customer satisfaction. The study adopted the correlation standards proposed by Evans (1996); .00 - .19 very weak, .20 - .39 weak, .40-.59 Moderate, .60-.79 strong and .80-1.0

Very strong. More so, the study sought to examine how the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State is moderated by market orientation. Hence, Partial Correlation was used to ascertain the extent of moderation of market orientation on the relationship between inventory management and customer satisfaction. The reliability test results are presented in Table 1 as follows:

Table 1. Reliability Measure of Research Instrument

Cronbach's	N of
Alpha	Items
.813	34

Source: Researcher's Study Outcome, (2021)

Table 1 shows the summary of the reliability results of the dimensions of inventory management, customer satisfaction and market orientation. The comprehensive reliability alpha rate for the entire research instrument was 0.813, which confirms the internal consistency of the measurement items in the questionnaire used in this study and beyond the threshold of 0.70 set by Nunnally (1978).

Data Analysis/ Hypotheses Testing/ Bivariate Examination

This part is focused on presenting the result from the test on the hypotheses. Pearson's Product-moment correlation coefficient (r) was used to analyze the study hypotheses to show the degree of relationship between the variables. The analysis was carried out to establish the relationship between inventory management (dimensions) and customer satisfaction.

Table 2: Pearson Moment Correlation (Inventory Planning and Customer Satisfaction)

Variables	Statistics	Inventory Planning (IP)	Customer Satisfaction (CS)
(IP)	Pearson Correlation	1.000	.961**
	Sig (2-tailed)		.000
	N	30	30
(CS)	Pearson Correlation	.927	1.000
	Sig (2-tailed)	.000	
	N	30	30

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

H₀₁: Inventory Planning (IP) has no significant relationship with Customer Satisfaction. Table 2 demonstrates that inventory planning and customer satisfaction do have a very strong and positive relationship with ($r = .961$, $p < .05$) a Pearson correlation coefficient at a 0.01 significant level. This relationship was significant at $p = 0.000$ which is less than the level of significance of 0.05 acceptable for the study. Hence, the null hypothesis two (**H₀₁**) is rejected. As the rate of inventory planning (IP) increases, so does customer satisfaction.

Table 2: Pearson Moment Correlation (Inventory Optimization and Customer Satisfaction)

Variables	Statistics	Inventory Optimization (IO)	Customer Satisfaction (CS)
(IP)	Pearson Correlation	1.000	.871** Sig (2-tailed)
	.000		
	N	30	30
(CS)	Pearson Correlation	.811	1.000
	Sig (2-tailed)	.000	
	N	30	30

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

Test for Hypotheses Two (H₀₂)

H₀₂: Inventory optimization has no significant relationship with customer satisfaction.

Table 3 shows that inventory optimization and customer satisfaction does have a strong and positive relationship with ($r = .871$, $p < .05$) a Pearson correlation coefficient at 0.01 significant level. This relationship was significant at $p = 0.000$ which is less than the level of significance 0.05 tolerable for the study. As the rate of inventory optimization increases, so does the rate of customer satisfaction. Therefore, the null hypothesis one (**H₀₂**) is rejected.

Multivariate Analysis/Results

The study employed the partial correlation method to assess how the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State is moderated by market orientation.

Table 4: Test for Moderating Effect of Market Orientation

Control variables		Market Orientation	Inventory Management	Customer Satisfaction
Market Orient	Correlations	1.000	.610	.647
	Sig (2-tailed)		.000	.000
	df	30	0	30
Inventory Mgt	Correlations	.610	1.000	.688
	Sig (2-tailed)	.000	0	1.000
	df	30	0	30
Customer Sat	Correlations	.647	.688	1.000
	Sig. (2-tailed)	.000	.000	.797
	df	30	0	30

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

Mean Market orientation (16.16, SD=2.9),
Mean Inventory Management (17.1, SD= 1.45)
Mean Customer Satisfaction (11.7, SD=3.2)

H₀₃ : Market-oriented does not moderate the relationship between inventory management and customer satisfaction. Table 4 shows that there was significant evidence to discard the null hypothesis and conclude that there is a strong positive partial correlation between inventory management (M=17.1, SD= 1.4) and customer satisfaction (M=11.7, SD=3.2) while controlling for market orientation (M 16.16, SD=2.9), $r (.797) = .610$ $p < .01$. A lower level of inventory management is associated with a lower level of customer satisfaction. Results of the zero-order correlation yielded that there was a strong constructive correlation between inventory management and customer satisfaction $r (1.0) = .647$ $p < .01$, indicating that controlling for market orientation had a strong effect on the strength of the relationship between inventory management and customer satisfaction. Therefore, H₀₃ is rejected and it's alternate accepted (market orientation does have a substantial, positive effect on the relationship between inventory management and customer satisfaction).

Discussion of Findings

This study aimed to determine the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State. Based on the data analysis, the study found that inventory management (inventory optimization and inventory planning) and customer satisfaction are positively related, and also that their relationship is statistically significant. Additionally, there exists a significant moderating impact of market orientation on the relationship between inventory management and customer satisfaction. The result proposes that inventory management is a vital component of customer satisfaction. This is true to the degree that the impact of market orientation on the relationship between

inventory management and customer satisfaction is positive. Market orientation strengthens the process of inventory management and enhances customer satisfaction by reinforcing the marketing principles in inventory planning and optimization which all add up to achieving firms' objectives. These findings are in agreement with Poi (2018) who studied "Inventory Planning and Agricultural Productivity in Rivers State", and found that inventory planning has a positive and significant relationship with agricultural productivity in Rivers State and helps to eradicate stock-out situations and satisfy customers' needs/wants at all times. The findings of the study also cohere with Adeyemi & Salami, (2010) who studied "inventory management as a tool of optimizing resources in a manufacturing industry" and found that inventory planning is an indispensable function to meet customers' needs/wants in an active business environment that may be difficult to anticipate. The findings are in align with the conclusions of Ahmad & Iqbal, (2013) who examined "the impact of market orientation and brand orientation on strengthening brand performance: an insight from the beverage industry of Pakistan". The study revealed that market orientation has positive effect on brand performance. These findings are also consistent with Poi & Ogonu, (2019), who studied "Inventory control and customer satisfaction of petroleum marketing firms in Rivers State", and found that inventory control is positively and significantly related to customer satisfaction.

Conclusion and Recommendations

The purpose of this study was to empirically determine how the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State are moderated by market orientation. To achieve the study objectives, inventory planning and optimization were adopted as dimensions of inventory management (predictor variable) and customer satisfaction (criterion variable). Data were obtained, hypotheses tested, findings made, and the following conclusion was drawn from the study; that inventory management has a significant and positive relationship with customer satisfaction. And market orientation has a positive effect on the relationship between inventory management and customer satisfaction of petroleum marketing firms in Rivers State. Therefore, the study recommends that Petroleum marketing firms in Rivers State should adopt a market orientation as they manage their inventory to achieve and sustain consistent customer satisfaction.

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