

Inventory Control and Customer Satisfaction of Petroleum Marketing Firms in Rivers State

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Abstract

The study examined the relationship between inventory control and customer satisfaction of petroleum marketing firms in Rivers state, Nigeria. To proffer solutions to the numerous inventory control and customer satisfaction challenges encountered by the firms and customers in the industry. The study adopted cross-sectional survey framework with a target population size of eleven (11) quoted downstream firms in the petroleum industry in Rivers State registered with the Nigerian Stock Exchange. A sample of 33 respondents was drawn from the staff of the selected firms under our study. A self-administered, structured questionnaire was employed to obtain primary data and data was analyzed. The research hypotheses were tested with the Pearson product moment correlation statistical tool to establish the degree of relationship. The reliability of the research instrument was tested using the Cronbach's Alpha which revealed that all the scores of the variables satisfied the standard Cronbach's Alpha threshold of 0.7. With the aid of the statistical package of social sciences software (SPSS) version 22, frequencies were computed to establish the sample characteristics. The study found that; inventory control is positively and significantly related to customer satisfaction. Based on the results of the analysis, the paper concludes that inventory control has a positive and significant relationship with customer satisfaction. The paper therefore, recommends that petroleum marketing firms in Rivers State should align their inventory control strategies to accommodate target market needs to enhance customer satisfaction

KEYWORD: Inventory Control, Customer Satisfaction, Perceived Quality, Perceived Value and Customers' Expectations.

1. Introduction

The petroleum industry is the most colossal among all industries in the Rivers State. Wurthmann (2006) as cited in Olayemi, (2017) indicated that petroleum products and services accounts for about 40 percent of Nigeria's GDP, 70 percent of federal government revenue and 92 per cent of its foreign exchange earnings based on the perspective that petroleum is one of the cardinal sources of energy all over the world. The size and roles assumed by the petroleum industry emanates from the opinion that petroleum is multifaceted. This is because it satisfies a wide variety of energy related needs and wants all over the world (Olayemi 2017). However, some researchers are of the opinion that despite the huge benefits of the sector to the economy, it has not received the needed attention. As most customers are left dissatisfied neither has the revenue derived from the sector been utilized to develop other sectors of the economy and its citizenry (Ite, Ibok, Ite, and Petters 2013). Ofem & Ajayi (2008) emphasized that most of the raw materials used for the production of petroleum products emanate from the Niger Delta region yet Rivers people still suffer in poverty and low standard of living due to environmental pollution and degradation. Ite *et al.* (2013) observed that the release of petroleum hydrocarbon and chemical-derived waste streams

associated with petroleum exploration and production have enhanced environmental pollution, negative effects on human health, destroyed the terrestrial ecosystems, there are socio-economic problems and degradation of oil producing host communities in Rivers State. Consequently, the region has remained unstable with periodic attacks on oil facilities and pipelines which disrupt the adequate flow of petroleum products in the chains of supply. This is because inventory management is a serious challenge for firms in the petroleum industry in Rivers state (Fagade 2011; Adamu 2016).

2. Literature Review

2.1 Theoretical Foundation

This study is established on the theory of Resource based view. Proponents of the theory proposed that the firms' resources are its major strengths Wernerfelt, (1984) and Barney (1986) as cited in (Peteraf,1993). Resources are factors available to an organization which enhances its operations (Makadol 2001). Resource based view theory buttresses the importance of resources and its implications for organizational performance. The resource based view theory considers resources as the key to optimal organizational performance and the source of adequate competitive advantage for firms (Coase 1937; Penrose 1959; Selznick 1957; Williamson 1975). Wang, Liang, Zhong, Xue, & Xiao (2012) as cited in Akinlabi (2017) and Wirattanapornkul (2012) indicated that organizations' resources are considered assets and are divided into tangible and intangible. Tangible assets are physical, visible in nature for instance; land, machinery, building etc owned by a firm. Physical assets are easily sold in the market and competitors can easily acquire them (Wang,*et al.*2012). While intangible resources are non-physical in nature and owned by firms. Intangible assets are considered capabilities that cannot be sold out or bought from a factor market (Wirattanapornkul, 2012). Jeff (2010) considered inventory control as a process of regulating and organizing firm's resources in order to satisfy customers' demand at the lowest possible cost and with a minimum investment. Inventory control is about managing the integrity of the organization's resources and achieve adequate turnover (Akinlabi 2017).

2.2 Conceptualization of Inventory Control and Customer Satisfaction

The industrial revolution which started in Britain during the late 1700's made way for more inventors and inventions in various industries. There was mass production, increased interest in the problems of inventory management and of course the need to control inventory (Essays 2016). The most important impulse, however, came after the 2nd World War when scientists looked into the problem of optimal stocking under stochastic demand. The importance of inventory control in business increased dramatically with the increasing interest rates of the 70s (Dieter & Martin 1992). Inventory control is an aspect of inventory management that is concerned with minimizing the total cost of stock, while maximizing the ability to provide customers with products in a timely manner (Alexander, Emelia & Ireen 2016). Geoff & Catherine, (2015) indicated that inventory management is the set of policies that monitor levels of inventory to determine the rate of products to be maintained, identifies when stock should be replenished; and decides how large orders should be. David & Bruce (2006) insisted that inventory management uses a web-based interface to display inventory data for easy control. This can be used to track the inventory of a single store, or to manage the distribution of stock between several branches of a larger franchise. Concurring to the opinion of Arina,*et al* (2006), Thomas (2012) opined that inventory management is an enterprise-wide discipline concerned with the identification and tracking of information services

(IS) hardware and software assets for acquisition, redeployment and termination of inventory. Inventory management involves several actions taken by the organization to reduce cost, maintain production, enhance continuous supply and reduce loss (Saleemi 2009).

2.2.1 Inventory Control

Inventory control is about ascertaining the quantity, value and balance of inventory items held in stock to enhance easy accountability at any given time (Eni, 2001). It helps the firm to know the ordered quantity, how many used, how many remaining and when to place the next order to eradicate under stocking and overstocking. Gwynne (2014) opined that inventory control is ensuring that both the integrity of data and physical stock are protected and maximized. Kotler, (2000) defined inventory control as all the activities involved in developing and regulating the inventory levels of raw materials, semi-finished materials (work-in-progress) and finished good so that adequate supplies are available and the costs of over or under stocks are low. Inventory control is also a technologically based system that integrates all parts of a firm's inventory operations. It involves distribution, purchasing, storage, tracking, reordering etc. (Nicole, 2018). Shalini, (2010) opined that inventory control pertains primarily to the administration of established policies, systems and procedures in other to reduce inventory cost. Inventory control makes possible the smooth and efficient operation of organizations (Wood 2004). I consider inventory control as a process which coordinates the accessibility of inventory to customers within pre-established limits based on the policy and procedures adopted by the organization at the lowest possible cost.

2.2.2 Customer Satisfaction

The phrase 'customer satisfaction' is used in the business world to describe a happy customer. It is considered a key performance indicator (KPI) and an important element of business strategy for firms Mc Coll-Kennedy & Sheilder (2000) as cited in (Jayaraman, Shankar & Hor, 2010). Olsson (1996) defined customer satisfaction as a post consumption, evaluative, judgment concerning a specific product or service. Hill, Roche & Allen, (2007) considered customer satisfaction as a barometer that foretells the future behavioral pattern of customers. Zeithaml, Bitner & Gremler, (2006) indicated 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 & Gallego, (2008) defined customer satisfaction as a post-choice evaluative judgment of a particular transaction. Studies show that customer satisfaction may have direct and indirect impact on business results. Anderson & Sullivan (1993) concluded that customer satisfaction positively affects business profitability. Oliver (1997) defined customer satisfaction as the consumer's fulfillment feedback. It is the discernment that a product or service gave an enjoyable level of consumption-related fulfillment. For this study, I agree with Oliver's (1997) definition of customer satisfaction because the focus is on the final consumer rather than the 'customer', in reality, not every customer is a consumer of a particular product.

2.2.3 Perceived Quality

Perceived quality is the appraisal that manifests from customers' experience of the products and services. It evaluates the extent to which the customer's individual needs are met and the frequency of responding to customers' complaints about products and services (Le & Chun 2008).

Mark (2014) opined that it is the customers' perception of the quality of a product or service both in terms of their expectations and also in comparison with how they perceive the quality of competing brands. In a nut shell, perceived quality is simply a measure of customers' beliefs. Charles (2018) defined perceived quality as the impression of excellence or disgust that a customer experiences about a product, brand or business. Perceived quality is gotten through interaction and consumption of a product/service via sight, sound, touch, and scent. Aaker (1991) opined that perceived quality is the customer's perception of the overall quality or superiority of the product or service as it relates to its purpose, relative to alternatives.

2.2.4 Perceived Value

Zeithaml (1988) as cited in McDougall & Levesque, (2000) defined perceived value as the consumers' overall assessment of the utility of a product based on perceptions of what is received and what is given. The received components are the benefits received from using the product while the given components are the customer sacrifice in acquiring the product including; monetary and non-monetary aspects. Holbrook (1999) described perceived value as a trade-off between profits and sacrifices. Customer's satisfaction after purchase depends on the level of customers' perceived value (Lin 2003). Perceived value is the price that the customer is willing to pay which is related to the level of product quality (Le & Chun 2008). Gina (2018) indicated that customers' perceived value can be determined by the relationship between perceived benefits and perceived costs.

2.2.5 Customers' Expectations

Customer expectations are beliefs relating to product and service delivery that serve as standards for the judgment of the actual service delivered to the customer (Zeithaml, Bitner & Gremler 2009; Hill 2000; Buttle 2004; Pizam 2010) as cited in (Vu 2015). There has been some agreement in related literature that expectations represent standards with which subsequent experiences are compared, resulting in evaluation of satisfaction (Sampson 2018). Customer satisfaction is a function of managing and fulfilling and customers' expectations (Cengzi 2010).

2.2.6 Conceptual Framework

The conceptual framework for this study illustrates inventory control as its independent variable and customer satisfaction as the dependent variable with perceived quality, perceived value and customer' expectations as its measures.

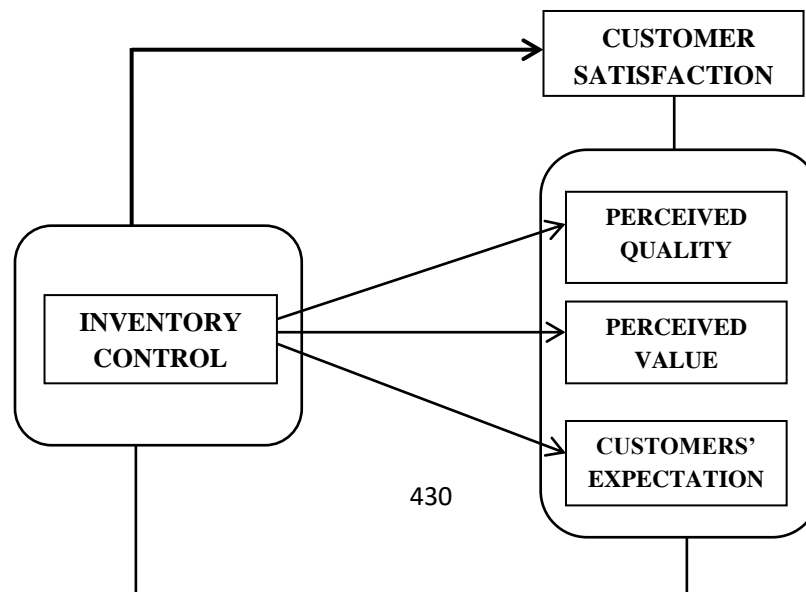


Figure 1: Conceptual Framework of Inventory Control (a dimension of inventory management) and Customer satisfaction

2.3 Inventory Control and Customer Satisfaction

Empirical evidence indicates that most organizations have failed in their inventory control practices; adopting inventory control tools and systems in their operations and suffered losses because it led to customer dissatisfaction (Kariuki 2013; Jefwa & Owuor 2015). Mogere, Oloko, & Okibo (2013) opined that currently most organizations' management neglects adequate inventory control, thus straining on business operations as well as customer satisfaction. Mehfooz & Mohammed (2012) insisted that inventory control systems are developed to ensure product availability, determine purchasing timing and eradicate obsolete or unsold products. The availability of product is just one way in which an inventory management system attempts to create customer satisfaction. Shibamay, Sujit & Papiya (2013) studied the inventory control system of an EMU coach manufacturing industry using ABC analysis method. They found that inventory control has become inevitable for the manufacturing industry because it enhances customer satisfaction. In order to refrain from having an inventory 'go dead' firms should stay abreast with the number and condition of items in stock. Tom, Akhilesh & Sijo (2013) analyzed different inventory control techniques for efficient inventory management system and found that inventory control is the most important function of inventory management and it forms the nerve center in any successful organization. Eckert (2007) asserts that better control of inventory is directly proportional to customer satisfaction hence, loyalty. Customers are said to be more satisfied if their suppliers are able to meet and fulfill their orders within the required time. This cannot be achieved if the firms do not ascertain and deliver perceived quality, perceived value and customer expectations (Widing, 2003). The desire to satisfy the customers according to (Wang, 2007) makes the organization to keep safety stocks, hence control of inventory. The firm creates and maintains long-term relationships with their customers to secure sustainability in supplies which is only feasible if inventory cost is affordable. Customer satisfaction is the state of mind that customers have about a company when their expectations have been met or exceeded over the lifetime of the product or service. This cannot be achieved without adequate control of inventory (Buttle, 2004).

Based on the above discussion, determining the relationship between inventory control and customer satisfaction, we therefore hypothesize the following:

Ho₁: Inventory control has no significant relationship with perceived quality.

Ho₂: Inventory control has no significant relationship with perceived value.

Ho₃: Inventory control has no significant relationship with customers' expectations

3. Methodology

This study adopted a cross-sectional survey and a correlation investigation to establish the relationship between inventory control and customer satisfaction of petroleum marketing firms in Rivers State. The target population for this study was eleven (11) quoted downstream firms in the

petroleum industry in Rivers State, and a sample of 33 respondents were drawn from the staff of the selected firms under our study. A structured questionnaire was used to collect primary data; and the questionnaire was designed in Likert scale five point form- ranging from Strongly Disagree (SD) to Strongly Agree (SA). The testing of hypotheses was done using Pearson product moment correlation with the statistical package for social sciences software SPSS version 22, frequencies were computed to show the sample characteristics.

3.1 Reliability

The study tested for reliability at the verge of validating the factors in the context proposed. The reliability of the research instrument was tested using the Cronbach’s Alpha threshold of 0.7.

Table 1: Result of Reliability Analysis

Variable	Cronbach’s Alpha	Items	Acceptability
Inventory Control	0.892	4	Accepted
Perceived Quality	0.823	4	Accepted
Perceived Value	0.717	4	Accepted
Customers’ Expectations	0.762	4	Accepted

Source: SPSS 22 Output (based on 2019 field survey data)

4. Descriptive Statistics

The descriptive analysis of inventory control is expressed in four items questions.

Table 2: Descriptive Statistics on Items of Inventory Control

Table 2: Mean Evaluation on Inventory Control (IC)

S/N	Inventory Control	Mean	SD	95	
				Lower	Upper
Q1	Inventory is supplied just at the time they are required for use.	3.14	.1.332	2	5
Q2	Waste is eliminated by reducing the cost of unprofitable inventory.	5.00	.001	4	5
Q3	Inventories are segregated into various groups based on importance, sales & profitability.	3.97	.065	3	5
Q4	There is a mutual, continual relationship between the firm & its suppliers	4.74	.085	3	5
	Grand mean	4.21	.742	3	5

Source: Researcher’s Study Outcome,2019

Table 2 shows a grand mean rating of 4.23 and standard deviation of 0.742 which indicates that the respondents graded inventory control above the criterion mean score of 3.0 on a 5-point scale. It shows that waste is eliminated by reducing the cost of unprofitable inventory is the highest item of measuring inventory control with a mean score of 5.00. This supports the opinion of Kotler, (2000) as cited in Godana & Ngugi,(2014) who indicated that inventory control ensures that

appropriate supplies are obtainable and the costs of over or under stocks are minimized by eliminating waste.

4.1 Test of Hypotheses

This section of the study demonstrates a summary of the results of the test of hypotheses. The test statistics used in testing the hypotheses is the Pearson Product Moment Correlation. All the analyses were carried out with the aid of the Statistical Package for Social Sciences (SPSS) version 22.

Ho₁: Inventory control has no significant relationship with perceived quality.

Table 2: Pearson Moment Correlation (Inventory Control and Perceived Quality)

Variables	Statistics	Inventory Control (IC)	Perceived Quality (PQ)
(IC ₁)	Pearson Correlation	1.000	.852**
	Sig (2-tailed)		.000
	N	31	31
(PQ)	Pearson Correlation	.852	1.000
	Sig (2-tailed)	.000	
	N	31	31

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

Table 2 shows that inventory control and perceived quality does have a resilient and positive relationship with ($r = .852$, $p < .05$) 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 accepted for the study. As the rate of inventory control increases, so does the value of perceived quality. By virtue of this result, the null hypothesis four (H_{o1}) is hereby disallowed.

Ho₂: Inventory control has no significant relationship with perceived value.

Table 3: Pearson Moment Correlation (Inventory Control and Perceived Value)

Variables	Statistics	Inventory Control (IC)	Perceived Value (PV)
(IC ₁)	Pearson Correlation	1.000	.873**
	Sig (2-tailed)		.000
	N	31	31
(PV)	Pearson Correlation	.873	1.000
	Sig (2-tailed)	.000	
	N	31	31

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

Table 3 shows that inventory control and perceived value have a strong and positive relationship with ($r = .873$, $p < .05$) Pearson correlation coefficient at 0.01 significant level. This relationship was substantial at $p = 0.000$ which is less than the level of significance 0.05 accepted for the study. As the rate of inventory control increases, so does the value of perceived value. By virtue of this result, the null hypothesis five (H_{02}) is hereby rejected.

H_{03} : Inventory control has no significant relationship with customers' expectations.

Table 4: Pearson Moment Correlation (Inventory Control and Customers' Expectation)

Variables	Statistics	Inventory Control (IC ₁)	Customer Expectation(CE)
(IC ₁)	Pearson Correlation	1.000	.892**
	Sig (2-tailed)		.000
	N	31	31
(CE)	Pearson Correlation	.892	1.000
	Sig (2-tailed)	.000	
	N	31	31

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

Table 4 shows that inventory control and customers' expectations have a moderately resilient and positive relationship with ($r = .892$, $p < .05$) a Pearson correlation coefficient at 0.01 significant level. This relationship was substantial at $p = 0.000$ which is less than the level of significance 0.05 accepted for the study. As the rate of inventory control increases, so does the value of perceived value. By virtue of this result, the null hypothesis six (H_{03}) is hereby disallowed.

5. Discussion

This study examined the relationship between inventory control and customer satisfaction of petroleum marketing firms in Rivers State. It was hypothesized that there is no relationship between inventory control and measures of customer satisfaction which are perceived quality, perceived value and customers' expectations. As can be seen, the result from the Pearson product moment correlation analysis shows that a significant relationship exist between them. A majority of the respondents are of the opinion that a resilient and affirmative relationship exists between inventory control and measures of customer satisfaction. Based on that, the null hypotheses (H_{01} , H_{02} and H_{03}) were rejected and the alternate hypotheses (H_{a1} , H_{a2} and H_{a3}) were accepted. The findings of this study is in consonance with the findings of Eckert (2007) who studied inventory management and its impact on customer satisfaction and found that improved control of inventory is directly proportionate to customer satisfaction and loyalty. The finding is in agreement with Wild (2002) and Jeff's (2010) views, they opined that the essence of inventory control is to regulate and organize inventory in order to provide value for customers at the lowest cost possible. The finding also agrees with Enemuo & Uwazuruike (2012) who studied involvement of stock control practices to the sustainability of hospitality institutions in Nigeria and found that firms adopt the first in first out technique of inventory control in their operations to satisfy customers.

6. Conclusion

The results of the data analysis anchored on review of related literature reveals that inventory control has a positive, significant relationship with customer satisfaction. Therefore, the study concludes that inventory control has a substantial, affirmative relationship with customer satisfaction. Petroleum marketing firms in Rivers State should aligned their inventory control strategies to accommodate target market needs to enhance customer satisfaction.

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