

Effects of the Management of Finished Goods Inventory on the Sales Volume of 7Up Bottling Company, North Central Nigeria

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Abstract

The challenge of keeping finished goods inventory at optimum levels has been a major issue that has affected the sales volume of 7UP Bottling Company Plc. This study examined the effects of the management of finished goods inventory and the sales volume of 7UP Bottling Company in North Central, Nigeria. The study examined how forecasting demand, product handling as well product planning and warehouse management impact on the sales volume of 7UP Bottling Company in North-Central Nigeria. The study adopted a combination of survey, explanatory and exploratory research, which involved the use of primary data for analysis. The data collection exercise involved a focus group discussion (FGD) with different targeted group of customers. The total population of study was eight one (81) management staff of Seven-Up Bottling Company Plc in North Central, Nigeria and a sample size of sixty-seven (67) was drawn using Taro Yamane's sample size technique. The hypotheses were formulated in null form in line with the objectives of the study and the ordinary Least Squares (O.L.S) method of regression was employed for the analysis of the data collected. Findings revealed that there is a positive significant relationship between management of finished goods inventory and sales volume at ($B = 1.896$, $t = 10.6$, $Sig = .000$, $P < .05$) in 7UP Bottling Company in North Central, Nigeria. The study therefore recommends that the management of Seven Up Bottling Company PLC should implement the use of queuing systems (i.e. FIFO or LIFO) in the management of its warehouse because the system helps to reduce costs generated as a result of storage of excessive amount of unsold products.

Keywords: *Carrying cost, Stock out, Over stocking, Holding cost, Ordering cost*

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Background to the Study

Inventory therefore plays a central role in any business and it is the main reason for the continuous existence of any business organization mostly those in manufacturing sector. It consists of raw materials, work-in-progress, spare parts/consumables, and finished goods. However, finished goods inventory which are products that have completed the manufacturing process and ready for sale, just like other types of inventory needs efficient management as a substantial share of a firms' funds is invested in them. Also, managing finished goods inventory levels is important for companies to show whether sales efforts are effective or whether costs are being controlled. In addition, the survival of any business concern depends to a very great extent on the firm's ability to effectively manage and control its finished goods inventory. The inability to achieve this feat has caused the failure of many industries (Oliomogbe, 2012).

The Seven Up Bottling Company have from time to time encounter the challenge of keeping finished inventory at optimum levels due to the difficulty of forecasting demand and the expectations of customers about product availability (Oliomogbe, 2012). This challenge can cause the companies to stay off production when the issue of overstocking or out - of - stock situation arises and then pose a threat to the sales volume and survival of the company. It is on this backdrop that the researchers examined the management of finished goods inventory on the sales volume of Seven Up Bottling Company Plc in North Central Nigeria.

Statement of the Problem

The challenge of keeping finished goods inventory at optimum levels has been a major issue that has affected the sales volume, turnover as well as customers' patronage of Seven up Bottling Company, the challenge involves having to balance the conflicting economics of not wanting to hold too much stock and not wanting to run out of stock, which is, balancing the supply of finished goods inventory with demand. Despite the fact that the Seven up company established the re-order level economic order quantity system and the Just in Time (JIT) finished goods inventory management system, which are scientific methods of arriving at a general finished goods inventory policy and crucial inventory decisions far back as 2011 and 2014 respectively, yet the issue of keeping finished goods inventory at optimum levels still persists or persevere.

The persistence of the issue was observed in the Seven- Up Company (SBC) plant in Kwara state that serves the entire north central zone, which in other to avoid overstocking of some its finished goods inventory the company observed that it did not have in store some of its finished goods such as Mountain Dew and Mirinda for several periods lasting up to a year as at 2017. This in turn affected not only the customers' patronage but also the turnover rate, sales volume and net profit of the company as well (Seven- Up Company Plc audited records, 2017). Hence, the researcher examined the management of finished goods inventory and the sales volume of 7UP Bottling Company in North Central Nigeria in other to come up with some decision rules or recommendations towards addressing the underlying issue(s).

Objective of the Study

The main objective of this study is to examine the management of finished goods inventory and the sales volume of 7UP Bottling Company in North-central Nigeria.

The specific objectives are to:

- i. Examine how forecasting demand affects the sales volume of 7UP Bottling Company in North-central Nigeria
- ii. Examine how product planning affects the sales volume of 7UP Bottling Company in North-central Nigeria
- iii. Examine how product handling affects the sales volume of 7UP Bottling Company in North-central Nigeria
- iv. Examine how warehouse management affects the sales volume of 7UP Bottling Company in North-central Nigeria

Review of Related Literature

Concept of Finished Goods Inventory Management

Miller (2010), defined finished goods inventory as goods that have been completed by the manufacturing process, or purchased in a completed form, but which have not yet been sold to customers, while Ogbo, (2014) described it as the third group of inventory owned by a manufacturer and consist of products that are ready for sale. Smaros (2013), on the other hand views it as the number of manufactured products in stock that are available for customers to purchase.

However, Ile (2012), defined the management of finished goods inventory as the activities put in place to ensure that customer gets the needed product or service as at when due. This according to him involves the efficient handling of the products after production and during distribution, effective product planning, and forecasting demand accurately, as well as efficient warehouse management. Ozigbo (2010), describes the management of finished goods inventory as control systems involved with forecasting demand of goods accurately, specifying the size and placement of stocked goods in other to meet customers' orders.

In the view of Agha (2010), management of finished goods inventory involves managing the warehouse efficiently, forecasting demand accurately and handling of products efficiently, as well as maintaining good distribution functions. Similar to the view of Agha (2010), Smaros (2013), views management of finished goods inventory as the science of organizing and maintaining step by step the proper planning of products or goods produced, the efficient handling of the products and the proper management of the warehouse.

Concept of Sales Volume

Symes (2018), defines sales volume as the quantity of different stock keeping units (SKUs) sold or the number of customers who have sought for the services offered by a firm in a given time period or a fiscal quarter. Sales volume measurement is a vital part of the performance evaluation of the sales force who are responsible for selling the products of the firm. While Kokemuller (2018), defines sales volume as the number of units sold within a reporting period

and that this figure is monitored by investors to see if a business is expanding or contracting. Within a business, sales volume may be monitored at the level of the product, product line, customer, subsidiary, or sales region.

Kokemuller (2018), opines that sales volume is a sales metric that counts or measures the products or services sold in a period. Generally, Sales representatives are incentivised on the basis of their ability to meet their target. Since, a major part of the variable pay component depends on achieving the target, sales volume is an important metric in sales and marketing. Increased sales volume helps company to acquire a healthy topline (revenue). Increased quantity sales mean increased production hence that also helps in increased contribution margin. Moreover, increased sales volume helps to reach break-even earlier which helps the company gain profits from their operation as early as possible.

Basu (2017), argues that profits depend on growing sales and managing costs, which include variable and fixed costs. Variable costs depend on sales volumes because they involve direct raw materials and labor costs. Small and large businesses incur fixed costs, even if they have no sales. Fixed costs are constant at certain levels of production and sales. Outside of these levels, fixed costs may vary with sales volumes.

According to Kokemuller (2018), sales volume means the amount of sales generated expressed as a naira amount or unit quantity. For instance, your company could sell 500 units of a product with a total sales volume of N10,000 in a given month. Assuming the company's sales exceed the variable costs, each additional unit of sales volume increases the gross profits and the net income. If the cost can be lowered without impacting revenue and maintain the same sales volume, then profits will go up. Costs and sales volume both have very direct and significant effects on company's profit-earning potential and this relationship is sometimes expressed as the cost volume profit, or CVP relationship.

However, Kokemuller (2018), stress that companies use various strategies to attempt to increase profit, some simply cut costs and hope to maintain volume. Others cut production or acquisition costs and pass the savings on to customers in an effort to drastically increase sales volume enough to grow profit. Higher end providers or companies that attempt to sell added value solutions may focus more on creating a strong sense of value for the product itself in order to get higher sales prices and greater margins, thus reducing the need for as much volume. Price increases for a good or service offered by a small business will have an effect on the sales volume of that good or service. How price increases affect consumer demand and subsequently sales volume involves several key factors, making selecting a pricing strategy a complex task (Symes, 2018).

Theoretical Framework

Theory of Demand Forecasting and Management of Finished Goods Inventory

The theory of demand forecasting and inventory management was propounded by Grabara, Grabara, Kot, Rozdz and Lapide (2008), and according to the theory, management of logistics chains plays a key role in the process of demand forecasting and that the whole supply chain is subject to flow of both materials and information. Owing to frequent uncertainties in

the market development, fluctuating demand and changes in lead times, the management of finished goods inventory may be very complicated (Emmett, 2018).

However, early demand forecasting allows for limitation of costs generated as a result of storage of excessive amount of unsold products (Brzozowska and Nowicka, 2017). It should be emphasized that the selected techniques of prediction are contained in the implemented advanced information technology (IT) systems used for warehouse management. The companies that do not use these systems or use them only for limited areas, incur considerably higher costs of building inventory, which would have been use to keep the firm profitable.

Empirical Review

Anichebe and Agu (2013), examined the management of finished goods inventory and the performance of 7UP Bottling Company in Enugu State. The study considered sales volume and customer's satisfaction as measures for the dependent variable. Descriptive (survey) and case study research design were employed in carrying out the study. The population of the study was six hundred and fifty-eight (658) and a sample size of two hundred and forty-eight (248) was derived using the Taro Yamane formula for sample size determination from a finite population. Data were generated using questionnaire and oral interviews. Data were presented in tables and analyzed using simple percentages. Pearson product moment correlation coefficient and linear regression were used in the hypotheses testing. Findings indicate that management of finished goods inventory has a significant positive effect on sales volume but a negative influence on customers satisfaction. The study is limited to soft drink manufacturing companies in Enugu State. Also, the study did not clearly state how it arrived at selecting the soft drink manufacturing companies in Enugu state.

Oliomogbe (2012), examined the management of finished goods inventory and sales volume, a study of Nigeria Bottling Company, Port Harcourt Rivers State. A sample size of 200 respondents all randomly selected from the staff and management of Nigeria Bottling Company were used. Both primary and secondary data were used in collecting data and analyzed using the Chi-square. Findings revealed that there is a positive significant relationship between the management of finished goods inventory and sales volume. The study made use of chi-square as the tool of analysis instead of a more appropriate tool like the ordinary least regression technique to analyze the data collected. The study is also limited to Nigeria Bottling Company, Port Harcourt Rivers State.

Agu, Obi-Anike, and Eke (2016), conducted a study to ascertain the impact of management of finished goods inventory on sales volume of soft drink manufacturing firms in Lagos State. The descriptive survey research design was adopted for the study. The hypotheses were tested using Pearson product moment correlation coefficient and simple linear regression statistical tools. The findings indicate that the management of finished goods inventory has a positive relationship with customers satisfaction of selected manufacturing firms ($r = 0.849$; $t = 27.726$; $F = 768.754$; $p < 0.05$). There is also a positive relationship between demand management and sales volume of selected manufacturing firms ($r = .799$, $P < .05$). Just-in-time has a significant effects on growth of the selected manufacturing firms ($r = .885$; $t = 32.865$; $F = 1080.094$; $p < 0.05$). The findings of the study is limited to manufacturing firms in Lagos State, further study could still be carried out in other firms outside the manufacturing firms in Lagos State.

Methodology

The study combine the use of both qualitative and quantitative data; the qualitative data shall be the survey data used to measure customers satisfaction and employees view regarding finished goods inventory turnover while the quantitative data shall be the sales volume, inventory turnover ratio and profitability. The study population consists of the soft drink manufacturing companies in north-central states (Abuja, Nasarawa, Plateau, Niger, Kogi, Benue, Kwara) of Nigeria, which are: Nigeria Bottling Company limited (NBC), Seven-Up bottling company PLC (SBC) and La Casera Company PLC (LCC).

Table 1: Target Population of 7UP Bottling Company

S/N	States	No. of Manufacturing Plants (SBC)
1.	Abuja	-
2.	Nasarawa	-
3.	Plateau	-
4.	Niger	-
5.	Kogi	-
6.	Benue	-
7.	Kwara	1

Source: Survey data, 2018.

Table 2: Target Population of the Management Staff of 7UP Bottling Company in North Central Nigeria

Departments/ Units	7UP Manufacturing Plant Kwara State
Plant Manager	1
Sales	14
Production /Factory	7
Quality Control	5
Warehouse	23
Finance	7
Company Accountant	4
Transport	6
Marketing	14
Utility	-
Total	81

Source: Seven-Up Bottling Company Handbook, 2018.

The stratified random sampling technique was used to obtain a representation of a sample from the population since the population was not drawn from a homogenous group. The researcher divided the entire population into different subgroups or strata, then applied the stratified sample formula to calculate the proportion of staff from each group to be randomly selected from the different strata. Ordinary Least Squares method of regression was used to test the relationship between management of finished goods inventory and the sales volume of

Seven-Up bottling company Ltd. The regression analysis was computed using Statistical Package for the Social Sciences (SPSS) version 23.

Since the result of the Alpha is more than 0.7 based on the right target population identified; adequate representation of sample; appropriateness of sampling method; structured questionnaire using Likert-scales; administering the instrument without biasness, entering data with care using E-view package (version7), we therefore conclude that the measuring instrument of the variables is reliable and acceptable.

Data Presentation and Analysis

Test of Hypothesis

H_{01} : Management of finished goods inventory has no significant influence on the sales volume of 7UP Bottling Company in North-central Nigeria

OLS Result Using SPSS version 23

Table 3: ANOVA^a

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	3463.985	4	865.996	439.830	.000 ^b
Residual	222.489	113	1.969		
Total	3686.475	117			

a. Dependent Variable: DSVscore

b. Predictors: (Constant), IWMscore, IPPscore, IDFScore, IPHscore

Source: Computed by the authors using SPSS Version 23

Table 4: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.726	.347		2.090	.039
IDFScore	1.896	.179	1.345	10.611	.000
IPHscore	-.085	.223	-.060	-.380	.705
IPPscore	.391	.121	.304	3.237	.002
IWMscore	-.948	.269	-.644	-3.529	.001

a. Dependent Variable: DSVscore

Source: Computed by the authors using SPSS Version 23

From the result of hypothesis one above, it was found that there was a significant relationship between demand forecasting and sales volume at ($B = 1.896$, $t = 10.6$, $Sig = .000$, $P < .05$). This result indicates that the more accurate demand forecasting is, the higher the sales volume. For product handling, the result reveals that there was no significant relationship between product handling and sales volume at ($B = -.085$, $t = -.380$, $Sig = .705$, $P < .05$). This result shows that the more the product handling the lower the sales volume of the 7UP Bottling Company. Product planning result revealed that there is a significant relationship between product

planning and sales volume at (B = .391, t = 3.2, Sig = .002, P <.05). This shows that product planning has an influence on sales volume, while for warehouse management the result reveals that its coefficient (B = -.948) is negative and that there is a significant influence of warehouse management on sales volume at (B = -.948, t = -3.5, Sig = .001, P <.05). This indicates that the more the management of the warehouse the greater the sales volume.

From the regression result, the regression model is stated as follows:

$$SV = .726 + 1.896DF - .85PH + .391PP - 0.948WM + .347 \dots \dots \dots (1)$$

A test of the regression model indicates that the personal variables as a set effectively influenced the yielded F = 439.830 and p-value of 0.039 is significant since p-value is less than 0.05 level of significance. This implies that the regression model, as shown in Equation 1, significantly explained the predictability of demand forecast (DF), Product Handling (PH), Product Planning (PP) and Warehouse Management (WM) on the performance of Soft drink manufacturing companies variable “Sales Volume”.

Also, the coefficient of determination (R²) of 0.94 indicates that 94% of variation in sales volume (SV) in both Nigeria Bottling Company and 7UP Bottling Company can be explained by the management of finished goods inventory (demand forecast, Product Handling, Product Planning and Warehouse Management). The remaining 6% can be explained by other related factors not noted in the regression model. The F-statistic value of 439.830 is significant at p-value of 0.00. This implies that there is an evidence of linear relationship between the management of finished goods inventory (demand forecast, Product Handling, Product Planning and Warehouse Management) and sales volume in Nigeria Bottling Company and 7UP Bottling Company. Therefore, we accept the alternative hypothesis that management of finished goods inventory has significant influence on the sales volume of 7UP Bottling Company in North-central Nigeria.

Table 5: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.969 ^a	.940	.938	1.40319	2.291

a. Predictors: (Constant), IWMScore, IPPscore, IDFScore, IPHscore

b. Dependent Variable: DSVscore

Source: Computed by the author using SPSS Version 23

Summary

This study examines the management of finished goods inventory and the performance of soft drink manufacturing companies (Nigeria Bottling Company Ltd and Seven-up Bottling Company Plc) in North Central zone of Nigeria. The study has four objectives: to examine how forecasting demand affects the sales volume of 7UP Bottling Company in North-central Nigeria, to examine how product planning affects the sales volume of 7UP Bottling Company in North-central Nigeria, to examine how product handling affects the sales volume of 7UP

Bottling Company in North-central Nigeria and to examine how warehouse management affects the sales volume of 7UP Bottling Company in North-central Nigeria. The ordinary least square (O.L.S) method of regression was used to analyze the data obtained using a software option of SPSS statistical package version 23. The findings revealed that management of finished goods inventory (demand forecast, product handling, product planning and warehouse management) leads to increase in sales volume of 7UP Bottling Company in North-central Nigeria

Conclusion

The following conclusions were raised from the result analyzed:

There is a significant relationship between management of finished goods inventory (demand forecast, product planning and warehouse management) and sales volume. This indicates that the techniques of managing finished goods inventory such as accurate forecast of demand, proper product planning and effective warehouse management statistically contributes to increasing the sales volume of the soft drink manufacturing companies.

Recommendations

The study recommended the following based on the findings and in line with the objectives of the study on how Seven Up Bottling Company Plc could improve in the management of finished goods inventory in other to impact positively on their performance:

1. The management of Seven Up Bottling Company Plc should continue to improve and update the methods of managing finished goods inventory since there is a positive significant relationship between the management of finished goods inventory and sales volume, which can be done by accurately forecasting demand in other to avoid over stocking or going out of stock and to effectively optimize finished goods inventory.
2. Since there is a positive significant relationship between product planning and sales volume, the management of Seven Up Bottling Company Plc should continuously review the strategies it adopts in the management of finished goods inventory, so as to meet the changing taste and demands of its customers.
3. The management of Seven Up Bottling Company Plc should continue to provide training for implementers of the strategies adopted in handling finished goods inventory, in other to avoid damaging of finished goods inventory whether at production or during distribution.
4. The management of Seven Up Bottling Company Plc should implement the use of queuing systems (i.e. FIFO or LIFO) in the management of its warehouse because the system helps to reduce costs generated as a result of storage of excessive amount of unsold products. Adopting the queuing system of managing warehouse will not only assist the company to avoid incurring higher costs of building inventory but will also keep the company profitable.

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