

The Effect of Inventory Control Techniques on the Profitability of Manufacturing Firms
(A Study of Champion Breweries Plc, Uyo Akwa Ibom State)

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ABSTRACT

Manufacturing firms apply various techniques in the management and control of their inventories. The tools and methodologies adopted have a significant impact on returns, profitability and volume of turnover, firms that efficiently apply these techniques have an excellent financial performance. This study examines the effect of inventory control techniques on the profitability of manufacturing firms in Nigeria with a special focus on Champion Breweries Plc. Uyo, Akwa Ibom State. Nigeria. A survey research design was adopted in which thirty eight (38) workers of Champions Breweries Plc were administered questionnaires to collect data for the study. Secondary data was obtained from the annual reports and accounts of the company for the period 2012 to 2016. Three research hypotheses were tested using descriptive statistics of percentage and t-test at a significance

level of 5%.Data analysis reveals that Champion Breweries Plc has a high component of its inventory in engineering spares, also the company started making profit from the year 2015 during the period covered by the study, lest of the hypotheses shows that the company's profitability is affected by the techniques it uses to manage control its inventories, the test also reveals that high inventory costs affect profit negatively. Based on the above and other findings of the study, it is recommended that the company and indeed all other brewing companies in Nigeria should adopt effective and efficient inventory management and control system deploy appropriate modern technology for its inventory control practices.

Keywords: Inventory, controls, techniques, probability, manufacturing, champion, breweries, Uyo, Akwa Ibom.

INTRODUCTION

Inventories Are assets held for sale in the ordinary course of business, in the process of production for such sale, or in the form of materials or supplies to be consumed in the production process or in the rendering of services. Several decades ago inventories of raw materials, components and finished goods were kept as high as possible against the possibility of running out of materials in stock [1].

However, keeping large inventories tied down resources and generates hidden costs. Likewise, too much inventory consumes physical space, creates a financial burden, and increases the possibility of damage, spoilage and loss. On the other hand, too little inventory often disrupts business operations [2].

The objective of material management is to maximize the use of firms' resources by ensuring adequate supply of material for production process and also minimizing the cost of holding excessive inventories. Inventories are significant portions of current assets to any business enterprise. It plays a vital role in keeping organizational activities running effectively. No operation can take place without proper and adequate inventory on the ground [3].

Managing inventory is a crucial aspect of working capital management. Organization need materials to produce finished goods, as such efficient managing of inventory will affect the financial performance of the organization [4]. The organization needs

to keep adequate resources to cater for working capital needs especially inventory.

Inventory control is the supply of goods and services at the right time with the right quality and quantity [5]. Inventory management has been a problem to many business organizations in Nigeria. Inventories provide a significant link between production and sales of a product and constitute a large percentage of the cost of production [6]. It is one of the most expensive and important assets of many manufacturing companies representing a

considerable percentage of the total invested capital [7]. As such, proper care and effective management must be a concern of top management in planning phase. Efficient allocation and monitoring is the answer to inventory management. A better inventory management enhances the financial performance of a company.

Several studies were conducted by different researchers, but there is no consensus on the outcome [8]. Some found that there is positive and significant relationship between the variables, while others assume otherwise. Almost all the studies conducted in Nigeria, none was conducted on the conglomerate company. This research intends to breach the gap of academic research by using a panel data of conglomerate companies quoted on the Nigeria Stock Exchange for five years in order to validate or invalidate the existing findings and also to give a wider coverage of time, as well as covering the whole population of the study [9].

Statement of the problem

Inventory management plays an important role in every company as any ineffective inventory system will result in loss of customers and sales. An effective inventory management is able to generate more sales for the company which directly affects the performance of the company [10]. Therefore, it requires a systematic inventory management which is managed by a group of employees who are expert in this area.

Most studies in the manufacturing sector concentrate on the western companies as the awareness about systematic inventory management exist in the west. Therefore, this research attempts to widen the geographical scope by examining a manufacturing company in Nigeria [11].

Objective of the study

The main objective of this study is to ascertain if there is need for effective inventory management and control in a business firm and whether the various tools and techniques applied affect the performance of the firms'. Specifically, the objectives are:

1. To ascertain the extent at which inventory controls tools and techniques affect the profitability of Champion Breweries Plc Uyo. Akwa Ibom State.

Research questions

The study was guided by the following research question

- i. Is there need for inventory management and control in business firm?
- ii. What is the effect of stock valuation method on the profitability of Champion Breweries Plc, Uyo
- iii. What is the effect of the use of a particular stock control technique on the profit performance of Champion Breweries Plc.
- iv. Does high inventory cost affect the profitability of Champion Breweries Plc
- v. Does effective inventory management and control have any significant effect on the profitability of Champion Breweries Plc.
- vi. To what extent does inventory control affect the profitability of Champion Breweries Plc

Hypothesis

H_0 : There is no significant relationship between the use of appropriate inventory control techniques and the profitability of Champion Breweries Plc

H_1 : There is significant relationship between the use of appropriate inventory control techniques and

the profitability' of Champion Breweries Plc

H₀: High inventory costs will not reduce champion Breweries Plc profitability.

H₁: High inventory costs will reduce champion Breweries Plc profitability

H₀: There is no significant relationship between method of stock value and the profitability of Champion Breweries Plc

H₁: There is significant relationship between method of stock value and the profitability of Champion Breweries Plc

Significance of the study

Theoretically, this study will add to the inventory management literature.

Research design

This study employed a survey research design because it sought the opinion of staff of Champion Breweries Plc, Uyo on the company manages its inventory and whether the way this is done affect the company's profitability. Although ex-post-facto data on inventory values and profit figures are used in the work the research is basically a primary study

Population of the study

The population comprised all workers of Champion Breweries Nig. Plc Uyo.

Selection of sample/sampling techniques

From the population, a sample of 25 workers (15) stores department and 10 Accounts department was obtained through the simple random selection techniques.

Instrumentation

The instrument used to gather information in this study was a self-designed questionnaire. The questionnaire consists of two sections. Section A elicits demographic information like gender, working experience, while section B contained structured items relating to the research questions that necessitated this research.

Validation of the instrument

To ensure the validity of this research, the instrument was subjected to criticism by specialist in the areas of management and accounting aside from

Practically, it will also provide useful information to the company as well as the practitioners.

Scope of the study

The study is focused on the inventory management problems, relationship between inventor) management and performance of Champion Breweries Nig. Plc. Uyo. Akwa Ibom State. Nigeria.

Limitation of the study

There were several limitations that the researcher faced in completing this study such as information accuracy where there was certain area where the information was considered private and confidential, lack of prior reference sources and lack of skill and experiences, time frame and finance.

METHODOLOGY

peer review conducted by the researcher. The reliability of the instrument was obtained through a test-retest technique to analyse the data collected.

Reliability of the instrument

Reliability test or measure tests the extent to which a research instrument will yield the same result under the same conditions. It tests the consistency of the instrument. The reliability of the instrument for this research obtained through pilot survey and test-retest techniques.

Method of data collection

Structured questionnaires specifically designed for this study were administered on 70 various personnel across all financial areas of Champion Breweries Plc, Uyo. Secondary data were also collected from the published annual report account of the company up to 2016 and first half of 2017.

Method of data analysis

The descriptive method of data analysis was adopted in this research wherein data gathered were analyzed using simple percentages, while t-test of significance was used to test the hypotheses.

Student t-test is a statistical test which is widely used to compare the mean of two groups of samples. It is therefore use to evaluate whether the means of the two sets of data are statistically significantly different from each other.

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This work uses a one -- sample t-test.
which has the following formula

$$t = \frac{x - \bar{\mu}}{s/\sqrt{n}}$$

To evaluate whether the difference is statistically significant, we first have to read in t-test table the critical value of students' t distribution corresponding to the significance level alpha of your choice (5%). The degrees of freedom (df) used in this test are:

$$Df = n-1$$

Decision rule

The test of significance using t-test was carried out at 5% level of significance. The decision rule was that if the calculated t-value is greater than the table-value, the null hypothesis is rejected

DATA PRESENTATION

Table 1 Stock: Valuation of Champion Breweries Plc (2012-2016)

Inventory Item	Years				
	2016	2015	2014	2013	2012
	₦,000	₦,000	₦,000	₦,000	₦,000
Raw materials	51,756	47,445	10,700	14,753	34,910
finished goods	28,946	3,506	296	3,811	13,431
WIP	38,079	40,684	36,671	5,799	7,441
Packaging materials	86,402	13,003	10,901	18,391	15,101
Engineering spans	285,897	233,644	227,353	188,950	77,481
Consumables	39,340	11,951	68,365	73,927	87,515

Source: Annual Reports of Champion Breweries Plc (various)

Table 2: Financial Summaries of Champion Breweries Plc (2012 - 2016) Statement of profit or loss and other comprehensive income

	2016	2015	2014	2013	2012
	₦,000	₦,000	₦,000	₦,000	₦,000
Revenue	3,864,943	3,501,845	3,302,282	2,133,259	1,785,345
Operating profit/(loss)	617,634	206,769	25,511	(543,902)	1,222,013
Profit/loss before taxation	681,284	248,443	(1,061,783)	(1,730,432)	(1,928,865)
Profit/Loss	530,389	77,140	(754,532)	(1,178,025)	(1,360,690)
Total comprehensive (income/loss)	549,223	94,625	(193,945)	(1,178,366)	(1,337,505)

Statement of financial position

	2016	2015	2014	2013	2012
	₦,000	₦,000	₦,000	₦,000	₦,000
Property, plant and equipment	6,766,215	6,917,604	6,844,330	7,239,613	5,657,055
Intangible asset	-	-	6,878	11,741	-
Trade and other Receivables	42,043	40,050	-	-	-
Deferred tax assets	966,727	1,085,940	1,202,200	873,948	321,386
Net current liabilities	(41,918)	(788,432)	(2,039,956)	(12,670,861)	(9,345,446)
Employee benefits	(82,207)	(133,525)	(143,021)	(62,827)	(62,995)
Net liabilities	7,670,860	7,121,637	5,870,431	(4,608,386)	(3,430,000)

Funds employee

Share capital	3,914,748	3,914,748	3,600,000	450,000	450,000
Share premium	9.093.779	9.093.779	8.251.946	129.184	129.184
Other reserve	3.701,612	3,701.612	3,701.612	3.701.612	3.701.612
Accumulated	(9.039,279)	(9.588,502)	(9.683.127)	(8.889.182)	(7.710.79
Shareholders	8,670,860	7,121,637	5,870,431	(4,608,386)	3,430,000

Source: Annual Reports of Champion Breweries Plc (various)

ANALYSIS OF DATA

Forty (40) questionnaires were administered on staff of Champion Breweries Plc. out of which thirty eight (38) were completed and returned to the researcher. This is a response rate of

ninety five (95) percent. The data gathered from the questionnaires are tabulated and analyzed in the tables below

Table 3: Q1: Is there a formal inventory management and control system in Champion Breweries Plc

Response	Number	Percentage (%)
Yes	36	94.74
No	02	05.26
Total	38	100.00

Table 4 Q2: Is the system very effective?

Response	Number	Percentage (%)
Yes	28	73.68
No	10	26.32
Total	38	100.00

Table 5 Q3: Does the system establish various control levels for inventory?

Response	Number	Percentage (%)
Yes	37	97.337
No	01	02.63
Total	38	100.00

Table 6. Q4: If control levels are in existence, what are the levels (a) reorder level

Response	Number	Percentage (%)
A	01	2.63
B	01	2.63
C	00	00
D	01	2.63
E	35	92.1 1
Total	38	100.00

Table 6 Q5: Do you think the methods used in inventory control by the company affects its profitability.

Response	Number	Percentage (%)
Yes	30	78.79
No	08	21.21
Total	38	100.00

Table 7 Q6: Which of the following approaches does the company use in taking inventory into production?

Response	Number	Percentage (%)
A (FIFO)	22	57.89
B (LIFO)03	03	07.90
C (ALL)	13	34.21
Total	38	100.00

Table 8 Q7: The just-in-time technique is a modern approach to inventorymanagement? Does your company use it?

Response	Number	Percentage (%)
Yes	04	10.53
No	34	89.47
Total	38	100.00

Table 9 Q8: From your company's Annual Report, it is shown that the company uses the weighted average method of stock valuation. Do you think this method is the best approach?

Response	Number	Percentage (%)
Yes	37	97.37
No	01	02.63
Total	38	100.00

Table 10 Q9: If Yes in Q8. does this method increase the company's reported profit

Response	Number	Percentage (%)
Yes	32	84.21
No	06	15.79
Total	38	100.00

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Table 11 Q10: If no in Q8, which method would you advise the company to use

Response	Number	Percentage (%)
FIFO	03	07.90
LIFO	02	05.26
SPM	01	02.63
WAM	32	84.21
Total	38	1 00.00

Table 12 Q11: Has the company computerized its inventory management/control system

Response	Number	Percentage (%)
Yes	10	26.32
No	06	15.79
Partly	22	57.89
Total	38	100.00

Table 13 Q12: Does the company use EOQ to determine its inventory order or lot size?

Response	Number	Percentage (%)
Yes	30	78.95
No	08	21.05
Total	38	100.00

Table 14 Q13: Do you think that for any firm, either manufacturing or service company, to maximize profit, it must install a well-functioning inventory

Response	Number	Percentage (%)
Yes	37	97.37
No	01	02.63
Total	38	100.00

Table 15 Q14: How often does the company review its inventory levels?

Response	Number	Percentage (%)
A	10	26.32
B	22	57.89
C	03	07.90
D	03	07.89
Total	38	100.00

Table 4.16 Q15: Do you think inventory cost affect the company's profitability

Response	Number	Percentage (%)
Yes	36	94.74
No	03	05.26
Total	38	100.00

Test of hypotheses

Three major hypotheses tested in this study were:

- i. H_0 : There is no significant relationship between the use of appropriate inventory

- ii. control techniques and the profitability of Champion Breweries Plc, Uyo.
- ii. H_0 : High inventory costs will not reduce Champion Breweries Plc's profitability
- iii. H_0 : There is no significant relationship between method of stock valuation and the profitability of Champion Breweries Plc.

To test null hypothesis one. the relevant questionnaires question is Q5.

Table 17

Response	Nu in her	%	T-calculated	T-table	Decision
Yes	30	78.79			
No	08	21.21tp	5.6569	1.7300	reject
Total	38	100.00			

Level of significance 0.5

Decision: Since t-calculated is greater than the above value (i.e $5.6569 > 1.7300$). the null hypothesis is rejected, while the alternative is accepted. Thus, the methods used in inventory control affect the profitability of the company.

For hypothesis two. the relevant question is Q15

Table 18.

Response	Number	%	T-calculated	T-table	Decision on null
Yes	36	94.74			
No	02	05.26	4.3333	1.7300	reject
Total	38	100.00			

Level of significance = 0.5

Decision: Since t-calculated is greater than the table value (i.e $4.3333 > 1.7300$). then the null hypothesis is rejected, and the alternative accepted and conclude that high inventory cost affect champion Breweries Plc profit negativity.

Hypothesis is tested using Q8 and Q9

Table 19

Response	Number	%	T-calculated	T-table	Decision on null hypothesis
Yes	37	97.37			
No	01	02.63	6.4334	1.7300	reject
Total	38	100.00			

Level of significance = 0.5

Q9 Table 20

Response	Number	%	T-calculated	T-table	Decision on null hypothesis
Yes	32	84.21			
No	06	15.79	4.5692	1.7300	reject
Total	38	100.00			

Decision: Since the value t-calculated exceeds t-tabulated (i.e 4.56927) rejected the mill hypothesis is rejected and the alternative accepted. It

DISCUSSION OF FINDINGS

From table 1, the researcher finds that Champion Breweries Plc, Uyo has been earning high amount of engineering spares inventory, from a figure of N77.481.000 in 2012, this inventory rose steadily through the study period to peak at N285.887.000 [12] [13] [14]. The researcher could not get a satisfactory answer for this position upon enquiries from the senior management and engineering staff of the company.

Table 2, which is the summary of Champion breweries Plc performance from 2012 to 2016. Shows that the company exited the position it had been in since 2012 in 2015 and has since

The purpose of this study was to investigate whether Champion Breweries plc has a formal inventory control system. It was also to find out if the inventory system that the company uses affects its profitability [19].

From the hypotheses tested, it was found that the company does not fully

It is evident from the study that effective stock valuation and control by manufacturing companies is very important. It is being viewed critically' now that before because of its significant effect on the performance and profitability of the company [22].

Since inventory is one of the most important part of any business especially for manufacturing companies and it has a hidden costs which are to

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are

therefore means that, there is a relationship between the methods used in valuing inventory and profitability of Champion Breweries Plc.

been reporting a profitable operation [15] [16]. It ended the year 2016 with a profit after tax of N530,389,000.

The study also finds that the stock valuation method employed by Champion Breweries Plc positive affects its profitability [17]. This is attested to by the fact that an average of 89% of the respondents responded in the affirmative to the question.

Another finding of the study is that Champion Breweries Plc does not make use of the JustiIn Time (JIT) method of inventory control. Also, it does not fully computerize its inventory management and control processes [18].

SUMMARY

computerize it inventory management and control process [20]. It was also found that the method of inventory valuation and control used by the company affect its profitability.

The study also reveals that the company has major components of its inventory tied up in engineering spares [21].

CONCLUSION

be controlled for sustaining in present competitive market, the company must institute a fully computerized inventory management and control system.

The study revealed that efficient inventory cost management have positive influence on the profitability of Champion Brewery Plc, it was proved that effective and efficient inventory cost management and control would lead to a higher profitability

proffered:

- i. Champion Breweries Plc

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should adopt effective and efficient inventory cost management practices as well as deploy appropriate modern technology for effective inventory

- ii. management and control. The company should try as much as possible to reduce the engineering spares components of its inventory.

SUGGESTION FOR FURTHER RESEARCH

The researcher suggests a future study should include more samples research because one sample might not reflect the actual problems of inventory management and control in the brewing industry in Nigeria. For robust generalization it is also recommended that a better statistical analysis tools should be adopted in testing the relationships between inventory management and control and company performance.

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