

## STANDARD COST EFFECT ON PERFORMANCE OF SELECTED LISTED FOOD AND BEVERAGE COMPANIES IN NIGERIA, WEST AFRICA

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### Abstract

*The aim of this research was to determine whether or not a change in standard cost will improve the financial standing of a sample of Nigerian food and beverage manufacturers. This goal was reached by analyzing the relationship between the price of raw materials, the price of labor, and the price of manufacturing overhead on the bottom line of Nigerian food and*

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*beverage firms. Five manufacturing firms were chosen at random for the research. Nestle Plc, Cadbury Nig Plc, P.Z. Cussons Nig. Plc, and Presco Nig. Plc are the food and beverage companies that were included in the survey. In this case, we used secondary data that we had gathered over the previous decade (2010-2020). Panel estimation methods (pooled OLS, fixed effect estimation, and random effect) and a post estimation test were used to examine the compiled data. The results showed that a firm's performance in the manufacturing sector in Nigeria was significantly correlated with its manufacturing overhead costs, but negatively correlated with its raw material costs, and positively correlated with its labor costs. The research indicated that careful consideration of raw material costs and the maintenance of effective standard costing across all labor costs were necessary to obtain the desired results. Because of the significant savings in time and money that may be achieved via the use of standard costing principles and procedures, the research concludes that all food and beverage businesses in Nigeria should do so.*

**Keywords:** *Standard cost, Profit after tax, food and beverage companies, Nigeria*

**JEL Classification:** S20,P47 ,F13

### 1.0 Introduction

One of the most advanced and crucial cost-management tools in any facility, standard costing acts as a benchmark against which actual versus anticipated expenditures can be evaluated. This is achieved by first establishing standards for the cost of a given period of time in advance, and then using these standards as the basis for a scientifically based cost-benefit analysis (Appelbaum, 2017). Companies' upper echelons should use cutting-edge cost systems to help with product planning, management, and cost cutting (Abdullah & Mansour, 2015). Due to the shortcomings of the traditional cost-systems currently applied in food and beverage companies in Nigeria, which carry the total costs on the final product through methods that neglect innovation, industry companies and the industrial market face major challenges if they are to achieve profitability, maintain the continuity, and the level of high-quality production. Hence, the study examines the effect of standard cost on financial performance of food and beverage companies in Nigeria.

## 2.0 Literature Review

### 2.1 Performance

An organization's performance is a reflection of the efficacy with which it allocates and exploits its financial and human resources to achieve its goals. In this view, performance is a measure of an activity's social legitimacy, and it's tied to the organization's ability to act and learn in ways that earn both social and economic respect (Gopalakrishnan, 2015). Activities are integrated with the performance process, creating a nested and interactive chain of processes: performance planning, performance management, performance monitoring, performance evaluation, performance improvement, empowerment, and compensation of performers, all with the goal of achieving the so-called "performance balance" within the organization. Organizations use performance management to work toward their stated goals, the most crucial of which is closing the performance gap (the "real problem of management"), which can be accomplished in two ways: positively, by raising actual performance to meet the target performance, and negatively, by lowering the target performance to bring it in line with actual performance (Chan, 2010).

To measure performance, one must look at how well an economic unit makes use of the resources it has at its disposal, how that use improves over time via research, and how one may compare the results of one period to those of another using a predetermined scale and set of predetermined criteria (Lin, 2010). Management at all levels must participate in the performance process, which includes reporting and evaluation of organizational actions against predetermined standards such as those outlined in strategic plans, annual budgets, and annual reviews (Gopalakrishnan, 2015).

Given the above, it is reasonable to conclude that a country's prosperity is mostly attributable to the success of its businesses. It's a metric used by CEOs and other high-ups to ensure the company is proceeding in the right way. The idea behind this term is that businesses all around the globe are always trying to become better at what they do. As a result, indicators of a company's performance include growth, prosperity, failure, plan execution, and the attainment of goals. In particular, an organization's performance is a major factor in determining its future, provided that the company use relevant, trustworthy, credible, and informative metrics to aid in forecasting the future and improving upon the past. Zheng et al. (2014) used the same metrics to find that businesses with properly aligned accounting Modern standard costing techniques had a higher chance of achieving successful outcomes.

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When a standard costing system is used, it helps businesses save expenses, boost product quality, and better meet the needs of their consumers at each step of production. Using modern standard costing procedures may provide businesses a competitive edge by helping them cut costs without sacrificing quality. Companies may get an edge in the market and boost productivity by adopting these practices. In order to keep up with the ever-changing worldwide market and remain competitive, businesses have turned to cutting-edge management accounting tools and approaches (Drury, 2013).

### 2.2 Theoretical Underpinned

This research provides the backbone of the kaizen pricing idea. Yashuhiro Monden developed Kaizen Costing Theory in 2001 to serve as an economic analogue to the original Kaizen approach (Industrial and Financial Systems, 2001). The process of constant refinement is what this word refers to. Kaizen Costing is based on the principle of continual improvement via small, manageable changes made over time. According to (Ansari & Lockwod, 2004), Kaizen Costing ensures products are competitive by meeting or exceeding customer expectations for quality, functionality, and price. To achieve this goal, it may be necessary to systematically remove all processes from manufacturing that provide no value to the product (Rof, 2012).

### 2.3 Empirical Evidence

Syrian oil sector performance monitoring and evaluation was the focus of Jadid's (2015) research, which looked at the standard costs system. The study's overarching purpose was to familiarize readers with the significance and goals of standard costs, the function of transactions, and the potential function of control. The study's underlying tenets are that standard costing may be used to effectively manage oil production expenses, and that putting that capability to use would allow for objective performance targets to be set and measured. Costs of oil production can be kept under tighter control with the help of a system developed by the company's standard cost accountants, and the study found that the reality of the applicable system cost for the company's hi product lags behind the requirements of the modern manufacturing environment.

Hussein (2017) examined how the standard cost system influenced the management and fiscal choices of Sudanese manufacturing firms. The research set out to illuminate the significance of the standard costs approach by quantifying the impact of implementing it on the control process and its influence on rationalizing

financial choices in industrial firms. The research hypothesis is predicated on the idea that the degree to which industrial organizations exert control over their financial results increases in correlation with the extent to which they use the standard costing system. The research discovered that adopting the standard costs system aids in making logical judgments and decreasing indirect costs in the facility, and that these pre-set prices are based on studies with scientific foundations that assist to monitor the expected performance accurately.

Cost-controlling standard expenses have been the subject of research by Ahmad (2018). The study's objectives were to determine how widely implemented the standard cost system is in Sudanese flour mills, to identify the barriers to its implementation, to examine the grain industry's capacity to establish reliable benchmarks in accordance with the scientific principles of costs, and to provide an explanation of the impact that standard costing has on the effectiveness and precision of cost management. The research assumes that there exists a statistically significant connection between the use of the standard costs system and the efficacy of cost management in Sudanese grain mills. That there is a link that can be measured statistically. The profitability of Sudanese grain mills has a statistically significant relationship to their use of the standard costing system. The research found a number of things, but the two most essential are that (1) using a standard costing system is a good predictor of how well costs are being controlled, and (2) using a standard costing system aids management in zeroing in on problems and pinpointing their sources.

To gauge the efficacy of lean and track its development, Raghavan (2019) contrasts two cost management strategies. There are two primary approaches to pricing: standard costs and activity-based costs. Product costs are calculated by recreating a manufacturing environment after adopting lean principles, factoring in things like overhead costs and throughput. While all expenditures had an effect on the final price, the analysis found that overhead had the most influence. Overall allocation was managed and adjusted by the lean main implementation. According to the results of this research, a portion of the total expenses may be attributed to the time it takes to complete the process cycle. Therefore, the primary goal of a lean implementation is to shorten the system's cycle time and thereby lower its overall cost. Just-in-time delivery, increased inventory turns, and the successful implementation of kaizen procedures are all key to the lean philosophy, which aims to maximize production while simultaneously decreasing waste and cycle time.

According to Iliemena (2019), researchers looked at how adopting standard costing practices affected the bottom lines of a sample of manufacturing firms in

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the Nigerian state of Edo. This resulted from an analysis of standard costing's role in lowering costs, limiting waste, and increasing profits. After reviewing the relevant literature, we came up with three hypotheses to test. Companies in certain Benin City industries were chosen to participate in the research. Primary sources were used to gather data for this investigation. According to the results, standard costing has a strong beneficial impact on cost savings. Additional research showed that adopting conventional costing techniques increased profits.

According to Ekerigil & Göde's (2020) research, hotels are using conventional costing methods and supply chain management to determine their performance. It takes four years of data for a five-star hotel to reach this level of excellence. The research first calculates and then updates total energy consumption and energy cost, as well as fixed and changing expenses, for the four-year data of the hotel, which indicates the active period of the hotel. This data collection includes customer and room information that may be used to calculate nightly performance. The second section of the report focuses on the amount of power used, the overall cost of using electricity, and the breakdown of that cost into fixed and variable components. Room-by-room and customer-by-customer analysis of performance is possible. Since this is the case, we may examine how the hotel as a whole is affected by the performance evaluations of its many departments.

Standard cost's effect on production costs in Nigerian factories was analyzed by Ologbenla (2021). The research is based on responses from 147 people at 26 different manufacturing companies. Analysis of the replies of the respondents to different questions about the value significance of standard cost in cost management in their respective originations is performed using both descriptive and inferential statistical methods. In the first place, the findings reveal that, contrary to popular belief, traditional cost approaches are still widely used by the majority of the manufacturing enterprises in the study's sample for cost management purposes. What's more, the research showed that the standard cost method was so successful at cutting down on raw material and administrative expenses that these manufacturing companies decided to stick with it.

Given the scant nature of the existing literature, it is the purpose of this research to examine the link between standard cost and financial performance among Nigerian food and beverage firms. This research differs from others since it covers a longer time period (from 2010 to 2020) and uses different metrics to assess financial success (profit after taxes) than are often used in similar studies.

### 3.0 Methodology

#### 3.1 Sample and Data Collection

Twenty-one (21) food and beverage companies listed on the Nigerian Exchange Group as of December 31, 2021 constitute the research population. Five publicly traded food and beverage firms were chosen at random from the research population using a purposive sampling approach. The availability of data is a major factor in the selection of these companies. Nestle Plc, Cadbury Nig Plc, P.Z. Cussons Nig. Plc, and Presco Nig. Plc are some of the food and beverage firms that were included in the survey. In this case, we used secondary data that we had gathered over the previous decade (2010-2020). Panel estimation methods (pooled OLS, fixed effect estimation, and random effect) and a post estimation test were used to examine the compiled data.

#### 3.2 Research Model

The model of the study stated below was based on the functional relationship between standard cost and financial performance of food and beverage companies in Nigeria.

$$PAT = \beta_0 + a_1 CRM + a_2 LC + a_3 MOC + \mu$$

Where:

PAT=Profit after tax, CRM= Cost of Raw Material, LC= Labour cost, MOC= Manufacturing Overhead cost.

$\beta_0$  = Constant,  $a_1$ ,  $a_2$ ,  $a_3$ = Slope Coefficient, **YEAR**= Dummy variable of the time under study,

$\mu$  = Error Term.

#### 4.0 Results and Discussions

To access the effect of standard cost on the performance of food and beverage companies in Nigeria this section begins descriptive statistics; this is followed by the panel unit root test. The outcomes of these tests are reported as:

#### 4.1 Descriptive Statistics

**Table 4.1: Descriptive Statistics of Variables**

	PAT	CRM	LC	MOC
Mean	32.93650	36.58734	8.174154	18.27168
Median	6.023219	16.42504	4.303950	6.358556
Maximum	193.3743	128.8573	35.60231	77.69529
Minimum	-5.966995	0.010813	0.300209	0.208826
Std. Dev.	49.95346	39.21662	9.105524	21.00351
Skewness	1.834303	0.878837	1.468892	1.268545
Kurtosis	5.449464	2.509705	3.791088	3.447084
Jarque-Bera	44.59251	7.630807	21.21256	15.20913
Probability	0.000000	0.022029	0.000025	0.000498
Sum	1811.507	2012.303	449.5785	1004.942
Sum Sq. Dev.	134748.8	83048.96	4477.170	23821.96
Observations	55	55	55	55

**Source: Author's Computation with E-views, Version 9 (2022)**

Table 4.1 displays descriptive data for the factors used to examine the effectiveness of standard cost and food and beverage companies. Profit after taxes, raw materials, labor, and manufacturing overhead averaged 32.93650, 0.010813, 0.300209, and 0.208826 from a low of -5.966995 and a high of 193.3743, 128.8573, 35.60231, and 77.69529. Standard deviation analysis revealed that after-tax earnings had the most dispersion of all of the variables studied, while labor expenses had the least. Conversely, all variables have a lengthy right tail because of their positive values, as demonstrated by the Skewness output. All variables except for the cost of raw materials are leptokurtic since their values are more than 3, whereas the cost of materials is platykurtic because its value is less than 3. The results of the Jarque-Bera test indicated that the variables did not follow a normal distribution.

## 4.2 Panel Unit Root

**Table 4.2: Unit Root Test (Summary)**

Variables	Panel Unit Root Test Method			
	Levin, Lin & Chu (LLC)		ADF Fisher statistics	
	LLC statistics	Integration order	ADF Fisher statistics	Integration order
PAT	-5.30625	I(1)	25.4300	I(1)
CRM	-3.93031	I(1)	25.4704	I(1)
LC	-3.91369	I(1)	17.9176	I(1)
MOC	-4.30594	I(1)	24.6703	I(1)

**Source: Author’s Computation with E-views, Version 9 (2022)**

The unit root test results utilizing LLC and ADF test statistics are shown in Table 4.2. This table shows that all of the variables used to analyze the impact of standard cost on the profitability of Nigerian food and beverage firms were stationary following their transformation to first difference, opening the door for panel estimations with pooled least square, fixed, and random effect models.

## 4.3 Correlation Analysis

**Table 4.3 Correlation Analysis**

	PAT	CRM	LC	MOC
PAT	1	0.4516	0.2364	0.5067
CRM	0.4516	1	0.8422	0.9298
LC	0.2364	0.8422	1	0.8067
MOC	0.5067	0.9298	0.8067	1

**Source: Author’s Computation with E-views, Version 9 (2022)**

Table 4.3 displayed the results of the correlation analysis performed on the study of how well food and drink firms in Nigeria performed in comparison to the norm about the cost of their products. The findings revealed a positive relationship between the price of raw materials and the success of the food and beverage

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industry (0.4516), as well as between the price of labor and the success of the food and beverage industry (0.2364 and 0.5067).

**4.4 Estimates of Parameters for Panel Regression Model**

**Table 4.4: Pooled LS (PLS) Random Effect (RE) and Fixed Effect (FE) Specification**

	Dependent Variable PAT		
Independent Var	Pooled OLS	Fixed Effects	Random Effects
Constant	14.88371* (7.778037)	66.92475*** (23.62469)	28.66118 (18.93434)
CRM	0.297830 (0.432299)	-2.199649*** (0.509065)	-1.372632*** (0.296239)
LC	-3.046184** (1.159169)	0.575963 (1.303068)	2.337029*** (0.796656)
MOC	1.753816** (0.736405)	2.286175*** (0.328958)	1.936454*** (0.273357)
No. observations	55	55	55
R-squared	0.347931	0.932374	0.576095
Adjusted R <sup>2</sup>	0.309574	0.922302	0.551159
F-statistics	9.070872	92.57162	23.10332
Prob. (F-Statistics)	0.000065	0.000000	0.000000
Dubin-Watson	0.099233	1.090744	0.842382

Note: Standard errors are provided in parentheses. \*, \*\*, \*\*\* showed the significance at 10%, 5% and 1% level respectively.

**Source: Author’s Computation with E-views, Version 9 (2022)**

This research used a panel regression analysis of pooled least square, fixed effect, and random effect model to investigate the impact of standard cost on the performance of selected food and beverage firms in Nigeria. The results of the pooled least square, fixed effect, and random effect analyses indicated that if the

costs of raw materials, labor, and manufacturing overhead were held constant, the performance of the food and beverage companies would improve by 14.88371, 66.92475, and 28.66118 units, respectively. Like the cost of raw materials, the performance of Nigerian food and beverage enterprises was negatively correlated with its price, with a fixed effect value of -2.199649 and a random effect value of -1.372632. This indicated that a one-unit increase in raw material costs would result in a 2.199649-unit and a 1.372632-unit reduction, respectively, using fixed and random effect, but it indicated a weak positive association under the pooled least squares result.

Also, whereas the pooled least square result indicates that labor cost is a negative and significant factor in explaining food and beverage company performance in Nigeria, utilizing either the fixed or random effect yields a positive result (values of 0.575963 and 2.337029, respectively). Finally, manufacturing overhead cost has a considerable and beneficial influence on the performance of food and beverage enterprises, with a value of 1.753816 units for pooled least square, 2.286175 units for fixed effect, and 1.936454 units for random effect.

It was found, using a combination of F-statistics that indicate the statistical significance of a model, that the three variables used to explain the impact of standard cost on the performance of chosen food and beverage enterprises in Nigeria are statistically significant.

#### 4.5 Hausman Test Result

**Table 4.5 Result of Hausman Test**

Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	13.722710	3	0.0033

**Source: Author's Computation with E-views, Version 9 (2022)**

From Table 4.5, the Chi-square probability value is 0.0033 which is significant; hence the fixed effect model is accepted therefore used for forecasting and prediction in this study.

#### 4.6 Discussion of Findings and Implications

The aim of this research was to determine whether or not a change in standard cost will improve the financial standing of a sample of Nigerian food and beverage manufacturers. To accomplish this, five different businesses were used between

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2010 and 2020. Based on the results of the Husman test, it was determined that the fixed effect model was superior than the alternative random effect model, and this model was used in the analysis and discussion of the results. The findings showed that the raw material cost had a negative correlation with the profitability of Nigerian food and drink producers. The negative correlation suggested that food and beverage businesses should proceed with prudence about the prices of all raw ingredients. This results contradicts the opinions expressed by Ologbenla (2021) and Raghavan (2019), among others, who argue that there is a positive and substantial association between a company's performance and the cost of raw materials.

In addition, there was a weak positive correlation between labor costs and the success of Nigeria's food and drink manufacturers. This little positive correlation is consistent with the empirical results of Raghavan's (1995) and Ologbenla's (2021) research (2019) Lastly, a favorable correlation was found between manufacturing overhead costs and the success of Nigerian factories. These findings are in line with those found by Abdullahj, Oni, Ahmeb, and Shakur (2015), as well as those found by Iliemena and Amedu (2019). Manufacturing overhead cost was supposed to be an essential role in keeping food and drink prices at a constant level.

Each independent variable (the cost of raw materials, the cost of labor, and the cost of manufacturing overhead) was found to be a significant predictor of the performance of food and beverage companies in Nigeria, as indicated by the joint predictor of the whole model given by the F-statistics value. In a similar vein, R<sup>2</sup>'s multiple determination coefficient indicated a value of 0.932374, while its adjusted value was 0.922302. When all of the independent variables are considered together, they explain about 93% of the variance in the performance of food and beverage companies in Nigeria. In the same vein, labor cost is negative and significant in explaining performance of food and beverage companies in Nigeria under the pooled least square result with a value of 3.046184 units, but positive when using either the fixed or random effect. Finally, manufacturing overhead cost has a considerable and beneficial influence on the performance of food and beverage enterprises, with a value of 1.753816 units for pooled least square, 2.286175 units for fixed effect, and 1.936454 units for random effect.

It was found, using a combination of F-statistics that indicate the statistical significance of a model, that the three variables used to explain the impact of standard cost on the performance of chosen food and beverage enterprises in Nigeria are statistically significant..

## **5.0 Conclusion and Recommendations**

Standard cost's impact on the profitability of Nigeria's food and drink industry was analyzed in this research. This was done using a panel analysis using a pooled least squares result, fixed effect, and random effect models. The results of the Hausman test indicated that the fixed effect model yielded the most accurate findings. According to the findings, the manufacturing overhead cost was positively correlated with the performance of Nigerian food and beverage enterprises, whereas the cost of raw materials was significantly inversely correlated. The research indicated that careful consideration of raw material costs and the maintenance of effective standard costing across all labor costs were necessary to obtain the desired results. All food and beverage firms in Nigeria were urged to use the study's suggested procedures and standard costing principles in order to cut down on wasteful labor and raw material costs and to improve the firms' ability to make sound decisions.

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