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# **Effect of Information and Communication Technology (ICT) on Financial Performance of Listed Consumer Goods Firms in Nigeria**

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## ***Abstract***

*The impact of Information and Communication Technology (ICT) on firm performance has become the subject of active research in the last four decades. This study's goal is to review the effect of ICT on the financial performance of firms in the consumer goods sector as measured by their Return on Capital Employed (ROCE) with firm size added as a control variable. For a period of ten (10) years, from 2013 to 2022, the study used thirteen (13) listed consumer goods companies in Nigeria. An ex-post facto research approach was used, and secondary data were gathered from the companies' annual reports for the period under review. EViews version 12 was used to do correlation and regression analysis. The findings show that Funding for ICT Hardware (FICTH) and Funding for ICT Software (FICTS) have a negative and insignificant effect on the financial performance of listed consumer goods firms in Nigeria. The study suggests that stakeholders, especially managers in the consumer goods sector should always review all options carefully before venturing into any procurement of additional computer hardware or software bearing in mind the negative impact of their ROCE.*

Keywords: Information and Communication Technology (ICT), Return on Capital Employed,

## **INTRODUCTION**

Today's business world is faced with diverse challenges because of the ever-changing economic variables influencing every business decision and action taken by managers and business operators. Mahboub (2018) citing Talegeta, (2014) maintains that today's business environment is extremely vigorous and enormous and encounters quick changes because of creativity, universal competition, rapid dissemination of knowledge, continual technological advancement, innovation, increased consciousness, and demands from customers. Amid all these challenges facing the business world, (consumer goods firms inclusive), Jun et al (2010) citing Kim et al (2009) record that investing in information technology is widely regarded as having enormous potential for reducing costs and gaining competitive advantage. This study aligns with Ju et al (2010) opinion which suggests that there has been increasing debate on whether investments in information technology are paying off in increased productivity. A good number of past research ICT

investments came out with results showing that investments in ICT have positive effects on firm performance. However, some results have shown otherwise.

In the Nigeria manufacturing sector with an emphasis on the consumer goods firms, so much potential is linked to the sector for the transformation of Nigeria's growing economy. The sector will do well to help re-write the control Nigerian story of a mono-economy largely dependent on oil. To do this, investment in ICT is one area of interest that the firms are attempting to take on board.

Enomate and Audu (2022) citing Standish Group (2006), opine that Information and Communication Technology refers to a wide range of computerized technologies that enable communication and the electronic capturing, processing, and transmission of information, enabling industries to develop and maintain a competitive edge in the global market to practice its services to rejuvenate the innovative trends. In line with this definition, ICT can be said to mean a technically guided connection of technological tools and resources capable of transmitting, producing, storing, sorting and sharing information amongst desired users.

### **Statement of the Problem**

There has been a debate as to whether investment in information and Communication Technology provides an opportunity to enhance the financial performance of organizations. Some of the previous researchers have continued to review what ICT investment brings to bear on a company's financial performance. There are some whose views are that investment in ICT boosts a firm financial status. Some also argue that investment in ICT does not affect the financial performance of the companies.

Akinboade (2020) confirmed that the use of ICT brought about a significant increase in revenue turnover, profit before tax, profit after tax, and net asset/shareholders' fund of the listed manufacturing firms in Nigeria. Enomate and Audu (2022) found that investment in Information and Communication Technology (ICT) infrastructure has a positive effect on the financial performance of listed non-financial firms in Nigeria. But Okonkwo et al (2015) found that investments in e-banking services and ATMs do not improve banks' performance. While Muhammad et al (2018) found that the ICT investment effect on firm performance was more significant among countries with high levels of internet use, access to finance, and innovative capacity. Adekunle and Rafiu (2014) found that the use of ICT increases the Return on Capital Employed (ROCE) as well as the Return on Assets (ROA) of the South African banking industry. Judith and Patrick (2016) also found that bank innovations have a positive effect on the financial performance of commercial banks in Kenya. But Malhotrab and Singh, (2009) contend that investment in ICT does not bring about improved financial management.

Amidst the ongoing arguments for and against the essence of ICT investments by corporate bodies, it should be noted that today's world is going digital in almost all areas of our business lives. Companies that pay no attention to this trend may wake up realizing that its modus operandi are obsolete and out of sync. For example: the world is witnessing the use of robotics and Artificial

Intelligence to run certain business activities and reports are showing huge progress. Firms have great opportunities to utilize information and communication technology apparatus in enhancing their business operations. Observations have been made around little attention being paid to retained earnings which are key item in shareholders' equity.

Past studies on the effect of Information and Communication Technology on companies' performance have found divergent results leading to different conclusions on the same topic. For example, Akinboade (2020) concluded that investment in ICT had a positive relationship with financial management and Al-Qudah (2019) looked the existing relationship between ICT and Jordanian industrial firms' financial performance and concluded that there was a positive relationship between the Jordanian industrial firms' financial performance and the investment in ICT But Willy and Obinne, (2013); Malhotrab and Singh, (2009) contend that investment in ICT does not bring about improved financial management.

Based on above arguments and submissions, this paper reviews the effect of ICT on financial performance of companies in Nigeria using listed companies in the Consumer Goods sector.

### **Objectives of the Study**

The main objective of this study is centered on review of the effect of Information and Communication Technology (ICT) on the financial performance of listed consumer goods firms in Nigeria.

The specific objectives of the study are as follows:

1. Determine the effect of Funding for ICT Hardware (FICTH), on the Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria.
2. Determine the effect of Funding for ICT Software (FICTS), on the Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria.

### **Research Questions**

1. How does Funding for ICT Hardware (FICTH), affect the Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria?
2. What is the effect of Funding for ICT Software (FICTS), on Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria?

### **Statement of Hypothesis**

**Ho1** – There is no significant relationship between Funding for ICT Hardware (FICTH), and Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria.

**Ho2** – There is no significant relationship between Funding for ICT Hardware (FICTS) and Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria.

### **Scope of the Study**

The study covers a period of ten years (2013-2022) and thirteen (13) firms in Nigeria's consumer goods industry listed on the Nigeria Exchange Group as of January 1, 2013, and still have their

shares active on the floor of the exchange as of December 31, 2022, were reviewed. The companies include Cadbury Nigeria Plc, Champion Brew Plc, Dangote Sugar Refinery Plc, Flour Mills Nig Plc, Vitafoam Nig Plc, Guinness Nig Plc, Honeywell Flour Mill Plc, International Breweries Plc, N Nig, Flour Mill Plc, Nascon Allied Industries Plc, Nestle Nigeria Plc, Nigerian Brew Plc and Unilever Nigeria Plc, within the Nigeria Consumer Goods Industry. The period selected and the companies used were based on the availability of data.

## **REVIEW OF RELATED LITERATURE**

### **Conceptual Framework**

#### **Overview of Information and Communication Technology**

This section is dedicated to the review of related literature. The review is to consider other researchers' observations and views on the effect of Information and Communication Technology on the Financial Performance of listed consumer goods firms in Nigeria.

According to Shokeen et al 2022 defined Information and Communication Technology as technologies that provide access to information through telecommunication. In line with this definition, Information and Communication Technology could be broken down into activities that involve gathering, processing/analyzing, storing/managing, and presenting/reporting data. In the words of Yasuharu, (2003), Information Technology is the automation of processes, controls, and information production using communication and telecommunications, software, and ancillary equipment.

ICT products in Nigeria's consumer goods sector include internet facilities, e-mail and instant messaging, and video conferencing facilities to interact with employees, customers, and other stakeholders. Others may include telecommunication products (e.g. telephones of all categories, modems, and electronic cables), information kiosks and transaction machines, World Wide Web sites, Multimedia, office equipment (e.g. copiers, laptops, desktops, fax machines, and robots)

#### **The Concept of Firm Performance**

In business, the analysis of performance whether financial, production, marketing (even managerial), or general activity is very necessary because the outcome of the very present decision lies in the projection of the future, (Sirajo *et al* 2018). Meanwhile, the analysis begins with a reflection of the past, articulation of the present happenings, and design of future expectations. Sirajo et al (2018) also opine that the concept of performance reaches out to operations within and without an organization. They maintain that amidst divergent opinions on how performance could be measured, researchers have not bothered to proffer a concise definition of the term performance. Uboh (2005) in Sirajo et al. (2018) explained that performance can be grouped into two basic types; those that relate to results, output, or outcomes such as competitiveness, and profit and those that focus on determinants of results such as prices or products. Citing Curristine (2005) in Ilesanmi (2011), Sirajo (2018) defined performance as the yield or result of activities carried out for the purposes being pursued. Also, Dauda (2010), highlighted that an organization's performance is determined by the demand for its products and services.

According to Mutende, et al (2017), financial performance refers to a firm's ability to achieve planned financial results as measured against its intended outputs. This can also mean a measure of a firm's efficiency in using its assets to generate revenue through its operational activities. In line with the thoughts of Dsunday and Ejabu (2020), financial performance is said to be a term that is used to measure the financial health and growth of a firm over a period. In summary, looking at the foregoing explanations and definitions, it follows that a firm's performance is the extent to which it has met or is meeting its set objectives. This also means the measure of an organization's efforts towards keeping to its vision and mission. For this study, financial performance is measured using Return on Capital Employed (ROCE).

### **Computer Hardware and Software**

The two proxies used for Information and Communication Technology in this study are funding for Computer Hardware and funding for Computer Software. What are these two nomenclatures? - Computer Hardware and Computer Software. Computer hardware is the physical component that a computer system requires to function. It includes all parts with a circuit board that operates within a computer (PC or Laptop, including the motherboard, graphics card, Central Processing Unit, ventilation fans, webcam, power supply, etc. Computers cannot function without both hardware and software working together. However, it is the hardware that determines the speed of the system.

Computer software on the other hand stands for a collection of instructions that enable the user to interact with a computer, its hardware, or perform a task. Examples of computer software include application software, utility software, and system software. The investment in computer hardware and software in the consumer goods sector has been empirically analyzed in this study to establish how they affect the financial performance of the firms.

### **Firm Size**

in the present world's trend, due to economies of scale, size of a firm plays very important role in measuring with competitors through the cost reduction and take and hold more opportunities. Further based on this concept the firm's size is a factor in determining the firm's profitability and past studies reveal a positive association between size and firm's profitability. Akinyomi and Olagunju (2013) in their own submission posited that firm size has been recognized as an essential variable in explaining organizational profitability and several studies have tried to explore the effect of firm size on profitability. Jasch (2013) also submitted that big firms could have more profit since they have a bigger market share. So based on these situations, the big-sized firms work in more profitable ways with less competition. In corporate finance, empirical researchers also consider firm size an important and fundamental firm characteristic and observe the "size effect" - firm size matters in determining the dependent variables in many situations. In line with the above thoughts, firm size is adopted as control variable for this study.

### **Return on Capital Employed (ROCE)**

Return on Capital Employed is a financial profitability measure of the efficiency of a firm's deployment of its capital to generate sustainable, long-term profits. This ratio substantiates the strategic efforts of a firm's management since it is supported by sufficient returns. When a

company's ROCE is high it shows the firm is better off since the firm is likely to generate long-term profits. Higher ROCE implies that the capital employment strategies of a company are more efficient. A lower ROCE indicates unproductive spending of the firm's capital or to say the least, it indicates wastage. The average ROCE will vary by industry; therefore, it is advisable to ensure that comparisons are done among peer groups before a computed ROCE is said to be good or bad.

According to Lambe (2023), the ROCE formula can be given as follows:

**Return on Capital Employed (ROCE) = PIBT ÷ Capital Employed**

Where:

PIBT = Profit before Interest and Tax

Capital Employed= Total Assets less Current Liabilities less Deferred Tax

OR

Shareholders' Equity plus non-current liabilities less Deferred Tax

### **Empirical Review**

One of the studies in the past considered very close to the current was carried out by Akinboade, (2020) which reviewed the Impact of ICT usage on the financial performance of quoted manufacturing companies in Lagos state Nigeria. The study made use of both primary and secondary data. The primary data in the study were collected through interviews and questionnaires while the secondary data for 10 years was retrieved from published reports of the selected companies. The study applied Person Correction, Paired Sample T-Test, and Linear Regression Analysis while the current study has applied EViews for the statistical analysis. The findings of the study showed that listed manufacturing companies in Lagos deployed ICT to different departments in their firms and the usage varied. The study also found through the analysis of the primary data that investment in ICT had a positive relationship with financial performance. Also established by Akinboade (2020) was the fact that the use of ICT brought about a significant increase in revenue turnover, profit before tax, profit after tax, and net asset/shareholders' fund of the listed manufacturing firms. The current study did not make use of primary data rather it applied only secondary data extracted from the annual financial statements of the listed firms.

Enomate and Audu (2022) reviewed the Effect of Information and Communication Technology on the Financial Performance of Listed Non-Financial Firms in Nigeria. The study was underpinned by the resource-based theory which is also the anchor theory for the current study. The study made use of data from twenty (20) non-financial service companies drawn from different sectors listed on the Nigeria Stock Exchange from 2016-2020. The statistical analysis conducted used both descriptive and inferential approaches. The study found that investment in Information and Communication Technology (ICT) infrastructure has a positive effect on the financial performance of listed non-financial firms in Nigeria. It also found that investment in ICT personnel has a positive but insignificant effect on the financial performance of the listed non-financial firms in Nigeria. The current study differs in the following areas: it is focused on the consumer goods sector as against the work of Enomate and Audu (2022) which selected firms from different sectors. Secondly, the current study used Funding of ICT hardware and Funding of ICT Software as the proxies for ICT as against the ICT Infrastructure and ICT Personnel used as ICT proxies in the study under review.

Okonkwo et al (2015) reviewed the Effect of Information Communication Technology and Financial Innovation on Performance on Nigerian Commercial Banks. The study sampled eleven (11) commercial banks and used secondary data from the bank's annual reports and Central Bank of Nigeria's facts book. The period reviewed covered 2001-2013. Ordinary Least Square (OLS) was used to analyze the data and the result showed that investments in e-banking services and ATM do not really improve banks' performance. The study recommended that more emphasis should be on corporate governance and policies that will increase proper and efficient utilization of financial innovation gadgets rather than simply acquiring additional investments. The difference between the study and the current includes the fact that banking sector was the focused population while the current study is focused on consumer goods sector. Secondly, the period is now in the very past while the current study reviewed recent period 2013-2022. The differences notwithstanding the conclusion of the study has so much in common with the current studies finding on the negative but significant impact of funding for computer hardware in the consumer goods sector.

Muhammad et al (2018) studied the association between ICT investment, corporate governance, and firm performance. The study used data from 62,199 five-year observations from 42 countries from 1998-2014. The finding using Ordinary Least Square Regression analysis showed that investment in ICT is associated with higher firm performance (ROA) when moderated by either board independence or foreign ownership. The study also found that the ICT investment effect on firm performance was more significant among countries with high levels of internet use, access to finance, and innovative capacity. The was not specific to any sector or any country but the current study has zeroed down on the listed consumer goods companies in Nigeria. The study used Ordinary Least Square Regression analysis, but the current study applied EViews 12. The current study has also looked at a period that is more current 2013-2022.

Adekunle and Rafiu (2014) studied the contribution of Information and Communication Technology (ICT) to the performance of the South African banking industry. The study used data over the period 1990-2012 sourced from Bank Scope- a World Banking information source. The data in that study were analyzed using the orthogonal transformation approach and a robustness test affirmed by residual co-integration analysis using the Pedroni and Kao methods. The study found that the use of ICT increases the Return on Capital Employed (ROCE) as well as the Return on Assets (ROA) of the South African banking industry. The current study is conducted in a different country, Nigeria, and in a different sector, the consumer goods sector. The period reviewed under the study 1990-2012 is now a long time in the past, hence the current study has provided a review of the recent period i.e., 2013-2022. There is also a difference in the tool used for analysis in the current study, while Adekunle and Rafiu (2014) used an orthogonal transformation approach, the current study has applied one of the latest EViews in its analysis.

Judith and Patrick (2016) reviewed the Influence of Innovations on The Performance of Commercial Banks in Nkuru Central Business District, Kenya. The study identified 45 employees of 9 commercial banks that use mobile banking, agent banking, internet banking, and banc assurance in Nkuru district in Kenya. Primary data was obtained through a questionnaire while secondary data was obtained from the Central Bank of Kenya and banking survey manuals.



Multiple regression analyses were carried out on the data using SPSS 21 and the results showed that bank innovations have a positive effect on the financial performance of the commercial banks in Kenya. The study also concluded that the Kenyan authorities should make provisions for incentives for R&D for scientists to continue looking into more skills in discovering more banking innovations. The current study considered a different sector in a different country Nigeria and used only secondary data for analysis. While the researcher under review applied SPSS, the current study was analyzed using EViews 12. Judith and Patrick (2016) considered general innovations in the banking sector which is a combination of Information and communication technology and other ideas that help in improving the banking services why the current study is centralized on the effect of ICT hardware and software in the consumer goods sector in Nigeria. The meeting point between the two studies is that the effects of ICT and or ICT/Innovations on the financial performance of companies have been empirically measured. The current study is also an updated review since it has looked at the effect of ICT on form performance within a recent period 2013-2022.

### **Theoretical Framework**

This study on the effect of ICT on the performance of consumer goods firms in Nigeria is anchored resource-based theory popularized by Barney (1991). The theory demonstrates that companies compete with their peers based on peculiar corporate resources that are valuable and difficult to substitute with other resources.

### **Resource-Based Theory**

To review the existing relationship between ICT investments and firm financial performance, scholars have argued in favor of the complementary nature of IT and organizational processes using the resource-based theory of the firm, (Fatima 2015). In the words of Melvine, (2004); and Wade & Halland (2004) as cited by Fatima (2015), the theory came from is suitable for measuring the effect of ICT investments. The theory demonstrates a firm's ability to compete favorably for a long time relying on the mix of its resources that are 'non-imitable, economically valuable, and scarce (Liang *et al*, 2010).

### **Roger Diffusion of Innovation Theory**

Roger's Theory of Diffusion of Innovations (RDOL) is one of the widely popular theories used in several theoretical frameworks. The theory explains how, why, and at what rate new technologically driven innovations and ideas are disseminated. A Professor of communication Everett Roger also helped to popularize the theory in his book *The Diffusion of Innovation* in 1962. As opined by Roger (2003), five main factors influence the dissemination of a new idea: the innovation itself, the adopters, the channels of communication, time, and the social system. This theory maintains that diffusion is the actual delivery or dissemination of news about an innovation to the desired group. This means diffusion of innovation entails the act of people adopting new ideas, products, practices, ways of thinking, etc. To further elucidate how this theory works, Rogers the following characteristics as the determinants of users' choices of action towards innovation: traceability, comparative advantage, comparability, and complexity, according to Rogers, these constitute 49 to 87 % of the variations in adoption across all users of any new technology.

## **Methodology**

### **Research Design**

The study adopted an ex-post-facto research design. The area of study was all listed consumer goods firms in the Nigeria Stock Exchange Group 2022.

### **Sources of Data**

Time series data (2013-2022) was extracted from the annual reports of the selected listed Consumer Goods firms. Data on ICT expenditures and financial performance variables such as Computer Hardware (CH), Computer Software(CS), Return on Capital Employed(ROCE), and Total Assets(Firm Size), were extricated from the books of thirteen listed consumer goods companies namely: Cadbury Nigeria Plc, Champion Brew Plc, Dangote Sugar Refinery Plc, Flour Mills Nig Plc, Vitafoam Nig Plc, Guinness Nig Plc, Honeywell Flour Mill Plc, International Breweries Plc, N Nig, Flour Mill Plc, Nascon Allied Industries Plc, Nestle Nigeria Plc, Nigerian Brew Plc and Unilever Nigeria Plc. Historical information about the selected companies was gathered from the Nigeria Stock Exchange Group website covering the period 2013 to 2022. The consumer goods sector of Nigeria as of December 2022 had only twenty-one (21) listed firms.

### **Population of the study**

The Nigeria Consumer Goods industry has a population of 21 companies listed on the Nigeria Sock Exchange Group as of December 31, 2022. The study relied on the availability of required data to sample the companies that were reviewed to determine the effect of Information and Communication Technology (ICT) on financial performance.

### **Definition of variables**

<b>S/N</b>	<b>PROXY</b>	<b>TYPE</b>	<b>ACRONYM</b>	<b>MEASUREMENT</b>	<b>SOURCE</b>
1	Return on Capital Employed	Dependent Variable	ROCE	Measured by dividing PBIT (profit before interest and tax) by Capital Employed	Lambe (2023),
2	Funding for ICT	Independent Variable	FICTH	Total annual spending on Computer Hardware. Picked	

	Hardware (FICTH),			from annual financial reports of the firms	Gideon A. M., (2016).
3	Funding for ICT Software (FICTS) from	Independent Variable	FICTS	Total annual spending on Computer Software. Picked from annual financial reports of the firms	Enomate and Audu (2022)
4	Firm Size	Control Variable	FSZ	The natural log of Total Assets of the companies	Saona and Martin (2016) Aggarwal and Padhan (2017)

**Model applied used.**

The panel data regression analysis model of Asuquo et al (2018) is adjusted to determine the relationship between Information and Communication Technology (ICT) and financial performance based on the use of Funding for ICT Hardware, Funding for ICT Software, and Return on Capital Employed (ROCE) proxies. The regression model for the empirical analysis is therefore expressed as:

$$ROCE_{it} = \beta_0 + \beta_1 FICTH_{it} + \beta_2 FICTS_{it} + \beta_3 FSZ_{it} + \epsilon_{it} \dots \dots \dots (i)$$

**Where:**

- ROCE = Return on Capital Employed
- FICTH = Funding for ICT Hardware
- FICTS = Funding for ICT Software
- FSZ = Total Asset (Firm size)
- $\beta_0$  = Constant
- $\epsilon$  = Stochastic error term
- I = Number of firms
- T = Time period

The apriori expectation is that all explanatory variables, excluding those with a negative relationship, are positively connected to the dependent variable.

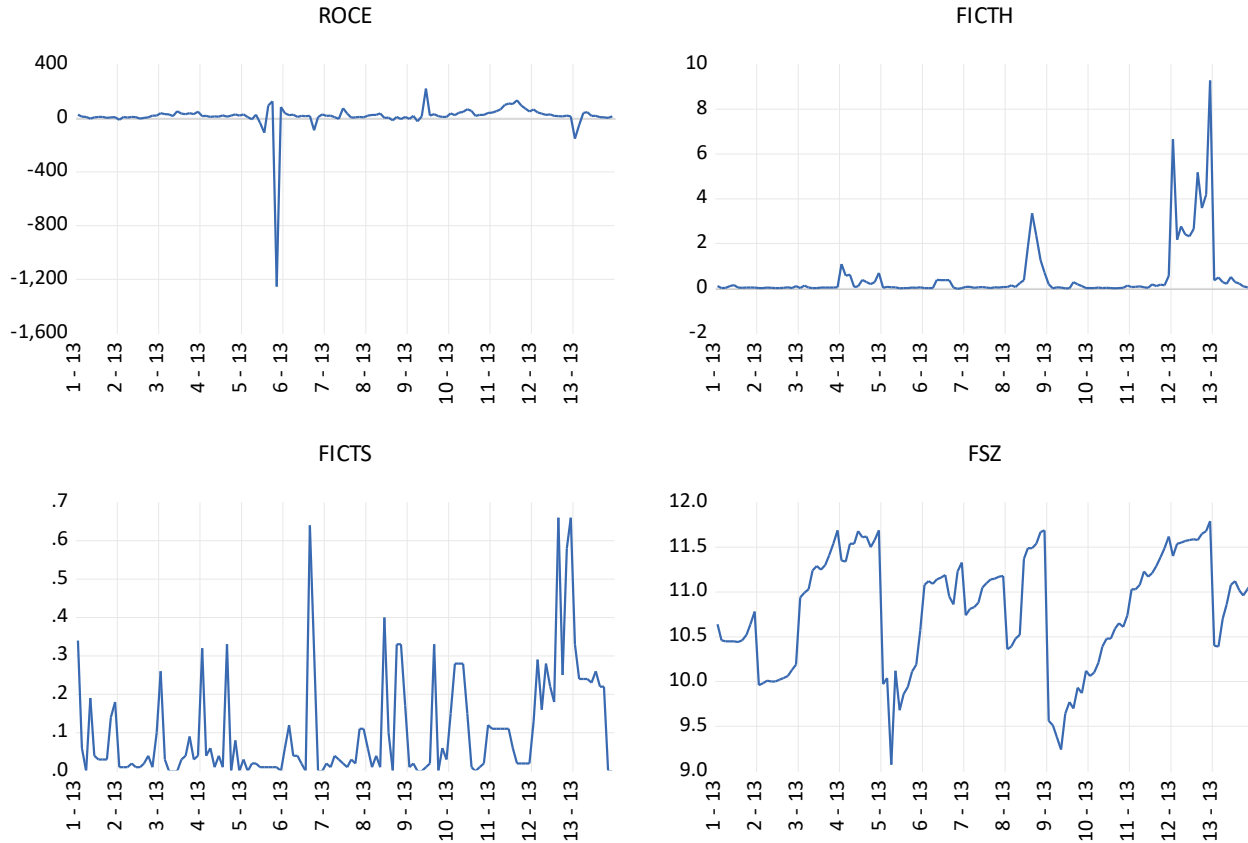
**Decision Criteria**

The null hypothesis (Ho) will not be rejected if the computed value falls within the critical positive value of the distribution table for whichever degree of freedom will be computed with a 5% (0.05) level of significance. Otherwise, reject the null hypothesis.

**RESULTS AND DISCUSSION**

**Graphical representation of the variables.**

**Fig 1 Graphs of Return on Capital Employed (ROCE), Funding of ICT Hardware (FICTH), Funding of ICT Software (FICTS) and Firm Size (FSZ),**



Sourced by the Researcher (2024) from Annual Reports of the Firms- 2013-2022

**Interpretation of the graphs**

Fig 4.1 shows that the Return on Capital Employed (ROCE) of the firms remained on the positive side until it went negative for VITAFOAM NIG in 2022. The graph also shows how the ROCE of N NIG. FLOUR MILLS PLC surpassed the previous values as recorded in 2017.

The figure also shows that funding for ICT hardware (FICTH) was relatively stable or consistent across the firms. The FICTH had peak moments in the year 2022 for the firms in numbers 12 & 13(i.e. Nigeria Breweries Plc and Unilever Nigeria Plc).

Furthermore, the graph shows the unstable Funding for ICT software. The funding for ICT software can be said to be more irregular than that of ICT Hardware. Huge differences in funding for ICT Software are glaring on the graph.

The graph typically presents the flow of the spending on ICT Hardware and Software across the firms over the 10 years considered in the study.

From the graph, values for Firm Size (FSZ) show clear stability and similarities in the attention given to assets by the firms. As can be seen, the values largely stayed close to each other and did not vary as much as the funding for ICT Software.

In general terms, the figure has demonstrated graphically the different values of spending on ICT per firm per period as considered in the study.

### Descriptive Statistics

Descriptive statistics give a presentation of the mean, median, maximum, and minimum values of variables applied together with their standard deviations obtainable. The table below shows the descriptive statistics for the variables applied in the study. An analysis of all variables was obtained using the E-view 12 software for the period under review.

**Table 1: Descriptive Statistics Result**

	ROCE	FICTH	FICTS	FSZ
Mean	13.12867	0.491308	0.105769	10.79785
Median	17.42285	0.045000	0.040000	10.95500
Maximum	220.5811	9.290000	0.660000	11.79000
Minimum	-1254.047	-0.020000	0.000000	9.070000
Std. Dev.	118.8375	1.288252	0.141623	0.647510
Skewness	-9.392016	4.231404	1.942689	-0.460012
Kurtosis	101.1408	23.73517	7.017578	2.266446
Jarque-Bera	54082.52	2716.818	169.2009	7.499619
Probability	0.000000	0.000000	0.000000	0.023522
Sum	1706.727	63.87000	13.75000	1403.720
Sum Sq. Dev.	1821782.	214.0877	2.587373	54.08580
Observations	130	130	130	130

### E-VIEW 12 OUTPUT (2024)

Table 4.1 presents the descriptive statistics of the effect of ICT on the Financial Performance of Listed Consumer goods companies in Nigeria from 2013 to 2022. The table shows that Return on Capital Employed (ROCE) as a measure of financial performance has a mean of 13.12867 with a standard deviation of 118.8375, a minimum value of -1254.047, and a maximum value of 220.5811. For the other measures of ICT, Funding for ICT Hardware (FICTH), and the Funding for ICT Software (FICTS) from the table show mean values of 0.491308 and 0.105769 with standard deviations of 1.288252 and 0.141623 with minimum values of -0.020000 and 0.000000 with maximum values of 9.290000 and 0.660000 respectively. The mean measures the average value of the series. It is obtained by adding up the values of the series in the current sample and dividing by the number of observations. Maximum and Minimum values represent the largest and the smallest values of the variables under consideration. The Standard Deviation is a measure of dispersion in the series through the higher(lower)deviation from its mean. Skewness measures the asymmetry of the distribution of the series around its meaning. A positive skewness means that the distribution has a long right tail while a negative skewness has a long-left tail. The skewness

of the normal distribution is zero. The kurtosis value measures the peakness and flatness of the distribution of the series. For kurtosis, the normal distribution is 3. But if it exceeds this value, the distribution is assumed to be peaked (Leptokurtic) relative to the normal and if the Kurtosis value is less than 3, it means the distribution of the variable is flat (platykurtic) relative to the normal. Jarque-Bera is a test statistic for normal distribution. The null hypothesis for the test is that the series is normally distributed.

There are three (3) categories of statistical significance in econometrics namely 1% (0.01), 5% (0.05), and 10%(0.10). The level selected for the study is 5%. Therefore, if the computed probability value for the test is greater than 5%, we do not reject the null hypothesis or otherwise reject it.

## Table 2: Pooled Regression Analysis Results

Dependent Variable: ROCE

Method: Panel Least Squares

Date: 03/21/24 Time: 23:55

Sample: 2013 2022

Periods included: 10

Cross-sections included: 13

Total panel (balanced) observations: 130

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-246.9386	190.4801	-1.296401	0.1972
FICTH	-1.919258	10.28252	-0.186652	0.8522
FICTS	-15.37158	89.55561	-0.171643	0.8640
FSZ	24.32300	17.82317	1.364684	0.1748
Root MSE	117.4832	R-squared		0.015085
Mean dependent var	13.12867	Adjusted R-squared		-0.008365
S.D. dependent var	118.8375	S.E. of regression		119.3335
Akaike info criterion	12.43201	Sum squared resid		1794300.
Schwarz criterion	12.52024	Log likelihood		-804.0804
Hannan-Quinn criter.	12.46786	F-statistic		0.643292
Durbin-Watson stat	2.378284	Prob(F-statistic)		0.588581

### E-VIEW 12 OUTPUT (2024)

#### Interpretation of Regression Results:

The probability value is used to determine the significance level of each regressor in the model. If the P value is less than 0.05 for example, it implies that the regressor in question is statistically significant at the 5% level; otherwise, it is not significant at that level.

Based on the probability values, the relationships between ROCE and the three variables-FICTH, FICTS, and FSZ are not statistically significant. Since the regressors in the model are in percentages, therefore, a 1% increase in FICTH leads to a reduction in ROCE by -1.919258bn on average. Also, a 1% increase in FICTS leads to a reduction ROCE by -15.37158bn on average. Although, the effect of FSZ is not also statistically significant, its increase by 1% has the potential effect of increasing ROCE by 24.32300bn.

**Table 3 Breusch-Pagan (BP test)**

BP test is carried out to know if Fixed Effect/Random Effect (FEM/REM) would be the appropriate choice or POLS.

Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided

(all others) alternatives

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	0.020050 (0.8874)	0.011874 (0.9132)	0.031924 (0.8582)
Honda	-0.141599 (0.5563)	0.108969 (0.4566)	-0.023073 (0.5092)
King-Wu	-0.141599 (0.5563)	0.108969 (0.4566)	-0.010326 (0.5041)
Standardized Honda	0.379344 (0.3522)	0.324529 (0.3728)	-3.452184 (0.9997)
Standardized King-Wu	0.379344 (0.3522)	0.324529 (0.3728)	-3.406457 (0.9997)
Gourieroux, et al.	--	--	0.011874 (0.7051)

**E-VIEW 12 OUTPUT (2024)**

**Decision:** POLS is selected

Based on the probability value of the Breusch-Pagan Lan Granger Multiplier Test at 0.8582, the null hypothesis is accepted.

### Test of Research Hypotheses

**Ho1** – There is no significant relationship between Funding for ICT Hardware (FICTH) and Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria.

**Ho2** – There is no significant relationship between Funding for ICT Hardware (FICTS) and Return on Capital Employed (ROCE) of listed Consumer Goods companies in Nigeria.

### Table 4 Fixed Effect Results

Dependent Variable: ROCE

Method: Panel Least Squares

Date: 03/22/24 Time: 00:06

Sample: 2013 2022

Periods included: 10

Cross-sections included: 13

Total panel (balanced) observations: 130

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	171.0218	466.5614	0.366558	0.7146
FICTH	0.387671	16.12770	0.024038	0.9809
FICTS	-39.28706	96.92262	-0.405345	0.6860
FSZ	-14.25545	43.30641	-0.329177	0.7426

#### Effects Specification

Cross-section fixed (dummy variables)

Root MSE	111.3644	R-squared	0.115008
Mean dependent var	13.12867	Adjusted R-squared	-0.001439
S.D. dependent var	118.8375	S.E. of regression	118.9229
Akaike info criterion	12.50965	Sum squared resid	1612263.
Schwarz criterion	12.86257	Log likelihood	-797.1270
Hannan-Quinn criter.	12.65305	F-statistic	0.987646
Durbin-Watson stat	2.677861	Prob(F-statistic)	0.472880

### Table 5 Random Effect Regression

Dependent Variable: ROCE

Method: Panel EGLS (Cross-section random effects)

Date: 03/22/24 Time: 00:06

Sample: 2013 2022



Periods included: 10  
 Cross-sections included: 13  
 Total panel (balanced) observations: 130  
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-228.6122	210.6781	-1.085126	0.2799
FICTH	-1.524570	10.94007	-0.139357	0.8894
FICTS	-18.80436	90.76877	-0.207168	0.8362
FSZ	22.64145	19.69042	1.149871	0.2524

Effects Specification		S.D.	Rho
Cross-section random		20.65503	0.0293
Idiosyncratic random		118.9229	0.9707

Weighted Statistics			
Root MSE	116.1820	R-squared	0.010940
Mean dependent var	11.50725	Adjusted R-squared	-0.012609
S.D. dependent var	117.2747	S.E. of regression	118.0117
Sum squared resid	1754772.	F-statistic	0.464583
Durbin-Watson stat	2.432879	Prob(F-statistic)	0.707511

Unweighted Statistics			
R-squared	0.014995	Mean dependent var	13.12867
Sum squared resid	1794464.	Durbin-Watson stat	2.379067

**Table 6 Hausman Effect test**

Correlated Random Effects - Hausman Test  
 Equation: Untitled  
 Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.076585	3	0.7827

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FICTH	0.387671	-1.524570	140.417519	0.8718
FICTS	-39.287060	-18.804364	1155.024933	0.5467
FSZ	-14.255455	22.641445	1487.732101	0.3388

Cross-section random effects test equation:

Dependent Variable: ROCE

Method: Panel Least Squares

Date: 03/22/24 Time: 00:07

Sample: 2013 2022

Periods included: 10

Cross-sections included: 13

Total panel (balanced) observations: 130

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	171.0218	466.5614	0.366558	0.7146
FICTH	0.387671	16.12770	0.024038	0.9809
FICTS	-39.28706	96.92262	-0.405345	0.6860
FSZ	-14.25545	43.30641	-0.329177	0.7426

#### Effects Specification

Cross-section fixed (dummy variables)

Root MSE	111.3644	R-squared	0.115008
Mean dependent var	13.12867	Adjusted R-squared	-0.001439
S.D. dependent var	118.8375	S.E. of regression	118.9229
Akaike info criterion	12.50965	Sum squared resid	1612263.
Schwarz criterion	12.86257	Log likelihood	-797.1270
Hannan-Quinn criter.	12.65305	F-statistic	0.987646
Durbin-Watson stat	2.677861	Prob(F-statistic)	0.472880

#### E-VIEW 10 OUTPUT (2024)

The result of the Hausman test appended in the table above does not provide sufficient evidence to reject this null hypothesis at 5% level of significance as can be seen that the probability value (0.7827) of the test is greater than the critical value of 0.05. Therefore, the study upholds that the difference in coefficients is not systematic, and hence, the **Pooled Regression** model is the more appropriate model for the study.

### Breusch-Pagan and Lagrangian Multiplier Test

In panel data analysis, the Lagrange multiplier test is used to select between pooled and random effects models. Because the dataset was a panel, both pooled and random effects regression analyses were done. The optimum model among the pooled-effects and random-effects regression models was then determined using a Breusch-Pagan Lagrangian multiplier test. At a 5% significance level, the decision rule for the Breusch-Pagan Lagrangian multiplier test is stated thus:

**H<sub>0</sub>**: Pooled effect is not appropriate for the Panel Regression analysis.

**H<sub>1</sub>**: Random effect is most appropriate for the Panel Regression analysis.

As previously stated, if the p-value is less than 0.05 the decision rule is to reject the null hypothesis which states that pooled effect is most appropriate for the Panel Regression analysis (meaning that the preferred model is random effects). Similarly, if the p-value is greater than 0.05 the decision rule is to accept the null hypothesis which states that the pooled effect is most appropriate for the Panel Regression analysis (meaning that the random effect model is to be rejected).

#### Apply Pooled Regression analysis results. (Table 2 Above)

Dependent Variable: ROCE

Method: Panel Least Squares

Date: 03/21/24 Time: 23:55

Sample: 2013 2022

Periods included: 10

Cross-sections included: 13

Total panel (balanced) observations: 130

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-246.9386	190.4801	-1.296401	0.1972
FICTH	-1.919258	10.28252	-0.186652	0.8522
FICTS	-15.37158	89.55561	-0.171643	0.8640
FSZ	24.32300	17.82317	1.364684	0.1748
Root MSE	117.4832	R-squared		0.015085
Mean dependent var	13.12867	Adjusted R-squared		-0.008365
S.D. dependent var	118.8375	S.E. of regression		119.3335
Akaike info criterion	12.43201	Sum squared resid		1794300.
Schwarz criterion	12.52024	Log likelihood		-804.0804
Hannan-Quinn criter.	12.46786	F-statistic		0.643292
Durbin-Watson stat	2.378284	Prob(F-statistic)		0.588581

#### E-VIEW 12 OUTPUT (2024)

#### 4.2.3 Interpretation of Pooled Regression Analysis Results:

The probability value is used to determine the significance level of each variable in the model. If the P value is less than 0.05 for example, it implies that the variable in question is statistically significant at the 5% level; otherwise, it is not significant at that level.

Based on the probability values, the three independent variables FICTH, FICTS, and FSZ are not significantly related to the dependent variable, ROCE. An increase in FICTH and FICTS will lead to a reduction in ROCE by -1.919258bn and -15.37158bn respectively. Although, the effect of FSZ is not statistically significant, its increase by 1% has the potential effect of increasing ROCE by 24.32300bn

#### **4.2 Discussion of Findings**

The central objective of this is to examine the Effect of Information and Communication Technology on the financial performance of listed consumer goods firms in Nigeria. Key variables used, Funding for ICT Hardware (FICTH) and Funding for ICT Software (FICTS) were regressed on return on capital employed. The result of the study as explained above indicated that Funding for ICT Hardware (FICTH) and Funding for ICT Software (FICTS) do not have significant effects on the financial performance of listed consumer goods in Nigeria. The study agrees with the findings of Willy and Obinne, (2013); Malhotra and Singh, (2009) while on the contrary opinion disagrees with the findings of Enomate and Audu (2022) Adekunle and Rafiu (2014), Judith and Patrick (2016)

Also, it is evident from the findings that Funding for both ICT Hardware and Software (FICTH & FICTS) has both negative and insignificant effects on the financial performance of listed consumer goods companies in Nigeria. The findings of the study are summarized as follows: Funding for ICT Hardware and Funding for ICT Software have a negative and insignificant impact on the financial performance of listed firms in Nigeria.

#### **5. CONCLUSION AND RECOMMENDATIONS**

The study analyzed the effect of ICT investments on the financial performance of listed consumer industrial goods firms in Nigeria. Based on the study findings reached through the study objectives guided by the study hypotheses, the following conclusions were made; the study affirmed that funding of ICT Hardware and Software has a negative and insignificant effect on the financial performance of listed consumer goods companies in Nigeria. Based on the findings of this study, the following recommendations are made for the efficient management of listed consumer goods companies in Nigeria.

- i. From the foregoing, it has been established that investment in computer hardware and software has a negative and insignificant relationship with the firms' performance, hence it is recommended for the firms ensure efficient and prudent management and utilization of the existing hardware and software to reduce needs for more acquisition. Efficient management will help to ensure that an increase in funding of ICT hardware and software which would negatively affect the shareholders' funds is checkmated.
- ii. From the findings, there is a need to increase monitoring of the firm's ICT needs to ensure that only unavoidable ones are procured as at when due.

- iii. The firms' leadership should do well to support other areas of business growth such as good governance and dedication to duty. They should also take into consideration the need to improve the shareholders' value whenever investment decisions are taken. The managers should also ensure that any important investment opportunities to be undertaken have positive net present values by ensuring adequate use of the resources when provided.
- iv. For corporate investors, the study recommends investments in firms that do not use highly exorbitant ICT equipment and systems that negatively affect their ROCE. Where any of such should be provided in the consumer goods sector, intense reviews are recommended before spending.
- v. support recommended that the relevant regulatory bodies such as the Nigeria Information Technology and Development Agency provide the needed regulations and support to the development of IT software to make IT available in abundance and most importantly affordable.
- vi. The study suggests that stakeholders, especially managers in the consumer goods sector should always review all options carefully before venturing into any procurement of additional computer hardware or software bearing in mind the negative impact of their ROCE. It is obvious that in this present world, it would be almost impossible to effectively do business without computer hardware and soft but caution when making OCT decisions for the firms in consumer goods is recommended in this study.

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#### Appendix 1- DATA EMPLOYED FOR THE STUDY

S/N	Companies	Year	Funding for ICT Hardware (FICTH) =N=billion	Funding for ICT Software (FICTS) =N=billion	FSZ Log of Total Assets	ROCE %
1	<b>CADBURY NIGERIA PLC.</b>	2013	0.0973	0.3397	10.6352	26.7371
		2014	0.0107	0.0577	10.4597	12.1925
		2015	0.0216	0.0040	10.4536	10.3373
		2016	0.0996	0.1867	10.4532	-3.4361
		2017	0.1446	0.0386	10.4537	5.6649
		2018	0.0269	0.0349	10.4398	10.5859
		2019	0.0210	0.0313	10.4594	9.3776
		2020	0.0262	0.0253	10.5213	1.5322
		2021	0.0263	0.1441	10.6404	6.4407
		2022	0.0290	0.1773	10.7761	8.3669
2	<b>CHAMPION BREW. PLC</b>	2013	0.0117	0.0146	9.9608	-12.3398
		2014	0.0059	0.0069	9.9819	10.1352
		2015	0.0280	0.0069	10.0141	4.0271
		2016	0.0234	0.0234	9.9983	10.0687
		2017	0.0108	0.0108	10.0038	8.7622



S/N	Companies	Year	Funding for ICT Hardware (FICTH) =N=billion	Funding for ICT Software (FICTS) =N=billion	FSZ Log of Total Assets	ROCE %
		2018	0.0121	0.0121	10.0207	-2.2802
		2019	0.0225	0.0225	10.0407	3.2131
		2020	0.0406	0.0406	10.0557	5.5224
		2021	0.0069	0.0069	10.1299	18.3425
		2022	0.0957	0.0957	10.1890	19.6422
3	<b>DANGOTE SUGAR REFINERY PLC</b>	2013	0.0072	0.2569	10.9401	37.3475
		2014	0.1172	0.0325	10.9881	29.9321
		2015	0.0325	0.0003	11.0280	27.6790
		2016	0.0137	0.0013	11.2445	15.4255
		2017	0.0142	0.0026	11.2924	52.5869
		2018	0.0284	0.0341	11.2517	34.2655
		2019	0.0297	0.0366	11.2969	29.3095
		2020	0.0264	0.0902	11.4138	37.9742
		2021	0.0320	0.0320	11.5433	29.2685
		2022	0.0365	0.0365	11.6911	47.6056
4	<b>FLOUR MILLS NIG. PLC</b>	2013	1.0817	0.3170	11.3500	15.3823
		2014	0.5613	0.0414	11.3427	17.0991
		2015	0.6112	0.0638	11.5356	8.9210
		2016	0.0466	0.0130	11.5383	12.7070
		2017	0.0931	0.0425	11.6836	12.5143

S/N	Companies	Year	Funding for ICT Hardware (FICTH) =N=billion	Funding for ICT Software (FICTS) =N=billion	FSZ Log of Total Assets	ROCE %
		2018	0.3720	0.0132	11.6110	20.2903
		2019	0.2850	0.3304	11.6200	11.2942
		2020	0.1900	0.0021	11.4973	19.8206
		2021	0.2659	0.0772	11.5802	27.8139
		2022	0.6894	0.0001	11.6881	19.6459
5	<b>VITAFOAM NIG</b>	2013	0.0237	0.0340	9.9720	27.5776
		2014	0.0628	0.0047	10.0427	7.2119
		2015	0.0404	0.0216	9.0702	-9.3464
		2016	0.0393	0.0197	10.1172	26.4429
		2017	0.0033	0.0105	9.6827	-35.1556
		2018	0.0090	0.0067	9.8597	-108.5757
		2019	0.0108	0.0118	9.9377	94.8578
		2020	0.0254	0.0083	10.1149	125.8521
		2021	0.0179	0.0056	10.1858	1254.0469
		2022	0.0439	0.0046	10.5672	82.8038
6	<b>GUINNESS NIG PLC</b>	2013	0.0119	0.0642	11.0830	36.5465
		2014	0.0125	0.1238	11.1217	21.7731
		2015	0.0078	0.0357	11.0872	26.0693
		2016	0.3669	0.0426	11.1367	9.8359
		2017	0.3592	0.0155	11.1645	18.0778

S/N	Companies	Year	Funding for ICT Hardware (FICTH) =N=billion	Funding for ICT Software (FICTS) =N=billion	FSZ Log of Total Assets	ROCE %
		2018	0.3642	0.0013	11.1854	16.1015
		2019	0.3592	0.6411	10.9497	17.0066
		2020	0.0254	0.3091	10.8635	-90.1727
		2021	-	0.0021	11.2289	8.3349
		2022	0.0127	0.0003	11.3338	27.9592
7	<b>HONEYWELL FLOUR MILL PLC</b>	2013	0.0605	0.0159	10.7438	17.3722
		2014	0.0601	0.0123	10.8050	18.9263
		2015	0.0239	0.0358	10.8321	8.1866
		2016	0.0435	0.0311	10.8811	-5.7862
		2017	0.0450	0.0214	11.0537	74.5297
		2018	0.0291	0.0139	11.0963	33.9457
		2019	0.0127	0.0278	11.1382	4.1878
		2020	0.0395	0.0212	11.1531	6.5404
		2021	0.0344	0.1121	11.1685	9.4966
		2022	0.0507	0.1105	11.1757	6.8365
8	<b>INTERNATIONAL BREWERIES PLC</b>	2013	0.0460	0.0620	10.3624	19.4593
		2014	0.1263	0.0135	10.3869	23.8556
		2015	0.0472	0.0359	10.4796	24.0337
		2016	0.2317	0.0096	10.5248	34.9397

S/N	Companies	Year	Funding for ICT Hardware (FICTH) =N=billion	Funding for ICT Software (FICTS) =N=billion	FSZ Log of Total Assets	ROCE %
		2017	0.3581	0.3967	11.3658	2.0833
		2018	1.8537	0.1023	11.4918	4.1695
		2019	3.3493	0.0001	11.4918	-15.2915
		2020	2.3439	0.3274	11.5408	8.9700
		2021	1.2625	0.3321	11.6721	-7.4005
		2022	0.7136	0.1661	11.6851	9.9066
9	<b>N NIG. FLOUR MILLS PLC.</b>	2013	0.1812	0.0108	9.5591	-4.7325
		2014	0.0007	0.0203	9.5141	17.4735
		2015	0.0360	0.0010	9.3845	-22.8295
		2016	0.0270	0.0013	9.2405	13.0479
		2017	0.0015	0.0088	9.6372	220.5811
		2018	0.0003	0.0164	9.7721	18.5124
		2019	0.2850	0.3304	9.6984	29.6237
		2020	0.1835	0.0021	9.9290	16.0452
		2021	0.0974	0.0557	9.8672	9.2995
		2022	0.0113	0.0280	10.1243	9.5487
10	<b>NASCON ALLIED INDUSTRIES PLC</b>	2013	0.0072	0.1547	10.0581	35.4008
		2014	0.0103	0.2814	10.0988	22.8707
		2015	0.0280	0.2814	10.2120	40.8981
		2016	0.0077	0.2814	10.3910	46.4819

S/N	Companies	Year	Funding for ICT Hardware (FICTH) =N=billion	Funding for ICT Software (FICTS) =N=billion	FSZ Log of Total Assets	ROCE %
		2017	0.0248	0.1451	10.4789	67.6641
		2018	0.0089	0.0089	10.4810	53.1694
		2019	0.0042	0.0042	10.5874	16.7673
		2020	0.0056	0.0056	10.6465	24.9565
		2021	0.0186	0.0186	10.6077	24.3396
		2022	0.1215	0.1215	10.7445	39.5761
11	<b>NESTLE NIGERIA PLC</b>	2013	0.0504	0.1054	11.0343	40.9278
		2014	0.0611	0.1054	11.0256	52.9832
		2015	0.0876	0.1054	11.0763	64.6094
		2016	0.0402	0.1054	11.2294	97.8013
		2017	0.0207	0.1054	11.1667	109.2015
		2018	0.1730	0.0646	11.2104	105.9735
		2019	0.0954	0.0239	11.2864	132.5178
		2020	0.1568	0.0239	11.3913	95.4450
		2021	0.1324	0.0239	11.4917	72.4087
		2022	0.5541	0.0239	11.6181	50.4131
12	<b>NIGERIAN BREW. PLC</b>	2013	6.6639	0.1277	11.4027	64.3557
		2014	2.1721	0.2864	11.5437	43.0778
		2015	2.7734	0.1596	11.5523	34.0901
		2016	2.3980	0.2763	11.5654	24.2611

S/N	Companies	Year	Funding for ICT Hardware (FICTH) =N=billion	Funding for ICT Software (FICTS) =N=billion	FSZ Log of Total Assets	ROCE %
		2017	2.3181	0.2224	11.5829	28.7411
		2018	2.6468	0.1819	11.5897	16.6729
		2019	5.1791	0.6576	11.5826	15.3154
		2020	3.5768	0.2460	11.6478	13.8221
		2021	4.1779	0.5842	11.6836	18.4716
		2022	9.2850	0.6581	11.7933	13.6396
13	<b>UNILEVER NIGERIA PLC</b>	2013	0.3522	0.3343	10.4018	-153.2772
		2014	0.4775	0.2354	10.3950	-50.9236
		2015	0.2687	0.2363	10.7005	39.8057
		2016	0.1990	0.2375	10.8603	45.4433
		2017	0.5059	0.2342	11.0831	17.7425
		2018	0.2651	0.2574	11.1201	17.2242
		2019	0.2150	0.2226	11.0157	7.2133
		2020	0.0907	0.2221	10.9615	5.5546
		2021	0.0373	0.0004	11.0346	2.9466
		2022	0.0319	0.0004	11.0983	13.6846