

## EFFECT OF ACCOUNT RECEIVABLE PERIOD ON PROFITABILITY OF SELECTED FOOD AND BEVERAGE COMPANIES IN NIGERIA

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### ABSTRACT

The study examined the effect of account receivable period on the profitability of selected food and beverage companies in Nigeria. The study selected five years period from 2014 to 2018. The study used ex-post facto research design. The population is 43 food and beverage companies listed on the Nigerian stock exchange during the period of study. The study uses purposive sampling technique to select the sample based on the following criteria and the sample size is ten (10) food and beverage firms in Nigeria. Panel regression was used to analyse the data with a e-view statistical package of 9.00. The study noted that account receivable period has a negative and significant effect on profitability (measured by ROA). The will of significance to scholars and academician who will research on this filed of study. It will serve as reference materials to future researchers This study is unique since it is original.

**Keywords:** account receivable period, profitability and Return on Asset

### 1. INTRODUCTION

Account receivable looked at the unpaid claims of an organization have for its customers for a period of time in the form of operating line of credit. This is within a relatively short time period which may be a year and the volume of accounts receivable showed that organizations supply trade credit. Accounts receivable is one of the most important parts of working capital management. Account receivables often represent large investment in asset and involve significant volume of transactions and decisions. Accounts receivable as a component of cash flow that has a direct effect on the profitability of any business activities (Joshi, 2007)

Over the years, beverage companies such as PZ-Cussons Nig. Plc, flour mills Nig. Plc, Nascon Allied Ind. Plc, Nigerian Breweries Plc, Cadbury Nig. Plc, Nestle Nig. Plc, Unilever Nig. Plc, Honeywell Flour Mill Plc, Guinness Nig. Plc, Dangote Sugar Refinery Plc used account receivable period effectively to increase profitability in terms of return on asset. Yet there return on asset is very low.

From extant literature, studies such as Takon and Ugwu (2013); Harrison and Justus (2016); Kilonzo, Mamba and Njeru (2016); Adam and Caroline (2018) and *Chuke and Elias (2018)* studied the variables in Kenya, Mogadishu, Somalia and Nigeria using organizations such as tea companies, Small and medium scale enterprises, firm funded by government, quoted insurance companies and selected Nigerian firms. None of the studied from the empirical studies reviewed used PZ-Cussons Nig. Plc, flour mills Nig. Plc, Nascon Allied Ind. Plc, Nigerian Breweries Plc, Cadbury Nig. Plc, Nestle Nig. Plc, Unilever Nig. Plc, Honeywell Flour Mill Plc, Guinness Nig. Plc, Dangote Sugar Refinery Plc to studied the variables. None of the studied reviewed used food and beverage firms in Nigeria with a period that included 2018.

The objective of this study is to examine the effect of account receivable period on the profitability of selected food and beverage companies in Nigeria. The specific objective is to determine the effect of account receivable period on the return on asset (ROA) of selected food and beverage companies in Nigeria.

The scope of this study is restricted to the effect of account receivable period on the profitability of selected food and beverage companies in Nigeria. The period of study is five year spanning from 2014 to 2018. The reason for this period is that it is current. Also, during this period Food and beverages organizations were so taken into consideration since they play a very important role in the Nigerian economy.

The hypothesis is stated below

H<sub>01</sub>: Account receivable period has no significant effect on return on asset (ROA) of selected food and beverage companies in Nigeria.

## 2. LITERATURE REVIEW

Weygand and Kimmel (2005) defined trade receivables are amounts by customers on an account which resulted from sales of goods and services. Accounts receivable ratio (AR) is calculated as accounts receivable/sales (Ubesie & Duru, 2013).

Accounts receivable is an interim debt arising through credit sales and recorded as accounts receivable by the seller and accounts payable by the buyer (Brigham & Eugene, 2012). According to Sundgren and Schneeweis (2010) optimum accounts receivable in a business is one that maximizes the value of a firm when the incremental rate of return (marginal rate of return) of an investment is equal to the incremental cost of funds (marginal cost of capital) used to finance the investment. Accounts receivable constitute a substantial portion of current assets of several companies' balance sheets, highlighting the importance of the management and financing of this type of asset since it plays an important role in a firm's performance, risk and value (Smith, 2010).

According to Mary, Miller and Esther (2015) state that profitability is the primary goal for any business venture; a business that is not profitable will not survive. Similarly Farah and Nina (2016) define profitability as the ratio to measure the performance of the company. Also, Stephen, Funso and Adewale (2014) profitability can be define as an outcome which arises from the effectiveness of management and optimal utilization of resources at its disposal; thus leading to reaping of higher return on capital employed. Ang (2001) Return on Assets (ROA) is a financial ratio used to measure the degree to which the assets have been used to generate profits. Riyanto (2001).

## 3. EMPIRICAL STUDIES

Harrison and Justus (2016) studied the variables using tea companies in Meru County, Kenya. They adopted census method and descriptive research design as well as regression analysis for the period of 2010 to 2015. The study also used Pearson's correlation and ANOVA. The study found that receivables collection period had negative effect on the profitability.

Adam and Caroline (2018) studied the account receivable management and SMEs with a particular reference to financial performance. They used survey design along quantitative data. The population is 102 SMEs. They applied probability and non-probability sampling methods for 81 SMEs using Slovene formula. They used questionnaires and used inferential statistics such as Pearson correlation coefficient and coefficient correlation along quantitative data and descriptive statistic. The study found that receivables collection period had negative effect on performance.

Kilonzo, Memba and Njeru (2016) established the effect of accounts receivable management on financial performance of firms funded by Government venture capital in Kenya. The population is made of all firms (24) funded by government venture capital in Kenya. The study adopted a census approach and a questionnaire was formulated and used to collect primary data for the independent variables while a record survey sheet was used to collect secondary data for the dependent variable. Out of 72 respondents, 51 responded, being 71%. Both descriptive and inferential analyses were done. Statistical package for social sciences (SPSS) version 20.0 was used as the statistical tool for analysis of the study. Analysis for variant (ANOVA) and regression analysis were used to test the hypothesis. The results show there is a positive relationship between accounts receivables and financial performance of firms funded by government venture capital in Kenya (0.038). Accounts receivable explain 25.7% of the financial performance of firms funded by government venture capital in Kenya while the variation of 74.3% is explained by other factors.

*Chuke and Elias (2018)* examined the impact of average collection period on the profitability of quoted insurance companies in Nigeria. The return on assets and account receivable period were the dependent and independent variables respectively. The annual financial reports of 20 quoted insurance companies in Nigeria spanning from 2000 to 2011 constituted the sample of the study. The data obtained were utilized in running a cross-sectional regression analysis. The descriptive statistics and correlation matrix were obtained with the aid of the SPSS version 20.0 after conducting some multicollinearity and heteroskedasticity tests. This study used regression analysis and found that accounts receivable period has negative and insignificant impact on

profitability. Current ratio, fixed financial total asset ratio, debt asset ratio and growth have the expected positive relationship whereas the firm size indicates unexpected relationship with profitability.

Takon and Ugwu (2013) investigated the effects of Accounts Receivable on Return on Assets of selected Nigerian firms for the period 2000-2009. Data generated was used to run both cross sectional and time series regression. The results showed that Accounts Receivable had a significant negative relationship with Return on Assets which measured profitability.

**3.1. Theoretical Framework**

The operating cycle theory is one of the very important theories in working capital management. Operating cycle is one of the measures of efficiency of working capital management. It takes into consideration the receivables and inventories related to working capital. The cycle traditionally commences from the receipt of raw materials to the collection of receivables from debtors of the stock sales produced from those raw materials. According to Edwin and Martins (1997) Modern Portfolio Theory is based on a number of assumptions. There are ten of them which are particular doozies. These assumptions are: there are no transaction costs in buying and selling securities. There is no brokerage, no spread between bidding and asking prices. Investors pay no taxes of any kind and only “risk” plays a part in determining which securities an investor will buy; an investor can take any position of any size in any security he wishes. No one can move the market and liquidity is infinite; the investor does not consider taxes when making investment decisions, and is indifferent to receiving dividends or capital gains; investors are rational and risk adverse. They are completely aware of all risk entailed in an investment and will take positions based on a determination of risk, demanding a higher return for accepting greater volatility; investors, as a group, look at risk-return relationships over the same time horizon.

**4. METHODOLOGY**

The study employed the used of ex-post facto research design. The 43 food and beverage companies listed on the Nigerian stock exchange as at 2019 is the population of study. The study used purposive sampling method to selected ten (10) food and beverages companies such as PZ-Cussons Nig. Plc, flour mills Nig. Plc, Nascon Allied Ind. Plc, Nigerian Breweries Plc, Cadbury Nig. Plc, Nestle Nig, Plc, Unilever Nig. Plc, Honeywell Flour Mill Plc, Guinness Nig. Plc, Dangote Sugar Refinery Plc based on the fact that these the selected Companies have adequate financial reports statements the sampled period. Secondary data was used which was collected from the financial statement of selected firms. The measurement of the variables are indicated on the table below:

Table 1. Measurement of variables and Abbreviation

Variables	How to measure	Abbreviation	Types of variables
Return on Assets	Net income/total assets	ROA	Dependent
Account Receivable Period (ACRP)	Accounts receivables (AR) multiply by 365, divided by sales	ACRP	Independent

The study employed the used of descriptive statistics, correction analysis and panel regression to study the data. Correlation is used to ascertain the strength and degree of the relationship between the variables. The panel regression is used to ascertain the cause and effect of the independent variable on the dependent variable. The selection of variables for the estimated model was guided by Verbeek (2004) who sets out the framework for panel study as:

$$y_{it} = \alpha + x_{it}\beta_{it} + \varepsilon_{it} \dots\dots\dots 1$$

The study used Hausmann test to decide which model is most appropriate between fixed or random effects model and used a panel regression model used by Falope and Ajilore, (2009) and Dong &Su, (2010) with little modifications to suit the requirements of the study.

The model used for the study is therefore, stated as follows;

The model is stated below:

$$ROA_{it} = \alpha + \beta_1 ACRP_{it} + \varepsilon_{it} \dots\dots\dots 2$$

Where  $ROA_{it}$  is the return on asset of firm i at time t

$ACRP_{it}$  is Account Receivable Period of firm i at time t

$\varepsilon_{it}$  = random error term which takes care of the effects of other factors which are not fixed in the model, on dependent variable

$\beta_0$  = Regression Constant

$i = 1 \dots N$  refers to the number of companies

$t = 1 \dots T$  refers to time period

$\beta_1$  is the regression co-efficient associated with independent variables.

## 5. DATA ANALYSIS AND DISCUSSION

Table 2: Descriptive statistics of the variables

	ROA	ACRP
Mean	0.543000	64.12000
Median	0.535000	71.50000
Maximum	0.950000	234.0000
Minimum	0.220000	17.00000
Std. Dev.	0.155357	37.77897
Skewness	0.141692	1.687597
Kurtosis	2.765145	9.107635
Jarque-Bera	0.282215	101.4482
Probability	0.868396	0.000000
Sum	27.15000	3206.000
Sum Sq. Dev.	1.182650	69935.28
Observations	50	50

Source: Researcher's Computation Using E-Views 9.0, 2020

The descriptive statistics for return on asset in this study shows average value of 0.54 over the period of review, median value of 0.53 which shows that the absence of outliers in the values. It has a maximum value of 0.95 and minimum value of 0.22. The variable has a standard deviation of 0.15 which suggests that the value of the observation is spread across its mean value of 0.54. The skewness statistics of the variable is 0.14, suggesting that it is positive, while the kurtosis statistics of 2.76 which suggests that the observation is leptokurtic in distribution. The Jaque-Bera statistics of 0.28 with a probability value of 0.86 suggests that the ROA is normally distributed at 5% level of significance.

From the table 2, the descriptive statistic of accounts receivable period in this study shows average value of 64.12 over the period of review, median value of 17.12 which shows that the absence of outliers in the values. It has a maximum value of 234 and minimum value of 17. The variable has a standard deviation of 37.77 which suggests that the value of the observation is spread across its mean value of 64.12. The skewness statistics of the variable is 1.68, suggesting that it is positive while the kurtosis statistics of 9.10 which suggests that the observation is leptokurtic in distribution. The Jaque-Bera statistics of 101.45 with a probability value of 0.00 suggests that the ACRP is not normally distributed at 5% level of significance.

Table 3 Correlation Matrix

	ROA	ACRP
ROA	1.000000	-0.035669
ACRP	-0.035669	1.000000

Source: Researcher's Computation Using E-Views 9.0, 2020

The finding also indicates that there is weak negative relationship between accounts receivable payable and return on asset of selected food and beverage firms in Nigeria.

Table 4: Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section and period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.428241	1	0.5129
Period random	0.361399	1	0.5477
Cross-section and period random	1.218248	1	0.2697

\*\* WARNING: estimated cross-section random effects variance is zero.

\*\* WARNING: estimated period random effects variance is zero.

Source: Researcher's Computation Using E-Views 9.0, 2020

The Hausman test showed that the random effect model is the most appropriate to fixed effect model given the probability value of more than 0.05. Thus, the null hypothesis which states that random effect model is more appropriate is accepted.

Table 5: Panel Regression  
 Dependent Variable: ROA  
 Method: Panel EGLS (Cross-section random effects)  
 Date: 05/01/20 Time: 07:09  
 Sample: 2014 2018  
 Periods included: 5  
 Cross-sections included: 10  
 Total panel (balanced) observations: 50  
 Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.552405	0.045374	12.17458	0.0000
ACRP	-0.000147	0.000611	-0.239962	0.0114
Effects Specification				
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			0.161649	1.0000
Weighted Statistics				
R-squared	0.561272	Mean dependent var		0.543000
Adjusted R-squared	-0.509535	S.D. dependent var		0.155357
S.E. of regression	0.156867	Sum squared resid		1.181145
F-statistic	0.061146	Durbin-Watson stat		1.733619
Prob(F-statistic)	0.005749			
Unweighted Statistics				
R-squared	0.561272	Mean dependent var		0.543000
Sum squared resid	1.181145	Durbin-Watson stat		1.733619

Source: E-view 9.00

The estimation result shows that ACRP has a negative coefficient of -0.00014, indicating that firm's profitability is reduced by 0.00% point by a day lengthening of the numbers of days it takes debtor to settle their accounts.

The results also produced a coefficient of determination (R<sup>2</sup>) of 56% which was sufficiently high indicating that the independent variables in the model account for 56% in the variability of profitability (measured by ROA) of the sampled food and beverages companies in Nigeria for the study period. The remaining 44% of the variation in profitability of the Nigerian food and beverages firms is explained by factors not captured in the study model. (The coefficient of determination denoted usually by R<sup>2</sup> indicates how well data points fit a statistical model; it is a statistic that will give some information about the goodness of fit of a model. It is usually between 0 and 1 with 0 denoting that the model does not explain any variation and 1 denoting that it perfectly explained the observed variation.

Similarly, Durbin Watson statistics (DW) of 1.70 also indicates the absence of auto correlation for all the variables. (Durbin Watson test is a popular test to detect autocorrelation, named after the developers, statisticians Durbin and Watson (1951). It has been established that once DW = 2, then there is no problem of autocorrelation). Therefore, with the results of the regression coefficients revealed in this study, an ideal model values for the relationship between account receivable period and Profitability of the Nigerian food and beverages companies can be states thus:

$$ROA = 0.552405 + (-0.000147ACRP) + e$$

The result also shows that Accounts Receivable Periods has negative effect on Profitability of the Nigerian food and beverages companies. This negative effect is significant since the P-value is less than 5%. Thus, we can reject the null hypothesis and concluded that Accounts Receivable Period has a negative and significant effect on the profitability (measured by ROA) of the Nigerian food and beverages companies. This finding however, contradicts conventional conjecture that lengthening of deadlines for clients to make their payments provides incentives for increase sales and thus profitability (Falope & Ajilore, 2009). Thus, a more restrictive credit management potentiality improves firm's profitability performance.

The result of the regression analysis indicates that Accounts Receivable Period (ACRP) has a significant negative relationship with the Profitability (measured by ROA) of the sampled Nigerian food and beverages companies for the study period. A negative relation is consistent with the traditional view and implies that



more profitable firms have a shorter accounts receivable cycle. Firms with lower accounts receivable have more efficient credit management enabling them to collect sales faster, free up cash and increase profitability. Furthermore, the negative relation between ACRP and the profitability of these sampled companies also implies that their profitability will be effected negatively if the number of days it takes debtors to settle their accounts is increased and vice versa.

The finding from this study is consistent with the previous empirical findings of Harrison and Justus (2016) who fund a negative relationship between Accounts Receivable Period (ACRP) and Profitability. This negative relation between Accounts Receivable Period (ACRP) and Profitability however contradicts the findings of Kilonzo et al (2016) who found significant positive relation between Accounts Receivable Period (ACRP) and Profitability of firms. This negative effect implies that the selected food and beverage firms in Nigeria have Accounts Receivable Period (ACRP) and this negatively affect the return on asset of the firms. The Accounts Receivable Period (ACRP) may not be calculated very well or expert in the field are not implied to effectively used.

## 6. CONCLUSION AND RECOMMENDATION

The study concluded that there is negative and significant effect of account receivable period on the profitability of the selected food and beverage firms in Nigeria. It implies that the period at received money is received from customers has a negative effect on the profitability of the firms in terms of return on asset.

The study recommended that efficient management and financing of Working Capital (Current assets and current Liabilities) will not only increase the operating profitability of the food and beverage companies in Nigeria but also maximize returns to shareholders' investment.

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