



# Impact of working Capital Management on Financial Performance of Quoted Consumer Goods Manufacturing Firms in Nigeria

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**Abstract:** Working capital management is indispensable in strengthening firms' liquidity position. A weak liquidity position poses a threat to the solvency of the company and makes it unsafe as well as unsound. The persistent winding up of most Nigerian manufacturing firms and the recent decline in the world oil price which significantly affected all the oil producing countries in the world of which Nigeria is not an exception demand for effective and efficient management of resources to guarantee going concern. This study examined the impact of working capital management on financial performance of quoted consumer goods manufacturing firms in Nigeria by specifically examined the impact of working capital management on return on assets and gross operating profit. The secondary data used were obtained from annual financial statements over a period of ten (10) years from 2005 to 2014 of purposively sampled fifteen (15) firms. Descriptive statistics were used to measure variations, statistical inferences were drawn using correlation and panel regression analysis was applied on performance and working capital management indicators to test the formulated hypotheses. The findings revealed that efficient working capital management increases financial performance. In conclusion, a negative relationship exists between Cash Conversion Cycle (CCC) and financial performance while there is a positive relationship between

Average Collection Period (ACP) and financial performance. The study recommended that firms within the industry may increase their average collection period above the present industry average collection period of 58 days and proper analysis of working capital components should be constantly carried out to ensure that those critical areas for decision making process as it related to each of the performance measurement variables are identified and properly examined.

**Keywords:** Working Capital Management, Investment, Firm Value, Performance, Profitability

## 1.1 Introduction

Stabilising solvency is an essential quality of a finance manager in ensuring that business pays its debt as they arise, exploit business opportunities pictured and meet any contingency that may reasonably be envisaged. A business may have high proportion of assets over liabilities but if this falls on the non-current assets, the ability of the business to meet its short term obligation without resorting to borrowing may be difficult. Working capital management is concerned with efficient and effective planning and controlling of short term financing and investment decisions of the firm. Working capital which comprises of current assets and current liabilities are indispensable in the overall corporate strategy in creating shareholders value. It is crucial in investment decision to avoid tied up fund in working capital and circumvent shortage of working capital for smooth running of business operation.

The value of raw materials, work-in-progress, finished goods, receivables less payables represents amount tied up in working capital. Firms financial performance is linked with firm's effective and efficient management of its working capital such that risk of inability to meet short term obligations is eradicated and unwarranted investment in the working capital are avoided. The proportion of current assets to current liabilities should be

sufficient enough to meet payment of short term creditors as and when due to avoid insolvency and subsequent effect of bankruptcy.

Firm's primary objective is to maximise profit so as to achieve increase in share price and dividends but this cannot be achieved without preserving liquidity of the company. Therefore, increasing profitability at the expense of liquidity may defeat going concern of the business and same goes for liquidity at the expense of profit. Hence, there should be a trade-off between profitability and liquidity of the firm.

The statement of comprehensive income in the annual reports of the firm revealed either loss suffered by the company in its operation or profit generated during the year. If profit is generated, investors are paid from the profit and this measure is of paramount interest to investors. It should be noted that profit is not only the measurement of shareholders interest as shareholders are also concerned about the cash flows of the firms. Nigerian manufacturing industries are facing crucial problems that are persistently led to their winding-up (Ogbuji & Ogunyomi, 2014). A lot of industries in Nigeria have closed down, some relocated while others are operating far below installation capacity. It is on this note that this study examined the impact of working capital management on financial performance through various performance

measurements as it relate to firms' effective utilisation of assets to generate high returns and production efficiency. The following research questions were raised for the purpose of this study:

- i) What is the effect of working capital management on return on assets?#
- ii) To what extent does working capital management have effect on gross operating profit?

### 1.4 Objectives of the study

The main objective of this study is to examine the impact of working capital management on financial performance in quoted consumer goods manufacturing firms in Nigeria over a period of ten (10) years from 2005-2014. The specific objectives of this study were to:

- i) examine the effect of working capital management on return on assets.
- ii) examine the effect of working capital management on gross operating profit.

The hypotheses stated in the null form were tested in order to provide answers to the research questions of this study.

$H_{01}$  : There is no significant effect of working capital management on return on assets.

$H_{02}$  : There is no significant effect of working capital management on gross operating profit.

### 2.1 Literature Review

This section provides a review of literature on the concept of working capital management and performance. It also provides a review on the theory used in this study and the empirical evidences.

### 2.2 Conceptual Issues

Keown, Martin, Petty and Scott (2005) described working capital as a company's entire investment in current

assets or assets that a company anticipates to be transformed into cash within a year or less. Therefore, current assets are the assets which can be converted into cash within an accounting year of the firm. Working capital is the amount spent on current assets such as, short term securities, accounts receivables and inventories, (Valipour, Moradi & Karimi, 2012). Enyi's study (as cited in Osundina, 2014) described working capital as a margin or buffer or safety cushioned for meeting obligations within the ordinary operating cycle of any business. Working capital approved the company's ability to continue its activities without endangering liquidity (Abbasali & Milad, 2012). Aremu, Ekpo, Mustapha and Adedoyin (2013) claimed that firm's ability to identify appropriate capital requirements and sources of raising funds will strengthening their operation as inadequate capital is the major causes of business failure. Alnoor, Charles, Srikant and George (2008) identified working capital as current assets minus current liabilities. Kehinde (2011) explained that working capital is part of company's total capital which is employed in the short term operations. Onaolapo and Kajola (2015) classified working capital into gross working capital and net working capital and stated that gross working capital is regarded as the amount invested in a firm's current assets while net working capital is the excess of current assets over liabilities. Working capital is an important issue during financial decision making since its being a part of investment in asset that requires appropriate financing investment (Francis, 2015). The concept of working capital is usually made up components

parts; basically the current assets and the current liabilities. Ariful, Amin, Rakibul (2015) opined that current assets are the investment in cash, marketable securities, account receivable and inventory. Current assets are the assets which can be converted into cash within an accounting year and include cash, short-term securities, account receivable, bill receivable and inventory (Pandey, 2004).

An asset denotes current asset when it is expected to be realised or intends to sell or consumed in its normal operating cycle and it is held primarily for the purpose of trading and also expected to be realised within twelve months after the reporting period (Steve, 2012). Current assets are cash and equivalents, account receivable and inventory items of a firm (Asghar & Syed, 2012). Current liabilities are one of the flexible financial resources of firms (Francis, 2015). Steve (2012) defined current liability as liability that is expected to be settled in the company's normal operating cycle that is the time between the acquisition of assets for processing and the realisation of these assets into cash or cash equivalent. This definition therefore differentiates liabilities that are current from non-current liabilities, that is, liability that fall due after more than 12 months of the reporting date.

Furthermore, working capital is not synonymous to working capital management. Kazi (2015) declared that working capital management involves the decision of using the current assets and current liabilities which has a significant part in the day to day operating activities of that particular organisation. The essence of working capital management is not only to sustain the optimal level of liquidity and turnover ratios but also to managing the

short-term financings, (Muhammad & Mohammad, 2015)

Abdulrasheed, Khadijat, Sulu and Olanrewaju (2011) posit that organisations' profit can only be maximised if inventory is effectively managed. They also asserted that cost minimisation along with revenue maximisation brings about profit maximisation and to achieve this, there is need to prevent the conflicting economies of overstocking.

Asghar and Syed (2012) defined working capital management as decisions made in respect of current assets. Raheman and Nasr (2007) suggested that if the firms properly manage their cash, accounts receivables, and inventories this will ultimately help firms to increase their profitability.

On the other hand, Francis (2015) identified corporate performance as a potential determinant of working capital financing policies. Pandey (2008) defines financial performance as a slanted measure of how efficiently a firm utilise it's to generate revenues.

Performance of a firm rests on the activities and investment decisions of organisations (Solomon, 2014). Frederick and Cynthia (2003) posit that profitability ratios, growth rates and margins are the conduit that harboured firm performance.

High financial performance suggests effective and efficient management in making use of company's resources (Naser & Mokhtar, 2004). Four useful measures of profitability are the rate of return on assets (ROA), the rate of return on equity (ROE), operating profit margin and net income (Hansen & Mowen, 2005).

### **2.3 Theoretical Framework**

A number of theories have been found in the literature to describe the working

capital management and its relationship with firm financial performance which are not limited to irrelevance Modigliani- Miller Theory, Static Trade-off Theory in the 1960s -1970s, Agency Cost Theory in the mid-1970s but also include among others Pecking Order Theory in the 1980s. Nonetheless, the incapability of Modigliani- Miller Theory to draw a line between point of financing and operation, inadequate time varying for financial market opportunities, unrealistic descriptions of how firm finance their operations give birth to Trade-off Theory, Pecking Order Theory and others. This study will limit its discussion to Pecking Order Theory.

### **Pecking Order Theory**

Myers (1984) explained that firms most likely prefer to finance new investments first with internally raised funds, i.e; retained earnings, then with debt and issue equity as a final resort.

Pecking order theory is believed to be an alternate theory to trade-off theory where the firm has perfect hierarchy of financing decisions. Pecking order theory elucidates that the firm tries to utilize its internal financing sources first i.e; retained earnings then issues debt and then would issue equity as a last result.

Joseph, Willy and Patrick (2016) suggested that firm should use shareholders' fund to finance business operation activities before resort to borrowing. The study further recommends that internal and external business environmental factors should be considered before choice of business financing is chosen. Summarily, this study is anchored on the pecking order theory as it is directly promoting effective management of working capital and is least risky.

### **2.4 Empirical Framework**

Kazi (2015) on the working capital management of diverse industries along with their solvency in Bangladesh. The components of working capital management employed are average collection period, inventory turnover, current asset to total asset, current liabilities to total asset and current ratio while return on assets and return on equity were used as proxy to measure profitability. Secondary data which is the annual reports of the companies in Bangladesh is used for the study. The study cut across almost all sector of the economy. The study reports that failure to manage working capital will eventually lead to insolvency thereby results to bankruptcy hence there is a relationship between working capital management and profitability of the industry.

Francis (2015) conducted a study on the relationship between working capital and profitability of cement companies in Kenya for five years period of 2006 to 2010, operating income is used as proxy for profitability while working capital management was measured by cash conversion cycle and spearman's correlation analysis together with a multivariate regression model were employed to observe the relationship between working capital management and profitability. The findings revealed that efficient working capital management increases profitability.

The study of Raheman and Nasr (2007) where an analysis of 94 firms listed at Karachi Stock Exchange which was based on a time span of six (6) years from 199- 2004 was carried out. Working capital management was measured by debt ratio, current assets to total assets ratio, cash conversion cycle, average collection period, inventory

turnover, average payment period, current ratio and natural logarithm of sales and net operating profit was used as proxy for the business profitability. It was stated that profitability and working capital management are negatively related to each other.

Akoto, Awunyo-Vitor and Angmor (2013) analyzed the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study used data collected from annual reports of all the 13 listed manufacturing firms in Ghana covering the period from 2005-2009. Using panel data methodology and regression analysis, the study found a significant negative relationship between Profitability and Accounts Receivable Days.

However, the firms' Cash Conversion Cycle, Current Asset Ratio, Size, and Current Asset Turnover significantly positively influence profitability. The study suggests that managers can create value for their shareholders by creating incentives to reduce their accounts receivable to 30 days. It is further recommended that, enactments of local laws that protect indigenous firms and restrict the activities of importers are eminent to promote increase demand for locally manufactured goods both in the short and long runs in Ghana.

Salman, Oyetayo and Oriowo (2014) investigated the relationship between working capital management on organizational profitability in Nigeria. Data were collected from audited finance statements of 20 manufacturing companies quoted in Nigerian Stock Exchange between 2005 to 2013. Return on Assets (ROA) and Return on Equity (ROE) were used as proxy for measurement of profitability while Panel data methodology was employed

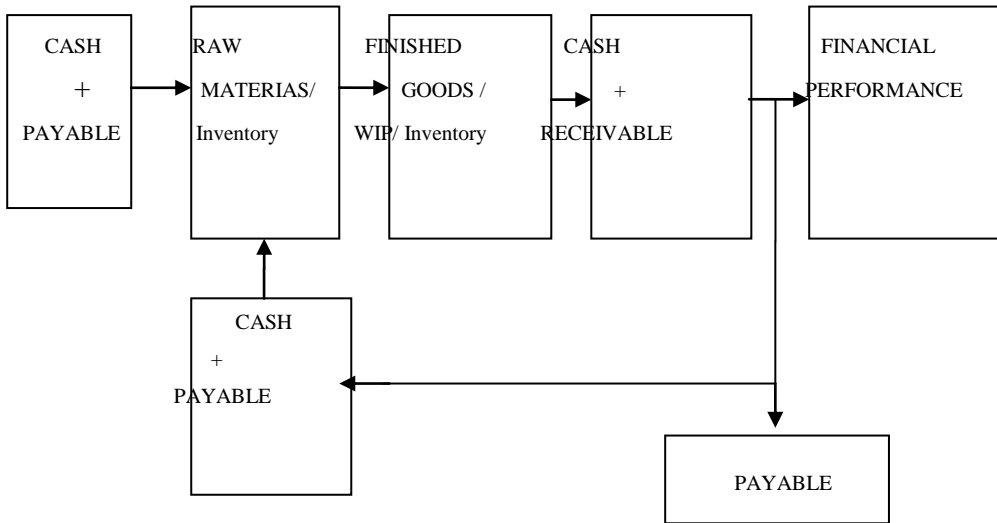
and Pearson correlation moment coefficient and multiple regressions and the method of estimation is Ordinary Least Squares (OLS). The result revealed that working capital has negative and significant relationship with the Return on Assets (ROA) and Return on Equity (ROE) and this showed that firms' performance increase as long as Cash Conversion Cycle reduce .

Osundina (2014) examined the relationship between working capital management and profitability and focused on the quoted food and beverages manufacturing firms in Nigeria. Working capital management was measured by aggressive investment policy, account collection policy, cash conversion cycle and net operating profit was employed to measure profitability. The study made use of primary data and the results of the analysis revealed that working capital management had significant positive relationship with profitability.

In the study of Ogbuji and Ogunyomi (2014) on working capital management policy and financial performance in the Nigerian foods and beverage industry , where Nestle Nigeria Plc was the case study which covered period of five (5) years, 2008 to 2012. Working capital management was measured by cash conversion cycle and financial performance was measured by return on assets. The results revealed that a negative significant relationship existed between working capital management and profitability performance and at the same time a negative insignificant relationship do subsist between working capital management and liquidity performance.

## 2.5 Schematic Conceptual Framework of Working Capital Cycle and Financial Performance

Below is the schematic conceptual framework of working capital cycle and financial performance:



Source: Authors', 2016

The model of the working capital cycle above illustrates the interactions between current assets and current liabilities in the business operation. The purchase of raw materials are financed by both Cash and payable and the raw materials will in turn converted to finished products with possibility of definite percentage of work in progress (WIP). The finished goods will be converted to cash and receivables while some will be left as inventory of finished goods. The part of the cash realised from both sales and receivable will be used to settle payables. The payables and cash will also be used to finance production. The effective and efficient management of the working capital cycle will determine the firm's performance which can therefore be proxied by return on assets and gross operating profit.

## 3. Methodology

### 3.1 Introduction

This section provides a specification of the study model, the research designs, variable measurement, types of data, study population, sampling procedure, and method of data analysis. In order to specify the relationship between working capital management and financial performance of consumer goods, the empirical framework by Deloof (2003) and Padachi (2006) as expanded by Rafiu and John (2014) was used. As such; the study postulates the relationship between the dependent and independent variable as:

$$FP = f(WCM, GWCTR, CATAR, CLTAR, FDR, LOS, CR).....(i)$$

Where: The components of WCM are ACP, APP, ITID, CCC and

FP represents financial performance while WCM signifies working capital management, GWCTR stands for gross working capital turnover ratio, CATAR symbolises current assets to total assets

ratio and CLTAR represents current liabilities to total assets ratio. FDR is financial debt ratio, LOS stands for log of sales and CR is current ratio.

The relationship can be established in a linear form as stated below:

$$ROA_{it} = \beta_0 + \beta_1 ACP_{it} + \beta_2 APP_{it} + \beta_3 ITID_{it} + \beta_4 CCC_{it} + \beta_5 GWCTR_{it} + \beta_6 CATAR_{it} + \beta_7 CLTAR_{it} + \beta_8 FDR_{it} + \beta_9 QR_{it} + \beta_{10} LOS_{it} + \beta_{11} SG_{it} + \eta_i + \epsilon_{it} \dots\dots\dots(ii)$$

$$GOP_{it} = \beta_0 + \beta_1 ACP_{it} + \beta_2 APP_{it} + \beta_3 ITID_{it} + \beta_4 CCC_{it} + \beta_5 GWCTR_{it} + \beta_6 CATAR_{it} + \beta_7 CLTAR_{it} + \beta_8 FDR_{it} + \beta_9 QR_{it} + \beta_{10} LOS_{it} + \beta_{11} SG_{it} + \eta_i + \epsilon_{it} \dots\dots\dots(iii)$$

The  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$  and  $\beta_8 =$  Coefficients of the independent variables,  $\eta_i$  measures the specific characteristics of each firm otherwise known as the observable heterogeneity,  $\epsilon_{it}$  = error term, representing factors other than those specified in the model, while

$i = 1- 15$  firms

$t = 2005- 2014$ .

Dependent variable is the financial performance and it is measured by Return on Assets and Gross Operating Profit. while the independent variable is Working Capital Management (WCM) which is a key variable of the study used as a vector of average collection period (ACP), inventory turnover in days (ITID), average payment period (APP) and cash conversion cycle (CCC) of the firm. Other explanatory variables characteristically assumed to affect firm performance are gross working capital turnover ratio (GWCTR), current assets to total assets ratio (CATAR), current liabilities to total assets ratio (CLTAR) are used to check the investing and financing policy of working capital management respectively.

Financial debt ratio (FDR) which was used to measure leverage is expected to have negative relationship and natural logarithm of sales (LOS) representing size has positive relationship with firm profitability while Sales Growth (SG) represents the investment growth opportunities and quick ratio (QR) measure the liquidity of a firm.

The study expected that working capital management has negative relationship with the financial performance. This implies that if there is a reduction in the number of days in receivable (ACP), Inventory (ITID), Cash Conversion Cycle (CCC) and Account Payment Period, the financial performance of manufacturing firms in Nigeria will improve.

The research design used for this study is the ex-post facto research design because of the cause and effect relationship to be derived from the regression. Regression is used to test the influence of working capital management on financial performance of quoted consumer goods manufacturing firms in Nigeria. The research method adopted is the descriptive research method as it helps describes a particular phenomenon in the study.

The data for the study was extracted from secondary source through annual reports and accounts of the sampled firms from Nigeria Stock Exchange’s Fact Book as at 2014 and online of each of the firm’s website.

The population of this study consists of all the twenty-seven (27) quoted consumer goods manufacturing firms listed on the Nigerian Stock Exchange (NSE) as recorded in the NSE Fact Book of 2014.

The sampling technique used for this study is purposive. Fifteen (15) firms



were selected from twenty-seven (27) consumer goods manufacturing firms quoted on the Nigeria Stock Exchange as at 2014 for the study based on the following decisive factors: (i). The firm must have been listed in the Nigerian

Stock Exchange during the period under study and published its financial statements for the period. (ii). The firm's stock has been actively traded during the last 3 years.

#### 4. Results

Table 4.1.1 Descriptive Statistics

	APP	ACP	CCC	ITID	ROA	GOP
Mean	62.07560	58.11411	57.98563	61.94712	0.128232	0.441497
Median	51.92750	39.76299	54.63511	60.98024	0.113567	0.376436
Maximum	626.9419	280.5866	281.1291	195.1730	0.634001	3.489735
Minimum	4.652738	0.045229	-392.7634	0.234202	-1.396307	-0.378901
Std. Dev.	62.42256	52.24306	70.19055	38.07586	0.203423	0.417165
Skewness	5.237517	1.687057	-0.973200	0.756813	-2.632193	3.175587
Kurtosis	46.04425	5.962611	14.34232	4.172007	23.01434	21.97363
Jarque-Bera	12265.84	126.0107	827.7298	22.90413	2676.797	2502.100
Probability	0.0000	0.000000	0.000000	0.000011	0.000000	0.000000
Observations	150	150	150	150	150	150

**Source:** Author's Computation, (2016)

The descriptive statistics of the main variables of this study presented in table 4.1.1 above, shows that the average APP, ACP, CCC and ITID over the period under investigation and for the 15 firms are 62, 58, 58 and 62 days respectively. The average ROA and GOP for the firms over the period and across the quoted consumer goods manufacturing firms in Nigeria are 12.8% and 44% with a maximum of

63% and 349%. Furthermore, the minimum Return on Assets and Gross Operating Profit are -140%, and -38% respectively with standard deviation of 20% and 42% suggesting a wide variation in Return on Assets and Gross Operating Profit across the quoted consumer goods manufacturing firms in Nigeria over the period under investigation.

Table 4.1.2: Correlation Matrix

Correlation	APP	ACP	CCC	ITID	ROA	GOP	VIF
APP	1.000000						1.34
ACP	0.371272	1.000000					1.83
CCC	-0.521012	0.424835	1.000000				1.13
ITID	0.169558	0.019753	0.406373	1.000000			3.27
ROA	-0.053683	-0.241127	-0.090009	0.076909	1.000000		
GOP	-0.100705	-0.347908	-0.034983	0.247768	0.534635	1.000000	

**Source:** Author's Computation, (2016)

To examine the existence of multicollinearity, a pair-wise correlation test was conducted in this study. In order to avoid unnecessary complexities, the test covered only the independent variables representing the working capital management (WCM). Other variables are control variables that must be included in the models. So, multicollinearity among the working capital management (WCM) variables constitute the main concern of the correlation test in this study.

The result of the correlation obtainable in table 4.1.2 shows that ACP and ITID are positively correlated to APP while CCC is negatively correlated to APP. Equally, all the WCM variables except ITID are negatively related to ROA and GOP. Similarly, the correlation

coefficients among the independence variables are less than 0.5. therefore, there is no problem of multicollinearity among them.

Also, the Variance Inflation Factor (VIF) test was conducted to test the presence of multicollinearity. The result of the VIF shows that the values of the VIF: 1.34, 1.83, 1.13 and 3.27 for APP, ACP, CCC and ITID respectively are less than 5. Therefore, there is no problem of multicollinearity in the model.

The result presented in table 4.1.2 shows that working capital component are negatively related to return on assets and gross operating profit except ITID which is positively related to return on assets and gross operating profit.

Table 4.1.3: Results of Fixed and Random Effect Regressions for RO

Independent Variables	Dependent variable: Return on Assets (ROA)	
	Fixed effect model	Random effect model
	1	2
ACP	-28,000,000*** (-150,000,000)	-29,000,000*** (-130,000,000)
ITID	0.00010 (0.000093)	0.00016** (0.000084)
APP	900,000,000 (-35,000,000)	-22,000,000 (-28,000,000)
CCC	-0.000077 (0.00020)	-0.000059 (0.00021)

GWCTR	0.037*** (0.0065)	0.044*** (0.0079)
CATAR	0.10* (0.048)	0.094* (0.056)
CLTAR	0.083** (0.037)	0.093*** (0.036)
FDR	-0.013** (0.0053)	-0.011** (0.0052)
QICKR	0.077 (0.057)	0.072* (0.041)
LOS	-0.048** (0.018)	-0.0082 (0.017)
SG	-0.012 (0.0084)	-0.0100 (0.0081)
CONSTANT	0.24 (0.14)	-0.068 (0.12)
OBSERVATIONS	113	113
R-SQUARED	0.572	0.693
NUMBER OF FIRMS	15	15

**Source:** Author's Computation, (2016)

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%, Robust standard errors in parentheses.

Column 1 and 2 of table 4.1.3 contain the regression results of the fixed effect model and random effect model respectively.

In table 4.1.3, both the fixed effect model and random effect model shows that CCC, FDR, LOS and SG are negatively related to ROA while all other variables are positively related to ROA. This implies that all the components of WCM (ITID, APP, CCC and ACP) are positively related to ROA except CCC which negatively related. Whereas, the fixed effect model in column 1 shows that, ACP, GWCTR, CATAR, CLTAR, FDR and LOS are the variables that are statistically significant. That is, the variables significantly affect ROA. The statistical significance of the variables is indicated by the robust standard errors. The robust standard errors of the coefficients are less than half of coefficients of the variables. Thus the variables are statistically significant.

On the other hand, the random effect

model in column 2 shows that ACP, ITID, GWCTR, CATAR, CLTAR, FDR and QICKR are the only significant determinants of ROA. By the magnitude of coefficients, the fixed effect model indicates that -28,000,000E-07, 0.037, 0.10 and 0.083 units increase in ROA results from a unit increase in ACP, GWCTR, CATAR and CLTAR, respectively while a unit increases in FDR and LOS brings about -0.013 and -0.048 unit decrease in ROA respectively.

Conversely, the magnitude of impact shown by the random effect model in column 2, indicates that a unit increase in ACP, ITID, GWCTR, CATAR, CLTAR and QICKR will lead to -29,000,000, 0.00016, 0.044, 0.094, 0.093 and 0.072 increase in ROA. But a unit rise in FDR will result to 0.011 falls in ROA. Hence, the regression results in table 4.1.3 shows that WCM has significant positive impact on return on assets of quoted consumer goods manufacturing firms in Nigeria.

Table 4.1.4: Results of Fixed and Random Effect Regressions for GOP

Independent Variables	Dependent variable: Gross Operating Profit (GOP)	
	Fixed effect model 1	Random effect model 2
ACP	-88,000,000*** (320,000,000)	83,000,000*** (11,000,000)
ITID	0.00018 (0.00022)	0.00056 (0.00038)
APP	-2.2E-06** (7.6E-07)	7.4E-09 (1.3E-06)
CCC	-0.00018 (0.00085)	0.0015 (0.0015)
GWCTR	0.074*** (0.023)	0.061 (0.058)
CATAR	0.75 (0.61)	0.59 (0.66)
CLTAR	-0.025 (0.12)	0.017 (0.14)
FDR	0.0057 (0.039)	0.064 (0.098)
QICKR	-0.35 (0.20)	-0.20 (0.21)
LOS	-0.18* (0.090)	0.36** (0.17)
SG	-0.013 (0.011)	0.031 (0.025)
CONSTANT	1.19* (0.65)	-2.71** (1.29)
OBSERVATIONS	113	113
R-SQUARED	0.286	0.405
NUMBER OF FIRMS	15	15

**Source:** Author's Computation, (2016)

\*significant at 10%, \*\*significant at 5%, \*\*\*significant at 1%, Robust standard errors in parentheses.

The regression result for the investigation of the effect of WCM on GOP is presented in table 4.1.4. The result of the fixed effect model shows that APP, CLTAR, QICKR, LOS and SG are negatively related to GOP while the relationship between GOP and all other variables are positive. The higher the former, the lower the GOP and the higher the later, the higher the GOP.

Nevertheless, the result in column 1 indicates that APP, ACP, GWCTR and LOS are statistically significant. So, the

fixed effect model demonstrates that APP, ACP, GWCTR and LOS are significant determinants of GOP. A unit increase in ACP and GWCTR bring about -88,000,000 and 0.074 unit increase in GOP each. Conversely, a unit increase in APP and LOS will result to -2,200,000 and -0.18 decrease in GOP correspondingly.

In column 2, the random effect model indicates that all the independent variables except QICKR are positively

related to GOP. But the result shows that only ACP and LOS are the variables that are statistically significant while other variables are not. It shows that a unit increase in ACP and LOS will lead to -83,000,000 and 0.36 rise in

GOP.

Since APP and ACP are measures of WCM that significantly affects GOP, the results of all the models combined revealed that WCM has a significant influence on the GOP.

Table 4.1.5: Results of Goodness of Fit /Overall Significance

MODEL	F-Statistics	P-value
FIXROA	10.58	0.0000
RANDOMROA	114.43	0.0000
FIXGOP	3.17	0.0012
RANDOMGOP	45.82	0.0000

Source: Author’s Computation, (2016)

To test the goodness of fit and overall significance of the coefficient of the panel regression models employed in this study, F- test and Breusch-Pagan Lagrange Multiplier (LM) test were employed for the fixed effect and random effect models respectively.

The results of the tests of Goodness of fit /Overall significance are contained in table 4.1.5. The F-statistics of all the

fixed effect and random effect models have P-values which are less than 5%. So, the individually significant independent variables considered jointly have significant impact on the respective dependent variables for all the models. This implies that all the models have good fit and there is overall significance.

Table 4.1.6: Result of Hausman Test for all the Models

Hausman test		
Model	Chi-Statistics	P-value
FIXROA	73.82	0.0000
RANDOMROA		
FIXGOP	21.05	0.0124
RANDOMGOP		

Source: Author’s Computation, (2016)

**Interpretation of Hausman test**

Both the fixed effect models and random effect models used in this study are shown to have good fit and statistically viable. The use of Hausman

test to compare the fixed and random effect models and subsequently make choice between them becomes imperative. Regarding this, the null hypothesis for the Hausman test is that

the (fixed or random) effect is not correlated with other regressors (independent variables), a random effect model is better than the fixed effect model, or a random effect model is consistent. If the null hypothesis is rejected, use the fixed effect model; otherwise, go for the random effect model.

The results of Hausman test conducted in this study is contained in table 4.1.8 above. The chi-square statistics of the Hausman test between FIXEDROA and RANDOMROA is 73.82 and the p-value is 0.0000. Similarly, The chi-square statistics of the Hausman test between FIXEDGOP and RANDOMRGOP is 21.05 and the p-value is 0.0124. Since the P-values are less than 5% level of significance, the null hypotheses are rejected and the result of the fixed effect models is preferable for the models in which ROA and GOP are dependent variables respectively.

In short, the Hausman test shows that fixed effect models are preferable for all the regressions. Thus, the result of the fixed effect models supersede in the discussion of findings of this study.

### 4.3 Discussion of findings

Results of descriptive statistics of the main variables revealed that account payable's days by the quoted consumer goods manufacturing firms in Nigeria to pay their suppliers or creditors is 62 days while account receivables by the same firms in the quoted consumer goods manufacturing firms in Nigeria do not extend credit to their customers beyond 58 days. Moreover, it takes 58 days for the quoted consumer goods manufacturing firms in Nigeria within the period under investigation to convert their input resources to cash and inventory takes 62 days before it is

finally exhausted. However, some of the firms could take as long as 281 days and minimum of 55 days to achieve this. Table 4.1.2 which presents result of correlation matrix of variables of working capital management and financial performance proxies disclosed that earlier payment to suppliers, collecting payments from customers within shortest time and converting products produced to cash within shortest period of time brings about increase in return on assets and gross operating profit whereas keeping the products or inventories for longer period implies that the return on assets and gross operating profit will increase.

In another word, it implies that if sampled firms delay offsetting their account payable, that is, if suppliers of raw materials are not paid on time, the firms have opportunity to establish the quality of the materials purchased and it may serve as short-term source of financing their production with no cost but with reduction in return on assets and gross operating profit in a short time. And if working capital management policy of firms favoured longer time for the collection of payments on account receivable from customers, it will boost sales as it will serve as incentives for customers to purchase the products during the period of low demand but return on assets and gross operating profit will suffer reduction. Furthermore, products that take longer period before it is converted to cash will suffer reduced return on assets and gross operating profit but can only enjoy increase in the products' sales price that likely result from scarcity of the products in the market. However, if a firm invests heavily in inventory and trade credit, it can enjoy

increase in return on assets and gross operating profit.

However, Tables 4.1.3 and 4.1.4 which presented the results of fixed and random regressions for Return on Asset (ROA) and Gross Operating Profit (GOP) against independent variables and based on the results of Hausman test in Table 4.1.8 which showed that fixed effect models are preferable for all the regressions, made the study to focus on the results of fixed effect models of the regression.

Result of fixed effect model in Table 4.1.3 of regressions for ROA unveiled that ACP has significant positive relationship with ROA. This implies that as account receivable increases, ROA increases. This suggests that sampled firm give their customers longer time to pay up their account as an incentive for increased sales and consequently financial performance. The result is in line with the work of Uremadu, Egbide and Enyi (2012); Osundina (2014); Akinlo (2011); and Ogbuyi and Ogunyomi (2014) but contrary to the studies of Salman et al. (2014); Binti and Mohd (2010); Mohammed and Norzia (2011).

The result of the table 4.1.3 further revealed that though a longer time increase for the ITID brings about increase in ROA. This is in line with the studies of Akinlo (2011); Uremadu et al. (2012) but differs significantly with the studies of Samiloglu and Dermigunes (2008); Huynh and Jyh-Tay (2010). Furthermore, more days delay in the payment of APP, ROA increase in value. This is in accord with the findings of Mathuva (2010); Huynh and Jyh-Tay (2010); Akinlo (2011); Uremadu et al. (2014) and the study further revealed that increase in QUICKR will result to increase in ROA, the result agreed with

the result of Adamu and Hussaini (2015). It should be noted that ROA measures how efficiently a company uses the firm's assets to generate operating profits. It also serves as a means to determining returns due to all the providers of capital, that is, debt and equity. Therefore, a high return on assets is an indication of efficient use of company's assets and reveals that the assets are productive.

However, the result also shows that CCC has insignificant inverse relationship with ROA. This study is consistent with the results and findings of Falope and Ajilore (2009); Mathuva (2010); Garcia and Marthnez (2007); Vural, Sokmen and Cetenak (2012) and Salman et al. (2014). This implies that shorter time for CCC would cause ROA to increase but not a vital basis for decision regarding recuperating ROA. Therefore for effective working capital management decision to convalescing firm's ROA, there is need to focus more on ACP, GWCTR, CATAR, CLATAR, FDR and LOS.

Table 4.1.4 of regressions for GOP unearthed that ACP has significant positive relationship with GOP and are significant at 1%. The results made known that the longer time given to the customers to pay on their account the better the GOP level, this is contrary to expectation and the works of Amarji, Nahum and Neil (2010); Huynh and Jyh-Tay (2010) and Vural et al.(2012) but in accord with the work of Sharma and Kumar (2011); Rafiu and John (2014) and Akinlo (2011) which reported that working capital management are positively related to profitability. Nevertheless, GWCTR results is consistent with expectation, that is, increase in GWCTR turn out better GOP.

However, APP and LOS revealed significant negative relationship with GOP, while APP and LOS is significant at 5% and 10% respectively. The earlier payment of account payable to the suppliers strengthening firms relationship with their suppliers and give them opportunity to get more from the them, hence the reported relationship of APP with GOP is line with expectation and consistent with the findings of Sharma and Kumar (2011); Akinlo (2011) but at variance with the findings of Mathuva (2010). LOS relationship with GOP contradicts the expectation of the study which expect decrease to improve profitability.

The regression results of fixed effect model in the table 4.1.3 and 4.1.4 clearly show the effect of working capital management components and other independent variables on return on assets (ROA) and gross operating profit (GOP) enhance financial performance.

The results show that account collection period (ACP) has positive relationship with ROA and GOP and the performance measurement are significant at 1%. The study disclosed that increase in ACP will bring about increase in ROA and GOP. Though the result is contrary to the expectation as well as the findings of Omesa, Maniagi, Musiega and Makori (2013); Vural et al.(2012); Samiloglu and Dermigunes (2008); and Huynh and Jyh-Tay (2010) but in line with the studies of Akinlo (2011); and Uremadu et al. (2012).

Moreover, the study also reveals that Inventory Turnover in Days (ITID) has positive insignificant relationship with ROA and GOP.. This implies that a lengthening time for keeping inventory results to improvement of ROA and GOP but not a critical factor to be considered in decision regarding the

effect of working capital management on financial performance. The results is contrary to the studies of Samiloglu and Dermigunes (2008); Huynh and Jyh-Tay (2010) which observed a negative relationship between Inventory Turnover in Days (ITID) and profitability but agreed with the work of Daniel and Ambrose (2013) which states that there will be a reduction in the costs of shortage of materials for production and loss of business to competitors due to scarcity of products if inventory are kept for longer days.

However, APP has insignificant positive relationship with ROA, significant negative relationship with GOP and while GOP is significant at 5%. This connotes that earlier payment of account payable improves performance level of GOP while delay in the payment of account payable increases ROA but less emphasis should be placed on ROA when taking decision as regards the effect of working capital management on financial performance.

Nevertheless, cash conversion cycle has negative relationship with ROA and GOP. This suggests that a day decrease in cash conversion cycle will lead to increase in ROA and GOP. This signifies that value can be created for companies' shareholders by ensuring that CCC is maintained at a possible shortest time. This is the period by which raw materials are stock for processing, the time finished goods are kept in the store before it is finally sold to the customers and time taken by the customers otherwise known as account receivable, pay on their account less the maturity period of account payable.

Gross working capital turnover ratio (GWCTR) has significant positive relationship with ROA and GOP at 1%. In the same vein CATAR has positive



relationship with ROA and GOP. The result of this study is in line with expectation but only ROA is significant at 10% but the findings of Ghulam, Salman, Iman and Rabia (2016) differs, in that it states that there is negative relationship between CATAR and ROA which indicates that to maximise the return on investment there is need to lower the ratio. The results suggests that in decision taking regarding investment policy for the improvement of firm's financial performance emphasis should be positioned on ROA as CATAR is increasing financial performance will be increasing.

CLTAR which are used to test the financing policy of working capital management reveals significant relationship with ROA and shows that CLTAR requires to be improved upon for ROA to witness a reasonable increase but inconsistent with the findings of Ghulam et al. (2016) which state that CLTAR has negative relationship with ROA.

FDR has negative relationship with ROA and it is significant at 5%. FDR negative relationship with ROA is consistent with expectation and the findings of Solomon, (2014); Onaolapo and Kajola (2015); Akindele and Odusina (2015) and also consistent with the prediction of Pecking Order Theory. However, FDR also has insignificant positive relationship with GOP

Moreover, the results of QUICKR disclosed that there exist positive relationship between QUICKR and ROA while GOP experienced negative relationship. This implies that as QUICKR is increasing, ROA is increasing whereas as QUICKR is decreasing GOP is increasing.

Log of sales (LOS) has significant negative relationship with ROA and

GOP. The results are in accord with expectation of the study. The findings of this study are at variance with the study of Onaolapo and Kajola (2015); Akindele and Odusina (2015) which revealed that there exist a positive relationship between firm's size and ROA and Pecking Order Theories. Finally, sales growth (SG) has negative relationship with ROA and GOP.

### 5.1 Conclusion and Recommendation

From the discussion of findings, it can be concluded that in consumer goods manufacturing firms in Nigeria, working capital management has positive relationship with ROA except CCC, one of the components of working capital management which is negatively related and ACP which has significant positive relationship with ROA. The implication of this result is that extending days of ACP, APP and ITID brings about increase in ROA while lessening days of CCC brings about increase in ROA.

However, the relationship between working capital management and GOP is significant. But the breakdown of the result shows that there is positive relationship between ACP and ITID with GOP and negative relationship between APP and CCC with GOP while ACP has significant positive relationship with GOP, APP has significant negative relationship with APP, ITID but CCC has insignificant relationship with GOP. This implies that when account collection days and inventory turnover days are increased along with decreasing in the days of cash conversion cycle and prompt payment to the suppliers, firms will experience improvement in their gross operating profit.

On the final note, proper analysis of working capital components needs to be constantly carried out to ensure that

those critical areas for decision making process as it relates to each of the performance measurement variables should be identified and properly examined.

In line with the findings of this study, effective and efficient management of working capital requires proper analysis and examination of each components of working capital as it affects each of the performance measurement variables. Each working capital components are at variance in their reactions to performance variables, therefore, the following recommendations are proffered:

- i) Foremost, account collection (receivable) days, inventory turnover days as well as account payment (payable) days should be increased while cash conversion cycle days should be reduced to minimal to achieve efficient and effective utilisation of capital for production benefits as well as realising maximum return on funds invested by the shareholders.
- ii) Furthermore, increasing account collection (receivable) days and inventory turnover days as well as reducing account payment (payable) days and cash conversion cycle are prerequisites for achieving overall earning efficiency and effective and efficient production.
- iii) Moreover, firms should consider relaxing its credit and collection policy to boost sales level and enhance financial performance. In

doing this, there is need for the firm to compare firm's average collection period with the industry average while extra ordinary difference are investigated. Average collection period of firm should be compared against the firm's credit terms and policy to review its credit and collection efficiency.

#### **5.4 Suggested Areas for further Studies**

The scope of this study is limited to the impact of working capital management on financial performance of quoted consumer goods manufacturing firms in Nigeria. Financial performance indicators are employed for descriptive and correlation statistics analysis obtained from financial statements of the fifteen (15) sampled firms for the period of 2005-2014.

However, future research directions of this study include the following:

- i) The period of the study can be expanded to cover fifteen (15) years (2000-2015) while non-financial performance should be employed to determine the impact of working capital management on firms' financial performance; and
- ii) Further study should be carried out on inter-firm comparison of the sampled firms' working capital management on financial performance by employing Economic Value Added as a financial performance measurement.

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