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Effect of Working Capital Management on Financial Performance of Listed Industrial Firms in Nigeria

GIMBA John Toro Ph.D[1*], BAGOBIRI Esther Ph.D[2], OSUAGWU Hope Ngozi Ikechukwu Ph.D[3]

[1,3] Department of Banking & Finance, Nasarawa State University Keffi. Nigeria
[2] Department of Business Administration, Bingham University, Nasarawa State. Nigeria

***Corresponding Author:** gimbatoro@gmail.com

ABSTRACT

This study examines the effect of working capital management on financial performance of listed industrial firms in Nigeria from 2011 to 2020. Cash conversion cycle, account payable and account receivable were used to measure working capital management, while return on assets was used to measure financial performance. The secondary data was from the individual financial reports of the listed industrial sectors in Nigeria. The study sampled ten (10) listed industrial firms out the thirteen (13) in Nigeria due to the inaccessibility of data. The study employed ordinary least square regression to analyse the data. The result showed that account receivable has a negative significant effect on return on assets, while cash conversion cycle and account payable were insignificant. The study recommends that Industrial firms should ensure that inventory is adequate to meet customer demands at all times while at the same time minimizing the cash conversion cycle of converting inventory to cash. Also, the management should maintain an adequate period of settling their suppliers in order to avoid negative effect on the company's performance. Finally, firms should create a new strategies and incentives like discount and promo that will ensure that debtors are encouraged and motivated to settle their accounts on time.

Keywords: Working capital management, *Cash conversion cycle, Account payable, Account receivable, Financial performance, Listed Industrial Firms. Nigeria*

JEL Classification Codes: C23, E59, G32

1. Introduction

The existence of every business entity hinges mainly on its ability to manage its assets among which is working capital. Working capital management therefore involves managing the firm's cash, inventory, receivables and payables in order to achieve a balance between risk and returns thereby contributing positively to the firm's value. (Nyangweso & Wepukhulu, 2019). Even though managers would desire to have a relatively high current ratio because that would indicate that the firm is liquid and has the ability to meet its current payables promptly. It also means that the firm is losing profit that it would have made from ploughing back these resources to the firm. Similarly, firms that do not care about cash management might encounter the challenge of bankruptcy, for these purpose management of working capital ought to be paramount for a firm's continued existence (Mohsin, Muhammad & Salman. 2019).

The significance of working capital and the need for its effective management can be understood by looking at the time and energy financial managers devote to sourcing, controlling and applying the various components of working capital, the proportion of current

assets in the total assets of firms as well as the direct relationship between current assets and sales growth (Kemunto & Oluoch, 2019). However, management varies from firm to firm and from industry to industry due to the differences in their operations, regulations and capital requirements. While some industry must have long working capital cycle as a result of their operations (retail business) others (technology firms) have very little need for working capital. As such working capital management is important to firm's performance which requires a lot of up-front investment like the industrial sector with most of their assets being current assets (Iqbal, Manzoor, Akhtar & Amin, 2020).

With all the reforms by the past and present administration in Nigeria to improve the industrial sector and enhance its profitability and knowing the vital role working capital management plays in the financial performance of any firm, the industrial sector has not regained the confidence of investors with less market share price of this sector in the stock market and also with high inflation rate in the country. Thus, higher working capital might alert investors that the company may not be efficiently investing its resources judiciously (Vincent, 2014).

This study will help managers of industrial firms to better understand the use of liquidity. The study adopted ten (10) listed industrial firms in Nigeria. The firms are Austinlaz, Berger paints, Beta Glass, BUA Cement, CAP, Cutix, Dangote Cement, Greif Nigeria Plc, WAPCO, Meyer and Prem Paints.

2. Literature Review

2.1. Working Capital Management

According to Vincent (2014), working capital management involves planning and controlling of current assets and current liabilities in a manner that eliminates the risk of inability to meet due short-term obligations on one hand and avoid excessive investment in current assets on the other. Winasis, et al. (2020) defined working capital management as an accounting strategy focusing on maintaining efficient levels of current assets and current liabilities in respect to each other.

Wang, et al. (2020) opined that working capital management deals with the determination of levels and compositions of current assets and ensuring that right sources of funds are tapped to finance current assets and ensuring that current liabilities are paid in time. Also, Eljelly (2004) declared that working capital management involves making appropriate investment in cash, marketable securities, inventories and receivables as well as the level and mix of short-term financing. Doan (2020) elucidates that working capital management entails short term decisions generally relating to the next one-year period which are reversible.

Waema and Nasieku (2016), working capital management seeks to maintain an optimum balance of each working capital component thereby ensuring that firms operate with sufficient fund that will service their long-term debt and satisfy both maturing short-term obligations and upcoming operational expenses. According to Ishmael, et al. (2017) working capital management involves both setting working capital policy and carrying out that policy in the day-to-day operations of the firm.

Cash Conversion Cycle: cash conversion cycle is a competitive medium of working capital management, which will result to fewer funds tied down in the form of current assets, exposing the firm to greater risk of cash shortage and stock outs. However, its means the horizon in which inventory can be converted into cash and cash conversion cycle can be reduced by maintaining relative high investment (Waema & Nasieku, 2016),

Account Payable: It represents the amount the firm expects to receive from its debtors in payment of goods and services delivered or rendered by the firm. Therefore, it is the responsibility of the financial manager to make decisions as regarding the policy that must be adopted in extending credit facilities to customers because of the problem of possible default" (Kemunto & Oluoch, 2019)

Account Receivables: In the work of Vincent (2014), account payables represent the average number of days it takes a company to pay its creditors/suppliers. Firms ordinarily prefer to delay payment for credit purchases while Supplies also play the game of inducing customers (debtors) to pay for credit purchases within the shortest period of time by offering cash discounts".

2.2 Financial Performance

Financial performance is described by Ameyaw, et al. (2019), as the interaction between a company's resources, structure, culture, and environment. It is the ultimate goal of corporate managers as it serves as a benchmark for evaluating individual and organizational performance, and it is also beneficial for shareholders to evaluate the performance of an organization. In this study, performance is estimated as ROA.

2.2 Empirical Review

Iqbal, *et al.* (2020) assessed the effect of cash conversion cycle on profitability of the firm. Three components are used to measure cash conversion cycle (CCC); average receivable period (ARP), average inventory period (AIP) and average payable period (APP). Henceforth, cash conversion cycle and its determinants are taken as independent variables. The data was collected with the help of pooled data containing a sample of 10 firms of two manufacturing sector such as Oil & Gas and Engineering, listed on PSX. In the end, there exists a highly negative significant association among CCC and firm's profitability as ROA. Conversely, Wang, *et al.* (2020) examined the impact of working capital management (WCM) and working capital strategy (WCS) on firm's financial performance across different stages of the corporate life cycle (CLC). They studied Pakistani non-financial listed firms nested in 12 diverse industries over a period of 2005–2014. The findings revealed that WCM is negatively associated with firm performance".

Also, Doan (2020) analyzed the impacts of working capital management on the profitability of fisheries enterprises in Vietnam. Using the Generalized Method of Moment (GMM), "the study data was collected from 20 fishery enterprises listed on Vietnam's stock market, for the period of 2010-2018. The study results showed that the profitability (ROA) of the enterprises is negatively affected by accounts receivable period (AR), inventory period (INV), accounts payable period (AP) and cash conversion cycle (CCC). Agegnew (2019) examined the effect of working capital management on profitability. The study sampled 5 companies for the period of seven years (2009-2015). "The researcher found that there is a significant negative relationship between liquidity and profitability. However, the research design was not stated and the study also covers the period of seven years from 2009-2015 which is far from the time the paper was published, the researcher should have extended the work to cover 2017 or 2018.

Subsequently, Nyangweso and Wepukhulu (2019) established the effect of working capital management on financial performance of the listed firms under the commercial and services sector at Nairobi Securities Exchange from 2008-2017. The study found "that Accounts Collection Period had a negative and significant effect on financial performance of listed firms in the commercial and services sector in Kenya. In Pakistan, Mohsin, et al. (2019) examined

the effects of working capital management on the performance of the non-financial firms in Pakistan from 2000 to 2016. The results found that working capital management has a significant impact on firms' financial performance in terms of profitability, However, the scope of the study is limited to Pakistan which only receivable management influences both profitability and growth as the study did not include variables like cash conversion cycle.

The gap of the study will contribute in the existing literature by expanding the research to a large sample over a period of 10 years. Further, the research is based on recent data and is focused on Nigerian industrialisation, which are uniquely drivers of the business economy.

2.3 Theoretical Review

Cash conversion cycle theory was propounded by Gitman (2009). The theory is part of operating cycle theory which is calculated by adding inventory period to accounts receivables period and then subtracting accounts payables from it. "Its focus is on the length of time between the acquisition of raw materials and other inputs and the inflows of cash from the sale of finished goods, and represents the number of days of operation for which financing is needed.

The CCC is a dynamic measure of ongoing liquidity management, since it combines both balance sheet and income statement data to create a measure with a time dimension (Jose & Lancaster, 1996). While the analysis of an individual firm's CCC is helpful, industry benchmarks are crucial for a company to evaluate its CCC performance and assess opportunities for improvements because the length of CCC may differ from industry to industry. Therefore, the correct way is to compare a specific firm to the industry benchmark in which it operates (Doan, 2020). "The cash conversion cycle is used as a comprehensive measure of working capital as it shows the time lag between expenditure for the purchase of raw materials and the collection of sales of finished goods. Day-to-day management of a firm short-term assets and liabilities plays an important role in the success of the firm". Firms with growing long-term prospects and healthy bottom lines do not remain solvent without good liquidity management (Nyangweso & Wepukhulu, 2019).

3. Methodology

Ex post facto research design was centred on listed industrial firms in Nigeria. The study concentrated on the period between 2011 - 2020. The panel data was collected from secondary sources from the individual financial reports of the listed industrial firms. The population of the study covered thirteen (13) listed industrial firms in the Nigerian Stock Exchange as at December 2021 which are Austinlaz, Berger paints, Beta Glass, BUA Cement, CAP, Cutix, Dangote Cement, Greif Nigeria Plc, WAPCO, Meyer, Notore Plc, Portpaint, paints, Prem Paints. With filtering sampling technique, ten 10 industrial firms were sampled while Austinlaz Plc, BUA Cement, Notore Plc firms were excluded due to unavailability of data for the purpose of this study.

The following multiple regression model was used:

$$ROAit = \beta 0 + \beta 1CCCit + \beta 2APRit + \beta 3ARRit + Uit$$

Where;
ROA= Return on Assets (Dependent Variable)
CCC= Cash conversion cycle (Explanatory Variable)
APR= Account Payable ratio (Explanatory Variable)
ARP= Account Receivable ratio (Explanatory Variable)

U = Disturbance or Error Term
β = Constant term
β1 – β 3 = Coefficient of the Independent Variables

4. Data Analysis and Discussion of Findings

4.1. Descriptive Statistics

The descriptive statistics in Table 1 revealed that ROA, CCC, ARR and APR were having mean values of 5.890103, -24.07578, 68.49515 and 194.8218 respectively. The deviation from the mean (standard deviation) was 24.51973, 262.1062, 80.70528 and 207.3620 respectively; this means that ROA, CCC, ARR and APR were normally distributed. In like manner, the Jacque-Bera values confirm the normality of the data.

Table 1: Descriptive Statistics

	ROA	CCC	ARR	APR
MEAN	5.890103	-24.07598	68.49515	194.8218
MEDIAN	6.860000	5.560000	39.81000	153.5400
STD. DEV.	24.51973	262.1062	80.70528	207.3620
SKEWNESS	-4.486592	-1.315645	2.184520	3.615106
KURTOSIS	35.69258	11.76829	7.537956	20.96126
JARQUE-BERA	4645.180	338.7186	160.3796	1515.152
PROBABILITY	0.000000	0.000000	0.000000	0.000000
SUM SQ. DEV.	57716.84	6595168.	625280.8	4127904.
OBSERVATIONS	97	97	97	97

Source: Authors' computation (2022)

4.2 Test of Variables

4.2.1 Correlation Matrix

From table 2 the correlation matrix result suggests that there is no multicollinearity among the independent variables of interest. According to Gujarati (2003), there is no consequence of multicollinearity if the mean VIF is less than 10.

Table 2: Correlation Matrix

	ROA	CCC	ARR	APR
ROA	1	0.123663882	-0.443519459	-0.30465373
CCC	0.1236638820	1	0.395063190	-0.877973918
ARR	-0.4435194599	0.395063190	1	0.003355675
APR	-0.3046537348	-0.87797391	0.0033556756	1

Source: Authors' computation (2022)

4.2.2. Hausman Test

The result of the Hausman test in the table 3 indicates appropriate model to analyse the OLS of the study. With the probability of 0.1070, the random effect was rejected. Therefore, the fixed effect estimator was used to run the regression.

Table 3: Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	6.095641	3	0.1070

Source: Authors' computation (2022)

4.3 Effect of Working Capital Management on Financial Performance

The regression table reveals a negative significant relationship between ROA and account receivables since the P-value of ARR is 0.000 which is less than 0.05. But account payable and cash conversion cycle were not significant since the P-value of CCC and APR is 0.0630 and 0.2155 respectively which is greater than 0.05. The test of goodness of fit reveals that the estimated relation has a good fit. While both the R2 and adjusted R2, which stand at 58% and 52% respectively, revealed that about 58% of total variations in cash conversion cycle, account receivable and account payable were explained by variations in ROA; the f-statistic, which reveals the joint significance of all estimated parameters in predicting the values of cash conversion cycle, account receivable and account payable, is statistically significant with a value of 9.687866 and a p-value of 0.0000.

Table 4: Working Capital Management on Financial Performance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17.55659	4.271904	4.109780	0.0001
CCC	0.058003	0.030785	1.884158	0.0630
APR	0.043456	0.034822	1.247927	0.2155
ARR	-0.273539	0.056271	-4.861080	0.0000

R-squared	0.580534	Mean dependent var	5.890103
Adjusted R-squared	0.520610	S.D. dependent var	24.51973
S.E. of regression	16.97697	Akaike info criterion	8.625740
Sum squared resid	24210.28	Schwarz criterion	8.970804
Log likelihood	-405.3484	Hannan-Quinn criter.	8.765267
F-statistic	9.687866	Durbin-Watson stat	0.819966
Prob(F-statistic)	0.000000		

Source: Authors' computation (2022)

4.4. Discussion of Findings

Based on the findings of the research, the study is consistent with the research of Kemunto and Oluoch (2019) and Waema and Nasieku (2016) that the relationship between account receivables and ROA is significant. However, the implication of this finding indicates that some of practices of account receivable is a necessity because when debtors settle their accounts as at when due which may be used for further investments and this will eventually affect firm performance. The result of no significant effect of account payables and cash conversion cycle shows consistency with the works of Nyangweso and Wepukhulu (2020), Moshin, *et al.* (2019), Wang, *et al.* (2020) and Agegnew (2019).

5. Conclusion and Recommendations

This study examines the effect of working capital management on financial performance. In agreement with prior evidence from developed countries that show significant linkage between working capital management and financial performance, the paper conclude that since account receivables has a negative significant effect ROA, a unit increase in account receivables will have a decrease on ROA. Also, since account payable and cash conversion cycle has no significant effect on ROA, a unit increase in account payable and cash conversion cycle will have no noticeable on ROA.

Drawing from our research findings, recommendations are proffered as follows:

i. Industrial firms should ensure that inventory is adequate to meet customer demands at all times while at the same time minimizing the cash conversion cycle of converting inventory to cash.
ii. The management should maintain an adequate period of settling their suppliers in order to avoid negative effect on the company's performance.
iii. Firms should create a new strategies and incentives like discount and promo that will ensure that debtors are encouraged and motivated to settle their accounts on time.

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