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Abstract

This study evaluated the influence of working capital management on financial performance of publicly listed oil and gas companies in Nigeria. The populations of the study are all the registered oil and gas firms on Nigerian Stock Exchange during the study period while a sample of 7 firms were selected. The study made use of secondary data obtained from the annual reports of the sample firms from 2014 to 2023. The study employed descriptive and inferential statistics for analysis. Working capital management variables are Account Receivable Period (ARP) Account Payable Period (APP) Cash Conversion Cycle (CCC) and Inventory Conversion Period (INVP) while financial performance is proxy by operating efficiency. The findings of the study indicated that there is statistically significant positive relationship between the ARP, APP, CCC and performance measured by Asset Turnover (AST). The study therefore suggests that firms should maintain an optimal level of working capital in order to enhance their efficiency. Additionally, the effective management of cash flow is deemed to be of utmost importance for organizations while maintaining a balanced working capital management, with particular focus on managing account receivables, payables, and cash conversion cycle.

Introduction

The idea of working capital management is gaining significant traction worldwide, particularly in light of the present financial climate and global economic conditions. Business owners and managers worldwide are concerned with coming up with a plan for running their daily operations so they can fulfill their responsibilities on time, boost profitability, and grow shareholder wealth. In any organizational context, working capital is an essential component that needs careful consideration, appropriate planning, and management.

Similarly, working capital is seen as the lifeblood of any economic entity, and managing it is one of the most crucial aspects of corporate management (Lartey, V., Antwi, S., and Boadi, E. 2013).

The time and effort financial managers invest in sourcing, controlling, and applying different working capital components, the percentage of current assets in a company's total assets, and the direct correlation between current assets and sales growth can all be used to understand the importance of working capital and the necessity of its efficient management (Garcia

& Martinez, 2007). The outcome of a firm's or organization's operations, as determined by the firm's operational efficiency, is its financial performance. The degree to which resources are efficiently directed toward the intended goal or objective is known as organizational performance (Wilson, M., Wnuk, K., Silvander, J. & Gorschek, T. 2018).

Effective working capital management may have a positive impact on manufacturing companies' performance, which will maximize profits and shareholder wealth. Effective working capital management, according to Shin and Soenen (1998), is crucial to generating value for shareholders. In 2005, Filbeck and Krueger discussed the importance of working capital. Since the ability of financial managers to efficiently manage payables, inventory, and receivables is a critical component of business success, management performance is indisputable. Since working capital is essential to any business, it must be managed carefully, effectively, and efficiently. It is crucial to note that the optimal management of a company's working capital determines whether it succeeds or fails. The poor working capital management of numerous businesses has resulted in their liquidation.

Furthermore, due to the nature of its operations and its strategic location in the global economy, the building material industry has never had a greater need for innovative approaches to working capital management than in the recent years of the global financial meltdown that has ravaged world economies and caused a liquidity crisis that has rocked the foundation of corporate entities worldwide. According to Uremadu, J.A., Egbide, B., Enyi, P.E. (2012), the crisis was caused by most firms' prior poor working capital management. They contend that some of the techniques managers employ when deciding on working capital are not

based on financial principles but rather on ill-conceived models or vague rules of thumb. The businesses may be overcapitalized, undercapitalized, or worse, liquidated, as a result of the management's inability to efficiently manage the working capital at their disposal (Sharma & Kumar, 2011).

Although various authors have researched on working capital management generally, only few have empirically examined the relationship between working capital management and firm performance. The few studies on relationship between working capital management and performance focus so much on profitability and value as the indexes of performance (Bereprebofa, D., Sinebe, M.T. & Akpotu, J. E. (2023), Ibrahim & Isiaka (2021), Yakubu, A., Dangana, U., & Umaru, O. O. (2020), and Abubakar et al. (2023)) there is lack of empirical evidence on the relationship between working capital management and performance with reference to Nigerian oil and gas industry despite the strategic role it plays in Nigerian economy hence the compelling need to embark on the present study in order to fill the large vacuum created by the dearth of empirical studies on the subject matter.

Literature Review

Working Capital Management

Since working capital management is seen as a financial tool that guarantees that immediate liabilities do not outweigh assets, it entails monitoring and preserving a company's current assets, including financial resources and securities. Since an effective WCM has a major impact on a firm's financial performance, especially on its revenue production, its goal is to strike a balance between risk avoidance and excessive investments (Sani, A. B., Jibril, J. & Bakare, T. O. (2023). WCM entails managing and preserving a successful current asset base,

which includes financial resources and securities, to make sure that short-term obligations don't outweigh these assets. Therefore, a company's financial performance depends on its WCM. Because its outcome has a significant impact on a firm's overall financial performance, particularly revenue generation, the goal of such financial management also ensures that excessive investments in volatile assets are avoided.

Financial performance

Optimal use of resources is what is meant by financial performance. By effectively managing its operating expenses, the company can reduce the amount of working capital it needs. Increased performance improves working capital utilization and quickens the cash cycle. Increased profitability and less strain on working capital are two benefits of better resource use. The degree to which resources are successfully directed toward the intended goal or target is known as efficiency (Wilson et al., 2018). The effort to improve efficiency has become increasingly significant in recent years. In a similar vein, companies that want to obtain a competitive advantage in the market must aim for financial performance, especially given the world's fast-growing population and limited supply of resources. One important aspect of operational performance is making the best use of an organization's resources. To succeed, businesses must efficiently convert input into output.

Theoretical Framework

Operating Cycle Theory

Richards and Laughlin (1980) explore the working capital management facets of an organization's operations by improving their understanding of the flow of liquidity. According to the theory, businesses can control liquidity more precisely if they

incorporate inventory turnover and receivables account measurements into their operational cycle (Eugene, 1987). According to Eugene (1987), the account receivable indicator tracks the frequency of converting receivables. This indication varies with changes in collecting policies. A lengthy collection period and a low turnover of receivables suggest that liquidity is being depleted. Companies with higher average investments in receivables have higher current and acid test ratios, claim Richards and Laughlin (1980). The operational cycle of a business is determined by adding up the days of investment inventory and receivable accounts. Businesses can assess their liquidity, a gauge of profitability, by looking at their inventory and receivable account turnover.

Empirical Review

Kiyamaz, H. , Haque, S. , & Choudhury, A. A. (2024) investigated the relationship between working capital and its components and firm performance while adjusting for firm-specific and macroeconomic factors. The study covered 3336 firms from developed and emerging economies between 2010 and 2020. The results indicate that, although the components of the cash conversion cycle (CCC) differ, the CCC is inversely correlated with business performance in both established and emerging nations. While businesses in industrialized economies do better when they have more inventory on hand, businesses in emerging economies perform worse when they have more inventory on hand, longer collection periods, and longer payment periods. Company-specific elements that affect WCM performance include business size, growth, profitability, and leverage. They also find that country-specific variables such as gross domestic product (GDP), interest rate, and

inflation have varying impacts on a firm's WCM.

Gbadebo (2024) evaluated the effect of working capital management on the 2012–2020 financial performance of Nigerian listed deposit money institutions. The cash conversion cycle and gross operating profit served as a stand-in for working capital management, while return on assets served as the performance indicator. The findings demonstrated that whereas CCC had a considerable but negative influence on ROA, operating profit had a favorable and significant impact. Interest rates and inflation were two macroeconomic variables that significantly affected financial performance.

Ebire, K., Onmonya, L. O., Ofikwu, C. E., & Adegbenro, D. F. (2024) examined how working capital management affected alternative energy's financial success in the UK from 2015 and 2022. Return on assets, inventory turnover, payable turnover, and receivable turnover are all included in the proxy. Panel data from the annual reports of the sampled companies were used in the study. The results demonstrated that the alternative firm's return on assets in the UK is significantly boosted by receivable turnover. ROA was significantly impacted negatively by payable turnover.

Kademi, I. S., Alias, N., Haron, N. H. & Sadique, R. M. (2024). studied how the success of publicly traded manufacturing firms listed on the Nigeria Exchange Group is impacted by working capital management practices. The study's data was studied using a sample of 18 manufacturing companies during a five-year period, from 2013 to 2017. Profitability and the Account Payable Period were found to be significantly positively correlated by the linear regression analysis. Increased profitability is linked to an extension of the accounts payable period. Since accounts receivable have a negative

and negligible correlation with profitability, the second regression model's conclusion shows that a shorter time (days) to recover sales from customers is associated with a lower profit. The third finding showed a negligible negative correlation between profitability and the inventory conversion period.

Sani, A. B., Jibril, J. & Bakare, T. O. (2023) conducted research on how working capital management affects the financial results of Nigerian listed industrial goods companies. Using the purposive sample technique, the study gathered information from the annual reports of a few chosen companies between 2011 and 2021. For data analysis, the generalized method of moments (GMM) estimator approach was used. The results show that receivables collection and inventory turnover have a beneficial effect on financial performance. The results showed that return on equity is statistically significantly impacted by inventory turnover and receivables collection.

Bereprebofa et al (2023) assessed how Working Capital Management (WCM) affected the financial results of Nigerian publicly traded enterprises. Secondary data on the cash conversion cycle, account receivable management, and account payable management metrics collected between 2012 and 2021 were used in the study. The study's conclusions show a statistically significant correlation between financial performance and the cash conversion cycle. The financial performance of Nigerian publicly traded companies was statistically significantly impacted by the management of the cash conversion cycle, accounts receivable, and accounts payable.

Methodology

The study used an ex-post facto research design and pre-existing data from

the firm's accounts that were chosen for analysis between 2014 and 2023. The study's population consisted of all listed oil and gas companies on the Nigerian Exchange Group. Convenience sampling is used in the study to choose seven companies. Financial performance as determined by asset turnover is the dependent variable, and the indexes for the independent variables are the receivable, cash, inventory, and payable conversion periods. Additionally, the study used control variables including leverage and company size.

The model utilized for this study was adopted from the study of

$$AST_{it} = \beta_0 + \beta_1ARP_{it} + \beta_2CCC_{it} + \beta_3INVCP_{it} + \beta_4ACP_{it} + \beta_5FS_{it} + \beta_6LEV_{it} + \varepsilon_t$$

β = coefficients of the independent variables

μ = error term

i, t = cross sectional and time series.

AST = Asset turnover

ARP = Account Receivable period

CCC = Cash conversion cycle

INVCP= Inventory conversion period

APP = Account Payable period

FS = Firm size

LEV= Firm leverage

Result and Discussion

Table 4.1 Descriptive Statistics

	AST	ARP	APP	INVCP	CCC	LEV	SIZ
Mean	1.725	100.84	78.427	210.823	159.72	4.704	7.906
Median	1.645	98.000	78.500	202.960	162.00	3.875	7.800
Maximum	8.099	204.490	115.060	332.710	238.36	22.760	9.030
Minimum	0.003	36.330	36.230	50.870	33.300	0.420	7.170
Std. Dev.	1.340	26.333	18.071	123.661	32.801	3.420	0.478
Skewness	1.724	0.806	-0.210	6.107	-	2.491	1.052
					0.3393		
Kurtosis	8.892	6.320	2.399	45.720	5.1510	12.806	3.487
Jarque-Bera	13.950	39.730	1.568	57.141	14.838	352.85	13.602
Observations	70	70	70	70	70	70	70

Researcher’s Computation (2025)

All of the variables' mean values were found to be positive. This suggests that for the majority of the time periods, all of the variables evaluated have shown a rising tendency. An increase in operating efficiency is indicated by the mean asset turnover (AST) figure, which also indicates improved bank performance. The variables' highest and lowest points during the study period are indicated by the maximum and minimum values. During the study period, asset

turnover had a maximum value of 8.09 and a minimum value of 0.003 for AST with a standard variance of 26.33 days, it may be inferred that the companies, on average, take more than 100 days to collect their outstanding debt, given that the average payment time for the ARP is 100 days.

APP has an average of 78 days. With a standard deviation of 18.07 days, it indicates that the selected companies took approximately 78 days to settle their bills. With a standard deviation of roughly 124

days, the INVCP's average of 210 days shows that the company takes 210 days on average to turn inventory into sales and the average time for CCC is 159 days. This means that, on average, it takes the businesses 159 days to turn CCC into sales, with a standard variation of roughly 124 days. According to table 4.1, the natural logarithm of total assets indicates

that a company's average size is 7.906%; the mean for debt is 4.704%. According to Jaque-Bera, almost all of the variables are positively skewed and normally distributed, with the exception of cash conversion cycle (CCC) and account payable (APP), which have negatively skewed coefficients of -0.3393 and -0.210, respectively.

Table 4.2 Correlation Matrix

	AST	ARP	APP	CCC	INCV	LEV	SIZ
AST	1.000						
ARP	-0.098	1.000					
APP	0.386	0.072	1.000				
CCC	-0.017	-0.540	-0.495	1.000			
INV	-0.020	0.008	-0.168	0.046	1.000		
LEV	0.309	-0.354	0.224	0.054	-0.182	1.000	
SIZ	0.172	-0.499	0.050	0.260	0.061	0.377	1.000

Researcher’s Computation (2025)

Table 4.3 Variance Inflation Factors

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	4.636112	9420.619	NA
APP	0.040279	271.8638	1.883308
ARP	0.156615	1338.426	5.237032
CCC	0.058359	550.0059	5.986917
INV	0.130659	1371.925	1.740535
LEV	0.000967	26.99484	2.742406
SIZ	0.036293	4666.761	3.369980

Researcher’s Computation (2025)

Pearson Correlation Matrix and Variance Inflation Factors

The study used correlation and variance inflation factors tests to determine that there is no multicollinearity issue between the variables of interest. Tables 4.2 and 4.3 present the results of the two experiments. Since there is no correlation between the variables up to the 70%

threshold, the correlation matrix result indicated that there was no collinearity among the variables. Table 4.3 shows that each variable's variance inflation factor is smaller than the threshold value of 10, which is used to assess whether the variables would cause a multicollinearity problem. This suggests that there is no discernible multicollinearity in the model.

Table 4.4 Diagnostic Tests

Test	F- Statistics	P-value	Remarks
Serial Correlation Test	7.2957	0.0260	Presence of auto serial correlation
Heteroskedasticity	1.1973	0.4782	Absence of Heteroskedasticity problem

Researcher's Computation (2025)

Serial Correlation and Heteroskedasticity Problem

OLS was not suitable for the study because pre-estimation results from the pooled Ordinary Least Square results showed autocorrelation but no heteroskedasticity. Additionally, this supports the application of Panel Corrected Standard Errors (PCSE), which accounts for autocorrelation issues.

Table 4.5 Panel Corrected Standard Errors (PCSEs)

Variable	Coeff	Std. Err	Z- Stat	Z-Pval	95% Conf.	Interval
C	-35.139	13.430	-2.62	0.009	-61.463	7.8711
ARP	3.8591	2.0469	1.89	0.059	-0.1527	10.729
APP	6.6787	2.0669	3.23	0.001	2.6275	2.3906
INV	7.7966	0.8133	0.98	0.327	-0.7974	10.905
CCC	5.6065	2.7038	2.07	0.038	0.3071	0.1973
LEV	0.1049	0.0471	2.22	0.026	0.0124	0.9089
SIZ	0.255	0.3336	0.76	0.445	-0.3988	-8.8162
R ²	0.2645					
Wald Chi	13.67					
Wald P- Val.	0.0335					

Researcher's Computation (2025)

According to the results, the regression model is statistically significant in terms of fitness, as indicated by the Wald Chi-squared statistic value of 13.67 for the model and the p-value of 0.0335 being less than 0.05 (5% level of significance) in Table 4.5. This implies that the model is statistically significant and has a good fit. The outcome demonstrated that the efficiency of the firm was positively impacted by independent variable indexes. The findings indicated that account receivable had a favorable effect on asset turnover, suggesting that a one-day increase in the time it takes for debtors to settle their accounts improves the operational efficiency of the oil and gas enterprises in the sample.

The results also indicated that asset turnover was positively impacted by the account payable period (APP), indicating that a one-day increase in the time it takes for Nigerian listed oil and gas companies to clear their accounts boosts corporate profitability by 6.67 percent. This is due to the fact that when businesses extend the period of time before paying their suppliers for the things they have purchased, they can reinvest the extra time to enhance their profits. Lastly, the outcome also demonstrated that asset turnover is positively and significantly impacted by the cash conversion cycle (CCC). This suggests that an increase of one (1) day in the cash conversion cycle will result in a 5.60% rise in asset turnover. Two control variables were used in this study, and the

outcome demonstrated that leverage significantly and favorably affected asset turnover. This implies that a company's asset turnover will rise in tandem with its leverage. A business will operate more efficiently if it has a good capital mix and uses debt sensibly. Asset turnover is not significantly impacted by firm size.

The study's conclusion supports the operating cycle theory's claim that performance will increase when working capital is managed to keep a company liquid at all times. It also supports the findings of Bereprebofa et al. (2023), Anton & Nucu (2021), and Wassie (2020), who found that working capital management, had a positive impact on firm performance. On the other hand, the findings contradict those of Kademi (2024), Kiymaz (2024), and Okereoti (2021), who emphasized the negative effects of working capital management on performance.

Conclusion and Recommendations

The study analysed the impact of working capital management on Nigerian oil and gas companies' operational effectiveness. The working capital management parameters of cash conversion cycle, account payable period, and account receivable period significantly and favorably impacted the selected firm's operational efficiency. Based on the study's findings, Nigerian oil and gas companies were advised to implement a strong credit management system to guarantee that clients make their payments on schedule. This can be done by providing incentives for early payment and defining explicit terms of payment; they can also bargain with their suppliers to extend terms of payment when feasible, prioritize payments according to the terms agreed upon with suppliers since account, and implement tactics to better manage their cash flow.

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