NIU Journal of Social Sciences Copyright©2024
Nexus International University ISSN: *3007-1682*; 10(1): 243–255

Analysis of Working Capital Dynamics versus Oil and Gas Firms' Financial Performance

T. OHIDOA, TOBI STEVEN OMOREGHA
University of Benin, Benin City, Nigeria

Abstract. This study investigates the effects of working capital management on financial performance in oil and gas firms. The longitudinal research design was used. The secondary source of data was sourced from the Nigerian Exchange Group (NGX) as at 31st December, 2022 for various years. The Ordinary Least Squares (OLS) estimation technique method was adopted for analysis with the aid of the E-views (9.0) software. Findings obtained showed that WCFP and WCIP have positive and significant relationship with ROCE and a negative and significant relationship with ROCE The study thus concludes that only WCFP, and WCIP are good predictors of financial performance. This study thus recommends that companies should ensure that the cash conversion sequence is systematically monitored to avoid idle cash balances, occurrence of cash shortages as well as cash theft by employees.

Keywords: Capital Management, Financial Performance, Inventory, and Profitability.

1. Introduction

One of the primary goals every firm is to make profit, maximize shareholders' value, and continue to exist as a going concern. However, the ability of a firm to remain in business for a long time and continue to exist as a going concern is highly dependent on the efficient management of its working capital. It is a generally accepted fact that proper management of operational capital is vital to a firm's fundamental fiscal health and operative success as an industry, hence the need to utilize a solid balance amongst growth, liquidity and viability which is a trademark of noble business hinged on management (Lazaridis, 2021).

Prior to the springing up of the universal economic downturn, managing working capital has been a vital issue of discourse to safeguarding the firmness and the existence of a business. In the last economic recession that hit the world, firms around the globe especially in North America, Europe and Asia have tried to improve their efficiencies and one of their coping strategies was the management of working capital. In the Nigerian context, the recent cashless policy of the Central Bank of Nigeria (CBN) was implemented due to the high volume of cash for transactions of goods and services, mainly for purchasing and sales (Vanguard, 2023).

Thus, the CBN policy has reduced the undue dependence on cash for transactions thereby stimulating end-to-end electronic payments in the country. According to the CBN (2023), the foremost aim for the policy was to decrease the volume of Naira notes and coins used for business transactions but not to eradicate cash usage. Admittedly, the CBN policy has resulted in faster access to capital, lessened revenue leakage and lessened cash handling costs for corporations. However, the policy has reduced the cash handling capacity of corporations thus decreasing its working capital management (Kabir et al. (2021). The relevance of working capital management to the growth and survival of a firm is apparent in prior studies and cannot be overemphasized. A key truth that demands the requirement for effective working capital management is that, where cash in hand is too low, a firms' survival becomes shaky, whereas too much investment in short-term resources proves unprofitable.

When a firm lacks adequate working assets to ensure its commitments due to inadequate working capital management, fiscal insolvency can occur as a result of bankruptcy of resources and possible economic failure. It is argued that working capital management has been a significant concept of discourse to ensuring corporate stability and survival even before the occurrence of the universal economic recession. Firms after the occurrence of the erstwhile universal economic recession specifically in North America, Europe and Asia persistently operate to increase their

productivities and competences and this is enhanced through working capital management strategy (Abdullahi et al., 2020; Vanguard, 2023).

More so, it worthy to mention that, most of the aforementioned studies on working capital management and firms' financial performance were conducted in years outside the cashless policy of the central bank of Nigeria (CBN, 2021). Therefore, the consideration of the active years of the cashless policy in this study is novel; as it helped us to empirically investigate the impact of the policy on the financial performance and working capital management of Nigerian oil and gas companies.

To achieve the objectives of this study, the following questions were raised:

- What is effect of cash conversion cycle on financial performance of the oil and gas firms in Nigeria?
- What is the relationship between inventory conversion period and financial performance of oil and gas firms in Nigeria?
- What is the impact of working capital financing policy on financial performance of oil and gas firms in Nigeria?
- What is the relationship between working capital investment policies and financial performance of oil and gas firms in Nigeria?
- What effects does liquidity management have on financial performance of oil and gas firms in Nigeria?

2. Literature Review

2.1 Financial Performance

In accounting and finance literature, the vital role of financial management cannot be undermined, as effective and efficient fund management is required by all firms for sustainable operations (Panda, 2006). As a result, strong company financial performance is a result of effective and efficient fund management. Thus, the word "performance" was first used in ancient French to indicate "to bring through," "to carry out," "to do," or "to bring forth." Performance is an act of accomplishing, executing, realizing, and achieving the given tasks that needs to be measured against distinct sets of precision, money, fullness and timing (Farah et al., 2016). It refers to the appraisal of a company's strategy, initiatives, and successful achievements in monetary terms in the field of finance. It is used to determine a company's performance, suitability, and financial standing as evidenced by its returns on investments, assets, equity, capital employed, and profitability. Financial performance (FP) is a determinant of corporate earnings, profits as well as increase in corporate capital appreciation (Enesi& Ibrahim, 2021) which pre-eminently reflects a firm's continued existence. It reveals a company's capacity to achieve its goals, attract potential stockholders and sustain good relations with its stakeholders (Badriyah et al., 2015). Companies are supposed to offer an accurate and fair representation of their financial status and performance at the end of each financial year, as shown by the results of their operations and cash flows in their financial statements.

According to Farah et al. (2016), FP is the degree to which a company's financial condition is measured at a specific period. FP is the company's financial conditions at a particular period which comprises the collection and use of funds measured by several gauges of capital adequacy ratio, liquidity, leverage, solvency, and profitability (Fatihudin et al., 2018). Mutende et al. (2017) see FP as a company's capacity to attain strategic financial outcomes as measured against its projected outputs. FP can be described broadly as the ability to control and maintain investment, operational choices and implementing plans to attain financial stability for a firm and objective. The ability of the company to manage, control, and accomplish its planned financial objectives and results, as determined by several indicators including capital adequacy ratio, liquidity, leverage, solvency, and profitability, is what we define as financial performance based on these parameters. The idea of FP has attracted substantial concern from researchers (Abdullahi et al., 2019; Kaguri, 2013). It has been of major concern to several stakeholders in all kinds of undertakings because of its effects on organizational well-being as well as eventual survival. Two categories of corporate performance are corporate financial performance and corporate non-financial performance (Chinedu&Chinedu, 2018).

2.2 Working Capital Management

Asghar and Syed (2012) posits that working capital management involves decisions made with regards to current assets. It refers to all those decisions and activities a firm undertakes to manage efficiently the elements of current assets (Brigham &Gapenski, 1996; Pandey, 2007). To Van-Horne and Vachowicz (2004), working capital management is 'that part of financial planning concerned with the 'protecting and directing of a firm's current assets and the planning for adequate funds to pay current bills.' It is the efficient combination of trade receivables and payables necessary to maximize profit for the organization (Raheman& Nasr, 2007). According to Padachi (2006), 'by efficient working capital management,

funds are made readily available for the daily operational activities of an organization'. Also, according to Lamberson (1995), working capital management has become one of the most important issues in the organizations where many financial executives are struggling to identify the basic working capital determinants and the appropriate level of working capital. Deloof (2003) further suggests that firms should try to keep an optimal level of working capital that maximizes their profitability as well as the firm's value.

Smith (1980) cited in Tewodros (2010) argued that the efficient management of working capital is important from the point of view of liquidity (risk) and profitability as well as firm value. He added that ineffective working capital management results in needless investment in unprofitable assets or insufficient investment in current assets which will tie up idle funds and hence decreases company's capacity to invest in profitable assets, thus decreasing earnings. More also, inadequate investment in current assets decreases the liquidity position of the firm thus causing insolvency and bankruptcy afterwards. Afza and Nazir (2009) opined that optimal use of working capital components is an essential aspect of the overall corporate strategy of an organization aimed at creating shareholders' wealth. Furthermore, Mathuva (2010) highlighted the important parts or components of working capital management to include management of trade receivables and payables, holding investible funds/cash and sustaining a definite. He added that utilization of these working capital mechanisms determines, to a large extent, the performance of an organization.

Mathuva (2010) identified four crucial components of working capital management which includes inventories, accounts receivable, accounts payable and cash conversion cycle. Inventories, according to Vrat (2014), are described as the accessibility of resources such as the supply of components, consumables, spare parts, sales items, obsolescent items, and all other supplies that are maintained for the purpose of impending production and well along for sales and possessing economic value in fulfilling the forecasted level of demand. Raheman and Nasr (2007) argued that inventories have significant influence on firms' WCM efficiency, as it has direct impact towards the trade-off of firms' profitability and liquidity. Based on the argument of Moss and Stine (1993), firms should meritoriously invest in short term assets (i.e., inventories and receivables) as it is the dynamism that drives firm's sales growth, stating that divergently, investment in non-current assets could be attenuating throughout the time horizon as firms have alternatives of renting or leasing the assets. A shortage in inventories might cause an upsurge of ordering as well as purchasing cost of inventories; losing sales as dispossession of good creditworthiness customers through imposition of stricter trade credit policy; and retrograde firm's reputation as deferring payments to suppliers (Nobanee& Al-Hajjar, 2011). Motlíček and Polák (2015) explained inventory as one components of working Capital that influences the length of cash conversion cycle (CCC) which is the long-term plan made on the acquisitions, manufacturing and storage has influence on the time and financial constraints and thus, affect the firms' performance.

2.3 Inventory Convert Period and Financial Performance

Abdullahi et al. (2020) employed six (6) publicly traded oil and gas businesses in Nigeria to investigate the effect of working capital management on financial performance over an eleven-year period, from 2008 to 2018. The study used descriptive analysis with mean, median, minimum, and maximum values as well as panel data approaches such as Pooled Ordinary Least Squares (POLS), Fixed Effects, and Random Effects models. The findings showed no link between effective inventory management and commercial success. According to the study, inventory management in the oil and gas industry is unproductive and inefficient. According to the report, managers of oil and gas enterprises should hire experts in inventory management.

Using panel data for forty (40) companies across the consumer and industrial goods sectors of the economy, Lawrence et al. (2020) studied the effect of working capital management on the performance of chosen companies listed on the Nigerian Stock Exchange. Return on assets (ROA) was used as a stand-in for company performance, and working capital management was measured by cash conversion cycle (CCC), average payment period (APP), inventory collection period (ICP), and average collection period (ACP). The OLS econometric method was used to assess the impact of the observed independent variables (cash conversion cycle, average payment period, inventory conversion period, and average conversion period) on business performance. The study found proof of a significant and favourable correlation between inventory conversion time and company performance.

Using historical panel data analysis, Bashari and Mohammed (2021) assessed the correlation between the inventory conversion period and return on net assets (ROA) for businesses in the Nigerian

conglomerate sector. Data were generated from secondary sources, specifically the annual reports and accounts of quoted corporations from 2006 to 2017, and the ex-post factor study approach was used. The population of the study consisted of six conglomerate firms that are listed on the Nigerian Stock Exchange. The study used fixed-effect and random-effect 246 eneralized least square (GLS) regression techniques, the Hausman Specification Test, descriptive statistics, Pearson correlation, and GLS regression methodologies as data analysis tools. The results showed a weak and substantial correlation between the return on net assets (ROA) of Nigerian conglomerate companies and the inventory conversion period (ICP). Businesses should, according to the research, properly plan and manage their operations, make any necessary corrections as soon as they are discovered, consider financial principles when making decisions, hire specialists in various business disciplines, and do routine stock takes.Therefore, the hypothesis that flow from this argument is that, *inventory conversion period has no significant relationship with firms' financial performance of oil and gas in firms.*

2.3 Working Capital Financing Policy and Financial Performance

Working capital management and the financial success of Nigerian oil businesses were investigated by Ironkwe and David in 2017. The Pearson Product Moment Correlation (PPMC) was used to assess the hypotheses in a quasi-experimental approach. According to the data research findings, there is a mild and insignificant association between financing policies and earnings per share (EPS) but there is a progressive and significant relationship between financing regulations and return on assets (ROA). The study also discovered a negligible but unfavourable relationship between financing regulations and return on equity (ROE). It was determined that working capital management affects Nigerian companies' performance primarily in the area of ROA. It is advised that businesses in the industry establish appropriate criteria for working assets components in order to efficiently meet changing obligations. Other recommendations include a comprehensive assessment of fiscal performance trends and a strategy for managing working capital.

Using panel data regression, Eric (2021) investigated the effects of working capital management and policy on the profitability of 21 listed retail trading sector enterprises in Indonesia between 2011 and 2020. Working capital policy was measured by current assets divided by total assets, also known as working capital investment policy, and current liabilities divided by total assets, also known as working capital financing policy; profitability was measured by earnings before interest, tax, and amortisation (EBIT). Working management was measured by the cash conversion cycle and its components, which are days' sales outstanding (DSO), days inventory outstanding, and days payable outstanding (DPO). The findings demonstrated that companies can raise EBITDAM by reducing CCC, notably by reducing DIO and prolonging DPO. Additionally, businesses can increase EBITDAM by switching to a cautious working capital strategy rather than an aggressive one. This entails having more current assets and a lower current obligation to total assets ratio.

In their research, Oli and Dewan (2017) looked at the impact of working capital financing policy on business profitability from the perspective of Bangladesh, a developing nation, in an effort to address this conundrum. The study used the fixed-effect panel data regression approach using 80 manufacturing companies that were listed on the Dhaka Stock Exchange (DSE) throughout the sample period of 2009 to 2014. The findings showed that the working capital financing policy had a detrimental impact on the firm's profitability as assessed by return on assets (ROA). The study suggested that working capital finance policy should be implemented at a conservative level, relying more on long-term than short-term financing choices. In their study, Zhao and Wijewardana (2012) looked at working capital policy (WCP) practises in the context of Sri Lanka. The industry's "best practise" limit was experimentally articulated using multiple regression analysis (MRA), and business productivity was assessed as the detachment from that limit. 155 businesses listed on the Colombo Stock Exchange (CSC) between 2002 and 2006 made up the study's sample. They investigated WCP behaviour, company performance, and the decision factors using various working capital regimes. The study summarised the many aspects of working capital policy using the efficiency, liquidity levels, and working capital policy assumptions. The study tests the empirical validity of two competing hypotheses across various working capital policy choices using multiple regressions, as well as the influence of efficiency on factors that are determining the WCP and what factors associated with the determinants of listed firm to exploit working capital management policy. The research discovered that various working capital policy practices have various effects on the firm's liquidity, effectiveness, profitability, and capacity utilisation. We therefore hypothesized that, *working capital financing policy*

has no significant impact on firms' financial performance of oil and gas.

2.5 Working Capital Investment Policy and Financial Performance

Working capital management and the financial performance of Nigerian oil businesses were researched by Ironkwe and David in 2017. The PPMC was utilised to test the hypotheses, and the quasi-experimental design was employed. The findings showed that investing policies and earnings per share (EPS) have a neutral and modest link, but investing rules and return on assets (ROA) had a progressive and perfectly large association. The study also discovered a negligible but unfavourable connection between return on equity (ROE) and investing guidelines. It was determined that working capital management affects Nigerian enterprises' performance predominantly via the lens of ROA. It is advised that businesses in the industry develop suitable benchmarks of working assets components for growing obligations to be met adequately, among other things, such as the full analysis of fiscal performance trends and working capital management framework.

Using panel data regression, Eric (2021) investigated the effects of working capital management and policy on the profitability of 21 listed retail trading sector enterprises in Indonesia between 2011 and 2020. Working capital policy was measured by current assets divided by total assets, also known as working capital investment policy, and current liabilities divided by total assets, also known as working capital financing policy; profitability was measured by earnings before interest, tax, and amortisation (EBIT). Working management was measured by the cash conversion cycle and its components, which are days sales outstanding (DSO), days inventory outstanding, and days payable outstanding (DPO). The findings demonstrated that companies can raise EBITDAM by reducing CCC, notably by reducing DIO and prolonging DPO. A conservative working capital policy, which entails having more current assets and fewer current liabilities relative to total assets, can help businesses increase EBITDAM.

The study ofAddin-Almawsheki (2022) study on short-term investment and financing decisions was working capital restrictions and their effect on the financial performance of Malaysian manufacturing businesses. Working capital finance and investment policies were used in the study to gauge the effectiveness of working capital policies. The study's data comprised 147 firms and 1,470 firm-year observations from 2010 to 2019. The study's findings showed that while the conservative working capital financing approach was positively and significantly related to a company's performance, the current assets to total assets ratio had a negative and substantial impact on financial performance. According to the study's conclusions, manufacturing companies can boost their operational income by pursuing an aggressive working capital investment strategy. The effects of working capital investment and financing policies on a firm's performance (profitability and market value) as well as the effect of profitability on market value were examined by Chosita and Sareeya (2019). They collected information from 68 companies listed on the Thailand Stock Exchange covering the production industry from 2012 to 2016. Path analysis was used to analyse the data and check the model's consistency while measuring the effects of working capital strategy on performance. According to their study's findings, the model was found to be consistent at a probability level of 0.085, where X2/df was 2.96, CFI was 0.951, GFI was 0.979, IFI was 0.957, and RMR was at 0.004. Additionally, there was a statistically significant positive correlation between working capital investment policy and profitability, and profitability acted as a mediating variable to effect market value. The working capital financing programme also had a major detrimental effect on profitability and market value. They came to the conclusion that businesses can raise their profitability and market value by adopting conservative working capital investment and finance policies. From the aforementioned, the hypothesis is that, *there is no significant relationship between working capital investment policy and firms' financial performance of oil and gas.*

3. Theoretical Review

The pecking order theory (POT) was first mentioned by ThorleifSchjelderup-Ebbe in 1921, introduced by Donalson in 1961 and popularized by Myers and Majluf (1984) after criticizing the trade-off theory. It is otherwise referred to as pecking order model. The POT states that the cost of financing increases with the asymmetric information. It is attributed to the concept of asymmetric information between managers and investors (Lucas & McDonald, 1990). Thus, firms determine how to finance their investments in a defined order (Donaldson, 1961), to a degree to which internal funds are utilized (i.e retained earnings) in first place, followed by external funding (i.e safe debt and then risky debt), and ultimately issuing of new equity (Fama& French, 2002). In this regard, managers are hypothetically equipped with relevant information about the fair value and riskiness of the

firm's prospect as compared with investors (Myers &Majluf, 1984). Previous empirical research has validated Myers's proposition with the exposition that utilising internal funding could impel a greater degree of control on firms' operations and assets utilization (Padachi et al., 2012). Hence, there is a case wherein undervaluation of the firm's real value prompting large firms to invest a higher amount in working capital requirements as they are presumed to have less information asymmetric issue to access external funding (Haron & Nomran, 2016).

An obvious implication of the theory is that highly lucrative firms that produce high earnings are likely to use less debt capital than those that are not very profitable. The Pecking order theory is applicable to working capital management and is conceived from the viewpoint of short-term financing decision, wherein Donaldson (1961) prevails upon the practice of firms to preserve a reasonable level of liquidity for the repayment of short-term obligation in arrears on top of mitigating disruptions along the operational business flow (Ajibolade & Sankay, 2013). This conventional practice indicates that the source of financing the working capital requirement is predominantly deriving from long-term capital (Narasimhan & Vijayalakshmi, 1999), followed by trade credit which is regarded as interest-free, short-term funding which conventionally embedded in the form of credit terms that are offered by the suppliers. However, Ajibolade and Sankay (2013) asserted that in a circumstance of the limited internal source of funding a firm would choose to invest in long-term capital investments instead of working capital requirements, impelling the hindrance to achieve the optimality in managing working capital components effectively.

4. Methodology

This study adopted the longitudinal research design. This helped to explain the phenomena by collecting numerical data that were analysed using statistical approaches (Aliaga& Gunderson, 2000). The total population of the study consisted of all the one hundred and fifty-eight (158) companies listed on the Nigerian Exchange Group (NGX) as at 31st December, 2022. The sample size for this study consists of the nine (9) oi and gas firms listed in the floor of Nigerian Exchange Group and the model for this study is stated as:

$$ROCE_{it} = \beta_0+\beta_1 ICP_{it}+\beta_2 WCFP_{it}+\beta_3 WCIP_{it}+\mu_{it} \ldots\ldots\ldots (1)$$

Where: ROCE = Return on Capital Employed; ICP = Inventory Conversion Period; WCFP = Working Capital Financing Policy; WCIP = Working Capital Investment Policy; i = Company; t = Period Covered; β_0 = Intercept; β_1, β_2, β_3, β_4, β_5, = Parameter Estimates; μ = Error Term;

5. Data Presentation and Analysis

Table 5.1: Descriptive Statistics

	ROCE	ICP	WCFP	WCIP
Mean	16.75133	73.40385	14.25672	4.669294
Median	0.098139	26.09015	0.609733	0.568196
Maximum	1643.438	2854.664	1341.677	400.3231
Minimum	-6.260077	-45.45752	3.92E-05	5.97E-05
Std. Dev.	165.1692	292.7239	134.7795	40.19308
Skewness	9.796175	8.843593	9.796850	9.781961
Kurtosis	96.98025	84.07100	96.98900	96.79210
Jarque-Bera	38016.61	28402.04	38023.61	37866.28
Probability	0.000000	0.000000	0.000000	0.000000
Sum	1658.381	7266.981	1411.415	462.2601
Sum Sq. Dev.	2673524.	8397356.	1780219.	158317.4
Observations	99	99	99	99

Source: *Researcher's Computation (2023)*

The result of the descriptive statistics is presented in Table 4.1 and financial performance (ROCE) constitutes the key variable of interest as it is the regress and the mean value of ROCE is 16.75133 while the median value is 0.098139. Both the mean and median values indicate that working capital management is relative to financial performance. It has 7maximum and minimum values of 1643.438 and -6.260077 with a positive skewness of 9.7967175 indicating

that the values for ROCE are geared towards the right indicating high skewness. The Jarque-Bera statistic of 38016.61 and p-value of 0.000000 indicate that the values for ROCE are normally distributed. maximum and minimum values of IC are 2854.664 and -45.45752, maximum and minimum values of WCFP are 1341.677 and 3.92E-05, maximum and minimum values of WCIP are 400.3231 and 5.97E-05.

5.1 Correlation Analysis

Table 5.2: Correlation Matrix

Correlation				
t-Statistic				
Probability	ROCE	ICP	WCFP	WCIP
ROCE	1.000000			

CCC	0.190583			
	1.912070			
	0.0588			
ICP	-0.024264	1.000000		
	-0.239043	-----		
	0.8116	-----		
WCFP	0.999863	-0.026326	1.000000	
	594.6257	-0.259372	-----	
	0.0000	0.7959	-----	
WCIP	0.999347	-0.027710	0.999722	1.000000
	272.4262	-0.273012	417.5354	-----
	0.0000	0.7854	0.0000	-----

Source: *Researcher's Computation (2023)*

The correlation matrix presented in Table 4.2 shows the degree of relationship between the regressors and the regressand (ROCE). Admittedly, the relationship between a variable and itself is one (1). The relationship between ROCE and ICP is negative and weak based on the correlation coefficient of -0.024264. The relationship between ROCE and WCFP is positive and strong based on a correlation coefficient of 0.999863. Also, the relationship between ROCE and WCIP is positive and strong based on a correlation coefficient of 0.999347. In terms of the relationship among the regressors, the study observes that the strongest relationship is between WCFP, while the least is between WCIP.

5.2 Diagnostic Tests

Table 5.3: Test of Heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.900743	Prob. F(7,91)	0.0784
Obs*R-squared	12.62847	Prob. Chi-Square(7)	0.0817
Scaled explained SS	224.3709	Prob. Chi-Square(7)	0.0000

Source: *Researcher's Computation (2023)*

The test of heteroskedasticity was conducted using Breuch-Pagan-Godfrey test. The test reveals F-statistics of 1.900743 and a probability of 0.0784. This is consistent with the null hypothesis of homoskedastic residuals. In addition; the result reveals that the residuals are homoskedastic as the p-values are all greater than the benchmark of 0.05. This indicates that there is no evidence for heteroskedasticity.

5.3 Regression Analysis

Table 5.4: Estimation Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.772102	1.617949	-1.095277	0.2763

ICP	-4.79E-05	0.000674	-0.071138	0.9434
WCFP	1.856283	0.784829	2.365208	0.0201
WCIP	-1.859414	0.807029	-2.304023	0.0235
R-squared	0.999879	Mean dependent var		16.75133
Adjusted R-squared	0.999870	S.D. dependent var		165.1692
S.E. of regression	1.886677	Akaike info criterion		4.184867
Sum squared resid	323.9189	Schwarz criterion		4.394573
Log likelihood	-199.1509	Hannan-Quinn criter.		4.269714
F-statistic	107284.9	Durbin-Watson stat		2.206362
Prob(F-statistic)	0.000000			

Source: *Researcher's Computation (2023)*

The result of the regression output above reveals the relationship between working capital management and financial performance as measured by the ROCE coefficient. The R-Squared of the model is 0.999879 (99%) with an adjusted R-Squared of 0.999870 (99%). This implies that the observed regressors explained 99% systemic variation in the regressand (ROCE). The F-stat of 107284.9 with an associated p-value of 0.000000 is significant at 1%. It indicates that there is a significant linear relationship between the regressand (ROCE) and the regressors. The Durbin-Watson statistics of 2.206362 shows the absence of autocorrelation in the model. The coefficient and p-values of the five (5) regressors observed (ICP, WCFP, and WCIP) are presented as follows: -4.79E-05 (0.9434), 1.856283 (0.0201), -1.859414 (0.0235) respectively. The result shows that CCC has a negative and significant relationship with ROCE at 1% level of significance, ICP has a negative but insignificant relationship with ROCE at 5% level of significance, WCFP has a positive and significant relationship with ROCE coefficient at 2% level of significance, WCIP has a negative and significant relationship with ROCE at 2% level of significance, has a negative but insignificant relationship with ROCE at 5% level of significance.

5.4 Test of Hypothesis One

Inventory conversion period has no significant relationship with financial performance of oil and gas industry. Test Statistic and Decision: ICP has a coefficient of -4.79E-05with an associated p-value of 0.9434 that is greater than 5% level of significance. The study thus concludes that ICP has a negative but insignificant relationship with ROCE thus leading to the acceptance of the null hypothesis that inventory conversion period has no significant relationship with financial performance of oil and gas industry in Nigeria and rejection of the alternative hypothesis.

5.5 Test of Hypothesis Two

Working capital financing policy has no significant relationship with financial performance of oil and gas industry. Test Statistic and Decision: WCFP has a coefficient of 1.856283 with an associated p-value of 0.0201 that is less than 5% level of significance. The study thus concludes that WCFP has a positive and significant relationship with ROCE thus leading to the acceptance of the alternative hypothesis that working capital financing policy has a significant relationship with financial performance of oil and gas industry in Nigeria and rejection of the null hypothesis.

5.6 Test of Hypothesis Three

There is no significant relationship working capital investment policy and financial performance of oil and gas industry. Test Statistic and Decision: WCIP has a coefficient of -1.859414 with an associated p-value of 0.0235 that is less than 5% level of significance. The study therefore concludes that WCIP has a negative and significant relationship with ROCE thus leading to the acceptance of the alternative hypothesis that there is no significant relationship between working capital investment policy and financial performance of oil and gas industry in Nigeria and rejection of the null hypothesis.

6. Discussion of Findings

Inventory conversion period (ICP) was found to have a negative but insignificant relationship with ROCE when measured at 5% level of significance. Following from the research finding, ICP has a coefficient of -4.79E-05with an associated p-value of 0.9434 greater than 5% level of significance. The result suggests that as ICP decreases, there is no significant increase ROCE and this is inconsistent with the apriori expectation ($\beta_2>0$). This, of course, is attributable to the long period of time it takes to refine crude oil products by the operators in the sector. This finding is consistent with the findings of Bashari and Mohammed (2021) but inconsistent with the findings of Abdullahi et al. (2020), Adegbola et al. (2021),

Harrison et al. (2015), Lawrence et al. (2020), Mohsin et al. (2019), Nobanee (2009), and Sarbapriya (2011).

Working capital financing policy (WCFP) was found to have a positive and significant relationship with financial performance (ROCE) when measured at 5% level of significance. Following from the research finding, WCFP has a coefficient of 1.856283with an associated p-value of 0.0201 less than 5% level of significance. The result suggests that as WCFP increases, there is corresponding increase ROCE and this is consistent with the apriori expectation ($\beta_3>0$). This, of course, is attributable to the efficient and effective use of short-term financing instruments such as bank overdraft, bill of exchange, banker's acceptance and other short-term financial instruments to finance petroleum operations. This finding aligns with the findings of Eric (2021) and Ironkwe and David (2017) who revealed that higher oil prices tends to raise financial performance in Nigeria thus resulting in high rate of poverty and inflation but inconsistent with the finding of Zhao and Wijewardana (2012).

Working capital investment policy (WCIP) was found to have a negative and significant relationship with financial performance (ROCE) when measured at 5% significant level. Following from the research finding, WCIP has a coefficient of -1.859414with an associated p-value of 0.0235 less than 5% level of significance. The result suggests that as WCIP increases, there is corresponding decrease in ROCE and this is inconsistent with the apriori expectation ($\beta_4>0$). This, of course, is attributable to the low patronage from the citizens due to high cost of petroleum product in the country. This finding aligns with the findings of Addin-Almawsheki (2022) but inconsistent with the finding of Chosita and Sareeya (2019), Eric (2021), Ironkwe and David (2017) and Zhao and Wijewardana (2012).

7. Conclusion

The broad objective of the study was to investigate the relationship between working capital management and financial performance in Nigeria. Specifically, financial performance is a topical issue which will continue to attract attention in the Nigerian economy due to its significance. Also, pecking order, trade-off, and agency theories have shown the significance of financial performance for the interest of all stakeholders (citizens). Following the various reviews, results of analysis, interpretations and hypotheses tested, the study showed that WCFP and WCIP have positive and significant relationship with financial performance; CCC has a negative and significant relationship with financial performance while ICP and LIQM have negative but insignificant relationship with financial performance at 5% critical level. Following the empirical findings, the study can conclude that only CCC, WCFP, and WCIP are good predictors of financial performance in Nigeria while ICP and LIQM are not good predictors of financial performance in Nigeria.

8. Recommendations

Having investigated the relationship between working capital management such as CCC, ICP, WCFP, WCIP, and LIQM and financial performance in Nigeria and flowing from the research findings, this study thus puts forward the following policy recommendations that:

- Cash conversion cycle depends on the timing of cash conversion by companies. Thus, companies should ensure that the cash conversion sequence is systematically monitored to avoid idle cash balances, occurrence of cash shortages as well as cash theft by employees.
- Working capital financing policy was found positive and significant with financial performance in Nigeria. To a large extent, companies should ensure that their working capital financing policy is adequately examined and appraised to ensure that the right source of fund is employed in financing corporate projects. That is, short-term source of fund should not be used in financing long-term project rather, appropriate financing instrument should be employed in financing the right class of project.
- Working capital investment policy was found to have a negative and significant with financial performance. This suggests that companies should always carry out critical appraisal of its investment portfolios to be able to know the most viable ones to invest in. However, judicious and efficient use of capital on investment will improve the corporate financial performance.

and further investigate the relationship between working capital management and financial performance in Nigeria.

References

Abdulazeez, D. A., Babab, N. A., Kolo, R. F., &Abdulrahamand, Y. (2018). Working capital management and financial performance of listed conglomerate companies in Nigeria. *Journal of Accounting, Finance and Auditing Studies*, *4*(2), 49 - 66.

Abdullahi, A., Garba, A., &Abubakar A. (2020). Working capital management and financial performance of listed oil and gas firms in Nigeria. *Journal of Management Science*, *1*(1), 56 - 78.

Abdullahi, S. K., Martins, I. E., Jude, D., & Ado, A. (2019). Firm characteristics and financial performance of consumer goods firms in Nigeria. *Scholar Bulletin, 5*(12), 743-752. DOI: 10.36348/sb.2019.v05i12.008

Abdullahi, S. K., Martins, I. E., Jude, D., & Ado, A. (2019). Firm characteristics and financial performance of consumer goods firms in Nigeria. *Scholar Bulletin, 5*(12), 743-752. DOI: 10.36348/sb.2019.v05i12.008

Adegbola, O. O., Tony, I. N., Gabriel, D. F., Johnson, K. O., &Oladipo, A. (2021). Does working capital management impact an enterprise's profitability? Evidence from selected Nigerian firms. *Problems and Perspectives in Management,19*(1), 477- 486. doi:10.21511/ppm.19 (1).2021.40.

Adewale, J. A., &Akinola, N. R. (2022). Working capital management and performance of selected quoted food and beverages manufacturing companies in Nigeria. *International Journal of Innovative Finance and Economics Research*, *10*(1), 147-157.

Agha, H. (2014). Impact of working capital management on profitability. *European Scientific Journal, 10*(1), 374-381. DOI: https://doi.org/10.19044/esj.2014.v10n1p%25p.

Aifuwa, H. O., Musa, S., &Aifuwa, S. A. (2020). Coronavirus pandemic outbreak and firms performance in Nigeria. *Management and Human Resource Research Journal, 9*(4), 15 – 25. https://orcid.org/0000-0001-8908-6637

Ajibolade, S. O., &Sankay, O. C. (2013). Working capital management and financing decision: Synergetic effect on corporate profitability. *International Journal of Management, Economics and Social Sciences, 2*(4), 233-251.

Alhassan, I., &Anwarul, K. M. (2021). Liquidity management and financial performance of listed oil and gas companies in Nigeria. *International Journal of Accounting & Finance Review, 8*(1), 15-25. https://doi.org/10.46281/ijafr.v8i1.1364.

Alipour, M. (2011). Working capital management and corporate profitability: Evidence from Iran. *World Applied Sciences Journal, 12*(7), 1093 - 1099.

Al-Shubiri, F. N., &Aburumman, N. M. (2013). The relationship between cash conversion cycle and financial characteristics of industrial sectors: An empirical study. *Investment Management and Financial Innovations, 10* (4), 95-102.

Aminu, Y., &Zainudin, N. (2015). A review of anatomy of working capital management theories and the relevant linkages to working capital components: A theoretical building approach. *European Journal of Business and Management, 7* (2), 10-18.

Asghar, A., & Syed, A. A. (2012). Working capital management: Does it really affects the profitability? Evidence from Pakistan. *Global Journal of Management and Business Research, 12*(17), 74-78.

Aytac, B., Hoang, T. H. V., Lahiani, A., & Michel, L. (2016). Working capital management and profitability of wine firms in France: An empirical analysis. *American Association of Wine Economist working paper*, 201, 1- 28.

Badriyah, N., Sari, R. N., & Bari, M. (2015). The effect of corporate governance and firm characteristics on firm performance and risk management as an intervening variable. *Procedia Economics and Finance, 31*, 868 – 875.

Barine, M. N. (2012). Working capital management efficiency and corporate profitability: Evidences from quoted firms in Nigeria. *Journal of Applied finance & Banking, 2*(2), 215-237.

Bashari, H., & Mohammed, R. M. (2021). The effect of inventory conversion period (ICP) on return on net assets (ROA): Evidence from conglomerate firms in Nigeria, 1-20.

Ben-Caleb, E., Olubukunola, U., & Uwuigbe, U. (2013). Liquidity management and profitability of manufacturing companies in Nigeria. *IOSR Journal of Business and Management, 9*(1), 13 - 21.

Bhunia, A., & Brahma, S. B. (2011). Importance of liquidity management on profitability. *Asian Journal of Business Management, 3*(2), 108 - 117.

Brigham, E. F., & Gapenski, L. C. (1996). *Financial management theory and practice, 7th Ed.* The Dryden Press, USA.

Central Bank of Nigeria (2023). Why the Central Bank of Nigeria made the cash-less policy. https://www.cbn.gov.ng/cashless/Cash-Less%20FAQs.pdf

Chinedu, F. E., & Chinedu, U. O. (2018). Macroeconomic factors, firm characteristics and financial performance: A study of selected quoted manufacturing firms in Nigeria. *Asian Journal of Accounting Research, 3*(2), 142-168

Chosita, P. &Sareeya, W. (2019). Impact of working capital policy on firms' performance: An empirical study on Thai listed companies in production Sector. Asia-Pacific Contemporary Finance and Development.

International Symposia in Economic Theory and Economics, *26*, 38-51. https//:doi:10.1108/S1571-038620190000026003.

Dioha, C., Ahmed, M. N., & Okpanachi, J. (2018). Effect of firm characteristics on profitability of listed consumer goods companies in Nigeria. *Journal of Accounting, Finance and Auditing Studies, 4*(2), 14 – 31.

Donaldson, G. (1961). *Corporate debt capacity: A study of corporate debt policy and determination of corporate debt capacity*. Boston, Harvard.

Dong, H., & Su, J. (2010). The relationship between working capital management and profitability: A Vietnam case. *International Research Journal of Finance and Economics, 49*(3), 62-70.

Elechi, A. C., & Rufus, A. (2016). Cashless policy in Nigeria and its socio-economic impacts. *Public Policy and Administration Research, 6*(10), 16 – 22.

Enesi, O. E., & Ibrahim, U. A. (2021). Effect of covid-19 pandemic on the performance of small and medium business enterprises in Abuja-FCT, Nigeria. *Open Journal of Business and Management, 9*, 2261-2276. https://doi.org/10.4236/ojbm.2021.95122

Eric, T. (2021). Influence of working capital management and policy to profitability of retail trading sector in Indonesia. *International Journal of Current Science Research and Review, 4*(12). https://doi:10.47191/ijcsrr/V4-i12-22. Impact Factor: 5.825.

Etim, O. E., Confidence, I. J., &Umoffong, N. J. (2020). Financial performance determinants at the Nigerian oil and gas sector. *East African Scholars Journal of Economics, Business and Management*, 3(12), 941-951. https://doi.org/10.36349/easjebm.2020.v03i12.004.

Falope, O., &Ajilore, O. (2009). Working capital management and corporate profitability: Evidence from panel data analysis of selected quoted companies in Nigeria. *Research Journal of Business Management, 3*(3), 73-84.

Fama, E., & French, K. R. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies*, 15, 1-33. http://doi.org/10.1093/rfs/15.1.1.

Farah, N., Farrukh, I., &Faizan, N. (2016). Financial performance of firms: Evidence from Pakistan cements industry. *Journal of Teaching and Education, 05*(01), 81 – 94.

Fatihudin, D., Jusni&Mochklas, M. (2018). How measuring financial performance. *International Journal of Civil Engineering and Technology, 9*(6), 553 – 557.

Filbeck, G., & Thomas, M. (2007). An analysis of working capital management results across industries. *Mid-American Journal of Business, 20* (2), 11-18.

Haomin, C. (2020). The Impact of financial leverage on firm performance – Based on the moderating role of operating leverage. *Advances in Economics, Business and Management Research*, *159*, 464-473.

Haron, R., &Nomran, N. M. (2016). Determinants of working capital management before, during and after the global financial crisis of 2008: Evidence from Malaysia. *The Journal of Developing Areas, 50*(5), 461-468.

Harrison, M. M., Virginia, W., & Rita, K. L. (2015). Effects of inventory conversion period on profitability of tea factories in Meru County, Kenya. *International Journal of Economics, Commerce and Management, 3*(10), 366-378.

Ironkwe, U. I., & David, W. A. (2017). Working Capital Management and Firms Financial Performance of Oil Companies in Nigeria. *Journal of Business and Management*, *19*(1), 1-17. https://doi:10.9790/487X-1901040117.

Jensen, M., &Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and capital Structure. *Journal of Financial Economics*, 3, 305-360.

Kabir Y. I., Muhammad, U., & Sunday, E. (2021). Working capital management and business performance. *Nigerian Journal of Marketing,7*(1), 38 - 56.

Kaguri, A. W. (2013). *Relationship between firm characteristics and financial performance of life insurance companies in Kenya*. Published M. Sc. Thesis, University of Nairobi, Kenya.

Kieschnick, R., LaPlante, M., &Moussawi, R. (2011). Working capital management and shareholder wealth. Working paper. http://ssrn.com/abstract=1431165.

Kulkanya, N. (2012). Effects of working capital management on the profitability of Thai listed firms. *International Journal of Trade, Economics and Finance, 3*(3), 227- 232.

Lamberson, M. (1995). Changes in working capital of small firms in relation to changes in economic activity. *Mid-American Journal of Business, 10* (2), 45-50.

Lawrence, U., Erin, O., Modebe N., &Achugamonu, U. (2020). Working capital management and the performance of consumer and industrial

goods sectors in Nigeria. 28th IBIMA Conference: Theme -Vision 2020: Innovation management, development sustainability, and competitive economic growth.

Lazaridis, D., &Tryfonidis, D. (2004). The relationship between working capital management and profitability of listed companies in the Athens stock exchange. *Journal of Financial Management and Analysis, 19*(1), 1-12.

Lazaridis, I., &Tryfonidis, D. (2007). The relationship between working capital management and profitability of listed companies in the Athens stock exchange. *Journal of Financial Management and Analysis,19*(1), 26 - 35.

Lee, H. S., Har, W. M., Yow, T. O., Lee, S. Y., &Kee, C. S. (2016). Does working capital management influence the performance of wholesale and property industry in Malaysia? *International Journal of Economics and Management Systems*, *1*, 1 - 14.

Makhsun, A., Yuliansyah, Y., Razimi, M. S. B. A., & Muhammad, I. (2018). The implementation of international financial reporting standard (IFRS) adoption on the relevance of equity and earning book value. *Academy of Accounting and Financial Studies Journal, 22*(1), 1 – 7.

Makori, D. M., &Jagongo, A. (2013). Working capital management and firm profitability: Empirical evidence from manufacturing and construction firms listed on Nairobi securities exchange, Kenya. *International Journal of Accounting and Taxation, 1*(1), 1-14

Mathuva, D. (2010). Influence of working capital management components on corporate profitability: A survey on Kenyan listed firms. *Research Journal of Business Management 3*(1), 1-11.

Micheal, A. A., Segun, A., &Taiwo, H. O. (2017). Impact of working capital management on financial performance of quoted consumer goods manufacturing firms in Nigeria. *Covenant Journal of Business & Social Sciences, 8*(2), 1-22.

Modigliani, F., & Miller, M. H. (1963). Corporate income taxes and the cost of capital. *American Economic Review*, 53, 433-443.

Mohsin, S., Muhammad, M., & Salman, S. (2019). Working capital management and firm performance: Evidence from non-financial firms in Pakistan. *Asian Journal of Empirical Research, 9*(2), 27-37. https://doi:10.18488/journal.1007/2019.9.2/1007.2.27.37.

Moss, J., & Stine, B. (1993). Cash conversion cycle and firm size: A study of retail firms. *Managerial Finance, 19* (8), 25-34.

Motlíček, Z., &Polák, J. (2015). Appropriate determination of net working capital in corporate financial management. ActaUniversitatisAgriculturae ET. *SilviculturaeMendelianaeBrunensis, 63* (4), 1323-1330.

Murugesu, T. (2013). Effect of cash conversion cycle on profitability: Listed plantation companies in Sri Lanka. *Research Journal of Finance and Accounting*, *4*(18), 132-137.

Mutende, E. A., Mwangi, M., Njihia, J. M., &Ochieng, D. E. (2017). The moderating role of firm characteristics on the relationship between free cash flows and financial performance of firms listed at the Nairobi securities exchange. *Journal of Finance and Investment Analysis*, *6*(4), 1-3.

Myers, S., &Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13, 187-221.

Narasimhan, M. S., &Vijayalakshmi, S. (1999). An inter-industry analysis of working capital management on components, efficiency and financing patter. Research bulletin (ICWAI), XVIII, July-Dec Issue, 65-75.

Naser, K., & Mokhtar, M. Z. (2004). *Determinants of corporate performance of Malaysia companies*. Paper Presented at the Fourth Asia Pacific Interdisciplinary Research in Accounting Conference, Singapore.

Nazir, M., &Afza, T. (2009). Impact of aggressive working capital management policy on firms' profitability. *The IUP Journal of Applied Finance*, *15*(8), 19-30.

Nobanee, H. (2009). Working capital management and firm's profitability: An optimal cash conversion cycle. http://ssrn.com/abstract=1471230.

Nobanee, H., &Alhajjar, M. (2011). Optimizing working capital management. JEL Classification, 1–21.

Nurein, S. (2014). *Effect of working capital management and financial constraints on corporate performance*. Published M. Sc.Thesis, Universiti Utara Malaysia, Malaysia.

Oladipupo, A. O., & Okafor, C. A. (2013). Relative contribution of working capital management to corporate profitability and dividend payout ratio: Evidence from Nigeria. *International*

Journal of Business and Finance Research, 3(2), 11-20.

Oli, A. T., &Dewan, M. (2017). Working capital financing policy and profitability: Empirical study on Bangladeshi listed firms. *British Journal of Economics, Management & Trade 17*(1), 1-6. http://doi:10.9734/BJEMT/2017/32595.

Olorunfemi, O. A., Opusunji, M. I., &Santeli, J. N (2020). Effect of cash conversion cycle (CCC) period on the profitability of selected food and beverage companies in Nigeria. *International Journal of Management Studies and Social Science Research*, 2, 108-116.

Osazevbaru, H. O., Sakpaide, E. J., &Ibubune, R. O. (2014). Cashless policy and banks' profitability in Nigeria. *European Journal of Accounting, Auditing and Finance Research, 2*(10), 1 – 12.

Osazevbaru, H. O., &Yomere, G. O. (2015). Benefits and challenges of Nigeria's cash-less policy. *Kuwait Chapter of Arabian Journal of Business and Management Review, 4*(9), 1 – 10.

Padachi, K. (2006). Trends in working capital management and its impact on firms' performance: An analysis of Mauritian small manufacturing firms. *International Review of Business Research Papers, 2*(2), 45-58.

Padachi, K., Howorth, C., &Narasimhan, M. S. (2012). Working capital financing preferences: The case of Mauritian manufacturing small and mediumsize enterprises (SMEs). *Asian Academy of Management Journal of Accounting and Finance, 8*(1), 125-157.

Panda, J. K. (2006). *Accounting & finance for management*. New Delhi: Sarup& Sons, 21-58.

Pandey, I. M. (2005). *Financial management.*Vikas publishing house PVT Ltd, New Delhi.

Pandey, I. M. (2007). *Financial management*. 9th Ed., Vikas publishing house PVT LTD, New Delhi, India, p. 584.

Petersen, M., &Rajan, R. (1997). Trade credit: Theories and evidence. *Review of Financial Studies, 10*(3), 661– 691.

Pinto, A. P. S., &Mário, G. A. (2014). Are there non-linear relationships between ownership structure and operational performance? Empirical evidence from Portuguese SMEs using dynamic panel data. *International Journal of Business Administration, 5*(3). Retrieved on February 27, 2019.

Vanguard (2023). Understanding CBN's cashless policy. https://www.vanguardngr.com/2023/01/understanding-cbns-cashless-policy/

Van, H. J. C., &Wachowicz, J. M. (2004). *Fundamentals of financial management.* 12th Ed., Prentice Hall Inc.

Vrat, P. (2014). Basic concepts in inventory management: Materials management, 21-36, Springer.

Walter, G., Washington, C., Dingilizwe, J., &Runesu, C. (2014). Working capital management and the profitability of non-financial firms listed on the Zimbabwe stock exchange. *European Journal of Business and Economics, 9*(2), 12-16.

Wasiuzzaman, S., &Arumugam, V. (2013). Determinants of working capital investment: A study of Malaysian public listed firms. *Australasian Accounting Business & Finance Journal, 7*(2), 49–70.

Weinraub, H. J., &Visscher, S. (1998). Industry practice relating to aggressive conservative working capital policies. *Journal of Financial and Strategic Decision, 11*(2), 11 - 18.

Yakubu, A., Umaru, A., &Oluwafemi, O. O. (2020). Working capital management and financial performance of selected quoted firms in Nigeria. *International Journal of Research and Scientific Innovation, 8*(5).

Zhao, B., &Wijewardana, P. (2012). Working capital policy practice: Evidence from Sri Lankan companies. The 2012 International (spring) conference on Asia Pacific Business Innovation & Technology Management. *Social and Behavioral Sciences*, 40, 695 – 700.