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WORKING CAPITAL MANAGEMENT AND ECONOMIC PERFORMANCE: EVIDENCE FROM PROFITABILITY OF LISTED AGRICULTURAL COMPANIES IN NIGERIA

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Abstract:

Working capital management WCM is an important strategic element of financial management. The optimal balance between current assets and current liabilities becomes inevitable in order to promote financial robustness and long-term profitability. This study therefore examined the effect of WCM (proxied by net working capital (NWC), change in working capital (CWC), net operating working capital (NOWC) and working capital to sales ratio (WCSR)) on economic performance, proxied by Return on Asset (ROA), of listed agricultural companies in Nigeria. This study adopted an ex-post facto research design where panel data for a period of 10 years (2015-2024) were extracted from agricultural companies listed on the Nigerian Exchange Group (NGX). As of December 2024, there were 5 agricultural companies listed on the NGX. Due to the population size, the 5 listed agricultural companies were all used as sample size. The extracted data were analyzed using both the descriptive and inferential analytical tools. Correlation analysis revealed weak negative relationships between ROA and NWC, CWC, NOWC, and WCSR. The results also show that the p-values for NWC, CWC, NOWC, and WCSR are 0.6518, 0.4196, 0.4463, and 0.5462 respectively which are all greater than 0.05. This indicates that NWC, CWC, NOWC, and WCSR do not significantly affect the ROA of listed Agricultural Companies in Nigeria. Since working capital management did not show strong effect on profitability in this study, managers should also focus on other areas that can improve profit. These include reducing production cost, using better technology, and finding new markets for their products.

Keywords: Working Capital Management, Profitability, Return on Asset, Net Working Capital

1.0 INTRODUCTION

Working capital management WCM is an important strategic element of financial management. It emphasizes how shortterm assets and liabilities are efficiently integrated to enhance firm financing and economic performance (Deloof, 2003). WCM involves planning, organizing, and controlling cash conversion and shortterm resources in order to promote liquidity, profitability, and shareholders' value while minimizing financing costs (Soukhakian & Khodakarami, 2019). Efficient WCM enhances business expansion by allowing firms to focus on long-term investment rather than relying solely on short-term borrowing. The optimal balance between current assets and current liabilities becomes inevitable in order to promote financial robustness and long-term profitability (Ibrahim, Tariq, Batool, & Iqbal, 2023). Excessive investment in current as



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sets ties up capital and reduces profitability, while inadequate investment increases the risk of liquidity and operational disruption (Kajola, Olayiwola, & Ekpudu, 2018)

The peculiarities of agricultural companies in terms of seasonal cycles, supply chain pressures, and demand fluctuations makes the need for effective management of working capital more critical; especially in Nigeria due to persistent challenges in managing short-term assets and liabilities (Raheman & Nasr, 2007). Such challenges include: inefficient cash conversion cycles high inventory holding costs, delayed receivables collection, and poor management of payables which have continued to deteriorate liquidity and profitability (Kajola, Olayiwola, & Ekpudu, 2018).

Furthermore, empirical studies on WCM and profitability have shown mixed results as some variables have shown significant effect while some insignificant effect on organizational profitability. Also, most existing research focused on manufacturing firms rather than agricultural companies (Ademola & Omolara, 2023; Olaoye & Okunade; 2020).

The persistent inefficiencies in WCM practices, inconsistent empirical findings, and limited sector-

specific studies have created gaps in literature. This study therefore addressed these identified gaps by examining the effect of WCM (proxied by net working capital, change in working capital, net operating working capital and working capital to sales ratio) on economic performance, proxied by return on asset, of listed agricultural companies in Nigeria. The findings will provide evidence-

-based insights for managers, investors, and policymakers to improve financial decision-making and enhance corporate performance.

2.0 LITERATURE REVIEW

Conceptual Review

Working Capital Management (WCM)

WCM involves ensuring a firm has adequate liquid assets to meet short-term obligations so as to maximize profitability through proper planning, organizing, and controlling of current assets and current liabilities (Deloof, 2003; Raheman & Nasr, 2007). It focuses on cash, marketable securities, inventory, receivables, and payables to balance profitability and risk (Garcia-Teruel & Martinez-Solano, 2007).

Net Working Capital (NWC)

NWC represents a firm's short-term liquidity and operational solvency using current assets. It reflects how a company is able to effectively manages its short-term resources and obligations (Raheman & Nasr, 2007). A positive NWC implies that a company has adequate current assets to settle its current liabilities, while negative NWC implies liquidity risk and potential financial distress (Deloof, 2003, Ironkwe & Wokoma, 2017).

Change in Working Capital (CWC)

CWC refers to the year-on-year movement in net working capital. It depicts the increase or decrease in short-term financial resources available for operating a business. A positive CWC shows that a company's current assets is growing faster than its current liabilities, thus indicating improved liquidity whereas a negative CWC indicates risk of rising liquidity (Deloof, 2003). Monitoring of CWC is essential for agricultural companies since they are prone to seasonal fluctuations that can result in liquidity shortages during planting/harvest cycles (Ironkwe & Wokoma, 2017).



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Net Operating Working Capital (NOWC)

NOWC refers to net working capital directly tied to core business operations which implies that it does not include non-operating items such as cash, short-term investments, and interest-bearing debt, focusing on inventories, trade receivables, prepaid expenses, and trade payables (Raheman & Nasr, 2007). It indicates the capital needed for the day-to-day operations of a business without relying on external financing. A positive NOWC shows that a company has sufficient operating assets to take care of its operational obligations, while negative NOWC indicates operational inefficiency and liquidity risk (Deloof, 2003).

Financial Performance

Financial performance refers to how an organization efficiently utilizes its financial resources to generate revenue, improve profitability, and maintain liquidity over a certain period. Common measures of financial performance include return on assets (ROA), return on equity (ROE), and net profit margin (Deloof, 2003). A strong financial performance shows effective management decisions and operational efficiency. An optimized working capital and shorter cash conversion cycles improve organizational profitability by reducing financing costs and idle resources (Raheman & Nasr, 2007).

Theoretical Review

Cash Conversion Cycle Theory (CCC)

The CCC was promulgated by Richards and Laughlin (1980) and links WCM to profitability through the cash conversion cycle (CCC). A shorter CCC indicates efficient management of working capital, improved liquidity, and higher profitability, while a longer CCC implies cash has been tied down and consequently reduces firm value (Deloof, 2003).

Agency Theory

This theory, which was postulated by Jensen and Meckling (1976), describes the conflicts between shareholders (principals) and managers (agents) which stems from divergent interests which can cause managers to over-invest or under-invest in working capital. The theory therefore advocates monitoring mechanisms and performance incentives to ensure WCM decisions align with maximization of shareholders' wealth.

Trade-off Theory

This theory was propounded by Myers (1984) to balance the tax benefits of debt against costs of financial distress and argued that firms face a risk-return trade-off. The theory posited that conservative WCM policies increase liquidity but reduce profitability, while aggressive policies boost returns but raise liquidity risk (Bradley, Jarrell, & Kim, 1984). Optimal WCM occurs where marginal benefit of liquidity equals marginal cost of reduced profitability.

Empirical Review

Belay, Tafa & Toleshi (2024) examined WCM impact on profitability of 5 Ethiopian private commercial banks 2011-2020. Using random effects model, bank size and loans-to-assets significantly affected profitability, while current ratio and asset ratios were insignificant.

Ademola & Omolara (2023) investigated WCM and profitability of listed manufacturing firms in 6 African countries 2014-



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2019. Panel FMOLS results showed accounts receivable period and cash conversion cycle had positive significant relationship with profitability.

Olaoye & Okunade (2020) studied WCM and profitability of quoted Nigerian manufacturing firms. Panel methodology showed creditors payment period significantly impacted profitability while inventory days and receivables period were insignificant..

3.0 METHODOLOGY

This study adopted an *expost facto* research design where panel data for a period of 10 years (2015-

2024) were extracted from agricultural companies listed on the Nigerian Exchange Group (NGX). As of December 2024, there were 5 agricultural companies listed on the NGX. Due to the population size, the 5 listed agricultural companies were all used as sample size. The extracted data were analyzed using both the descriptive and inferential analytical tools. The descriptive analysis provides an overview of trends and variations in the key variables while the inferential analytical tool was adopted to test the effect of working capital management surrogates on profitability.

Model Specification

The study examines the effect of working capital management on profitability of listed agricultural companies in Nigeria. The variables considered include Net Working Capital, Change in Working Capital (DER), Net Operating Working Capital, and Working Capital to Sales Ratio (ICR) as independent variables, while Return on Assets (ROA) serves as the dependent variable. The general functional form of the model is expressed as:

Financial Performance = $f(\text{Working Capital Management})$

Where;

Financial Performance = ROA

Working Capital Management = NWC, CWC, NWC, WSR

Therefore;

$ROA = f(NWC, CWC, NWC, WSR)$

$ROA = \beta_1 NWC + \beta_2 CWC + \beta_3 NWC + \beta_4 WSR + \varepsilon$

Where;

ROA = Return on Assets

NWC = Net Working Capital

CWC = Change in Working Capital

NWC = Net Operating Working Capital

WSR = Working Capital to Sales Ratio

β_0 is the Intercept

$\beta_1 - \beta_4$ is the coefficients of independent variables

ε is the Error term



4.0 RESULTS

Table 1 Descriptive Analysis

	ROA	NWC	CWC	NOWC	WCSR
Mean	0.122480	0.241400	0.012000	-0.135800	0.322540
Median	0.049000	0.095000	-0.010000	-0.165000	0.065500
Maximum	1.270000	3.050000	1.200000	2.330000	12.00300
Minimum	-1.457000	-1.420000	-1.010000	-1.570000	-3.174000
Std. Dev.	0.470039	0.860472	0.427413	0.671496	2.350621
Skewness	-0.550513	1.304689	0.794122	1.014455	2.686955
Kurtosis	6.204519	5.591340	5.014427	6.338608	13.74710
Jarque-Bera	23.91916	28.17478	13.70924	31.79747	300.7897
Probability	0.000006	0.000001	0.001055	0.000000	0.000000
Sum	6.124000	12.07000	0.600000	-6.790000	16.12700
Sum Sq. Dev.	10.82591	36.28020	8.951400	22.09442	270.7454
Observations	50	50	50	50	50

Source: E-View Output, 2026

Table 1 reports the descriptive statistic of the variables employed. It was shown that ROA has an average mean of 0.122480, with standard deviation of 0.470039, indicating that there is moderate variability in company's financial performance during the study period. NWC has an average mean of 0.241400, with standard deviation of 0.860472, CWC has an average mean of 0.012000, with the standard deviation of 0.427413, NOWC has an average means of -0.135800, with the standard deviation of 0.671496, while working capital to sales ratio has an average means of 0.322540, with the standard deviation of 2.350621. The JarqueBera normality test reveals a P-value less than 0.05 which indicates that all the variables are not normally distributed.

Table 2: Correlation Analysis

Covariance Correlation	ROA	NWC	CWC	NOWC	WCSR
ROA	0.216518 1.000000				
NWC	-0.075877 -0.191433	0.725604 1.000000			
CWC	-0.023982 -0.121806	-0.021183 -0.058772	0.179028 1.000000		
NOWC	-0.070544 -0.228065	0.467926 0.826364	-0.033768 -0.120059	0.441888 1.000000	
WCSR	-0.091909 -0.084881	1.703987 0.859648	-0.181665 -0.184508	0.986441 0.637704	5.414908 1.000000

Source: E-View Output, 2026



Table 2 above shows the relationship between the variables employed. The study revealed that return on asset has a weak negative relationship with net working capital ($r = -0.191433$), suggesting that a change in net working capital will results into a slight decrease in return on asset. In addition, return on asset has a weak negative relationship with change in working capital ($r = -0.121806$), suggesting that a in change in working capital will result in a slight decrease in return on asset. Similarly, the results shows that return on asset has a weak negative relationship with net operating working capital ($r = -0.228065$), suggesting that a change in net operating working capital will results into a slight decrease in return on asset. Lastly, return on asset has a negative relationship with working capital to sales ratio, indicating that a little change in working capital to sales ratio will results to a slight reduction in return on asset of the selected industrial companies.

Table 2: Panel Least Square Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.117328	0.091504	1.282211	0.2063
NWC	-0.102290	0.225164	-0.454289	0.6518
CWC	-0.135783	0.166679	-0.814633	0.4196
NOWC	-0.144100	0.187547	-0.768340	0.4463
WCSR	0.036911	0.060709	0.608007	0.5462
R-squared	0.882167	Mean dependent var		0.122480
Adjusted R-squared	0.700582	S.D. dependent var		0.470039
S.E. of regression	0.469902	Akaike info criterion		1.422056
Sum squared resid	9.936374	Schwarz criterion		1.613259
Log likelihood	-30.55141	Hannan-Quinn criter.		1.494867
F-statistic	1.007136	Durbin-Watson stat		1.157553
Prob(F-statistic)	0.413843			

Source: E-View Output, 2026

The table above presented the result of the panel least square, the analysis shows the constant value stands at 0.117328, which equally mean that while all other variables remain constant, ROA will be 0.117328 (i.e. 11.73%). Net working capital has a coefficient of -0.102290, this reveals that for every 1 unit increase in NWC, will amount to a decrease of 0.102290 in ROA. The coefficient CWC stands at -0.135783, which mean that for every 1 unit increase in CWC, ROA will decrease by 0.135783. The coefficient of net operating working capital stands at -0.144100, which mean that for every 1 unit increase in NOWC, there will be 0.144100 decrease in ROA. Lastly, working capital to sales ratio has a coefficient value of 0.036911 which means that for every 1 unit increase in working capital to sales ratio, there will be 0.036911 increase on ROA.

The results also shows that the p-values for NWC, CWC, NOWC, and WCSR are 0.6518, 0.4196, 0.4463, and 0.5462 respectively which are all greater than 0.05. This indicates that NWC, CWC, NOWC, and WCSR do not significantly affect the ROA of listed Agricultural Companies in Nigeria. The R-squared value of 0.882167 shows that 88% of variation in ROA



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is explained by the model, while adjusted R-squared is 0.700582. However, the Prob (F-statistic) of 0.413843 is greater than 0.05, indicating the overall model is statistically insignificant. The Durbin-Watson statistic of 1.157553 suggests possible presence of positive autocorrelation among the variables.

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

The descriptive statistics showed moderate variability in ROA and all variables were not normally distributed based on Jarque-Bera test. Correlation analysis revealed weak negative relationships between ROA and NWC, CWC, NOWC, and WCSR. The panel least square results indicated that net working capital, change in working capital, net operating working capital, and working capital to sales ratio all have negative or positive coefficients but none was statistically significant at 5% level. The Prob(F-statistic) of 0.413843 showed the overall model was statistically insignificant despite R-squared of 0.882167. The Durbin-Watson statistic of 1.157553 suggested possible positive autocorrelation. Based on these findings, it is concluded that working capital management components do not have significant effect on profitability of listed agricultural companies in Nigeria during the study period. This implies that changes in NWC, CWC, NOWC, and WCSR do not translate to meaningful changes in ROA for the sampled firms.

Recommendations

Even though the effect of inventory management was not significant, there is still need to pay attention to it as good control of inventory can help reduce storage costs and prevent waste.

The weak negative relationship between accounts receivable and profitability means the companies don't collect money in time from customers and this can reduce cash available for other uses. The companies should therefore review their credit policy and try to collect payments on time while still keeping good relationship with customers.

Suppliers should be settled at the right time so that the company can get better deals and maintain steady supply of materials.

Since working capital management did not show strong effect on profitability in this study, managers should also focus on other areas that can improve profit. These include reducing production cost, using better technology, and finding new markets for their products.

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