# Exploring the dynamics of firm attributes on the management of working capital

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### Abstract

Working capital (WCM) is an important components of financial management which focuses both on short-term assets and liabilities of a company. This study explores how profitability, company growth, and age of the company influences the level of working capital. The study uses data from agricultural companies listed on the Nigerian Exchange Group (NGX). Using pooled logit regression, with robust standard error, the result indicates that the three explanatory variables positively and significantly influence working capital level of the sample companies. Hence, these variables are important determinants of working capital level in the agricultural sector of the NGX. Management of these companies should continue work towards their targeted profit to maintain the best working capital level.

Key words: Profitability, growth, company age working capital, logit regression.

### 1. Introduction

Working capital management (WCM) is one of the critical components of financial management that tends to focus on dealing with both short-term assets and liabilities of a business entity thereby ensuring sufficient liquidity and operational efficiency. WCM dwells on decisions on the item of the statement of financial position that include cash, accounts receivable, inventories, and accounts payable. These items collectively govern the ability of a company to preserve its day-to-day operations and as well meet as at wen due its short-term obligations. WCM is of paramount importance for companies, particularly those in the agricultural sector of Nigerian Stock Exchange Group (NGX). An effective working capital strategy is vital for these companies because of the seasonal nature of production, volatile market prices, and challenges in financing. For example, CBN (2023) reported that the agricultural sector contributed 0.07% to the real GDP growth in 2023, which lower than the 0.48% recorded in the preceding year. consequently, the listed agricultural companies which operate in an emerging economy for example, Nigeria face a distinct financial constraints and opportunities. These unique challenges by extension affects how they manage their working capital. Thus, accentuating the need to understand the key determinants that influence WCM practices in the agricultural sector. This is because the sector received limited attention (Idris et al., 2021).

This study contributes to the existing WCM literature. There is limited evidence addressing the determinants of working capital in the agricultural sector of NGX which is one of the largest market in the sub-Saharan Africa. This limited evidence explains why this study is vital, distinct, and the motivation behind undertaken it. Also, the present study is one of the few existing ones that attempted to measure WCM using high and low method proxy to measure the extent of the working of these companies. However, prior research in this area focused ratio

as working capital or cash conversion circle measurement. Thus, this will add new knowledge to this area since the results are expected to provide a clearer understanding of firm attributes on working capital performance.

To achieve the highlighted contributions, the study examined how firm age, profitability, and firm growth on extent of working capital. The tested four hypotheses on 50 firm-year observations of agricultural firms listed on the NGX from period from 2013 to 2022. The results of the study revealed that performance, firm growth and age determined the extent of WC in the agricultural firms listed on the NGX.

Finally, the paper is organised in the following ways. Section 2 provide a review of preceding literature on WCM and hypotheses development. Section 3 contains a methodology used in the study. Section 4 reveals the results and discussion. While section 5 offers conclusion.

# 2. Review of preceding literature and hypotheses development

# 2.1 Profitability and working capital management

The relationship between WCM and financial performance has been examined in different market contexts with most studies affirming the significant impact of profitability on WCM. Deari et al. (2024) investigated how WCM affects the profitability of firm using a sample of eight European Union (EU) countries from 2006–2015. Findings of the study indicates that WCM influence firm profitability with a positive between them. Similarly, Amponsah-Kwatiah and Asiamah (2021) from Ghana reported a positive association between WCM and profitability of 20 listed manufacturing firms from 2015 to 2019. Consistent with these studies, Prempeh and Peprah-Amankona (2018) studied the WCM and profitability the study used a 11 manufacturing firms on Ghana Stock Exchange from 2011–2017. The study found a positive and significant effect of WCM on profitability. Also, Moussa (2019) explored the determinants of working from Egyptian market and showed that profitability is among the major factors that influences WCM. Further, the finding indicated that profitability has a significant relationship on the association between profitability and working capital requirement from Vietnam market.

However, Yousaf and Bris (2021) explored the association WCM and firm performance using a sample of 326 Czech firms from 2015 to 2019. The finding of the study revealed a negative effect of WC on firm performance among the sample. This result affirmed the findings of Deloof (2003) and Tsuruta (2019) who showed that WCM and inversely related with profitability. Hence, the study proposed that,

H1: Profitability is likely to have a significant effect on working capital.

# 2.2 Firm growth and working capital management

Firm growth plays a vital role in working capital dynamics. Rapidly growing firms often need additional working capital to finance increasing inventories, receivables, and operational expenses. Nyeadi et al. (2018) investigated 28 Ghanian listed companies over a period of 8 years from 2007 to 2014. The used dynamic model and showed that revenue growth negatively influences working capital. Evidence from Pakistani market also showed that sales growth is an important determinants of working capital management. In other words sales growth is

inversely related to working capital management indicating that firms appear to manage efficiently working capital in their disposal while they have growth opportunities (Sarwar, 2020). The inverse association is an indication that high growth firms require strong strategies to get their receivables within a short period so as to address their financing need. These results support early studies (Banos-Caballero et al. 2010) in this area who reported negative and significant association.

In contrast to the above studies, Kim and Thu (2022) examined working capital requirements in relation to firm growth. The study employed data from 37 listed plastic firms from Vietnamese market during the period 2016-2020. The result revealed that firm growth is statistically correlated positively with working capital requirements of the sample firms. also, Rehman et al. (2017) using a data set of 760 Chinese companies reported a positive relationship. Consequently, early studies Nazir and Afza (2009), Hill et al. (2010) on working capital management showed positive association. Consistent with these evidence, the current research hypothesised that,

H2: Firm growth may probably have a significant impact on working capital.

# 2.3 Firm age and working capital management

Age of the firm is also considered as a vital component in determining the working capital of a firm (Jabbouri et al., 2024). Research has indicated that younger companies face challenges in managing their working capital. This is because of their inadequate experience as well as constrain in terms of financing (Moussa, 2019). These firms frequently struggle with liquidity management and may likely rely on short-term debt for their working capital requirements. Sarwar (2020) in their study reported a strong positive correlation between firm age and working capital management. This finding is in line with the recent evidence documented by Jabbouri et al. (2024) from 687 firms listed on 11 MENA markets that age of the firm is directly related to working capital management. Hence, supported the view that mature companies possess limited incentives to manage working capital since they have greater access to external financing. However, this is not the case for younger entities that require considerable need for finance with limited access. Based on these reviews the study proposed that,

H3: age of company is likely to have a significant effect on working capital.

### 3. Methodology

Using purposive sampling, the study employs four (4) listed agricultural companies on the Nigerian Exchange Group (NGX) over a period of 10 years 2013-2022. The datasets were obtained from the annual reports of the sampled companies. The study uses working capital management as the dependent variable. Following (Nyeadi et al., 2018) WCM is measured as current assets less current liabilities divided by total assets. Further the study dichotomised the proxy into high and low using method. 1 is scored if the WCM is above the median value of 0.077453 and 0 otherwise. The independent variables include return on assets which is profit before tax divided by total assets (Nyeadi et al., 2018) firm growth is estimated as total current sales less total previous sales divided by total previous sales (Idris et al., 2019; Nyeadi et al., 2018) firm age is measured as the logarithm of the number of years since incorporation (Sarwar,

2020). Since the study goes beyond pandemic era and is likely to affect the findings. Hence, the study control for that by using 1 for year 2020 and 0 otherwise. The model of the study is depicted as follows:

 $WC_i = \beta_0 + \beta_1 RA_i + \beta_2 FG_i + \beta_3 AG_i + \beta_4 C19_i + e_i$ Where: WC = Working capital management RA = Return on assetsFG = Firm growthAG =Firm age C19 = Covid19E = error term**Discussion of results** 4.

# 4.1 Summary statistics and analysis of correlation

Table 1 depicts the descriptive statistics of the variables employed in the model of the study. The WC has a mean value of 52%. This means that out of the total sampled firms 52% of them have working capital above the median value. On the explanatory variables, RA has an average value of 1%, indicating low in profitability of the firms under study. The (FG) firm growth however, scored a mean value of 13%, which implies that sampled firms are growing slowly in relation to their sales. The average value of (AG) firm age is 36.7 years while (C19) covid19 is 0.10.

#### **Table 1. Summary statistics**

Variable	Obs.	Mean	Std. Dev.	Min	Max
WC	50	0.52	0.50	0.00	1.00
RA	50	0.01	0.12	-0.12	0.12
FG	50	0.13	0.29	-0.32	0.60
AG in years	50	36.7	10.79	22	59
C19	50	0.10	0.30	0.00	1.00

The values of the correlation are displayed in Table 2 and shows moderate correlations among the explanatory variables used in the study. Consequently, revealing the absence of possible multicollinearity issue.

Table 2. Correla	ation matrix				
VAR	1	2	3	4	5
1-WC	1.00				
2-RA	0.08	1.00			
3-FG	0.21	-0.25	1.00		
4-AG	0.19	-0.564***	-0.14	1.00	
5-C19	-0.08	-0.17	-0.11	-0.02	1.00

### 4.2 Regression analysis

To investigate the effect of some firm-specific variables on the level of WC in the listed agricultural firms in Nigeria, the study used pooled logit regression with robust standard error Impressive Journal of Management and Social Sciences ISSN: 3043-6311 Volume 1, Issue 1 March 2025 to address the potential threat of heterosce

to address the potential threat of heteroscedasticity and serial correlation. The results are depicted in Table 3

VAR	Coef.	Ζ	P>z
RA	10.51	2.77	0.006
FG	3.58	2.08	0.037
AG	2.80	2.38	0.017
C19	0.49	0.54	0.592
_CONS	-9.86	-2.45	0.014
Wald chi2(4)	8.89		
Prob > chi2	0.0639		
Pseudo R2	0.1782		
Hosmer-Lemeshow P-Value	0.2139		
Percentage of correct predictions	72%		

Table	3.	Regression
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The Wald chi square is 8.89 and is statistically significant at 10%. Thus, indicating the model fitness. The Pseudo R-square scored a value of 17.82% which also measures the goodness of fit of the model (Litov et al., 2014). Hosmer-Lemeshow is a statistic that groups observation into ten equal size in accordance with their predicted probabilities. An insignificant chi-square of the Hosmer-Lemeshow revealed the fitness of the model (Hosmer et al., 2013). Consistent with this view, the model of the study is fit since the value is insignificant as reported in Table 3. The study also tested the percentage of correct predictions (PCP) which is another measure of goodness of fit. According to Pampel (2000) an estimated model is considered fit when the predicted cases ranges between 50% to 100%. Therefore, the model of this study is fit since the lower threshold.

The main results reported in Table 3 revealed that a significant and positive association existed between the company's profitability and WC at 1% level. This result supports the evidence previously documented (Amponsah-Kwatiah & Asiamah, 2021; Deari et al., 2024; Jabbouri et al., 2024; Prempeh & Peprah-Amankona, 2018). This result implied that more profitable companies are less likely to have concerned on optimizing the investment made in working capital via hostile working capital management. As an alternative, they engage in a moderate approach to addressing issues relating to working capital.

Regarding firm growth, the result shows a positive and significant association at 5% level. This result is in line with the findings of Kim and Thu (2022), Rehman et al. (2017), Nazir and Afza (2009), and Hill et al. (2010). That working capital management firm growth impacted positively on working capital. The result further, provides that high growth companies may have higher likelihood of having more working capital to finance their growth. This is because of their limited access to external fiancé. However, the result contradicted (Jabbouri et al., 2024; Nyeadi et al., 2018; Sarwar, 2020) who reported an inverse relationship.

Lastly, consistent with our predictions, this study shows that there is a direct relationship between age of a firm and its working capital. The relationship is positive and significant at 5% level. The result corroborates previous studies (Jabbouri et al., 2024) among others. This

supports the view that matured companies possess greater incentives to manage working capital because of their better accessibility to external financing.

# 4.3 Robustness check

For robustness check, we use normal OLS with robust standard error to re-estimate our model. The dependent variable WC is measured as current assets less current liabilities divided by total assets (Nyeadi et al., 2018). The result is presented in Table 4. These results do not vary with the prior results reported in Table 3. The significance (excluding the level) and relationship remain intact and unchanged. This shows that the results are robust and not sensitive to the change in the proxy of the dependent variable.

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VAR	Coef.	t	P>t
RA	0.47	3.45	0.001
FG	0.14	2.77	0.008
AG	0.13	3.37	0.002
C19	0.00	-0.01	0.993
_CONS	-0.38	-2.82	0.007
F-stat	5.04		
Prob>F	0.009		
R-Squared	0.2742		

### Table 4. Robustness check

# 5. Conclusion

Working capital (WCM) is an important components of financial management which focuses both on short-term assets and liabilities of a company. It provides additional information as to level of liquidity and operating efficiency of a company. This research explores three important determinants of working capital of listed agricultural companies in Nigeria. The study uses pooled logit regression as a tool of analysis to achieve the objective with robust standard error. The result of the study indicates that profitability, company growth and age of the company have greater role in determining the level of working capital of the sample firms.

Based on these findings, the management of these companies should strive hard in achieving their targeted profit so as it can enhances the level of the company's working capital. Likewise, growing and matured companies should maintain a reasonable level of working as a results of their reputation as well as their ability in bargaining. This will enhance the smooth running of their operations.

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