WORKING CAPITAL MANAGEMENT AND THE PROFITABILITY OF SELECTED CONSUMER GOODS SECTOR IN NIGERIA

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ABSTRACT

This study investigated the effect of working capital management on the profitability of selected consumer goods companies in Nigeria, with a particular emphasis on the roles of Debtors Collection Period (DCP), Stock Conversion Period (SCP), Creditors Payment Period (CPP), and Cash Conversion Cycle (CCC) in shaping firm profitability. Relying on secondary data sourced from audited financial statements of the selected firms covering the period from 2019 to 2024, the research applied Generalized Least Squares (GLS) panel regression analysis based on the outcome of the Hausman specification test, using STATA 13 for the analysis. The results showed that all components of working capital management (DCP, SCP, CPP, and CCC) had a significant influence on profitability. This suggests that effective management of these components positively impacts firm performance, whereas inefficient practices can hinder profitability. The study concluded that firms with strong working capital strategies perform better than those with weaker systems. It recommended, among other measures, that Nigerian firms regularly evaluate their debtor collection systems to promote timely debt recovery, improve liquidity, and maintain smooth operations.

Keyword: *Working Capital, Inventory Management, Consumer Goods Sector, Profitability*

Jel code: E64, E65, E69 E61, E62, E63.

1.1 Introduction

Effective working capital management is vital for maintaining the financial stability and operational efficiency of manufacturing firms. It involves the strategic handling of short-term assets and liabilities to ensure sufficient liquidity for fulfilling financial obligations while also supporting profitability.

Striking the right balance is crucial, as excessive current assets can result in operational inefficiencies, while inadequate current assets may lead to financial strain or potential insolvency.

In the context of Nigeria, the manufacturing sector constitutes a cornerstone of economic development, with significant contributions to employment creation and industrial advancement. However, the sector continues to grapple with numerous challenges, ranging from infrastructural deficiencies and unstable macroeconomic conditions to difficulties in accessing affordable credit. These challenges underscore the urgency of adopting sound

working capital management practices as a means to bolster financial resilience and operational performance among manufacturing firms(Angahar&Alematu, 2023).

Research evidence affirms the relevance of specific elements of working capital in shaping profitability. For instance, findings by Olaoye et al. reveal that while some aspects such as inventory turnover and receivables collection may have a negligible influence, the timing of creditor payments can substantially impact a firm's financial outcomes. This suggests that effective management of payables is pivotal to optimizing profitability within the sector. The growing population in Nigeria, along with its expanding consumer base, has positioned the manufacturing sector as a vital engine of growth with considerable potential to drive GDP and employment. Despite this potential, the sector is constrained by limited investment and tight fiscal conditions. The increasing volume of capital invested into the industry in recent years, amid a backdrop of limited investible funds, makes the efficient management of resources particularly crucial. Many firms still experience liquidity shortages that hamper their day-to-day operations and restrict their capacity to scale; (Eya, 2024).

Academic perspectives affirm that working capital functions as the operational lifeline of a business. Proper management of working capital enhances a firm’s capacity to sustain its operations, maintain financial stability, and remain competitive in the marketplace. Conversely, poor management of working capital has been linked to financial distress and even business failure. Globally, poor working capital practices have been associated with significant financial losses, and Nigerian firms are not exempt from this trend. The combination of high interest rates, restricted access to credit, and operational inefficiencies continues to hinder growth in the sector (Ojeani, 2024).

A growing body of empirical research highlights poor working capital management as a significant contributor to the downturn and failure of numerous manufacturing firms in Nigeria. Several studies have acknowledged this pattern, further reinforcing the need for a deeper understanding of how working capital management practices affect firm-level profitability, particularly within the consumer goods segment of the manufacturing industry.

Given the critical role of operational variables in financial performance, this study adopts Gross Operating Profit as the principal measure of profitability. This approach focuses on evaluating a firm’s operating efficiency by isolating it from gains accrued through financial investments. By excluding non-operating income and fixed financial assets, the analysis aims to present a more accurate picture of how working capital practices influence core business performance.

In light of this context, the current study aims to assess the effect of working capital management on the profitability of manufacturing firms in Nigeria, with a specific focus on the consumer goods sector during the period spanning 2019 to 2024. This study seeks to fill the existing gap in the literature by offering empirical evidence on how the efficient management of working capital components enhances financial sustainability and profitability, particularly within the context of a challenging economic environment.

2.1 Literature Review

Working capital management (WCM) remains a cornerstone in ensuring the financial sustainability and operational effectiveness of manufacturing firms, particularly within developing economies such as Nigeria. It encompasses the strategic oversight of short-term assets and liabilities, enabling firms to maintain adequate liquidity for meeting their financial obligations while simultaneously striving to maximize profitability. A well-managed working capital system facilitates a delicate balance between risk and return. Firms that hold excessive current assets risk inefficiency and reduced returns on investment, whereas those with insufficient current assets expose themselves to liquidity shortfalls, which may hinder day-to-day operations and compromise long-term viability. The manufacturing sector in Nigeria plays a pivotal role in driving economic growth, making substantial contributions to employment generation, industrial advancement, and the nation's gross domestic product (GDP).

Despite its strategic importance, the sector continues to grapple with systemic challenges including unstable exchange rates, high operational costs, infrastructural deficiencies, and restricted access to affordable credit. These constraints underscore the need for firms to adopt efficient working capital practices, as they navigate the complex and often volatile economic landscape. Efficient WCM not only ensures operational continuity but also enhances firm performance by enabling better resource allocation and financial planning. For the purpose of this study, Agency Theory is adopted as the theoretical framework, as it provides a relevant basis for understanding the management of working capital components such as cash, inventory, creditors, and debtors particularly in relation to the conflict of interest and decision-making dynamics between managers (agents) and owners (principals) within a firm.

Empirical evidence further underscores the importance of working capital management (WCM). For instance, a study by Olaoye et al. (2020) investigated the impact of inventory turnover, creditors' payment period, and accounts receivable period on the profitability of manufacturing firms in Nigeria.

The study found that the creditors' payment period had a significant influence on profitability, whereas inventory turnover and receivables management did not show statistically significant effects. This suggests that managing payables efficiently may be more critical than other components of working capital in the Nigerian manufacturing context, where access to credit is limited and cost of borrowing is high.

Additionally, the manufacturing sector in Africa, including Nigeria, is often viewed as having substantial potential for driving economic growth, particularly in light of demographic trends. The African Development Bank Group (2023) reports that the manufacturing sector's contribution to GDP and employment in Nigeria is expected to grow, fueled by an expanding population and increasing demand for consumer goods. The Nigerian market, with a population estimated at over 180 million and an annual growth rate of approximately 3%, offers a vibrant consumer base and increasing demand for efficient and large-scale production (Proshare, 2015; Elemuwa, 2023). This growth trajectory is mirrored in the sector's production index, which reports an annual growth rate of about 13% (Production Index Report, 2022).

Furthermore, aggregate investments in the manufacturing industry have surpassed ₦300 billion, primarily directed at expanding and upgrading production facilities (Olaopa, 2022). These investments occur in an environment characterized by limited investible funds and

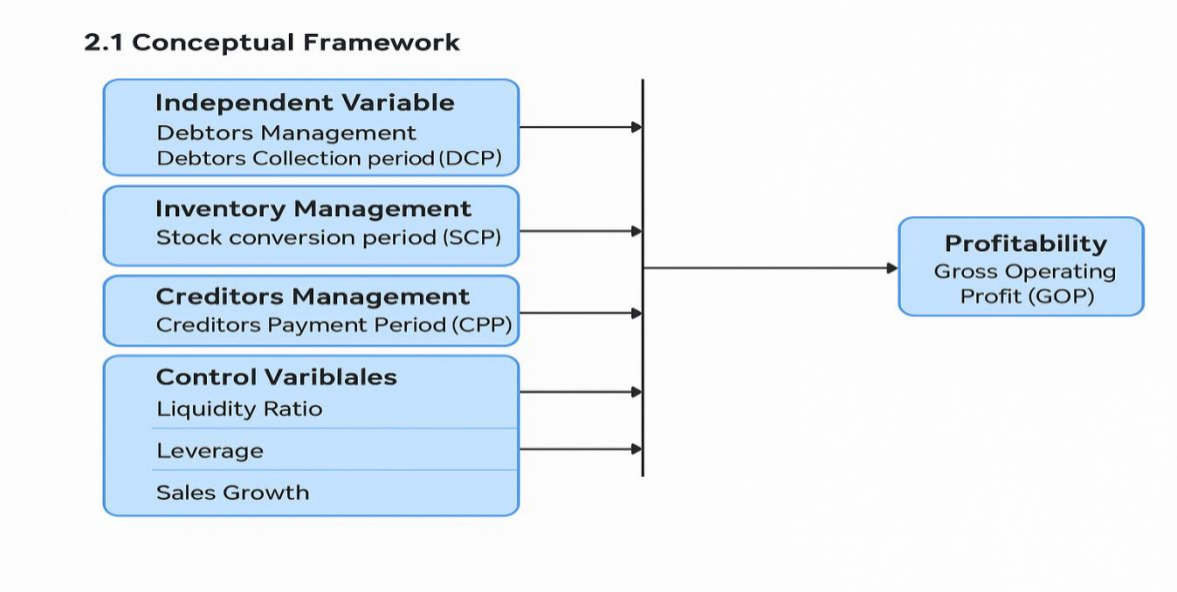
restrictive fiscal policies, necessitating optimal resource utilization to ensure satisfactory returns. However, many firms still struggle with liquidity issues, which inhibit their ability to execute daily operations effectively (Olugbenga, 2022). This situation reflects a broader concern within the sector, where poor working capital practices have been linked to financial distress and, in extreme cases, business failure.

The critical importance of effective WCM is echoed in global studies, which indicate that over a thousand firms collectively lose approximately $2 billion annually due to inefficient management of working capital (Angahar&Alematu, 2023; Eya, 2024; Ojeani, 2024). In Nigeria, inefficiencies in working capital management are exacerbated by broader macroeconomic challenges such as elevated interest rates and restricted access to financing, which collectively hinder the growth and competitiveness of local manufacturers (Salawu & Alao, 2024). According to Lawal, Abiola, and Oyewole (2025), ineffective working capital practices are a major factor contributing to the decline of numerous manufacturing firms in the country, suggesting that enhanced management in this area could play a pivotal role in revitalizing the sector's overall performance.

Numerous scholars have examined the complex relationship between working capital components and profitability, including Muhammad et al. (2022), Yahya (2022), Eya (2022), Owolabi and Alu (2023), Oyedele et al. (2023), Duru et al. (2024), Grace et al. (2024), and Qurashi (2025). Collectively, their studies form the empirical foundation for this research, while also revealing a gap in contextual application to Nigeria's consumer goods subsector. This study adopts Gross Operating Profit (GOP) as the measure of profitability, based on its ability to reflect operational efficiency by excluding the effects of financial income and fixed financial assets. This approach allows for a more accurate assessment of how core operational activities influence profitability.

Given this backdrop, the present research investigates the impact of working capital management on the profitability of manufacturing firms in Nigeria, with a specific focus on the consumer goods sector during the period from 2019 to 2024. This focus addresses the identified gap in empirical literature and aims to offer actionable insights into how firms in this vital sector can improve financial outcomes through effective working capital practices.

The conceptual framework for the study is grounded in established relationships within the literature, specifically the link between debtors' collection period, stock conversion period, creditors' payment period, and profitability performance. The framework is illustrated below:



***Source**: Author`s Conceptualization (2025).*

3.1 Methodology

This section outlines the research design and methodology adopted for the study. It discusses the nature and sources of data, identifies the target population, describes the dataset and sampling technique, and details the procedures for data collection and analysis. Each component was carefully structured to ensure the reliability, validity, and relevance of the findings to the research objectives.

3.2 Sources of data

The study relied on secondary data obtained from the Annual Reports and Statements of Account of four purposively selected consumer goods companies in Nigeria: Deli Foods Nigeria Limited, Unilever Plc, Dangote Group, and Nestle Product Plc; which collectively provided a fair representation of the population under investigation. The data covered key components of working capital, including elements of current assets and current liabilities such as Cash, Accounts Receivable, Inventory, and Accounts Payable. In addition, control variables including Liquidity, Leverage, and Sales Growth were extracted from the balance sheets of the selected firms.

The profitability metric adopted in this study is Gross Operating Profit (GOP). GOP was selected over alternatives such as Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) or Profit Before or After Tax because it better isolates operational performance. By focusing solely on core business operations, GOP provides a more accurate reflection of operational success or failure. This makes it particularly suitable for assessing the relationship between profitability and other operational variables, such as the cash conversion cycle.

3.3 Model Specifications

The model for this study is a multiple regression model adapted from the work of Qureshi (2017).

$$GOP_{it} = \beta_0 + \beta_1 DCP_{it} + \beta_2 ICP_{it} + \beta_3 CPP_{it} + \beta_4 CCC_{it} + \beta_5 LIQ_{it} + \beta_6 LEV_{it} + \beta_7 SG_{it} + V_{it} \quad \ldots\ldots (3.1)$$

Where:
GOP = Gross Operating Profit
β_0 = Constant of the model; $\beta_1 - \beta_7$ = Coefficients of the model
ICP = Inventory/stock Conversion Period
DCP = Debtors' Collection Period
CPP= Creditors' payment Period
CCC = Cash Conversion Cycle
LIQ= Liquidity
LEV= Leverage
SG= Sales growth
$V_{it} = \mu_i + \Lambda_t$
μ_i= Individual specific effect;
Λ_t= Indicates time specific effect;
i = selected firms.

Table 1
Variables measurement and priori Expectation
Table: Description of Variables, Measurement and Expected Relationship

Code	Variable Name	Type	Measurement Formula	Expected Sign
V1	Gross Operating Profit (GOP)	Dependent Variable	(Sales − Cost of Goods Sold) ÷ (Total Assets − Financial Assets)	± (Positive / Negative)
V2	Debtors Collection Period (DCP)	Independent Variable	(Debtors × 365) ÷ Sales	− (Negative)
V3	Inventory Conversion Period (ICP)	Independent Variable	(Inventory × 365) ÷ Cost of Goods Sold	− (Negative)
V4	Creditors Payment Period (CPP)	Independent Variable	(Creditors × 365) ÷ Cost of Goods Sold	+ (Positive)
V5	Cash Conversion Cycle (CCC)	Independent Variable	DCP + ICP − CPP	− (Negative)
V6	Liquidity Ratio (LIQ)	Control Variable	Current Assets ÷ Current Liabilities	− (Negative)
V7	Leverage Ratio (LEV)	Control Variable	Total Debt ÷ Total Assets	± (Positive / Negative)
V8	Sales Growth (SG)	Control Variable	(Current Sales − Previous Sales) ÷ Previous Sales	+ (Positive)

Source: *Developed by the researchers based on literature (2025)*

4.1 Data Analysis, Findings and Discussion

Table: Descriptive Statistics of Study Variables (n = 20)

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
GOP	20	0.7646	1.0256	-0.4016	3.2125
DCP	20	44.5921	21.4205	8.2241	104.8519
ICP	20	190.8607	24.8107	3.2103	354.0150
CPP	20	105.1391	50.2177	15.1186	239.6535
CCC	20	183.1257	35.2081	-171.4240	2036.2360
LIQ	20	0.2813	0.7076	0.3043	3.2855
LEV	20	0.3835	0.1468	0.1225	0.9698
SG	20	0.4931	3.1070	-0.9509	21.3373

Table 2
Descriptive statistics
Source: *Author's computation (2025)*

The descriptive statistics presented in Table 2 offer insightful information on the performance and working capital dynamics of the selected consumer goods companies in Nigeria over the six-year period from 2019 to 2023. The Gross Operating Profit (GOP) recorded an average of 7.6%, indicating that, on average, each company in the sector earned N0.076 for every N1 invested in operations.

However, profitability varied significantly, ranging from a negative return of -0.40% to a maximum return of 1.21%, implying that firms in the industry could experience losses of up to N0.40 or gains as high as N3.2 kobo per N1 investment. The wide variation in returns (1.02%) points to a relatively high risk in the operational profitability of the sector. Regarding the Debtors Collection Period (DCP), companies collected their credit sales in an average of 44 days, with the fastest collections occurring within a minimum of a few days, and the longest stretching to 104 days. This suggests considerable variation in credit management effectiveness across the companies. The Stock Conversion Period (SCP) revealed that, on average, it took 190 days for inventory to be converted into sales. While some firms achieved inventory turnover in as few as 1 to 3 days, others faced extreme delays, taking up to 354 days, which may signal inefficiencies in production or sales processes for some companies. As for the Creditors Payment Period (CPP), the selected firms took an average of 105 days to pay their suppliers. Payment duration ranged widely from a minimum of 15 days to a maximum of 239 days, suggesting diverse credit terms and cash flow strategies among the firms. The Cash Conversion Cycle (CCC) averaged 183 days, implying that, on average, the firms relied on creditors' funds to finance operations for approximately half a year before recovering cash from sales. This extended cycle could indicate potential liquidity stress or reliance on supplier credit for operational continuity. The firms' Liquidity Ratio had an average of 0.28, with values ranging from 0.304 to 3.285, indicating varying levels of short-term solvency across the firms. An average liquidity ratio below 1 may suggest that, in general, the companies could struggle to cover short-term obligations without selling assets or obtaining additional financing. Finally, the Sales Growth figures revealed a wide dispersion, with a minimum of -0.95 (indicating contraction in sales) and a maximum of 21.34, while the average growth rate stood at 0.49%. This reflects modest growth in the

sector overall, with some firms experiencing substantial gains while others faced declining sales.

Table 3

Table: Pairwise Correlation Matrix of Study Variables

Pairwise Correlation Matrix

Gop	dcp	icp	ccp	ccc	liq	lev	sg
gop	1.0000						
dcp	-0.3602	1.0000					
icp	-0.4301	0.3661	1.0000				
cpp	0.0526	0.1048	0.0076	1.0000			
ccc	-0.3407	0.4698	0.2407	-0.1678	1.0000		
liq	0.2949	0.0481	-0.2757	-0.4132	-0.1902	1.0000	
lev	-0.058	0.2063	-0.0260	0.2966	-0.0315	-0.4671	1.0000
sg	0.0327	-0.2467	-0.0369	0.3252	-0.1389	-0.1076	-0.2004

Source: *Author's computation (2025).*

To determine the nature of the relationship between the dependent and independent variables, as well as to identify any potential issues of multicollinearity, a correlation analysis was conducted. This analysis evaluates the degree of association and interdependence among the study variables. Specifically, pairwise correlation analysis was employed to examine the relationships between components of Working Capital Management and Profitability of the selected consumer goods firms. The results indicate that the correlation coefficients between the variables are all below 0.7, suggesting that strong multicollinearity does not exist among them. This implies that the independent variables such as Debtors Collection Period (DCP), Stock Conversion Period (SCP), Creditors Payment Period (CPP), and Cash Conversion Cycle (CCC) are not highly correlated with one another, and thus, the risk of autocorrelation or multicollinearity affecting the regression estimates is minimal. Consequently, the dataset is deemed suitable for further econometric analysis, such as regression modeling, without significant concerns of distorted or biased results due to inter-variable correlation.

Table 4

Panel data regression result (Random effect)

Variable	**Coef.**	**Std. Err.**	**Z**	**P>|z|**	**[95% Conf. Interval**	
Dcp	-.0143694	.0054896	-2.62	0.009	-.0251289	-.00361
Icp	.0018273	.0003786	-4.83	0.000	-.0025694	-0010852
Cpp	.0089679	.0034733	2.58	0.010	.0021604	.0157753
Ccc	.0010206	.0004244	2.41	0.016	.0001889	.0018524
Liq	.3018915	.4136539	0.73	0.466	-.5088553	1.112638
Lev	.757815	2.116832	0.36	0.720	-3.391099	4.906729
Sg	-.0885125	.3221928	-0.27	0.784	-.7199988	.5429739
Cons	6.042704	1.436571	4.21	0.000	3.227077	8.858332
F-statistics	p-value = 0.0000					
sigma_e	.32884729					
Hausman	chi2(7) =	Prob>chi2 = 0.8425				

test	3.43					
R-sq: within	0.8488					
R-sq: between	0.9994					
R-sq: overall	0.9559					
Number of obs = 5x4	20	Number of groups =5	Number per group =4			

This study aimed to empirically examine the impact of working capital management on the profitability of selected listed companies in Nigeria. To accomplish this objective, a panel data regression analysis was employed, and the results are presented in Table 4 above. Both random effects and fixed effects models were estimated to explore the relationship between the variables. To determine the most appropriate model for the analysis, a Hausman specification test was conducted. The outcome of this test guided the selection of the preferred model, ensuring that the estimates used in the study were both consistent and efficient for drawing valid conclusions.

The results presented in Table 4 indicate that the Hausman specification test yielded a chi-square value of 3.43 with a probability value of 0.8425, which is greater than the conventional significance threshold of 0.05. This result leads to the non-rejection of the null hypothesis that the differences in coefficients are not systematic, thereby validating the Random Effects model as the more appropriate estimator for the study.

Based on the Random Effects model, the R-squared value of 85% suggests that the independent variables included in the model collectively explain 85% of the variation in Gross Operating Profit (GOP), while the remaining 15% of the variation is attributed to other factors not captured in the model. The F-statistic is statistically significant at the 1% level, as shown by its p-value of 0.0000, indicating that the explanatory variables are jointly significant in explaining variations in GOP.

Assessing the individual significance of the variables through the t-statistics, the results reveal that all the working capital components included in the model have statistically significant relationships with GOP at the 1% level, except for the control variables - Liquidity, Leverage Ratio, and Sales Growth, which do not show statistically significant effects on GOP. Specifically, the Debtor Collection Period (DCP) has a negative coefficient of -0.0143694 and is significant at the 1% level, suggesting that, holding other variables constant, a one-unit increase in DCP leads to a 0.014-unit decrease in GOP.

This indicates that longer credit periods to customers adversely affect profitability. These findings align with those of previous studies, including Akinlo (2011); Viswanathan, Palanisamy, and Mahesh (2016); Mathuva (2009); Akoto et al. (2013); Angahar & Alematu (2014); and Grace, Ann & Vincent (2016), all of which emphasized the negative impact of inefficient debtor management on firm profitability.

Another key component of working capital management, the Inventory Conversion Period (ICP), exhibits a negative coefficient of -0.0018273 in relation to Gross Operating Profit (GOP) and is statistically significant at the 1% level. This indicates that, holding other

variables constant, a one-unit increase in ICP that is, a longer time taken to convert inventory into sales results in a 0.0018-unit decline in GOP. This finding suggests that delays in inventory turnover negatively affect profitability, as longer holding periods may lead to higher storage costs, risk of obsolescence, and reduced cash flow, all of which erode gross operating profit. The result is consistent with the core proposition of the Agency Theory, which underpins this study by emphasizing the importance of efficient resource management in aligning managerial decisions with shareholders' interests. Furthermore, this outcome aligns with the findings of previous empirical studies, including Muhammad et al. (2015); Enekwe et al. (2013); Viswanathan et al. (2016); Bagh et al. (2016); Salawu & Alao (2014); Falope & Ajilore (2009); Oyedele et al. (2017); Angahar & Alematu (2014); and Qurashi (2017), all of which confirmed the inverse relationship between inventory conversion time and firm profitability. These studies reinforce the conclusion that efficient inventory management is critical for sustaining and improving operational profitability in the manufacturing sector.

The Creditor Payment Period (CPP) shows a positive coefficient of 0.0089679 in relation to Gross Operating Profit (GOP) and is significant at the 1% level, indicating that a one-unit increase in CPP leads to a 0.009-unit increase in GOP for the selected companies. This finding is not consistent with the results of Mba (2014); Marobhe (2014); Qurashi (2017); Bagh, Nazir et al. (2016); Yahya (2016); Oyedele, Adeniran & Oluwatosin (2017); and Uremadu et al. (2012). The Cash Conversion Cycle (CCC) also records a positive coefficient of 0.0010206 and is significant at the 1% level, suggesting that a one-unit increase in CCC results in a 0.0010-unit increase in GOP. This outcome does not align with the theoretical framework adopted in this study. However, it is in agreement with the findings of Qurashi (2017); Kumar (2017); Akoto et al. (2023); and Angahar & Alematu (2024).

The control variable Liquidity Ratio recorded an insignificant positive coefficient of 0.3018915 in relation to Gross Operating Profit (GOP) at the 1% level, suggesting that an increase in the liquidity ratio of the selected companies would lead to an approximate 0.3018-unit rise in GOP. This finding is in line with the results of Grace, Ann and Vincent (2016); Qurashi (2017); Viswanathan, Palanisamy, & Mahesh (2016); Egbide et al. (2013); Muhammed et al. (2015); and Monday et al. (2013). Similarly, Leverage Ratio, another control variable, also exhibited an insignificant positive coefficient of 0.757815 at 1%, implying that a one-unit change in leverage would result in a 0.009-unit increase in GOP, aligning with the findings of Grace, Ann and Vincent (2016) and Duru et al. (2014). On the other hand, Sales Growth, the final control variable, reported a significant negative coefficient of 0.0885125 in GOP. This indicates that an increase in the selected firms' sales growth would lead to a decline of approximately 0.089 units in GOP, which is consistent with the findings of Jakpar et al. (2017) and Duru et al. (2024).

Conclusion and Recommendations

The study examines the impact of working capital management on the profitability of the selected companies. This is based on the reported coefficients of the seven variables used in modeling the effect of working capital management on profitability. The empirical findings indicate that working capital management plays a crucial role in company operations and requires proper handling in areas such as cash management, inventory management, accounts receivable management, and accounts payable management. It is essential for a company to effectively monitor its working capital and maintain it at an optimal level. A shortage of

working capital can result in liquidity issues, production delays, and reduced sales, while an excessive working capital balance may represent missed investment opportunities. Efficient working capital can be achieved by managing short-term assets and liabilities in line with inventory policies, credit and collection procedures, and supplier payment terms. In conclusion, the findings of the study reveal the following:

For Nigerian consumer goods companies to operate efficiently, the debtor collection period, an essential component of working capital management must be regularly reviewed. This ensures operational efficiency by facilitating timely debt recovery, thereby providing the company with sufficient resources for its operations.

Similarly, proper attention must be given to the stock conversion period within the company's production cycle. This helps to prevent both excess and insufficient stock levels, which could significantly impact the company's profitability.

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