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WORKING CAPITAL MANAGEMENT AND FINANCIAL PERFORMANCE OF LISTED MANUFACTURING FIRMS IN NIGERIA

Professor K.A. Adeyemo[1], S.C. Okagbue[2]

[1]*Faculty of Management and Social Sciences, Department of Management and Accounting, Lead City University, Ibadan, Nigeria.*

[2]*Faculty of Management and Social Sciences, Department of Management and Accounting, Lead City University, Ibadan, Nigeria.*

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ABSTRACT

This study examined the effect of working capital management on the financial performance of listed manufacturing firms in Nigeria over the period 2019–2023. Specifically, the study investigated the impact of cash conversion cycle on revenue growth, accounts payable period on return on equity, accounts receivable period on return on capital employed, and inventory turnover on return on assets. Panel regression analysis was employed using firm-level secondary data. The findings reveal that cash conversion cycle has a significant negative effect on revenue growth (β = -0.01; p = 0.05). Accounts payable period exhibits a significant positive relationship with return on equity (β = 0.10; p = 0.00), while accounts receivable period shows a significant negative effect on return on capital employed (β = -0.01; p = 0.04). However, inventory turnover was found to have no significant relationship with return on assets (β = -0.01; p = 0.77). The study concludes that specific components of working capital exert differentiated effects on firm performance. It recommends efficient receivables management, strategic supplier credit utilization, and improved liquidity planning to enhance profitability within the Nigerian manufacturing sector.

KEYWORDS: *Working Capital Management, Cash Conversion Cycle, Profitability, Manufacturing Firms, Nigeria*

INTRODUCTION

Despite growth in the Nigerian manufacturing sector over recent years, many listed firms continue to experience unstable profitability and liquidity pressures. While expansion in revenue and asset bases suggests operational scaling, inconsistent earnings performance raises concerns regarding the efficiency of short-term financial management practices. Short-term financial management plays a critical role in sustaining operational efficiency and financial stability, particularly within manufacturing firms where substantial resources are committed to inventory, receivables, and trade credit arrangements (Brigham and Ehrhardt 2020). Unlike long-term capital investment decisions, which determine strategic growth trajectories, working capital decisions directly influence day-to-day liquidity, production continuity, and the firm's capacity to absorb short-term shocks (Baumol 1962). In developing economies characterized by macroeconomic volatility, such as Nigeria, the management of current assets and current liabilities becomes even more consequential due to fluctuating exchange rates, inflationary pressures, and constrained access to affordable external financing (Aregbeyen 2013; Akpan and Okeowo 2023).
Manufacturing firms typically maintain significant balances in inventory and trade receivables while simultaneously relying on supplier credit to finance part of their operations. The timing differences between cash outflows for production inputs and cash inflows from customers generate a liquidity cycle that must be carefully managed to avoid financial strain. Inefficient coordination of these components may lead to excessive financing costs, working capital shortages, and erosion of firm value (Deloof 2003). Conversely, overly conservative liquidity positions may tie down productive capital and reduce asset efficiency. These competing effects reflect the fundamental liquidity–profitability trade-off embedded in working capital decisions (Afza and Nazir 2007; Jensen and Meckling 1976).

The cash conversion cycle framework provides a useful analytical lens for examining these dynamics by integrating inventory holding period, receivables collection period, and payables deferral into a unified measure of operational liquidity (Deloof 2003). However, relying solely on aggregate measures may obscure the

differentiated influence of individual components. For instance, delayed receivables may constrain liquidity, while extended payables can provide low-cost financing (Owolabi and Obida 2012). Similarly, inventory levels may either facilitate uninterrupted production or generate avoidable holding costs depending on managerial discipline and demand conditions (Olaoye and Okunade 2020).

Empirical findings on the relationship between working capital management and firm performance remain mixed. While numerous studies report inverse relationships between prolonged liquidity cycles and profitability (Deloof 2003; Afza and Nazir 2007), others identify context-specific variations influenced by industry structure, economic environment, and methodological approach (Chude and Chude 2022; Adekunle 2023). Within the Nigerian manufacturing sector, existing evidence is limited and often characterized by cross-sectional designs or narrow sampling frameworks, restricting generalizability and temporal inference (Aregbeyen 2013; Ajayi and Ojo 2022). Furthermore, relatively few studies simultaneously evaluate both aggregate and component-level working capital measures using panel data techniques capable of capturing firm-specific heterogeneity (Iqbal and Khan 2023).

Against this background, this study investigates the effect of working capital management on the financial performance of listed manufacturing firms in Nigeria over the period 2019–2023. By employing panel regression analysis and disaggregating working capital into its core operational components, the study provides updated empirical evidence from an emerging market context marked by significant economic disruptions. The findings contribute to ongoing debates regarding the efficiency of short-term financial management and offer practical insights for managers seeking to balance liquidity preservation with profitability enhancement.

STATEMENT OF THE PROBLEM

Despite revenue expansion within the Nigerian manufacturing sector, earnings performance raises concerns regarding the efficiency of short-term financial management practices. In particular, delays in receivables collection, excessive inventory accumulation, and suboptimal supplier payment strategies may weaken cash flow stability and increase financing dependence (Owolabi and Obida 2012; Olaoye and Okunade 2020).

Although prior studies have explored working capital management within Nigeria and other emerging markets, empirical conclusions remain inconclusive. Some studies report negative relationships between prolonged cash conversion cycles and profitability (Deloof 2003; Chude and Chude 2022), while others find insignificant or context-dependent effects (Adekunle 2023; Akpan and Okeowo 2023). These inconsistencies may be attributed to differences in methodological design, limited time coverage, small sample sizes, and the use of cross-sectional models that fail to capture firm-specific heterogeneity over time (Afza and Nazir 2007; Iqbal and Khan 2023).

Moreover, a number of existing studies treat working capital as a single aggregate construct without adequately distinguishing the individual contributions of inventory management, receivables policy, payables strategy, and the overall cash conversion cycle (Aregbeyen 2013; Ajayi and Ojo 2022). This limits the understanding of how specific components influence different dimensions of financial performance. Given that profitability can be measured through multiple lenses, including asset efficiency, equity returns, capital productivity, and revenue growth, a more disaggregated and panel-based analysis is warranted.

Accordingly, the unresolved problem addressed in this study is whether working capital management components exert significant and differentiated effects on the financial performance of listed manufacturing firms in Nigeria when analyzed using panel data techniques across a period marked by substantial macroeconomic fluctuations.

AIM AND OBJECTIVES OF THE STUDY

The main aim of this study is to examine the effect of working capital management on financial performance of listed manufacturing firms in Nigeria.
The specific objectives are to:

1. determine the effect of cash conversion cycle on revenue growth.
2. examine the impact of accounts payable period on return on equity.
3. investigate the effect of accounts receivable period on return on capital employed.
4. assess the relationship between inventory turnover and return on assets.

RESEARCH QUESTIONS

1. What effect does cash conversion cycle have on revenue growth of manufacturing firms in Nigeria?
2. What is the impact of account payable period on the return on equity?
3. What effect do accounts receivables period have on the return on capital employed?

4. What is the relationship between inventory turnover on the return on assets?

HYPOTHESES

1. H01: There is no significant relationship between cash conversion cycle and revenue growth in the Nigeria manufacturing firm.
2. H02: There is no significant relationship between account payable period and the return on equity in Nigerian manufacturing firm.
3. H03: There is no significant relationship between account receivables period, and the return on capital employed Nigerian manufacturing firm.
4. H04: There is no significant relationship between inventory turnover and the return on assets in the Nigeria manufacturing firm.

SCOPE OF THE STUDY

The study is centered on exploring the relationship between working capital management and financial performance within the Nigerian manufacturing sector. It examines working capital management components, accounts receivable period, inventory conversion period, accounts payable period, and cash conversion cycle as explanatory variables, while financial performance proxied by return on assets and return on equity, return on capital employed and revenue growth serves as the dependent variable.

The scope also covers the manufacturing industry in its entirety, including sub-sectors such as food and beverages, textiles, chemicals, machinery, and other manufacturing segments. This focus aims to assess how working capital management practices differ across diverse industry segments. The study examines a specific period from 2019 to 2023. This timeframe encompasses the pre-pandemic, pandemic, and post-pandemic phases, providing a comprehensive view of how firms adapted cash management, inventory control, and receivables and payables strategies in response to disruptions.

SIGNIFICANCE OF THE STUDY

This study contributes to academic literature by providing updated empirical evidence using panel data techniques within the Nigerian manufacturing sector. It enhances understanding of how short-term financial management decisions affect profitability.

For corporate managers, the findings provide practical insights for optimizing operating cycles and liquidity policies. Investors benefit from improved evaluation metrics beyond headline profitability ratios. Policymakers may also use the findings to support financial management reforms aimed at strengthening industrial competitiveness.

LITERATURE REVIEW

Working capital management (WCM) has long been recognized as a key determinant of firm performance, particularly in industries where production cycles require substantial investment in inventory and trade credit (Brigham and Ehrhardt 2020; Afza and Nazir 2007). The central argument in the literature is that the management of current assets and liabilities directly affects liquidity risk, financing costs, and profitability outcomes (Baumol 1962; Jensen and Meckling 1976).

The cash conversion cycle (CCC) framework introduced by Richards and Laughlin conceptualizes working capital efficiency as the duration between cash outflows for production inputs and cash inflows from customer payments. A shorter cycle is generally associated with reduced financing needs and improved liquidity, while a prolonged cycle increases reliance on external funding and may compress profit margins (Deloof 2003). However, empirical evidence regarding the profitability implications of CCC remains inconclusive (Afza and Nazir 2007; Chude and Chude 2022).

Several studies report an inverse relationship between extended receivables and firm profitability, suggesting that delayed cash inflows weaken liquidity positions and increase default risk (Deloof 2003; Adekunle 2023). Conversely, strategic extension of payables has been found to enhance profitability by providing short-term financing flexibility (Owolabi and Obida 2012; Ajayi and Ojo 2022). Inventory management also plays a critical role, as excessive stock levels may generate holding costs, whereas insufficient inventory may disrupt production and sales (Olaoye and Okunade 2020; Aregbeyen 2013).

In emerging markets, institutional factors such as limited credit access, high borrowing costs, and macroeconomic volatility may intensify the working capital–performance relationship (Iqbal and Khan 2023). Studies conducted within Nigeria present mixed findings, partly due to variations in sample coverage, time horizons, and methodological approaches (Aregbeyen 2013; Akpan and Okeowo 2023). Many prior investigations rely on cross-sectional data, limiting the ability to account for firm-specific characteristics that influence liquidity practices over time (Afza and Nazir 2007).

Moreover, relatively few studies disaggregate working capital into its individual components while simultaneously evaluating multiple dimensions of financial performance (Chude and Chude 2022; Adekunle 2023). Given that asset returns, equity returns, capital productivity, and revenue growth capture different aspects of firm performance, a component-level and panel-based analysis may provide more nuanced insights.

This study extends existing literature by employing panel regression techniques and examining the differentiated effects of inventory turnover, receivables collection period, and payables deferral on multiple profitability indicators within the Nigerian manufacturing sector.

THEORETICAL REVIEW

The study is anchored primarily on the Trade-Off Theory and Liquidity–Profitability Framework.
The Trade-Off Theory suggests that firms balance benefits of liquidity against opportunity costs. Excessive current assets reduce risk but lower returns, while insufficient liquidity increases financial distress risk (Baumol 1962; Brigham and Ehrhardt 2020).

The Liquidity–Profitability Framework emphasizes the inverse relationship between liquidity and profitability beyond optimal levels. Firms must therefore identify a working capital structure that maximizes value (Afza and Nazir 2007; Deloof 2003).

EMPIRICAL REVIEW

Empirical studies globally show varying relationships between working capital components and profitability. Negative associations between receivables and profitability are frequently reported (Deloof 2003; Adekunle 2023), while inventory management often demonstrates inverse performance effects (Olaoye and Okunade 2020; Aregbeyen 2013).

Within Nigeria, findings are inconsistent due to differences in methodology and sample coverage (Chude and Chude 2022; Akpan and Okeowo 2023). This study builds upon prior research by employing panel data techniques and integrating both aggregate and component-level working capital measures (Iqbal and Khan 2023).

METHODOLOGY

This study adopts a quantitative research approach using panel data analysis to examine the relationship between working capital management and firm performance. Panel methodology is particularly appropriate because it enables the control of unobserved firm-specific heterogeneity while capturing both cross-sectional and time-series variations. The dataset comprises secondary financial data obtained from the audited annual reports of listed manufacturing firms on the Nigerian Exchange (NGX) for the period 2019–2023. This timeframe captures pre-pandemic, pandemic, and post-pandemic phases, allowing assessment of working capital behavior under varying economic conditions.

Firms with incomplete financial information for the study period were excluded to ensure data consistency. The final sample consists of manufacturing firms across sub-sectors including food and beverages, chemicals, industrial goods, and consumer products.

Financial performance is measured using four proxies to capture different dimensions of profitability:
Return on Assets (ROA) = Net Income / Total Assets
Return on Equity (ROE) = Net Income / Shareholders' Equity
Return on Capital Employed (ROCE) = EBIT / Capital Employed
Revenue Growth (RG) = Percentage change in annual revenue
Working capital management is proxied by:
Inventory Turnover Period (ITP)
Average Collection Period (ACP)
Average Payment Period (APP)

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Cash Conversion Cycle (CCC), computed as:

$$CCC = ITP + ACP - APP$$

To estimate the relationship between working capital management and financial performance, the following baseline panel regression model is specified:

$$FP_{it} = \alpha + \beta_1 ITP_{it} + \beta_2 ACP_{it} + \beta_3 APP_{it} + \mu_i + \varepsilon_{it}$$

Where:
FP_{it} represents financial performance of firm i in year t
μ_i captures unobserved firm-specific effects
ε_{it} is the idiosyncratic error term
Separate regressions are estimated for ROA, ROE, ROCE, and Revenue Growth.
To determine the appropriate estimator, both fixed-effects and random-effects models are estimated, and the Hausman specification test is employed to assess whether firm-specific effects are correlated with the regressors. Robust standard errors are used to address potential heteroskedasticity.

Panel regression techniques are preferred over pooled ordinary least squares because they account for time-invariant firm characteristics such as managerial style, operational structure, and industry positioning that may influence profitability. By controlling for these effects, the estimates provide more reliable inference regarding the impact of working capital components.

All statistical analyses are conducted using appropriate econometric software, and statistical significance is evaluated at conventional levels 5%.

FINDINGS

The results indicate that the inventory turnover period (ITP) exhibits an insignificant relationship with Return on Assets (ROA) (β = –0.00, p = 0.77), suggesting that variations in inventory holding duration do not materially influence asset efficiency among the sampled firms. This may reflect industry-specific inventory management structures where production cycles require relatively stable stock levels.

The average collection period (ACP) demonstrates a statistically significant negative association with Return on Capital Employed (ROCE) (β = –0.01, p = 0.04). This finding implies that prolonged receivables collection reduces capital productivity, likely due to delayed cash inflows constraining reinvestment capacity.

Conversely, the average payment period (APP) shows a positive and significant effect on Return on Equity (ROE) (β = 0.10, p = 0.00), indicating that strategic deferral of supplier payments may serve as an implicit source of short-term financing that enhances shareholder returns. However, such benefits must be balanced against potential reputational or operational risks associated with excessive payment delays.

Overall, the explanatory power of the models varies across performance measures, reflecting the differentiated influence of working capital components on distinct profitability indicators. These findings support the liquidity–profitability trade-off framework, suggesting that component-level working capital decisions exert heterogeneous effects on financial outcomes.

Hypothesis Tested	Coefficient	P-Value	Decision
Ho_1 There is no significant relationship between cash conversion cycle and revenue growth in the Nigeria manufacturing firm	-0.01	0.05	Reject Ho_1
Ho_2 There is no significant relationship between account payable period and the return on equity in Nigerian manufacturing firm	0.10	0.00	Reject Ho_2
Ho_3 is no significant relationship between account receivables period, and the return on capital employed Nigerian manufacturing firm	-0.01	0.04	Reject Ho_3
Ho_4 There is no significant relationship between inventory turnover and the return on assets in the Nigeria manufacturing firm	-0.01	0.77	Accept Ho_4

CONCLUSION

The study establishes that working capital management components exert differentiated effects on financial performance in Nigerian manufacturing firms. While cash conversion cycle and receivables period negatively

influence performance indicators, accounts payable management enhances equity returns. Inventory turnover, however, appears statistically insignificant in explaining asset profitability. Effective short-term financial management remains essential for sustaining profitability and liquidity stability.

The results reinforce the liquidity–profitability trade-off perspective, indicating that working capital decisions exert differentiated effects depending on the performance metric considered. Rather than uniformly shortening liquidity cycles, firms may benefit from strategically balancing receivables, inventory, and payables in alignment with operational and financing conditions.

From a managerial standpoint, the evidence suggests that disciplined receivables management and structured payables policies are particularly important in enhancing capital efficiency and equity returns. In macroeconomically volatile environments such as Nigeria, optimizing short-term financial flows becomes essential for sustaining profitability and operational resilience.

Despite its contributions, the study is subject to certain limitations. The analysis is restricted to listed manufacturing firms and a five-year observation period, which may limit generalizability. Future research may extend the time horizon, incorporate nonlinear estimation techniques, or examine industry-specific liquidity dynamics to provide deeper insights.

RECOMMENDATION

Based on the empirical findings of this study, firms within the Nigerian manufacturing sector should adopt strategies aimed at shortening their cash conversion cycles in order to enhance revenue growth. Reducing the duration between cash outflows for production inputs and cash inflows from customers can improve liquidity availability, lower financing dependence, and strengthen operational flexibility. Efficient coordination of inventory, receivables, and payables is therefore essential for sustaining growth and minimizing liquidity pressures.

The results further suggest that the strategic use of supplier credit can positively influence return on equity. Manufacturing firms should leverage favorable payment terms and negotiate extended payables periods where possible, provided such arrangements do not damage supplier relationships. Effective payables management can serve as a low-cost financing mechanism that enhances shareholder returns without increasing external borrowing. Additionally, firms should strengthen their receivables collection policies to improve capital productivity. Delays in accounts receivable reduce the efficiency with which invested capital generates returns. Implementing stricter credit control procedures, improving customer credit assessments, and enhancing monitoring mechanisms can accelerate cash inflows and support higher returns on capital employed.

Although inventory turnover did not exhibit a statistically significant relationship with return on assets during the study period, firms should not disregard inventory management. Instead, inventory policies should be optimized within a broader liquidity management framework to ensure that stock levels support uninterrupted production while minimizing holding costs. Integrated working capital planning remains critical for maintaining financial stability and profitability.

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