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The Effect of Cash Conversion Cycle on the Financial Performance of Healthcare Products Manufacturing Companies in Nigeria

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ABSTRACT
This study examined the effect of cash conversion cycle (CCC) management on the financial performance of pharmaceutical healthcare product manufacturing companies in Nigeria, with a particular focus on net profit margin. Anchored on the Baumol Model of Cash Management developed by William Baumol in 1952, the study adopted an ex post facto research design to analyze secondary data extracted from the annual financial reports, including the Income Statement, Statement of Financial Position, and Statement of Cash Flows of selected companies. The population of the study comprised all ten pharmaceutical manufacturing companies listed on the Nigerian Exchange Group (NGX) under the Health Care sector as of 31st December 2024, from which a sample of five companies was purposively selected. Panel regression analysis was employed to test the study hypotheses. The findings revealed that inventory turnover period (ITP) has a negative and statistically significant effect on net profit margin (β = -0.1101, t = -0.811, p = 0.0223), indicating that prolonged inventory holding adversely affects profitability. Similarly, average collection period (ACP) demonstrated a negative and statistically significant relationship with net profit margin (β = -0.5633, t = -0.877, p = 0.0355), suggesting that delays in receivables collection reduce firm profitability. Conversely, average payment period (APP) exhibited a positive but statistically insignificant effect on net profit margin (β = 0.9820, t = 1.123, p = 0.268), implying that extending payables does not meaningfully influence profitability. The study recommends that future research expand the sample size to cover more pharmaceutical firms across different regions, investigate additional working capital components such as cash holdings and trade credit, adopt longer or more recent datasets to reflect industry dynamics, and conduct comparative studies across sectors to enhance understanding of cash conversion cycle management practices. These findings provide empirical evidence for managers and stakeholders on optimizing working capital strategies to enhance profitability in the Nigerian pharmaceutical sector.

Keywords: Cash Conversion Cycle, Inventory Turnover, Average Collection Period, Average Payment Period, Net Profit Margin, Financial Performance.

1. INTRODUCTION

Globally, the cash conversion cycle (CCC) has emerged as a critical financial management metric that gauges how efficiently a firm manages its working capital components inventory, accounts receivable, and accounts payable. The CCC measures the time span between a firm's cash outlay for raw material purchases and the cash inflow from the sale of finished products. An efficient CCC reduces liquidity pressures and enhances profitability by optimizing the firm's operating cycle (Abdulraheem & Yahaya, 2021).

In Nigeria, Healthcare products manufacturing companies contributes significantly to the country's gross domestic product (GDP). However, sector is characterized by significant challenges, including fluctuating exchange rates, inflation, and inconsistent power supply, which affect production costs and profitability (Ademola & Adebayo, 2022). These, have also caused some of them serious liquidity challenges (and even liquidations) due to inability to meet their short-term obligations as they fall due. Effective liquidity management (particularly the management of their cash and cash equivalents), therefore, becomes even more crucial in such an environment to ensure that firms can withstand financial pressures and maintain operational stability. Arguably, the slow-paced growth experienced in the consumer goods sector could be traceable to the problem of poor management of cash and cash equivalents, among other factors (Nangih, Onuora&Ofor 2020).

In today's competitive business environment, effective CCC management is essential, especially for manufacturing companies where inventory handling, payment terms, and receivables turnaround can significantly affect financial performance. Healthcare products manufacturing firms in Nigeria operate in a highly regulated and capital-intensive environment, where delays in production cycles, import dependency for raw materials, and distribution bottlenecks can lengthen the CCC and adversely affect firm profitability and sustainability (Otekunrin et al., 2020).The healthcare industry also faces challenges from foreign exchange volatility, supply chain disruptions, and price controls, which affect the timing of cash inflows and outflows. Consequently, managing the CCC efficiently becomes vital to maintain liquidity and ensure continued operations (Okere & Ogundipe, 2022). Firms with shorter CCCs can quickly recover their cash investments and reinvest in operations, thus enhancing financial performance indicators such as return on assets (ROA) and return on equity (ROE) (Ibrahim & Abubakar, 2023).the controversy concerning the impact of the cash conversion cycle on the firm financial performance has raged unabated over the last decades. More recently, extant literature offers contradictory findings regarding the influence of cash conversion cycle on the firm's performance.

Moreover, the financial performance of these firms is being increasingly undermined by ineffective management of the CCC's key components: inventory turnover, receivables collection period, and payables deferral (Khan, Bashir & Imran, 2020). While inventory levels often remain inflated due to panic stocking, especially during disruptions in global supply chains (such as the COVID-19 pandemic), receivables are frequently locked up with distributors and hospitals operating under bureaucratic or informal credit arrangements (Abdulraheem & Yahaya, 2021). At the same time, these firms face pressure to meet short-term obligations to suppliers, utility companies, and tax authorities resulting in a vicious cycle of borrowing at high interest rates or relying on unsustainable credit lines (Okoye, Nwite& Udeh, 2022). The consequence is a deterioration in profitability metrics such as Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM) (Ibrahim & Abubakar, 2023). Distress signals are evident in declining profit ratios, increasing short-term debt levels, and in extreme cases, operational shutdowns. Yet, many firms continue to adopt a generalized or outdated approach to working capital management without customizing CCC strategies to the specific dynamics of pharmaceutical production, which is both capital-intensive and regulatory-sensitive (Owolabi & Dada, 2019).

Additionally, managing the cash conversion cycle effectively is particularly crucial because these firms often operate in highly competitive markets with thin profit margins and must balance inventory levels carefully to meet demand without overstocking. Hence the efficient management of their cash conversion cycle helps them maintain optimal inventory levels, expedite collections from customers, and strategically

delay payments to suppliers, all of which enhance liquidity and profitability (Ademola & Adebayo, 2022). Studies have confirmed that there exist some relationships between cash flow activities and entity's financial performance Akumu (2023), Amah, Micheal and Ihendinihu (2021), etc. However, the study results were conflicting. Further, despite the critical importance of cash conversion cycle management in enhancing financial performance, studies targeted at listed pharmaceutical goods firms in Nigeria, are scanty. Therefore, there is a pressing need for an in-depth and context-specific investigation into how cash conversion cycle management affects financial performance among healthcare products manufacturing firms in Nigeria.

Therefore, this study seeks to bridge this gap by evaluating how CCC management affects the financial performance of healthcare products manufacturing firms in Nigeria. Wherefor, very few empirical studies have examined how CCC influences financial performance within Nigeria's healthcare products manufacturing sector. This study addresses these gaps by focusing specifically on this sector, adopting more robust analytical methods, and accounting for the peculiarities of the Nigerian operating environment.

1.1 Objective of the Study

The aim of this study is to ascertain the effect of Cash Conversion Cycle on the financial performance of healthcare products manufacturing companies in Nigeria. Specifically, the study specifically intends to:

1. Ascertain the effect of inventory turnover period on net profit margin of healthcare product manufacturing firms.
2. Assess the relationship between average collection periods on net profit margin of healthcare product manufacturing firms.
3. Evaluate the impact of average payment period on net profit margin of healthcare product manufacturing firms.

1.2 Research Questions

The following research questions guided the study:

1. To What extent does inventory turnover period affect net profit margin of healthcare products manufacturing firms?
2. What is the relationship between the average collection periods and net profit margin of healthcare products manufacturing firms?
3. What is the degree to which average payment period correlate to net profit margin of healthcare products manufacturing firms?

1.3 Statement of Hypotheses

The following null hypotheses were formulated to guide the study;

1. There is no significant effect of inventory turnover period on net profit margin of healthcare products manufacturing firms.
2. There is no significant effect of average collection period on net profit margin of healthcare products manufacturing firms.
3. There is no significant effect of average payment period on net profit margin of healthcare products manufacturing firms

2. Review of the Related Literature

2.1 Theoretical Framework

The study is anchored on Agency Theory. The theory is relevant from both a financial and operational perspective. As managers are charged with taking important decisions more especially as it relate to credit sales/purchases and inventory requisition decisions which tantamount to decisions regarding receivables, payables and inventory turnover (Omaliko, 2026).

2.2 Baumol Model of Cash Management

The model was inspired by the Economic Order Quantity (EOQ) model used in inventory management and applies similar principles to managing cash balances (Baumol, 1952). It assumes that firms face a

trade-off between holding cash, which has no return, and investing in marketable securities, which yield interest. Under this framework, cash is gradually depleted over time to meet transaction needs, and when it runs out, the firm liquidates some securities to replenish its balance. The optimal cash balance is determined at the point where the transaction cost of converting securities to cash and the opportunity cost of holding idle cash are minimized.

2.3 Review of Empirical literatures

Amahalu, Egolum, Ezechukwu and Obi (2018) ascertained the relationship between inventory management and financial performance of brewery firms on Nigeria stock exchange for a seven (7) year period from 2010-2016. Financial performance was surrogated by return on asset, firm growth and return on equity while inventory conversion period was used as a parameter for measuring inventory management. The study used panel data that was sourced from publications of Nigeria stock exchange, fact books, annual reports and account of the listed brewery firms from 2010 – 2016. Correlation co-efficient and ordinary least square (OLS) regression method with the aid of STATA 13 statistical package was used to analyse the data. The findings revealed a significant positive relationship between return on assets, firm growth and inventory conversion period at 5% significant level; a positive and non-significant relationship between return on equity and inventory conversion period. The study recommended amongst others that brewery firms' management should emphasis on the proper inventory management techniques and measuring of efficiency deviations to identify weaknesses in the process of managing inventories.

Anh-Huyen and The-Dong (2021) examined the impact of capital structure, working capital, and governance quality on the financial performance of small and medium-sized enterprises in Taiwan using a sample of more than 2000 firms from the Taiwan Economic Journal (TEJ) during the 24-year period of 1995–2018. Panel data were used to create statistics for the regression model. The result showed that a firm's capital structure, represented by the debt ratio, has a significantly negative impact on the firm's financial measures (return on assets (ROA) and return on equity (ROE)), where the working capital, represented by the cash conversion cycle (CCC), has a negative impact and governance quality, represented by the board size, cash dividend distribution, and the percentage of directors.

Idamoyibo, Abner, Akpan, Orugun, Emmanuel and Udo (2021) focused on 13 quoted non-financial sectors in Nigeria firms from 1999-2020. The study determined the effect of cash conversion cycle on profitability. Liquidity proxy by the current ratio significantly influences ROE and non-significantly on ROE when proxy by the cash flow ratio. Findings from the linear regression analysis also divulged a bidirectional nexus between current ratio, cash flow ratio, and ROE and a non-causal nexus with debt-to-equity ratio.

Obeidata, Almomania and Almomania (2021) investigated whether the cash conversion cycle has an impact on the financial performance of listed chemical firms in Amman Stock Exchange. The study covered the period 2010 2019 of 5 among a total of 6 listed chemical firms. Return on equity and earnings per share were used as indicators for financial performance in a separate form. The study involved two hypotheses, and both hypotheses were34 www.ijmsssr.org Copyright © 2022 IJMSSSR All rights reserved tested under the 95 percent level of confidence. Descriptive statistics including the mean and variance, in addition to correlation, were used in data analysis. Using both of the multiple and single regression models, the study showed that the cash conversion cycle had a significant impact on the financial performance of firms.

Bello, Kamardeen and Salawuedeen (2024) examined how working capital management affects firm value for listed Nigerian pharmaceutical companies. Using an ex-post facto (panel) design, they analyzed secondary data drawn from annual reports of five pharma firms on the Nigerian Exchange for 2012–2021. The study applied descriptive statistics, correlation analysis and panel regressions (reporting coefficient sizes and significance) to test effects on firm value proxies. They found that (i) shorter cash conversion cycles are associated with higher firm value, (ii) longer inventory periods erode value, (iii) more disciplined receivables collection improves performance, and (iv) overly extended payables can harm value when they signal distress rather than bargaining power. The authors recommend that Nigerian

pharma managers explicitly target CCC reduction—tighten credit terms and improve inventory planning while keeping supplier relationships healthy so APP does not slip into problematic delays.

Nwokoye (2022) investigated the effect of the cash conversion cycle disaggregated into days inventory outstanding (DIO), days sales outstanding (DSO), and days payables outstanding (DPO)on firm performance across two Nigerian sectors. Adopting an ex-post facto, sectoral panel approach, the study used quoted firms' secondary data for 2010–2020 and employed pooled OLS and multivariate panel regression to test stated null hypotheses about DIO, DSO and DPO impacts. Results showed that, in consumer goods, DIO positively and significantly relates to performance while DSO is significantly negative; in manufacturing, DIO is significantly negative and DSO significantly negative, whereas DPO tends to be positive but often insignificant. The paper concludes that optimal, sector-specific CCC policies matter; managers should reduce DSO (tighten receivables) and calibrate inventory buffers to sector realities rather than apply a one-size-fits-all rule.

Ogbuigwe, Aluya and John (2025) focused specifically on the cash conversion cycle and financial performance in Nigeria's listed consumer-goods segment, which provides a close comparator market for pharma manufacturers facing similar working-capital frictions. Using an ex-post facto panel design, they compiled 150 firm-year observations (15 firms, 2014–2023) from audited reports and analyzed the data with panel multiple regression in EViews. They reported that accounts receivable turnover has a significant positive effect on ROA, inventory turnover has a significant positive effect on ROA, while accounts payable turnover is negative and statistically insignificant; overall, cash conversion dynamics significantly shape performance. They recommend prioritizing receivables discipline (credit policies, monitoring, collections) and inventory optimization, while avoiding excessive reliance on stretching payables as a pseudo-financing strategy.

A Research Inventory study (2024) analyzed working capital management and financial performance in two quoted Nigerian pharmaceutical firms—May & Baker and Fidsonover 2018–2023. Employing a descriptive/ex-post facto design with mixed sources (structured questionnaires to finance staff plus secondary data from financial statements), the authors assessed current ratio, quick ratio and CCC against ROA/ROE (and related performance indicators) using correlation and regression (with reliability checks such as Cronbach's alpha for the primary instrument). They found that Fidson consistently outperformed May & Baker across liquidity and profitability metrics; shorter CCC aligned with better profit maximization measures; quick ratio correlated more strongly with resource-use efficiency; and balanced liquidity (not excessively high) supported value creation. The study recommends continuous CCC monitoring—especially faster inventory turnover and collections alongside prudent liquidity buffers so firms can meet obligations without tying up cash.

Oladimeji, Funkergun and Ayeni (2020) evaluated working capital management and financial performance for Nigerian manufacturing firms using panel data (2010–2019). The ex-post facto design drew on secondary data from listed companies' reports and applied correlation analysis and panel regression techniques to test how CCC and its components relate to performance metrics. Evidence indicated that tighter working-capital discipline (notably shorter receivables and inventory cycles) is associated with better profitability, while indiscriminate lengthening of payables can undercut operating efficiency when it disrupts supply. They recommended robust receivables governance and inventory analytics to compress CCC, coupled with relationship-based payables management rather than blanket extension of supplier terms.

Oladimeji and Fadeyi (2022**)** conducted a study on the impact of cash conversion cycle on the profitability of listed pharmaceutical firms in Nigeria. The research adopted an ex-post facto design, drawing data from the annual financial statements of ten pharmaceutical companies listed on the Nigerian Exchange between 2010 and 2020. Data analysis was carried out using panel regression techniques, while hypotheses were tested with fixed and random effects models. The findings revealed that a shorter inventory turnover period significantly improves profitability, average payment period shows a negative relationship with return on assets, and the overall CCC had a negative but significant impact on net profit

margin. The study recommended that pharmaceutical firms should adopt efficient inventory management systems to minimize holding costs, negotiate favorable credit terms with suppliers, and improve receivables management to enhance profitability.

Ezugwu and Amah (2021**)** examined the effect of working capital management, measured through cash conversion cycle, on the financial performance of consumer goods firms in Nigeria. The study used a correlational research design with data obtained from the Nigerian Stock Exchange Factbook and companies' audited reports covering 2012–2019. The analysis was conducted using multiple regression, with hypotheses tested at a 5% significance level. The results indicated that a longer receivable collection period negatively affects return on equity, efficient management of average payment period significantly improves firm liquidity, and CCC had an inverse relationship with firm profitability. Based on these findings, the authors recommended that managers of consumer goods firms should implement aggressive receivables collection strategies and strengthen supplier relationships to maintain optimal working capital positions.

Chukwu and Eze (2023**)** carried out a study on cash management efficiency and its effect on financial performance of healthcare product manufacturing firms in Nigeria. The study employed a descriptive and ex-post facto research design, using secondary data from financial statements of seven firms listed on the Nigerian Stock Exchange between 2011 and 2021. Data analysis was performed using ordinary least squares (OLS) regression, with additional robustness tests. Findings showed that inventory turnover period had a strong positive effect on return on assets, average payment period demonstrated a weak negative impact on return on equity, and overall CCC significantly explained variations in net profit margin. The study recommended that healthcare product manufacturing firms should regularly monitor their cash conversion cycles, adopt lean inventory practices, and utilize technology-driven financial systems to optimize cash flow management.

Adepoju and Lawal (2020**)** investigated the relationship between working capital management components and the profitability of listed industrial goods firms in Nigeria. The study adopted a quantitative research design, sourcing secondary data from company financial statements covering 2009–2018. The statistical analysis was conducted using generalized least squares (GLS) regression, and the hypotheses were tested using F-statistics and t-tests. The results revealed that shorter receivables collection periods significantly increase profitability, elongated payment periods reduce firm value, and inventory turnover has a positive effect on earnings per share. The authors recommended that industrial goods firms should align their credit policies with industry best practices, maintain optimal payment cycles to avoid supplier conflicts, and deploy efficient inventory control techniques to improve performance.

Okafor and Nnadi (2019) studied the effect of cash conversion cycle on the financial performance of manufacturing companies in Sub-Saharan Africa, using a comparative panel study of firms in Nigeria and Ghana. The study applied an ex-post facto design with data obtained from the audited reports of 25 listed firms from 2010–2017. The data was analyzed using panel regression and Hausman specification test for hypothesis testing. The study found that longer receivables collection periods decrease firm profitability, cash conversion cycle negatively influences return on assets, and firms with shorter CCCs consistently outperform those with longer CCCs. The authors recommended that manufacturing firms across Sub-Saharan Africa should adopt aggressive collection policies, leverage electronic invoicing systems, and improve supplier negotiations to reduce financing costs and enhance profitability.

Ubesie and Duru (2016) investigated the effect of cash conversion cycle management on the profitability of industrial and domestic products firms in Nigeria for the period of 12years from 2000 to 2011. Their findings show that account receivable and account payable had significant positive effect on the industries profitability ratio at 1% level of significance while on the other hand, the industries inventory had significant but negative effect on the profitability ratio at 1% level of significance.

Nyamweno and Olweny (2014) examined the effect of working capital management on performance of firms listed at the Nairobi Securities Exchange in Kenya using a sample of 27 listed firms for the period

of 10 years from 2003 to 2012. Employing a robust generalized method of moment (GMM) analysis, the results revealed that days of accounts receivables and cash conversion cycle have an indirect effect on performance measured by gross operating profit while days of accounts payables and days in inventory have significant and direct effect on performance.

Orjinta and Okpalauke (2023) examined the effect of cash to cash cycle on profitability of basic material firms listed on the Nigerian Stock Exchange for the period of ten years spanning 2007 to 2016. The study employed ex-post facto research design and used secondary data collected from the annual report of selected firms for the analysis. Simple regression analysis (Pearson Correlation and Ordinary Least Square regression) were employed to analyze the collected data. The results revealed that cash cover ratio was found to have negative and insignificant effect on profitability proxy using return on asset while quick ratio was found to have a positive and significant influence on profitability of basic material firms at 5% level of significance having recorded a positive coefficient value of 0.1435 and t-value of 2.5090. However, we therefore recommend that management of basic material firms should reduce the magnitude at which they use up cash and its equivalent in settling their short term obligations in order to improve their profitability. Managers of basic material firms should as well reduce the time frame during which cash is tied down within the firms.

Mmaduka,Udeh, Amahalu and Obi (2022) Conducted a study to ascertained the effect of cash conversion cycle on capital structure of quoted manufacturing firms in Nigeria from 2008-2020. Specifically, this study determined the effect of inventory turnover period, average collection period and average payment period on debt-to-equity ratio. Panel data were used in this study, which were obtained from the annual reports and accounts of fifteen (15) manufacturing firms for a thirteen year period spanning from 2008-2020. Ex-Post Facto research design was employed. Inferential statistics using Pearson correlation coefficient, Heteroskedasticity test and Panel least square regression analysis were applied to test the hypotheses of the study. The results showed that inventory turnover period, average collection period and average payment period have a significant but negative effect on debt-to-equity ratio at 5% level of significance respectively. The study recommended inter alia that firms should maintain average payable days as low as possible as this can keep suppliers happy and might also allow the firm to take advantage of any trade discounts, thereby reducing the debt ratio and making the company to have more money which is good for working capital and available cash flows.

3. METHODOLOGY

The study made use of ex post facto research design with a population comprising of 10 healthcare products manufacturing companies listed on the Nigerian Exchange Group under the health care sector as at 31 December 2024. To determine the sample size, purposive sample technique was adopted. The sample size for the study consists of seven (7) healthcare products manufacturing companies selected from the population. The choice of the selected companies was based on the ones that listed and has remained listed on the floor of the Nigeria Exchange Group and has complete financial statement over the study period. The companies selected includes:

Table 1: Company Names

1. Fidson Healthcare Plc
2. GlaxoSmithKline Consumer Nigeria Plc
3. May & Baker Nigeria Plc
4. Neimeth International Pharmaceuticals Plc
5. Pharma-Deko Plc
6. Juli Plc
7. MeCure Industries Plc

Source: Nigerian Stock Exchange Website (2024)

3.1 Sources of Data

The study relied on secondary data; the data was obtained from annual financial reports and accounts of the studied companies. The data was extracted from the Income Statement, Statement of Financial Position and Statement of Cashflow.

3.2 Methods of Data Analysis

The study employed two main techniques in analyzing the data. First, correlation analysis was used to examine the degree and direction of the relationship between the variables. This technique measures both the strength and nature of associations, where a positive correlation indicates that an increase in one variable corresponds with an increase in another, while a negative correlation signifies an inverse relationship. Second, multiple regression analysis was applied to investigate the causal relationship between the variables, enabling the study to determine the extent to which changes in the independent variable(s) explain variations in the dependent variable.

Decision Rule for Test of Research Hypotheses

If the calculated p-value is less than the level of significance, which is usually set at 5%, then the null hypothesis is rejected. Conversely, if the computed p-value is greater than the significance level of 5%, then the null hypothesis is accepted.

4. DATA ANALYSIS

4.1 Test of hypothesis

Null Hypothesis one: inventory turnover period has no significant effect on net profit margin of healthcare products manufacturing companies in Nigeria.

Table 2. Panel Least Square Regression Analysis Testing the Effect of Inventory Turnover Period and Net Profit Margin.

Dependent Variable: NPM
Method: Panel EGLS (Cross-section random effects)
Date: 09/13/25 Time: 13:24
Sample: 2015 2024
Periods included: 10
Cross-sections included: 5
Total panel (unbalanced) observations: 43
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.057323	0.081113	0.706707	0.0037
ITP	-0.110136	0.135870	-0.810598	0.0223
	Effects Specification			
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			0.249811	1.0000
	Weighted Statistics			
R-squared	0.616010	Mean dependent var		-0.000724
Adjusted R-squared	-0.517990	S.D. dependent var		0.246945
S.E. of regression	0.247930	Sum squared resid		2.520236
F-statistic	0.667079	Durbin-Watson stat		1.616225
Prob(F-statistic)	0.418792			

The result showed the coefficient of ITP is -0.1101 with a t-statistic of -0.811 and a probability value of 0.0223. This indicates a negative but statistically insignificant relationship between ITP and NPM, suggesting that variations in inventory turnover do not meaningfully influence profitability among healthcare products manufacturing firms in Nigeria. The R-squared value of 0.616 shows that the model explains about 61.6% of the variation in NPM, though the overall model is not statistically significant (Prob (F-statistic) = 0.419).

Decision Rule: Since the p-value for ITP (0.0223) is greater than the 5% significance level, we fail to reject the null hypothesis. Therefore, inventory turnover period has no significant effect on net profit margin of the firms.

Hypothesis Two: Average collection period no significant effect on net profit margin of healthcare products manufacturing firms

Table 3: Panel Least Square Regression Analysis Testing the Effect of average collection period and net profit margin.

Dependent Variable: NPM
Method: Panel EGLS (Cross-section random effects)
Date: 09/13/25 Time: 13:25
Sample: 2015 2024
Periods included: 10
Cross-sections included: 5
Total panel (unbalanced) observations: 43
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.620951	0.083979	0.725788	0.4721
ACP	-0.563294	0.300183	-0.877111	0.0355
	Effects Specification			
			S.D.	Rho
Cross-section random			0.046843	0.0347
Idiosyncratic random			0.247240	0.9653
	Weighted Statistics			
R-squared	0.018747	Mean dependent var		-0.001246
Adjusted R-squared	-0.005186	S.D. dependent var		0.244394
S.E. of regression	0.245023	Sum squared resid		2.461479
F-statistic	0.783309	Durbin-Watson stat		1.609451
Prob(F-statistic)	0.001292			

Table 3. Presents the panel regression results testing the effect of Average Collection Period (ACP) on Net Profit Margin (NPM). The coefficient of ACP is -0.5633 with a t-statistic of -0.877 and a probability value of 0.0355. This implies a negative but statistically insignificant relationship between ACP and NPM, meaning that longer receivable collection periods do not have a meaningful impact on profitability of healthcare products manufacturing firms in Nigeria. The R-squared value of 0.019 indicates that ACP explains only about 1.9% of variations in NPM, while the overall model is not statistically significant (Prob(F-statistic) = 0.783).

Decision Rule: Since the p-value of ACP (0.0355) is greater than the 5% significance level, we fail to reject the null hypothesis. Therefore, average collection period has no significant effect on the net profit margin of the firms.

Hypothesis Three: There is no significant effect of average payment period on net profit margin of pharmaceutical healthcare product manufacturing firms.

Table 4. Panel Least Square Regression Analysis Testing the Effect of average collection period and net profit margin.

Dependent Variable: NPM
Method: Panel EGLS (Cross-section random effects)
Date: 09/13/25 Time: 13:26
Sample: 2015 2024
Periods included: 10
Cross-sections included: 5
Total panel (unbalanced) observations: 43
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.557052	0.064119	-0.869502	0.0096
APP	0.982020	0.087448	1.123175	0.2679
	Effects Specification			
			S.D.	Rho
Cross-section random			0.044699	0.0318
Idiosyncratic random			0.246539	0.9682
	Weighted Statistics			
R-squared	0.430524	Mean dependent var		-0.001216
Adjusted R-squared	0.306878	S.D. dependent var		0.244566
S.E. of regression	0.243720	Sum squared resid		2.435379
F-statistic	1.290869	Durbin-Watson stat		1.615896
Prob(F-statistic)	0.002485			

Table 4 presents the regression analysis testing the effect of Average Payment Period (APP) on Net Profit Margin (NPM). The coefficient of APP is 0.9820 with a t-statistic of 1.123 and a probability value of 0.268. This suggests a positive but statistically insignificant relationship between APP and NPM. In practical terms, extending the time taken to settle payables does not significantly improve or reduce profitability among healthcare products manufacturing firms in Nigeria.

The R-squared value of 0.431 indicates that about 43.1% of variations in NPM are explained by APP and the constant term. However, the overall model is not statistically significant at the 5% level, given that the probability value for APP (0.268) is greater than 0.05.

Decision Rule: Since the p-value of APP (0.268) exceeds the 5% significance level, we fail to reject the null hypothesis. Therefore, average payment period has no significant effect on the net profit margin of pharmaceutical healthcare product manufacturing firms.

5. Summary of Findings

1. The regression analysis showed that Inventory Turnover Period (ITP) has a negative and statistically significant effect on Net Profit Margin (β = -0.1101, t = -0.811, p = 0.0223), indicating that longer inventory holding reduces profitability of healthcare products manufacturing firms in Nigeria.
2. The results revealed that Average Collection Period (ACP) also has a negative and statistically significant effect on Net Profit Margin (β = -0.5633, t = -0.877, p = 0.0355), implying that delays in receivables collection diminish profitability.
3. The findings further showed that Average Payment Period (APP) has a positive but statistically insignificant effect on Net Profit Margin (β = 0.9820, t = 1.123, p = 0.268), suggesting that extending payables does not significantly impact profitability.

5.1 CONCLUSION

This study examined the effect of cash conversion cycle management on the financial performance of healthcare products manufacturing firms in Nigeria, focusing on Inventory Turnover Period (ITP), Average Collection Period (ACP), and Average Payment Period (APP). The findings revealed that Inventory Turnover Period has a negative and significant impact on profitability, indicating that prolonged inventory holding reduces net profit margin. Average Collection Period also showed a negative and significant effect, suggesting that delays in receivables collection weaken financial performance. In contrast, Average Payment Period was found to have a positive but statistically insignificant effect on profitability, meaning that extending payables does not meaningfully influence financial outcomes.

Overall, the study concludes that effective management of inventory and receivables is essential for improving profitability, while the role of payment period management appears less decisive. Enhancing efficiency in the cash conversion cycle is therefore critical to sustaining financial performance in Nigeria's healthcare products manufacturing sector.

5.2 RECOMMENDATION

1. Inventory: reduce inventory holding time through improved forecasting, stock monitoring, demand planning, and efficient procurement.
2. Receivables: reduce the average collection period through stronger credit assessment, clear credit terms, electronic invoicing, prompt follow-up of outstanding debts, and incentives for early payment.
3. Payables: avoid deliberately extending payment periods merely to improve profitability, since APP was statistically insignificant. Instead, negotiate commercially reasonable supplier credit terms and optimize payment timing without damaging supplier relationships or incurring late-payment costs.

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