

MODERATING EFFECT OF CURRENT RATIO IN THE RELATIONSHIP BETWEEN INVENTORY TURNOVER, CASH CONVERSION CYCLE AND FINANCIAL PERFORMANCE OF LISTED FOOD AND BEVERAGE FIRMS IN NIGERIA

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Abstract

The primary objective of this ex-post facto research is to investigate the relationships among inventory turnover, cash conversion cycle, current ratio, and the financial performance of food and beverage companies listed on the Nigerian Exchange Group. Employing an ex-post facto research design, the study focuses on a population of 19 food and beverage companies listed on the Nigerian Exchange Group during the study period. Census sampling was used to select the entire population due to its manageable size. Secondary data from financial statements of these companies were collected and analyzed using descriptive statistics, correlation analysis, unit root tests for preliminary analysis, and panel regression for hypothesis testing. The choice of secondary data was driven by the quantitative nature of the variables, allowing for a comprehensive examination of the cause-and-effect relationships. The panel regression findings indicate a significant negative impact of inventory turnover on the financial performance of listed Food and Beverage firms in Nigeria. However, the cash conversion cycle shows a negative effect on financial performance that is not statistically significant. On the other hand, the current ratio has a significant moderating effect, positively influencing the relationship between inventory turnover and financial performance. Conversely, the current ratio does not exhibit a significant moderating effect on the relationship between the cash conversion cycle and financial performance for these firms. In conclusion, the study contributes to understanding the financial dynamics of the food and beverage industry in Nigeria. The findings underscore the importance of optimizing inventory management and prioritizing liquidity to enhance overall financial performance. Based on the study's findings, recommendations include implementing efficient inventory control mechanisms, maintaining optimal liquidity levels, enhancing financial reporting systems, and continuous improvement in the cash conversion cycle for sustained financial efficiency and resilience in the industry.

Keywords: credit appraisal policy, credit collection policy, credit risk control policy, credit terms, debt recovery policy, financial performance

1.0 Introduction

The significance of short-term financial decisions for the profitability of a firm is acknowledged in the corporate finance literature. In a global context, the challenges associated with working capital management (WCM) are an ongoing subject of discussion due to its crucial role in determining the optimal path for businesses. The ability to serve as a buffer of liquidity (Baños-Caballero et al., 2020) and the value of working capital are particularly evident during periods of economic turmoil, as highlighted in a recent report on globally listed companies (PWC Annual Report, 2019). In light of this background, it is essential for businesses to cultivate a working capital culture that supports financial performance. WCM is a fundamental characteristic of a successful firm as it directly impacts firm performance (Habib & Dalwai, 2023). Furthermore, poor decisions regarding a firm's working capital are directly responsible for the distress of many firms (Habib & Kayani, 2022).

When the management of working capital components is mishandled over an extended period, it can lead to bankruptcy. Thus, it is imperative to accord the necessary attention and importance to working capital in order to avoid unfavorable situations. The primary challenge in capital management lies in unfeasible investments, where the increase in costs surpasses the increase in returns (Tareq et al., 2021). Consequently, managers must implement specific methods to enhance the turnover rate of current assets without negatively impacting the firm's operational activities, ensuring that the returns from current assets exceed the costs of maintaining them. It is particularly striking to note the significant role that inefficient or inadequate WCM plays in the downfall of numerous firms (Habib & Kayani, 2022). Three critical elements of working capital are inventory turnover, cash conversion cycle, and current ratio (Mmaduka, Udeh, Amahalu & Obi, 2022).

Inventories serve as vital assets in a company's production process, necessitating control measures to prevent losses arising from stock shortages or excesses. A decrease in inventory levels is positively correlated with a firm's financial performance. Higher inventory turnover, characterized by a lower inventory-to-sales ratio and a shorter period for converting inventory to sales, has positive effects on a firm's financial performance (Anusi & Nduka, 2022). The relationship between the inventory turnover ratio and a firm's profitability is positive, whereas the relationship between the inventory conversion period and a firm's profitability is negative (Fekadu & Yu-Min, 2021). The cash conversion cycle is a widely utilized measure for assessing and managing the risks and returns associated with liquidity. Given that every corporate organization is deeply concerned about sustaining and enhancing profitability, it is imperative to monitor the factors that influence profitability. The cash conversion cycle is a critical component of working capital management and financial management as it directly impacts the liquidity and profitability of a company (Anser & Malik, 2020).

The current ratio serves as a crucial moderating factor in the interplay between inventory conversion, cash conversion cycle, and financial performance. A higher current ratio, indicating

stronger liquidity, enables companies to navigate their inventory and cash conversion processes more efficiently (Widiardana, 2023). With ample current assets relative to current liabilities, firms can optimize inventory turnover and reduce the time it takes to convert goods into cash. This liquidity buffer also mitigates the adverse impact of prolonged cash conversion cycles on overall financial performance, enhancing resilience and providing a financial cushion (Sunaryo, 2022). Therefore, a well-managed current ratio acts as a strategic lever, influencing the dynamics between operational efficiency, working capital management, and the financial health of the firm. Existing studies (i.e; Yakubu et al., 2020; Okoye et al., 2020; Fekadu & Yu-Min, 2021; Anusi & Nduka, 2022; Farhan et al., 2023; Airout et al., 2023) predominantly focus on various aspects of working capital management, such as inventory turnover, cash conversion cycle, and their direct impact on financial performance. For instance, Fekadu and Yu-Min (2021) emphasize the significant and positive correlation between working capital management, including inventory turnover, and export firm performance in Ethiopia. However, the specific moderating role of current ratio in the context of Nigerian food and beverage firms remains largely unexplored, as indicated by the absence of relevant studies in the reviewed literature. Therefore, this study fills this research gap by introducing and examining the moderating effect of current ratio in the relationship between inventory turnover, cash conversion cycle and financial performance of listed food and beverage firms in Nigeria, contributing novel insights to the existing body of knowledge in the field.

1.1 Research Hypotheses

The following null hypotheses were tested:

H01: Inventory turnover has no significant effect on the financial performance of listed Food and Beverage firms in Nigeria.

H02: Cash conversion cycle has no significant effect on the financial performance of listed Food and Beverage firms in Nigeria.

H03: Current ratio does not have a moderating effect on the relationship between inventory turnover and financial performance of listed Food and Beverage firms in Nigeria.

H04: Current ratio does not have a moderating effect on the relationship between cash conversion cycle and financial performance of listed Food and Beverage firms in Nigeria.

1.2 Conceptual Framework

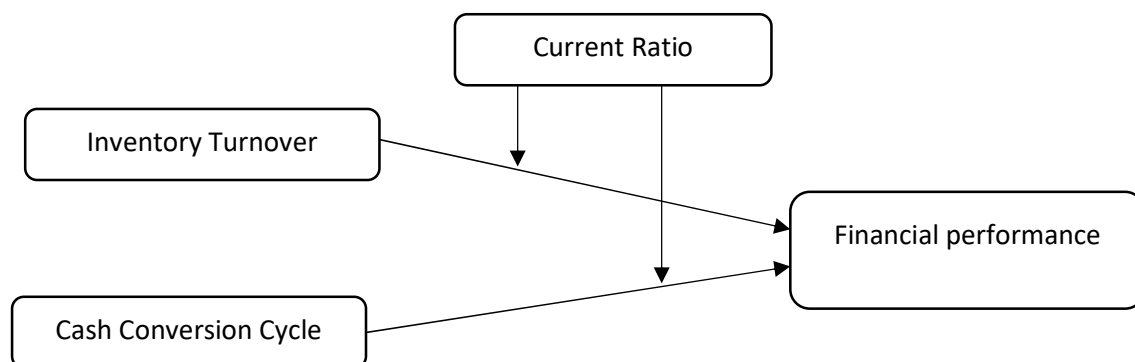


Figure 1: Research Model

2.0 Literature Review

2.1 Conceptual Review

This section provides a critical review of the key concepts of this study which include financial performance, current ratio, inventory turnover and cash conversion cycle, as discussed in the following.

Financial Performance

According to Akyuz and Opusunju (2019), performance can take two different forms: financial performance and non-financial performance. A variety of metrics are used to measure financial success, such as revenue, profit margin, capital sufficiency, sales growth, liquidity ratio, return on equity, and stock prices. Conversely, market share, production efficiency, consumer base growth, quality of service, and so on are examples of non-financial performance indicators (Kabetu & Iravo, 2018). In this study, return on assets—a specific indicator of financial performance—is the main focus. The return on assets is a crucial metric that indicates how well a company can use its asset investment to produce profits (Obalemo et al., 2020). Net income is divided by total assets to arrive at this figure. Greater profitability is implied by a better return on assets ratio, which shows that the business is skilled at maximizing profit production through asset utilization (Singhania & Mehta, 2017).

Inventory Turnover

Inventory turnover, another vital metric, is widely recognized as an effective indicator of operational efficiency (Jin, 2019). This metric refers to the number of days required for the total inventory to be converted into cash. A lengthier conversion period signifies a greater proportion of working capital being tied up in inventory, which can have a detrimental impact on company functioning. On the other hand, a briefer inventory turnover period implies that inventory is immobilizing less capital. Consequently, it is critical to understand how inventory affects a company's profitability (Elsa, 2019). Moreover, the percentage of the number of sales and cash conversions from inventory during a specified time frame is known as inventory turnover. Thus, controlling working capital requires the implementation of efficient inventory control (Van, Hung, Van & Xuan, 2019). It is important to remember that the average inventory is divided by the cost of sales, and then multiplied by 365 days to determine the inventory turnover time (Sunusi et al., 2020).

Cash Conversion Cycle

The cash cycle, also known as the cash conversion cycle, is a term that quantifies the amount of time that passes between the time that money is disbursed and collected. It is the total number of days that pass from the time that businesses actually pay for their inventory until cash is received from sales. In terms of math, it is the total of the inventory and accounts receivable periods, less

the accounts payable period, multiply by 365, and divide by the cost of sales (Obalemo et al., 2020). According to the established link between a company's profitability and its cash conversion cycle, a shorter cash conversion period results in higher profitability for the company (Mohamed & Muhammed, 2020).

Current Ratio

The Current Ratio is a financial metric used to evaluate an entity's liquidity position as presented on the balance sheet. It indicates a company's capability to meet its short-term obligations (Airout, Alawaqleh, Almasria, Alduais & Alawaqleh, 2023). The current ratio assesses whether a corporation possesses adequate resources to fulfill its debts within the coming 12 months (Qamara, Wulandari, Sukoco & Suyono, 2020). Specifically, the current ratio is defined as the ratio of current assets to current liabilities. According to Abdulrahman (2021), the current ratio, commonly known as the working capital ratio, evaluates a company's ability to satisfy its short-term obligations that are due within a year. This ratio measures an entity's ability to meet short-term obligations with current assets, giving insight into its financial health (Naceur, 2017). It does this by taking into account the proportion of total current assets to total current liabilities. Experts consider a 2:1 relationship as the optimal ratio, hence it is often referred to as a 2:1 ratio.

2.2 Theoretical Review

The trade-off theory proposes that firms strive for an optimal level of liquidity by balancing the advantages and disadvantages associated with holding cash (Campbell & Kelly, 1994). Therefore, the theory that best exemplifies the moderating effect of the current ratio in the relationship between inventory turnover, cash conversion cycle, and financial performance is the "liquidity trade-off theory." This theory suggests that firms face a trade-off between maintaining adequate liquidity (reflected in the current ratio) and maximizing profitability. In the context of this study, the current ratio acts as a moderating variable, influencing how inventory turnover and the cash conversion cycle impact the financial performance of listed Food and Beverage firms in Nigeria. The liquidity trade-off theory recognizes the need for companies to balance their desire for higher returns with the necessity of having sufficient liquidity to meet short-term obligations.

2.3 Empirical Review

Inventory Turnover on Financial Performance

Fekadu and Yu-Min (2021) look into the basic effects of working capital management on the success of Ethiopian export companies. A total of 164 exporters that operate in Ethiopia were selected as a sample for this study's analysis, and the collection of primary as well as secondary data techniques were applied. The data gathered from the sample of the study were analysed using a multiple linear regression model and the result reveals that working capital management which was measured by account receivables period, cash conversion cycle, and accounts payable period has a statistically significant and positive correlation with the performance of exporting firms in Ethiopia which was measured by both return on assets and return on investment. However,

working capital management which was measured by the inventory turnover period has a statistically significant and positive impact on return on investment, but it has an insignificant impact on the performance of sampled export firms in Ethiopia which was measured by return on assets.

Anusi and Nduka (2022) analysed the effect of working capital management on performance of basic materials firm in Nigeria between the period of 2014-2020. The specific objectives include: To determine the extent to which account receivables, inventory turnover period, operating efficiency and Stock availability have on firm performance in Nigeria. The study is anchored on the Agency Theory propounded by Jensen and Meckling (1986). Four research questions were formulated in line with four objectives. Regression analysis method of data analysis was used. The variables used which were culled from the annual report of the quoted basic material firms. The study found that account receivables and inventory turnover period have no significant effect on firm performance in Nigeria, while operating efficiency has a positive and significant effect on firm performance in Nigeria. Based on these, the study recommends among others, that firm should diversify their inventory system to suit specific needs of production. Also, that firms should improve the operating management by reducing their account receivable period as this may reduce bad debt that result through credit sale and increase the cash available for investment.

During a seven-year period (2010-2016), Sulaiman et al. (2018) examined the impact of working capital management on the profitability of a total of sixteen (16) listed consumer goods companies in Nigeria. Return on Equity and Return on Assets served as proxies for the dependent variable, whereas the Current Ratio, Trade Receivable Period, Trade Payable Period, and Inventory Turnover Period served as proxies for the independent variable. The study's control variables are the size and growth of the company. Multiple regression analysis and panel data techniques were used in the study. The results showed that the Return on Assets is positively and highly significant (at 1%), impacted by the Trade Receivable Period, but not by the Current Ratio, Trade Payable, or Inventory Turnover Period. The trade receivable period was found to have a favourable and significant impact on financial performance; however, the study's working capital management variables did not show a positive correlation with profitability. In order to make the firms more liquid, the report suggests that financial managers set shorter credit periods. Second, in order to have more cash on hand and prevent a liquidity issue, managers should renegotiate with their suppliers for an extension of the days that the accounts payable period is due for payment. Thirdly, in order to shorten the period of time that inventory is held until it is sold, managers should constantly assess their inventory levels.

Okoye et al. (2020) use panel data for forty (40) businesses from the retail and industrial goods sectors of the economy to examine the effects of working capital management on the performance of chosen companies listed on the Nigerian Stock Exchange. While cash conversion cycle (CCC), inventory collection period (ICP), average payment period (APP), and average collection period (ACP) were accepted as proxies for working capital management, return on assets (ROA) was adopted as a proxy for company performance. The Ordinary Least Squares econometric

technique was utilized to estimate the impact of the exogenous factors (cash conversion cycle, inventory turnover period, average payment period, and average conversion period) on the endogenous variable of firm performance. The average payment period, inventory turnover period, and cash conversion cycle were found to have a considerable favorable impact on the performance of the organization. Additionally, there is proof that the average conversion period has a non-significantly detrimental effect on the chosen enterprises' performance. The parameter estimations were acquired at the ten percent significance level. The study finds that working capital management significantly affects the performance of businesses in the consumer and industrial products sectors of the Nigerian economy based on the aforementioned result.

Cash Conversion Cycle on Financial Performance

The impact of working capital management on the financial performance of a subset of Nigerian quoted enterprises is examined by Yakubu et al. (2020). The study was carried out in Nigeria and other places of the world, and the results are inconsistent and equivocal. Ten (10) companies that were listed on the Nigerian stock exchange as of December 31, 2019, make up the study's population. Of these, ten (10) companies were chosen as samples throughout the course of seven (11) years, from 2009 to 2019, using a deliberate selection technique. Multiple regressions are used in the study as an analytical technique. Return on Equity served as a stand-in for financial success, while the cash conversion period, debt-to-equity ratio, and inventory turnover period represented working capital management. According to the study, the cash conversion cycle significantly improved the financial performance of a subset of mentioned Nigerian companies, but the debt-to-equity ratio and the inventory turnover period had no discernible effects.

Working capital management's effect on the financial performance of Nigerian listed manufacturing companies was studied by Ogunsola and Gbadebo in 2022. All mentioned companies in Nigeria's consumer goods industry made up the study's population; nine (9) of these companies were chosen based on the availability of data. Data were collected from the annual financial reports of the nine mentioned consumer companies for the ten-year period between 2011 and 2020. Data analysis techniques included panel regression analysis, correlation, and descriptive statistics. The random effect estimate is the most effective, according to the Hausman test results. The outcome showed that return on asset was positively but marginally impacted by inventory turnover. The duration of the trade receivable collection period has a negligible negative impact on return on asset. The length of the trade payable payment period has a negligible negative impact on return on asset. Return on asset was negatively impacted insignificantly by the cash conversion cycle. The study came to the conclusion that working capital management had no discernible impact on the chosen firms' financial performance over the course of the investigation.

Antonio and Pablo (2020) look into the possibility that, for 236 non-financial firms, a 5-year period of time, firm size influences the relationship between cycle and profitability. The findings of the regression show that the association between profitability and the cash conversion cycle is moderated by the company's size. A smaller company will have a longer CCC and a lower return

on assets. The conversion cycle to cash lengthens with growing firm size, boosting return on assets. Against this background, only small and medium sized enterprises benefit financially from shortening the cash conversion period. Thus, in contrast to large organisations, small and even medium-sized businesses should shorten the cash conversion cycle in order to boost profitability, according to the study's conclusion.

The impact of working capital management on the operations of commercial SMEs in Mombasa, Kenya, is determined by Ibrahim and Robert (2020). Three specific goals were set out: to find out how the cash conversion cycle affected the performance of commercial SMEs in Mombasa County; to evaluate the impact of optimal inventory management on the same; and to ascertain the impact of debtor management on the performance of commercial SMEs in Mombasa County. A design based on a descriptive survey was used in the study. Seventy respondents were selected from each of the six sub-counties. Interviews and questionnaires were used to gather data. Multiple regression analysis was used to examine the collected data. The association between the variables was ascertained through the application of inferential statistics. It was discovered that the performance of commercial SMEs in Mombasa County was positively correlated with inventory management, cash conversion cycle management, and debt management.

Moderating Effect of Current Ratio

Farhan, Almaqtari, Hazaea, and Al-Ahdal (2023) aim to empirically review the moderating effect of liquidity, measured by the current ratio, on the relationship between firms' specifics and sustainability expenses in the Indian manufacturing sector. The study utilizes secondary data spanning from 2015 to 2021 and employs panel data with fixed-effect models for estimation. The findings suggest that liquidity enhances a company's ability to allocate more resources to environmental, social, and employee compensation sustainability expenses. However, the moderation effect of liquidity on the relationship between current ratio and financial performance is found to be insignificant. Furthermore, larger companies with greater liquidity positively impact employee compensation but not environmental and social spending. The study adds value to the literature by introducing the moderating effect of liquidity on the relationship between firms' specifics and sustainability expenditures, providing implications for company managers, financial analysts, policymakers, and stakeholders.

Widiardana (2023) investigated factors influencing profitability, specifically return on equity, in manufacturing companies listed on the Indonesia Stock Exchange from 2014 to 2017. The research employs purposive sampling, including 69 companies for analysis. Using descriptive statistics, correlation analysis, multiple regression analysis, and interaction analysis, the study finds that liquidity ratio (current ratio) and leverage ratio (debt-to-equity ratio) negatively impact profitability, while profitability ratio (gross profit margin) has a positive effect. Simultaneously, all independent variables collectively contribute positively to profitability. Generally, the research found that there is an interaction between liquidity ratio and profitability ratio, influencing

profitability. These findings provide valuable insights for companies in managing their financial performance and optimizing factors affecting profitability.

Sunaryo (2022) explores the importance of the current ratio and dividend yield ratio as moderating variables on stock prices, focusing on the Batubara subsector companies on the Southeast Asian Stock Exchange from 2012 to 2020. Using moderated regression analysis, multiple linear regression, and various statistical tests, the study reveals that gross profit margin has no significant effect on stock price, receivable turnover positively impacts stock price, and long-term debt to equity ratio does not significantly affect stock price. Additionally, the research shows that current ratio moderates receivable turnover's impact on stock price. Dividend yield ratio also moderates receivable turnover's effect on stock price. These results contribute to understanding the moderating roles of liquidity indicators in the relationship between financial ratios and stock prices in the context of the Southeast Asian Stock Exchange.

Abdulrahman (2021) investigates the moderating effect of liquidity, measured by the current ratio, on the relationship between capital structure and profitability in listed deposit money banks in Nigeria from 2010 to 2019. The study reveals that customers' savings positively influence return on assets, while loans advances have a negative and insignificant effect. The study also finds that the moderating effect of liquidity significantly impacts the profitability of listed deposit money banks in Nigeria. The research suggests that banks should rely more on customer deposits for short-term borrowing and retain higher undistributed earnings to enhance their profitability.

Airout et al (2023) explore the moderating role of liquidity, measured by the current ratio, in the relationship between expenditures and financial performance of SMEs in Jordan. Using descriptive statistics, regression, and correlation analysis, the study focuses on accounting and advertising expenditures and their impact on financial performance. The findings indicate that accounting expenditures positively affect financial performance, especially in SMEs, and are moderated positively by liquidity. However, the study identifies a negative relationship between advertising expenditures and financial performance, moderated by liquidity. The research provides insights for regulators to consider new regulations and legislation to support the financial performance of SMEs in Jordan.

3.0 Research Methods

The study utilized an ex-post facto research strategy because its goal was to determine the cause and effect relationship between the variables. Ex-post facto research is a systematic empirical investigation in which the investigator lacks immediate influence over the variables because the ways in which they appear have already taken place and are therefore naturally unmanipulated. This is why the design was chosen. The food and beverage businesses which have been identified in Nigeria make up the population. During the study period, there were 19 food and beverage companies listed on the Nigerian Exchange Group. According to the Nigerian Exchange Group, the population size is made up of the 19 food and beverage firms that are listed in Nigeria in 2023.

The Census sampling approach was employed in the inquiry to ascertain the sample size. The investigation employed 19 food and beverage firms in Nigeria, as the population is relatively small. The investigation gathered and utilized secondary data in accordance with the methodological choice aimed at achieving the stated objective. The rationale behind utilizing secondary data is that the variables used in this investigation are quantitative. The data collected from the financial statements of these companies were distinct and indicate the impact of one variable on another in the investigation. The investigation employed descriptive statistics to present the data. Additionally, correlation and unit root tests were utilized for preliminary analysis. Finally, panel regression was employed to test the hypotheses. The analysed was conducted with the aid of Eview version 10.

The model specification for this study is presented below:

$$ROA = (IT, CCC, CR) \dots\dots\dots 1$$

$$ROA_{it} = \alpha + \beta_1 IT_{it} + \beta_2 CCC + \beta_3 (IT * CR) + \beta_4 (CCC * CR) + \varepsilon_{it} \dots\dots\dots 2$$

Where ROA_{it} is return on asset i at time

IT_t is the inventory turnover i at time t

CCC_{it} is the cash conversion cycle i at time t

CR_{it} is the current ratio i at time t

$B_1, B_2, B_3,$ and B_4 = coefficients of the independent variable

E = error

4.0 Results and Discussions

The preliminary stage of the analysis involved conducting descriptive data analysis. This was followed by the implementation of diagnostic tests including assessments for multicollinearity, heteroskedasticity, normality, and the Hausman specification test. Subsequently, panel regression analysis was conducted using either fixed or random effect models.

4.1 Descriptive Statistics

Table 1 presented the descriptive statistics concerning the variables associated with the moderating impact of the current ratio in the relationship between inventory turnover, cash conversion cycle, and financial performance of publicly listed food and beverage companies in Nigeria during the time frame spanning from 2013 to 2022.

Table 1: Descriptive Analysis

	ROA	IT	CCC	CR
Mean	1.01	219.74	377.50	2.22
Median	0.37	158.31	104.38	1.32
Maximum	8.16	3756.40	32675.14	25.18

Minimum	0.00	-203.34	-3942.92	0.01
Std. Dev.	1.21	312.64	2489.98	2.92
Skewness	2.02	7.96	11.70	4.79
Kurtosis	10.40	87.78	150.93	36.91
Jarque-Bera	562.51	58910.72	177588.60	9828.86
Probability	0.000	0.000	0.000	0.000
Observations	190	190	190	190

The descriptive statistics in Table 1 provide insights into the financial performance and operational characteristics of listed food and beverage firms in Nigeria. The mean Return on Assets (ROA) for these firms is 1.01, indicating that, on average, they generate a positive return on their assets. Inventory Turnover (IT) has a mean of 219.74, suggesting that, on average, firms in the sample turn over their inventory 219.74 times within a given period. The Cash Conversion Cycle (CCC) has a mean of 377.50, representing the average number of days it takes for a firm to convert its resources into cash. The Current ratio (CR) has a mean of 2.22, reflecting the average proportion of cash holdings to total deposits. Medians provide a different perspective, with ROA at 0.37, IT at 158.31, CCC at 104.38, and CR at 1.32, indicating some skewness in the distribution. The wide range of maximum and minimum values highlights the heterogeneity within the sample. Standard deviations (Std. Dev.) show the degree of variability, with ROA having a relatively low standard deviation of 1.21 compared to the higher variability in IT (312.64), CCC (2489.98), and CR (2.92). Skewness values greater than zero indicate right-skewed distributions, particularly notable in IT, CCC, and CR. Kurtosis values reveal heavy-tailed distributions, implying a higher likelihood of extreme values. The Jarque-Bera test and associated p-values, all close to zero, indicate a departure from normality in the variables. Overall, these statistics suggest considerable variation and non-normality in the financial and operational metrics of the listed food and beverage firms under study. Therefore, a log transformation is carried out to correct the non-normality.

4.2 Diagnostic Test

The evaluation of various diagnostic tests, including the test for multicollinearity, normality, and the Hausman specification test, is presented in the subsequent analysis.

Multicollinearity

The correlation analysis, as depicted in Table 2, examines multicollinearity among the independent variables in the study. Additionally, the analysis investigates the relationship between the dependent and independent variables.

Table 2: Correlation Matrix

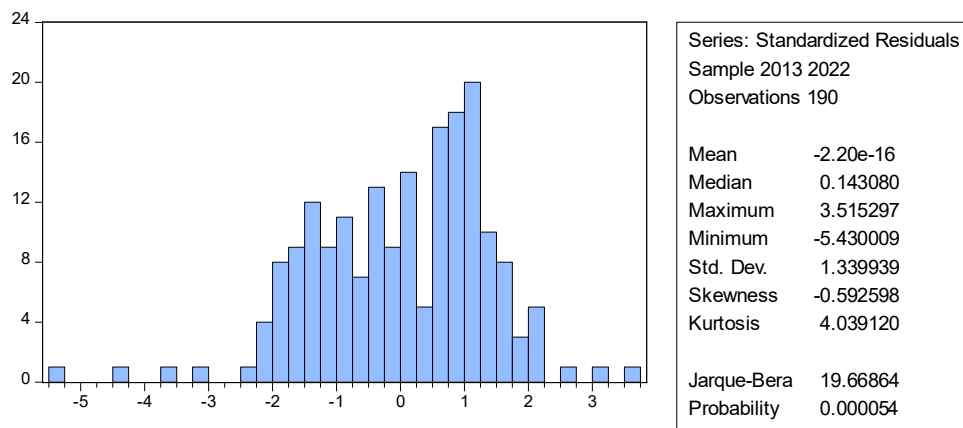
	ROA	IT	CCC	CR
ROA	1			

IT	-0.003	1		
CCC	-0.071	0.118	1	
CR	0.423	-0.025	-0.050	1

The correlation matrix in Table 2 reveals important insights into the relationships between the variables in the study. Notably, the correlation coefficients suggest a weak correlation between Return on Assets (ROA) and Inventory Turnover (IT) with a coefficient of -0.003, indicating a negligible negative relationship. Similarly, ROA shows a weak negative correlation with the Cash Conversion Cycle (CCC) at -0.071, and a weak positive correlation with the Current ratio (CR) at 0.423. The correlation between IT and CCC is 0.118, suggesting a weak positive relationship, while IT and CR have a minimal correlation of -0.025. The correlation between CCC and CR is -0.050, indicating a weak negative relationship. The most notable correlation is between ROA and CR, suggesting a moderate positive relationship. Overall, the correlation coefficients do not indicate significant multicollinearity among the independent variables, as the values are generally low. The relationships between the dependent variable (ROA) and the independent variables (IT, CCC, and CR) are generally weak, with the exception of a moderate positive correlation with CR. These findings suggest that the current ratio may have a more pronounced influence on the financial performance of listed food and beverage firms in Nigeria compared to inventory turnover and the cash conversion cycle.

Normality Test

The results of a normality test for the regression model's residuals are shown in Figure 1. The residuals' normal distribution is the null hypothesis for this test. The test statistics are shown together with the corresponding probability.



The Jarque-Bera statistic of 19.66864 with a very low probability of 0.000054 rejects the null hypothesis of normality, indicating that the distribution of the residuals significantly deviates from a normal distribution. This suggests that the model assumptions regarding the normality of residuals may not be met, potentially indicating misspecification or the presence of influential

outliers in the regression analysis. Therefore, a log transformation is carried out to correct the non-normality.

Hausman specification test

Table 3 presents the results of the Hausman specification test conducted to evaluate the presence of correlated random effects in regression model. The objective of this test was to assess whether the assumption of random effects in the cross-section was valid.

Table 3: Hausman specification test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	46.493384	4	0.0000

The results of the Hausman specification test, presented in Table 3, indicate a significant deviation from the assumption of random effects in the cross-section. The chi-square statistic of 46.493384 with 4 degrees of freedom and a probability value of 0.0000 strongly rejects the null hypothesis that random effects are uncorrelated with the explanatory variables. This implies that there is systematic correlation between the random effects and the independent variables in the regression model. The rejection of the null hypothesis in favor of fixed effects suggests that a fixed effects model may be more appropriate for the data, as it accounts for the observed correlation between the random effects and the explanatory variables. Therefore, the results of the Hausman test recommend a shift from a random effects model to a fixed effects model to better capture the underlying structure of the data and improve the reliability of the regression estimates.

Regression Analysis

Table 4 presents the panel regression results of the study which seeks to determine the moderating effect of current ratio in the relationship between inventory turnover, cash conversion cycle and financial performance of listed food and beverage firms in Nigeria for the period from 2013 to 2022. The dependent variable in this analysis is the natural logarithm of Return on Assets (LOG(ROA)), and the study employs a robust least squares method for the estimation. The independent variables are inventory turnover (IT) and cash conversion cycle (CCC). The moderating variable is the current ratio (CR).

The panel regression results presented in Table 4 aim to explore the moderating effect of the current ratio (CR) on the relationship between inventory turnover (IT), cash conversion cycle (CCC), and the natural logarithm of Return on Assets (LOG(ROA)) for listed food and beverage firms in Nigeria from 2013 to 2022. The coefficients for the constant term (C), IT, CCC, CCC*CR

interaction term, and IT*CR interaction term are estimated using the panel least squares method. Notably, the constant term (C) is statistically significant with a coefficient of -1.284423, indicating an intercept for the model. The coefficient for IT is -0.103356, and it is statistically significant at the 1% level, suggesting a negative relationship between inventory turnover and LOG(ROA). However, the coefficient for CCC alone is not statistically significant, implying no significant linear relationship between cash conversion cycle and LOG(ROA). The interaction terms CCC*CR and IT*CR are included to examine the moderating effect of CR. Interestingly, only the interaction term IT*CR is statistically significant with a positive coefficient of 0.202242, suggesting that the current ratio moderates the relationship between inventory turnover and LOG(ROA).

Table 3. Regression Result

Dependent Variable: LOG(ROA)

Method: Panel Least Squares

Date: 01/25/24 Time: 22:49

Sample: 2013 2022

Periods included: 10

Cross-sections included: 19

Total panel (balanced) observations: 190

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.284423	0.124050	-10.35405	0.0000
IT	-0.103356	0.100462	-7.264245	0.0000
CCC	-1.88E-05	4.28E-05	-0.438999	0.6612
CCC*CR	-6.64E-05	6.18E-05	-1.073731	0.2843
IT*CR	0.202242	0.200229	9.777638	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.826537	Mean dependent var	-1.016727
Adjusted R-squared	0.803686	S.D. dependent var	1.678530
S.E. of regression	0.743712	Akaike info criterion	2.358749
Sum squared resid	92.36895	Schwarz criterion	2.751810
Log likelihood	-201.0812	Hannan-Quinn criter.	2.517972
F-statistic	36.17013	Durbin-Watson stat	1.635328
Prob(F-statistic)	0.000000		

The overall model has a high R-squared value of 0.826537, indicating that the model explains a

substantial proportion of the variance in the dependent variable. The F-statistic of 36.17013 is statistically significant, confirming the overall significance of the model. The findings suggest that, while inventory turnover negatively influences financial performance, the moderating effect of the current ratio is positive, indicating that a higher current ratio strengthens the positive impact of inventory turnover on financial performance for the studied firms.

4.3 Discussion of Findings

The negative and significant effect of inventory turnover on the financial performance of listed Food and Beverage firms in Nigeria, as revealed in the panel regression, suggests that a higher frequency of inventory turnover is associated with a detrimental impact on overall financial performance, potentially indicating inefficiencies or challenges in managing inventory levels. The negative but nonsignificant effect of the cash conversion cycle on financial performance suggests that, while a longer cash conversion cycle may be associated with reduced financial performance, this relationship is not statistically robust in the context of the studied firms.

The results of the two direct relationships align with the results of Yakubu et al. (2020) who found a mixed results for Nigerian firms, with the cash conversion cycle showing a positive significant impact on financial performance, but inventory turnover period having no significant impact. Fekadu and Yu-Min's (2021) study on Ethiopian exporting firms supports the negative impact of inventory turnover period on return on assets but contradicts its impact on return on investment. Anusi and Nduka's (2022) findings on basic materials firms in Nigeria, indicating that inventory turnover period has no significant effect on firm performance, align with the current study's result. However, Sulaiman et al. (2018) found positive and significant effects of trade receivable period on financial performance, while Okoye et al. (2020) report a positive impact of inventory turnover period on the performance of Nigerian firms, diverging from the current study's results

A higher current ratio may bolster the positive effect of inventory turnover on financial performance for Nigeria's listed food and beverage companies, as evidenced by research showing that the current ratio has a significant moderating impact with a coefficient that is positive on the relationship between inventory turnover and financial performance. In contrast, it appears that the liquidity position as indicated by the current ratio does not significantly change the impact of the cash conversion cycle on financial performance for the firms under study, as evidenced by the non-significant moderating effect of the current ratio on the relationship between the cash conversion cycle and financial performance.

The findings from the current panel regression align with the results of Farhan et al.'s (2023) study on the Indian manufacturing sector, where the moderation effect of liquidity (current ratio) on the relationship between specific factors and financial performance is found to be insignificant. Similarly, Abdulrahman's (2021) research on deposit money banks in Nigeria supports the idea that liquidity, measured by the current ratio, significantly influences profitability, aligning with the current study's result on the moderating effect of current ratio on the relationship between inventory turnover and financial performance. In contrast, Sunaryo's (2022) study on stock prices

in Southeast Asia and Airout et al.'s (2023) study on SMEs in Jordan, both emphasizing the moderating role of the current ratio, diverge from the current study's finding regarding the moderation effect on the relationship between cash conversion cycle and financial performance. Overall, these studies contribute to the understanding of how liquidity, specifically measured by the current ratio, interacts with various financial performance indicators across different sectors and regions.

5.0 Conclusion and Recommendation

In conclusion, the panel regression analysis conducted on listed Food and Beverage firms in Nigeria yielded valuable insights into the relationships among inventory turnover, cash conversion cycle, current ratio, and financial performance. The study found a negative and significant effect of inventory turnover on financial performance, suggesting that efficient inventory management is crucial for enhancing overall financial outcomes. Additionally, the moderating effect of the current ratio was found to be significant in the relationship between inventory turnover and financial performance, emphasizing the importance of liquidity in optimizing the impact of inventory management strategies. However, the study did not find a significant moderating effect of the current ratio on the relationship between the cash conversion cycle and financial performance.

Recommendations for firms in the Food and Beverage industry in Nigeria include optimizing inventory management by adopting efficient control mechanisms, advanced forecasting, and just-in-time systems to mitigate holding costs and enhance profitability. Prioritizing liquidity management is crucial, given the significant moderating effect of the current ratio on the relationship between inventory turnover and financial performance. Companies should carefully manage current assets and liabilities to ensure fund availability, maximizing the positive impact of inventory turnover. Enhanced financial reporting and monitoring systems are encouraged to navigate complex relationships, with regular analysis of key ratios providing valuable insights for strategic decision-making. Despite the study not finding a direct relationship between the cash conversion cycle and financial performance, companies are advised to focus on continuous improvement in this cycle, streamlining processes to positively impact overall financial efficiency and resilience. Lastly, given the complexity of financial dynamics, it is recommended that further research be conducted to explore additional factors that may influence the relationships identified in this study. Factors such as industry-specific characteristics, market conditions, and technological advancements should be considered for a more comprehensive understanding of the dynamics at play.

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