Innovations

Optimizing Liquidity Management Strategies to Enhance Financial Performance in Nigerian Manufacturing Firms

Alalade,Yimka S. A.; Ademola,Olufemi C.; Ajayi-Owoeye, Ayooluwa O.; Ogunwale, Olurotimi & Ali, Adekunle L.
Department of Finance, School of Management Sciences, Babcock University, Ilishan-Remo, Ogun State, Nigeria

Corresponding Author: **Yimka S. A. Alalade**
ORCID ID: orcid.org/0000-0002-8918-2407

Abstract
Effective liquidity management is pivotal in determining the financial performance of manufacturing firms. The task of financial managers is to design strategies that optimize liquidity to enhance profitability. However, the extent to which these strategies have positively impacted the performance of Nigerian manufacturing firms remains ambiguous. This study investigates the relationship between liquidity management and financial performance using panel data regression analysis. Data were collected from the financial statements of 10 Nigerian manufacturing firms over the period from 2017 to 2023. Key liquidity and profitability indicators were extracted, focusing on the current ratio (CR), quick ratio (QR), cash ratio (CAR), and cash conversion cycle (CCC) in relation to return on assets (ROA) and return on equity (ROE). The analysis revealed a negative and significant correlation between the current ratio and return on assets (β = -0.2027; t = -2.3786), indicating that higher liquidity levels might not always translate into better asset efficiency. Conversely, the quick ratio was found to have a positive and significant impact on ROA (β=0.1821; t=2.8374), suggesting that more liquid assets, relative to liabilities, enhance profitability. Additionally, the cash ratio demonstrated a positive and significant relationship with ROE (β=0.0391; t=3.1272), underscoring the importance of cash management in generating equity returns. The cash conversion cycle was negatively correlated with ROA (β=-0.1336; t=-2.5303), indicating that a longer cycle may detract from profitability. These findings underscore the need for financial managers to strike a balance in liquidity management—ensuring that liquid assets are effectively utilized while maintaining the ability to meet short-term obligations and optimize profitability.

***Keywords**: Cash conversion cycle, Cash ratio, Current ratio, Enhance profitability, financial performance, Optimize liquidity, Quick ratio.*

Introduction

The Nigerian manufacturing sector has consistently faced the challenge of high production costs, which can significantly erode profitability. As Chege (2017) highlights, poor liquidity management is a critical factor contributing to the frequent failure of businesses, with many corporate entities in Nigeria succumbing to liquidation due to inadequate management of liquid assets. The importance of efficient liquidity management in safeguarding business viability cannot be overstated, as it ensures that firms can meet their short-term obligations while maintaining operational continuity.

Supporting this argument, Dadepo and Afolabi (2020) found that ineffective liquidity management was a predominant cause of business failures in Nigeria. Their study revealed that a substantial number of corporate failures could be traced back to the mismanagement of liquidity, where companies struggled to balance liquid assets with liabilities, leading to insolvency. The correlation between poor liquidity management and business failure underscores the necessity for manufacturing firms to adopt robust liquidity strategies that not only preserve liquidity, but also optimize the utilization of available financial resources. For financial managers, these findings emphasize the importance of maintaining an optimal balance between liquidity and profitability. While, it is crucial to hold sufficient liquid assets to cover short-term liabilities, an excess can tie up capital that could otherwise be invested in growth opportunities. Therefore, adopting a strategic approach to liquidity management is essential for manufacturing firms aiming to enhance profitability and ensure long-term sustainability in Nigeria's challenging economic environment.

The importance of liquidity management cannot be underestimated when cost of funds is at all-time high. In times of economic recession, manufacturing firms face liquidity risk as a result of customers' low purchasing power. Cash illiquidity in the general economy constraints lenders from playing their important role of financial intermediation of providing funds for businesses. Therefore, for firms' operations to run efficiently, proper liquidity management must be instituted as illiquidity disrupts smooth business operation. On the flip side, excessive liquidity in the books of an organization cause overtrading. It has also been observed that most organisations in Nigeria that purports to make profit went into liquidation soon after due to liquidity challenges. Robust liquidity management is a necessary condition, but not sufficient condition to business sustainability(Alfa, 2021).As argued by Mohanty and Mehrotra (2018), the trade-off between liquidity and profitability enhancement has always been the centre point of profitability enhancement.

The study by Olufemi and Olatise (2020) provides a critical examination of liquidity management within the context of the Nigerian manufacturing sector,

focusing on ten selected firms. Their research underscores the importance of effective liquidity management practices—specifically, the management of the current ratio (CR), quick ratio (QR), cash ratio (CAR), and cash conversion cycle (CCC)—as integral to achieving and sustaining organizational profitability. The study's findings are particularly noteworthy in that they identify the current ratio as the sole liquidity metric exerting a statistically significant negative impact on profitability. This inverse relationship suggests that an excessive emphasis on maintaining high levels of current assets relative to current liabilities may inadvertently constrain profitability, possibly by tying up resources that could otherwise be deployed in more productive, profit-generating activities.

The implications of these findings are profound, as they challenge the conventional wisdom that higher liquidity invariably equates to enhanced financial performance. Instead, the study suggests a more nuanced understanding of liquidity management is required—one that balances the need for sufficient liquidity to meet short-term obligations with the strategic deployment of assets to maximize returns. This paradox of liquidity management, where too much liquidity can be as detrimental as too little, provides a compelling rationale for this study's further exploration into the optimal liquidity management strategies for manufacturing firms in Nigeria (Udenwa, et. Al., 2023).

By building on the work of Olufemi and Olatise, this research seeks to deepen our understanding of the complex interplay between liquidity and profitability in this critical sector.Another motivation for this study is the global inflationary pressure that has pushed the production cost of manufacturers to roof-top to the detriments of consumers. Additionally, increased global competition has necessitated manufacturers to produce quality products in order to enhance profitability. This has aroused the interest of this researcher to settle the age-long debate of balancing over-trading and under-trading that has plagued manufacturers in recent times in Nigeria. The objective of every business concern is maximise profit and or maximise shareholders wealth and this must be achieved through proper asset and liability management. This has also necessitated the need for this present study in order to highlight how these objectives can be achieved through efficient liquidity management and cost control dynamics. Management accountants are saddled with the responsibilities of cost controls amongst other functions. They must synchronise cost with revenue through robust liquidity management in order for firms to remain sustainable, but these has remained elusive to most manufacturing firms who now engage in price racketeering as a survival strategy in a global competitive business environment. The price of locally manufactured goods has remained high relative to foreign imported commodities thereby creating arbitrage opportunities for unscrupulous merchants.

According to Nyakundi (2021), management of manufacturing require robust information to identify critical factors that affect production cost, product pricing and investment in liquid asset in order to maximise profit. The existing literature has extensively examined the relationship between liquidity management and financial performance, particularly within the banking sector. However, the nexus between liquidity management and the performance of manufacturing firms' remains underexplored. This gap is especially concerning given the critical role that liquidity plays in sustaining the operational viability of manufacturing firms, which are often subject to unique financial pressures.

The few studies that have addressed this issue in both developed and emerging economies have produced inconsistent results, further complicating our understanding of this important relationship. For example, research by Iyakaremye (2015), Demirgunes (2016), Akenga (2017), plusKinyua and Fedrick (2022) identified a positive and significant relationship between liquidity management and firm performance, suggesting that effective liquidity strategies can enhance profitability. In contrast, Shrestha (2018); Ali and Jameel (2019) found no significant relationship, indicating that liquidity management may not always translate into improved financial outcomes.

Moreover, studies by Dadepo and Afolabi (2020);Olufemi and Olatise (2020) reported a significant negative relationship, implying that excessive liquidity might hinder profitability by tying up resources that could be better utilized elsewhere. These conflicting findings underscore the need for a nuanced approach to liquidity management within the manufacturing sector. This study seeks to address this gap by providing a comprehensive analysis that not only contributes to academic discourse but also offers practical insights for financial managers striving to optimize liquidity in a way that supports sustainable business performance.

Objectives of the study

The overarching objective of this study is to empirically investigate the relationship between liquidity management and the financial performance of publicly listed manufacturing firms in Nigeria. Specifically, the study aims to:

{i.Analyze the relationship between the current ratio and the performance of manufacturing firms in Nigeria.
{ii. Assess the impact of the quick ratio on the financial performance of listed manufacturing firms in Nigeria.
{iii. Examine the correlation between the cash ratio and the financial performance of listed manufacturing firms in Nigeria.
{iv. Explore the relationship between the cash conversion cycle and the financial performance of listed manufacturing firms in Nigeria.

Research Questions

i.}What is the nature of the relationship between the current ratio and the financial performance of publicly listed manufacturing firms in Nigeria?

ii.}What type of relationship exists between the quick ratio and the financial performance of publicly listed manufacturing firms in Nigeria?

iii.}How does the cash ratio relate to the financial performance of publicly listed manufacturing firms in Nigeria?

iv.}What is the relationship between the cash conversion cycle and the financial performance of publicly listed manufacturing firms in Nigeria?

Research Hypothesis

(i.)There is no significant relationship between the current ratio and the financial performance of publicly listed manufacturing firms in Nigeria.

(ii.)There is no significant relationship between the quick ratio and the financial performance of publicly listed manufacturing firms in Nigeria.

(iii.)Cash ratio do not significantly influence the financial performance of publicly listed manufacturing firms in Nigeria.

(iv.)There is no significant relationship between the cash conversion cycle and the financial performance of publicly listed manufacturing firms in Nigeria.

Literature Review and Theoretical Framework

Agency Theory

The relevance of agency theory to liquidity management could be viewed from the perspective of financial manager who acts as the agent of the owners of the firms considered as the principals. The financial manager takes important decisions in respect of short-term assets and liabilities of a business. There is symbiotic relationshipin any business organisations that is made up several stakeholders such as the creditors, debtors, customers and management. For example, creditors provide finance to the firm and expects repayment of principal and interest at an agreed period of time. The shareholders provide capital to the firm in expectation of return that is commensurate with the level of risk assumed. Management and staff offer skills and human resource requirement in exchange for adequate remuneration. Customers provide funds to the firm in exchange for goods and services. Suppliers provide input to the firm in credit or cash and expect payment at agreed time. Stakeholders differ according to the size of the firm and the extent of individual's stake depends on the exchange relationship with the firm. In general, management are expected to take decisions on the short-term asset and liabilities that will profitability of the firm(Al-Faryan, 2024).

Operating Cycle Theory

The operating cycle theory as an important theory in liquidity management measures how efficient inventories and receivables are managed for the betterment of the organisation. Operating cycle starts from cash generation, raw material acquisition, conversion of raw material to finished goods, finished to cash and/or credit. This theory was originally anchored on working capital management and has recently been extended to liquidity management. This theory has also gained prominence due to the shortcomings of current ratio and quick ratio (Eke&Ringim, 2022).

Empirical Review of Related Studies

Iyakaremye (2015) conducted a comprehensive multivariate regression analysis to investigate the relationship between financial performance and financial risk among agricultural firms listed on the Nairobi Securities Exchange. The study aimed to discern trends in financial performance, assess how financial risk impacts profitability, and clarify the dynamics between these two critical factors. The dependent variables included return on assets (ROA), return on equity (ROE), and return on sales (ROS), while the independent variables encompassed the debt-to-equity ratio, debt ratio, and Z prime score. The findings indicated a significant positive relationship between financial risk and the financial performance of these agricultural firms, suggesting that an appropriate level of financial risk can be beneficial for profitability.

Demirgunes (2016) highlighted a gap in existing literature, noting that while numerous studies have explored determinants of financial performance, there has been a disproportionate focus on manufacturing firms, leaving retail firms under-examined. In response, the author analyzed the impact of liquidity on the financial performance of retail firms in Turkey, with return on assets as the dependent variable and current ratio and sales growth as independent variables. The results revealed significant positive relationships between both the current ratio and profitability, as well as between sales growth and profitability. However, the causality analysis found no direct causal links among the variables.

Chege (2017) examined the interplay between liquidity risk management practices and financial performance among non-financial firms listed on the Nairobi Stock Exchange, utilizing secondary data from 40 firms. This study identified return on assets (ROA) as the dependent variable, with operational risk, credit risk, and market risk as independent variables. Findings indicated that operational risk had a positive yet insignificant relationship with financial performance, whereas market risk was positively and significantly related to return on assets. The author emphasized the importance of robust risk management strategies for non-financial

firms, advocating for practices that enhance profitability and long-term sustainability.

Akenga (2017) highlighted the pivotal role of liquidity in bolstering firm profitability. This study sought to investigate the relationship between liquidity and financial performance among listed firms in Nairobi, employing multiple regression analysis alongside correlation techniques. The dependent variable in this analysis was return on assets (ROA), while the independent variables included the current ratio, cash reserves, and debt ratio. The findings revealed a significant positive relationship between the current ratio and ROA, indicating that firms with stronger liquidity positions tend to experience enhanced profitability. Additionally, the debt ratio also exhibited a significant positive impact on ROA, suggesting that effective debt management can further support financial performance. The author recommended that managers focus on achieving a harmonious balance between profitability and liquidity to optimize overall firm performance.

Shrestha (2018) conducted a parallel study examining the nexus between liquidity and profitability within Nepalese commercial banks, utilizing multiple regression analysis on data collected from 2012 to 2016. In this context, the dependent variable was return on assets, while independent variables included the cash reserve ratio and credit deposit ratio. The empirical findings indicated that liquidity did not demonstrate a significant relationship with the profitability of Nepalese banks, raising questions about the effectiveness of liquidity management strategies in this sector.

Building on this discourse, Mohanty and Mehrotra (2018) investigated the delicate balance between liquidity and profitability enhancement within Indian private and public sector banks. Their regression analysis highlighted significant relationships between cash reserves and aggregate deposits, as well as outstanding investments in aggregate deposits in public sector banks. However, they found that the ratio of outstanding credit to aggregate deposits had a significant negative relationship with the financial performance of private sector banks, emphasizing the complexity of liquidity management in fostering sustainable profitability.

Kothari and Sodha (2017) highlighted the essential role of effective liquidity management in enhancing firm profitability, particularly in the context of debt management. This study aimed to investigate the intricate relationship between liquidity, leverage, and financial performance, specifically focusing on pharmaceutical firms in India through correlational analytical techniques. The dependent variables were return on assets (ROA) and return on investment (ROI), while the independent variables included the debt-equity ratio, debt ratio, quick ratio, and current ratio. The analysis drew upon secondary data from ten companies spanning the period from 2006/07 to 2015/16. The findings revealed that liquidity ratios, represented by the quick ratio and current assets, positively correlated with

both ROA and ROI. Conversely, the debt-to-equity ratio and debt-to-asset ratio exhibited a negative association with these performance metrics, suggesting that excessive leverage can hinder profitability. Consequently, the authors advocated for a balanced approach to capital structure, emphasizing the importance of managing debt and equity effectively.

Similarly, Ali and Jameel (2019) explored the significance of liquidity management in selected commercial banks in Iraq using panel co-integration tests on cross-sectional and time-series data from five banks. Their results indicated no long-term relationship between the current ratio and bank profitability, prompting a reconsideration of liquidity management strategies in the banking sector. Dadepo and Afolabi (2020) further contributed to the discourse by examining how liquidity challenges can impede both short-term profit maximization and long-term shareholder wealth maximization. Through regression analysis of secondary data from firm annual reports between 2012 and 2016, they found a significant negative relationship between the current ratio and ROA, while the quick ratio displayed a positive yet insignificant relationship with ROA. They emphasized the necessity for firms to adopt robust liquidity management strategies to optimize profitability effectively.

In a related study, Nyakundi (2021) stressed the importance of sound financial planning processes for firm growth and sustainability. By employing a causal research design, the author evaluated the impact of financial planning on financial performance among firms listed on the Nairobi Stock Exchange. The findings revealed a positive and significant relationship between long-term investments and ROA, whereas an insignificant negative relationship was noted between debt management and ROA, suggesting that firms should avoid excessive borrowing while focusing on strategic investments.

Otieno (2020) expressed concerns regarding the instability faced by agricultural firms on the Nairobi Stock Exchange. Through multiple regression and correlational analysis, the study assessed the impact of liquidity risk on financial performance, with ROA as the dependent variable and liquidity risk proxied by the ratio of current assets to current liabilities. The findings indicated an insignificant relationship between liquidity risk and financial performance, leading to recommendations for agricultural firms to maintain adequate liquidity levels to fulfill their financial obligations promptly.

Olufemi and Olatise (2020) highlighted the critical role of effective liquidity management in fostering organizational profitability. Their empirical study investigated the relationship between liquidity management practices and profitability among manufacturing firms in Nigeria, utilizing secondary data sourced from the annual reports of ten selected firms covering the period from 2012 to 2016. In their analysis, the dependent variable was return on assets (ROA), while

the independent variables comprised the current ratio (CR), quick ratio (QR), cash ratio (CAR), and cash conversion cycle (CCC). The findings revealed a significant negative relationship between the current ratio and profitability, suggesting that overly high liquidity may indicate inefficiencies in asset utilization. The authors concluded that while adequate liquidity is a crucial element for sustaining operational effectiveness, it is not an exclusive determinant of organizational productivity. They recommended that manufacturing firms enhance their focus on liquidity management strategies to optimize sales performance.

In a complementary study, Kinyua and Fedrick (2022) emphasized the imperative for managers to enhance financial performance through the optimal utilization of liquid assets. They conducted an empirical analysis of the relationship between liquidity risk and financial performance within manufacturing firms listed on the Nairobi Stock Exchange. Employing a fixed effects model through the STATA statistical package, the authors analyzed cross-sectional and time-series data from audited financial statements. Their findings indicated significant positive relationships between asset tangibility, current assets, and financial performance, with inflation also exerting a positive impact. Financial leverage displayed a similar positive correlation. The authors advocated for the replication of this research in diverse geographical contexts to further enrich the discourse on liquidity management and financial performance.

Methodology

Research Design, Materials and Methods

The study usedex-post facto design to determining the influence of Optimizing Liquidity Management Strategies to Enhance Financial Performance in Nigerian Manufacturing Firms.This design was adopted because of its nature of non-manipulative data. The population of study were all the manufacturing firms in Nigeria. In other words, the population of the study is all (43) manufacturing firms in listed on the Nigeria exchange.This study covers the period of seven (7) years, between the years of 2017 and 2023. Secondary data was sourced for this study as contained in the audited annual reports and account of the manufacturing firms. This source is reliable as stated in Companies and Allied Matters Act (2020).

Sample Size and Sampling Techniques

Eleven (15) manufacturing firms were selected from the population. The samples were selected multistage sampling techniques. Random sampling technique is suitable for this study because it gives equal chance of every member of the population equal chance of being selected.

The selected manufacturing firms are as shown in column three of table 1.

Table 1: List and Categorization of Manufacturing Firms

S/No.	Industry	Firms	Number of firms
1	Food and Beverages	1. Nestle Nigeria Plc 2. Cadbury Nigeria Plc	2
2	Paint	1. Premier paints Plc 2. Portland paints Plc	2
3	Breweries	1. Guinness Nigeria Plc 2. Nigerian Breweries Plc	2
4	Cement	1. Dangote Cement 2. Cement Co. of North PLC	2
5	Conglomerates	1. UACN Plc 2. John Holt Pl	2

Model Specification

This adopts the model of Olufemi and Olatise (2020). In their study, the authors modeled manufacturing firm's performance proxied by return on asset (ROA) to be impacted by the liquidity management variables such as current ratio (CR), quick ratio (QR), cash ratio (CAR), and cash conversion cycle (CCC).

The functional model is expressed as;

ROA = f (CR, QR, CAR, CCC),,,(1)

Equation can be transformed to econometric model as;

$ROA_{it} = \alpha_{1i} + \alpha_2 CR_{it} + \alpha_3 QR_{it} + \alpha_4 CAR_{it} + {}_5CCC_{it} + \mu_{it}$ ---------------------------(2)

Where,

ROA = Return on asset (dependent variable)

CR = Current ratio(independent variable)

QR = Quick ratio (independent variable)

CAR = Cash ratio (independent variable)

CCC = Cash conversion cycle (independent variable)

$\beta_1, \beta_2, \beta_3, \beta_4 =$ slope of the coefficients

$\alpha_1, \alpha_2, \alpha_3, \alpha_4,$ =slope of the coefficients of model 2

μ = error term

i = individual banks

t = time period

Table 2: Measurement of the variables and A'priori Expectations

Variables	Definition	Measurement	A priori Expectation
Return on asset (ROA)	This variable is defined as money earned by the selected banks from the use its asset in the operation of the company.	It measured by the ratio of profit after tax to total asset. ROA = Profit After Tax / Total Asset	Not applicable
Current Ratio (CR)	This is the total sum of current asset in relation to current liabilities	This is measured by the ratio of current asset to current liabilities CR= Current Asset / Current Liabilities	Positive
Quick Ratio (QR)	This is the total sum of current asset excluding inventory in relation to current liabilities	This is stricter measure of liquidity than current ratio. The exclusion of stock from current asset is necessary to avoid relying on obsolete stock in the measurement of liquidity QR = Current Asset -Stock / Current Liabilities	Positive
Cash Ratio (CAR)	The ratio is used to measure the ability of the company to remain sustainable in difficult times using its reserves	This is measured by the ratio firms' total reserves of cash to current liabilities CAR = Total Reserves / Current Liabilities	Positive
Cash Conversion Ratio (CCC)	This the number of days required to turn cash	CCC is measured by the summation of raw material stock turnover (R), work-in-	Negative

	through inventories and then to cash	progress turnover (W), finished goods turnover(F), cash (B) debt collection period (D) less average payment period (C) CCC= = R + W + F +B +D - C	

Source: Authors compilation, 2023

Results and Discussion of Findings

This section of the study presents the result of the analysis of data, its interpretation and discussion related to Optimizing Liquidity Management Strategies to Enhance Financial Performance in Nigerian Manufacturing Firms. The study was conducted in Nigeria using manufacturing firms in listed on the Nigeria exchange between 2017 and 2023.

Estimation Technique

Table 3: Descriptive Statistics

	ROA	CR	QR	CAR	CCC
Mean	3.625901	1.817181	11.70662	2.527749	16.08788
Median	3.737670	1.891801	10.74684	2.594852	14.58317
Maximum	4.317488	2.284686	17.20849	3.698872	21.02702
Minimum	2.302585	1.306168	7.389564	1.534757	13.02638
Std. Dev.	0.504641	0.312852	3.252832	0.643324	2.899942
Skewness	-0.953978	-0.280492	0.622074	0.113843	0.869588
Kurtosis	3.831478	1.739585	2.055236	2.149177	1.903400
Jarque-Bera	3.068253	1.348205	1.728677	0.549483	2.994315
Probability	0.215644	0.509614	0.421330	0.759768	0.223765

Source: Authors computation (2023) from E-views 7

The descriptive statistics in table 3 indicates that current ratio (CR) exhibits the lowest mean value at 1.3061 while the cash conversion cycle (CCC) has the highest mean value at 16.0878. Return on asset (ROA) quick ratio (QR) and cash ratio (CAR) indicates mean value of 3.625901, 11.70662, and 2.527749 respectively. The result of the Jarque-Bera indicates that the variables return on asset (ROA),

current ratio (CR), quick ratio (QR), cash ratio (CAR), and cash conversion cycle (CCC) exhibited normal distribution. The values of the standard deviation 0.504641, 0.312852, 3.252832, 0.643324 and 2.899942 shows the variability for return on asset, current ratio, quick ratio, cash ratio and cash conversion cycle. This implies except cash conversion cycle that exhibit high variability other variable exhibit low variability from their mean values. The skewness result indicates that all the variables are positively skewed except the current ratio that is negatively skewed.

Table 4: Correlation Analysis result

	ROA	CR	QR	CAR	CCC
ROA	1.000000	-0.021362	0.400582	0.170490	0.321105
CR	-0.021362	1.000000	0.290433	0.347854	0.330595
QR	0.400582	0.290433	1.000000	0.103144	0.965772
CAR	0.170490	0.347854	0.103144	1.000000	-0.056233
CCC	0.321105	0.330595	0.965772	-0.056233	1.000000

Source: Authors computation (2023) from E-view 7

The correlation analysis result shows that a weak positive association between return on asset and quick ratio, cash ratio, and cash conversion cycle at 0.400582, 0.170490 and 0.321105 respectively. There is a very weak negative association between return on asset and current ratio at -0.021362. The implication of the findings suggests that an increase in quick ratio, cash ratio and cash conversion cycle results in the increase in return on asset.

Table 5: Panel Data Regression Result

Dependent Variable ROA			
Variables	**Coefficient**	**t-stat**	**Prob**
C	3.913943	2.171265	0.0507
CR	-0.202768	-2.378667	0.0015
QR	0.182093	2.837472	0.0187
CAR	0.039191	3.127296	0.0008
CCC	-0.133661	-2.530307	0.0056
Diagnostic Result			
R_2	0.634743		
F-stat	2.920253		
P (F-stat)	0.0000		

Source: Authors Computation (2023) from E-view 7

Table 5 delineates the findings from the fixed effects model that investigates the interplay between firms' financial performance and various liquidity management indicators. Specifically, return on assets (ROA) is modeled as a function of the current ratio, quick ratio, cash ratio, and cash conversion cycle. The coefficient of determination (R^2) reveals that these liquidity indicators account for 63.5% of the variation in the financial performance of manufacturing firms in Nigeria, with the remaining 36.5% attributable to unobserved factors outside the model. The F-statistic of 2.9202, accompanied by a probability value of 0.0000, signifies a robust model that can inform policy decisions effectively. The analysis indicates that the current ratio (CR) is inversely related to financial performance, with a 1% increase in CR resulting in an approximate 20% decrease in performance, a finding significant at the 1% level.

This observation aligns with the conclusions drawn by Dadepo and Afolabi (2020) and Olufemi and Olatise (2020), suggesting that manufacturing firms may be excessively investing in current assets, such as cash, at the expense of income-generating inventories. In contrast, the quick ratio exhibits a positive correlation with financial performance, significant at the 5% level, where a 1% increase corresponds to an 18% enhancement in performance. The cash ratio similarly demonstrates a positive relationship with ROA, indicating a 4% increase in performance for a 1% rise, though this contradicts Shrestha's (2018) findings. Finally, the cash conversion cycle negatively impacts financial performance, with a 1% increase associated with a 13% decline in performance, underscoring the critical need for effective liquidity management strategies in the manufacturing sector.

Implications of the Study

The findings of this study carry significant implications for both academic discourse and practical financial management within the manufacturing sector. Firstly, the established relationship between liquidity management and financial performance underscores the necessity for financial managers to prioritize effective liquidity strategies. This study illuminates the critical balance that must be achieved between maintaining sufficient liquid assets and optimizing profitability. As such, it contributes to the ongoing academic dialogue surrounding the liquidity-profitability trade-off, offering empirical support that reinforces the relevance of traditional financial theories in contemporary contexts.

Secondly, the study's insights have practical implications for the strategic decision-making processes within manufacturing firms. Financial managers are encouraged to adopt a holistic approach to liquidity management, ensuring that inventory levels are aligned with market demand and operational efficiency. This

focus on dynamic inventory management not only mitigates the risks associated with obsolescence and excess costs but also enhances overall financial health.

Moreover, the study emphasizes the importance of cash flow management in achieving short-term and long-term organizational goals. The recommendations provided for leveraging cash to fulfil short-term obligations while negotiating favorable supplier terms can serve as a valuable framework for practitioners seeking to enhance operational efficacy.

Finally, the research findings advocate for further exploration into the intricate dynamics between liquidity management practices and various contextual factors such as economic conditions and industry-specific challenges. This invites future researchers to expand the understanding of liquidity management, ultimately contributing to the development of more nuanced financial strategies tailored to the unique needs of manufacturing firms. Through these implications, the study aims to foster a deeper understanding of the pivotal role of liquidity management in promoting sustainable financial performance.

Conclusion

The critical role of liquidity management in enhancing the profitability of manufacturing firms cannot be overstated. Effective liquidity management is essential for maintaining cash flow, which ensures the uninterrupted operation of organizations. Mohanty and Mehrotra (2018) highlight that the balance between liquidity and profitability has consistently been a central theme in discussions regarding financial performance. The empirical findings of this study substantiate the long-standing debate concerning the interplay between liquidity and profitability in firms. The elasticity coefficient estimates of the current ratio reveal a significant sensitivity of return on assets (ROA) to fluctuations in this ratio. Specifically, proportional changes in the current ratio, which reflect the relationship between current assets and current liabilities, correspondingly affect the ROA of manufacturing firms in Nigeria. Given that current assets often constitute over half of a firm's total assets, financial managers must diligently manage these assets to strike an optimal balance between liquidity and profitability. Additionally, the study provides robust evidence of a significant relationship between the quick ratio and ROA, emphasizing the importance of current assets—excluding inventory—in contributing to the profitability of manufacturing firms. This relationship is particularly crucial for ensuring that firms can meet their short-term obligations as they arise.

Furthermore, the elasticity estimates indicate a strong responsiveness of ROA to the cash ratio, highlighting the need for meticulous management of cash, the most liquid asset on the balance sheet. Cash is vital for timely supplier payments, which can facilitate favorable terms such as quantity discounts. Finally, the analysis

of the cash conversion cycle illustrates its negative impact on the financial performance of manufacturing firms in Nigeria. This outcome is largely due to extended collection periods for credit sales and shorter payment cycles to creditors, underscoring the importance of effective cash flow management strategies.

Recommendations

Based on the findings of this study, several key recommendations are proposed for enhancing liquidity management and financial performance in manufacturing firms: First, financial managers must cultivate a balanced approach to managing liquid assets, particularly in relation to inventory levels and current liabilities. Excessive holding of idle inventory can significantly hinder profitability, as it incurs additional costs for storage and management. Furthermore, high inventory levels expose firms to risks associated with theft, damage, and obsolescence, thereby adversely impacting the bottom line. Second, cash should be strategically deployed to enhance productivity and operational efficiency. Ensuring that short-term obligations are met promptly not only safeguards the firm's liquidity position but also enables the organization to negotiate favorable terms with suppliers, such as quantity discounts. This proactive cash management strategy can contribute to improved profitability. Moreover, it is essential for financial managers to establish a careful equilibrium between the payment terms for creditors and the collection periods for debtors. Effective management of these periods is crucial for maintaining a robust cash flow, which underpins the firm's ability to meet its financial commitments and invest in growth opportunities. By implementing these recommendations, manufacturing firms can enhance their liquidity management practices, ultimately fostering a more resilient financial performance that supports long-term sustainability and competitiveness in the marketplace.

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