IMPACT OF WORKING CAPITAL MANAGEMENT ON FINANCIAL PERFORMANCE OF LISTED COMMERCIAL BANKS IN NIGERIA

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ABSTRACT

This study examines the impact of working capital management on the financial performance of listed commercial banks in Nigeria using panel data from 22 sampled banks over a period of ten years (2013–2022). The data were extracted from the annual accounts and reports of the sample banks. Both descriptive and inferential statistics were applied in analyzing the data. Descriptive statistics were used to summarize the key characteristics of the data, while inferential techniques, including correlation analysis and multiple regression analysis, were employed. Correlation analysis was used to assess the strength and direction of the relationships between working capital management variables and financial performance, while multiple regression analysis was employed to evaluate the impact of working capital management on financial performance. Based on the analyses of the data collected, the study found that inventory turnover (IT), account receivable turnover (ART) and account payable turnover (APT) have positive and significant impact in influencing the financial performance of the listed banks. However, cash conversion cycle (CCC) has negative and significant impact on financial performance of the listed financial services firms in Nigeria. The study therefore, concludes that working capital management can improve the financial performance of listed commercials banks in Nigeria. Based on the findings obtained from this study, the study recommended that the management of the banks should encourage the turnover of their inventory, account receivable and account payable in order to maximize their financial performance.

Keywords: *working capital management, financial performance, inventory turnover, Account Receivable Turnover, Account payable Turnover, Cash conversion Cycle.*

1.0 Introduction

The financial sector plays an important role in the economic development of any country, and within this sector, commercial banks serve as crucial intermediaries that facilitate economic activities (Udegbunam & Okoh, 2022). Effective financial performance is imperative for the sustainability and growth of commercial banks, making it essential to scrutinize factors influencing their performance. One such factor of significant importance is Working Capital Management (WCM), which encompasses the management of short-term assets and liabilities (Okafor & Onyali, 2021).

And it is representing the difference between a firm's current assets and current liabilities, plays a pivotal role in sustaining day-to-day operations and fostering long-term growth (Smith, 2020). The dynamics of working capital management have gained increased attention due to the rapidly evolving economy and regulatory changes. The effectiveness with which commercial banks manage their working capital can have a profound impact on their financial performance, influencing liquidity, profitability, and overall stability (Ogbeide & Akanbi, 2019). Therefore, effective working capital management is essential for ensuring that a bank can meet its short-term obligations while maximizing its operational efficiency. Working capital management is related to the financial performance of commercial banks in several ways, for instance, working capital management involves maintaining an optimal level of liquidity, ensuring that a bank has enough cash and liquid assets to meet its short-term obligations (Adofu, 2021). A well-managed liquidity position allows a bank to respond to deposit withdrawals, settle interbank transactions, and seize investment opportunities. Insufficient liquidity can lead to missed opportunities and potential financial distress. Similarly, commercial banks often have a significant portion of their assets and liabilities tied to interest rates. Effective working capital management involves managing interest rate risk by aligning the maturities of assets and liabilities. A mismatch in the maturity profiles can lead to interest rate volatility and affect the bank's net interest margin, a key determinant of financial performance (Kabuye et al., 2019).

Moreover, the management of working capital is closely linked to credit risk. Banks need to assess the creditworthiness of borrowers, monitor the quality of their loan portfolios, and ensure that they have adequate provisions for potential loan losses (Kabuye et al., 2019). Effective credit risk management contributes to a healthier balance sheet and protects the bank from financial setbacks, and the efficient working capital management enables banks to streamline their operational processes (Tsuruta, 2019). This includes optimizing inventory levels, managing receivables and payables efficiently, and reducing the cash conversion cycle. Operational efficiency contributes to cost savings and positively impacts the bottom line (Tsuruta, 2019).

The financial performance of a commercial bank is closely tied to its profitability, also effective working capital management helps in maximizing profitability by reducing financing costs, optimizing the use of assets, and enhancing the overall efficiency of the bank's operations (Ogunlade et al., 2023). Thus, the relationship between working capital management and the financial performance of commercial banks is multifaceted. Effective management of working capital contributes to liquidity, profitability, operational efficiency, and regulatory compliance, all of which are essential for a bank's overall financial health and success (Dabo et al., 2018). As such, a comprehensive evaluation of the relationship between working capital management and financial performance is warranted to provide insights that can guide strategic decision-making for both financial institutions and policymakers (Ogbeide & Akanbi, 2019).

Working capital is the lifeblood of every organization and is capable of creating or destroying Shareholders' wealth (Wolf, 2015). By focusing on working capital management, firms can reduce risk and increase profitability (Tingbani, 2015). Due to shortage of credit access and over-dependence on short-term resources, it is contended that working capital is paramount for liquidity, firm growth and profitability (Briones, 2019). According to Price Waterhouse Coopers (2018), cash is the heart of every business and considering that working capital is the cheapest source of cash, it has become critical for businesses to

imbibe a cash culture and good liquidity. In fact, this is a major reason why managing working capital has now become a top priority for many companies (Morgan, 2019).

Several studies have investigated the relationship between WCM and financial performance in different industries and countries. For example, Abdul'azeez et al. (2018); AL-Zararee (2022); Gill et al. (2010); Ibrahim and Isiaka (2021); Le et al. (2018) established a significant relationship between WCM and profitability. Conversely, studies like Charitou et al. (2010) presented evidence that excessive investment in current assets might negatively affect firm profitability. Numerous research works have been carried out on working capital management on account of the importance of the topic. However, despite the contributions of these works, some gaps in the literature have been noticed. These gaps are discussed below:

Firstly, contextual gap exists where the majority of indigenous research works conducted on this topic (Abdulazeez et al., 2018; Godswill et al., 2018; Muhammad, 2015) considered specific sections of the Nigerian Stock Exchange such as textile, conglomerate and manufacturing companies. While Simon et al. (2018) considered a broader sample that included all non-financial firms, their study utilized data from 2007 to 2015. In contrast, the present study focuses on selected commercials banks in Nigeria, and it employs more recent data spanning 10 years, from 2013 to 2022, thereby addressing the gap in sectoral focus and data recency.

Secondly, theoretical gap, Over the years, studies on the impact of working capital management (WCM) on financial performance have predominantly focused on traditional financial performance ratios, such as Return on Assets (ROA) and Earnings Before Interest, Tax, Depreciation, and Amortization (EBITDA). While some empirical works conclude that WCM has a statistically significant effect on financial performance, others argue that no such relationship exists. This inconsistency in findings highlights a theoretical gap in understanding the nature of the relationship between WCM and financial performance, particularly in the context of listed commercial banks in Nigeria. Additionally, previous studies (e.g., Olagunju et al., 2012) have touched on aspects of WCM in Nigeria but have not provided a comprehensive and up-to-date evaluation of its impact on the financial performance of listed commercial banks. To address this gap, the present study investigates the relationship between WCM and financial performance using a dataset covering the period from 2013 to 2023, offering a more nuanced understanding of this relationship in the Nigerian banking sector.

Thirdly, there is methodical gap, most prior studies, such as Yahaya and Bala (2020); Le et al. (2018); Abdulazeez et al. (2018); Ibrahim and Isiaka (2021); Al-zararee et al. (2021); Oqunlade et al. (2023) examined the impact of working capital management on financial performance of commercial banks in Nigeria using basic tools of analysis such as simple regression and correlation techniques. They may not adequately capture the complex and dynamic relationships inherent in WCM and financial performance. This study addresses this gap by employing advanced econometric techniques such as panel data analysis and dynamic modeling, which allow for a deeper exploration of the causal relationships. By addressing these aspects, this research aims to contribute valuable insights that can inform strategic decision-making within the Nigerian banking sector, guide policymakers, and provide a foundation for future research in financial management and banking practices.

2.0 Literature Review

2.1. Conceptual Review

2.1.1 Financial Performance

Financial performance provides information about the company's financial condition over a specific time period within which finance is mobilized and used. Financial performance of firms can be measured using several indicators. According to Kabethi (2018), financial performance entails measurement of the results of a firm's policies and operations in monetary terms. According to Machiuka (2019), financial performance demonstrates the financial state of the firm, the degree of the competition in the industry, and a comprehensive knowledge about the profitability of the sectors within the firm.

Financial performance is a measure of a business ability to make profit or revenue based on the information provided in the financial statements. The financial statements consist of balance sheet, income statement, cash flow statement, and changes in capital (Fatihudin & Mochklas, 2018). There are several ratios to measure the company's financial performance and these ratios can be broadly classified into five categories such as liquidity ratio, profitability ratio, solvency ratio, efficiency ratio, and leverage ratio. Profitability ratios measure the performance of the company in terms of the profit generated over the period being considered. This study adopts EPS (Earning per share) as a measure of financial performance. EPS is an indicator that is critical to both the organization as well as shareholders because it is widely reckoned to be the most consistent basis of evolving corporate strategic plans (Helfert, 2019). Worldwide, EPS is deemed to be the most accepted financial performance measure. Nabi, (2019) restated relevance of EPS as a reliable measure of financial performance. The attractiveness of EPS is due to how well it sums up the earnings made for shareholders by management (Toy, 2018).

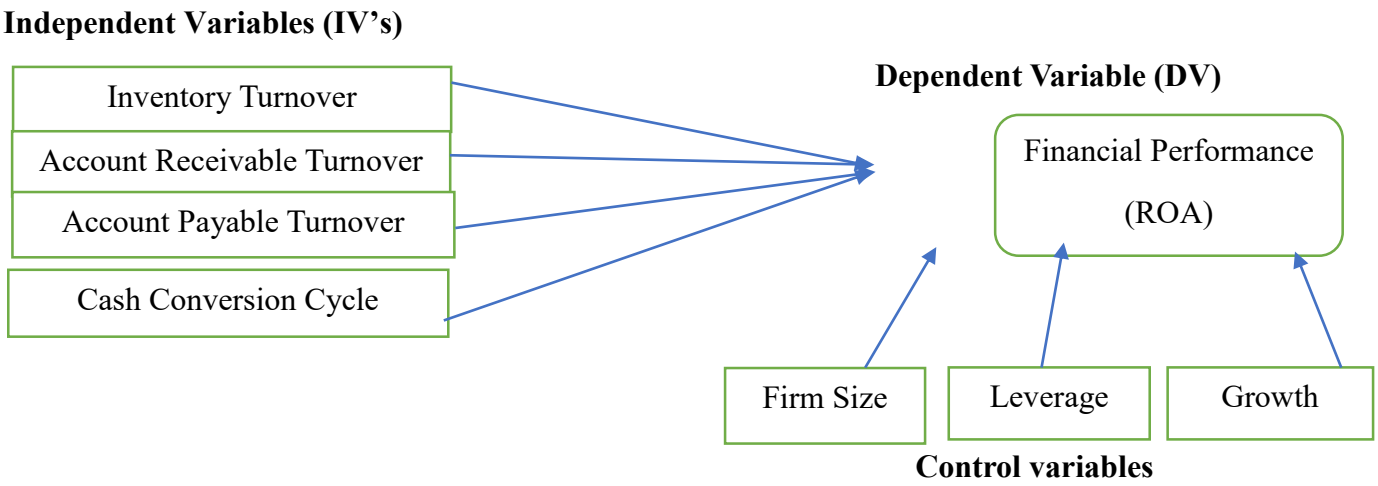
2.1.2. Working capital and financial performance

According to Falope and Ajilore (2020), working capital management affects profitability, risk assessment and market value of the firm. Adequate management of working capital results in greater efficiency of companies. The cash cycle comprises the period between the initial cash disbursement and the receipt of the sale of the product. The economic cycle, on the other hand, considers only economic nature and involves the purchase of materials until the respective sale (Sagner, 2018). Wolf (2018) claims that the improper management of working capital usually results in serious financial problems, which may ultimately result in the company's insolvency. Working capital is an important tool for growth and profitability for corporations because it affects the company's risk, return, and firm's value. The cash conversion cycle (CCC) has been the main traditional measure adopted by previous studies to measure working capital management of a firm. It is decomposed into three components, (i.e., inventory management, accounts receivable management and accounts payable management). In order to better understand the relationship between working capital management and profitability, Afrifa (2013) suggests that the individual components of working capital management which affect profitability differently be studied separately. This study therefore investigates the effect of the individual component of working capital management on firms' financial performance.

2.2 Conceptual Framework

The conceptual framework below shows the dependent variables for the study is financial performance while the independent variable is working capital management (inventory turnover, account receivable turnover, account payable turnover, and cash conversion cycle). The framework is based on the hypothesis that working capital management proxies have no significant impact on financial performance of commercial banks in Nigeria.

Conceptual Framework



Source: Researcher Compilation, 2023

2.3 Theoretical Review

2.3.1. Theory of working capital / the tradeoff theory

The tradeoff theory suggests that firms target an optimal level of liquidity to balance the benefit and cost of holding cash. Liquidity is called a flow principle in economics since a company can fulfill its short-term liabilities, and this is calculated over a period of time. To settle loans and meet internal and external commitments, a company can also turn investments into currency. Liquidity plays a significant role in a bank's activities and a lack of liquidity will create a standard for bank failure. However, profitability refers to a company's capacity to generate income or revenue more significantly than income-generating expenses or expenditure. Profitability is also a company's ability to create a return on investment effectively from the properties it owns. Eljely (2004) adds that firms save transactions costs to raise funds and do not need to liquidate assets to make payments. Moreover, the firm can use liquid assets to finance its activities and investment if other sources of funding are not available or are extremely expensive. In a more evaluative perspective, Eljely (2004) the concern of business owners and managers all over the world is to devise a strategy of managing their day-to-day operations in order to meet their obligations as they fall due and increase profitability and shareholders wealth. The crucial part in managing working capital is required in maintaining its liquidity in day-to-day operation to ensure its smooth running and meets its obligation.

A business firm should ensure that it does not suffer from lack of enough liquidity to meet its short-term compulsions (Bhunia, 2020). The dilemma in liquidity management is to achieve the desired tradeoff between liquidity and profitability (Raheman & Nasr, 2020). According to Charitou et al (2010), management of current assets and current liabilities is important in creating value for the shareholders. If a firm can minimize its investment tied up in the current assets, the resulting funds can be invested in value creating projects, thereby increasing the firm's growth opportunities and shareholders return. The theory is very relevant for the current study as it underpins the balancing of working capital by not interfering with payment of current debt obligations and not holding too much working capital to maximize profitability and shareholder wealth.

2.4 Empirical Review

AL-Zararee, Almasria, and Alawaqleh, (2022) study the effect of working capital management and credit management policy on Jordanian banks' financial performance. This study investigated the impact of Working Capital Management (WCM) and Credit Management Policy (CMP) on the Financial Performance (FP) of Jordanian banks (JB). The study data were obtained from 16 Jordanian banks listed on the Amman Stock Exchange (ASE) between 2017 and 2020. The study used panel data to investigate the relationship between the two independent variables, WCM and CMP, and the dependent variable FP; 64 financial reports to Jordanian banks were analyzed to measure this relationship. To test hypotheses, multiple regression was used. The study found a statistically significant relationship between WCM and FP, and the independent variable was able to explain 34.1% of the changes that occur in the dependent variable. In addition, the outcome approved that there is a statistically significant relationship between CMP and FP. Furthermore, CMP explained about 41.8% of changes in the dependent variable. The findings of this study indicate support for the banks' performance; a bank may need to lengthen client credit terms, prolong the cash transfer cycle, and require a more extended payment period when judging on WCM.

Ogunlade, Ikpefan, and Onibudo, (2023) recently study the evaluation of working capital management on financial performance of listed consumer goods firms in Nigeria (2003-2023). This research analyses the influence of working capital management on the financial performance of publicly traded consumer goods firms in Nigeria. Also, to determine if the working capital variables such as cash conversion cycle CAC, account receivables period ARP, account payables period APP, and inventory turnover period ITP have a substantial impact on the financial performance of publicly traded consumer goods firms in Nigeria. Through the exchange rate channel, the Nigerian economy's underperformance spilled over to the non-oil sector, which fell by 0.2 percent y/y, the lowest performancesince 1985. The novelty of this research examined the performance of the listed consumer goods industry during the covid-19 and the 2015-2017 recession periods, because cash flow was constrained throughout these periods. The study used macroeconomic variables such as inflation and interest rates as control variables to achieve the objectives; this study employs a longitudinal research design. Resources-based and contingency theories were adopted. The study examined a period of 2003-2023; the hypotheses were tested using panel data regression. The null hypothesis is rejected; an increase in APP leads to a decrease in the firms' performance, and an increase in CAC leads to an increase in the firms' performance. Also, anincrease in the IFR and ITR reduces the firms' performances. The CAC and ARP of consumer goods firms had no significant effect on their

performance during the COVID-19 pandemic and recession period, demonstrating the necessity to be prepared for unexpected and unforeseen conditions.

Ailemen, et al. (2018), investigated how profitability of banks can be enhanced through the working capital management. The research design of the study was panel studies while the sample consisted of ten (10) Commercial Banks banks in Nigeria. The measures for profitability were return on asset (ROA) and return on equity (ROE) while proxies for working capital management were net interest income, current ratio, and profit after tax, and monetary policy rate. Secondary data were collected on the variables from 2010–2017. The model estimation technique employed for this study were the panel fixed effect, panel random effect and the pooled OLS. The results of this study showed that working capital management has a significant effect on the profitability of the selected banks and that return on asset is a better measure for bank profitability.

Mohamad, et al. (2017), studied the effects of working capital investment policy on firm's financial performance. The research design of the study was panel design. Unlike other works, this work adopted tradeoff theory as its theoretical framework. The sample of the study was 103 small and medium-sized firms listed with the SME Corporation of Malaysia. The researchers used ROTA as a proxy of firm financial performance while employing investment policy, accounts receivable turnover, account payable turnover and the log value of cash and cash equivalent. The data collection method adopted by this work was through secondary source which specifically was the annual reports of the selected SMEs. The scope of this work was 5 years from 2008 to 2013. This work relied on correlation and pooled ordinary least square regression for its model estimation. They found out that cash has a positive significant relationship with ROTA, while accounts receivable turnover has negative effect on ROTA while account payable turnover has positive but weak relationship with ROTA.

Dabo, Andow, and Shekari, (2018) study the impact of working capital management on financial performance of listed manufacturing firms in Nigeria. This paper is an empirical analysis of the impact of working capital management on financial performance of listed manufacturing firms in Nigeria for the period of seven years (2011 to 2016). The population consists of ninety-one (91) listed manufacturing firms in Nigeria Stock Exchange and the paper used forty-seven (47) as the sample size. The study aims to investigate whether working capital management (proxy cash conversion cycle and Inventory Turnover in Days,) have any significant contribution on firm's financial performance. The study adopted Simple Regression Analysis technique and data were collected from secondary source through the audited annual reports and accounts of the firms. The findings reveal that working capital management influences firm's performance. Therefore, it recommended that the listed manufacturing firms should maintain a considerable number of days in managing the process of converting raw materials to finish goods and cash collection to improve firms' performance.

3.0 Methodology

This study adopted an ex post facto research design, using secondary data from annual reports and financial statements of eight listed commercial banks in Nigeria from 2013 to 2022. The sample was selected using purposive sampling, targeting banks with international banking licenses and complete data

for the study period.

Data were sourced from the Nigerian Stock Exchange (NSE), Central Bank of Nigeria (CBN), and banks' official websites. The study examined the impact of working capital management (WCM) on financial performance, with Return on Assets (ROA) as the dependent variable and inventory turnover (IT), accounts receivable turnover (ART), accounts payable turnover (APT), and cash conversion cycle (CCC) as independent variables.

3.1 Model Specifications

The model used was a panel regression specified as:

$$\mathbf{ROA}_{it} = \beta_o + \beta_1 IT_{it} + \beta_2 ART_{it} + \beta_3 APT_{it} + \beta_4 CCC_{it} + \beta_5 FSIZE_{it} + \beta_6 FLEV_{it} + \beta_7 GRWT_{it} + \varepsilon_{it}$$

Where:

ROA= Financial Performance (Return on Asset)

IT = Inventory Turnover

ART = Account Receivable Turnover

APT = Account Payable Turnover

CCC: Cash Conversion Cycle

FSIZE= Firm Size

LEV= Leverage

GRWT= Growth

i = Denotes the bank index,

t = Denotes the time period,

β0= is the intercept term,

β1, β2, β3 and β4, = represent the parameters of working capital management variables,

ε= is the error term

3.2 Method of Data Analysis

This study employed a static panel regression technique to examine the impact of working capital management components on the financial performance of listed commercial banks in Nigeria. The panel dataset consists of multiple banks (cross-sectional units) observed over a ten year period (2013-2022), which justifies the use of panel regression due to its ability to account for both time-series and cross-sectional

variation in data. To ensure the accuracy and robustness of the estimates, both the fixed effects (FE) and Random effects (RE) model were considered:

The Fixed Effects model controls for unobserved time-invariant heterogeneity across banks-such as internal operational structures or strategic policies –that may influence financial performance.

The Random Effects model, on the other hand, assumes that such unobserved bank-specific effects are random and uncorrelated with the independent variables, thereby permitting the inclusion of time-invariant regressors in the estimation.

Model Selection: Hausman Specification Test

To determine the most appropriate estimation model, the Hausman specification test was employed. This test evaluates whether the individual-specific effects are correlated with the explanatory variables.

-Null Hypothesis: the random Effects model is appropriate (no correlation between individual effects and the regressors).

-Alternative Hypothesis: The Fixed Effects model is appropriate (correlation exists).

A statistically significant test result (i.e., p-values < 0.05) lead to the rejection of the null hypothesis, indicating that the Fixed Effects model is more suitable as it accounts for potential endogenity arising from omitted, time-invariant variables. Conversely, if the null hypothesis, is not rejected, the Random Effects model is preferred for its efficiency.

In this study, the Hausman test result guided the final model choice, ensuring that the adopted estimation techniques is both econometrically valid and theoretically sound for examining the impact of working capital management on financial performance.

4.0 Results and Discussion

The results of the analysis conducted in the study are presented and interpreted in this section. The findings are also discussed in this latter part of this section to corroborate the findings in line with previous studies.

4.1 Descriptive Statistics

The descriptive statistics is presented in Table 4.1 where minimum, maximum, mean, standard deviation, Skewness and Kurtosis of the data for the variables used in the study are described.

Table 4.1: Descriptive Statistics

VARIABLES	OBSERVATION	MEAN	STD D.	MIN.	MAX.
ROA	220	18.87	24.17	0.000	149.7
IT	220	-0.017	-0.578	-3.694	1.383
ART	220	18.80	24.23	-3.320	149.7
APT	220	7.747	10.48	0.000	47.23
CCC	220	1.426	1.289	0.004	2.930
FSIZE	220	15.08	1.779	11.13	18.67
FLEV	220	0.146	0.132	0.004	0.539
GRWT	220	8.296	18.60	-47.02	140.8

Source: Descriptive Statistics Results Using STATA

The table 4.1 presents the detail account of descriptive statics for the dependent and independent variables. From the table, return on asset (ROA) has minimum and maximum values of 0.000 and 149.7 respectively and the mean and standard deviation of 18.87 and 24.17 respectively. This means that on the average, for every 1% increase in working capital management, the financial performance of listed Commercial Banks will increase by 18.87%% approximately. The standard deviation of 24.17 indicates that the data deviate from the mean value from both sides by 24.17% which implies that there is a wide dispersion of the data from the mean because the standard deviation is higher than the mean value.

The minimum and maximum values of inventory turnover are -3.694 and 1.383 respectively and mean value is -0.0017 and -0.578 as the standard deviation. The mean value of -0.0017 indicates that on the average, the banks inventory turnover is turned very slowly while the standard deviation shows that the data deviate from the mean by 5.7%.

The minimum figure of account receivable turnover (ART) is 18.80 and the maximum value is 24.23 while the mean and the standard deviation values are -3.320 and 149.7 respectively. The minimum value of -3.320 attributed to the losses suffered by the banks during period of the study. The mean figure implies that on the average, the listed Commercial Banks in Nigeria recover their debt in every virtually 3 times annually while the figure for standard deviation 24.23 revealed the extent of dispersion of the data from it mean.

Furthermore, the minimum and maximum values for account payable turnover (APT) are 0.000 and 47.23 respectively and the mean value is 7.747 while 10.48 as the standard deviation. The mean figure of 7.747 signifies that on the average, the listed Commercial Banks in Nigeria pay their suppliers at least 8 times in a year. The figure for standard deviation figure of 10.48 implies that there is wide deviation of the data from their mean values.

The mean and the standard deviation for cash conversion cycle (CCC) are 1.426 and 1.289 while the minimum and maximum values are 0.004 and 2.930 respectively. The mean figure of 1.426 implies that on the average, the Commercial Banks in Nigeria converts cash to cash at least two times in a year. The standard deviation of 1.289 indicates that there is a little variation of the data from their mean. Also, the Firm size (fsize) has a minimum value of 11.13 and a maximum value of 18.67 with 15.08 as the mean and 1.779 as the standard deviation. The table also shows that the minimum and maximum values for leverage are 0.004 and 0.539 respectively, has 0.146 as the mean while 0.132 as the standard deviation. The standard deviation indicates the dispersion of data from the mean by 0.7998.

Finally, the result revealed that growth has a minimum value of -47.02 and maximum value of 140.8. The mean and standard deviation of 8.296 and 18.60 respectively.

4.3 Correlation between the Variables of the Study

Correlation analysis is used to assess the nature of relationship between the dependent and independent variables and to determine whether multicollinearity exits among the variables of the study. The Pearson correlation analysis is used in this study to assess the relationship between working capital management and financial performance.

Table 4.2: Correlation Matrix

VAR	ROA	IT	ART	APT	CCC	FSIZE	FLEV	GRWT
ROA	1.0000							
IT	0.0985 0.1455	1.0000						
ART	0.9999* 0.0000	0.1098 0.1043	1.0000					
APT	0.4228* 0.0000	-0.0874 0.1953	0.4237* 0.0000	1.0000				
CCC	0.7774* 0.0000	0.0362 0.5928	0.7767* 0.0000	0.6436* 0.0000	1.0000			
FSIZE	0.0022 0.9737	0.1505* 0.0183	0.0007 0.9176	-0.0762 0.2481	0.0212 0.7447	1.0000		
FLEV	0.0391 0.5641	0.0217 0.7486	0.0367 0.5878	0.0365 0.5902	0.0250 0.7119	-0.5243* 0.0000	1.0000	
GRWT	0.4407* 0.0000	0.0974 0.1499	0.4407* 0.0000	0.0782 0.2481	0.3823 0.0000	-0.0962 0.1550	0.2352* 0.0004	1.0000

Source: Correlation Matrix Result Using Stata.

=significant at 1% (0.01), *= significant at 5% (0.05), *****= significant at 10% (0.10)***

Table 4.2 presents the correlation between working capital management variables (inventory turnover, accounts receivable turnover, accounts payable turnover, and cash conversion cycle) and financial performance (ROA) of listed commercial banks in Nigeria. Inventory turnover has a positive but insignificant correlation with ROA ($r = 0.0985$, $p > 0.05$), suggesting only a mild association. Accounts receivable turnover shows a strong and significant positive correlation with ROA ($r = 0.9999$, $p < 0.01$), indicating that increased receivables turnover enhances financial performance. Similarly, accounts payable turnover and ROA are positively and significantly correlated ($r = 0.4228$, $p < 0.01$). Cash conversion cycle (CCC) also shows a strong positive and significant relationship with ROA ($r = 0.7774$, $p < 0.01$), suggesting that higher CCC improves performance.

Multicollinearity among the independent variables was examined using correlation coefficients, Variance Inflation Factor (VIF), and tolerance values. All correlation coefficients were below the critical threshold of 0.8, while VIF values were below 10 and tolerance values above 0.1, indicating no multicollinearity. The average VIF was 1.98, further confirming the absence of multicollinearity and the suitability of the model.

Robustness tests were conducted to ensure the reliability of the statistical inferences. The heteroscedasticity test revealed the presence of heteroscedasticity (p = 0.0000), indicating that the error terms did not have constant variance. As a result, robust standard errors were used in the regression estimation.

The Hausman specification test was used to choose between fixed and random effects models. The result supported the use of the fixed effects model, as the assumptions of the random effects model were violated, affirming that the fixed effects model provides consistent estimates for the study.

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. xtreg  roa it art apt ccc fsze flev grwt, re

Random-effects GLS regression                   Number of obs      =       220
Group variable: id                              Number of groups   =        22

R-sq:  within  = 0.9998                         Obs per group: min =        10
       between = 0.9994                                        avg =      10.0
       overall = 0.9995                                        max =        10

Random effects u_i ~ Gaussian                   Wald chi2(7)       = 921686.67
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
it	-.002601	.0531971	-0.05	0.961	-.1068655	.1016635
art	.9959737	.0010989	906.35	0.000	.99382	.9981275
apt	-.0081008	.0030876	-2.62	0.009	-.0141523	-.0020492
ccc	.0168435	.0676321	0.25	0.803	-.115713	.1493999
fsze	-.0441937	.016399	-2.69	0.007	-.0763351	-.0120524
flev	-.4699115	.1777804	-2.64	0.008	-.8183548	-.1214683
grwt	.0017604	.0013323	1.32	0.186	-.0008509	.0043717
_cons	.9041955	.2785985	3.25	0.001	.3581524	1.450239
sigma_u	.39065999					
sigma_e	.2125077					
rho	.77166184	(fraction of variance due to u_i)				

```
. est store random
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```
. hausman fixed random

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
          it |    .0571149     -.002601        .0597158        .0120812
         art |    .9959537     .9959737         -.00002               .
         apt |   -.0081747    -.0081008       -.0000739               .
         ccc |   -.3441524     .0168435       -.3609959        .1579587
        fsze |   -.0247057    -.0441937         .019488        .0052469
        flev |   -.3118251    -.4699115        .1580864        .0850095
        grwt |    .0010802     .0017604       -.0006802        .0001787
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       27.01
                Prob>chi2 =      0.0003
                (V_b-V_B is not positive definite)
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4.4 Regression Results and Discussion

This section presents the regression results of the dependent variables and the independent variables of the study. This is followed by the analysis and interpretation of the association between the variables.

Table 4.3: Fixed Effects Regression Results

VARIABLES	Coefficients	T-Statistics	T-Sig	VIF/Tolerance
Constant	1.1095	3.75	0.000	
IT	0.0571	1.05	0.296	1.07/0.93
ART	0.9959	37.4	0.000	2.75/0.36
APT	0.0081	2.68	0.008	1.91/0.52
CCC	-0.3441	-2.00	0.047	3.80/0.26
FSIZE	-0.0247	1.43	0.153	1.48/0.67
FLEV	-0.3118	-1.58	0.115	1.48/0.67
GRWT	0.0010	0.80	0.423	1.38/0.72
R^2				0.99
F- Stat.				417
P-sig				0.00

Source: Stata Output

The regression analysis revealed that the model explains a significant portion of the variation in financial performance. The cumulative R^2 value of 0.99 indicates that 99% of the variation in Return on Assets (ROA) of listed commercial banks in Nigeria is explained by changes in working capital management components. This high R^2 suggests an excellent model fit and confirms that the selected independent variables are appropriate and relevant.

Furthermore, the F-statistic of 417, which is highly significant at the 1% level, confirms the overall fitness of the model. It indicates that the joint impact of the independent variables—inventory turnover,

accounts receivable turnover, accounts payable turnover, and cash conversion cycle—on ROA is statistically significant.

Focusing on the individual variable, Inventory Turnover (IT) has a coefficient of 0.0571, a t-statistic of 1.05, and a p-value of 0.296. Although the relationship is positive, it is not statistically significant at the 1%, 5%, or even 10% levels. The coefficient suggests that a 1% increase in inventory turnover would result in a 5.7% increase in ROA, all things being equal. However, due to the lack of significance, the result implies that changes in inventory turnover do not reliably predict changes in financial performance.

4.5 Results and Discussion

The following are the result and discussion according to the stated objectives

Objective I: To Determine the Impact of Inventory Turnover on the Financial Performance of Listed Commercial Banks in Nigeria

The results indicate that inventory turnover (IT) has no significant impact on the financial performance of listed commercial banks in Nigeria as measured by Return on Assets (ROA). This finding aligns with studies by Akinyemi and Ajayi (2019) and Nuhu et al. (2021), which showed that inventory turnover is not a key determinant of financial performance in the banking sector due to the limited role of physical inventory in banking operations. Similarly, Abubakar and Musa (2020) found that inventory management has little relevance in financial institutions where services are intangible and inventory is minimal. However, this result contradicts the findings of Afolabi (2017) and Okoye and Nwankwo (2016), who reported a positive and significant impact of inventory turnover on financial performance in other sectors such as manufacturing and retail, where inventory plays a more central role in operational efficiency and asset utilization.

Objective II: To Examine the Impact of Accounts Receivable Turnover on the Financial Performance of Listed Commercial Banks in Nigeria

The results show that accounts receivable turnover (ART) has a significant positive impact on financial performance, particularly on ROA. This finding is in agreement with Uwuigbe et al. (2018) and Olowe and Oseni (2020), who observed that banks with efficient credit collection systems tend to have higher returns on assets due to improved liquidity and reduced credit risk. Likewise, Olaoye and Adebayo (2016) found a strong positive correlation between accounts receivable turnover and firm performance, particularly in the financial services sector. On the other hand, Ibrahim and Abba (2021) reported that accounts receivable turnover did not have a significant impact on ROA in their study of selected deposit money banks in Nigeria. They argued that delays in repayment and poor credit policies may neutralize the potential gains of receivable efficiency if not well managed.

Objective III: To Analyze the Impact of Accounts Payable Turnover on the Financial Performance of Listed Commercial Banks in Nigeria

The results reveal that accounts payable turnover (APT) has a significant positive impact on the financial performance of listed commercial banks in Nigeria. This is consistent with Egbide (2019) and Okoye et al. (2020), who emphasized that prompt settlement of obligations and efficient payable management enhance

the reputation and liquidity of financial institutions, resulting in better asset utilization and improved ROA.

Similarly, Al-Mutairi and Saeid (2020) found a significant positive association between accounts payable turnover and firm performance, noting that firms that efficiently manage their payables avoid interest penalties and benefit from supplier goodwill. Contrarily, Kehinde and Ogunyomi (2017) found a negative relationship between APT and financial performance, arguing that quick repayment might limit liquidity and restrict reinvestment opportunities, especially in banks with weaker capital buffers.

Objective IV: To Evaluate the Impact of the Cash Conversion Cycle on Financial Performance of Listed Commercial Banks in Nigeria

The results indicate that the cash conversion cycle (CCC) has a significant negative impact on financial performance as measured by ROA. This aligns with the findings of Deloof (2003) and Agu and Basil (2020), who asserted that a longer CCC hinders performance by tying up cash that could otherwise be used for revenue-generating activities. Similarly, Raheman and Nasr (2007) showed that firms with shorter CCC tend to be more profitable and efficient, as they can quickly convert operations into cash returns.

However, Mehta and Srivastava (2018) reported no significant impact of CCC on financial performance in their study on Indian banks, suggesting that some firms manage to maintain profitability regardless of the length of the cash conversion cycle due to strong capital reserves or alternative funding strategies.

4.6 Hypotheses Testing

The following are the interpretations of the tested hypotheses based on the regression results:

4.6.1 H_{01}: Inventory Turnover (IT) has no significant impact on the Financial Performance (ROA) of Listed Commercial Banks in Nigeria.

The regression result shows a p-value of 0.296, which is greater than the 0.05 significance threshold. This indicates that inventory turnover does not have a statistically significant impact on return on assets (ROA) of the sampled banks.

Therefore, the null hypothesis (H_{01}) fails to be rejected, as there is no significant impact of inventory turnover on financial performance.

4.6.2 H_{02}: Accounts Receivable Turnover (ART) has no significant impact on the Financial Performance (ROA) of Listed Commercial Banks in Nigeria.

The result reveals a p-value of 0.000, which is below the 0.05 threshold. This indicates that accounts receivable turnover has a statistically significant positive impact on return on assets (ROA) among the listed commercial banks.

Hence, the null hypothesis (H_{02}) is rejected, as there is a significant impact of accounts receivable turnover on financial performance.

4.6.3 H_{03}: Accounts Payable Turnover (APT) has no significant impact on the Financial Performance (ROA) of Listed Commercial Banks in Nigeria.
The p-value for accounts payable turnover is 0.008, which is also less than 0.05. This implies a statistically significant positive impact on ROA. Thus, the null hypothesis (H_{03}) is rejected, indicating that accounts payable turnover significantly impacts financial performance.

4.6.4 H_{04}: Cash Conversion Cycle (CCC) has no significant impact on the Financial Performance (ROA) of Listed Commercial Banks in Nigeria.
The p-value for CCC is 0.047, which is just below the 0.05 threshold. This indicates that the cash conversion cycle has a statistically significant negative impact on ROA. Therefore, the null hypothesis (H_{04}) is rejected, as CCC has a significant impact on financial performance.

5.0 Conclusion and Policy Recommendations

This study investigates the impact of Working Capital Management (WCM) on the financial performance of listed commercial banks in Nigeria, using Return on Assets (ROA) as the performance measure. The WCM components examined are Inventory Turnover (IT), Accounts Receivable Turnover (ART), Accounts Payable Turnover (APT), and Cash Conversion Cycle (CCC). Data were collected from 22 listed commercial banks over a ten-year period (2013–2022) and analyzed using descriptive statistics, Pearson correlation, and multiple regression.

The findings show that Inventory Turnover (IT) has a positive but statistically insignificant relationship with ROA, indicating that while an increase in IT may improve financial performance, the effect is not strong enough to be statistically significant. Consequently, the null hypothesis that IT has no significant impact on ROA is not rejected.

For Accounts Receivable Turnover (ART), the relationship with ROA is both positive and statistically significant, suggesting that efficient collection of receivables leads to improved performance. Thus, the null hypothesis that ART has no impact is rejected.

Similarly, Accounts Payable Turnover (APT) shows a significant positive relationship with ROA. As APT increases, it is associated with a decrease in delay in settling supplier obligations, thereby improving financial performance. The null hypothesis for APT is also rejected.

In contrast, the Cash Conversion Cycle (CCC) has a significant negative relationship with ROA. This implies that longer CCC leads to reduced financial performance. The study, therefore, rejects the null hypothesis that CCC has no significant impact on ROA.

Conclusion:

The study concludes that IT, ART, and APT positively influence the financial performance of listed commercial banks in Nigeria, while CCC has a negative effect. Therefore, banks should focus on improving inventory turnover, accelerating receivables collection, and managing payables efficiently. On the other hand, minimizing the CCC is crucial as it adversely affects performance.

Recommendations:

In line with the findings of the study, the following recommendations were made;

i. Inventory turnover has been empirically identified as one of the important factors that influences financial performance, therefore the banks should to take the advantage of turning their inventory very quickly to make better returns on their assets.
ii. Banks should maximize its profitability level through aggressive debt recovery from customers as this variable shows positive relationship with financial performance.
iii. The study recommends that the banks should take into consideration its accountable in its quest to maximize financial performance. They should make frequent payments to their suppliers which may have positive impact on their financial performance.
iv. Finally, it is suggested that cash conversion cycle should not be encouraged because CCC was found to be negatively related with the ROA. Thus, the higher the CCC the lower the ROA

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