



Effect of Working Capital Management on Non-Performing Loans of Selected Microfinance Banks in Adamawa State, Nigeria

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ABSTRACT

Working Capital Management (WCM) affects Non-Performing Loans (NPLs) by influencing a company's liquidity and cash flow. It helps ensure timely debt repayments, reducing the likelihood of loans becoming non-performing. Poor WCM can lead to cash flow problems, increasing the risk of defaults and higher rate of NPLs. This study assessed the effect of working capital management on non-performing loans (NPLs) in selected microfinance banks in Adamawa State, Nigeria, over the period 2013 to 2023. Utilizing a panel data set from five microfinance banks, the analysis employs the Ordinary Least Squares (OLS) technique to explore the effect between various working capital management metrics and NPLs. The key variables examined include the Current Ratio, Quick Ratio, Debtors to Creditors Ratio, Working Capital to Total Assets, and Total Assets (as an independent variable). The findings revealed a negative significant effect between the Current Ratio and NPLs, indicating that better liquidity management was associated with a reduction in non-performing loans. Conversely, the Quick Ratio and Debtors to Creditors Ratio exhibit positive but insignificant relationships with NPLs, suggesting that these factors may not play a crucial role in the occurrence of non-performing loans. In contrast, the Working Capital to Total Assets ratio shows a positive significant effect with NPLs, implying that, higher working capital relative to total assets is associated with an increase in non-performing loans. Lastly, Total Assets, included as an independent variable, also demonstrate a positive significant effect with NPLs, highlighting the potential impact of the size of the banks on loan performance. These findings provide valuable insights for bank management and policymakers in enhancing financial stability within the microfinance sector in Adamawa State.

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INTRODUCTION

Microfinance banks (MFBs) play a vital role globally by offering financial services such as savings, micro-credit, and other tailored products to low-income individuals and communities typically excluded from formal financial institutions (Ahmad et al., 2020). Their core mandate includes accepting deposits and providing loans to support small businesses, foster economic empowerment,

and reduce poverty, particularly in rural and urban areas (Hamman & Udi, 2024). Profitability in banking, including microfinance, largely depends on sound working capital management (WCM), which ensures liquidity and generates income through interest, fees, and commissions (Karim et al., 2023). However, one of the major challenges facing MFBs is loan recovery, which is crucial to institutional financial health. Loan defaults are

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more pronounced in developing countries due to internal weaknesses, procedural lapses, and ineffective recovery strategies (Kaveri et al., 2016; Chen et al., 2019; Mutire et al., 2020). Effective loan recovery is tightly linked to robust WCM practices (Marini et al., 2017).

Working capital management, defined as the strategic handling of short-term assets and liabilities, is essential to ensuring liquidity, solvency, and operational efficiency (Abdullahi & Uba, 2023; Karadayi, 2023). In Adamawa State, Nigeria, MFBs serve as key agents of economic development by providing credit to underserved populations. Proper WCM allows MFBs to maintain balance in extending credit and ensuring timely repayments, thereby reducing the risk of non-performing loans (Oza & Desar, 2023). Mismanagement of working capital can lead to liquidity crises and increased default rates, threatening the financial sustainability of MFBs. Effective WCM involves timely receivables collection, inventory control, and prudent payables management, which can mitigate credit risks and enhance continuous service delivery to underserved segments (Aminu & Zainudin, 2024; Kwenda & Holden, 2024; Braimah et al., 2021). Nonetheless, the rising incidence of non-performing loans (NPLs) remains a major concern, as it undermines financial stability and lending capacity. Poor WCM and inadequate understanding of its influence on performance have led many institutions into operational distress (Fernandez-Lopez et al., 2020).

Given these issues, the current study investigated the effect of WCM on NPLs in selected microfinance banks in Adamawa State, Nigeria. It analyzed key WCM indicators such as the current ratio, quick ratio, debtors-to-creditors ratio, and working capital-to-assets ratio. The results aim to guide MFB managers and policymakers in strengthening financial sustainability and institutional performance within the microfinance sector.

Problem Statement

Microfinance institutions (MFIs) typically use social collateral and group lending mechanisms with joint liability to provide credit,

particularly to underserved populations. However, the burden of shared liability, interest charges, and penalties can limit borrowing capacity (Namutenda & Maturi, 2023). In Nigeria, microfinance banks (MFBs) were established in 2005 to enhance financial inclusion, promote employment, and support rural economic activities (Garba, 2019). While they have contributed significantly to entrepreneurship and service creation, many have experienced institutional failure, primarily due to operational inefficiencies and poor financial management (Okezie, 2019; Udoh, 2022).

A major threat to MFB sustainability is the growing incidence of non-performing loans (NPLs), caused by weak credit risk management, poor loan monitoring, and ineffective underwriting practices (Ndungu, 2014; Aidoo & Mensah, 2020). NPLs reduce liquidity, limit further lending, and can lead to insolvency, especially when compounded by inadequate collateral, high interest rates, and lack of loan recovery strategies (Adeyemi, 2020; Aremu et al., 2021). Working Capital Management (WCM) is central to the operational viability and financial health of MFBs. Inefficient WCM manifested in poor receivables collection, inventory control, and cash management contributes significantly to rising NPL levels (Usman & Musa, 2022; Bello et al., 2023). In Adamawa State, where microfinance banks play a vital economic role, mismanagement of working capital has been linked to fluctuating NPL levels, reduced profitability, and financial instability (Lawal et al., 2021; Godswill, 2018).

Moreover, microfinance banks often face challenges such as high operating costs, overtrading, illiquidity, and limited revenue from innovative financial services. Director-level mismanagement and fund diversion further undermine institutional earning capacity (Ailemen et al., 2022; Oloruntoba et al., 2023). Regulatory reports highlight a rising trend in microfinance bank closures across Nigeria, driven by insolvency, inactivity, and regulatory non-compliance. Between 2019 and 2023, over 150 MFBs were shut down due to operational failures, many rooted in poor WCM and rising NPLs (Kwanbo et al., 2023). Despite the critical role of



WCM in mitigating NPLs and ensuring sustainability, empirical research on this relationship remains limited particularly in Adamawa State. This gap in literature presents a major challenge for policymakers and financial managers striving to improve the efficiency and resilience of the microfinance sector. Consequently, the current study seeks to investigate the effect of WCM practices on the incidence of non-performing loans in selected microfinance banks in Adamawa State, Nigeria.

Research Objectives

Assessing the effect of working capital management on non-performing loans of selected microfinance banks in Adamawa State, Nigeria remains as the major objective of this study, while the specific objectives among other things is to:

1. Determine the effect of current ratio on non-performing loans among the selected microfinance banks in Adamawa State, Nigeria.
2. Assess the effect of quick ratio on non-performing loans among the selected microfinance Institutions in Adamawa State - Nigeria.
3. Identify the influence of debtors to creditors ratio on non-performing loans among the selected microfinance banks in Adamawa State, Nigeria.
4. Determine the impact of working capital to asset on non-performing loans among the selected microfinance banks in Adamawa State, Nigeria

LITERATURE REVIEW

Bank Lending

Bank lending is the process through which banks provide loans to individuals, groups, businesses, or governments under agreed terms, typically requiring collateral and charging interest to generate profit (Olabode, 2017; Ihenetu, 2020). It is a fundamental service of deposit money banks, enabling them to fulfill their role as financial intermediaries by lending mobilized deposits across varying time frames (Sunday & Ehiejele, 2017). Successful lending demands careful management and strategic allocation of funds to

ensure profitability, liquidity, and risk mitigation. In Nigeria, banks historically relied on self-liquidating and low-risk loans to achieve quick profits amid high competition and substantial deposits. However, the current financial landscape demands robust and well-structured lending and credit policies, as only banks with sound credit administration can thrive in the increasingly competitive environment (Sunday & Ehiejele, 2017).

Principles of Bank Lending

Banks follow five key principles when lending money: liquidity, safety, diversity, stability, and profitability. Liquidity ensures that banks lend only for short periods and on securities that can be quickly converted to cash without significantly affecting market prices. Safety involves assessing the borrower's ability to repay loans based on the nature of security, financial standing, and creditworthiness, with government securities generally being the safest. Diversity requires spreading investments across different types of securities, industries, and regions to minimize risk. Stability is achieved by investing in fixed-income securities like bonds and debentures, which are less affected by market fluctuations. Lastly, profitability guides banks to prioritize investments that yield consistent returns, especially tax-exempt government securities, over riskier options like shares of new companies.

Non-Performing Loans

Non-performing loans (NPLs), defined as loans overdue by 90 days or more, are a widespread issue in the global banking sector, with particularly severe impacts in developing economies. They undermine the financial stability of banks by reducing cash flow, diminishing earnings, and limiting the ability to issue new loans. For microfinance banks, NPLs are critical indicators of credit quality and risk, directly affecting asset preservation, operational efficiency, and profitability. High levels of NPLs have historically signaled financial crises, such as those in East Asia and Sub-Saharan Africa. Their prevalence often results from poor loan appraisal, inadequate monitoring, ineffective working capital

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management, and external market conditions. To mitigate these effects, banks must maintain loan loss provisions and improve borrower evaluation processes to safeguard financial performance.

Working Capital Management (WCM)

Working capital refers to the funds a company needs to manage its daily operations and is commonly viewed through two concepts: gross working capital, which encompasses total current assets, and net working capital, defined as current assets minus current liabilities. Effective working capital management (WCM) involves optimizing investments in components like inventory, receivables, and cash to ensure liquidity and profitability while managing associated risks. It plays a crucial role in financial planning and control, especially for small and medium enterprises, as it impacts both profitability and firm value. Empirical research, including studies by Jose et al. (1996) and Deloof (2003), highlights that aggressive WCM strategies such as minimizing days in receivables, inventory, and payables can significantly enhance profitability. Thus, WCM is essential for achieving a balance between operational efficiency, liquidity, and long-term financial performance.

Empirical Review

There many prior studies investigate the determinants of non-performance banks in relation to working capital management both within and outside the Nigerian Context, for instance: Afolabi, Obamuyi, and Egbetunde (2020) investigated the impact of non-performing loans (NPLs) on the performance of microfinance banks in Nigeria using a Granger causality approach. Focusing on credit risk variables NPLs and loan-loss provisions the study analyzed secondary data from 2012 to 2018 obtained from six purposively selected microfinance banks. Employing a Vector Autoregressive (VAR) model and unit root tests, the findings confirmed that the data were stationary and suitable for analysis. The Granger causality results revealed a unidirectional causal relationship: NPLs influence loan-loss provisions, which in turn affect returns on assets,

highlighting how credit risk impacts financial performance.

Similarly, Abubakar, Tobi, and Abdullahi (2020) examined the effect of credit risk management on the financial performance of listed microfinance banks in Nigeria using data from 2012 to 2017. Analyzing financial reports from the two microfinance banks listed on the Nigerian Stock Exchange through Pearson correlation and regression analyses, the study found that capital adequacy and loan loss provision ratios negatively and significantly affect financial performance, while the ratio of non-performing loans to total loans has a positive and significant impact. Control variables like bank size and inflation showed no significant effect. The study concluded that credit risk management significantly influences financial performance and recommended that loans be granted only to borrowers with strong future income prospects, aligning with the anticipated income theory.

Moreover, Enoch, Digil, and Arabo (2021) conducted a study titled "A Comparative Evaluation of the Effects of Credit Risk Control on the Profitability of Microfinance Banks," using both primary and secondary data. They selected 21 credit officers from a population of 52 using a multistage sampling method and collected data through questionnaires. Descriptive and inferential statistics, including regression analysis via SPSS, were employed for analysis. The findings revealed that effective credit risk control significantly enhances the profitability of microfinance banks by reducing payment defaults. Strong credit management practices, particularly through thorough client appraisal, contribute to improved financial performance and liquidity.

Recently, Aminat and Ezekiel (2023) examined the effect of loan default on the growth of cooperative societies in Nigeria, focusing on the relationships between loan management procedures, loan diversion, and loan size with cooperative growth. Using a cross-sectional survey of five purposively selected cooperatives in Ekiti State, the study found that loan management procedures and loan size had a positive but insignificant effect on cooperative growth, while loan default had a negative and marginally

significant effect. The study concluded that loan default remains a major challenge, hindering loan disbursement and contributing to the stagnation of cooperative societies.

Also, Mshelia and Udi (2024) examined the effect of working capital management on the financial performance of listed deposit money banks in Nigeria over a five-year period (2018–2021), using data from 10 randomly selected banks out of 27. Analyzed with descriptive statistics, correlation, and multiple regression via STATA, the study found that working capital management significantly influences financial performance. Specifically, return on assets, capital adequacy ratio, and cash conversion cycle had significant effects, while net working capital did not. The study recommended optimizing return on assets through risk-adjusted investments, maintaining adequate capital, and improving the cash conversion cycle, while balancing efficiency and flexibility rather than merely minimizing net working capital.

Theoretical Review

Agency Theory

Agency theory, formalized by Jensen and Meckling (1976), explains the conflict of interest between principals (owners) and agents (managers) in organizations such as microfinance banks. In this context, owners aim for profitability and risk reduction, while managers may prioritize short-term goals, potentially leading to suboptimal decisions, such as poor working capital management or risky lending. Effective working capital management including cash, receivables, and payables enhances liquidity and reduces non-performing loans (NPLs), which signal poor loan performance. Applying agency theory, this study posits that aligning managers' interests with those of owners through incentive structures and efficient monitoring in microfinance banks especially in Adamawa State, Nigeria can improve working capital management, reduce NPLs, and enhance financial stability and performance.

METHODOLOGY

Data collected were cleaned, coded and analyzed accordingly with the aid of Statistical Packages for Social Science (SPSS), which produced data output for interpretation. Specifically, the researcher used descriptive statistics to summarize the key characteristics of the data, such as the mean, median, standard deviation, and range. This provided an overview of the working capital management practices and the levels of NPLs in the selected microfinance banks. The study also made use of Ordinary least Square (OLS) for regression, and correlation to examine the relationships between various components of working capital management (such as current ratio, quick ratio, debtors to creditors ratio, and working capital to assets) and the level of NPLs.

Model Specification

To determine the effects of working capital management on NPLs of microfinance banks, the researcher applied multiple regression analysis as shown below:

$$\text{NPLs} = \beta_0 + \beta_1 \text{CR} + \beta_2 \text{QR} + \beta_3 \text{DTCR} + \beta_4 \text{WCTA} + \varepsilon$$

Where;

NPLs = Non-performing Loans

CR = Current Ratio

QR = Quick Ratio

DACR = Debtors to Creditors Ratio

WCTA = Working Capital to Assets

β_0 , β_1 , β_2 , β_3 , and β_4 = Coefficients to be estimated

ε – Error term.

RESULTS AND DISCUSSION FINDINGS

Descriptive Statistics

The study presents descriptive statistics in Table 4.1, summarizing the minimum, maximum, mean, and standard deviation for all dependent and independent variables. This helps the researcher better understand the data through measures of central tendency and variability, offering a detailed overview of the variables used in the analysis.

Table 2. Descriptive Statistic for Dependent and Independent Variables

Variables	Obsv.	Mean Score	Std. Dev.	Min.	Max.
Npfl	55	6.272727	0.9898475	0	7
cutr	55	125.4471	400.4553	0	2190.773
Quick	55	27.07273	15.90464	1	54
dtcc	55	20.83636	13.3052	1	44
wecat	55	15.89091	11.40609	1	38

Non-Performing Loans(npfl); Current Ratio(cutr); Quick Ratio (Quick); Debt to Equity Ratio(dtcc); Working Capital Ratio (wecat).

Source: STATA Output, Version 15(2024)

The summary of Table 2 shows that non-performing loans (NPLs) range from 0 to 7 with a mean of 6.27, and a high dispersion indicated by a standard deviation of 0.99 (98%). A 1% increase in working capital management corresponds to a 6% increase in NPLs. The current ratio ranges from 0 to 2190, with a mean of 125.45 and a high dispersion (standard deviation = 400.46), indicating that a 1% increase in the current ratio results in a 125% increase in NPLs. The quick ratio has values between 1 and 54, with a mean of 27.07, implying a 27.1% rise in NPLs per 1% increase. For the debtors-to-creditors ratio, the range is 1 to 44 with a mean of 20.84 and standard deviations of 15.90 and 13.31 reported both less than the mean indicating low

data dispersion. A 1% increase in this ratio is associated with a 21% increase in NPLs.

Correlation Matrix of Dependent and Independent Variables

The correlation matrix was used to assess the relationship between the dependent and independent variables and to check for multicollinearity. Pearson correlation analysis revealed the extent to which working capital management is related to non-performing loans in the sampled microfinance banks. The results indicated significant relationships among the variables, and since all correlation coefficients were below 0.7, there is no multicollinearity issue. The strength of these relationships may range from weak to strong.

Table 3. Correlation Matrix for the Dependent and Independent Variables.

Var.	npfl	cutr	quick	dtcc	wecat	logta
npfl	1.0000					
cutr	-0.0506	1.0000				
quick	-0.0413	0.4390	1.0000			
dtcc	0.2608	-0.4044	-0.5589	1.0000		
wecat	-0.2007	0.5407	0.2933	-0.3559	1.0000	
logta	0.6713	-0.1492	-0.3511	0.4639	-0.4046	1.0000

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

Source: STATA Output-Version 15, (2024).

The correlation analysis in Table 3 shows that all variables have a perfect correlation with themselves (1.000). Non-Performing Loans (NPLs) have a significant negative correlation with the Current Ratio (-0.0506) and Quick Ratio (-0.0413), but insignificant correlations with other variables. NPLs show a weak positive and

insignificant correlation with the Debtors to Creditors Ratio (-0.2608), Working Capital to Total Assets (-0.2007), and Total Assets (0.6713). The Current Ratio has an insignificant positive correlation with the Quick Ratio (0.4390) and Working Capital to Total Assets (0.5407), and insignificant negative correlations with Debtors to

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Creditors (-0.4044) and Total Assets (-0.1492). Similarly, the Quick Ratio shows insignificant relationships with all other variables. Debtors to Creditors Ratio has weak and insignificant correlations with both Working Capital to Total Assets (-0.3559) and Total Assets (0.4639). Working Capital to Total Assets also correlates insignificantly and negatively with Total Assets (-0.4046). Total Assets, used as a control variable, also maintains perfect correlation only with itself. Overall, most relationships are weak and statistically insignificant.

Robustness Test

A robustness test was conducted to validate the reliability of the statistical inferences in the study. This involved checking for issues like

data distribution problems and outliers to determine the suitability of the chosen statistical methods. Specifically, diagnostic tests for multicollinearity and the Hausman specification test were employed.

Multicollinearity Specification Test

Tolerance values and Variance Inflation Factor (VIF) are key indicators used to detect multicollinearity among explanatory variables. If all VIF values are below 10, multicollinearity is not present, indicating a good model fit. Likewise, tolerance values less than 1 suggest no multicollinearity, while values of 1 or more indicate its presence.

Table 4. Collinearity Test:

Collinearity Test		
Variables	VIF	1/VIF
Dtcc	1.74	0.573488
cutr	1.74	0.575880
wecat	1.67	0.897720
quick	1.62	0.617587
logta	1.49	0.669051
Mean VIF	1.65	

Source: STATA Output Result -Version 14, (2024)

From table 4, it could be seen that, the variance inflation factors of all independent variables of the study are consistently less than 10, which is the bench mark for multicollinearity as thus: (1.74<10, 1.74<10, 1.67<10, 1.62<10 and 1.49<10). Additionally, the said tolerance values are less than 1.00 which is an alternative yardstick for determining multicollinearity as thus: (0.573488<1.00, 0.575880<1.00, 0.897720<1.00, 0.617587<1.00 and 0.669051<1.00, this shows the appropriateness of fitting the model of the study with Four (4) independent variables as thus:

(Current Ratio, Quick Ratio, Debtors to Creditors Ratio, and Working Capital to Total Assets Ratio.) as used in the study.

Ramsey RESET Test (Omitted Variable Test)

This study adopted the Ramsey Regression Specification Error Test (RESET) in testing whether diagnostics are reasonably good or the result do not look encouraging because the coefficient are statistically significant, in which the researcher begins to worry whether an important variable is omitted.

Table 5: Ramsey Reset Tests Using Powers of Fitted Values of Non-Performing Loans.

Ho. The model has no omitted variables	
F (3, 46)	27.36
Prob > F	0.0000

Source: STATA Output Result -Version 14, (2024)

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From the table 5, it shows that the result of Ramsey Reset Test using powers of fitted values of Non-Performing Loans with Fishers' value of 27.36 being significant at Prob>chi2 is 0.000. This signifies that the diagnostics are reasonably good and, therefore, this study fails to accept the stated hypotheses.

Jacque Bera Skewness/Kurtosis Tests for Normality

One of the fundamental tenets of multivariate analysis is normality; hence, a significant and sufficient departure from normality will yield statistical results that are invalid (Hair et al, 2014). The residual or difference between the expected and observed values, is considered to be independent and have a normal distribution in multivariate analysis.

Table 6: Normality Test

Skewness and Kurtosis tests for Normality					
Variables	Obs.	Pr.(Skewness)	Pr.(Kurtosis)	----- joint -- ----adj chi2(2)	----- Prob>chi2
npfl	55	0.0000	0.0000	61.34	0.0000
cutr	55	0.0000	0.0000	51.03	0.0000
Quick	55	0.0439	0.0001	12.05	0.0024
dtcc	55	0.7368	0.0000	14.26	0.0008
wecat	55	0.8659	0.0010	10.25	0.0060
logat	55	0.0000	0.0000	45.75	0.0000

Source: STATA Output Result -Version 14, (2024)

Skewness and Kurtosis are common tests used to assess the normality of data. Skewness measures the symmetry of the distribution, while Kurtosis assesses the peakedness or flatness relative to a normal distribution. According to Kim (2013) and Tabachnik & Fidell (2007), these tests can be sensitive in large datasets. However, even when Skewness and Kurtosis are significant, they do not always indicate a substantial deviation from normality that would affect the analysis.

Durbin-Watson Hausman Fixed Random (sigmamore)

The Durbin-Watson Hausman specification test is used to choose between Fixed Effects (FE) and Random Effects (RE) models by assessing whether endogenous variables are correlated with error terms. If the p-value is significant ($p < 0.05$), the FE model is preferred and the null hypothesis is rejected. If the p-value is not significant, the RE model is accepted. In this study, the test was applied to determine the appropriate model for Tobin's Q analysis.

Table 7: Durbin-Watson Hausman Fixed Effect Random Effect, (sigmamore)

Variable	Non-Performing Loans
	$\chi^2(7) = (b-B)'[(V_b - V_B)^{-1}] (b-B) = 34.62$
	Prob > $\chi^2_{bar2} = 0.0000$
Test: Ho:	difference in coefficients not systematic

Source: STATA Output Result -Version 15, (2024).

Based on the Hausman's specification test, the result shows that the probability greater than the Chi-Square (Prob>chibar2) was at 0.0000 and therefore, is significant. The result

indicates that the correct model that was accepted and interpreted in this study is the Fixed Effect Model (FE-Robust).

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Regression Result and Discussion

The Fixed Effect Regression (robust) estimator was conducted on Non-Performing Loans, Working Capital Management (Current Ratio, Quick Ratio, Debtors to Creditors Ratio and Working Capital to Total Assets Ratio) and the Control Variable (Total Assets). The determinant of the Fixed Effect(within) Regression estimator includes the R^2 (Within) which indicated the co-efficient of determination of the Impact of Independent variable to determine the Dependent Variable and the control Variable, Co-efficient of determination of Variables (Positive or Negative), Probability Values greater than T-statistics ($p > t$); The Model of Goodness-fit (Prob > F), Wald Chi2

(F-Statistics) and the Number of Observations employed in this study. Summary of the regression result obtained from the model of the study as presented below:

$$NPFL = \beta_0 + \beta_1 CUTR_{it} + \beta_2 QUICK_{it} + \beta_3 DTCC_{it} + \beta_4 WE CAT_{it} + \beta_5 LOGTA_{it} + e_{it} \text{----- (1)}$$

Fixed Effect Regression Interpretation

In this study, the Fixed Effect (within) Regression estimator is conducted in order to examine the link between explanatory variables and explained variable of the study in-respect of the listed construction companies in Nigeria as presented in table 8 below.

Table 8: Fixed Effect Regression (Robust)

npfl	Coef.	Std. Err.(rob.)	t-values	p>/t/	[95%Conf. Interva]	
cutr	-0.0002887	0.000448	-6.44	0.003	-0.000413	-0.0001643
quick	0.0039399	0.002726	1.44	0.222	-0.003630	0.0115102
dtcc	0.0074195	0.006417	1.16	0.312	-0.010397	0.0252366
wecat	0.0225522	0.004796	4.70	0.009	0.009234	0.0358703
logta	0.8714301	0.015412	56.54	0.000	0.828638	0.9142217
_cons	-1.089156	0.147305	-7.39	0.002	-1.498141	-0.6801717
R^2 (Within)	0.8273					
Sigma_u	0.89073984					
Sigma_e	0.41436528					
rho	0.8220954					
No. of Obs.	55					

Source: STATA Output Result -Version 14, (2024)

Cumulative Interpretation of “Fixed Effect Regression” Result on the Relationship between Working Capital Management and Non-Performing Loans of the Sampled Micro-Finance Banks in Adamawa State.

Cumulatively, as depicted in table 8 above, the R-square (within) from Fixed Effect Regression (within) is 0.8273(82.7%). This indicates that the model explains about 83%, a substantial variation of a combined effect of independent variable (Working Capital Management) and Dependent variable (Non-Performing Loans). Furthermore, R^2 value signifies that 83% of the difference obtained from dependent variable is determined due to the result

of variations in the explanatory variables within the study. This also indicates that the changes in the Non-Performing Loans are statistically justified by the regression equation. The overall R^2 is 83 % (Substantial correlation).

Interpretation of Fixed Effect (Robust) Regression Result of Current Ratio as a component of Working Capital Management and Non-Performing Loans of the Selected Micro-Finance Banks in Adamawa State.

As observed in the table 8 above, the study established that Current Ratio as proxy to Working Capital Management shows a negative co-efficient of -0.0002887 with t-statistics value of -6.44. This signifies that Current Ratio as proxy to

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Working Capital Management decreases the Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State. The result implied that for every 1% increase in Current Ratio, the Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State decreases with 29k. The result is in-line with the Agency Theory which hypothesize that better working capital management practices in microfinance banks will lead to a reduction in non-performing loans.

In addition, the result shows that Current Ratio as proxy to Working Capital Management is statistically negative (Coefficient of -0.0002887) and significantly ($P > t$ at 0.003 at 5% significance level) affecting Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State under study. The policy implication desirable from this finding, therefore, the management of Selected Micro-Finance Banks in Adamawa State under study should optimize their working capital management strategies, focusing on efficient cash flow management, timely collection of receivables, and effective inventory management. This will help them maintain a healthier Current Ratio, thereby potentially reducing NPLs. The result produces evidence of rejecting hypothesis one (1) of the study states that, Current Ratio has insignificant relationship on Non-Performing Loans of the sampled Micro-Finance Banks in Adamawa State. The finding is in line with the study of Afolabi et al. (2020); Aminat and Ezekiel. (2023); Kitonyi (2019); Nyambu (2024) and contrary to the study of Abubakr et al. (2020); Al-Sharkas et al. (2022); Kwanbo et al. (2022); Kathuri (2022); Ombuya (2022).

Interpretation of Fixed Effect (Robust) Regression Result of Quick Ratio as a component of Working Capital Management and Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State.

As observed in the table 8 above, the study established that Quick Ratio as proxy to Working Capital Management shows a positive co-efficient of 0.0039399 with t-statistics value of 1.44. This signifies that Quick Ratio as proxy to Working Capital Management increases the Non-Performing Loans of Selected Micro-Finance

Banks in Adamawa State. The result implied that for every 1% increase in Current Ratio, the Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State increases with 39k. The result is in-line with Catherine (2024); Ikram-Hag et al. (2011); Kwanbo et al. (2022); Maroria (2015); Raharja (2021).

In addition, the result shows that Quick Ratio as proxy to Working Capital Management is statistically positive (Coefficient of 0.0039399) and insignificantly (P-Value of 0.222) affecting Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State under study. The policy implication desirable from this finding, therefore, the Management of Selected Micro-Finance Banks in Adamawa State under study should be involved in strengthen their liquidity management practices while ensuring rigorous credit assessment procedures. The result produces evidence which fails to reject hypothesis Two (2) of the study and as such, implies that, Quick Ratio has insignificant relationship on Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State. The finding is in line with the study of Enoch et al. (2024); Njire (2014); Umar and Sun (2016) and contrary to the study of Ghosh (2015); Mshelia and Udi (2024).

Interpretation of Fixed Effect (Robust) Regression Result of Debtors to Creditors Ratio as a component of Working Capital Management and Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State.

As observed in the table 8 above, the study established that Debtors to Creditors Ratio as proxy to Working Capital Management shows a positive co-efficient of 0.0074195 with t-statistics value of 1.16. This signifies that Debtors to Creditors Ratio as proxy to Working Capital Management increases the Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State. The result implied that for every 1% increase in Debtors to Creditors Ratio, the Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State increases with 74k. The result is in-line with Mutuku (2020); Mwengeh



(2025) and contrary to the research of Kingu et al. (2018); Onyeiwu et al. (2020); Ngumo (2017).

In addition, the result shows that Debtors to Creditors Ratio as proxy to Working Capital Management is statistically positive (Coefficient of 0.0074195) and insignificantly (P-Value of 0.312) affecting Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State under study. The policy implication desirable from this finding, therefore, the Management of Selected Micro-Finance Banks in Adamawa State under study should be involved in identifying and managing other factors that might significantly influence NPLs. Policies and strategies should be directed towards aspects like borrower creditworthiness, loan monitoring, and effective risk management.

The result shows indication of failing to reject hypothesis Three (3) of the study, which states that Debtors to Creditors Ratio has insignificant relationship over Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State. The finding is in line with the study of Mugun et al. (2019); Aidoo and Mensah (2018) and contrary to the study of Mutuku (2021); Nyambu & Ogada (2024); Raharja (2021).

Interpretation of Fixed Effect (Robust) Regression Result of Working Capital to Total Assets Ratio as a component of Working Capital Management and Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State.

As observed in the table 8 above, the study established that Working Capital to Total Assets Ratio as proxy to Working Capital Management shows a positive co-efficient of: 0.0225522 with t-statistics value of 4.70. This signifies that Working Capital to Total Assets Ratio as proxy to Working Capital Management increases the Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State. The result implied that for every 1% increase in Working Capital to Total Assets Ratio, the Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State increases with 2.23k. The result is in-line with Farooq et al. (2021); Ombuya (2022); and Kathuri (2022).

In addition, the result shows that Working Capital to Total Assets Ratio as proxy to Working Capital Management is statistically positive with coefficient of 0.0225522 being significantly at ($P > t$ at 0.009 & 10% significance level) affecting Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State under study. The policy implication desirable from this finding, therefore, the Management of the Selected Micro-Finance Banks in Adamawa State under study should be involved in focusing on optimizing their working capital management practices. Policies encouraging efficient cash flow management, inventory control, and receivables management could be implemented.

The result produces evidence of rejecting Four (4) hypothesis of the study, indicating that Working Capital to Total Assets Ratio has insignificant relationship on Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State. The finding is in line with the study of Maroria (2015); Kitonyi et al. (2020); Al-sharkas et al. (2022) and contrary to the study of Kathuri (2022); Onyeiwu et al. (2020).

SUMMARY OF MAJOR FINDINGS

The major findings of the study reveal that Current Ratio has negative significant relationship with Non-Performing Loans, Quick Ratio has positive insignificant relationship with Non-Performing Loans, Debtors to Creditors Ratio has positive insignificant relationship with Non-Performing Loans, and Working Capital to Total Assets has positive significant relationship with Non-Performing Loans. Lastly, Total Assets as control variable has positive significant relationship with Non-Performing Loans of Selected Micro-Finance Banks in Adamawa State.

CONCLUSIONS AND RECOMMENDATION

Working Capital Management plays an important role in balancing between company's short-term assets and liabilities towards ensuring sufficient liquidity for operational needs while minimizing financial risks, while Non-Performing Loans is determined by macro and micro factors, such as: Economic Growth, i.e., slower economic growth or a recession can reduce borrowers'

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income and increase the likelihood of defaults. Moreover, interest Rates, i.e., changes in interest rates can affect the cost of borrowing while a higher interest rate directly increase the debts burden on borrowers, potentially leading to higher NPLs. Management of the sampled Micro-Finance Banks in Adamawa State should ensure optimal utilization of their current assets in relation to current liabilities. This will further strengthen the current ratio, because the result depicted a decrease on the overall performance of current ratio in relation to Non-Performing Loans.

Management should consistently ensure inventories are taken into accounts with the proportion of current liabilities so as to determine the effect of the overall performance of the quick ratio on the Non-performing Loans of the selected Micro-Finance Banks in Adamawa State Should critically strategize their loan method especially on the relationship between the banks and their respective debtors. Consequently, more commitment towards off-settling creditors outstanding balances should be intensified, and consideration has to be made on both their receivables and sundry payables towards preventing loans to be tagged 'non-performing'. The management should enhance their current assets which should be above their current liabilities, and this determine the available resources to utilized on the day-to-day financial dealings of the Micro-Finance banks under study to the respective needs of their customers.

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