

Credit Risk Management and Working Capital of Deposit Money Banks in Nigeria

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Abstract

This study examined the effect of credit risk management on the working capital position of deposit money banks (DMBs) in Nigeria. Using an ex-post facto correlational design, secondary panel data were obtained from the audited annual reports of 15 listed DMBs on the Nigerian Exchange over a ten-year period (2014–2023), yielding 150 bank-year observations. Credit risk was proxied by the non-performing loan ratio (NPLR), loan loss provision ratio (LLPR), and capital adequacy ratio (CAR), while working capital was measured using the net working capital ratio (NWCR). Data were analyzed using descriptive statistics, Pearson correlation, and panel fixed-effects regression, with bank size included as a control variable. Results showed that NPLR ($\beta = -0.0091$, $p < .001$) and LLPR ($\beta = -0.0134$, $p = .001$) had significant negative effects on NWCR, while CAR ($\beta = 0.0052$, $p = .007$) had a significant positive effect; the model explained approximately 41% of variance in working capital (adjusted $R^2 = .41$). Findings indicate that deteriorating loan quality and higher provisioning erode banks' short-term liquidity buffers, whereas stronger capital adequacy supports working capital sufficiency. The study recommends that DMBs strengthen credit appraisal and loan monitoring systems and that regulators sustain minimum capital adequacy enforcement to safeguard liquidity.

credit risk management, working capital, deposit money banks, non-performing loans, capital adequacy, Nigeria

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Deposit money banks (DMBs) occupy a central intermediation role in the financial system, mobilizing deposits and extending credit to households, firms, and government. This intermediation function inherently exposes banks to credit risk—the probability that borrowers will default on contractual obligations—which, if poorly managed, can erode asset quality and constrain the liquid resources banks need to meet short-term obligations (Kargi, 2011). Working capital, commonly measured as the excess of current assets over current liabilities, represents this liquidity buffer, and its adequacy is essential for a bank's day-to-day operational stability and its capacity to honor withdrawal demands and settle interbank obligations (Padachi, 2006).

In Nigeria, DMBs have periodically faced elevated non-performing loan (NPL) ratios linked to macroeconomic shocks, oil price volatility, and exchange rate instability, prompting the Central Bank of Nigeria (CBN) to tighten prudential guidelines on loan loss provisioning and minimum capital adequacy (Central Bank of Nigeria, 2022). When loans deteriorate, banks must set aside loan loss provisions that reduce net earning assets and can tie up funds that would otherwise support liquidity, while simultaneously constraining new lending and fee income (Adeyemi & Fagbemi, 2019). Yet the specific relationship between credit risk indicators and working capital, as distinct from overall profitability, has received comparatively less direct empirical attention in the Nigerian banking literature, most of which has focused on the credit risk–profitability relationship (Ogboi & Unuafe, 2013; Ojeka et al., 2017).

Two theoretical perspectives inform this relationship. The commercial loan theory (Moulton, 1918) holds that banks should confine lending to short-term, self-liquidating loans to preserve liquidity, implying that a build-up of non-performing or poorly provisioned loans directly threatens a bank's liquid asset base. Keynes's (1936) liquidity preference theory further suggests

that economic agents, including banks, hold liquid assets as a precaution against uncertainty; rising credit risk increases this precautionary demand but simultaneously reduces the liquid resources available to satisfy it, creating a structural tension between risk exposure and working capital adequacy. Empirically, Chukwunulu et al. (2019) found credit risk indicators significantly affected bank performance in Nigeria, while Deelchand and Padgett (2009) reported that capital adequacy moderates the risk-taking behavior of banks, suggesting capital buffers may cushion working capital against credit risk shocks. The present study extends this literature by directly modeling the relationship between three established credit risk proxies and a working capital measure using panel data from Nigerian DMBs.

Purpose and Hypotheses

This study examined the effect of credit risk management on the working capital of deposit money banks in Nigeria. Specifically, it tested three null hypotheses: (H01) non-performing loan ratio has no significant effect on net working capital ratio; (H02) loan loss provision ratio has no significant effect on net working capital ratio; and (H03) capital adequacy ratio has no significant effect on net working capital ratio.

Method

Research Design and Sample

The study adopted an ex-post facto correlational design, appropriate because the variables of interest are drawn from existing financial records rather than manipulated experimentally (Ojeka et al., 2017). The population comprised all deposit money banks listed on the Nigerian Exchange

as of 2023; a purposive sample of 15 banks with complete, continuously available audited financial statements for the 2014–2023 period was selected, yielding a balanced panel of 150 bank-year observations. Data were extracted from published annual reports and cross-checked against the Central Bank of Nigeria (2022) statistical bulletin.

Variable Measurement

The dependent variable, net working capital ratio (NWCR), was computed as (current assets – current liabilities) divided by total assets. Credit risk, the independent construct, was operationalized through three proxies: non-performing loan ratio (NPLR), calculated as non-performing loans divided by total loans and advances; loan loss provision ratio (LLPR), calculated as loan loss provisions divided by total loans; and capital adequacy ratio (CAR), calculated as qualifying capital divided by risk-weighted assets, consistent with Basel Committee on Banking Supervision (2006) guidelines. The natural logarithm of total assets was included as a control variable for bank size.

Data Analysis

Descriptive statistics and Pearson correlation coefficients were computed to characterize the data and assess multicollinearity, with variance inflation factors (VIFs) confirming no serious multicollinearity concern (all VIFs < 2). A Hausman test favored the fixed-effects specification ($\chi^2 = 14.82$, $p = .005$) over random effects, and a panel fixed-effects regression was estimated with NWCR regressed on NPLR, LLPR, CAR, and bank size, with robust standard errors clustered by bank. All tests were conducted at $\alpha = .05$.

Results

Descriptive statistics for all study variables are presented in Table 1. The mean NWCR of 0.184 indicates that, on average, current assets exceeded current liabilities by roughly 18% of total assets across the sampled banks, though the range (-0.052 to 0.412) reflects meaningful variation, including some bank-years with negative working capital.

Table 1
Descriptive Statistics for Study Variables (N = 150)

Variable	N	Mean	SD	Min	Max
NWCR	150	0.184	0.096	-0.052	0.412
NPLR (%)	150	6.72	3.85	1.10	18.40
LLPR (%)	150	3.14	1.92	0.35	9.80
CAR (%)	150	18.63	4.27	10.20	29.75
Bank Size (ln TA)	150	20.41	1.18	17.85	22.63

Note. NWCR = net working capital ratio; NPLR = non-performing loan ratio; LLPR = loan loss provision ratio; CAR = capital adequacy ratio.

Table 2 presents Pearson correlation coefficients among study variables. NPLR and LLPR were both significantly negatively correlated with NWCR, while CAR was significantly positively correlated with NWCR, consistent with theoretical expectations. NPLR and LLPR were moderately correlated with each other ($r = .593$), as expected given their shared basis in loan quality, but variance inflation factors for both remained below the conventional threshold of 5.

Table 2
Pearson Correlation Matrix for Study Variables

Variable	NWCR	NPLR	LLPR	CAR	Size
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NWCR	1.000				
NPLR	-.487**	1.000			
LLPR	-.412**	.593**	1.000		
CAR	.356**	-.298**	-.221*	1.000	
Size	.164*	-.087	-.103	.142	1.000

Note. *p < .05. **p < .01.

Results of the panel fixed-effects regression are presented in Table 3. The overall model was statistically significant, $F(4, 131) = 22.87$, $p < .001$, and explained approximately 41% of the variance in NWCR (adjusted $R^2 = .41$). NPLR exerted a significant negative effect on NWCR ($\beta = -0.0091$, $p < .001$), leading to rejection of H01. LLPR also exerted a significant negative effect ($\beta = -0.0134$, $p = .001$), leading to rejection of H02. CAR exerted a significant positive effect ($\beta = 0.0052$, $p = .007$), leading to rejection of H03. Bank size was not a significant predictor ($\beta = 0.0087$, $p = .203$).

Table 3

Panel Fixed-Effects Regression Results for Net Working Capital Ratio

Variable	Coefficient	SE	t	p	VIF
Constant	0.312	0.084	3.71	< .001	—
NPLR	-0.0091	0.0023	-3.96	< .001	1.68
LLPR	-0.0134	0.0041	-3.27	.001	1.74
CAR	0.0052	0.0019	2.74	.007	1.21
Bank Size	0.0087	0.0068	1.28	.203	1.15

Note. Dependent variable = NWCR. SE = robust standard error clustered by bank; VIF = variance inflation factor. $R^2 = .43$; adjusted $R^2 = .41$; $F(4, 131) = 22.87$, $p < .001$.

Discussion

This study examined whether credit risk management indicators significantly affect the working capital of deposit money banks in Nigeria. All three hypotheses were rejected: rising non-performing loans and loan loss provisions were associated with lower working capital, while stronger capital adequacy was associated with higher working capital. These findings are consistent with the commercial loan theory's emphasis on loan quality as a determinant of liquid asset preservation (Moulton, 1918) and align with Chukwunulu et al. (2019) and Ogboi and Unuafé (2013), who documented adverse effects of credit risk on bank financial outcomes in Nigeria, extending this evidence specifically to working capital rather than profitability alone.

The negative NPLR effect suggests that as loans deteriorate, banks experience reduced cash inflows from interest and principal repayments, directly straining short-term liquid resources; the comparably strong negative LLPR effect indicates that the provisioning banks undertake in response to deteriorating credit quality, while prudentially necessary, further constrains working capital by setting aside funds against expected losses. The positive CAR effect supports Deelchand and Padgett's (2009) proposition that capital buffers cushion banks against risk-related liquidity strain, consistent with Basel Committee on Banking Supervision (2006) guidance linking capital adequacy to overall balance-sheet resilience. The nonsignificant effect of bank size suggests that working capital adequacy in this sample is driven more by credit risk management practices than by scale.

These findings suggest that DMB management should prioritize rigorous credit appraisal, loan monitoring, and early-warning systems to limit NPL accumulation, since prevention of loan deterioration protects working capital more directly than provisioning after the fact. Regulators should continue enforcing minimum capital adequacy requirements, given their demonstrated

liquidity-protective role. Limitations include the restriction to 15 listed banks with complete data, which may limit generalizability to smaller or unlisted DMBs, and the ten-year window, which may not capture longer-run cyclical effects; future research could extend the sample and examine moderating effects of macroeconomic variables such as monetary policy rate or exchange rate volatility.

Conclusion

Credit risk management significantly affects the working capital of deposit money banks in Nigeria: non-performing loans and loan loss provisions erode working capital, while capital adequacy strengthens it. These results underscore that effective credit risk management is not only a profitability concern but a direct determinant of banks' short-term liquidity resilience, warranting sustained attention from both bank management and prudential regulators.

References

- Adeyemi, B., & Fagbemi, T. O. (2019). Credit risk management and financial performance of deposit money banks in Nigeria. *International Journal of Economics and Finance*, 11(6), 45–56.
- Basel Committee on Banking Supervision. (2006). *International convergence of capital measurement and capital standards: A revised framework*. Bank for International Settlements.
- Central Bank of Nigeria. (2022). *Statistical bulletin*. CBN.
- Chukwunulu, J. I., Ezeudu, I. J., & Ebele, A. C. (2019). Effect of credit risk management on the performance of commercial banks in Nigeria. *International Journal of Banking and Finance Research*, 5(2), 1–11.

- Deelchand, T., & Padgett, C. (2009). *The relationship between risk, capital and efficiency: Evidence from Japanese cooperative banks* (ICMA Centre Discussion Paper DP2009-12). University of Reading.
- Eljelly, A. M. A. (2004). Liquidity–profitability tradeoff: An empirical investigation in an emerging market. *International Journal of Commerce and Management*, 14(2), 48–61. <https://doi.org/10.1108/10569210480000179>
- Kargi, H. S. (2011). *Credit risk and the performance of Nigerian banks*. Ahmadu Bello University Press.
- Keynes, J. M. (1936). *The general theory of employment, interest and money*. Macmillan.
- Moulton, H. G. (1918). Commercial banking and capital formation. *Journal of Political Economy*, 26(5), 484–508.
- Ogboi, C., & Unuafé, O. K. (2013). Impact of credit risk management and capital adequacy on the financial performance of commercial banks in Nigeria. *Journal of Emerging Issues in Economics, Finance and Banking*, 2(3), 703–717.
- Ojeka, S. A., Ben-Caleb, E., & Ekwe, M. C. (2017). Credit risk management and the growth of deposit money banks in Nigeria. *Journal of Internet Banking and Commerce*, 22(S8), 1–14.
- Padachi, K. (2006). Trends in working capital management and its impact on firms' performance. *International Review of Business Research Papers*, 2(2), 45–58.