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Credit Risk Assessment and the Financial Performance of Deposit Money Banks in Nigeria

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KEYWORDS: Credit Risk, Deposit Money Banks in Nigeria, Return on Equity, Non-Performing Loan, Loan to Deposit Ratio and Capital Adequacy Ratio

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ABSTRACT

This study investigated the impact of credit risk assessment on the financial performance of deposit money banks in Nigeria over a 14-year span from 2010 to 2023. Utilizing econometric tools including the Ordinary Least Squares (OLS) method, descriptive statistics, and post-estimation diagnostics, the research explored how credit risk variables influence bank performance. Financial performance was measured using Return on Equity (ROE), while credit risk was assessed using three indicators: the non-performing loans ratio (NPLR), loan-to-deposit ratio (LDR), and capital adequacy ratio (CAR). The results showed that the non-performing loan ratio (NPLR) had a negative and statistically significant effect on ROE ($\beta = -0.580743$, $p = 0.0454$), indicating that higher levels of non-performing loans ratio reduce profitability. Although the loan-to-deposit ratio demonstrated a positive effect on ROE, this relationship was not statistically significant ($\beta = 0.128974$, $p = 0.8655$). Conversely, the capital adequacy ratio exhibited a negative and statistically significant effect on ROE ($\beta = -3.099653$, $p = 0.0106$), suggesting that higher capital buffers might constrain profitability under certain conditions. The study concluded that credit risk indicators play a crucial role in determining the financial performance of Nigerian deposit money banks. Based on the findings, the following recommendations were made: i. Central Bank of Nigeria (CBN) should strengthen credit appraisal and monitoring frameworks within banks to reduce non-performing loans ratio. ii. CBN should adopt a more adaptable, risk-sensitive approach to capital adequacy requirements, particularly for institutions with robust risk management systems. iii. CBN and the Nigerian government should promote increased lending to the real sector by offering credit guarantees or interest rate incentives to key economic industries.

I. INTRODUCTION

According to Tushar (2016), banks play a crucial role in economic development by addressing the capital deficiency within an economy through encouraging savings and investments. A stable banking system helps mobilize scattered savings from individuals and businesses and channels them into productive investments. This process is vital in both developing and developed economies. Governments implement economic and monetary policies to regulate inflation, and influence spending and saving behaviors through commercial banks. Additionally, banks serve as intermediaries between the government and the public when the government seeks to borrow funds by issuing treasury bills. Banks also provide the necessary capital for investments by offering loans to businesses, which in turn helps expand their economic activities. As businesses grow, government revenues increase through taxes and levies, contributing to overall economic performance. The health of the banking sector directly impacts the performance of the broader economy.

In Nigeria, the banking sector is fundamental to the nation's economic success. Deposit Money Banks (DMBs) act as intermediaries, where those with excess funds, such as households and firms, supply capital to borrowers like businesses, government, and households, typically through financial markets, including money markets, bond markets, and equity markets. Over time, DMBs in

Nigeria have evolved due to regulatory reforms, rising competition, and shifting market dynamics. Despite these changes, a major challenge remains—credit risk.

Credit creation is a primary source of income for banks (Adegbie & Otitolaiye, 2020), but it carries significant risks. If a trading partner fails to meet their obligations, it could seriously harm the bank's operations. Offering credit comes with a high likelihood of defaults, both on the principal and interest, which requires effective credit management strategies to minimize these risks and improve financial performance (Chuke & Chinedu, 2018). A bank's exposure to credit risk can significantly impact its financial health, reducing profitability, weakening capital adequacy, and increasing vulnerability to financial distress (Taiwo, et al., 2017). Thus, understanding credit risk is crucial for bank managers, policymakers, and regulators in Nigeria to create effective risk management strategies that promote the stability and sustainability of the banking industry.

Credit risk is especially relevant in the Nigerian context due to factors like high non-performing loans (NPLs), inadequate credit evaluation processes, insufficient collateral, and economic instability (Kajola et al., 2018). An increase in NPLs can directly harm banks' financial performance by reducing both profits and their capacity to facilitate economic activities (Nwosu et al., 2020). Bhattarai (2017) notes that a significant buildup of NPLs can even lead to bank failures. A bank's ability to foresee and mitigate potential loan defaults is reflected in the ratio of loan loss provisions to total loans. A higher ratio indicates a cautious approach to managing credit risk, whereas a lower ratio may signify greater risk exposure (Ng et al., 2020).

Historically, the Nigerian banking sector has faced crises, such as the 2009 banking crisis, which brought many banks to the brink of collapse. In response, the Central Bank of Nigeria (CBN) implemented a series of reforms to strengthen the financial soundness and stability of DMBs through stricter regulations and improved risk management practices. However, banks continue to face risks when lending, including the possibility of losing both the principal and the accrued interest, even with borrowers who have good credit histories. While banks can take measures to secure loans and manage risks, they cannot fully eliminate the possibility of loan defaults. Banks that effectively manage loans and minimize NPLs tend to be more profitable and better positioned for long-term survival (European Central Bank, 2016).

Credit risks are a significant concern for banks because they directly influence their profitability and financial health. Most banks allocate a substantial portion of their assets to loans, making effective credit risk management crucial. Poor management of these risks can harm a bank's financial performance and stability. The Basel Committee on Banking Supervision (2006) has emphasized that credit risk is not limited to loans but extends to other financial instruments and inter-bank transactions. As a result, non-performing loans are often cited as a primary cause of bank failures, with macroeconomic conditions contributing to these challenges (Bobakovia, 2003).

Studies on the relationship between credit risk and the financial performance of DMBs have yielded mixed results. While some studies (e.g., Hosna et al., 2009; Saeed & Zahid, 2016) show a positive relationship between credit risk and bank performance, others (e.g., Harcourt, 2017; Nwanna, 2019) observe a negative or insignificant link. This highlights the need for further research, particularly in the context of Nigerian banks. The current study uses Return on Equity (ROE) as a more comprehensive measure of bank performance, as it offers a clearer understanding of profitability. For the analysis, the study employs the Ordinary Least Squares (OLS) method of multiple regression, which is preferred for its desirable properties, such as being Best, Linear, Unbiased, and Efficient (BLUE). This study, therefore, examined the effects of credit risk assessment on the financial performance of selected deposit money banks in Nigeria from 2014 to 2023.

The specific objectives are:

i. To assess the effect of non-performing loan ratio on the financial performance of selected deposit money banks in Nigeria.
ii. To examine the influence of loan to deposit ratio on the financial performance of selected deposit money banks in Nigeria.
iii. To analyze the effect of capital adequacy ratio on the financial performance of selected deposit money banks in Nigerian.

To achieve these objectives, the study tests the following hypotheses:

H_1: Non-Performing Loan Ratio has no significant effect on the financial performance of selected deposit money banks in Nigeria.

H_2: Loan to Deposit Ratio has no significant effect on the financial performance of selected deposit money banks in Nigeria.

H_2: Capital Adequacy Ratio has no significant effect on the financial performance of selected deposit money Banks in Nigeria.

LITERATURE AND EMPIRICAL REVIEW

As discussed by Coyle (2000) and Gieseche (2004), credit risk poses a significant threat to bank profitability and, if not properly managed, can lead to bank failure. For banks lacking adequate risk management and control practices, exposure to liquidity risk can be particularly dangerous. Given the rapid developments in the banking sector, both credit and liquidity risks must be carefully addressed, as they have a substantial impact on the overall performance and long-term sustainability of banks. Effective strategies

for managing credit and liquidity risks must be developed and fully implemented to mitigate their cumulative effects on default rates and bank performance. Credit risk is considered the most critical risk for banks, and the way banks manage it is a key determinant of their overall performance when compared to other risks such as operational, political, and liquidity risks.

The Basel Committee on Banking Supervision (2001) defines credit risk as "the risk of loss arising from default by a creditor or counterparty." In simpler terms, it refers to the potential loss a bank could face if a borrower fails to meet their obligations, such as failing to pay interest or principal, or both, as agreed upon in the loan contract. Before a borrower defaults, several factors, referred to as "risk transmitters," contribute to the likelihood of default.

Several empirical studies have explored the relationship between credit risk and bank profitability. For example, Hosna et al. (2009) studied four commercial banks in Sweden over the period from 2000 to 2008 and found a positive correlation between credit risk and profitability. In Kenya, Kithinji (2010) assessed the impact of credit risk on the profitability of commercial banks, concluding that credit risk had a neutral impact. Similarly, Akonga'a (2014) examined 44 Kenyan commercial banks between 2008 and 2013, focusing on the effect of financial risk management on bank performance. Her findings indicated that financial risk, including credit risk, significantly affected the performance of banks.

In Nigeria, Abiola and Olausi (2014) studied the impact of credit risk on bank performance, using data from seven commercial banks from 2005 to 2011. The study found that credit risk significantly impacted profitability, echoing the findings from Kenya. Noman et al. (2015) conducted research in Bangladesh using non-performing loans (NPL) ratios, loan loss provisions, and capital adequacy ratios to assess credit risk. Their study found that prudent credit management practices were key to maintaining profitability. Similarly, Djan et al. (2015) analyzed data from nine banks in Ghana and found that loan default rate, capital adequacy, and cost per loan asset significantly influenced profitability, with loan default rate being the most important factor.

In the UK, Saeed and Zahid (2016) examined five commercial banks over the period from 2007 to 2015, revealing a positive relationship between credit risk and profitability. They also noted that many UK banks had not learned from the 2008-2009 financial crisis and continued to engage in practices that increased their credit risk exposure. In Nigeria, Dauda and Terzungwe (2018) found that non-performing loans and loan loss provisions negatively affected shareholders' value, while bank size had a positive impact. Interestingly, they found that capital adequacy ratio (CAR) had a negative impact on shareholders' value.

Abubakar et al. (2019) conducted a similar study in Nigeria, using return on equity (ROE) as a performance measure. Their findings were slightly different from those of Dauda and Terzungwe (2018), showing that CAR, return on assets (ROA), and loan-to-deposit ratio (LDR) had a positive impact on ROE, while non-performing loan ratio (NPLR), cost-to-income ratio (CIR), and liquidity ratio (LQR) had no significant impact.

Harcourt (2017) and Nwanna (2019) explored the impact of credit risk management on Nigerian banks' performance using various models, including Error Correction Models (ECM) and Granger causality tests. They found that certain credit risk variables, such as non-performing loans to total loans ratio (NLTL) and total loans to total assets ratio (TLTA), had mixed effects on profitability indicators like ROA and ROE. Notably, both studies did not find a significant impact of NLTL on ROE.

Jonathan and Michael (2018) conducted a case study on Fidelity Bank Nigeria PLC from 2010 to 2016, and found no statistically significant relationship between credit risk measures (e.g., non-performing loans to total loans, total loans to total deposits, and capital adequacy ratio) and performance indicators like ROE and ROA. In contrast, Kolapo et al. (2012) found an inverse relationship between non-performing loans to total loans ratio and bank performance, which led to lower profitability.

Nwude and Okeke (2018) focused on the five banks with the highest asset bases in Nigeria from 2000 to 2014. Their regression models revealed a positive relationship between the non-performing loans ratio and profitability measures like ROA and ROE. They also found that the size of the bank significantly impacted profitability.

Haile and Joshi (2022) conducted a study in Ethiopia between 2008 and 2018, finding that factors like capital adequacy ratio, loan-to-deposit ratio, and loan loss provisions had a positive impact on profitability, while non-performing loans and loan-to-asset ratios had a negative effect. Similarly, Mudanya et al. (2022) studied commercial banks in Kenya and found that credit risk management practices, such as loan default monitoring and credit scoring, significantly influenced financial performance.

Bhatt et al. (2023) explored credit risk management in Nepal, revealing that credit appraisal and market risk analysis had a significant effect on credit risk management, which in turn affected bank performance. Majani (2022) studied the relationship between credit risk management and performance in Kenyan banks, finding that while some credit risk variables had no significant impact on profitability, capital adequacy ratio had a negative effect on ROE, and loan-to-asset ratio had a positive relationship with ROE.

Kwashie et al. (2022) examined the impact of credit risk on Ghanaian banks' performance, finding that non-performing loans negatively affected both return on assets (ROA) and economic value added (EVA), although the relationship was only statistically significant for EVA. Their study also showed that bank size and macroeconomic factors like GDP and inflation had a significant positive impact on ROE.

METHODOLOGY

The focus of this study has been on credit risk assessment and the financial performance of Nigerian deposit money banks. Secondary sources were used and data were obtained from Central Bank of Nigeria Statistical Bulletin. Multiple regression model, descriptive

statistics, granger casualty test and post estimated tools was employed to establish the relationship between the dependent and independent variables. The variables that are employed in the study are

ROE = f (NPLR, LDR, CAR) ---------- 1

Where:

ROE = Return on Equity

NPLR = Non Performing Loan Ratio

LDR = Loan to Deposit Ratio

CAR= Capital Adequacy Ratio

Hence, the model from equation 1 becomes

$lnROE = \alpha_0 + \alpha_1 lnNPLR_t + \alpha_2 lnLDR_t + \alpha_3 lnCAR$ ---------- 2

Analysis and interpretation

The regression results on credit risk assessment and Nigerian's Bank Performance (2010-2023)

Table 1: Dependent variable: ROE

Variables	Coefficient	Std error	t-stat	Prob
C	12.34661	2.028611	6.086238*	0.0001
NPLR	-0.580743	0.254156	-2.284990*	0.0454
LDR	0.128974	0.742160	0.173782*	0.8655
CAR	-3.099653	0.989331	-3.133081*	0.0106

Researcher's Computation, 2025

R^2 = 0.560777 R^2 (adj) = 0.429011 DW = 2.366103

F-stat = 4.255832 prob (F-statistic) 0.035193

The regression analysis reveals that the Non-Performing Loan Ratio (NPLR) has a negative and statistically significant impact on the financial performance (measured by Return on Equity, ROE) of Nigerian deposit money banks. Specifically, the coefficient of (-0.580743 with a p-value of 0.0454), indicates that a one-unit reduction in NPLR is associated with a 0.580743-unit decline in ROE, assuming all other variables remain constant.

In contrast, the Loan to Deposit Ratio (LDR) shows a positive but statistically insignificant relationship with ROE, as reflected by its coefficient of (0.128974 and a high p-value of 0.8655). This implies that a one-unit increase in LDR would result in only a marginal 0.128974-unit increase in ROE, which lacks statistical significance.

Furthermore, the Capital Adequacy Ratio (CAR) is negatively and significantly related to financial performance. The coefficient of (-3.099653 and a p-value of 0.0106), suggest that a one-unit decrease in CAR corresponds to a 3.099653-unit decline in ROE, controlling for other factors.

The model's coefficient of determination (R^2) is 0.56, indicating that 56% of the variation in the financial performance of these banks can be explained by NPLR, LDR, and CAR. The remaining 44% is likely due to other factors not included in the model. Additionally, the Durbin-Watson statistic of 2.366103 points to insignificant autocorrelation, further implying that some influential variables may be omitted from the analysis.

Table 2: Descriptive Statistics

	ROE	NPLR	LDR	CAR
Mean	8.408005	0.824851	1.755811	1.189175
Median	8.434835	0.771899	1.779942	1.181114
Maximum	9.060033	1.303196	1.902818	1.268578
Minimum	7.943166	0.471292	1.574719	1.020361
Skewness	0.366512	0.367431	-0.429976	-0.951513
Kurtosis	3.856798	1.899428	2.437887	3.683552
Jarque- Bera	0.741665	1.021581	0.615702	2.385103
Probability	0.690159	0.600021	0.735025	0.303446

Source: ***Researcher's computation*****, 2025**

Table 2 presents the descriptive statistics for the variables analyzed: Return on Equity (ROE), Non-Performing Loan Ratio (NPLR), and Loan to Deposit Ratio (LDR), and Capital Adequacy Ratio (CAR). For ROE, the mean value is 8.408005, closely aligned with the median of 8.434835. The variable ranges from a minimum of 7.943166 to a maximum of 9.060033. The skewness of 0.366512 indicates a slight positive skew, while the kurtosis of 3.856798 suggests a leptokurtic distribution one that is more peaked than the normal distribution. The JB statistic of 0.741665 and its corresponding p-value of 0.690159 further suggest that ROE is not normally distributed.

The Non-Performing Loan Ratio (NPLR) has a mean of 0.824851 and a median of 0.771899. The values range from 0.471292 to 1.303196. The skewness value of 0.367431 denotes a slight positive skew, while the kurtosis of 1.899428 reflects a platykurtic distribution—flatter than the normal curve. The JB statistic of 1.021581 and its corresponding p-value of 0.600021 further suggest that NPLR is not normally distributed.

Regarding the Loan to Deposit Ratio (LDR), the mean is 1.755811, and the median is 1.779942. Observed values span from 1.574719 to 1.902818. A skewness of -0.429976 reveals a negatively skewed distribution, and the kurtosis of 2.437887 indicates a relatively flat (platykurtic) distribution. The JB statistic of 0.615702 and p-value of 0.735025 confirm the absence of normality in its distribution.

Finally, the Capital Adequacy Ratio (CAR) shows a mean of 1.189175 and a median of 1.181114. Values range between 1.020361 and 1.268578. The distribution is negatively skewed, as indicated by a skewness of -0.951513, and leptokurtic with a kurtosis of 3.683552. The JB statistic of 2.383103 and its p-value of 0.303446 suggest that CAR does not conform to a normal distribution.

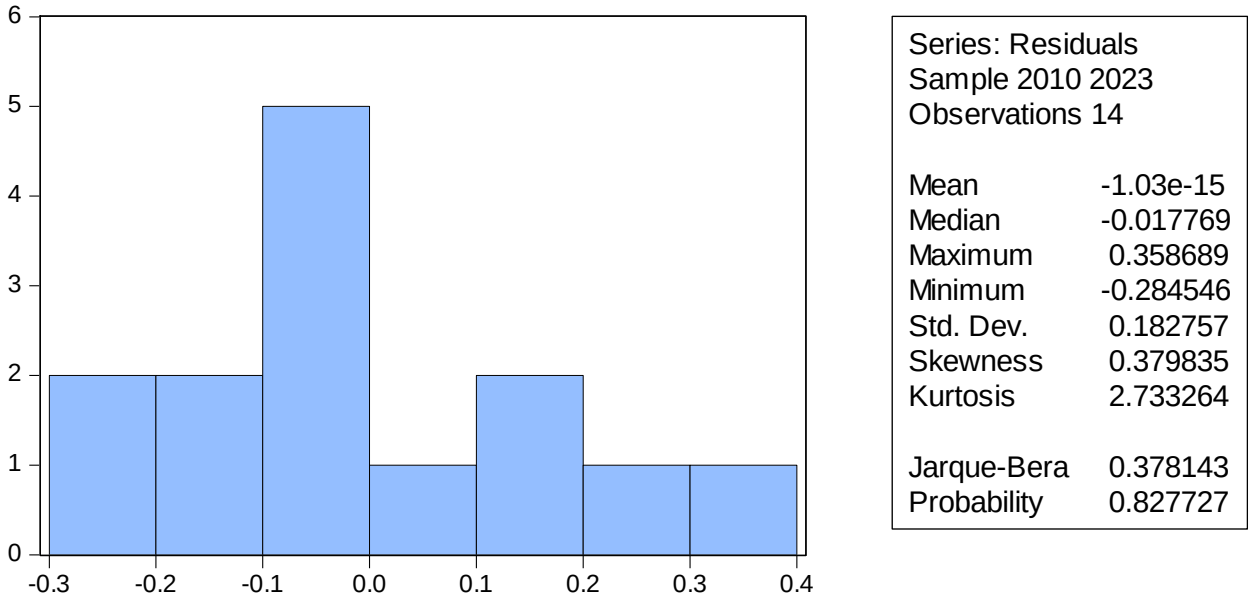
Table 3: Post-Estimation Test

Description	Probability values
Serial Correlation	
F-statistics	1.043741
P-value	0.3956
Heteroskadasticity Test	
F-statistics P-value	2.223928
	0.1326

Source: ***Researcher's computation*****, 2025**

The Breusch-Godfrey Serial Correlation LM Test indicates that there is no autocorrelation. This is given by the F-statistic of 1.043741 and its corresponding P-value of 0.3956. The Glejser Test of Heteroskedasticity with F-statistics 2.223928 and its corresponding P-value of 0.1326 indicates that there is no problem with heteroskedasticity.

Table 4: Histogram-Normality Test



Researcher's computation**, 2025**

Given that the Jarque-Bera probability value is 0.827727, the variables in the model failed to meet the normality test criteria, as this value does not fall within the 5% significance threshold. Consequently, the data used were adjusted to assume a normal distribution.

Table 5: Autocorrelation Test

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. *| . |	. *| . |	1	-0.073	-0.073	0.0921	0.761
. *| . |	. *| . |	2	-0.163	-0.169	0.5878	0.745
. **| . |	. **| . |	3	-0.218	-0.253	1.5595	0.669

. **| . |	. **| . |	4	-0.223	-0.332	2.6698	0.615
. |* . |	. | . |	5	0.200	0.031	3.6669	0.598
. |** . |	. |** . |	6	0.307	0.222	6.2975	0.391
. | . |	. | . |	7	0.035	0.069	6.3357	0.501
. **| . |	. *| . |	8	-0.205	-0.126	7.9088	0.442
. *| . |	. | . |	9	-0.094	0.056	8.3052	0.504
. | . |	. | . |	10	-0.045	0.043	8.4161	0.588
. *| . |	. **| . |	11	-0.124	-0.331	9.5551	0.571
. |** . |	. | . |	12	0.232	-0.030	15.588	0.211

Source: ***Researcher's computation*****, 2025**

The autocorrelation test indicates that the model's residuals do not suffer from autocorrelation with the probability values of all the lags greater than 0.05

SUMMARY OF FINDINGS

Return on Equity used as dependent variable is statistically significant with a p- value of (0.001)

1. Non-Performing Loan Ratio has a negative coefficient value of (-0.580743) but statistically significant at p-value of (0.0454). The negative co-efficient of (NPLR) signifying that financial performance of Deposit Money Banks (DMBs) in Nigeria has been negatively influenced by Non-Performing Loan Ratio.
2. Loan to Deposit Ratio has a positive coefficient value of (0.128974) but statistically insignificant at p-value of (0.8655). The positive co-efficient value of (LDR) signifying that Loan to Deposit Ratio has a positive influence on the financial performance of Deposit Money Banks (DMBs)
3. Capital Adequacy Ratio has a negative coefficient value of (-3.099653) but statistically significant at p-value of (0.0106). The negative coefficient value of (CAR) signifying that financial performance of Deposit Money Banks (DMBs) in Nigeria has been negatively influenced by Capital Adequacy Ratio.

CONCLUSION

Based on the findings of this study, it can be concluded that a significant relationship exists between financial performance of Deposit Money Banks (DMBs) and Non- Performing Loan Ratio (NPLR) as well as Capital Adequacy Ratio (CAR), but Loan to Deposit Ratio (LDR) has an insignificant relationship with performance of Deposit money banks (DMBs) in Nigeria.

Return on Equity (ROE) was adopted as proxy for financial performance of Deposit Money Banks while Non- Performing Loan Ratio (NPLR), Loan to Deposit Ratio (LDR) and Capital Adequacy Ratio were adopted as proxies for Credit Risk Assessment. Specifically the study concluded that, non-performing loan (NPLR) is statistically significant with a negative effect on the financial performance of Deposit Money Banks (DMBs). This study also in line with the study of Dauda and Terzungwe (2018), who found that non-performing loans ratio negatively affected bank performance. The study also concluded that, loan to deposit ratio (LDR) is not statistically significant but its current value positively affects the financial performance of Deposit Money Banks (DMBs). This study align with the study of Kolapo et al. (2012) and Jonathan and Michael (2018) who found positive relationship with bank performance. More so, the study concluded that capital adequacy ratio (CAR) is statistically significant with negative effects on the financial performance of Deposit Money Banks (DMBs). This study is align with the study of Haile and Joshi (2022) and Djan et al. (2015) who also agree that Capital Adequacy Ratio (CAR) significantly influence bank performance.

RECOMMENDATIONS

In the light of the above summary of findings and conclusion of the study, the following recommendations have been made.

1. CBN should enforce stricter credit appraisal and monitoring systems across banks to reduce the incidence of non-performing loans.
2. The CBN could consider a more flexible, risk-sensitive approach to CAR, especially for banks with strong risk management frameworks.
3. CBN and the government should encourage banks to increase lending to the real sector by providing credit guarantees or interest rate subsidies for key industries.

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