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LOAN-LOSS PROVISION AND LOAN-TO-DEPOSIT RATIOS AS DETERMINANTS OF THE PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract: This study investigated whether loan-loss provision and loan-to-deposit ratios serve as major determinants of the performance of deposit money banks in Nigeria via ex-post facto research design. Panel data were obtained from the annual reports and accounts of 14 listed deposit money banks from 2012-2023. Data obtained were analyzed via descriptive, diagnostic and inferential statistics. The fixed and random effects panel regression results revealed among others that while loan-to-deposit ratio(t-value = -2.22; p-value = 0.028 < 0.05%) significantly influence financial performance of deposit money banks, loan-loss provisions ratio (t-value = .55; p-value = 0.580 > 0.05%) was found to insignificantly affects financial performance of deposit money banks. Based on the findings, the study recommends adequate capital requirement that covers all anticipated inherent risks (loans) should be set as minimum before DMBs are given operating licenses. In addition, management of deposit money banks should be more equipped with the right skills, experience and knowledge in ensuring safe and smooth use of provisions of loans losses in their day-to-day operations. The study contributes to knowledge by establishing that while, loan-to-deposit ratio has significant effect on the performance of deposit money banks, loan-loss provisions ratio has insignificant effect on the performance of deposit money banks in Nigeria.

Keywords: Credit risk management; Financial performance; Loan loss provision ratio; Loan to deposit ratio; Banks; JEL Classification: G32; M10.

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Introduction

In Nigeria, the prudential guideline was introduced by the Central Bank of Nigeria (CBN) in 1990 to curtail deposit money banks (DMBs) insolvency, inadequate provisions for bad and doubtful debts and early identification of loan losses (Odubuasi, et al, 2022). Hence, the process of assessing and decreasing hazards linked with DMBs credit to individuals and corporate entities is referred to as credit risk management (CRM) (Danisman & Demirel, 2019; Muiru, Oluoch & Ajang, 2018; Nkuah, 2015). Credit risk management (CRM) entails a variety of procedures or processes required to guarantee the stability, liquidity and profitability of lending activities (Gordon, Loeb & Tseng, 2019; Muhammad, 2014; Mwagi, 2012). The procedures or processes involved include but not limited to credit analysis, rating, portfolio management and risk-reduction tactics.

Consequently, for DMBs to engage in efficient CRM (such as increased loan to deposit and decreased loan loss provisions), they should be able to make worthwhile lending decisions, by proactively managing potential loan defaults and be able to assess creditworthiness of borrowers via stern risk management mechanisms and policies (Ekinci & Poyraz, 2019; Mirela, 2017; Mohammed & Adriana, 2016). Fundamentally, some of the reasons for credit risk management include capital preservation via lowering chances of loan default, guaranteeing preservation of capital, and regulatory compliance (Jonek-Kowalska, 2019; Liebenberg & Hoyt, 2013; Li-Yuqi, 2007).

Loan to deposit ratio is a ratio of total deposit money bank' loans and advance to total deposits; it reveals ability of deposit money banks to withstand deposit withdrawals and their willingness to meet loan demands by decreasing cash assets. Bawa, Akinniyi and Njarendy (2018) believed that banks can safeguard their assets and keep their operations stable by recognizing/controlling credit risk. Adherence to these regulations not only guarantees stability of banks but also bolsters their standing and legitimacy within the industry (Jesko & Sophie, 2018; Abdullah, Janor, Hamid & Yatim, 2017).

Review of Related Literature

Loan Loss Provisions Ratio

Loan loss provision ratio is a loss chance that needs to be planned for the " amount" that is set aside can also be subtracted from the profit if necessary. In order to shield depositors from potential loss, banks can identify in their profit and loss statements the predicted loss of a certain loan portfolio (s) by using a loan loss reserve, which is a contra income account (Gizaw, et al., 2015). Banks must include a loan loss provision in their capital under Basel II. Ahmed, Takeda and Thomas (2016) found that LLP significantly enhances non-performing loans. As a result, a rise in loan loss provision denotes a rise in credit risk and a decline in loan quality, which negatively impacts bank performance.

According to Baten and Koch (2017) the ratio of loan loss reserve to gross loans is a useful indicator of credit risk since it reflects management's expectations for the performance of the loans. Another research work that applies loan loss reserve ratio (LLRGL) as an indicator of credit risk is found that (Kolapo et al. (2012), the percentage of gross loans that have only been set aside and have not yet been paid off is determined by this ratio, known as the loan loss reserve ratio. Higher ratios in the past have historically indicated bad loan portfolios, subpar management, and significant credit risk.

Kolapo et al. (2012) utilized loan loss reserve to non-performing loan ratio (LLRNPL) as an extra metric. This proxy is also applicable for assessing banks' responsible credit and asset quality management. It calculates the percentage of the reserve placed up against non-performing or impaired loans. A higher ratio indicates lower credit risk and higher asset management quality (Louzi, Vouldis & Melaxas, 2010). In light of this, the loan loss reserve ratio will be examined in this study as an additional proxy for credit management in order to accurately gauge bank managers' expectations on the quality of their assets (Baten & Koch 2017). In this study, LLP was measured using pre-tax income plus loan loss provision divided by net charge-offs.

Loan to Deposit Ratio

Loans to deposit ratio is a ratio of total bank loans and advance to total deposits (Misker, 2015). This ratio shows the ability of banks to withstand deposit withdrawals and willingness of banks to meet loan demand by reducing their cash assets (Gizaw et. al, 2015). Where the ratio is lower than 1, it implies that the bank relied on its own deposits to make loans to its customers, without any outside borrowing (Epure & Lafuente, 2012). Additionally, the bank did not just rely on its own deposits in cases where the ratio was larger than 1. Instead, it borrowed funds that it relined at higher rates. If the ratio is too low, banks might not be getting the best return possible (Gizaw et. al, 2015).

Furthermore, banks may not have adequate liquidity to handle any unforeseen funding needs or economic catastrophes if the ratio is too high (Gizaw et. al, 2015). It is a widely used metric to evaluate the liquidity of banks. The probability of bank insolvency can be decreased when banks have greater liquidity. As the name suggests, the study compares loans and advances to the total amount deposited (Gizaw et. al, 2015). In this study, LDR was measured using total loans divided by total deposits of customers.

Financial Performance

Deposit bank performance is also known as profitability, or the quantity of deposit earnings (Ruziqa, 2015). According to Ruziqa (2015), ratios are employed to gauge the degree of profitability, which in turn describes the general performance of banks across the globe. These ratios include net interest margin (NIM), return on equity (ROE), which is determined by dividing net income by average equity, and return on asset (ROA), which is determined by dividing net income by total assets (Ruziqa, 2015). NIM, RO, and ROE are good measures of DMB performance, according to Abiola and Olausi (2024); however, alternative metrics, such as gross profit divided by gross profit margin, can be used to assess DMB performance. This measure was used in this study.

Gross profit divided by gross profit margin (gross profit divided by turnover) will be used in this study to gauge DMB's performance. In essence, the gross profit margin is calculated by subtracting direct costs from net sales and then multiplying the result by 100%. However, the profit ratio, which is calculated by dividing gross profit by gross profit margin, shows how well a company generates revenue, keeps expenses low, and maximises the profit margin from both revenue and expenses.

Theoretical Framework

The theory of credit risk was advocated by Moti in 2012. The underlying philosophy of the theory of credit risk is that the possibility of experiencing a financial loss as a result of counterparty's declining trustworthiness in a financial transaction is caused by poor credit risk management. According to Moti, et al., (2012) credit risk arises from the default risk, which is the possibility that a counterparty would fail to fulfill their contractual commitments. The lender bears the majority of the risk, which includes lost principal and interest (Owojori, et al., 2011). Disrupt loss can occur in a variety of ways, including as when a bankrupt bank is unable to reimburse a depositor for their money. It can also be partial. The theory of credit risk was first presented by Robert Merton in his 1974 theory of default, sometimes known as the default model. Robert presented a model that uses the company's equity to represent a call option on its assets in order to evaluate a company's credit risk ((Owojori, et al, 2011).

Credit risk can be modelled using two primary approaches: the structural approach and the intensity-based approach, which is often referred to as the reduced form approach (Owojori, et al., 2011). Clifford V. Rossi developed three crucial methods for calculating credit risk by leveraging the Merton model. These comprise the idea of credit spreads, the management of credit portfolios, and the loss distribution produced by Monte Carlo simulation (Owojori, et al., 2011). In order to lower the lender's risk, the lender may run a credit check on the potential borrower, demand that the borrower obtain the necessary insurance, like mortgage insurance, or look for third-party security or guarantees. Generally speaking, debtors will be required to pay a higher interest rate on their debt in proportion to the level of risk.

Methodology

In this study, the ex-post facto research design was employed and panel data formed the basis of data collection. The population consists 23 listed DMBs and using national, regional and international grouping as the major means of sampling, 14 listed DMBs with national and international affiliations were obtained. Descriptive, diagnostics and inferential statistics were used in analyzing the data obtained. Based on the independent and dependent variables of the study, the following empirical models were estimated.

$$DPerf = f(Dltd, Dllp) \quad \text{- Equation 1a}$$

$$DPerf_{it} = \beta_0 + \beta_1 Dltd_{it} + \beta_2 Dllp_{it} + u_{it} \quad \text{- Equation 1b}$$

Equation 1a is the implicit regression model while equation 1b is the explicit regression models. $\beta_0 =$ Constant of observations; $\beta_{1-5} =$ Slope coefficient; ε = Stochastic term; $i =$ cross − section data; $t = period$. DPerf=DMBs performance; Dltd = Loan-to-deposit ratio; Dllp = Loan loss provision ratio.

Furthermore, fixed and random effect panel regression was used in determining the whether loan-loss provision and loan-to-deposit ratios serve as major determinants of the performance of deposit money banks in Nigeria

Results

Table 1: Summary of Results for Bank-by-Bank Analysis

Statistics	Dcar	Dltd	Dllp	Dnpl	Dpay	Dperf
ACCESS BANK						
Mean Score	1.6433	9.1950	-1.4275	3.2191	12.4550	0.9458
Standard Deviation	0.7993	0.3253	0.4046	1.8999	3.6636	0.0287
ECOBANK						
Mean Score	1.8191	9.0166	-4.5641	9.4250	13.5841	1.0016
Standard Deviation	1.7399	0.2692	2.7328	1.5698	4.8982	0.1714
FIDELITY BANK						
Mean Score	0.7684	9.2550	-1.6066	9.1100	15.4666	0.8691
Standard Deviation	0.1778	0.2950	0.4743	1.1114	4.5869	0.0281
FIRST BANK						
Mean Score	0.8585	8.7575	-11.9950	7.5908	10.7875	0.9408
Standard Deviation	0.5251	0.4270	1.4405	1.6744	3.3519	0.0596
FIRST CITY						
Mean Score	1.1840	9.4275	-8.5641	1.4275	17.6033	0.8675
Standard Deviation	0.4358	0.2379	5.9574	1.7704	3.5449	0.0686
GUARANTY TRUST						
Mean Score	1.0505	9.5608	-5.4025	5.2175	16.1950	1.1258
Standard Deviation	0.1397	0.2687	5.6559	2.7618	1.0091	0.0558
KEYSTONE BANK						
Mean Score	0.6272	9.5533	-3.7125	7.5750	10.5241	0.9416
Standard Deviation	0.1104	1.0757	2.6376	10.9648	2.3021	0.0228
STANBIC IBTC						
Mean Score	1.0457	9.5366	5.3708	4.2663	15.2533	1.0991
Standard Deviation	1.5426	0.4089	16.7531	5.3373	5.6110	0.1948
STERLING BANK						
Mean Score	0.1919	11.3450	-2.2816	-0.2966	8.1058	0.9158
Standard Deviation	0.1259	0.4074	0.9447	6.6741	3.1403	0.0611
UNION BANK						
Mean Score	0.6986	11.3450	-5.4425	12.1908	16.5183	0.8816
Standard Deviation	0.5696	0.40746	4.5391	14.6346	8.9117	0.1076
UNITED BANK						
Mean Score	0.1369	9.4058	-3.3341	2.7700	12.3408	0.9383
Standard Deviation	0.0997	0.3437	2.7256	1.4903	2.7144	0.0380
UNITY BANK						
Mean Score	0.2376	10.8191	-12.1733	36.6450	13.8558	0.8108
Standard Deviation	0.1243	0.3392	7.0438	25.0867	3.9991	0.1608
WEMA BANK						
Mean Score	0.7735	11.3676	3.0858	12.5475	9.5425	1.0283
Standard Deviation	0.1624	0.3162	15.0048	23.8431	3.9500	0.0775
ZENITH BANK						
Mean Score	4.4804	10.9841	-2.8400	3.8091	16.9716	0.9741
Standard Deviation	3.3861	1.7224	2.8262	2.3146	3.2233	0.0681

Source: Researcher's Computation via STATA 16.0

Table 1 is the summary of results for bank-to-bank analysis for each of the variables, with their respective mean scores and standard deviation values. First, the highest non-performing loans (Dnpl) was recorded by Unity Bank (mean score = 36.6450); this was closely accompanied by Wema Bank (mean score = 12.5475) and lastly by Sterling Bank (mean score =-0.2966); this implies that Unity Bank has the most under-performing loans, followed by Wema Bank and lastly by Sterling Bank.

Second, Stanbic IBTC Bank (mean score = 5.3708) and Wema Bank (mean score = 3.0858) had positive loan loss provision ratio (Dllp) amidst all other deposit money banks (DMBs) investigated. Third, Wema Bank (mean score = 11.3676), followed by Sterling Bank (mean score = 11.3450) and Union Bank (mean score 11.3450) had the highest loan-to-deposit ratio (Dltd) and the lowest by First Bank (mean score = 8.7575). Third, capital adequacy ratio (Dcar) showed some insightful revelation; for instance it was observed that Zenith Bank (mean score = 4.4804), closely followed by First City Monument Bank (mean score= 1.1840)had the highest Dcar and the least by United Bank for Africa(mean score = 0.1369); this could be attributable to the fact that these banks (First City Monument and Zenith Bank) have international authorization and are able to raise capital across the globe.

Fourth, First City Monument Bank (mean score = 17.6033) had the highest dividend payout ratio (mean score = 17.6033); this was closely followed by Zenith Bank (mean score = 16.9716) and the least by Sterling Bank (mean score = 8.1058); this implies that these banks (First City Monument Bank and Zenith Bank) had more efficient dividend policy decisions, hence are able to payout the highest dividend to their respective shareholders. More so, it was shown that Guaranty Trust Bank (mean score = 1.1258) had the highest level of performance and Unity Bank (mean score = 0.8108), the least. The summary of results for bank-by-bank analysis revealed that credit risk management, dividend payout and financial performance variables were better for deposit money banks (DMBs) with international authorization than DMBs with national authorization.

Table 2: Breusch-Pagan/Cook-Weisberg Tests

Ho: Constant Variance		
Variables: Fitted Values of Dperf		
Chi2(1)	=	1.51
Prob. > Chi2	=	0.2198

Source: Researcher's Computation via STATA 16.0

Table 2 is the result of Breusch-Pagan/Cook-Weisberg test; the result is statistically significant at 0.05% level. This is an indication of absence of heteroscedasticity between the independent variables of the study.

Table 3: Cameron & Trivedi's Decomposition of Information-Matrix Test

Source	Chi2	Df	P-value
Heteroskedasticity	38.96	20	0.0067
Skewness	8.99	5	0.1094
Kurtosis	2.12	1	0.1454
Total	50.07	26	0.0031

Source: Researcher's Computation via STATA 16.0

The Cameron and Trivedi's decomposition of information matrix (IM) test (Table 4.7) was carried out to ensure that the empirical models of credit risk management, dividend payout and financial performance were not violating any of the axioms of regression model to make good inferences about the dataset of the study. The heteroskedasticity result is (Chi2 = 38.56; p-value = 0.0067 < 0.05), skewness (Chi2 = 8.99; p-value = 0.1094); and kurtosis (Chi2 = 2.12; p-value = 0.1454. Overall=50.07; p-value= 0.0031) were statistically significant, indicating that the null hypothesis was rejected while the alternate hypothesis was accepted that the empirical models of credit risk management, dividend payout and financial performance do not violate any of the axioms of regression.

Table 4: Fixed and Random Effects Panel Regression

Variable(s)	Coefficient	Probability	Coefficient	Probability
Dllp	0.0005	0.580	0.0019	0.073
	(0.55)		(1.79)	
Dltd	-0.0166	0.028	-0.0201	0.012
	(-2.22)		(-2.50)	
_Cons.	1.1177	0.000	1.1505	0.000
	(15.02)		(14.41)	
F-value	= 6.74			
F-Probability	0.0001			
Wald Ch2(4)			30.13	
Prob. Ch2			0.0000	
Hausman Test	Chi2(2) = 23.40		Prob>Chi2= 0.0001	

Source: Researcher's Computation via STATA 16.0

In Table 4, we found that Dltd is significant at 5% level in explaining Dperf except Dllp. The FE coefficients were 0.0005 (Dllp) and -0.0166 (Dltd) respectively, indicating that when DMBs engage in efficient risk management, it would result to approximately 0.05% and 1.66% changes in financial performance. The z-score for Dltd (-2.50; p-value = 0.012) was found to be statistically significant while Dllp (1.79; p-value=0.073) was found to be statistically insignificant.

The t-value for loan-to-deposit ratio (Dltd) is -2.22 with a probability value (p-value) of 0.028 signify that it is less than 0.05%; this implies that Dltd is statistically significant. Also, the t-value for loan-loss-provisions ratio (Dllp) is 0.55 with a probability value (p-value) of 0.580 signify that it is greater than 0.05%; this implies that Dllp is statistically insignificant. The results agree with the findings of Kargi (2021); Oduro, Asiedu, and Gadzo(2019); Kajola, Babatunji, Olabisi and Babatolu (2019);

Collins, M-epbari, Sira and Grend (2018). On the other hand, our results disagree with the findings of Nwanna and Oguezue (2017).

Conclusion and Recommendations

This study examined whether loan-loss provision and loan-to-deposit ratios serve as major determinants of the performance of deposit money banks in Nigeria via ex-post facto research design. Panel data were obtained from the annual reports and accounts of 14 listed deposit money banks from 2012-2023. Secondary data obtained were analyzed through descriptive, diagnostic and inferential statistics. The fixed and random effects panel regression results revealed among others that while loan-to-deposit ratio significantly influence financial performance of deposit money banks, loan-loss provisions ratio insignificantly influence the level of financial performance of deposit money banks in Nigeria.

Given the above results, the study recommends adequate capital requirement that covers all anticipated inherent risks (loans) should be set as minimum before DMBs are given operating licenses. In addition, management of deposit money banks should be more equipped with the right skills, experience and knowledge in ensuring safe and smooth use of provisions of loans losses in their day-to-day operations. The study contributes to knowledge by establishing that while, loan-to-deposit ratio has significant effect on the performance of deposit money banks, loan-loss provisions ratio has insignificant effect on the performance of deposit money banks in Nigeria.

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