

Effect of Leverage and Non-Performing Loans on the Profitability of Deposit Money Banks: A Study of Listed Deposit Money Banks in Nigerian Exchange Group

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DOI : <https://doi.org/10.51584/IJRIAS.2024.906034>

Received: 27 March 2024; Accepted: 01 April 2024; Published: 12 July 2024

ABSTRACT

This study investigates the intricate relationship between leverage, profitability, and the moderating effect of non-performing loans within the context of Nigerian deposit money banks. The research leverages panel data analysis of eight deposit money banks quoted on the Nigerian Exchange Group over the period 2013 to 2021. Findings from the study reveal that short-term leverage exerts a significant negative influence on profitability, as measured by return on assets (ROA). This underscores the need for prudent management of short-term financing sources. In contrast, total leverage shows an insignificant effect on profitability, indicating a relatively weaker impact. Notably, the study unveils the substantial moderating role played by the non-performing loan ratio in shaping the relationship between leverage and profitability. High non-performing loan ratios exacerbate the adverse impact of leverage on profitability, emphasizing the importance of effective non-performing loan management. The research provides valuable insights for deposit money bank management, encouraging diversified financing sources and strategic debt use while emphasizing non-performing loan reduction as essential for optimizing profitability. These findings contribute to the body of knowledge in banking and finance, supporting informed decision-making for financial institutions in Nigeria and potentially in similar contexts.

Keywords: Leverage, Profitability, Non-Performing Loans, Deposit Money Banks,

INTRODUCTION

The Nigerian banking sector is a vital component of the nation's economy, serving as the backbone of financial stability and a catalyst for economic growth (Sanusi, 2014). Over the years, this sector has experienced significant transformation, influenced by regulatory reforms, global economic trends, and technological advancements. As a complex and multifaceted arena, the Nigerian banking sector encompasses various financial institutions, including commercial banks, microfinance banks, and development finance institutions. However, among these institutions, deposit money banks hold a central position, playing a pivotal role in facilitating economic activities, allocating capital, and fostering financial inclusion (Sanusi, 2011; Nguyen, 2020).

The Nigerian banking sector has faced and surmounted several challenges and milestones, each of which has left an indelible mark on its structure and operations (Elliot, 2016). The sector's resilience and adaptability have been tested by the global financial crisis of 2008, regulatory reforms, and the ever-evolving demands of a burgeoning population. Furthermore, the Nigerian banking sector has seen an increase in competition and innovation, with more banks being listed on the Nigerian Exchange Group, providing investors and the public with insights into the sector's overall health and economic prospects (Sanusi, 2012).

The profitability of deposit money banks is a paramount concern for various stakeholders in the Nigerian banking sector, including shareholders, regulators, policymakers, and the general public (Bassey & Moses 2015). Metrics

like Return on Assets (ROA) and Return on Equity (ROE) are key indicators of a bank's performance and its role in fostering economic development and financial stability (Kajola, Olabisi, Ajayi & Agbatogun, 2018). These metrics offer valuable insights into how effectively these banks employ their assets to generate returns and the overall health of the sector. In light of this, understanding the multifaceted factors that influence profitability is essential, as it informs decision-making processes, strategic planning, and risk management practices (Resmir & Muhamet, 2021).

Leverage and non-performing loans (NPLs) are two pivotal factors that have the potential to significantly influence a bank's profitability and financial stability (Resmir & Muhamet, 2021). Leverage, which involves the use of borrowed funds, primarily in the form of debt, to finance a portion of a bank's assets, is a strategic tool that can amplify gains while exposing banks to higher risks (Meghanathi & Chakrawai, 2021). The level of leverage adopted by a bank can profoundly affect its financial performance and stability, making it a subject of interest and concern for banking practitioners, policymakers, and researchers (The Street, 2022).

On the other hand, non-performing loans, characterized by loans that borrowers have failed to repay as per the agreed terms, can significantly erode a bank's income, capital base, and profitability (Trung., 2022). The prevalence of high NPL ratios in a bank's portfolio can trigger financial distress, leading to capital inadequacy and regulatory concerns (Besmir & Muhamet, 2021). The complex interplay between leverage, NPLs, and their impact on profitability creates an intricate web that necessitates a comprehensive investigation, especially in the context of the Nigerian banking sector (Uddin, 2022).

This study aims to provide a nuanced understanding of the intricate relationship between leverage, NPLs, and the profitability of deposit money banks, particularly within the unique context of the Nigerian banking sector (Uddin, 2022). By offering empirical evidence, the research intends to provide valuable insights that can guide banks in optimizing their financial structures and risk management practices. Additionally, the study is designed to offer insights to regulatory authorities and policymakers, assisting them in enhancing the stability and resilience of the banking sector (Sanusi, 2012). The primary aim of this research is to investigate the moderating influence of the non-performing loan ratio on the association between short-term leverage and overall leverage, as well as the profitability of deposit money banks listed on the Nigerian Exchange Group. The primary aims of this study are to:

1. investigate the potential moderating influence of the non-performing loan ratio on the association between short-term leverage and profitability among deposit money banks listed on the Nigerian Exchange Group.
2. investigate the potential moderating influence of the non-performing loan ratio on the association between total leverage and profitability of deposit money banks listed on the Nigerian Exchange Group.

CONCEPTUAL EXPLORATION

Profitability Ratio

A company's capacity to earn monetary benefits from its actions within a given time period is referred to as its "profitability" and the word "profitability" is used to define this ability. This particular number, which is arrived at by contrasting the total amount of money brought in with the total amount of money spent, may be used as an indicator of how well organizations, investments, and activities are doing overall. The banking industry may make use of a variety of indicators, such as return on equity, return on sales, net interest margin, and return on assets, amongst others. To get the rate of return on assets, just divide the annual net income by the annual average total assets. Deposit money institutions have a different return on assets compared to firms such as manufacturing or fast-moving consumer items, both of which have huge quantities of inventory. Deposit money institutions have a higher return on assets. In the banking business, the role that sales of goods serve in asset-intensive companies is fulfilled by interest income instead. In addition, there is variation in the standards that apply within different industries. According to Birken and Curry (2021), a return on assets of 6% is seen as acceptable for asset-intensive enterprises, but a return on assets of 15% is regarded as appropriate for service-oriented organizations.

Leverage Ratio

Leverage is a mechanism that investors employ to boost the possible profit that they may make off of an investment. People are able to get more control over their assets by using leverage than they would have if they had just their own money to work with. Depending on how its strategic application is carried out, this method has the potential to significantly compound both gains and losses. It's possible for investors to employ leverage in the form of loans in order to purchase assets whose worth is higher than the money they have available to spend on the acquisition of such assets. When the price of the asset goes up, the investor makes more money since the amount they borrowed is lower than the value of the item itself, hence their returns go up when the price goes up.

Several other ratios, including debt to equity, debt to EBITDA (earnings before interest, taxes, and amortization), total assets to total equity, and total debt to total assets, may be used to determine a company's level of leverage. Nevertheless, it is of the utmost importance that all proxies adhere to the conventional definition of leverage. Borrowing money with the objective of investing it in the growth of a company or the acquisition of assets with the goal of making a profit is an example of leverage. Hayes (2022) suggests that the ideal debt-to-equity ratio is one to one, while a ratio of 0.50 to one is appropriate for short-term debt. This research will concentrate on one of the most significant sources of short-term financing since deposits from customers make up such a major amount of the financial resources that banks have. As a result, the metric that may be used in order to evaluate the level of short-term leverage is the ratio of current commitments to total assets.

Taking out a loan for money is not without its share of positive and negative aspects. Borrowed funds allow for the expansion of business operations without the drawback of relinquishing control to equity capital providers, which is a significant benefit (The Street, 2022). In addition, in comparison to long-term financing options, short-term debt is characterised by greater availability and simplicity of use. However, the potential drawbacks must not be ignored, particularly those associated with the use of short-term financial instruments. Due to the presence of fluctuations and unknowns in cash flow, as well as regulatory responsibilities pertaining to loan and deposit ratios, short-term financing may be more risky than other long-term financing solutions. In other words, when a financial institution detects a reduction in the usage of short-term financing channels, it must search for methods to boost interest rates on loans in order to retain its profitability. This is necessary in order to prevent the business from going bankrupt. Because of this, clients have the ability to shop around for higher interest rates elsewhere (Hecht, 2018).

Non-Performing Loans

Loans that are not operating properly are loans that have not been managed in accordance with the requirements outlined in the original contract for the loan. Default, arrears, and delinquency are all potential consequences for individuals who fall behind on their payments and are unable to catch up. When payments on the principle of a loan have not been made for more than ninety days, the loan is said to be "non-performing." Mortgages, credit card balances, and personal loans are some examples of secured and unsecured debts that may be found among non-performing loans. In addition, medical bills and student loans also fall into this category. The ratio of nonperforming loans to total client loans is often used as a metric in the assessment of nonperforming loans. According to Segal (2022), a credit facility is regarded to be non-performing when interest and principal payments have been missing for a period of more than ninety days. In addition, the Central Bank of Nigeria mandates that all banks that accept deposits retain their proportion of non-performing loans at no more than five percent of the total loans they provide to customers. Even while the vast majority of financial institutions maintain balance sheets that are within this threshold, a few of them have been detected exceeding it on occasion owing to inadequate corporate governance and inadequate internal controls (Nairametrics, 2020). This study's use of nonperforming loan ratios as a stand-in is supported by the fact that financial institutions and other types of companies use these ratios extensively to determine how exposed they are to credit risk.

Theoretical Framework

This study is anchored on Pecking Order Theory." The Pecking Order Theory, developed by Myers and Majluf in 1984, is a financial theory that explains how firms choose between internal and external financing sources to

meet their financial obligations and investment needs. In your research context, it can help you analyze the financing decisions, leverage, and non-performing loans in Nigerian deposit money banks. The theory suggests that firms have a financing hierarchy, preferring internal financing sources like retained earnings and customer deposits over external financing like debt and equity, which aligns with the discussion of client deposits' significance in deposit money institutions' cash flow. Firms prefer to use internal resources to finance operations and investments, as evident in the use of resources like client deposits by deposit money banks. Debt is considered a last resort when internal funds are insufficient, in line with the discussion of elevated levels of overall leverage and challenges they pose for Nigerian banks, reflecting the idea that debt is used when internal funds are not enough. The theory emphasizes the importance of maintaining liquidity and managing financial performance effectively, aligning with the impact of non-performing loans on leverage and profitability. It also takes into account factors like regulatory constraints, as discussed in the context of the Central Bank of Nigeria's mandate for deposit money banks to maintain non-performing loans at a maximum of 5% of total customer loans, which is in line with the theory's consideration of external factors influencing financing decisions.

Empirical Review

Recent studies have examined the multifaceted relationship between leverage and profitability, employing diverse methodologies and measures to assess the extent of leverage's influence. Sathishkumar and Warupa (2021) delved into this area by exploring the interplay between liquidity, leverage, and financial performance. Their study, focusing on 33 software businesses in India, utilized indicators like the current ratio, cash position ratio, short-term debt ratio, and total debt ratio as proxies. It revealed a modest positive correlation between short-term debt ratio and financial success, emphasizing that organizations with significant debt levels should prioritize robust liquidity management.

Bunyaminu et al. (2021) aimed to assess the impact of debt to asset ratio on 11 recapitalized deposit money banks in Ghana. They conducted random effects panel regression analysis and found a statistically significant unfavorable influence of the debt to asset ratio on financial performance. Notably, firm size exhibited a moderating effect on this relationship. It was suggested that high debt to asset ratios could jeopardize the financial stability of deposit money institutions, emphasizing the need for internal funding sources.

Dalci's study (2020) delved into the relationship between leverage and financial performance within a sample of 1,503 Chinese manufacturing enterprises listed from 2008 to 2016. The research revealed an inverted U-shaped pattern, where leverage had a favorable impact due to tax shields but an unfavorable one due to bankruptcy expenses. It recommended enhancing access for state-owned firms to alternative securities markets.

Mennawi (2020) explored the impact of leverage, liquidity risk, and credit risk on Islamic banks in Sudan. Notably, liquid assets to total assets exhibited a statistically significant positive relationship with financial performance, while ratios like loans to deposits, non-performing loans, and loan loss provisions had adverse effects. Diversification into less risky Islamic financing options like Mudarabah and Mutharika was recommended.

Janković and Jovanović (2016) delved into the relationship between leverage and financial performance among Serbian enterprises. Short-term debt to total asset ratio, long-term debt to total asset ratio, and total debt to total asset ratio served as proxies for leverage, with return on assets as the dependent variable. The research showed substantial negative correlations between profitability and these ratios, suggesting the need for alternative financing options, particularly environmentally responsible ones.

Mehzabin et al. (2022) assessed the impact of operational efficiency, non-interest disclosure, long-term debt, and leverage on the financial performance of Asian banks. They discovered a favorable impact of the overall debt ratio on financial performance but noted a negative effect of decreasing operational efficiency. The study recommended prudence when making investments that might result in significant interest outflows.

Trung's study (2022) investigated the relationship between leverage and non-performing loans in Vietnam. It found a noteworthy adverse correlation and recommended viewing client deposits, particularly short-term liabilities, as a viable financing option.

Uddin (2022) scrutinized the impact of debt-to-equity ratio, capital adequacy ratio, and non-performing loans on the financial performance of deposit money banks in Bangladesh. It revealed a statistically negligible and negative effect of the debt-to-equity ratio on return on assets, urging financial institutions to assess their monetary acquisition strategies.

Meghanathi and Chakrawal (2021) focused on the debt-to-equity ratio's influence on oil and gas businesses in India. While the study indicated a positive correlation with return on assets and earnings per share, it was not statistically significant. The research highlighted the use of an optimal capital structure for financing activities.

Oli's study (2021) explored the impact of the debt to asset ratio, long-term debt ratio, and debt to equity ratio on profitability. It demonstrated favorable correlations with the return on assets but revealed a negative impact on the net interest margin. The study suggested cautious utilization of borrowed financing for enhanced net interest margins.

These studies collectively contribute to the nuanced understanding of the intricate relationship between leverage and profitability, as well as non-performing loans' impact on financial performance across diverse sectors and geographies

Research Gap

The empirical evaluation identified several research gaps, including the limited number of studies that investigate the individual associations between short-term leverage and overall leverage with the non-performing loan ratio. Furthermore, it is worth noting that prior researches have failed to examine the potential moderating influence of non-performing loans on the association between short-term and long-term leverage and profitability. Moreover, a notable worry arises from the limited number of Nigerian studies that have addressed the aforementioned research gaps over the specified period of this study (2013 to 2021). Several researches have also used the precise sample size of eight deposit money banks, which is utilized in this particular investigation.

RESEARCH METHOD

This analysis employs secondary data from annual reports of eight selected deposit money banks, representing a subset of 49 financial firms listed on the Nigerian Exchange Group. Purposive sampling criteria required these banks to be listed between 2013 and 2021. Using descriptive statistics, correlation analysis and panel regression. Random-effects models with robust standard errors are employed for both models. The study introduces the non-performing loan percentage as a moderator variable, aligning with expert recommendations and requiring significant empirical association and statistical relevance, following Baron and Kenny (1986) and Aiken et al. (1991).

Model Specification

This study adapted the model from Salihu & Muhammed (2021) and modified as followed

Model: Functional Equation: $ROA = f(STL, TL, NPL)$

Econometric Equation: $ROA_{it} = \alpha + \beta_1 STL_{it} + \beta_2 TL_{it} + \beta_3 NPL_{it} + \epsilon_{it}$

Where:

1. ROA_{it} represents the return on assets for company i at time t .
2. STL_{it} is the short-term leverage for company i at time t , measured as total non-current liabilities divided by total assets.
3. TL_{it} is the total leverage for company i at time t , measured as total liabilities divided by total equity.
4. NPL_{it} is the non-performing loan ratio for company i at time t , measured as the ratio of non-performing

loans (defaulted or overdue for more than 90 days) divided by total customer loans granted.

5. α represents the intercept.
6. β_1 , β_2 , and β_3 are the coefficients for the independent variables STLit, TLit, and NPLit.
7. ϵ_{it} represents the error term.
8. Use the following tabular option to describe the measurement of the variables

This combined model assesses the impact of short-term and total leverage, as well as the non-performing loan ratio, on return on assets for the selected deposit money banks.

Variables and their Measurements

Table 1: Variable Measurement

Variable	Description	Measurement	Justifications
ROA _{it}	Return on Assets	Dependent Variable	ROA is a common measure of a company's financial performance.
STL _{it}	Short-Term Leverage	Measured as total non-current liabilities divided by total assets.	Short-term leverage can affect a company's ability to generate returns.
TL _{it}	Total Leverage	Measured as total liabilities divided by total equity.	Total leverage provides insights into a company's financial risk.
NPL _{it}	Non-Performing Loan Ratio	Measured as the ratio of non-performing loans divided by total customer loans.	NPL ratio reflects credit risk, which impacts profitability.
α	Intercept	Parameter to be estimated.	Represents the baseline or initial level of ROA.
β_1	Coefficient for STL _{it}	Parameter to be estimated.	Examines the impact of short-term leverage on ROA.
β_2	Coefficient for TL _{it}	Parameter to be estimated.	Investigates the effect of total leverage on ROA.
β_3	Coefficient for NPL _{it}	Parameter to be estimated.	Explores the influence of NPL ratio on ROA.
ϵ_{it}	Error Term	Represents unexplained variation in ROA _{it} .	Captures factors not accounted for by the independent variables.

4.1 Data Analysis

Table 1: Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
ROA	72	1.0975	1.70256	-9.53	3.62
NPL	72	4.685139	6.321165	0	33.58

STL	72	66.9825	16.4274	31.13	161.21
TL	72	6.835	3.333843	-2.98	15.76

Source: Researcher’s computation (2023) with Stata[®] 13.0

In Table 2, we have detailed information on the descriptive statistics of key financial indicators for the selected businesses from 2013 to 2021. The Return on Assets (ROA) is a financial indicator that measures an organization's profitability and efficiency by looking at how much money it makes back from its assets. There is a broad range of values for the observed return on assets (ROA), from -3.53 to 3.62%. The computed ROA averages out to 1.0975, indicating a very consistent range of results across the study's time period. However, it is important to note that the firms' return on assets (ROA) increased by a somewhat large amount throughout the time period defined by the standard deviation of 1.70256, which was more than the mean of 1.0975.

There is a wide range of possible values for the Non-Performing Loan Ratio (NPL), from 0 up to 33.58. The average NPL ratio is 4.685135, with a standard deviation of 6.321165. All of these quantitative indicators point to a steep rise in defaulted loans throughout the period under consideration. This indicates that, between 2013 and 2021, the mentioned deposit money institutions did not fully comply to the objectives established by the central bank. Regulatory actions aiming at reducing this fraction were unsuccessful.

Changes in the amount of short-term borrowing as a percentage of total asset value are quantified by calculating short-term leverage (STL). The Standardized Test of Learning (STL) ranges in value from -161.21 to 31.13. The average STL value is 66.9825, according to our calculations. In general, the selected deposit money banks used less short-term financing, as measured by the computed standard deviation of 16.4274. This pattern is most likely caused by deposit ratio regulations.

Total Leverage (TL) is a measure that sheds light on the evolving debt-to-equity ratio. The bottom limit of the dataset is recorded as -2.98, while the highest limit is indicated as 15.76. It has been determined that the mean value of the dataset is 6.835. The calculated standard deviation of 3.333843 points to a decreasing debt-to-equity ratio between 2013 and 2021. The aforementioned data statistics provide a solid foundation for making sense of the information's underlying dynamics and patterns. Changes in these financial variables during the study period reflect the fluidity of the financial landscape and the effect of regulations on deposit money institutions.

4.2 Correlation Matrix

Table 3: Correlation Matrix

	ROA	NPL	STL	TL
ROA	1.0000			
NPL	-0.1696	1.0000		
STL	-0.5557	-0.2009	1.0000	
TL	0.0698	-0.0001	0.0185	1.0000

Source: Researcher’s computation (2023)

Table 3 displays the primary financial metrics for the selected organisations, as well as their intercorrelations. The coefficients pertaining to the association between Return on Assets (ROA) and Non-Performing Loans (NPL) and Short-Term Liabilities (STL) are -0.1696 and -0.5557, respectively. It is worth noting that both coefficients exhibit a significantly negative link. This observation implies that there exists a negative link between non-performing loans (NPL) and specific loan types (STL) and return on assets (ROA). Nevertheless, there exists a marginal positive association between Return on Assets (ROA) and Total Leverage (TL), as shown by a positive correlation coefficient of 0.0698, although a negligible one. A negative correlation coefficient of -

0.2009 is seen between non-performing loans (NPL) and short-term liabilities (STL), indicating an inverse relationship between these variables. Additionally, the correlation coefficient of -0.0001 suggests a negligible association between STL and total liabilities (TL). Based on the observed relationships, it can be inferred that there is a tendency for NPL and STL to exhibit contrasting trends, whereas the relationship between STL and TL seems to be quite feeble. In general, the matrix provides a comprehensive understanding of the interplay among several financial factors, highlighting the possible significance of non-performing loans (NPL) and short-term liabilities (STL) on return on assets (ROA) for deposit money institutions within the specified timeframe.

MULTIPLE REGRESSION RESULTS

Table 4 Robust Standard Errors Random-Effects GLS Regression

VARIABLES	MODEL 1		MODEL 2	
	Z	P-VALUE	Z	P-VALUE
STL	-2.59	0.010**	-3.38	0.001
TL	-0.86	0.391	6.49	0.000
NPL*STL			8.08	0.000***
NPL*TL			-15.28	0.000***
CONSTANT	3.11	0.002	3.67	0.000
OBSERVATIONS	8		8	
R-SQUARE	0.2732		0.5774	
NUMBER OF ID	72		72	
Wald.Chi2	14.78		561.92	
Prob.> Chi2	0.0006		0.0000	

Dependent Variable: ROA

*** = 1% level of significance, ** = 5% level of significance

Source: Researcher's computation (2023)

Results from a GLS regression with robust standard errors and random effects are shown in the table. Using two models, this regression study explores the connection between a large number of independent variables (STL, TL, NPLSTL, NPLTL) and the dependent variable (ROA). Evidence from Model 1 suggests a negative correlation between STL and ROA. The p-value for this association is just 0.010**, therefore it's at least 5% significant. However, a p-value of 0.391 indicates that overall leverage's effect on return on assets is not statistically significant. A similar lack of statistical significance is shown with the interaction term NPLSTL. When the interaction variable NPLTL is added to Model 2, it becomes clear that both NPLSTL and NPLTL have sizeable and statistically significant negative effects on ROA. Significant at the 1% level, the p-values for NPLSTL and NPLTL are 0.001 and 0.000***, respectively. The R-squared values show that the models are able to account for a large part of the variability exhibited in the return on assets (ROA). According to the findings of this research, the usage of short-term debt reduces profits, especially in the presence of a significant proportion of non-performing loans. It is not proved, however, that overall leverage has a statistically significant effect on return on assets (ROA). The results shed light on the interconnected nature of deposit money institutions' leverage, nonperforming loans, and profitability.

DISCUSSION OF FINDINGS

The table provides insight into the regression results, including the significance of independent variables in explaining the variation in ROA. Model 2 appears to have a higher R-Square and overall model significance compared to Model 1, suggesting that the variables in Model 2 may have a stronger explanatory power for ROA. The p-values also indicate the significance of individual variables, with the level of significance denoted by asterisks (*).

The results from the regression of model 1 show that short-term leverage has a significant negative effect on return on assets. This is in line with Bunyamin *et al.* (2021) but is in contrast with other studies (Meghanathi & Chakrawal, 2021; Sathishkumar & Warupa, 2021). Also, this finding is against the principle of the modern portfolio theory, because in this case, short-term risk does not increase returns. In addition, total leverage has an insignificant positive effect on return on assets, which aligns with the study that was carried out by Mehzabin, *et al.* (2022). This finding is in line with the modern portfolio theory which states that an increase in risk could increase the expected returns from an investment.

With regards to the third objective of the study, model 2 regression shows that non-performing loan ratio significantly positively moderates the relationship between short-term leverage and return on assets. This aligns with the studies by Dalci (2018) and Trung (2022) and it supports the modern portfolio theory because it shows how higher risk could increase returns due to the use of loopholes like tax savings. However, it is advised to exercise professional judgment in the application of this particular finding because this effect could be more mathematical than financial. In other words, the reason why non-performing loans moderates the relationship between short-term leverage and return on assets is because when interest income reduces, management would be compelled to deplete short-term finance sources at its disposal. Consequently, this reduces the short-term debt ratio, which increases profitability. Lastly, the panel regression for model 2 shows that non-performing loan ratio significantly negatively moderates that relationship between total leverage and return on assets. This finding is in agreement with Uddin (2022) and disproves the modern portfolio theory which postulates that a higher return is expected from higher risk.

CONCLUSION

This study aimed to evaluate the effect of leverage on return on assets and to assess the moderating effect that non-performing loan ratio has on the relationship between leverage and return on assets. A sample size of eight (8) deposit money banks was selected and secondary data was extracted from the annual reports of these banks from 2013 till 2021. After basic regression assumption testing and applying the Hausman test, panel data regression was used to test the hypotheses of the study. The findings were that short-term leverage had a significant negative effect on return on assets and total leverage had an insignificant positive effect on return on assets.

The study's findings indicate that short-term leverage has a significant negative impact on the profitability, as measured by ROA, of deposit money banks. This outcome aligns with previous research, emphasizing the need for banks to be cautious in their reliance on short-term financing sources. Total leverage, on the other hand, was found to have an insignificant impact on ROA, suggesting that its influence on profitability is relatively weaker and requires further investigation.

The study reveals that the non-performing loan ratio significantly and positively moderates the relationship between short-term leverage and ROA. This implies that the presence of a high non-performing loan ratio can amplify the negative effect of short-term leverage on profitability. In contrast, the non-performing loan ratio significantly and negatively moderates the relationship between total leverage and ROA. This finding suggests that when non-performing loans are high, total leverage has a more adverse effect on profitability.

RECOMMENDATIONS

1. **Diversification of Financing Sources:** In light of the adverse impact of short-term leverage on profitability, deposit money banks should explore diversifying their sources of financing for asset

acquisition and operational activities. Reducing dependence on short-term liabilities can help enhance financial stability and improve ROA.

2. **Strategic Use of Debt:** Management should strategically employ debt, taking advantage of tax shields and legal mechanisms to maximize returns from debt financing. However, this strategy should be applied judiciously, particularly when non-performing loans are minimal, as interest income can be adversely affected in the presence of high non-performing loans.
3. **Prudent Management of Short-Term Financing:** Given the findings, management teams should exercise prudence in their use of short-term financing, especially in situations where interest income is decreasing. The study underscores the potential risks associated with relying on short-term financing in such scenarios.
4. **Non-Performing Loan Management:** To mitigate the negative moderating effect of non-performing loans on total leverage and ROA, deposit money bank management should prioritize effective non-performing loan management strategies. Reducing non-performing loans can help minimize their adverse impact on profitability.

In conclusion, this study highlights the critical importance of managing leverage and non-performing loans to enhance the financial stability and profitability of deposit money banks. Implementing the recommended strategies can contribute to better financial performance and resilience in the face of changing market conditions and risk factors.

Citation: ¹ Afolabi Chukwudi Segun (Ph.D), ²Ogunleye Joshua Kehinde (Ph.D), ³Kosile Betty Adejoke (2024). The impact of leverage and non-performing loans on the profitability of deposit money banks: a study of listed deposit money banks in Nigerian exchange group. *Fuoye Journal of Accounting and Management*.

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