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Portfolio Management and Financial Performance of Listed Deposit Money Banks in Nigeria

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Abstract. Portfolio Management and Financial performance are key indicators used to measure the growth and activities of listed deposit money banks in Nigeria. Portfolio management involves investment and administration of a portfolio of securities, in accordance with the investors' preference while reducing risk and increasing the returns. This study investigated the effect of portfolio management and financial performance of listed deposit money banks in Nigeria. To achieve this, secondary data obtained from the annual financial statement of the Nigerian Exchange Group (NEX) as at 31st December, 2024 were used as the primary source of data for the study. The research population was all the 24 listed deposit money banks in Nigeria, out of which a sample size of ten (10) listed deposit money banks were chosen using purposive sampling. Validated data were obtained from the annual published reports of the sampled banks for a period of 10 years (2015-2024). The data were descriptive in nature. The study adopted the ex post facto research design and regression analysis to analyze the relationship between portfolio management activities and the financial performance of the sampled deposit money banks. The results of the study shows that Portfolio management has positive significant effect on return on asset of listed deposit money banks in Nigeria, positive significant effect on return on equity of listed deposit money banks in Nigeria. The results of the study concluded that portfolio management activities have positive and significant effects on the financial performance of the listed deposit money banks in Nigeria. The study recommended that deposit money banks should invest more in portfolio management activities in order to drive better financial performance. In addition, the study recommended better monitoring of portfolio management activities by deposit money banks in order to ensure proper utilization of funds and resources.

Keywords: Portfolio Management, Financial Performance, Return on Assets, Return on Equity and Net Profit Margin.

1. Introduction

The critical role of banks as financial intermediaries in the normal running of an economy cannot be emphasized. The financial system in Nigeria is characterized by a broad market base, a broad market base that includes a broad instrument base, participants and institutions that all work together to provide financial services in the country. Portfolio management is important to the success and stability of Deposit Money Banks (DMBs). Asset selection choices, diversification, and continuous portfolio management play an important role in determining financial performance of a bank. The assets that may form part of portfolios are equities, bonds, derivatives like options and futures, gold certificates, real estate, production facilities or other assets that are expected to hold their value. Ideally, one ought to make both short term and long-term financial plans that will guide them to make financial decisions (Fajinmi, Onuka, and Ayeni, 2023).

A portfolio may be defined as a collection of different investments. The general properties of a portfolio cannot be the same as those of the constituent securities. A portfolio is essentially the collection of investments held by an individual, financial institution, hedge fund or an investment company in order to attain participation in risky assets. Portfolio investment is useful in alleviating the effects of

variation in returns of various investment choices (Obiora and Ujam, 2021). Portfolio management is particularly important to the bank and is a very important aspect in the lending process. Portfolio management enables banks to maximize returns and manage the risk through a well-managed credit exposure, as a result reducing any potential negative impacts of credit risk (Njoku and Ezeudu, 2017). Deposit money banks are a key component of the financial sector of any economy and their operations, whether they are thriving or not can have significant impacts on the stability of an economy, which are either positive or negative (Obiora and Ujam, 2021).
The portfolio management is concerned with the review of individual portfolio on a periodical basis to determine the quality of assets in the portfolio and guard against depreciation of assets in the portfolio by taking necessary corrective measures accordingly and in time. To manage the credit portfolio, the banks can separate its total credit assets in various portfolios or sub portfolios (Hamidovich, 2016). Globally, credit risk constitutes more than 50 percent of the total risk factors in Banks and Financial Institutions (BFIs). As a result, credit risk management has been a burning issue of top priority to BFIs. Credit risk management is a number of processes that include: identifying, measuring, mitigating, monitoring and controlling of exposure to risks related to credit (Lalon, 2015).

Within a portfolio management setting, investors must always look into their portfolios besides carrying out asset allocation. This makes sure that returns of the portfolio are in line with the expectations of the investor, and allows one to know whether any changes in the strategic asset allocation are needed. Frequent tracking also gives specific information on the investments made by the investor and results of such monitoring may lead to the adjustment of assets to ensure that they remain on course according to the long-term investment needs. It is important to note that portfolio management, as an investment process, is not a static, but a dynamic one, where you should regularly adapt your decisions to changes in the market and in your own circumstances. (Bhunia, Mukhuti & Roy 2011).

Portfolio management enhances the liquidity of banks, as professional fund managers can accumulate portfolios that can be readily converted into cash within a relatively short timeframe. This increase in available funds benefits lenders, who play a pivotal role in allocating resources in the economy. Moreover, the borrowed funds can be directed towards investments, further boosting overall expenditure and gross domestic product. In Nigeria, the Central Bank of Nigeria (CBN) and the Securities and Exchange Commission (SEC) have issued guidelines that regulate portfolio management activities, including the careful selection and supervision of liquid assets. As an example, in 2019, the CBN introduced guidelines that required Deposit Money Banks (DMBs) to address credit concentration in their portfolios and adopt information technology infrastructure to effectively monitor credit concentration (CBN, 2019).

Organizational performance is the outcomes of the actions undertaken by the individuals and different units of an organization. The evaluation tool used to measure performance depends on the reason of the evaluation. One of the key principles in modern financial management is that managers have to make a decision that will maximize the value of equity of shareholders. In general, performance refers to how well an organization is performing its goals whereas financial performance is a performance that refers to financial well-being of an organization. In easier terms, financial performance could be described as the degree to which an organization is effective in using its available resources in business activities to make income; it simply shows the financial health of a company within a given time (Bhunia, Mukhuti and Roy, 2011). It is usually required to analyze financial performance of a company to gain an overall insight in terms of financial performance of a company. This analysis is usually based on financial statements of a firm and it gives an insight on the operations of the firm and financial aspects as well. The main aim of the financial performance analysis is to assess the performance and efficiency of management as reported in the financial records of the organization (Bhunia, Mukhuti and Roy, 2011).

Despite the significance of portfolio management and financial performance, many Deposit Money Banks in Nigeria continue to face challenges in these areas. This problem is exacerbated by the country's volatile economic environment, which is characterized by inflation, fluctuating exchange rates, and high interest rates. It should also be noted that there is a significant lack of research on portfolio management, both at a global and local level (Campbell, 2022). Given the considerable importance of portfolio management in shaping policies and development strategies, scholars, policymakers, and donors are now giving more attention to its impact on the performance of financial institutions.

Consequently, this study examined the effect of portfolio management on financial performance of listed deposit money bank in Nigeria. This study

answered and tested the following research questions and hypotheses.

Research Questions:

- How does portfolio management affect Return on Asset of listed deposit money bank in Nigeria?.
- To what extent do Portfolio Management affect Return on Equity of Listed Deposit Money Banks in Nigeria?

Research Hypothesis:

- Portfolio Management does not significant effect on Return on Asset of Listed Deposit Banks in Nigeria.
- There is no significant effect of Portfolio Management on Return on Equity of Listed Deposit Banks in Nigeria.

The rest of the study was structured as follows:

- Section 2 provides a brief literature review on the portfolio management and its determinants as well as the financial performance, its measures and the theoretical frame work.
- In section 3, the study considered methodology looking at the sources of data employed and analyses.
- Section 4 provide the empirical results and discussions.
- The study ends in section 5 with a conclusion and recommendation.

2. Literature Review

2.1 Concept of Financial Performance

Financial performance is the manner in which a company efficiently utilizes its funds during a specific time such as the activity of raising and distributing money. It is measured through a few metrics including capital adequacy, liquidity, solvency, operational efficiency, leverage and profitability. The success of the management of these resources is an indication of the financial competence of the organization. In order to make strategic decisions, corporate managers often rely on data in cash flow statements, balance sheets, income statements, and changes in capital. Fatihudin, Jusni, and Mochklas (2018) define financial performance as a subjective measure of the effectiveness with which an organization uses its primary business resources in generation of revenue. It is also a general measure of the financial soundness of a firm within a given timeframe and it can be used to compare performance with those of other companies operating in the same industry or even different sectors (Charles, 2013).

Return on Asset

The dependent variable in this study is the organizational performance that will be measured by the proxy of Return on Assets (ROA). Performance is a concept that describes the level at which a firm uses the major business resources to generate revenue and this success is a measure of the success by the management to use the available resources to gain profit. Business performance can be measured with the help of various indicators, and ROA is one of the most commonly applied indicators.

Abaanewe, Ogbulu, and Ndugbu (2013) state that ROA is a financial ratio that measures the profitability of a company in terms of its total assets, which gives an indication of the efficiency of assets to earn profits. This ratio is of great use especially in the case of deposit banks in Nigeria because it shows the capability of a bank to generate profits out of its assets base. Investors and analysts also find ROA useful as it provides an accurate measure of the financial well-being and profitability of a company as well as provides opportunities to compare and contrast the results of companies in the same industry and monitor the investment progress over time (Ajayi and Omankhanlen, 2020). The formula for calculating ROA is:

ROA = Net Income (Profit before tax) / Average Total Assets

2.2 Return on Equity

Return on Equity (ROE) is a key financial ratio used to evaluate a firm's profitability by expressing net income as a percentage of shareholders' equity. It indicates how efficiently a company utilises owners' funds to generate earnings. Within the Nigerian deposit money banking sector, ROE serves as an important indicator of financial performance and overall stability. According to Adegbaju and Isibor (2017), ROE reflects the profit attributable to shareholders after accounting for all equity contributions, thereby showing the return generated on invested capital.

$$\text{Return on Equity} = \frac{\text{Net profit after tax}}{\text{Shareholders' Equity}}$$

Return on Equity (ROE) is another financial metric applied to evaluate the profitability of the company relative to the invested money of the shareholders. It

is calculated by dividing net after tax profit by the total shareholders equity. ROE is a valuable indicator of financial performance and efficiency to the deposit money banks in Nigeria. The ratio indicates the ability of a bank to make profits out of the capital that is invested in the bank by its shareholders. High ROE is an indication that the bank is well utilizing its equity base to generate profits. Also, the ROE allows making significant comparisons between the banks that work in the same industry and aids in assessing the performance pattern over the course of time. In the Nigerian banking industry, the regulatory bodies set a minimum ROE of 10 percent that deposit banks have to maintain. The Central Bank of Nigeria has set this benchmark and is aimed at making sure that banks gain sufficient profitability to continue their operations and encourage the stability of the entire financial system (Oladipupo & Adeoti, 2018)

2.3 Concept of Portfolio Management

The Association of Project Management (2018) defines a portfolio as a collection of projects or programs organized and managed at an organizational or functional level to optimize strategic benefits or operational efficiency. It can be managed either at the organizational level or the functional level. On the other hand, portfolio, as described by Ajose (2022), refers to an individual's or firm's complete collection of financial assets, which may include treasury bills, debenture bonds, stocks, mutual funds, real estate, cryptocurrencies, and other valuable items. The portfolio is simply a collection of investments which can be dispersed over various accounts.

Portfolio management refers to managing a portfolio of investments with a view of attaining a certain financial objective, say, maximizing returns or reducing risks. This involves the creation and execution of a plan of choosing and distributing investments in different classes of assets e.g. stocks, bonds, and property to attain the targeted goals. Portfolio management has gained significance in the corporate field, and its performance is also useful in minimizing fraud, dealing with possible threats, and using assets more productively (Axelos Global Best Practice, 2014).

Portfolio management is a management of the portfolio of securities, held by an investor, which is managed and invested as per their choice, and the goal of the portfolio is to reduce the risks and maximize returns. The investor usually leaves the decision-making of investment to a managing entity whereby the managing entity makes decisions as per the preference of the investor. By applying the needs of the investors, Rubinstein (2006) came up with the conclusion that peripheral aspects of portfolio management rely on the needs of the investors such as capital appreciation, constant or regular returns, investment safety, marketability and liquidity and minimizing tax liabilities. Portfolio management needs to be a systematic consideration, action and good judgment in order to successfully implement the investment plans of the assets and securities within the portfolio.

2.4 Liquidity Risk

Liquidity means the ability of a person or a company to meet his or her short term and immediate financial commitments. This is done through the presence of enough cash or holding an asset that is easily converted to cash. In accounting, the liquidity is measured in terms of current assets being able to meet the current liabilities. Liquidity in the context of investment is associated with the simplicity and rapidity through which an investment portfolio can be translated into cash without incurring large losses in value. Some banks may not be able to handle their own funds because they do not understand liquidity risk although they make a profit. The liquidity position of the commercial banks determines their viability, as they can finance the growth of their assets and fulfill their obligations without suffering too much loss (Ngari, 2016).

Wuava, Yua, and Yua (2020) define liquidity as the capacity of a bank to fund the growth in assets and satisfy the requirements as they occur without experiencing intolerable losses. An efficient liquidity risk management is very essential to guarantee the commitment of a bank to respond to the uncertain cash flow requirements that arise as a result of the occurrence of external events and actions of other agents. The liquidity risk is the most critical to be managed as the liquidity deficit in one organization can have an extensive impact on the whole financial system. Banking being a financial intermediary, which carries out maturity transformation of short-term deposits into long-term lending, is vulnerable to both idiosyncratic (institution-specific) level and systemic liquidity risk (Obiora & Ujam, 2021).

2.5 Credit Risk

Credit is the association between a borrower and a lender in which the former acquires funds by the latter in a promise of repaying the loaned funds with interest at a later time. Credit risk or default risk or counterparty risk is the risk that the borrower or counterparty will default on his or her financial

responsibilities in accordance with the accord and cause losses to the lender or investor. Adequate regulation of credit risk is very important in ensuring lenders and investors do not incur financial losses. Credit risk management aims at maximizing the risk-adjusted rate of return, through keeping the credit risk exposure within a reasonable range. Another essential element of a holistic approach to risk management is credit risk management that is the key to long-term success of any banking institution (Ahmad, 2017).

There are two major types of credit risk; the individual credit risk, and the systemic credit risk. Individual credit risk refers to the risk of default of a particular borrower or counterparty with regard to their loan or financial obligation. Systemic credit risk on the other hand entails the risk of default or financial distress on a financial system or market wide. Credit risk may be as a result of a number of factors, such as the creditworthiness of the borrower or counterparty, actual economic conditions, and the nature of the financial instrument used. As an example, a poor credit history or a borrower with little collateral presents a greater risk in credit than a borrower with a good credit rating and lots of assets.

2.6 Financial Risk

Financial risk is any form of riskiness that is linked to financing and investment activities. In the case of banks, it may be especially disastrous, both insofar as it entails monetary losses, and it also brings about a tarnished reputation. It is usually assumed to include downside risk only. Financial risk concept is mainly associated with risks that the Deposit Money Banks (DMBs) face in their daily operations, turning it into one of the oldest and most difficult types of risks that the latter face (Mostafa, Mahmoud, Jalal and Elahe, 2016). Financial risk events can arise from various causes, such as defaulting on loan repayments resulting in nonperforming loans (NPL) or credit risk (CR), liquidity risk (LIQR), insolvency risk (INSRK), and market risk (MKTR). Additionally, financial risk may also encompass interest rate risk, currency risk, and business risk that can emerge during financial transactions.

According to Muriithi and Muigai (2017), financial risk poses a threat to the financial stability and performance of the financial sector. It is defined as all risks that could introduce volatility in a bank's reserves, expenses, and the overall value of their business. If not systematically addressed, financial risk can lead to inconsistent performance and earnings for stakeholders, impacting banks' revenues and net worth, and in some cases, resulting in disastrous systemic consequences, as demonstrated by Benlian & Hess (2011)

2.7 Tenor

Tenor denotes the remaining time until a financial contract reaches its maturity, and it is often used interchangeably with the term "maturity." In the context of banking, tenor refers to the duration within which the borrower is expected to repay the loan along with the interest. For instance, a home loan may have a tenor ranging from 5 to 20 years, with some banks allowing up to 25 years. In specific cases, such as project financing, the loan tenor may extend from 5 to 25 years, or in exceptional circumstances, up to 30 years, depending on the project type and its ability to service debt (Perez, 2015).

Tenor basis risk emerges when a basis swap is involved. Despite re-pricing on the same date, being in the same currency, and being linked to the same benchmark, issues can arise if they re-price for different periods or tenors. Understanding the tenor of financial instruments, whether short- or long-term derivatives, is essential for maintaining a steady cash flow and assessing the risk associated with a contract (Bismak & Chengyi, 2015).

Deposit Mix

Bank deposits encompass different types of accounts, namely Savings Bank Accounts, Current Accounts, and Term Deposits. The combination of Savings Account and Current Account is commonly referred to as "CASA" (Current Account, Savings Account), which holds significant importance. Currently, Current Accounts come at no cost, while Savings Accounts have a relatively low cost, typically around 3%. Maintaining a high percentage of CASA, preferably above 40%, in a bank's deposit portfolio is considered favorable. The remaining 60% of deposits consist of various types of term deposits, which offer interest rates ranging from 6% to 15% per annum.

The principle of buy low, sell high is applicable in the banking industry in regard to profit margin. In the case of banks, margins are influenced by the difference between the yield on the advances (interest earned on loans) and the cost of money (interest paid on deposits) that is the net interest income. Banks who are able to source out funds at a low cost can make huge returns. The yield on advances is comparably constant among banks owing to stiff competition on the interests charged on loans. Therefore, the cost of raising funds becomes a key element of forecasting the profitability of a bank. Banks with reduced interests on deposits have high chances of drawing more borrowers thus

more profits. Thus, the low cost of funds and a desirable proportion of deposits is extremely important to the overall profitability of a bank (Ngari, 2016). Deposit mix is a term that is used to describe the composition of the deposit of a financial institution in the form of their source and type. It also gives the insight about the funding structure of the institution and may have implications on its liquidity, interest rate risk and its profitability. Deposit mix is measured through a study of how deposits are distributed in terms of different attributes. The important metrics that could be used to gauge the deposit mix are:

3. Theoretical Frame Work

3.1 Markowitz Portfolio Theory

The Markowitz Portfolio Theory was invented by Harry Markowitz in 1952 and has transformed the modern portfolio management and has been a fundamental concept in finance. The theory of diversification was included in the theory by Markowitz, which stated that both risk and return should be considered when making an investment portfolio. The theory offered a quantitative analysis of how best an investor can make decisions about investments depending on the level of the risk taken and the amount of desired returns. According to the Markowitz Portfolio Theory, an investor cannot simply concentrate on the expected performance of individual investments but should also be concerned with the risk of an investment and its correlation with other investments within a portfolio. Markowitz states that the well-diversified portfolio must not only maximize the expected value but also reduce the risk or volatility, in general.

According to the theory, a perfect balance between the return and the risk can be obtained by mixing the assets with various risk and returning properties in a portfolio. The point is that it is important to choose assets which are negatively correlated with each other or have low correlation. Markowitz developed the efficient frontier concept that is portfolios that maximize expected return given a certain amount of risk and minimizes risk given a certain amount of expected return.

The Markowitz Portfolio Theory has found a lot of support and acknowledgment among the finance fraternity. It is the foundation of the current methods of portfolio management and has found wide application in educational programs and practice by investment practitioners around the globe. The mathematical way of the theory offers a methodological way of portfolio making where investors are able to make rational decisions regarding the goals of risk and returns.

The Markowitz Portfolio Theory has been criticized and limited despite its popularity. The major criticisms are:
Assumptions: The theory has a number of simplifying assumptions, including the normality of the distribution of the returns on the assets, the fact that the correlation is constant and no transaction costs exist, which are not necessarily true in the real world.

3.2 Stakeholder Theory

The Stakeholder Theory is a theory in the business ethics and management field that was initially introduced, in 1984, by R. Edward Freeman, in his book, Strategic Management: A Stakeholder Approach. According to the theory, a business organization must pay and take into consideration the interests of all its stakeholders and not just maximizing profits to shareholders alone. The Stakeholder Theory states that companies are not only obliged to the shareholders but also to more people or groups (stakeholders). The stakeholders can be the employees, the customers, the suppliers, the communities, government agencies and even the environment. The theory suggests that all stakeholders should be considered when making decisions and running of business; instead of focusing on the interests of shareholders. According to the theory, businesses can improve their sustainability and success in the long term by taking into account the interests of the stakeholders and managing the stakeholders. It also underlines the need to create a good rapport with stakeholders, their needs, and how business is carried out should mirror what stakeholders expect. In this way, organizations can not only be able to create value to shareholders but also the society.

R. Edward Freeman: Freeman as the founder of the theory still promotes its implementation in the contemporary business practices. According to him, competitive advantages can be attained when businesses are commendably involved in and are satisfying to their stakeholders. The Stakeholder Theory is also supported by many scholars in the business ethics, management, and corporate social responsibility disciplines. They claim that the theory gives a more holistic approach to making decisions, which covers the ethical issues and sustainability of business in the long run.

Milton Friedman: Milton Friedman is one of the most vocal critics of the Stakeholder Theory. He claims that it is the only duty of a corporation to make

profit maximally to shareholders. Friedman believes that the process of serving the interests of stakeholders may be regarded as a distortion of the main objective and lead to the decrease in the market efficiency.

4. Empirical Review

Fajinmi, Onuka, and Ayeni (2023) have investigated the correlation between portfolio management and the performance of deposit money banks in Nigeria. The purpose of the study was to establish the possibility of using portfolio management as a predictor of the profitability of these banks beyond the sample period. Based on the Markowitz portfolio theory, the study utilized time series of data between 1990 and 2020 and included the liquidity, financial assets, foreign portfolio holdings, deposit composition and concentration of deposit money by the private sector of the deposit banks. The findings showed that portfolio management and its various methods have a considerable impact on the most notable performance indicators, such as profit after tax (PAT), return on investment (ROI), asset quality (ASQ) and capital adequacy (CA) of the Nigerian banks.

On the same note, Obiora and Ujam (2021) examined how portfolio management has affected the performance of listed deposit money banks in Nigeria. The Modern Portfolio and Shiftability Theories led them in their study and the ex post facto research design was used. The annual reports of the banks that had international authorization within the years 2016 to 2020 were used to source data and analyzed with the help of the linear regression model. The results indicated that credit risk management and liquidity risk management had positive and significant relationship with the performance of the banks in terms of NAPS. The study therefore established an effect of portfolio management in improving the financial performance of the deposit money banks. It advised banks to be very careful with the liquidity and ensure that the liquidity is maintained at optimal levels to enhance the financial performance.

Olagbenga and Oluwafemi (2020) in another study investigated the impacts of portfolio management practice on bank performance in Nigeria, especially with regard to loan risk analysis, loan risk diversification, and loan risk monitoring. Primary data used in the study comprised a portfolio management scale, which was used to gather the primary data, and secondary data, which were financial statements of the annual statements. The SPSS 20.0 was used to analyze the data by providing multiple and logit regression methods. The findings showed that the analysis of loan risk, diversification, and the monitoring of the loan risk had immense positive impacts on the bank performance, in terms of return on assets. The research established that proper management of the loan portfolios has a positive contribution towards the overall performance of the deposit money banks in Nigeria.

5. Research Methodology

In this chapter, the author aims at analyzing the correlation between managing the portfolio and the financial performance of the deposit money banks in Nigeria. Regression analysis was utilized to measure the interactions among the variables and measure the strength of each independent variable on the dependent variables. The researchers applied the macroeconomic data obtained in the published annual financial reports of 10 deposit money banks in Nigeria within a period of 10 years, that is, between 2015 and 2024. In estimating the multiple regression model, the panel least squares (PLS) method was used because of the cross-sectional data. The independent variables were Liquidity Risk (LR), Credit Risk (CR), Financial Risk (FR), Tenor (TN), and Deposit Mix (DM), whereas the dependent variables were Return on Assets (ROA) and Return on Equity (ROE). In order to guarantee the validity of the results and prevent the spurious regression outcomes, the preliminary tests were carried out. In particular, the Augmented Dickey-Fuller (ADF) test was used to test the presence of unit roots as well as, the stationarity of the variables. All the variables were also computed using descriptive statistics. The E-Views statistical software version 9.0 was used to carry out the analysis. The statistical significance level was considered 0.05 p-value, the value used to assess the relationships and effects to be tested in the study.

5.1 Model Specification

In order to test for the relationship between Portfolio Management on Financial Performance, the regression model was adopted. The independent variable of the study is Portfolio Management, and the following proxies were used to measure it; liquidity risk, credit risk, financial risk, tenor, and deposit mix. The dependent variable is financial performance and the proxies used were Return on Asset (ROA), and Return on Equity (ROE) . The multiple linear regression analysis model which would be used is given as follows:

$Y= f(X)$

Where;
Y= Dependent Variable
X= Independent Variable
FP = f (PM
PM = Portfolio Management
FP = Financial Performance
Y = Financial Performance
Y = y_1 , y_2 , y_3
y_1 = Return on Asset (ROA)
y_2 = Return on Equity (ROE)

While,
X = Portfolio Management
X =X_1 , X_2 , X_3 , X_4 , X_5
X_1 = Liquidity Risk (LR)
X_2 = Credit Risk (CR)
X_3 = Financial Risk (FR)
X_4 = Tenor (T)
X_5 = Deposit Mix (DM)
y_1 = f(x)
y_2 = f(x)
y_3 = f(x)
Therefore, FP= f (X_1 , X_2 , X_3 , X_4 , X_5)
ROA= f (LR, CR, FA, T, DM)……f1……Equation 1
ROE= f (LR, CR, FA, T, DM)……f2……Equation 2
F1, F2 and F3 are the working functional relationships that would be used to determine the impact of Portfolio Management and Financial Performance of Selected Money Banks in Nigeria.
Given the above mathematical equation, the econometric model expresses Financial Performance as a function of Portfolio Management. The model for the regression analysis is presented below as:
$ROA_{it} = \beta_0 + \beta_1(LR)_{it} + \beta_2(CR)_{it} + \beta_3(FR)_{it} + \beta_4(T)_{it} + \beta_5(DM)_{it} + e_{it}$ ……...Model 1
$ROE_{it} = \beta_0 + \beta_1(LR)_{it} + \beta_2(CR)_{it} + \beta_3(FR)_{it} + \beta_4(T)_{it} + \beta_5(DM)_{it} + e_{it}$ ……...Model 2

Where;
ROA= Return on Asset
ROE = Return on Equity
LR = Liquidity Risk
CR = Credit Risk
FR = Financial Risk
T =Tenor
DM = Deposit Mix
β_0 represent regression intercept (constant parameter/intercept);

6. Data Analysis, Results and Discussions

Table 6.1: Unit Root Test Using Augmented Dickey Fuller (ADF) 2015-2024.

Variables	ADF-Statistic	Critical Values	Order of Integration
LR	-8.515384 (0.0000)	1% = -4.226815 5% = -3.536601 10% = -3.200320	Stationary at level
CR	-4.509501 (0.0049)	1% = -4.509501 5% = -4.226815 10% = -3.536601	Stationary first difference
FR	-7.452877 (0.0000)	1% = -4.226815 5% = -3.536601 10% = -3.200320	Stationary at level
TN	-6.567140 (0.0000)	1% = -4.234972 5% = -3.540328 10% = -3.202445	Stationary at second difference

DM	-9.667270 (0.0000)	1% = -6.055378 5% = -4.321562 10% = -3.972089	Stationary at level
ROA	-6.702505 (0.0000)	1% = -4.509501 5% = -4.226815 10% = -3.536601	Stationary first difference
ROE	-6.667344 (0.0000)	1% = -4.234972 5% = -3.540328 10% = -3.202445	Stationary at second difference
NPM	-8.515384 (0.0000)	1% = -4.226815 5% = -3.536601 10% = -3.200320	Stationary at first difference

Source: *Researchers Compilation 2025.*

The results of the Stationarity (unit root) test indicate that ROA, NPM, and CR were stationary at first difference; ROE and TN stationary at second difference while LR, FR and DM was stationary at level. Therefore, it indicated that most of the variables were stationary at the different levels. Hence, further analysis could be carryon to test the long run relationship among the variables.

Table 4.2: Descriptive Statistics of the Variables (Sample: 2015- 2024)

Statistics	CR	DM	NPM	ROA	ROE	FR	LR	T
Mean	54263963	2598.029	43755917	0.038561	0.160202	66131670	1.50E+09	5.800000
Median	309512.0	2191.440	159241.5	0.025636	0.161331	218421.5	5272476.	5.500000
Maximum	4.03E+08	6362.462	2.15E+08	0.318244	0.339435	2.54E+08	1.06E+10	12.00000
Minimum	5885.000	7.120000	2180.000	0.007708	0.007868	614.0000	5751.000	1.000000
Std. Dev.	90403064	2327.428	63776688	0.053801	0.077145	88279197	2.44E+09	3.023716
Skewness	1.949449	0.176756	1.225862	4.083505	0.149212	0.801032	1.963887	0.434896
Kurtosis	6.617998	1.371419	3.251195	19.85656	2.926171	2.007693	6.656145	2.276228
Jarque-Bera	58.94024	5.785930	12.65427	730.9244	0.196890	7.398509	59.98917	2.667468
Probability	0.000000	0.055412	0.001787	0.000000	0.906245	0.024742	0.000000	0.263492
Sum	2.71E+09	129901.4	2.19E+09	1.928056	8.010109	3.31E+09	7.52E+10	290.0000
Sum Sq. Dev.	4.00E+17	2.65E+08	1.99E+17	0.141833	0.291614	3.82E+17	2.92E+20	448.0000
Observations	100	100	100	100	100	100	100	100

Source: *Researchers Compilation 2025.*

The descriptive statistics presented in Table 2 indicate notable variations across the study variables. Credit Risk (CR) recorded an average value of ₦54,263,963 million, with a maximum of ₦403,000,000 million and a minimum of ₦5,885 thousand. The distribution is positively skewed (1.949449), and the probability value of 0.000000 is below the 0.05 threshold, indicating statistical significance at the 5% level. Deposit Mix (DM) shows a mean value of ₦2,598,029 million, a maximum of ₦6,362,462 million, and a minimum of ₦7,120 thousand. The skewness value of 0.176756 suggests a slight positive distribution. However, the probability value of 0.055412 exceeds 0.05, indicating that the variable is not statistically significant at the 5% level.

Net Profit Margin (NPM) has an average value of ₦43,755,917 million, with a maximum of ₦215,000,000 million and a minimum of ₦2,180 million. The data remain positively skewed (1.225862), and the probability value of 0.001789 confirms significance at the 5% level. Return on Assets (ROA) records a mean of 0.038561 (3.8%), a maximum of 0.318244 (31.8%), and a minimum of 0.007708 (0.7%). The distribution is highly positively skewed at 4.083505, with a probability value of 0.000000, indicating strong statistical significance. Similarly, Return on Equity (ROE) shows an average of 0.160202 (16.0%), with a maximum of 0.318244 (31.8%) and a minimum of 0.007868 (0.7%). The skewness value of 0.149212 reflects a mild positive distribution. However, its probability value of

0.906245 exceeds 0.05, suggesting that it is not statistically significant at the 5% level. Financial Risk (FR) reports a mean value of ₦66,131,670 million, with a maximum of ₦254,000,000 million and a minimum of ₦6,140,000 million. The variable is positively skewed (0.801032), and the probability value of 0.024742 indicates statistical significance at 5%. Liquidity Risk (LR) has an average value of ₦1,500,000,000 billion, reaching a maximum of ₦10,600,000,000 billion and a minimum of ₦5,751,000 million. The skewness statistic of 1.963887 shows a positive distribution, while the probability value of 0.000000 confirms statistical significance. Lastly, Tenor (TN) records an average duration of 5 years and 8 months, with a maximum of 12 years and a minimum of 1 year. The skewness value of 0.434896 indicates a moderate positive distribution. However, the probability value of 0.263492 is above 0.05, implying that it is not statistically significant at the 5% level. Overall, the findings suggest that most of the variables exhibit positive skewness. While several variables are statistically significant at the 5% level, others do not meet the required threshold, indicating varying levels of statistical relevance within the model.

Figure 4.1: Stationary Graph at Level for the Combined Variables

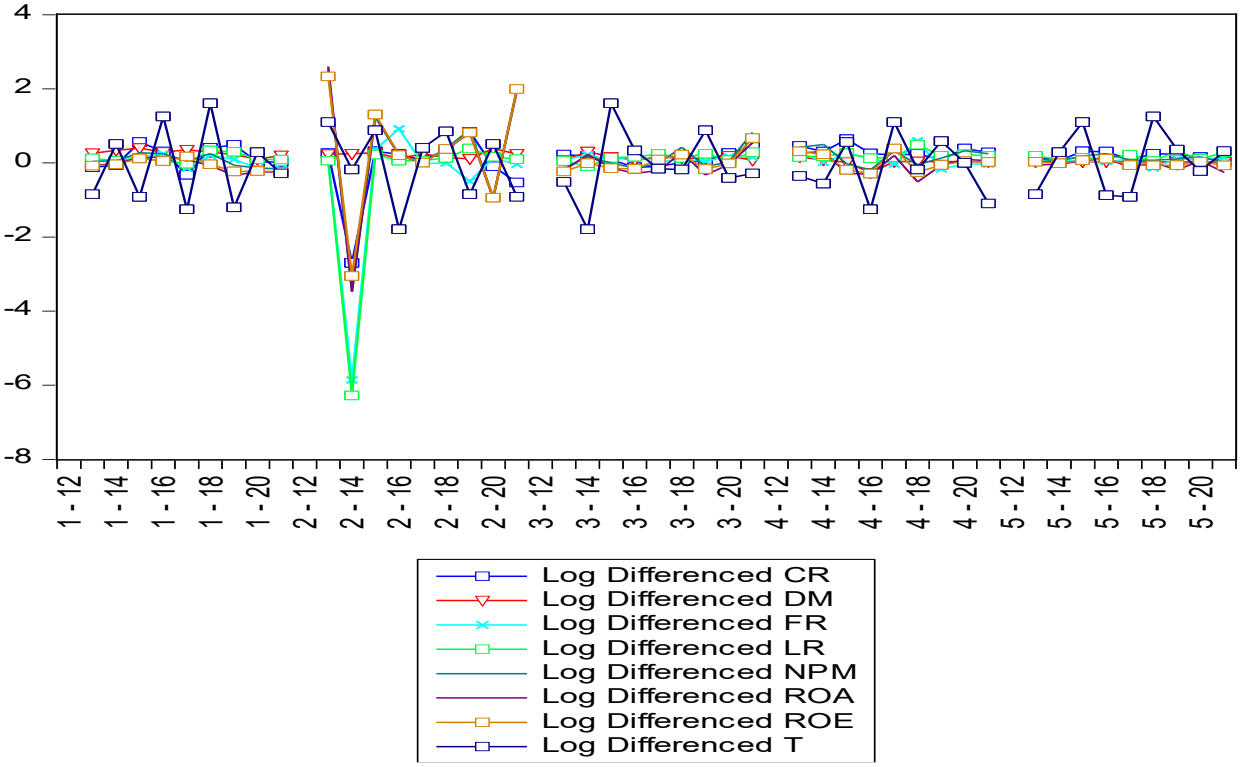
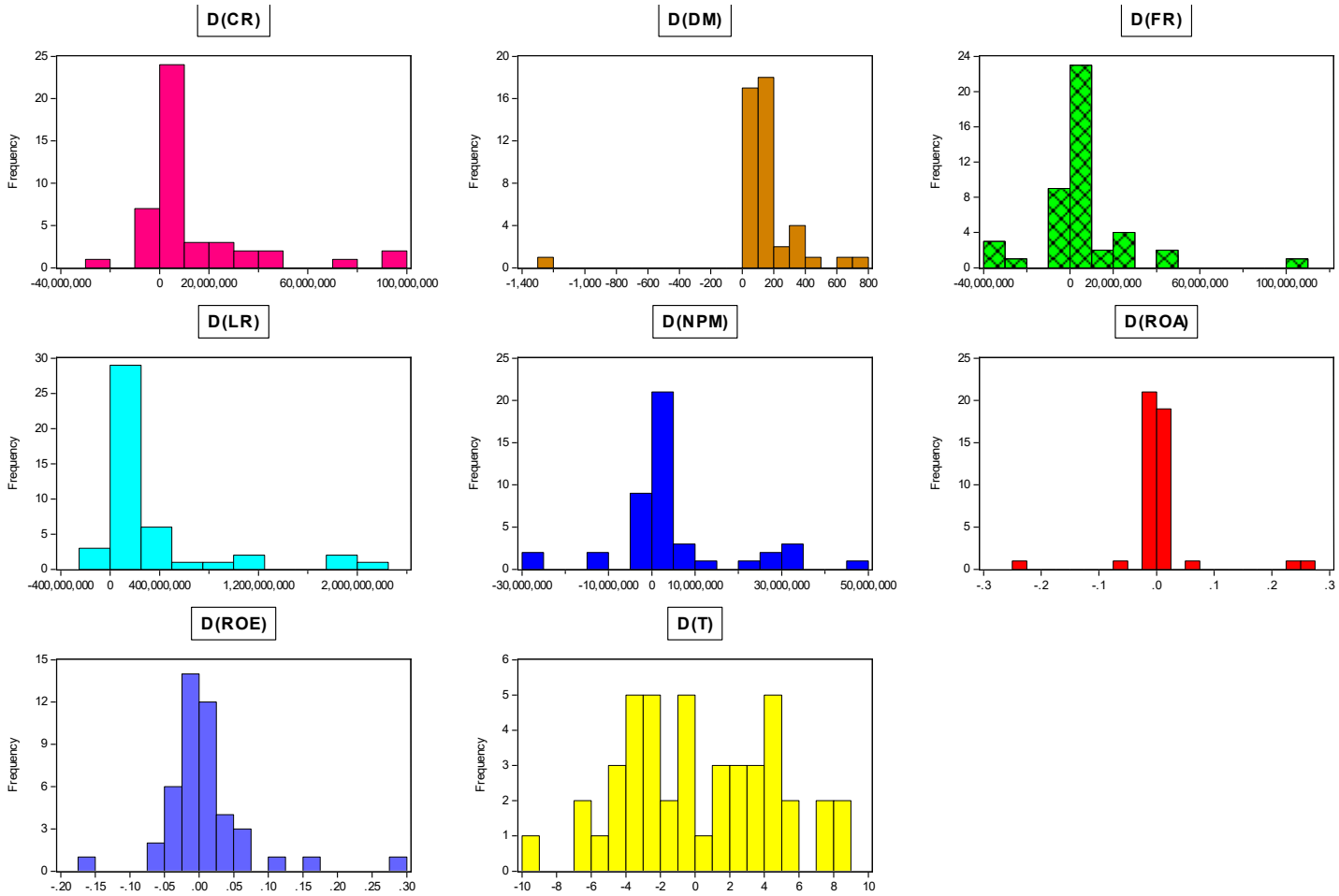


Figure 4.2 Stationary Graphs at the Level for Individual Variables



6.3 Research Hypotheses

6.3.1 Hypothesis One

H_0: Portfolio Management has no significant effect on Return on Asset of Selected Deposit Money Banks in Nigeria.

Model Representatives (1)
Estimation Equation:
==========
ROA = C(1) + C(2)*LR + C(3)*CR + C(4)*FR + C(5)*T + C(6)*DM

Substituted Coefficients:
==========
ROA = 0.0786714546659 + 3.05302613704e-12*LR - 1.04091991735e-10*CR - 8.52868673764e-11*FR - 0.00249522283549*T - 7.29145260171e-06*DM
Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/26/25 Time: 06:55
Sample: 2014 2025
Periods included: 10
Cross-sections included: 10
Total panel (balanced) observations: 100

Table 6.3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.078671	0.019210	4.095418	0.0002
LR	3.054562	1.992011	3.153156	0.0090
CR	1.042710	5.371510	1.193783	0.0472
FR	8.539511	1.682510	2.508742	0.0135
TN	0.872495	0.204645	0.943378	0.0506
DM	7.291706	3.831906	1.905200	0.0333

R-squared	0.548601	Mean dependent var	0.038561
Adjusted R-squared	0.051851	S.D. dependent var	0.053801
S.E. of regression	0.052388	Akaike info criterion	1.948124
Sum squared resid	0.120757	Schwarz criterion	2.718681
Log likelihood	79.70310	Hannan-Quinn criter.	-2.860751
F-statistic	31.53593	Durbin-Watson stat	0.504616
Prob(F-statistic)	0.000001		

Source: *Researchers Compilation 2025*

6.4 Hypothesis Two

H_0: Portfolio Management has no significant effect on Return on Equity of Selected Deposit Money Banks in Nigeria.

Model Representatives (2)

Estimation Equation:

==========

ROE = C(1) + C(2)*LR + C(3)*CR + C(4)*FR + C(5)*T + C(6)*DM

Substituted Coefficients:

==========

ROE = 0.115203480782 + 4.87790249236e-11*LR + 5.45143010215e-10*CR + 1.05424528481e-09*FR - 0.00208604643709*T + 1.20076527979e-05*DM

Dependent Variable: ROE
Method: Panel Least Squares
Date: 05/26/25 Time: 06:57
Sample: 2014 2025
Periods included: 10
Cross-sections included: 10
Total panel (balanced) observations: 100

Table 6.4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.115203	0.022731	5.068027	0.0000
LR	4.884311	2.36E-11	2.067898	0.0446
CR	5.454710	6.36E-10	0.857633	0.3957
FR	1.058909	1.98E-10	5.314335	0.0000
T	0.012086	0.003130	-0.666489	0.5086
DM	1.207705	4.53E-06	2.651410	0.0111

R-squared	0.420146	Mean dependent var	0.160202
Adjusted R-squared	0.354254	S.D. dependent var	0.077145
S.E. of regression	0.061992	Akaike info criterion	-2.611450
Sum squared resid	0.169093	Schwarz criterion	-2.382007
Log likelihood	71.28625	Hannan-Quinn criter.	-2.524077
F-statistic	16.37642	Durbin-Watson stat	0.301098
Prob(F-statistic)	0.000156		

Source: *Researchers Compilation 2025.*

6.5 Interpretation of the coefficients of determination

The regression findings show that multiple regression analysis was done to test the relation between the independent variables and the dependent variable. The results indicate that Liquidity Risk (LR), Credit Risk (CR), Financial Risk (FR), Tenor (TN), and Deposit Mix (DM) have statistically significant positive effect on Return on Assets (ROA) with a 5% level of significance. The coefficient of determination (R2) of the model is 0.548601 and this indicates that the overall explanation of the variations in the ROA with the help of the explanatory variables incorporated in the model is approximated to be 54.86. This means that the regression model has a moderate explanatory power. Further analysis of the unstandardized beta coefficients depicts that LR (= 3.054562), CR (= 1.042710), FR (= 8.539511), TN (= 0.872495), and DM (= 7.291706) have positive coefficients. This means that a one percent change in Liquidity Risk and Credit Risk and Financial Risk, Tenor, and Deposit Mix will be observed to be accompanied by a change of about 30.5, 10.4, 85.3, 8.7, and 72.9 in ROA, respectively. Since they all have a p-value that is less than 0.05 (0.0000-0.05), the relationships are not statistically insignificant. On the whole, the findings indicate that the model is a good fit because the independent variables make a significant contribution to the variation in the dependent variable.

6.6 Decision Rule

Durbin-Watson statistic is employed to identify whether there exists autocorrelation in the returns of a regression equation. It is a value that lies between 0-4 with a closer value of 2 showing no autocorrelation. Values that are closer to 0 indicate positive autocorrelation whereas those that are closer to 4 indicate negative autocorrelation. The estimated value of 0.504616 (Durbin-Watson) implies that the model has a positive serial (first-order) autocorrelation. Also, F-statistic of 31.53593 with a probability value of 0.000001 supports the fact that the overall regression model is significant. This implies that the explanatory variables together do have a significant influence on the dependent variable. According to the general findings, Liquidity Risk, Credit Risk, Financial Risk, Tenor, and Deposit Mix have a significant impact on Return on Assets. Thus, the null hypothesis (H 0) that there is no significant impact of portfolio management on the Return on Assets of the listed Deposit Money Banks in Nigeria is rejected and the alternative one is accepted.

7. Discussion of Findings

Study has empirically investigated the links between Portfolio Management and Financial Performance in Selected Deposit Money Banks under three specific objectives. The first objective is explained below:

The hypothesis one summary indicates that the coefficient of determination is R-squared is 0.548601, this therefore reveals that all the explanatory variables jointly account for 54.8% changes in Return On Asset determined by all the predictors. It indicates that the first objective found that Liquidity Risk (LR), Credit Risk (CR), Financial Risk (FR), Tenor (T), and Deposit Mix (DM) have significant positive effect on the Return on Asset (ROA) at the 5% alpha level of significance. The results of the findings of this study is in line with the findings and study of Olokoyo, (2012); Akinlo & Akinlo, (2016), who had similar results that portfolio management has a positive relationship with financial performance of listed deposit money banks in Nigeria otherwise, the study of Babajide & Olufemi, 2018 and Ajayi & Omankhanlen (2020); Mwatuwano (2012); Joan, (2021) shows a negative significant relationship.

8. Implication of Findings

The finding of the study show that Portfolio Management has a significant positive effect on Return on Assets (ROA) indicates that effective portfolio management strategies can lead to improved asset utilization and higher profitability for the company. Some key implications of this finding are; efficient asset allocation, Risk diversification, optimal resource utilization, Focus on value creation, Enhanced decision-making, Investor confidence and valuation, and Competitive advantage. It is therefore important to highlight that the implications mentioned above assume that portfolio management is carried out skilfully and aligns with the company's objectives and risk tolerance. Poorly executed portfolio management strategies may lead to adverse effects on ROA and overall financial performance. Therefore, companies should ensure that they have competent professionals overseeing their portfolio management activities and regularly review and adjust their strategies as needed.

9. Conclusion and Recommendation

The study analyzed the effect portfolio management on financial performance of listed deposit money banks in Nigeria. Based on the findings, the study concluded that portfolio management has positive significant effect on the financial performance of listed

deposit money banks in Nigeria. Based on the findings, the following were recommended:

Financial institutions, particularly deposit money banks, should prioritize and enhance their portfolio management practices. This incorporates the adoption of strong measures of diversifying and managing their investment portfolios. In such a manner, banks will have a chance to increase their ROA and general financial performance. Moreover, banks should also be encouraged to frequently review and evaluate the performance of their portfolios, and pinpoint any risks in their portfolios and implement the required amendments to maximize returns.

Portfolio management should be considered an issue of importance by financial institutions to maximize on their Return on Equity (ROE). As a way of exploiting this beneficial influence, banks ought to concentrate on creating sound portfolio management procedures that conform to its business purposes and risk propensity. This is why it is also desirable that banks maintain a clearly defined risk management structure to ensure that the portfolio is duly diversified and the risk is adequately addressed.

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