

MODERATING ROLE OF FINANCIAL INNOVATION ON THE RELATIONSHIP BETWEEN FINANCING DECISIONS AND FINANCIAL PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The performance of deposit money banks in Nigeria over the last decade is faced with declining profitability, negative profit and inability to pay dividends over a period of time as a result of underperformance. This study investigates the moderating role of financial innovation on the relationship between financing decisions and financial performance of listed deposit money banks in Nigeria. Using a 15-year panel dataset (2009-2023) from 16 banks, and the methodology adopted for the study was descriptive research design employing random effects estimation to test the hypotheses using STATA 13 version software package. Secondary data was adopted, sourced from Nigeria Exchange Group facts book and banks annual financial reports for the period. The study finds that debt and equity financing significantly enhance performance, while risky and risk-free investments negatively affect ROA. Financial innovation significantly moderates these relationships. The study recommends cautious investment practices and greater adoption of financial technologies.

Keywords: Capital Structure, Financial Innovation, Financial Performance, Investment, Liquidity

1.0 Introduction

The effective functioning of commercial bank is essential for ensuring a well-functioning financial system that supports economic development and stability (Ughulu, & Odion, 2023). The banking sector of any nation serves as the engine room of her economy and plays a vital role in the development and growth of the country's economy, further emphasizing the critical role of the banking sector in economic and environmental sustainability (Liu, & Liu, 2021). The banking sector necessarily requires being vibrant and sound from all angles to be successful in funds mobilization and allocation as it requires building strong assurance among the depositors, borrowers, and investors (Jayaraman, Azad & Ahmad, 2021).

Performance trends of banking sector in Nigeria over a decade experiences a declining profitability, negative profit and inability to pay dividends over a period of time as a result of underperformance. Though many banks have performed extremely well however, several of them are experiencing declining performance over the period. Investment decisions of many

banks listed on the NGX have fluctuated over the years and some banks do not distribute dividends due to declining performance in many years (NGX group, 2024).

According to the Nigeria Exchange Group, (NGX, 2024), Nigeria banking sector all share index (ASI) indicated fluctuating and underperformance index. ASI as of 2009 was 339.32 and the market capitalization for the period was N2.239trn, the ASI declined in 2012 to 270.23 with a market capitalization of N2.0801trn, the ASI rose to 425.19 in 2014 and declined to 281.88 in 2016 with the market capitalization of N4.093trn and fall to N2.753trn respectively. Furthermore, the ASI rose in 2018 to 544.49 with the market capitalization of N4.230trn while the ASI slumped and rose in 2020 and 2023 from 356.29 to 438.56 and the market capitalization for the same period was N2.760trn and N5.225trn respectively (see appendix). The Nigerian banking sector forecasted N20tr in the year 2000 as their net aggregate target performance in 20 years. As of the year 2024, the forecasted amount has not been achieved (CBN bulletin, 2024). This is a challenge for the banking sector in Nigeria.

As a result of the 2008 banks financial crisis in Nigeria, Central Bank of Nigeria (CBN) under Governor Chukwuma Charles Soludo raised the banking sector capital re-capitalization from N2bn to a minimum of N25bn for a sound, stable and efficient in performance of financial system (CBN, 2005). Similarly, the current Central Bank of Nigeria's (CBN) Governor, Yemi Cardoso also proposed to raise the banking sector re-capitalization to N500bn in 2024 to achieve the sector's set-down targeted performance. Despite the Central Bank of Nigeria's (CBN) intervention to raise banks' standards and performance in the country, a lot of the banks were faced with grossly inadequate performance that resulted in mergers and the taking over of some of the banks in recent years (CBN bulletin, 2024).

In the year 2011 alone, five banks were taken over by other banks as a result of bad and declining performance. Furthermore, recently in 2024, Heritage Bank's operating license was revoked by CBN indicating it's closed up and also CBN approved the merger between Unity Bank and Providus Bank as a survival strategy and their operating license were later revoked by CBN indicating their closed up.

Furthermore, moderating variables are introduced when there is an unexpectedly weak, inconsistencies and contradictions in the results of the related literature reviewed between independent variables and an outcome across studies (Baron & Kenny, (1986); Frazier, Tix, & Barron, 2004). The documented findings of the previous literatures reviewed were contradictory, inconsistencies and mixed on financing decisions (Laique, Abdullah, Rehman, & Sergi, 2023; Hofmeister, Kanbach, & Hogleve, 2024). The following inconsistencies prompted the researcher to embark on this study and to introduce financial innovation as a moderating variable to critically analyse the relationship between capital structure financing decision, investment decision, and liquidity decision as well as their effect on financial performance.

Bui, Nguyen, and Pham. (2023), Nmor, Osuji, and Erhijapkor, (2024), indicated that capital structure (debts and equity) have a positive and significant relationship with financial performance contrarily, Cerciello, Busato, and Taddeo, (2023), Asante, et al. (2022), found that capital structure (debts and equity) has a negative and insignificant relationship with financial performance. Researchers like Kumar, and Singh, (2022), Agung, Hasnawati, and Huzaimah (2021), found that investment decision (Risky and Risk-Free) has a positive and

significant relationship with financial performance, their findings contradict those of Munawaroh, and Munandar, (2024), Quddus, (2023) that found investment decision(Risky and Risk-Free) has a negative and insignificant relationship with financial performance. Gitahi, and Kosgei, (2024), Boma, Bernard, and Ndiyo, (2024) results revealed that liquidity decision(CR and NWC) findings has positive and significant effect on financial performance while Almakura, Shiaki, and Gambo, (2024), Lein, (2023) are of the opinion that liquidity decision(CR and NWC) findings has negative and insignificant effect on financial performance.

As a result of the inconsistent findings from the previous related literature reviewed, this study believes that a moderating variable, financial innovation is necessary to test the effectiveness and efficiency as well to strengthen the relationship between the financing decisions' components and financial performance. The extant literature reviewed has shown that there is a dearth of such studies that introduce the moderating variable of financial innovation. As such, financial innovation was introduced to measure the decision-making competency of the management in choosing how to finance the business in emerging markets like Nigeria, hence the relevance of this study. The moderator is necessary to further examine the role that technology play in banking decisions making management on the relationship between financing decisions components (capital structure financing policy, investment policy, and liquidity policy) and financial performance as recommended by previous researchers.

The consequences of banking sector underperformance in Nigeria will affect the following stakeholders: the nation's economy, the banks' shareholders, the banks' customers, and banks' employees if the sector's problem is not resolved. Hence, there is a need for this study to assist the sector and the nation at large in solving the challenges of underperforming for better performance. Hence, this study tried to introduce a new variable, a moderator to come up with a new way of solving the problem.

This study examines the financing decisions and financial performance of deposit money banks in Nigeria, considering the relationship between capital structure financing, investment decision and liquidity decision and the effect of financial innovation, a moderator on the relationship between the financing decisions and overall financial performance. Based on the research objectives, the researcher formulated the following hypothetical statements to guide this study and will try to test them.

- H₀₁.** Capital structure financing has no significant relationship with the firm performance of deposit money banks in Nigeria.
- H₀₂.** There is no significant relationship between investment policy and firm performance of deposit money banks in Nigeria.
- H₀₃.** There is no significant relationship between liquidity policy and firm performance of deposit money banks in Nigeria.
- H₀₄.** There is no statistically significant moderating effect of financial innovation on the relationship between financing decisions and firm performance of deposit money banks in Nigeria.

2. Literature Review and Theoretical Framework

Yolinza, and Marlius, (2023) stated that performance is the work of a person who carries out his primary duties, obligations, and functions as an employee with quality and quantity work results by the responsibilities given to him so that employees support the progress of achieving the agency's goals. Financial performance is also applied as a general measure of a business's aggregate financial health over a period of time (Eshna, 2021). How well an organization can profit from its primary transaction activity is a judge of its financial performance (Gofwan, 2022). Similarly, financial performance can be viewed as the level of performance of an enterprise over a given period, expressed in terms of overall profits or losses during that period. Put in another form, a firm's financial performance is a measure of how better a shareholder is at the end of the period in question compared to how the shareholder was at the beginning of the same period.

Financial performance could be qualitative or quantitative. Performance is said to be qualitative if the goal and objective are measured by the performer's observation without any metrics or statistics to pull from; it looks for patterns in non-numerical data. While quantitative performance involves running statistical analysis on data that have values.

The most commonly used performance measures are accounting based which include: return on assets (ROA), return on equity (ROE), return on investment (ROI) and Tobin's Q, market value added, annual stock returns, market to book value and others measured by market-based measurement. For this study, the study considered the use of returns on assets (ROA) as a proxy of financial performance to examine the relationship that exists between financing decisions and financial performance. The justification for making use of ROA over the other method was recommended by (Olusola et al., 2022) and more so, profitability-based accounting indicators such as return on assets have been used by many scholars to measure financial performance (Olusola et al., 2022).

Return on Assets (ROA)

Return on assets is an indicator of company profitability. The ROA shows how efficiently the industry used its limited assets to generate income. Therefore, it measures the overall effectiveness of management in generating profits with their available assets. Return on assets is applied as an important indicator to measure the firm's future prospects (Arlita & Agus, 2022, p. 1004). The choice of selecting ROA to measure financial performance in this research is supported by suggestion from the previous research conducted by Pratama and Nurhayati, (2022) stating that the profitability ratio represented by ROA has a positive and significant effect on firm performance. Also, the study makes use of ROA because all our independent variables used in this study were arrived at and dealt directly with the total assets of the firms used for this study. $\text{Return on Assets} = \text{Net Income} / \text{Total Assets}$.

Concept of Financing Decisions

Financing decisions referred to here are decisions expected of a manager to take in an organization to achieve the optimal maximization of the shareholders' wealth after considering the financial functions. Byjus (2022) defines financing decisions as a decision regarding raising funds from long-term sources, that is., through shareholders' funds or borrowed funds. Shareholders' funds include equity capital, reserves and surplus, and retained earnings, while borrowed funds include bonds, long-term loans, and government deposits. The firm's primary goal is to raise the prosperity of the firm's owners (shareholders), which is indicated by the

appreciation in the firm's value and is reflected in the firm's stock price (Arsyad, Haeruddin, Muslim, & Pelu, 2021).

The financing decisions of a firm consists of capital structure financing which consists two components; debts and equity, investment in capital budgeting considering risk and return and liquidity of the firm that is measured by current assets over the current liability.

Capital Structure Financing Decision

Capital structure can be defined as how an organization finances its business by a combination of debts and equity, current assets such as (bank loans, convertible loans, bonds, ordinary shares and reserves, preference shares, and the like) and current liabilities such as bank credit and trade creditors.

Leverage Financing Decision

Leverage refers to as debt means of financing a business through the borrowing of funds both in short-term and long-term basis. When a business has financial needs, internal and external resources can be used to meet these needs. The internal source refers to the resources that are generated within an enterprise and which are usually retained earnings. External financing can be by increasing the number of co-owners of a company or by borrowing it outright in the form of a loan (Uremadu & Onyekachi, 2019). As debt increases, financial leverage as well increases (Will, 2021). Debt financing must be neither too high nor too low to be used to finance businesses, which raises the question of optimal debt financing. The optimal debt ratio is generally defined as one that minimizes the cost of capital for the business while maximizing the value of the business.

Debts financing is further subdivided into total debts, short- and long-term debts. The total leverage of various firms to finance firm activities is called total debt. It is the ratio of total debts to total assets that defines the total debt amount by assets.

Equity Financing Decision

Equity can be defined as ownership that gives the owner the right to ownership, decision-making, responsibility, benefit, or sharing of benefit. Equity finance is the contribution from the owner and usually includes common stock capital, preferred capital, internal reserves, and reserves. The equity ratio is a financial proportion that indicates the relative proportion of equity used to finance a company's assets. It measures the proportion of total assets financed by shareholders and not by creditors. A low equity ratio will produce good results for shareholders as long as the company has a higher return on the assets than the interest paid to the creditors. Dierker, Lee, and Seo (2019) conclude that firm managers prefer to issue equity capital to raise funds following risk increases since any further debt financing raised; can add financial distress costs.

Investment Policy Decision

When we mention investment decisions, we refer to capital budgeting. The investment decision is referred to as the firm's manager's decision to invest the firm current funds most efficiently in the long-term assets in expectation of higher benefits Over a series of years. According to Nuzula and Nurlaily (2020), investment decisions are decisions embarked upon by financial managers to invest organization's capital in diverse available assets to attract returns in the

future. Channelling the funds by managers involves risks and returns whereby the higher the risk, the higher the return, and vice versa. The primary objective of investing in a firm's assets is to ascertain that a firm has adequate funds to meet its short-term obligations and maintain usual business operations (Amponsah & Asiamah, 2021). A high firm value will increase prosperity for investors which can be measured through the firm's share price in the capital market so that investors are interested in engaging their capital in the firm (Agung, Hasnawati & Huzaimah, 2021). The right investment decision is expected to produce positive growth for the firms and investors. The outcome of investment can be measured by various indicators of financial and non-financial performance measures. Investment is considered measuring risky and risk-free investments in this study.

Liquidity Policy Decision

Liquidity management means how a firm can quickly turn its assets into cash within the very shortest period by handling the firm's current assets and current liabilities. An organization's liquidity and ability to meet its debt obligations using cash available at hand can be measured using the cash coverage ratio (Berrada, 2022). Generally, liquidity plays a crucial role in influencing a firm's share market prices, further boosting its value relevance within the market (Anande-kur, Agbo, Ipuele, & Tanimu, 2021). The liquidity position of a firm can be established from the firm's liquidity management.

Managing liquidity efficiently brings about removing the risk of the inability to meet short-term liabilities when it is matured. Firms with a strong liquidity position are considered to be able to withstand financial uncertainty, inspire confidence among investors and positively impact value relevance in the Nigerian financial market (Yusuf, Nwufu, & Chima, 2019). The liquidity position of a firm is measured by the current ratio which is current assets by current liabilities and net working capital measured by current assets minus current liabilities.

Financial Innovation

Jain, (2024) defined financial innovation as the development and application of new financial products, services, technologies, or processes to enhance efficiency, reduce risk, create value, or adapt to the changing requirements of consumers, enterprises, and financial entities. According to Osinubi, Abdulmalik, and Halima, (2022), financial innovation concentrates on cutting-edge payment methods that fall into four categories: electronic cards, phone banking, internet banking, and mobile banking.

Introducing moderating variable like financial innovation is important for a more understanding of how financing decisions influences financial performance in banking sector, showing the need for a sophisticated approach in empirical studies (Pratiwi, Pramono, Dirgantari, & Santoso, 2023). Moderating variables are introduced when there is an unexpectedly weak, inconsistencies and contradictions in the results of the related literature reviewed between independent variables and a outcome across studies (Baron & Kenny, (1986); Frazier, Tix, & Barron, 2004). However, the moderating variable was introduced to this study as a result of the documented results that were contradictory and mixed in the results of previous studies on financing decisions leading to weak and inconsistent findings (Laique, Abdullah, Rehman, & Sergi, (2023); Hofmeister, Kanbach, & Hogleve, 2024). Moreover, moderating variables can also be tested for the purpose of new theoretical insights (Andersson, Cuervo-Cazurra, & Nielsen, 2014). The moderator is necessary to further examine the role that

technology play in banking decisions making management on the relationship between financing decisions components and financial performance as recommended by Olofin, Yadua, Gambo, and Muhammad (2024) in their study. This research used the following indicators mobile banking, internet/e- banking, point-of-sale terminals and automated teller machines as suggested by Gbanador, Makwe, and Olushola, (2022) as measurement for financial innovation in this study.

Firm Size

This study used firm size as a control variable. Firm size is often considered an important determinant of its performance, as the larger the size of the firm, the less the cost of issuing debt and equity will be. With the large volume of assets acquired by the organization, the organization is categorized as a large organization, so the opportunity to declare and pay dividends is getting bigger and vice versa (Manyari, & Devi, 2023). Firm size plays a significant role in capital structure because small firms strive for external sources of finance only if the internal sources are exhausted. Trade-off theory predicts a positive relationship between firm size and profitability because larger firms attain economies of scale by borrowing at more favourable risk-adjusted interest rates than smaller firms, which may affect the findings of the research. Supported by Kareem's (2019) study, larger firms also have easier access to the market; larger firms can issue debt security instruments at a lower cost than smaller firms. Firm size is measured by the logarithm of the total assets of a firm (Maama, 2020; Wu, 2019).

Empirical Review

Empirical studies related to this study of financing decisions and firm performances conducted by various researchers across the universe at different periods were reviewed to show how their findings and results related to this research work.

Capital Structure Financing and Firm Performance

Bui, Nguyen, and Pham. (2023) findings revealed that, debt ratio exhibits a positive influence on ROA, ROE, and Tobin's Q. Similarly, in a study conducted by Ali and Shaik, (2022) findings indicate that debt financing has a detrimental influence on business financial performance. Nmor, Osuji, and Erhijapkor, (2024) the results revealed that, equity financing positively predicted the performance of firms in Nigeria.

Contrarily, Asante, Winful, Sharifzadeh and Neubert (2022) found a significant negative relationship between capital structure and financial performance. Nazir, Azam, and Khalid, (2021) say as a result of agency-related issues, a policy of substantial debt has been implemented, resulting in poor performance. Similarly, Cerciello, Busato, and Taddeo, (2023) indicated a negative relation between equity financing and sustainability disclosure among Chinese firms.

Investment Decision and Firm Performance

Kumar, and Singh, (2022) found that, there is a positive relationship between risk-free investments and portfolio returns. Risk-free investments provided stable returns but lower overall performance. Agung, Hasnawati, and Huzaimah (2021) in their study found that investment decision has a positive and significant effect on firm value; the results support the signalling theory which explains the relationship between investment decision and firm value.

Shahzad, and Fareed, (2020) have discovered in their study that, risk-free investments reduced portfolio volatility but also lowered returns.

However, in the research conducted by Munawaroh, and Munandar, (2024), results of the study found that, investment choices have an insignificant effect on a company's value. Similarly, Suteja, Gunardi, Alghifari, Susiadi, Yulianti, and Lestari, (2023) study model showed that there was a negative effect of investment decisions on firm value. Quddus, (2023) findings show that investment in tangible assets, investment in intangible assets, financial leverage and economic policy uncertainty has a negative and significant impact on firm financial performance measured by return on assets.

Liquidity Decision and Firm Performance

Gitahi, and Kosgei, (2024) in their study, found that liquidity decision had a positive and statistically significant effect on financial success. Boma, Bernard, and Ndiyo, (2024) concluded that, profitability and liquidity has statistically significant effect on the value relevance of listed financial companies in Nigeria. Sinukaban, and Erlina, (2024), the study indicated that return on assets, current ratio, investment opportunity set, and free cash flow have a positive and significant effect on partial dividend policies.

Contrarily, Almakura, Shiaki, and Gambo, (2024) results indicated that, current ratio has a negative and significant impact on return on capital employed while quick ratio and cash ratio has a positive but insignificant impact on return on capital employed. Lein, (2023) research study concluded that, none of the current ratio, cash ratio and quick ratio has a statistically significant impact on return on assets respectively. Dadepo and Afolabi (2020) study's findings revealed that liquidity management proxies by current ratio, cash ratio, and quick ratio have a significant negative impact on financial performance proxies by return on assets.

The following gaps were discovered from the previous related literature reviewed. Empirical gap, the documented results were contradictory and mixed with the results of previous studies on financing decisions and financial performance of deposit money a bank in Nigeria leading to inconsistent findings. This warrants the introduction of a moderating variable, financial innovation to strengthen the relationship that exists between financing decisions and financial performance and to measure the decision-making competency of the management in choosing how to finance the business in emerging markets like Nigeria, hence the relevance of this study.

Another gap in the literature is the contextualization of the variables. Most of the previous literature reviewed on financing decisions and financial performance concentrated or restricted on variables such as; dividend, capital structure, investment and liquidity policy but failed to break down these variables into their components such as debts and equity, risky and risk-free, and current and networking capital ratios respectively.

Theoretical gap is another gap discovered in the literature. Existing studies often applied theories such as the trade-off theory, agency cost theory and pecking order theory which focus on management decision making on how funds should be sourced to finance the business. But none of the studies reviewed consider passing information on the organization's performance to the outsiders. This study tried to fill this gap by introducing signalling theory to pass

information across the organization performance in terms of profit making and dividends sharing to both the shareholders and the potential shareholders.

Theoretical Framework

Many scholars have developed several theories of capital structure to study the financing of capital structure. In this study, the theory underpinning this study is signaling theory while the supporting theory is agency cost theory to examine the relationship between financing decisions and financial performance.

Signaling Theory

Signal Theory was developed by Ross (1977), is a theory that explains how firms make available either positive or negative information referred to as signals for shareholders and outsiders of the firm (Himawan & Christian, 2016). Signal theory explains why firms have the drive to make available financial statement information to external parties. Firms provide information because there is information asymmetry between the firm and its external parties.

However, the information can send a good or bad signal to the investors when the dividends announced increase or decrease from the previous period. As a result, a wrong signal will indicate to the investors that the company lacks funds. This situation will cause investors' preference for stock to decrease because investors have an extreme preference for dividends (Hasanuddin, 2021). A correct investment decision will result in optimal performance thus giving a positive signal to investors who will add their stock price and the firm value. By implications and extant literature reviewed, this theory is relevant to explain the relationship that exists between these financing decision variables namely; investment and liquidity policy. Signaling theory supports the expectation that firms use equity financing and dividend pay-outs to send positive signals to investors. Hence, they are expected to have a positive relation with firm performance and the theory predicts a positive relationship between financing decision and firm performance.

Agency Cost Theory

Jensen and Meckling (1976) developed agency cost theory, where executives are interested in their well-being and maximizing profits, current and potential shareholders see earnings as a company's ability to distribute dividends on their investments, trading partners seek corporate solvency and stability, while the state strives to pay taxes and help create new jobs. X-ray of the agency theory is that the interests of managers and shareholders are not generally aligned as a result of problems reducing the value of businesses as well as financial performance (Tatiana & Stela, 2013).

According to agency costs theory, the agency problem is caused by a conflict of interest between shareholders and managers or between shareholders and debt holders as managers. Managers embark on decisions to benefit themselves only in terms of higher pay, promotion, and welfare package at the expense of shareholders' higher returns. The amount spent to eliminate agency problem is agency cost, there should be the best combination of debt and equity capital that could shrink total agency costs. Meanwhile, agency theory explains the potential conflicts in debt financing and its management. By implications and extant literature

reviewed, this theory is relevant to explaining capital structure financing decision and liquidity decision variables. Hence, they are expected to have a positive relation with firm performance.

3.0 Research Methodology

This research adopted a descriptive and correlation research designs. This allows for the collection of past data which provides the basis for the full establishment of the relationship between financing and financial performance of deposit money banks in Nigeria. Reasons in favour of the designs selected are, that the study investigated how correlated variables are among one another also, the design method was chosen due to its empirical study nature, it is a mono method as well; as it deals with quantitative research only to analyse its data. The population of a study refers to the overall set or group of individuals, objects, or phenomena that the study wishes to investigate or generalize findings to (Umar 2019).

The population of this study is the entire twenty-six deposit money banks in Nigeria as of the year ended, 2023 (NGX, 2023). A panel data of sample size of sixteen banks were selected after excluding 10 due to recent incorporation or regulatory closures. This yielded 240 firm-year observations for the study. Data were extracted from the banks' annual financial reports sourced from the NGX as at December 2023 and also from the banks' annual reports. Bawa (2019) refers to sample size as the number of elements or individuals selected from a total population to be used in a study.

Table 1
Variables Measurement

| Variables | Measurements | Source | A priori Sign |
|----------------------------|---|--|-----------------------|
| ROA | Profit after tax/ total asset | Doorasamy (2021) | |
| LEV. FIN TD/A | Total debts / total assets | Bui, Nguyen, and Pham. (2023), James, Mwangi, and Mukaria, (2023) | Positive. |
| EQ. FIN TE/A | Total shareholders' equity / total assets | Nmor, C., Osuji, C. C, & Erhijapkor, A. E. O. (2024), Cerciello M., Busato F., & Taddeo S. (2023). | Positive. |
| INV. Risky, Risk - free | Ordinary stocks, Bonds, Debentures, CP. | Agung, Hasnawati and Huzaimah (2021), Al-Slehat (2020) | Positive. |
| LIQ. CA/CL, CA - CL | Current assets/current liability, Current assets -current liability. | Almakura, Shiaki, and Gambo, (2024), Gitahi, and Kosgei, (2024) | Positive. |
| FI | Mobile, e-banking, p.o.s terminals and ATM ratios | Olofin, Yadaua, Gambo, and Muhammad, (2024); | Positive relationship |

| | | | |
|-----------|-----------------------------------|---------------------------------------|---------------------|
| | | Gbanador, Makwe, and Olushola, (2022) | with profitability. |
| Firm Size | Natural logarithm of total assets | Manyari, and Devi, (2023). | Positive. |

Source: Generated by the researcher, 2025

Model Specification

The regression models that were used for this study to test the hypotheses formulated are stated below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon_{it}$$

$$ROA_{it} = \beta_0 + \beta_1 DEBT_{it} + \beta_2 EQUITY_{it} + \beta_3 RISKY_{it} + \beta_4 RISK-FREE_{it} + \beta_5 CR_{it} + \beta_6 NWC_{it} + \beta_7 FI_{it} + \beta_8 FI(\beta_9 DEBT_{it} + \beta_{10} EQUITY_{it} + \beta_{11} RISKY_{it} + \beta_{12} RISK-FREE_{it} + \beta_{12} CR_{it} + \beta_{14} NWC_{it})_{it} + \varepsilon_{it}$$

Where:

Y = Performance. Return on assets for each firm.

DEBT = TDTA = Total debts to total assets.

EQUITY= TETA = Total equity to total assets.

RISKY = Risky = Ordinary Stocks,

RISK-FREE= Bonds, Debentures, Commercial Papers.

LD=LIQ = CR and NWC = Current assets to current liability, CA - current liability

FI = Financial innovation, Mobile, e-banking, P.O.S. terminals and ATM ratios

FS = Firm size = Natural logarithm of total asset

ε_{it} = Error term of uncovered variables

i t = Firm i at time t

$\beta_1 \dots \beta_{14}$ = regression coefficient.

Presentation of Results and Discussion

This section has empirically and theoretically dealt with the data presentation, analysis and interpretation.

Model Estimation Techniques

Panel regression model was employed to test the variables in this study. Panel data entails both cross-sectional and time series dimensions. The technique presents the researcher with adequate data points to eliminate the likelihood of biasness in the parameter estimators. Also, fixed effect estimation method and random effect estimation method using the Hausman test to select the best model were employed. Multiple regressions were used to determine the relationship between the return on assets and capital structure, investment and liquidity. Ordinary least square techniques were also adopted to test the regression correlation coefficient through the use of STATA 13 version software package. The following diagnostic tests were analysed: Normality test, Heteroskedasticity test, Multicollinearity test and Variance inflation factor and Tolerance test were used in this study.

4.0 Data Analysis

The summary of the descriptive statistics of the variables are presented in the table below.

| Variable | .Obs | Mean | Std. Dev. | Min | Max |
|-----------------|-------------|-------------|------------------|------------|------------|
| ROA | 240 | 0.1113631 | 0.1841986 | -1.336946 | 0.8373373 |
| DEBT | 240 | 0.7794972 | 0.3524978 | 0.001222 | 2.547496 |
| EQUITY | 240 | 0.2224289 | 0.3466891 | -1.547496 | 0.9998046 |
| RISKY | 240 | 0.192083 | 0.1928792 | 0.0061494 | 0.9849505 |
| RISK-FREE | 240 | 0.198572 | 0.1973418 | 0.0024964 | 0.9921215 |
| CR | 240 | 0.1472231 | 0.1462019 | 0.0003297 | 0.8762581 |
| NWC | 240 | 0.151172 | 0.1506707 | 0.0019542 | 0.9446709 |
| FIN.INNOV | 240 | 0.0360786 | 0.0688491 | 0.0005128 | 0.6495246 |
| FS | 240 | 8.87482 | 0.663402 | 6.702603 | 10.3149 |

Source: Researcher's computation. STATA 13 version: 2025.

The table presents the summary of the descriptive statistics of the dependent and independent variables as well as the moderating and control variables of the sample study. Total number of the observations is 240 from the deposit money banks in Nigeria. The mean of returns on asset (ROA) the dependent variable, over the period was 11.14% with minimum and maximum values of -1.3369 and 0.8373 respectively. This indicates that banks always profitable to appreciate the investment in assets by rewarding the holders. The standard deviation of 0.1842 shows how far the observation from mean by both sides is 18.42 meaning that there is a wide dispersion of the data from the mean because standard deviation is higher than the mean value.

The mean of total debt to total assets for the period was 77.95. This indicates that, a large number of banks' assets were financed with debt. This was further demonstrated in the table where the minimum and maximum values show 0.0012 and 2.5475 values respectively. Total debts standard deviation was 0.3525 value that shows how far the observation from mean respectively. This result shows that, firms prefer borrowing to finance their businesses. The findings are in line with that of Bui, Nguyen, and Pham. (2023) whose study's findings concluded that, firms use total debt to finance their businesses. However, the findings contradict that of Asante, Winful, Sharifzadeh and Neubert (2022) who concluded that firms at Nairobi securities exchange (NSE) use total debt to finance their businesses.

Total equity to total assets showed mean of 0.2224 over the period, minimum and maximum values of -1.5475 and 0.9998 and standard deviation of 0.3467 respectively. This implies that, majority of firms generate funds through the raise of shares to finance the business with the equity. Risky and risk-free investments showed a mean of 0.1921 and 0.1986 values respectively, minimum and maximum values of 0.0061, 0.0025 and 0.9850, 0.9921 and standard deviation of 0.1929 and 0.1973 values respectively. This result implies that, most firms were making use of the risk-free when investing to finance their businesses above mean usage.

Current ratio and networking capital form of liquidity showed a mean of 0.1472 and 0.1511 values respectively, minimum and maximum values of 0.0003, 0.0020 and 0.8763, 0.9447 respectively and standard deviation of 0.1462 and 0.1507 values respectively. This result implies that, most firms were keeping adequate liquidity to meet their needs when taking decisions to finance their businesses above mean usage.

The mean of financial innovation, a moderating variable was 0.0361, minimum and maximum values of 0.0005 and 0.6495 while the standard deviation was 0.0689 shows how effective the moderator to the study. The findings are in line with that of Gbanador, Makwe, and Olushola, (2022) whose study’s findings concluded that, financial innovation best fit in financing decision process. Conclusively, firm size which is a control variable showed a mean of 8.8749, minimum and maximum values of 6.7026 and 10.3149 while the standard deviation was 0.6634 that shows how far the observation from mean. This implies that, firm size is profitable to the firms.

Panel Effect Test

This test was conducted to further test the suitability of the random effect model selected to confirm between it and ordinary least square to ascertain the best fit model for the study. Panel effect test of 5% significance level was conducted to determine the selection of random effect to analyse the hypotheses if the p-value is significance or selection of ordinary least square if the p-value is not significance at 5% significance level.

| Estimated results: | Var | Sd=sqrt(var) |
|--------------------|-----------|--------------|
| Roa | 0.0339291 | 0.1841986 |
| e | 0.0174358 | 0.1320446 |
| U | 0.0058339 | 0.0763802 |

Source: Researcher’s computation. STATA 13 version: 2025.

Test: Var(u) = 0

$$\frac{\text{chibar2} (01) = 62.11}{\text{Prob} > \text{Chibar2} = 0.0000}$$

As shown in the table, p-value of 0.0000 is lesser than the 5% significant level implied that, the result of panel effect test is significance and hence, random effect model is preferred to analyses the study hypotheses.

Random Effect Regression Results of ROA as Dependent Variable Without Moderator

| ROA | Coef. | Std. Err. | Z | p>/z/ | [95% conf. Interval] |
|--------|----------|-----------|------|-------|----------------------|
| Debts | .2699038 | .1568009 | 1.72 | 0.085 | -.0374203 .5772279 |
| Equity | .299503 | .1594862 | 1.88 | 0.060 | -.0130842 .6120902 |

| | | | | | | |
|-----------|-----------|----------|-------|-------|-----------|-----------|
| Risky | -.0657715 | .0685884 | -0.96 | 0.338 | -.2002023 | .0686592 |
| Risk-free | -.1926679 | .0687266 | -2.80 | 0.005 | -.3273697 | -.0579662 |
| CR | .1464214 | .0952405 | 1.54 | 0.124 | -.0402465 | .3330894 |
| NWC | -.0825088 | .0861815 | -0.96 | 0.338 | -.2514215 | .0864038 |
| FS | .040585 | .0280658 | 1.45 | 0.148 | -.014423 | .0955929 |
| _cons | -.4840203 | .2917238 | -1.66 | 0.097 | -1.055788 | .0977478 |

Source: Researcher’s computation. STATA 13 version: 2025.

The table showed regression results of random effect without moderator. Results of all the independent variables such as debts, equity, risky, risk-free, current ratio and networking capital were insignificant on return on assets except the risk-free variable that has a negative but significant p-value at 0.005 effects on return on assets. Furthermore, the overall R² which is coefficient of determination stands at 0.0817 indicates that financing decisions components combined effects are able to explain up to the extent of 08.17% of the variations in return on assets without a moderating variable that is not fit enough as a model.

Random Effect Regression Results of ROA as Dependent Variable with Moderator

| ROA | Coef. | Std. Err. | Z | p>/z/ | [95% conf. Interval] | |
|--------------|-----------|-----------|-------|-------|----------------------|-----------|
| Debts | -.3349675 | .1557054 | -2.15 | 0.031 | -.6401445 | -.0297904 |
| Equity | -.3426361 | .1601762 | -2.14 | 0.032 | -.6565757 | -.0286965 |
| Risky | .088561 | .0678847 | 1.30 | 0.192 | -.0444906 | .2216125 |
| Risk-free | .0212635 | .0710261 | 0.30 | 0.765 | -.117945 | .1604721 |
| CR | .050254 | .0856435 | 0.59 | 0.557 | -.1176043 | .2181122 |
| NWC | .0212725 | .0880562 | 0.24 | 0.809 | -.1513145 | .1938595 |
| Fin.Innov | -.29.5703 | 3.979648 | -7.43 | 0.000 | -37.37026 | -21.77033 |
| Fi_debt | 31.96708 | 3.992684 | 8.01 | 0.000 | 24.14156 | 39.79259 |
| Fi_equity | 31.35016 | 4.026481 | 7.83 | 0.000 | 23.638439.42192 | |
| Fi_risky | -9.134009 | 2.191977 | -4.17 | 0.000 | -13.43021 | -4.837813 |
| Fi_risk-free | -6.223712 | 1.509721 | -4.12 | 0.000 | -9.182712 | -3.264712 |
| Fi_CR | 1.732402 | 1.117973 | 1.55 | 0.121 | -.4587836 | 3.923588 |
| Fi_NWC | -1.144106 | 2.150603 | -0.53 | 0.595 | -5.359211 | 3.070999 |
| FS | .0701628 | .0248561 | 2.82 | 0.005 | .0214458 | .1188798 |
| _cons | -.2075704 | .2681074 | -0.77 | 0.439 | -.7330512 | .3179105 |

Source: Researcher’s computation. STATA 13 version: 2025.

The table showed regression results of random effect with introduction of financial innovation as moderating variable into the model. Total debt has positive and significant effect on the financial performance of deposit money banks in Nigeria. This can be seen from the value of coefficient of 31.9671 with p-value of 0.000 implied that the coefficient is positively related and the p-value is statistically significant at 0.05 significance level. This result indicated that the moderating effect of financial innovation on total debt is one of the proxies of financing decisions that has positive and significant effect on financial performance of deposit money banks in Nigeria as financial innovation was incorporated. The results indicated that a unit change in total debt will cause a 31.9671 increase in financial performance therefore; firms consider financing their assets with the use of total debts. The results support the findings of Bui, Nguyen, and Pham. (2023); Ali and Shaik, (2022) concluded that, total debt had a positive relationship and significant effects on financial performance. However, the result contradicts that of Asante, Winful, Sharifzadeh and Neubert (2022); Nazir, Azam, and Khalid, (2021) who found out that total debt had a negative and insignificant relationship with ROA. The findings also support the positive effect of debt financing aligns with agency cost theory, agency cost theory states that managers that are actively involving in the managing the affairs of a firm tend to perform in such a way that will maximize the value of the firms.

Equity results of coefficient showed that equity has positive and significant effect on the financial performance of deposit money banks in Nigeria. This can be observed from the value of coefficient of 31.3502 with p-value of 0.000 implied that the coefficient has a positive relationship and the p-value is statistically significant at 0.05 significance level. This result indicated that the moderating effect of financial innovation on equity is one of the proxies of financing decisions that positively and significantly affect the financial performance of deposit money banks in Nigeria as financial innovation was incorporated. The results indicated that a unit increase in equity will cause a 31.3502 increase in financial performance therefore; most firms adopt equity as means of financing as it does not matter where and how the money was sourced provided the fund is available to run their businesses. The findings support signalling theory that explains why firms have the drive to make available financial statement information to external parties. The findings were in tandem with the study of Nmor, Osuji, and Erhijapkor, (2024) who concluded that, equity had a positive relationship and significant effects on firms' performance. However, the finding negates the findings of Cerciello, Busato, and Taddeo, (2023) who concluded that equity had a negative and insignificant relationship with ROA. The findings also support the positive effect of equity financing aligns with agency cost theory, agency cost theory states that managers that are actively involving in the managing the affairs of a firm tend to perform in such a way that will maximize the value of the firms.

The coefficient of risky investment showed that risky investment has a negative and significant effect on the financial performance of deposit money banks in Nigeria. This can be seen from the value of coefficient of -9.1340 with p-value of 0.000 implied that the coefficient is negatively related and the p-value is statistically significant at 0.05 significance level. This result indicated that the moderating effect of financial innovation on risky investment is one of the proxies of financing decisions that has a negative and significant affect the financial performance of deposit money banks in Nigeria as financial innovation was incorporated. The results indicated that a one-unit increase in risk-free investments reduces ROA by -9.13%, indicating a negative relationship therefore; firms consider financing their assets with the use of

stocks even though agency cost and return on investment have negative impact on the investment. The findings is in line with the findings of Quddus, (2023); Shahzad, and Fareed, (2020) who concluded that risky investment had a negative and significant relationship with ROA. However, the findings were inconsistent with that of Agung, Hasnawati, and Huzaimah (2021) that found out that risky investment had a positive and significant relationship with financial performance. The negative effect of risky investments aligns with agency cost theory, where excessive conservatism can indicate managerial risk aversion at the expense of shareholder value. The findings also support the agency cost theory states that managers that are actively involving in the managing the affairs of a firm tend to perform in such a way that will maximize the value of the firms. Also, the findings support signalling theory states that, the financial performance serves as information to existing and potential investors.

Risk-free investment has negative but significant effect on the firm performance of deposit money banks in Nigeria. This can be seen from the value of coefficient of -6.2237 with p-value of 0.000 implied that the coefficient is negatively related and the p-value is statistically significant at 0.05 significance level. This result indicated that the moderating effect of financial innovation on total debt is one of the proxies of financing decisions that negative and significant affect the financial performance of deposit money banks in Nigeria as financial innovation was incorporated. The results indicated that a one-unit increase in risk-free investments reduces ROA by 6.22%, indicating a negative relationship therefore; firms consider financing their assets with the use of bond, debenture, commercial paper even though return on investment have negative impact on the investment. The results support the findings of Suteja, Gunardi, Alghifari, Susiadi, Yulianti, and Lestari, (2023) who found that risk-free investment had a negative and significant relationship with ROA. Contrarily, the findings contradict the findings of Kumar, and Singh, (2022); Shahzad, and Fareed, (2020); Munawaroh, and Munandar, (2024) who found that that risk-free investment had a positive and significant relationship with financial performance. The negative effect of risk-free investments aligns with agency cost theory, where excessive conservatism can indicate managerial risk aversion at the expense of shareholder value. The findings also support the agency cost theory states that managers that are actively involving in the managing the affairs of a firm tend to perform in such a way that will maximize the value of the firms. Also, the findings support signaling theory states that, the financial performance serves as information to existing and potential investors.

However, the coefficient of current ratio and networking capital (liquidity) showed that current ratio and networking capital has positive and negative coefficient of 1.7324 and 1.1441 and p-values of 0.121 and 0.595 insignificant effect on the financial performance of deposit money banks in Nigeria respectively. This implied that the coefficient has positive relationship and the p-value is statistically insignificant at 0.05 significance levels. This result indicated that the moderating effect of financial innovation on current ratio and networking capital only have positive and insignificant effects on the financial performance of deposit money banks in Nigeria as financial innovation was incorporated. The results indicated that a unit change in current ratio and networking capital will cause 1.7324 and 1.1441 increases in firm performance therefore; the inverse relationship between the liquidity and firm performance is critical to any business organization. The more the liquid assets are, the lower the rate of returns, firms consider financing their assets with the use of liquidity to meet their immediate demands though excess liquidity at hand generates no return to the business. The results

support the findings of Lein (2023) who concluded that current ratio had a positive and insignificant relationship with ROA. However, the findings were inconsistent with that of Boma, Bernard, and Ndiyo, (2024); Chandra, et al. (2022); Gitahi, and Kosgei, (2024); Sinukaban, and Erlina, (2024) found that current ratio and networking capital (liquidity) had positive coefficient and statistically significant relationship with financial performance. The findings also support the positive effect of current ratio aligns with agency cost theory, agency cost theory states that managers that are actively involving in the managing the affairs of a firm tend to perform in such a way that will maximize the value of the firms.

Firm size, a control variable showed a positive coefficient of 0.0702 and p-value of 0.005 at 0.05 significant level that indicated a positive and significant relationship with financial performance. This result implies that firm size as control variable has significant effect on financial performance. The results indicated that the bigger the size of a firm in term of its assets, the more profitable the firm will be as its goodwill will speak for the firm. The result agrees with Franc-Dbrowska and Madra-Sawicka (2020); Sule (2019) that found out that firm size as a control had positive and significant relationship with financial performance. While Abubakar, (2021); Eyigege (2018) found out that firm size as a control had positive, negative and insignificant relationship with financial performance respectively.

The overall model result is significant with a p-value of 0.0000 very strong and greater than the Wald χ^2 of 149.42 which is significant at 5% significance level shows that the model is best fit for the study. Furthermore, the R^2 which is coefficient of determination stands at 0.3425 indicates that financing decisions components combined effects are able to explain up to the extent of 34.25% of the variations in ROA while the remaining 65.75% left represented other variables not captured in the model of the study. This result showed that moderating effect of financial innovation on financial performance has significant effect on financial performance of deposit money banks in Nigeria when compare with the results of random effect regression without moderator overall model result was 08.17% compared to 34.25% when moderator was incorporated into the study.

Variance inflation factor (VIF) and tolerance values

| Variable | VIF | 1/VIF |
|-----------|------|----------|
| CR | 3.23 | 0.310039 |
| Risk-free | 3.10 | 0.322200 |
| NWC | 3.05 | 0.327851 |
| Debts | 3.00 | 0.332897 |
| Risky | 2.98 | 0.336115 |
| Equity | 1.73 | 0.578942 |
| Fin.Innov | 1.57 | 0.637597 |
| Mean VIF | 2.66 | |

Source: Researcher's computation. STATA 13 version: 2025.

Table shows that the VIF of all the variables are less than 10 and tolerance level of all the variables were less than 1 indicating that, the data used for the study were absent of harmful multicollinearity.

5.0 Summary and Conclusion

The objective of the study was to investigate the effect of financing decisions on financial performance of deposit money banks in Nigeria: a moderating role of financial innovation. Descriptive research design was utilized with a sample size of 16 banks out of 26 deposit money banks in Nigeria for the study over a period of fifteen years from 2009-2023 using secondary sources of data obtained from Nigerian exchange group. The research findings indicated that, debt and equity financing decisions had positive and statistically significant effect on financial performance (returns on assets) at 5% significance level. Risky and risk-free investment financing decisions had negative and statistically significant effect on financial performance (returns on assets) at 5% significance level. This result supported the signaling theory. However, current ratio and networking capital (liquidity) financing decisions had positive and negative coefficient and insignificant effects on financial performance of deposit money banks in Nigeria respectively. This implied that, moderating effect of financial innovation had positive and significant effect on financial performance of deposit money banks in Nigeria. This result supported the agency cost theory used for the study. The overall model's findings showed a significant relationship of all the financing decisions components with return on assets that proxy financial performance. The study hence concluded that, financial innovation introduced as moderating variable has a positive effect on financial performance of deposit money banks in Nigeria.

Recommendations

Based on fact and figure in the study's findings, some key policy recommendations were suggested to the decision makers of banking sector in Nigeria.

- i. Banking sector in Nigeria should embark on borrowing to finance their businesses as it quick to assess as long as the returns on borrowing can be higher to take care of the bank interest, settle sundry expenses and generate income for the firm to achieve financial performance with less cost.
- ii. Banking sector through the Nigeria exchange group are encouraged to issue more shares to the general public to raise funds for financing their businesses as it reduces costs and generated higher returns as supported by trade-off theory.
- iii. Banks decision makers are advised to be cautious in investing in risky stocks due to its inverse relationship and danger of inability to recoups the capital invested.
- iv. Risk-free investment like bonds, debentures and commercial papers were recommended to the Banks's decision makers as this has guarantee, secured and short maturity period with a defined constant return.

- v. Banking sector in Nigeria is discouraged of keeping excess funds liquidity in their possession as this will generate nothing to the Banks's financial performance since returns on such funds if not invested is loss.
- iii. Conclusively, decision makers of banking sector in Nigeria are advised to expend more on financial innovation components (ATM, POS, E-banking/Internet banking) to expand the facilities to be assessable to their customers.

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