



# Moderating Effect of Risk Management Committee Expertise on the Relationship between Interest Rate Risk and Value of Listed Deposit Money Banks in Nigeria

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## ABSTRACT

The effect of interest rate risk on value of banks has become a global phenomenon, even the well performing banks are suddenly plunged into crisis if risk is not carefully monitored and managed. Several studies have been conducted on the relationship between interest rate risk and value of listed deposit money banks in Nigeria. This study introduced risk management committee expertise as a moderator to examine the effect of the relationships between these variables. The objective of the study is to examine the moderating effect of risk management committee expertise on the relationship between interest rate risk and value of listed deposit money banks in Nigeria. The study covered a period of twelve (12) years (2013 - 2024). The ex-post facto (correlational) research design was used. The 14 listed deposit money banks in Nigeria formed the population of the study out of which twelve (12) companies were selected to form the sample. The multiple linear regression, correlation and descriptive statistics were used to analyze the data. The findings of the study revealed that risk management committee expertise has positively and significantly moderated the relationship between interest rate risk and firm's value of listed deposit money banks in Nigeria. Firm Size has negative and significant effect on Price to Book Value. The study recommended that interest rate risk should always be managed well because fluctuation of interest rate in the capital market can have a far reaching effect on Firm Value.

**Keywords:** interest rate risk, value of banks, risk management committee expertise, price to book value, multiple linear regression, correlation, descriptive statistics, Nigeria

## INTRODUCTION

A firm value is an amount investors are willing to pay in order to take over a business entity (Shaki, Falack, Maurice & Emmanuel, 2020). Furthermore, firm value is the benchmark for investors to assess the success of a company which is reflected in the company's stock prices. Similarly, effective communication and openness to shareholders is very important in building firm value. Rising stock prices is a reflection of market confidence in the good prospects of the companies, especially in the future (Reschiwati, Syahdina & Handayani, 2020).

Firms' value is a benchmark for investors to assess the success of a company (Reschiwati, Syahdina, Handayani, 2020). It assists investors to determine the profitability of a firm by assessing the value of the assets and how these assets are being put into useful means. It also determines the contribution of the assets in generating a profit in a firm. On the other hand, High company value will be followed by high shareholder prosperity (Andhika, Rizky, Hasan & Fadah, 2018). The higher the value of a company, the higher the market share of a company; the increase in firm value is determined by the increase in the market value of its shares. When the marketable security of a firm improves, investors will be glad to invest more in such firm because it shows improvement in profitability.

According to Andhika, et al (2018), company's value can be used as an indicator in assessing the company as a



whole. If the company's debt is too large, then additional debt must be prevented. At some point, the increase in debt will reduce the value of the company, because the benefits derived from the use of debt are less than the costs they incurred. If the firm debt is on the increase, the costs incurred in taking the debts are more than the benefit derived from it. It is invariably important that, the main purpose of the company is not only to earn a profit, but also to maximize its value and this is achieved by increasing stock prices, so as to promote the prosperity of the owners of such firm (Muhimatul, Faisal, Imam & Udin, 2019).

The unexpected changes and high volatility in the structure of interest rates constitute a source of risk for banks' business activities and can unfavorably affect their financial conditions. Interest rate risk refers to sensitivity of banks' cashflows, reported earnings and the economic value to change in interest rates. It arises as a result of the maturity mismatch between assets and liabilities, the different re-pricing dates of floating-rate balance sheet assets and liabilities, the imperfect correlation of interest rate for various assets and liabilities that vary at the same time but not necessarily by the same amount (Esposito, Nobili & Ropele, 2013).

In the same vein, Esposito, Nobili and Ropele (2013) opine that interest rate risk is the exposure of an institution's financial conditions to unfavourable movement in interest rates. Accepting this risk is the normal part of banking activities and can be important sources of profitability and shareholder value. However, excessive level of interest rates risk can pose a significant threat to an institutions earnings and capital base. Accordingly, the interest rate risk at prudent levels is essential to the safety and soundness of banking institutions.

Risk management committee is a board of directors subcommittee, which promotes risk management practices within an organization in order to reduce the effect of risk (Alhaj, Mansor & Hashim, 2022). One of the ways to determine the efficacy of board of directors is through its subcommittees. The risk management committee is one of its subcommittees that enhanced the oversight function of the board (Kakanda, Salim & Chandren, 2018). The role of risk management committee is to promote and propagate risk management practices in organization, it also assist the board of directors in its oversight function (Okpe, 2017). The risk management committee is essential to banks operations acting as supporting committee that supervise risk taking strategies, policies and processes of the firm (Islam, Bhuiyan, Kassim & Rasli, 2022).

Similarly, Alsaman, Alhamid and krisha (2023) state that the risk management committee is a subcommittee of the board saddled with the responsibilities of handling different types of risk including financial risk, operational risk, empowerment risk, information processing and technology risk, strategic risk, integrity risk as well as any other kinds of risks that are likely to affect a firm's activities and sustainability. It is also the responsibility of the risk management committee to assist board of directors in determining the level of risk appetite for the overall types of risks facing the firm. It also helps the board in evaluating the firm's risk appetite and ensuring that the firm does not exceed the firm's appetite limit. It determines risk policies of the firm as well as monitors the firm's risk exposure. It measured the suitability and competent of the risk policies, such as measurement, follow up and monitoring of the firm's risk exposure as well as implementing any required amendments to those policies according to development in the market and the surrounding environment.

Several studies have been conducted on the relationship between interest rate risk and firm's value but none of the studies previously conducted used moderator variable in order to examine this relationship from different approach. Hence, the used of risk management committee expertise in order to fill the gap.

The main objective of this research is to examine the moderating effect of risk management committee expertise on the relationship between interest rate risk and value of listed deposit money banks in Nigeria.

The study hypothesized based on the null form as follows:

HO<sub>1</sub>: There is no significant effect between moderating effect of risk management committee expertise on the relationship between interest rate risk and value of listed deposit money banks in Nigeria.



## **LITERATURE REVIEW**

### **Conceptual Framework**

The interest rate risk is the reduction in earnings as a result of fluctuation in the movement of interest rate. In order to meet the demand of their customers as well as communities in which the banks are doing business and to execute business strategies, banks make loans, purchase securities, and take deposits with different maturities and interest rates. These activities may leave a bank's earnings and capital exposed to movement in interest rates. This exposure is interest rate risk (FSA, 1993). Basel committee of banking supervision (1993) has set out principles for sound interest rate risk management, rather than establishing a more standardized measure for interest rate risk. The committee however, keeps the need for such more standardized measures under review and may, at a later stage revisit its approach in this area. In that context, the committee is aware that industry techniques for measuring and managing interest rate risk continue to evolve, particularly for products with uncertain cash flows or repricing dates, such as many mortgage related products and retail deposits. It is no longer sustainable for a company to rely on advanced production technology, the cheapest labour supply or the best marketing team because volatility of interest rate can put even well managed company out of business (Mahshid & Naji, 2003).

Interest rate risk is the risk of decline in earnings as a result of movement in interest rate. Bank balance sheet comprises mainly of items that generate revenues and costs that are interest rate driven. Since interest rates are unstable automatically the earnings tend to be unstable. The effect of interest rate changes on the bank profit and values has been an important area for the banking industry in recent years (Mahshid & Naji, 2003).

Interest rate risk refers to change in bank portfolio value as a result of interest rate fluctuation. Taking on interest rate risk is a key part that bank usually maintain but taking excess interest rate risk could threaten a bank's earnings as well as its capital base with rising concern for banks supervisors. In practice, interest rate risk management system have been developed to measure and control risk exposures, both in the trading book i.e. assets that are relatively liquid and traded so often and in the banking book i.e. assets such as loans that are less frequently traded (Lopez, 2004).

### **Theoretical Framework**

#### **Real Option Theory**

The real option theory refers to the sequential, definitive investments carried out in a risk and uncertain situations. According to the concept, obtaining a real option on strategically important opportunity allows firms to be able to postpone investment on a particular project until a significant percentage of the risk surrounding the project is resolved. After making an initial investment, management should shift its focus to other projects and wait for a signal indicating whether it is time to begin harvesting or grow the initial investment. In numerous strategic settings, a comprehensive valuation of investment deals is an essential strategic responsibility; practitioners often accomplish this with high accuracy using a thorough discounted free cash flow valuation and scenario-base analysis (Andrejs. 2024).

Furthermore, real option theory describes what makes a particular project "option" and then what makes them "real" the term option is opposed to alternative or possibility, is of important in understanding the theory origins and boundaries and in developing and testing the relevant hypotheses. An option is a right but not an obligation to take some future specified project at a specified cost. The core of the theory is a fundamental decision asymmetry to take a future investment only if it is beneficial to decision maker, but not otherwise. In some organizational context certain rights might be established through contracts, alternatively, they might be established through idiosyncratic knowledge that a firm possesses. The fundamental decision asymmetry of options involving the right but not the obligation to act also gives rise to an asymmetry in firm's outcomes in the presence of risk and uncertainty (Trigeorgis & Reuer, 2016).

A real option is the right but not the obligation to undertake certain business initiatives, such as deferring, abandoning, expanding, staging or contracting a capital investment project. For example, the opportunity to



invest in the expansion of the firm's factory or alternatively to sell the factory, is a real call or put option, respectively. The real options are generally distinguished from conventional financial options; in that, they are not typically traded as securities, and do not usually involve decisions on an underlying asset that is traded as a financial security. Real option analysis, as discipline, extends from its application in corporate finance, to decision making under risk and uncertainty in general, adapting the techniques developed for financial options to real-life decisions. It forces decision makers to be explicit about the assumptions underlying their projections and for this reason, real option valuation is increasingly employed as a tool in business strategy formulation (Kremljak & Hocevar, 2013).

### **Review of Empirical Studies**

Interest rate risk is the exposure of an institution's financial condition to adverse movement in interest rates (FRB of US, 1998). On the other hand, an interest rate risk exposure refers to a risk posed by changing interest rates which have a direct impact on the interest earned on loans and investments as well as interest paid on deposits (Odeke & Odongo, 2014). Furthermore, fluctuations and changes in interest rate could lead to a mismatch between interest paid on deposits and interest received on loans (Aruwa & Musa, 2014).

In their research, Marami and Dubois (2000) examined the impact of interest rate derivatives and firm value evidence from mandatory as well as voluntary hedging in Switzerland. The results revealed that there is an economically large and statistically significant positive impact from mandatory interest rate derivatives on firm value but no significant impact on voluntary hedging on firm value.

Furthermore, Purnanandam (2005) found that the derivative non-user bank's lending volume decline significantly with the contraction in the money supply. Derivative users, on the other hand, remained immune to the monetary policy shocks. The study recommended that a potential of derivatives usage is to minimize the effect of external shock on a firm's operating policies.

Again, Carneiro and Sherris (2008) disagreed with the previous findings by finding positive and significant relationship between interest rate risk hedge and company size. Using panel data regression in the analysis of the data collected. The results further stated that total leverage is not significantly important to interest rate risk hedge demand. Instead, this demand is related to the specific risk exposure in the interest bearing part of the firm's liabilities.

On the other hand, Da Cunha (2009) presented empirical evidence on the valuation effects of foreign currency and interest rate hedging with derivatives measured by Tobin Q. The results revealed that 91.1% hedging firms are all derivatives users, also, the statistical and regression analysis, evidence that the Spanish firms hedging activities have more impact on firms' value than the Italian ones. The study used descriptive statistics, correlation as well as regression analysis in the analysis of the data collected.

Similarly, Antoniou, Zhao and Zhou (2009) found that apart from raising capital, a firm can hedge its interest rate exposure by issuing debt, the value of which moves in an opposite direction from the value of its assets as interest rate varies. The finding further stated that firm's choice of debt issues are primarily driven by debt market conditions in an effort to lower their cost of capital rather than managing their firm's specific interest rate exposures. The research suggested that market timing, as opposed to hedging, is the primary motivation behind corporate debt issuance.

Furthermore, Ahmed, Azevedo and Guney (2012) found that the relationship between interest rate risk hedging and firm financial performance is negative for the overall hedging but positive for the hedging with forward contracts. Also the findings further state that the 2008-2009 financial crisis did not affect significantly the established risk management practices and firm's commitment to financial risk hedging with derivatives. The study used descriptive statistics as well as OLS regression in the analysis of data collected.

In the same vein, Hien (2013) investigated the interest rate risk management practice in Vietnamese joint stock commercial banks. The results disclosed that the efficiency of the banks' interest rate management has been in



average level which indicates a lack of methods in measuring simulation as well as hedging the risk and information technologies used in collecting and evaluating data.

## METHODOLOGY

### Research Design

The research design is *ex-post facto* (correlational research design) on the ground that the data have been extracted from already prepared annual reports. It explores causes and effects relationships where causes already exist and cannot be manipulated. The effort here is to ascertain whether there is relationship between interest rate risk and value of listed deposit money banks in Nigeria and the moderating effect of risk management committee expertise. The research design is adopted with some modifications from Sabo (2017); Philip and Abisola (2019); Ironkwe and Osaat (2019); Iyinomen, Okoye and Ifeoma (2019); Abubakar, Garba and Sulaiman (2020); Adebayo, Ifeanyi and Abiodun (2020); Chioma et al (2021).

### Population and Sample

The population of the study consists of all the listed deposit money banks in Nigeria. The deposit money banks play important roles in the distribution of economic resources of any country (Wisdom, Muideen & Akindele, 2018). Deposit money banks facilitate economic growth in numerous ways but the main function of bank is to provide funds for investment purposes. Deposit money banks in the process of credit creation affect the economy through the provision of credit to fund private/public investment and consumption (Chioma et al, 2021).

The study covers the listed deposit money banks in Nigeria as at 31st December, 2025. However, the availability of data is crucial in conducting any research project. The only criterion laid down by the research is that all listed deposit money banks must report consistent financial statement throughout the study period (2013-2025) and also must be listed in Nigeria exchange group without been delisted within the study period. The Eco bank PLC and Jaiz bank PLC did not meet the laid down criteria. Jaiz bank PLC was not listed in Nigeria exchange group until 2017, thus has no consistent financial statement. The Eco bank PLC too did not have consistent financial statement throughout the study period, thus, they were filtered out.

Table 3.1 exhibits the list of the listed deposit money banks in Nigeria which represent the population of the study.

**Table 3.2 Sample of the Study**

| S/N | Names             | Date of Incorporation | Date of Listing |
|-----|-------------------|-----------------------|-----------------|
| 1   | ACCESS BANK PLC   | 1989                  | 1998            |
| 2   | FCMB PLC          | 1982                  | 2013            |
| 3   | FIRST BANK PLC    | 1894                  | 2012            |
| 4   | FIDELITY BANK PLC | 1987                  | 2005            |
| 5   | GTCO PLC          | 1990                  | 2021            |
| 6   | STERLING BANK PLC | 1992                  | 1993            |
| 7   | STANBIC IBTC PLC  | 1989                  | 2012            |
| 8   | UNITY BANK PLC    | 1987                  | 2006            |
| 9   | UNION BANK PLC    | 1917                  | 1971            |
| 10  | UBA PLC           | 1961                  | 1970            |
| 11  | WEMA BANK PLC     | 1945                  | 1990            |

|    |                 |      |      |
|----|-----------------|------|------|
| 12 | ZENITH BANK PLC | 1990 | 2004 |
|----|-----------------|------|------|

Source: Generated by the author from financial statements

## RESULT AND DISCUSSIONS

Table 4.1 presents the central tendencies, variability and relative position of dependent, explanatory and moderator variables of the study.

**Table 4.1 Descriptive Statistics of the Variables of the Study**

| Variables | TYPE  | Observation | Mean | Std Deviation | Minimum | Maximum |
|-----------|-------|-------------|------|---------------|---------|---------|
| PBV       | ratio | 144         | 1.57 | 0.86          | 0.42    | 4.42    |
| IRR       | ratio | 144         | 0.13 | 0.06          | 0.02    | 0.53    |
| RMCE      | %     | 144         | 0.89 | 0.10          | 0.67    | 1.00    |
| FS        | log   | 144         | 12.4 | 0.51          | 11.19   | 14.48   |

Source: Generated by the author from annual report data of the sample companies (2013-2024) using STATA software.

The mean of price to book value (PBV) of 1.57 indicates that the stocks of the banks under study are overvalued. Therefore, it is advisable for investors to avoid investing in the shares of the banks for now, because according to financial rules, if the price to book value (PBV) of the company is below one (1), it means that the shares of the company are undervalued which will attract investors to purchase its shares.

The standard deviation of 0.86 shows that majority of the shares of the sampled banks are undervalued. This goes a long way in attracting investors willing to invest in the shares of the banks. The management and board of directors of the sampled banks are advised to increase over capitalization of their stocks.

The minimum amount of 0.42 showed that among the sampled banks, there are few that their shares are quite undervalued, which is favourable for investors, because by looking at the price to book value, investors can find out the value of their shares, whether it is overvalued or undervalued. Investors buy shares if the value of the share is undervalued, and will reject shares that are overvalued while, the maximum amount of 4.42 shows that some of the banks' shares are highly overvalued which is not favourable for investors.

In interest rate risk (IRR), the mean value of 1.13 showed that the banks on average are managing their interest rate risk well because of high interest income compared to interest expenses of up to 1.13 which is quite commendable. The standard deviation of 0.06 reveals that some banks are poor in managing interest rate risk. The minimum amount of 0.02 shows that few of the banks are very poor in managing interest rate risk. However, the maximum amount of 0.53 shows that some banks are good in managing interest rate risk because 0.53 is high ratio of interest income against interest expenses.

In risk management committee expertise, the mean value of 0.89 showed that on average 89% of the banks have strong relationship between dependent (PBV) and independent (IRR, Firm size) variables. The standard deviation of 0.1 revealed that 10% of the banks have weak relationship between dependent and independent variables. The minimum amount of 0.67 reveals that 67% of the banks have strong relationship between dependent and independent variables. The maximum amount of 1.00 revealed that some banks have 100% strong relationship between dependent and independent variables.

### Correlation among Dependent, Explanatory and Moderator Variables

Correlation is used in order to ascertain the extent to which the dependent, independent/explanatory and moderator variables fluctuate together.

**Table 4.2 Correlation Matrix among Dependent, Explanatory and Moderator Variables**

|      | PBV     | IRR     | RMCE   | FS     |
|------|---------|---------|--------|--------|
| PBV  | 1.0000  |         |        |        |
| IRR  | -0.0790 | 1.0000  |        |        |
| RMCE | -0.1007 | -0.0375 | 1.0000 |        |
| FS   | -0.1656 | -0.0239 | 0.1120 | 1.0000 |

Source: Generated by the author from annual report data of the sample companies (2013-2024) using STATA software, version 14.

The table shows the correlation coefficient between the dependent variables (PBV), explanatory variables (IRR, FS,) and moderator variable (RMCE) of listed deposit money banks in Nigeria. The absolute values of the coefficients indicate the strength of the relationship ranging from -1 to 1. The signs (+ and -) indicate the direction of the correlation whether positive or negative. The 1.0000 on the diagonal of the table shows that each variable is perfectly correlated with itself.

The price to book value (PBV) positively correlated with explanatory variables, negatively correlated with interest rate risk (IRR), and the moderator variable risk management committee expertise (RMCE).

If the values of the banks increase by 8% the interest rate risk will decrease by 8% which shows that the interest rate risk is managed well in Nigerian banks. If the banks decide to increase the assets base by 16%, the firm value would likely be decreased by the same amount of 16%. So leaving the size of the assets of the banks in the current position is advisable. The price to book value (PBV) and risk management committee expertise are negatively correlated, that is if the values of the banks increase the risk management committee expertise is decreasing and vice versa.

## Multiple Linear Regression Results and Discussion

**Table 4.3 Multiple Linear Regression of the Dependent, Explanatory and Moderator Variables**

| VARIABLES   | COEFFICIENT | Z      | P> Z   | 95% CONF. INTERVAL |         |
|-------------|-------------|--------|--------|--------------------|---------|
| PBV         | T           |        |        |                    |         |
| RMCE IRR    | 32.4233     | 2.05   | 0.041  | 1.3826             | 63.464  |
| FS          | -0.4461     | -3.75  | 0.000  | -0.6791            | -0.2130 |
| SIGN        | 0.0000      | 0.0000 | 0.0000 | 0.0000             | 0.0000  |
| NO OF       |             |        | 144    |                    |         |
| OBSERVATION |             |        | 0.16   |                    |         |
| R-SQUARE    |             |        | 78     |                    |         |
| COVARIANCE  |             |        |        |                    |         |

SOURCE: Annual Report and Account Data of Listed Deposit Money Banks in Nigeria.  $p < 0.1$ ;  $p < 0.05$ ;  $p < 0.01$ . Indicate 10%, 5% and 1% significant level.

The hypothesis states that risk management committee expertise has no significant moderating effect on the relationship between interest rate risk and firm value of listed deposit money banks in Nigeria. The findings from table 4.1 reveal that risk management committee expertise has positively and significantly moderated the relationship between interest rate risk and firm value as revealed by the p-value of 0.041 significant at 5%, 95% confidence level, and coefficient of 32.4233. This means that risk management committee expertise has strong moderating effect on the relationship between interest rate risk and price to book value. Therefore, we reject the null hypothesis and emphasize that risk management committee expertise has a significance effect on the relationship between interest rate risk and firm value of listed deposit money banks in Nigeria.

This finding is consistent with the findings of Chen and Chen (2011); Tangjitprom (2012); Purwohandoko (2017); Sari and Sedana (2020); Sudiyatno, Puspitasari, Suwarti and Asyif (2020); Budiyanto and Asyik (2021); Sari, Rokhmawati and Halim (2021).



Firm size has negative and significant effect on price to book value of listed deposit money banks in Nigeria as revealed by p-value of 0.000 and coefficient of -0.4461. This means that an increase in the assets of listed deposit money banks in Nigeria would have high effect on their values.

## CONCLUSION AND RECOMMENDATIONS

The risk management committee expertise positively and significantly moderates the relationship between interest rate risk and price to book value. Therefore, risk management committee expertise has a strong moderating effect on the relationship between interest rate risk and firm value of listed deposit money banks in Nigeria. It concludes that there is a strong relationship between interest rate risk and value of listed deposit money banks in Nigeria. Therefore, it is not a fault if resources of the deposit money banks are committed in studying the risk management committee expertise as a moderator between interest rate risk and value of listed deposit money banks in Nigeria. This has shown that the moderator strengthened and/or directed the relationship between interest rate risk and value of listed deposit money banks in Nigeria as revealed by the multiple regression, correlation and descriptive statistics.

The firm size has negative and significant effect on price to book value. Therefore, the size of the banks matters more, as far as firm value is concerned. It concludes that assets base is essential to the management of the deposit money banks in Nigeria as far as firm value is concerned. The assets base as revealed in multiple regression, correlation and descriptive statistics of the study is much more important to deposit money banks. Therefore, it is not a fault if more resources are concentrated on the management of assets base of the deposit money banks, since it is essential to the value of the banks. Many deposit money banks revealed strong assets base, therefore the numbers are enough to conclude that the assets base are fundamental to the existence and survival of the deposit money banks in Nigeria.

The banks should make sure that fluctuation of interest in the capital market does not affect their operations as supported by risk management committee expertise. The risk management committee expertise positively and significantly moderates the relationship between interest rate risk and price to book value. Therefore, risk management committee expertise has a strong moderating effect on the relationship between interest rate risk and firm value of listed deposit money banks in Nigeria. Therefore, it is not a fault if resources of the deposit money banks are committed in studying the risk management committee expertise as a moderator between interest rate risk and value of listed deposit money banks in Nigeria. This has shown that the moderator strengthens and/or directs the relationship between interest rate risk and value of listed deposit money banks in Nigeria as revealed by the multiple regression, correlation and descriptive statistics.

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