

EFFECTS OF SELECTED FINANCIAL HEDGING STRATEGIES ON THE MARKET VALUE OF QUOTED DEPOSIT MONEY BANKS IN NIGERIA

EFEITOS DE ESTRATÉGIAS SELECIONADAS DE COBERTURA FINANCEIRA NO VALOR DE MERCADO DE BANCOS DE DEPÓSITOS COTADOS NA NIGÉRIA

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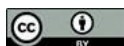
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Abstract

This study investigated the effects of selected financial hedging strategies on the market value of quoted deposit money banks in Nigeria. Adopting an ex-post facto research design, the study utilized panel data of 13 listed deposit money banks for the period between 2015 and 2024. Data were gathered from published financial statements and were examined by means of Panel Estimated Generalized Least Squares with cross-section random effects. The Hausman test confirmed the use of the random effects model (Chi-Sq. = 0.582; $p = 0.997$). The regression model revealed that futures contract had a positive and significant effect on market value (coefficient = 0.765; $p = 0.000$). Interest rate swap also had a positive and significant impact on it (coefficient = 6656.659; $p = 0.000$). Index futures showed an insignificant relationship with market value (coefficient = 1517.571; $p = 0.813$). The overall model was significant (F-statistic = 11.309; $p = 0.000$) and explained 32% of the variation in market value (Adjusted $R^2 = 0.318$). The study concluded that derivative financial instruments, namely futures and interest rate swaps, when employed strategically and revealed transparently, had a positive impact on market valuation. It recommended increased use of these instruments and improved disclosure mechanisms according to international financial reporting standards to facilitate increased investor confidence and market trust.

Resumo

Este estudo investigou os efeitos de estratégias selecionadas de hedge financeiro sobre o valor de mercado de bancos de depósito listados na Nigéria. Adotando um delineamento de pesquisa ex post facto, o estudo utilizou dados em painel de 13 bancos de depósito listados no período entre 2015 e 2024. Os dados foram coletados de demonstrações financeiras publicadas e examinados por meio de Mínimos Quadrados Generalizados Estimados em Painel com efeitos aleatórios transversais. O teste de Hausman confirmou o uso do modelo de efeitos aleatórios (Qui-Quadrado = 0,582; $p = 0,997$). O modelo de regressão revelou que os contratos futuros tiveram um efeito positivo e significativo sobre o valor de mercado (coeficiente = 0,765; $p = 0,000$). O swap de taxa de juros também teve um impacto positivo e significativo sobre ele (coeficiente = 6656,659; $p = 0,000$). Os contratos futuros de índice apresentaram uma relação insignificante com o valor de mercado (coeficiente = 1517,571; $p = 0,813$). O modelo geral foi significativo (estatística F = 11,309; $p = 0,000$) e explicou 32% da variação do valor de mercado (R^2 Ajustado = 0,318). O estudo concluiu que os instrumentos financeiros derivativos, nomeadamente futuros e swaps de taxas de juros, quando empregados estrategicamente e divulgados de forma transparente, tiveram um impacto positivo na avaliação de mercado. Recomendou-se o aumento do uso desses instrumentos e o aprimoramento dos mecanismos de divulgação,



Keywords: Accounting Derivatives. Futures Contracts. Interest Rate Swaps. Index Futures. Market Value. Deposit Money Banks.

de acordo com as normas internacionais de relatórios financeiros, para facilitar o aumento da confiança dos investidores e do mercado.

Palavras-chave: *Derivativos Contábeis. Contratos Futuros. Swaps de Taxas de Juros. Futuros de Índice. Valor de Mercado. Bancos de Depósito.*

1 INTRODUCTION

In the global finance sector, derivative contracts have emerged as key risk management products, asset allocation plan improvers, and financial performance enhancers (Agbaeze, Adegun & Ezechi, 2023). Financial derivatives such as futures contracts, interest rate swaps, and index futures are particularly important to financial institutions such as deposit money banks (DMBs) because they are exposed to various market volatilities such as interest rate fluctuations, foreign exchange rate fluctuations, and movements in equity prices (Ehiedu & Nwaokocha, 2024). These instruments are used not only as hedgers for financial risks but also as arbitrage and speculation tools, which may value a bank differently depending on the purpose and efficacy of their use (Ayadi *et al.*, 2024).

Nigeria's banking industry, a vital channel for economic growth, has adopted derivative instruments in large numbers due to financial liberalization, globalization, and the implementation of International Financial Reporting Standards (IFRS), specifically IFRS 7 and IFRS 9, which regulate financial instruments and disclosures (Sabina, Chimere & Augustine, 2023). These standards require better transparency and the fair valuation of assets and liabilities. However, how much the application of some derivative instruments affects listed DMBs' market value in Nigeria remains to be sufficiently examined in empirical studies (Uche-Udo & Okafor, 2022). Derivative instruments have been viewed in research studies in general cumulatively or with a very narrow focus on profit-based performance measures such as Return on Equity (ROE) and Earnings Per Share (EPS) without regard for how such instruments affect market value from an investor's perspective.

Studies like the efforts of Ehiedu and Nwaokocha (2024) and Sabina, Chimere, and Augustine (2023) have gone further to examine broader effects of financial derivatives on measures of financial performance, including return on equity and earnings per share. They, however, presented opposite results where derivative liabilities generally registered negative results while derivative assets presented positive or statistically insignificant effects. These findings raise questions about the insensitivity of derivatives such as futures contracts, interest rate swaps, and index futures in general and how they co-move with market value that reflects investors' perception of bank profitability and stability.

Globally, Ayadi *et al.* (2024) found that the application of derivatives negatively affected firm value in developed economies, particularly where firms were indeed engaging in derivative transactions. On the other hand, Al Fazari *et al.* (2022) argued that if derivatives were used for hedging, they positively affected firm value, which meant that the structure and motive of derivative use were pivotal in determining consequences. In Nigeria, Agbaeze *et al.* (2023) proved that foreign exchange and money market derivatives exerted enormous positive impacts on bank performance, once again affirming the potential of such instruments to contribute value. But whereas uncertainty of which specific instruments create market value gains or losses necessitates disaggregation, theoretical relevance of derivatives as value-added and risk management instruments has hitherto remained empirically inapplicable to their precise effect in the Nigerian banking sector, whose findings are frequently inconclusive and at times contradictory.

Some of the researches have been able to report positive high correlations of performance measures with derivatives while others have found either negative or statistically nonsignificant influence. For example, Sabina *et al.* (2023) found out that although the derivative liabilities and assets were found to be correlated with the movements in earnings and share price, the effect was largely nonsignificant. Similarly, Sulaiman and Ibrahim (2020) discovered financial derivative assets to contribute significantly, in a positive direction, to profitability but negatively to liabilities. Still, none of them connected those instruments directly to market value, a larger, more inclusive, measure that holds account for investors' sentiment, perceived risk, and anticipated future earnings.

Besides, most Nigerian research has addressed derivatives in a collective manner, without analyzing them individually by the instrument, which can be futures contracts, interest rate swaps, and index futures. This weakness bars the development of policy-relevant conclusions on the individual contribution or the risk of each type of derivative.

One other gap in existing literature is the absence of empirical evidence on how accounting treatment and disclosure of these financial instruments under IFRS affect investor perception and, by extension, market value. Ugbah *et al.* (2023) stressed that poor disclosure of derivatives-related risk led to increased discretionary accruals, which undermined the quality of financial reporting and could mislead market valuation. Against this backdrop, it is important to examine the effects of selected financial hedging strategies on the market value of quoted deposit money banks in Nigeria.

2 LITERATURE REVIEW

2.1 Hedging strategies

Hedging strategies (accounting derivatives) are a wide variety of practices or techniques used by persons, businesses, and organizations to offset or reduce potential losses arising through fluctuations in the prices, rates of interest, exchange rates or other financial risk. Risk management is the main goal of a hedging strategy. These include taking an opposite position in a related asset or market, diversification of investments or entering into specified contracts to protect against possible adverse price movement.

Sabina, Chimere, and Augustine (2023) found that derivative assets had a positive but significant effect on earnings per share, whereas derivative liabilities had a negative but significant effect on the share price of the Nigerian DMBs. This implies that market participants don't fully price in derivative trading due to constraints in disclosure or complexity of derivative valuation. Ehiedu and Nwaokocha (2024) concluded that trading revenue from derivatives (TID) and loan and advance to customers (LADC) significantly impacted return on equity (ROE), whereas financial liabilities derivatives (FLD) and foreign exchange derivatives (FED) didn't. The finding of the study implies that derivatives' use activities (e.g., trading vs. hedging) are significant in playing an important role in shaping the magnitude of their influence on bank value.

2.2 Future contracts

A futures contract is a standardized forward contract to buy or sell an off-instrument or a commodity on an agreed future date and price. Futures in Nigerian DMBs are largely used to hedge against interest risk and foreign exchange risk. Though infrequently recorded as explicit line items on Nigerian bank reports, empirical fact evidence concurs with their economic significance.

Agbaeze, Adegun, and Ezechi (2023) confirmed that money market derivatives, by definition most likely to hedge futures, had a strong positive impact on bank performance, thereby suggesting the possibility of using futures to enhance value creation. Furthermore, Osayi, Kasimu, and Nkwonta (2018) proved that derivative financial assets most likely including future contracts were strongly and positively correlated with the performance of Nigeria DMBs, especially when using profit after tax as a measure.

2.3 Interest rate swaps

Interest rate swaps are the exchange of payments of fixed interest and floating rate or vice versa and are used by banks to hedge against interest rate exposure in liability books and assets. Even though complete information on swaps is not forthcoming in printed accounts of Nigerian DMBs, the circumstantial evidence is suggestive of their effectiveness. Sulaiman and Ibrahim (2020) suggested that financial derivative assets had a positive and significant effect on profitability, showing that interest rate swaps utilized to hedge against the risk of interest rates can make earnings more stable.

Al Fazari *et al.* (2022) made sure that interest rate risk hedging using derivatives increased UK financial institutions' firm value, meaning the same scenario in Nigeria whereby the utilization of swaps effectively can help boost market valuation, provided investors believe the bank's interest rate risk exposure is sufficiently hedged. But Ayadi *et al.* (2024) had suggested that in some cross-border environments, derivatives (such as interest rate swaps) can be more damaging to the value of a firm if used excessively or speculatively and advocated a need for Nigerian banks to reconcile the use of derivatives with open disclosure and effective risk management.

2.4 Index futures

Index futures are contracts to buy or sell an index of money at some future time. These are not usually reported by Nigerian banks but can be termed as general derivative trading accounts. Banks may employ index futures as a hedge against exposure to equity market fluctuations or profit margins from other trading revenues. Though there is limited data on index futures in the local environment, Ehiedu and Nwaokocha (2024) found that financial performance was positively and significantly related to trading income on derivatives (TID), indicating that speculative instruments like index futures, when used tactically, can enhance earnings and, by extension, market value. Besides, Uche-Udo and Okafor (2022) singled out that earnings per share of Nigerian DMBs were significantly enhanced by revenue from trading in financial derivatives, in line with the assertion that products such as index futures will be profitable if well managed.

2.5 Market value

Market value, utilized by lending institutions such as deposit money banks (DMBs), is the aggregate value of a firm from the investors' point of view and in relation to the stock market. Market value gives a firm's value based on issued shares and current share prices, offering a forward-looking firm performance measure. Market value differs from book value, expressed in terms of historical costs, and is even more sensitive to firm performance, risk, external economic conditions, and investor expectations. There has been empirical evidence of the effect of financial instruments and accounting treatments on market valuation.

Ayadi *et al.* (2024), on the other hand, concluded that the use of derivatives was adversely affecting firm value in developed economies, which could be consistent with investor skepticism regarding the use of such instruments for speculation purposes. Sabina, Chimere, and Augustine (2023) also concluded that the Nigerian DMBs' share prices were affected partially and with notably insignificant effects by derivative assets and liabilities, which could be in accordance with investors' concerns about derivative-hedged risks and disclosures.

2.6 Market capitalization as a market value indicator

Market capitalization is the primary market value signal and can be calculated by multiplying outstanding shares in a bank by the current market price per share. For listed DMBs, market capitalization offers an instantaneous gauge of investor confidence and institutional performance. Market capitalization serves as a guideline to shareholders, regulators, and analysts for the size, growth prospects, and risk exposure of a bank.

In Nigerian banking, studies such as Uche-Udo and Okafor (2022) and Sabina, Chimere, and Augustine (2023) find that financial derivatives particularly where poorly disclosed or poorly hedged may be the culprits of tepid market capitalization due to their uncertain effect on earnings and valuation. These studies highlight the significance of good and transparent derivative reporting under standards like IFRS 7 and 9, which can enhance investor confidence and help raise market capitalization.

2.7 Market value and future contracts

Future contracts are a contract for standard purchase or sale of a financial instrument at an agreed price on a future date. Banks primarily utilize them to hedge against a shift in interest rate, currency, and commodity price. Theoretically, futures use should offset revenue and minimize risk, and also enhance market value by ensuring investors their risks will be diminished.

Empirical evidence in the Nigerian experience provides mixed results. Agbaeze, Adegun, and Ezechi (2023) revealed that money market derivatives, including futures contracts, had a positive effect on the performance of commercial banks and provided an increase in market value. Conversely, however, some studies such as Ayadi *et al.* (2024) argue that derivatives if not understood or applied inappropriately can lead to valuation losses because investors might view them as a vehicle of speculation rather than hedging.

2.8 Interest rate swaps and market value

Interest rate swaps (IRS) are derivative agreements where two parties exchange interest rate cash flows, usually exchanging a fixed for an floating rate or vice versa.

These transactions are used by banks to hedge interest rate risk and enhance the stability of cash flows. Empirical evidence around the world has produced mixed results. For example, Al Fazari *et al.* (2022) found that interest rate hedging through swaps enhanced firm value. This supports the value-enhancing hypothesis of derivatives, particularly in times of market volatility.

In Nigeria, Sulaiman and Ibrahim (2020) discovered that financial derivatives assets that may include interest rate swaps were significant and positively affecting profitability. Since profitability is a proper determinant of market value, it then follows that using swaps is possible if properly utilized. But one must exercise caution. Such studies like that of Uchechukwu and Okafor (2021) concluded that derivative liabilities (maybe as a result of swaps) were found to negatively affect the quality of earnings, which would be detrimental to market valuation in the event of poor management or understatement.

2.9 Index futures and market value

Index futures are stock index futures contracts like the NSE 30 or Nigerian All Share Index. They allow banks to cover systematic market risk and are most suited to cover portfolio risk and maintain capital. Despite the fact that there is very little direct empirical evidence in the Nigerian banking sector regarding the impact of index futures, aggregate conclusions can be drawn.

Osayi, Kasimu, and Nkwonta (2018) established that derivative trading revenue (which may include index futures) played a key role in the performance of DMBs. This suggests a linkage between effective utilization of derivatives like index futures and improved financial performance, which can lead to greater market valuation. But the uncertainty of investor attitude and the volatility of such derivatives guarantee that their actual impact on market value will be tempered by factors like transparency and effectiveness of the risk management systems (Pierce, 2020; Ugbah, Amahi, & Offor, 2023).

2.10 Theoretical framework

A robust theoretical framework underpins the analysis of the impact of some accounting derivative instruments on the market value of Nigeria's listed Deposit Money Banks (DMBs). Three fundamental financial theories are the foundation of this research: the Agency Theory, the Signaling Theory, and the Hedging (Risk Management) Theory. The three theories provide different insights into the use of financial derivatives, disclosure, and perception in capital markets.

2.11 Agency theory

Agency theory, advanced by Jensen and Meckling (1976), defines the shareholder-management principal-agent relationship in which there exists a possibility of conflict of interest if the agents act in their own interest rather than that of the principals. Managers in financial derivatives can indulge in hedging or speculative activities based on personal incentives instead of shareholder value maximization.

Empirical findings verify this apprehension. For instance, Ayadi *et al.* (2024) confirmed that the use of derivatives was negatively affecting firm value in developed economies and the implication was that derivatives might be against shareholders' interests in certain instances, particularly where used for speculative reasons. Similarly, Uchechukwu and Okafor (2021) showed that derivative liabilities had a negative effect on earnings quality, reflecting probable agency-influenced actions with the capacity to reduce transparency and market value.

2.12 Signaling theory

Signaling theory, developed by Spence (1973), holds that managers use financial instruments and disclosures as signals to convey information to the market. Herein, the use of derivative instruments conveys a message on successful risk management, and derivative disclosures convey a message on transparency and quality of corporate governance. Empirical findings validate the importance of this signaling effect. Sabina, Chimere, and Augustine (2023) stated that poor derivatives usage disclosure by Nigerian DMBs weakens investor confidence and fails to attract potential investors, thus limiting

favorable share price reactions. Similarly, Ugbah, Amahi, and Offor (2023) stated that low-quality financial reporting, which is further exacerbated by opaque derivative risk disclosure, negatively affects the perceived credibility of banks' financial reports, thus influencing market valuation.

2.13 Hedging (risk management) theory

The hedging theory contends that firms use the application of derivatives in order to reduce exposure to financial risks such as interest rate fluctuations, currency risk, and credit risk. They achieve this with the goal of smoothing earnings, reducing volatility of cash flows, and therefore maximizing firm value. The theory is based on empirical evidence. Sulaiman and Ibrahim (2020) revealed that financial derivative assets had a strong and positive influence on profitability in Nigerian DMBs, just as anticipated by the premise that good hedging yields good financial performance.

Agbaeze, Adegun, and Ezechi (2023) also found that money market and foreign exchange derivatives positively influenced the performance of Nigerian banks, supporting the premise that derivatives, when used to hedge, positively influence firm valuation. Moreover, Al Fazariet *al.* (2022) demonstrated that hedging with interest rate and foreign exchange derivatives increased firm value in UK financial institutions, also validating the universality of the theory globally.

Given the Nigerian DMBs environment and the objective of this study (to assess the impact of some accounting derivatives on market value) the Hedging (Risk Management) Theory is the most appropriate and relevant theoretical anchor. This is because the primary rationale through which derivative instruments ought to be used in the banking sector is to hedge financial risk exposures and stabilize revenues. Empirical evidence in Nigerian as well as other nations (e.g., Sulaiman & Ibrahim, 2020; Agbaeze *et al.*, 2023; Al Fazariet *al.*, 2022) all resonate that derivatives add firm value if used correctly for hedging. Therefore, the research is based on the Hedging Theory since it provides the simplest and most practical explanation of how accounting derivative instruments affect the market value of Nigerian listed DMBs.

2.14 Empirical studies

Ehiedu and Nwaokocha (2024) investigated the relationship between financial derivatives and the performance of Nigerian deposit money banks (DMBs) between 2013-2022. With proxies such as Financial Liabilities Derivatives (FLD), Foreign Exchange Derivatives (FED), and Trading Income on Derivatives (TID), and conducting regression analysis on panel data, the study found TID, Loans and Advances to Customers (LADC), and Bank Size (BS) to have a significant impact on Return on Assets (ROA), but FLD and FED had no impact. They suggested decreasing derivative liabilities and enhancing the utilization of derivative assets.

Turan and Ersoy (2024) analyzed 19 Turkish banks during the period of 2012-2023 and concluded that the use of derivatives did not have a notable effect on profitability or risk. Bank size and capital adequacy ratio, however, positively and significantly affected both. Ayadi *et al.* (2024) tested the impact of derivatives on firm value in seven advanced countries (2007–2016) and concluded that derivative usage had a tendency to reduce firm value, especially in the US, UK, and Australia. The impact reduced or disappeared when companies stopped using derivatives or when industry-relative valuation was considered.

Nguema, Alagidede, and Odei-Mensah (2024) analyzed 40 African banks and found that systemic risk resulting from the use of derivatives was industry-contained, resulting from internal weaknesses, non-diversification, and possible contagion effects. De Paula Leite, Pimentel, and Joaquim (2024) tested hedging behavior in less efficient markets (Spain and Portugal) and found a complex relationship between the application of derivatives, volatility of earnings, and market value, recommending the intervention of regulatory bodies to such markets.

Ugbah, Amahi, and Offor (2023) tested the effect of derivative risk disclosure on reporting quality in Nigerian DMBs during 2012–2021. The research concluded that greater disclosure raised discretionary accruals, lower report quality. It recommended standardized derivative disclosure practices to improve transparency. Sabina, Chimere, and Augustine (2023) examined the impact of derivative accounting on the value of 10 listed Nigerian DMBs from 2015 to 2021. Using multiple regression, they found that derivative assets and liabilities had mixed, mostly insignificant impacts on earnings per share and share price. The study recommended improved derivative use for hedging and

greater disclosures, according to IFRS 7 and 9, to enhance investor confidence and share value.

Agbaeze, Adegun, and Ezechi (2023) have studied the impact of derivative securities on Nigerian commercial banks (2014–2021) using FMOLS. Foreign exchange and money market derivatives played a beneficial role, while financial derivatives have an adverse impact. The study advised increased use of derivatives for hedging, and it called on the CBN to establish local affordable derivative instruments. Zhou (2023) examined whether SFAS 133-based hedging performance measures constructed on the basis of fair value increased the value and risk relevance of accounting earnings. Based on regulatory information on U.S. bank holding companies, the paper concluded that such measures increased earnings' explanatory power and fueled the debate on the contribution of fair-value reporting to capital markets.

Asif, Hassan, and Nisar (2023) analyzed the impact of the use of derivatives on bank performance with the dual banking system of Pakistan. Using Z-Score, CAMELS Index, and panel regression, they revealed that derivative use reduced profitability and stability but increased bank-specific risk. Orié, Obiora, and Orié (2022) explored the influence of financial derivatives on Nigerian deposit money banks' performances from 2015 to 2021 using Panel Least Squares. They found that loans and advances didn't have an influence on bank performance but exchange rates and derivative assets influenced bank performance.

Uche-Udo and Okafor (2022), using information for the period 2013–2022, set up that financial derivative assets, trading revenue, and disclosures had significant and positive impacts on the earnings per share of the Nigerian listed banks with no considerable impact of derivative liabilities. They recommended greater use of derivatives and better regulatory engagement to improve bank performance. Al Fazari *et al.* (2022) examined UK financial firms and concluded derivatives hedging enhanced firm value, though it sometimes diminished financial and market performance. Derivative users were larger, diversified, and active firms in capital markets that continued to find derivatives of interest even after the crisis of 2008–09.

Zeddoun and Bendima (2022) tested whether the use of financial derivatives by banks of GCC countries affected their accounting risk. Using a sample of 25 banks from 2006–2020, the major finding was that the use of financial derivatives reduced the accounting risks of banks. Thus, the major finding was that banks were not at risk using

financial derivatives. Uchechukwu and Okafor (2021) examined the impact of derivative assets and liabilities on the performance of Nigerian commercial banks. Derivative assets, in their view, improved the quality of earnings and reduced market risk, while derivative liabilities had the opposite effect. Thus, derivative assets performed better in terms of enhancing performance and mitigating risk.

Bendima (2021) analyzed the effect of financial derivatives on performance and risk in terms of 25 GCC commercial banks between the years 2006 and 2018. The study identified that the employment of derivatives lowered the level of performance and risk, as well as the cost of equity capital. This suggests a trade-off with the utilization of derivatives while they mitigate risk and reduce the cost of capital, they can dampen profitability. Sulaiman and Ibrahim (2020) discussed how financial derivatives affect the profitability of Nigerian deposit money banks between 2012 and 2017. In applying panel regression models and independent variables such as derivative assets, liabilities, and loans to customers, the study established that derivative assets and loans significantly positively affected profitability. Yet, derivative liabilities negatively and insignificantly impacted profitability. The authors proposed that the banks raise the leveraging of derivative assets and expand loan portfolios and shrink exposure to derivative liabilities.

Osifo and Ighodaro (2020) tested the effect of corporate diversification and macroeconomic factors on the performance of Kenyan deposit money banks from 2007 to 2017. Performance was measured using Return on Assets and Tobin's Q. Income diversification and exchange rate adjustment were found to have significant and positive effects on performance, whereas inflation had a negative effect on performance. Findings for foreign and subsidiary diversification were not consistent. The authors suggested that banks adopt strategic diversification and macroeconomic planning to enhance long-term performance. Pierce (2020) investigated determinants and implications of hedge accounting adoption in financial reporting. It was established in the study that firms utilized hedge accounting to smooth earnings volatility but did not have an impact on investor risk perceptions. The cost of compliance was found to influence hedge accounting adoption decisions. It was established in the study that hedge accounting enhances reporting quality through stabilizing earnings but may not necessarily capture improved market confidence.

Firmansyah *et al.* (2020) experimented with the impact of different types of income volatility on idiosyncratic volatility of listed non-financial firms in Indonesia Stock Exchange (2012–2017). With their test on 246 panel data observations using multiple regression, they found no direct relationship between income volatility and idiosyncratic risk. However, when derivative trades were considered as a moderating variable, it had a positive effect on this relationship, suggesting that derivatives assist in boosting income volatility impacts on firm-specific risk. Phuong and Giang (2020) researched the determinants of the volumes of Vietnamese commercial banks' derivative transactions (2006–2017) using multivariate regression. Exchange rate volatility was the most significant factor, followed by liquidity, interest rates, and bank size. Liquidity negatively correlated such that less liquid banks were more likely to use derivatives. The study made special mention of market conditions as a determinant of the use of derivatives.

Campbell, Mauler, and Pierce (2019) asked derivative-related research published in top accounting journals (1996–2017), with a focus on institutional change, accounting regulation, and market impact. Derivatives remained under-researched due to complexity and lack of data, they concluded. Industry membership had a significant influence on patterns of use, and the authors called for additional targeted empirical work here. Bartram (2019) studied use of derivatives by non-financial companies worldwide and found that they were used primarily for hedging purposes and not speculation. Usage of derivatives was found to reduce firm risk, especially in countries with weak creditor rights or developed derivatives markets. The study supported the need for harmonized global regulation and local-currency derivative instrument growth.

Hairston and Brooks (2019) conducted a literature review on derivative regulation effectiveness. Regulations have increased transparency, but they found that there are still gaps in disclosures. The research implied that standard setters like FASB require more extensive and forward-looking disclosures and concluded main areas to be targeted by future academic research. Huan and Parbonetti (2019) analyzed 555 banks across 18 developed countries (2006–2015) and concluded that the application of derivatives increased equity risk due to speculation, poor hedging, or accounting mismatches. Large and retail banks, however, were lower in idiosyncratic risk. Their instrumental variable method added more strength to their evidence regarding how business models influence derivative-related risk. Osayi, Kasimu, and Nkwonta (2018) analyzed the impact of

derivatives in the financial market on Nigerian Deposit Money Banks' performance. The study, based on data from ten banks for five years, found that derivative assets and total assets significantly affected profit after tax. The results identify derivatives as major drivers for improving bank performance in Nigeria.

3 METHODS

This is a study that employed an *ex-post facto* design, something suitable in examining the effect of accounting derivatives on market value over time and across firms without manipulating variables and consequently mirroring real financial situations. The research used quantifiable data from second-hand data in the financial statements of deposit money banks (DMBs) that are quoted on the Nigerian Exchange Group (NGX) from 2015 to 2024 to facilitate an in-depth examination of the relationship between accounting derivatives and market value.

Geographically, the study was conducted in Nigeria, which had embraced IFRS in 2012, and thus an ideal setting to assess the medium- to long-term impact of IFRS 7 and 9 on DMBs' valuation. The population for the study consisted of all 13 NGX-listed DMBs for the study period, of which seven were internationally authorized, five were nationally authorized, and one non-interest bank. A purposive sampling technique was applied to sample all 13 banks, as they all routinely provided financial reports and provided in-depth information for the variables of concern.

This study utilized quantitative data based on secondary sources, i.e., published accounts of listed DMBs on the NGX, regulatory reports, and records of accounting and auditing bodies from 2015 to 2024. The data were analyzed using descriptive statistics and Panel Error Correction-Generated Least Squares (EGLS) (fixed and random effect regression). Descriptive statistics assessed the data's basic features (mean, minimum, maximum, and standard deviation). Diagnostic tests, including Hausman effect test, was conducted. Panel EGLS (fixed and random effects) was employed to examine the causal relationship between accounting derivatives and the market value of listed DMBs in Nigeria.

Table 1 shows the measurement of the variables used in the study.

Table 1:*Variables Measurement*

Variable	Measurement	A-priori Expectation
Dependent variable		
Market Value	Measured as Share Price \times Number of Outstanding Shares. The share price is obtained from the stock exchange, and the number of outstanding shares is extracted from the bank's financial statements.	
Independent variables		
Future Contracts	Measured as the notional value of future contracts held by the bank, as reported in the financial statements under derivative instruments.	+
Interest Rate Swaps	Measured as the notional value of interest rate swaps, disclosed in the notes to the financial statements. The notional value represents the principal amount used to calculate interest payments.	+
Index Futures	Measured as the notional value of index futures contracts, reported in the financial statements. The notional value is derived from the underlying index value multiplied by the contract size.	+
Control variable		
Bank Size (BKS)	Measured as the natural logarithm of total assets, where total assets are extracted from the bank's statement of financial position. This normalization accounts for size differences across firms.	+

Source: Author's compilation (2025)

The linear equation is specified as follows:

$$MKV = f(FC, IRS, IF, BKS) \dots \dots \dots (1)$$

Econometrically, the above equation can be restated as:

$$MKV_{it} = \beta_0 + \beta_1 FC_{it} + \beta_2 IRS_{it} + \beta_3 IF_{it} + \beta_4 BKS_{it} + e_{it} \dots (2)$$

Where:

MKV_{it} : Market Value of bank i at time t , calculated as Share Price \times Number of Outstanding Shares.

FC_{it} : Future Contracts, the notional value of future contracts held by bank i at time t .

IRS_{it} : Interest Rate Swaps, the notional value of interest rate swaps held by bank i at time t .

IF_{it} : Index Futures, the notional value of index futures held by bank i at time t .

BKS_{it} : Bank Size, the natural logarithm of total assets of bank i at time t , used as a control variable.

β_0 : Intercept term, representing the baseline market value when all independent variables are zero.

$\beta_1, \beta_2, \beta_3, \beta_4$: Coefficients of the independent and control variables, representing the marginal effect of each variable on market value.

e_{it} : Error term, representing the unexplained variation in market value for bank i at time t .

4 RESULTS

Table 2:

Descriptive Statistics

Statistics	MKV	FC	IRS	IF	BKS
Mean	218.554	20.818	12.515	5.583	7.689
Median	209.823	21.060	12.942	5.578	7.895
Maximum	477.495	29.724	19.766	9.997	9.851
Minimum	41.862	10.364	5.138	1.117	4.469
Std. Dev.	95.514	6.018	4.433	2.699	1.204
Skewness	0.405	-0.138	-0.107	0.035	-0.460
Kurtosis	2.842	1.778	1.700	1.697	2.578
Jarque-Bera	3.694	8.496	9.397	9.221	5.547
Probability	0.158	0.014	0.009	0.010	0.062
Sum	28412.051	2706.288	1626.969	725.792	999.537
Sum Sq. Dev.	1176848.733	4671.827	2535.123	939.870	186.940
Observations	130	130	130	130	130

Source: Data Analysis (2025)

Table 2 descriptive statistics report revealing information on the behavior and spread of variables used in testing the effect of individual accounting derivative instruments on listed deposit money banks' market value (MKV) in Nigeria. The average market value of ₦218.55 billion establishes big firm size for the sample with average spread (Std. Dev. = ₦95.51 billion). The derivative instruments such as foreign currency derivatives (FC), interest rate swaps (IRS), and interest futures (IF) have medium mean values (means of 20.82, 12.52, and 5.58 respectively) with the highest volatility being that of FC (Std. Dev. = 6.02).

Bank size (BKS), mean of 7.69, appears quite homogenous among banks (Std. Dev. = 1.20). The skewness estimates reflect almost normal distributions, with most variables slightly skewed, and the kurtosis estimates reflect a platykurtic distribution (less peaked than normal). However, the Jarque-Bera statistics for FC, IRS, and IF have

probabilities > 0.05 , which imply non-normality, and which may necessitate transformation or use of robust estimation techniques in regression analyses.

Table 3:

Correlation Analysis

	MKV	FC	IRS	IF	BKS
MKV	1.000				
FC	0.572	1.000			
IRS	0.787	0.075	1.000		
IF	0.053	-0.021	-0.012	1.000	
BKS	0.2505	0.0753	-0.1043	0.1368	1.0000

Source: Data Analysis (2025)

The tests of correlation in Table 3 show meaningful data about the association between specific accounting derivative instruments and market value (MKV) of quoted deposit money banks in Nigeria. Interest Rate Swaps (IRS) are significantly positively correlated with market value ($r = 0.787$), suggesting that banks' use of IRS is strongly associated with greater market valuation, perhaps due to their capacity to hedge interest rate risk. Fair Value of Contracts (FC) is also positively correlated moderately with market value ($r = 0.572$), implying that highly valued derivative contracts increase investor confidence or signal effective risk management.

Bank size (BKS) is less but positively correlated ($r = 0.2505$), implying that larger banks can achieve some market value benefits through economies of scale or greater derivatives utilization. On the other hand, Interest Futures (IF) exhibit a negligible correlation with market value ($r = 0.053$), implying minimal association. Notably, IRS is uncorrelated with FC ($r = 0.075$) and negatively correlated with IF ($r = -0.012$), reflecting variations in functions and usage patterns of the instruments.

Table 4:

Hausman Test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.582	4	0.997

Source: Data Analysis (2025)

The Hausman test results tabulated in Table 4 reflect a Chi-Square value of 0.582 with 4 degrees of freedom and a probability value of 0.997. Because the high p-value well above the typical 0.05 significance level fails to result in the rejection of the null hypothesis that the random effects model is appropriate, therefore, there is no significant variation between the fixed and random effects estimations and thus the random effects model is more appropriate to investigate the relationship between accounting derivatives and value of listed Deposit Money Banks in Nigeria.

Table 5:

Regression Analysis

Dependent Variable: MKV				
Method: Panel EGLS (Cross-section random effects)				
Date: 04/01/25 Time: 20:52				
Sample: 2015 2024				
Periods included: 10				
Cross-sections included: 10				
Total panel (balanced) observations: 130				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FC	0.765***	0.152	5.033	0.000
IRS	6656.659***	915.311	7.273	0.000
IF	1517.571	6377.779	0.238	0.813
BKS	0.741**	0.360	2.058	0.037
C	-965454.012	564494.554	-1.710	0.091
Effects Specification			S.D.	Rho
Cross-section random			56917.917	0.259
Idiosyncratic random			96180.876	0.741
Weighted Statistics				
R-squared	0.578	Mean dependent var	82240.252	
Adjusted R-squared	0.318	S.D. dependent var	94207.298	
S.E. of regression	93337.040	Sum squared resid	687456.097	
F-statistic	11.309	Durbin-Watson stat	2.163	
Prob(F-statistic)	0.000			
Unweighted Statistics				
R-squared	0.523	Mean dependent var	174497.370	
Sum squared resid	9259557.176	Durbin-Watson stat	2.155	

Source: Data Analysis (2025)

*** and ** are significant at 1% and 5% respectively

As presented in Table 5, this study tested the impact of specific accounting derivative contracts such as Futures Contracts (FC), Interest Rate Swaps (IRS), and Index Futures (IF) on the market capitalization of Nigeria-listed Deposit Money Banks (DMBs) using a panel data of a decade from the years 2015 to 2024. The regression methodology

employed the Panel EGLS procedure with cross-section random effects to ensure the model fit both dimensions of the time-series and the cross-section correspondingly.

5 DISCUSSIONS

As is indicated by the regression results, futures contracts have a positive and statistically significant effect on Nigeria's listed DMBs' market value. Specifically, the coefficient 0.765 and p-value 0.000 indicate that applying a unit increase in futures contracts raises the market value of the banks by 0.765 units. This finding is statistically and economically significant at the 1% level. This means that the most effective use of futures contracts—traditionally employed to hedge against the uncertainty of foreign exchange or commodities prices—will reduce uncertainty and increase investor confidence in the banks' financial well-being. With perceptions of reduced risk and increased earnings volatility, these banks will be likely to receive higher valuations.

The finding agrees with Sulaiman and Ibrahim (2020), which revealed that Nigerian banks' profitability was positively and significantly influenced by financial derivative assets. In addition, Osayiet *al.* (2018) confirmed that there existed a strong positive relationship between derivative financial assets and the performance of DMBs, further confirming that the use of derivatives is favorable to better market results if strategically adopted. These studies affirm that futures contracts play a pivotal role in risk management and bank valuation. Moreover, internationally, Bartram (2019) and De Paula Leite *et al.* (2024) identify that in less effective markets, such derivatives as futures can improve firm performance as well as valuation if used judiciously and transparently.

Null Hypothesis (H_0): There is no significant effect of futures contracts on the market value of listed deposit money banks in Nigeria. Given the statistical significance ($p = 0.000$), the null hypothesis is rejected.

The interest rate swaps also provide a significant positive and statistically significant relationship with market value, as the coefficient value is 6656.659 and the p-value is 0.000. This means that the impact of IRS has a considerably greater value than that of futures contracts. Such an enormous coefficient suggests that IRS play a very significant role in determining how the market perceives the financial soundness and earnings manipulation of banks. Interest rate swaps are significant tools for interest rate risk management, especially under monetary policy regimes with uncertainty or

fluctuating interest obligations. By facilitating banks to exchange floating-rate liabilities to fixed-rate liabilities (and vice versa), these instruments aid in the fixation of interest costs, thus improving earnings uncertainty and investor confidence.

This finding aligns with the findings of Al Fazari *et al.* (2022), which had revealed that the usage of interest rate derivatives significantly improved firm value, particularly when used for hedging. Alternatively, Zhou (2023) found that disclosures in hedge-accounting such as interest rate swap disclosures enhanced the value relevance of financial reports and facilitated market impressions. Additionally, Bartram (2019) emphasized the strategic use of derivatives for the purposes of firm-specific financial risk management, particularly by financial institutions. He discussed how firms that hedge interest rate exposures effectively would exhibit lower earnings volatility, which would facilitate higher valuation multiples.

Null Hypothesis (H0₂): There is no significant effect of interest rate swaps on the market value of listed deposit money banks in Nigeria. Based on the extremely low p-value (0.000), the null hypothesis is rejected.

However, the regression output shows that index futures do not have a significant effect on the market value of Nigerian deposit money banks. The coefficient is 1517.571, but its p-value is 0.813, much greater than the conventional significance levels (1%, 5%, or 10%). This suggests that index futures, though theoretically perhaps being of some assistance, are not statistically significant determinants of market value in the Nigerian context. There could be several reasons for this. First, index futures are utilized less by Nigerian banks, possibly due to low sophistication in financial markets or lack of institutional experience and infrastructure to effectively use such instruments.

Second, the loose or imprecise disclosure practices in employing such tools also might lower investors' perceived value of them since, as Ugbah *et al.* (2023) and Sabina *et al.* (2023), whose evidence shows, suggest, poor disclosure can reduce the applicability of derivatives in value. Ayadi *et al.* (2024) also found that the use of derivatives, like index futures, in some developed economies led to a decline in firm value maybe due to fear of speculation or misapplication. Asif *et al.* (2023) results show that some forms of derivatives might, in certain conditions, lower profitability and stability if not used in an efficient manner. This result suggests that Nigerian DMBs are not employing index futures to generate quantifiable value, or that investors find the instruments not to be at the heart of financial performance or stability.

Null Hypothesis (H_0): There is no significant effect of index futures on the market value of listed deposit money banks in Nigeria. Given the high p-value (0.813), the null hypothesis is not rejected. The adjusted R-squared of 0.318 indicates that the market value variation is accounted for by the independent variables to the tune of approximately 32%. The F-statistic of 11.309 and the p-value of 0.000 confirm that the overall model is statistically significant. The Durbin-Watson statistic of 2.163 indicates no severe autocorrelation problem.

6 CONCLUSION AND RECOMMENDATIONS

This study established the effect of specific accounting derivative products such as futures contracts, interest rate swaps, and index futures on listed deposit money banks' market value in Nigeria. As can be evident from the result of the regression analysis, it is clear that futures contracts and interest rate swaps have positive significant effects on market value whereas no significance effect for index futures exists. These findings provide empirical evidence to the argument that derivative instruments, if correctly used, add value to financial institutions by lessening underlying financial risks. The significant effect of futures contracts and interest rate swaps attests that Nigerian deposit money banks that use these instruments can transfer financial thriftiness and solidity to investors and thus enhance share value and market trust in the long run. Conversely, a lack of significant impact from index futures can translate to low usage or poor understanding of these products in Nigerian banking.

The findings of the research are utilized to suggest that banks should prioritize and expand their use of futures and interest rate swap instruments for the reduction of volatility in commodity prices and interest rates, including. These instruments have proven to be effective in improving market value as well as investor confidence also, the regulatory bodies and bank senior management must invest in capacity building to increase the competence of staff on derivative products, specifically index futures, whose poor performance might be associated with under usage or inadequate knowledge.

Furthermore, policymakers and regulatory bodies such as the Central Bank of Nigeria (CBN) and Securities and Exchange Commission (SEC) must strengthen the regulatory frameworks that govern the use of derivatives so as to reduce abuse and induce best practice, and maximize disclosure. More transparent and harmonized disclosure of

the use of derivatives and attendant risks will not only conform with international financial reporting standards (such as IFRS 7 and IFRS 9) but will also build confidence among investors as well as bolster the perceived security of banks, as underscored by Ugbahet *et al.* (2023) and Zhou (2023). Finally, Nigerian market regulators and banks must get together and establish home-based derivatives which correspond to local demand especially to the benefit of the banking sector, enhancing risk management and contributing to market depth.

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