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MODERATING EFFECT OF FIRM SIZE ON THE SECURITY INVESTMENT AND INTERNAL GROWTH OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

This study aimed to examine the moderating effect of firm size on the relationship between security investment and internal growth of listed deposit money banks in Nigeria. Specifically, it investigated how firm size influenced the impact of equity investment, long-term debt, derivative, and hybrid security investments on internal growth. An ex-post facto research design was adopted, focusing on secondary data collected from the annual reports and financial statements of five selected banks from 2012 to 2024. Data analysis involved descriptive statistics for summarizing key variables and panel estimated generalized least squares within a moderated fixed effect model to test the hypotheses. The findings indicated that: firm size does not significantly moderate the effect of equity investment security on internal growth (β = -0.004, p = 0.486); firm size significantly strengthens the positive effect of long-term debt security on internal growth (β = 0.141, p = 0.0001); firm size significantly increases the negative effect of derivative security on internal growth (β = -0.010, p = 0.0004); firm size significantly amplifies the negative effect of hybrid security on internal growth (β = -0.108, p = 0.007). The study concluded that the differential effects highlight the necessity of considering organizational scale when analyzing the growth potential associated with various financial instruments, as the interaction between size and investment strategy can create divergent trajectories in performance. Therefore, financial strategists and treasury managers in larger banks should actively leverage long-term debt instruments to enhance internal growth, using the firm's size to secure favorable borrowing terms and deploy debt into profitable projects.

Keywords: *Security investments, Internal Growth, and Firm Size*

1.0 Introduction

Internal growth is a fundamental indicator of a bank's ability to strengthen its financial stability, expand operations, and increase shareholder value without relying excessively on external financing. For deposit money banks, internal growth often results from reinvested earnings, improved operational efficiency, and organic market expansion (Esfandiari et'al 2025). This form of growth allows banks to maintain autonomy, reduce debt exposure, and respond quickly to changing market conditions. In the Nigerian banking industry, characterized by stiff competition and evolving regulatory frameworks, internal growth enhances a bank's resilience and capacity to innovate, thus positioning it for long term sustainability and improved customer service delivery (Arnold et'al, 2022).

However, while internal growth is beneficial, it may also pose certain challenges if not strategically managed. Rapid internal expansion without corresponding investment in infrastructure, technology, and human resources can lead to operational inefficiencies. It may also result in overtrading, misallocation of resources, and increased exposure to systemic risks. In the Nigerian banking context, internal growth that outpaces regulatory compliance and risk management capacity may attract sanctions from supervisory authorities such as the Central Bank of Nigeria, potentially undermining profitability and stakeholder confidence. Hence, the pattern and pace of internal growth need to be carefully aligned with a bank's investment and risk strategies (Egbunike et;al 2024). Investment securities, which include a variety of instruments such as stocks, bonds, and derivatives, serve as critical tools for these firms (Witchger, 2024). These financial instruments offer opportunities for generating returns, diversifying risks, and strengthening capital bases. For banks, especially those in Nigeria, investment securities represent a vital part of their portfolio and are crucial to their operational framework. In today's business environment, investment securities are more relevant than ever. As global financial markets continue to evolve, the need for strategic investments that maximize returns while minimizing risks has become a central focus for companies

(Arnold et'al, 2022). Security investments, also include allocations to government securities, corporate bonds, and other financial instruments, can significantly influence the internal growth of banks. Such investments often serve as safe havens that generate consistent income and enhance capital adequacy. In Nigeria, deposit money banks are mandated to maintain minimum liquidity levels, and security investments offer a compliant means to meet this requirement while earning returns. When effectively managed, these investments can contribute to profit generation, support lending capacity, and enhance internal growth. However, poorly timed or misaligned security investments can lock in capital, limit liquidity, ad hamper the growth potential of the bank (Witchger, 2024).

Firm size is a critical variable that may moderate the relationship between security investment and internal growth. Larger banks typically have more diversified portfolios, stronger risk management frameworks, and greater access to strategic investment opportunities compared to smaller banks. As such they may be better poisoned to optimize returns from security investments and channel these gains into productive internal expansion. Conversely, smaller banks may face constraints in leveraging security investments due to limited capital, lower market confidence, and higher vulnerability to economic shocks. The size of a bank, therefore, can influence both the capacity to invest and the efficiency with which such investments translate into internal growth (Emonena, 2025).

Several scholars have provided empirical and theoretical support for these assertions. For instance, studies by Olayemi and Adebayo (2022), emphasized the role of internal financing in promoting sustainable growth in Nigerian banks. Okoro and Chukwu (2021), observed that security investments positively affect bank profitability, which in turn fuels internal expansions. Additionally, Eze and Nwosu (2022) highlighted that firm size significantly shapes the strength of investment outcomes, suggesting a moderating influence. These findings highlight the importance of considering firm specific factors

such as size when analyzing the impact of security investments on internal growth, especially within the dynamic Nigerian banking sector. The relationship between investment securities, firm size, and internal growth is therefore complex, and understanding how firm size moderates this relationship is key to providing hints into how banks of different sizes can leverage investment securities for growth.

The effective management and strategic use of investment securities by banks is expected to lead to enhanced financial stability, profitability, and long-term growth (Agbaeze et al., 2023). Investment securities, such as government bonds, corporate bonds, and equity holdings, are vital financial instruments that can provide banks with steady income streams, risk diversification, and capital appreciation. In the context of listed deposit money banks, an optimal investment strategy in these securities can significantly contribute to strengthening their capital base, improving liquidity, and providing a buffer against economic volatility. Moreover, large and small banks alike should have the capacity to engage in a range of investment activities, with firm size acting as a moderating factor that determines the extent to which these investment opportunities are maximized. However, the actual situation in the Nigerian banking sector reveals that while some banks are able to effectively manage their investment portfolios, many others still face challenges in fully capitalizing on the potential of investment securities (Agbaeze et al., 2023). This disparity is largely due to several factors, including insufficient expertise in managing diverse investment portfolios, inadequate risk management frameworks, and the lack of sufficient capital for smaller banks to engage in high-value or diversified securities investments.

Despite efforts to modernize the banking sector and the availability of investment opportunities, not all banks have embraced strategic investment in securities to the extent that would contribute optimally to their internal growth. Moreover, the regulatory environment and external economic factors, such as inflation and exchange rate volatility, also pose significant challenges to banks' ability to make sound investment decisions.

These factors have led to a situation where only a few larger banks are able to harness the full potential of investment securities, while others struggle to maintain consistent growth. As a result, for banks that fail to strategically invest in securities or face challenges in managing their investments, the result is often stagnant growth, reduced profitability, and weakened capital positions. Smaller banks, in particular, are more vulnerable to market fluctuations and may experience financial instability due to their limited investment options. This lack of strategic investment can hinder their ability to compete with larger, more resourceful banks, further exacerbating the gap between big and small banks in terms of financial strength and market influence.

Additionally, the inability to effectively leverage investment securities means that these banks may fail to provide optimal returns to their stakeholders, including shareholders and employees. For the broader Nigerian economy, the underutilization of investment securities by the banking sector can impede overall financial market development, reduce liquidity in the financial system, and limit the potential for economic growth. Therefore, it is imperative to address the factors that hinder the effective use of investment securities to foster a more resilient and competitive banking sector. While extensive research exists on the relationship between security investments and firm performance, studies have yet to examine the moderating role of firm size in the Nigerian banking sector (Esfandiari et al., 2025). Although Tao (2023) identified firm size as a moderator in China, the study did not explore its impact across different security investment types, while Agbaeze et al. (2023) and Kayode et al. (2023) focused on bank performance without considering firm size as a moderating factor. Given that prior studies, including those by Saif et al. (2022), Aljuboori and Alzimova (2021), Hailu and Tassew (2018), and Deboben and Würtz (2015), overlooked the interaction between firm size and security investments, there is a need for empirical research on how firm size moderates the relationship between different security investment types and the internal growth of listed deposit money banks in Nigeria. The objectives of the study are as follows:-

To determine the moderating effect of firm size on equity investment security and internal growth of deposit money banks in Nigeria.

To analyse the moderating effect of firm size on long-term debt security investment and internal growth of deposit money banks in Nigeria.

To examine the moderating effect of firm size on derivative security investment and internal growth of deposit money banks in Nigeria.

To determine the moderating effect of firm size on hybrid security investment and internal growth of deposit money banks in Nigeria.

Review of related Literature.

2.1 Conceptual Review

2.1.1 Firm Size

Firm size refers to the scale or magnitude of a company, typically assessed through various metrics, including total assets, revenue, market capitalization, or number of employees (Gregory, 2024). It is a measure of the business's overall capacity, influence, and operational scale within an industry or market. Firm size can be categorized in many ways, depending on the industry and the specific context in which it is measured. In the corporate world, size plays a crucial role in determining the resources available to a business, its competitive positioning, and its ability to scale operations (Pervan & Višić, 2012). Nworie et al. (2022) submitted that larger firms often benefit from economies of scale; this may allow them to reduce costs per unit of output as production or operations increase. In addition, bigger firms tend to have more access to capital, greater diversification in their operations, and a broader geographical or market presence, which can contribute to stability and resilience against market fluctuations.

Firm size reflects the magnitude or extent of a business organization. It is often viewed in terms of various measurable attributes such as the total assets the company controls, the amount of revenue it generates, or the number of people it employs (Frances & Nworie, 2025). These measurements provide a tangible way to understand how large or small a business is compared to others in the same industry or market. The size of a firm can influence its ability to access resources, negotiate better terms with suppliers, or withstand economic downturns. Larger firms often have more established operations, diversified product lines, and broader market reach, which can contribute to stability and growth prospects (Karim et al., 2025). The significance of firm size extends beyond just a numerical figure; it shapes the organization's capacity to compete effectively in the marketplace. A bigger firm may possess economies of scale, allowing it to produce goods or services at a lower cost per unit than smaller competitors. This advantage can translate into higher profit margins or the ability to offer more competitive pricing. Additionally, the size can impact decision-making structures, with larger companies typically having more complex hierarchies and specialized departments.

In the context of banks or financial institutions, firm size becomes especially significant because it directly influences a bank's ability to take on large-scale investments, manage risk, and innovate (Chodorow-Reich et al., 2022). Large financial institutions, such as multinational banks, often have more sophisticated financial tools, a broader customer base, and a wider variety of financial products to offer. This capability enables them to better withstand market volatility, adapt to changing regulations, and exploit investment opportunities that smaller firms may not be able to access. Conversely, smaller firms, with their more limited resources, may find it difficult to diversify their investment portfolios, conduct extensive market research, or implement risk management strategies that are as robust as those of larger competitors (Gregory, 2024). As a result, firm size significantly impacts the bank's or firm's ability to grow internally, diversify, and

maintain financial stability, making it a central concept in analyzing financial performance.

2.1.2 Investment Security

Investment security refers to a financial instrument or asset that can be bought, sold, or traded in a financial market, with the intention of generating a return on investment (Bose & Luo, 2014). Securities are essentially contracts that provide a return or claim to a specific asset, and they can be categorized into different types based on their characteristics and risk profiles (Witchger, 2024). Investment securities are typically used by investors, institutions, and firms as a means to grow their capital, diversify risk, or generate income (Bjerre, 2023). These securities represent a form of ownership or debt, depending on their classification (Arnold et al., 2022). For example, equity securities (such as stocks) represent ownership in a company, while debt securities (such as bonds) represent a loan made by the investor to the issuer in exchange for regular interest payments and the return of the principal amount at maturity (Rezaei & Miraskari, 2023).

Investing in securities provides individuals or institutions with an opportunity to diversify their financial portfolios, spreading risk across different asset classes. By choosing different types of securities, investors can balance their exposure to market fluctuations and create more stable long-term wealth accumulation. Security investment is a critical activity in modern financial markets, enabling the efficient allocation of capital to businesses, governments, and other entities that require funding. The practice of investing in securities is also closely linked to market dynamics, as prices of these assets fluctuate based on supply and demand, economic indicators, and geopolitical events. Investors must stay informed and often employ strategies to maximize returns while managing potential losses. These investments can vary widely in terms of liquidity, maturity, and complexity, influencing the level of involvement and expertise required.

Securities are essential tools in modern financial markets, providing an avenue for individuals and institutions to invest their funds while managing their risk exposure (Bose & Luo, 2014). They are traded on various exchanges or over-the-counter markets and come with varying degrees of risk and return. While securities can offer high returns, they also carry the potential for significant losses, depending on market conditions, the financial health of the issuer, and other external factors. Investment securities help investors diversify their portfolios, enabling them to spread risk across different asset classes (Witchger, 2024). For businesses and banks, securities also offer an opportunity to generate income from their cash reserves and build a robust financial foundation. Therefore, investment securities play a critical role in both individual wealth management and the overall health of the financial system (Bjerre, 2023).

2.1.3 Equity Investment Security

Equity investment security refers to ownership shares or stocks in a company, where the investor purchases a stake in the business in exchange for potential returns through capital gains and dividends (BlackRock, 2025). Equity securities represent a form of ownership in the issuing company, and holders of such securities are often referred to as shareholders. By holding equity securities, investors have the right to participate in the company's growth and success, as well as vote on certain corporate decisions, such as the election of board members or approval of significant business strategies. As owners, shareholders benefit from the appreciation in the value of the company's stock, which can lead to capital gains when the stock price increases (Schwab, 2024). In addition, many companies pay dividends to their shareholders as a portion of the company's profits.

The ownership represented by equity securities means that investors are entitled to a portion of the residual value of the company after all debts and obligations are settled. This form of investment allows shareholders to participate in the company's growth and success through capital appreciation and dividend income. Unlike debt securities, equity

securities do not have a fixed maturity date, and their value is subject to market forces and company performance, which can result in higher volatility. Equity investment security plays a vital role in the financial markets by providing companies with a source of capital that does not require repayment like debt. It allows firms to raise funds from a broad base of investors, sharing both the risks and rewards associated with the business. This form of investment also enables investors to diversify their portfolios by including ownership interests in various companies, industries, and markets.

Equity securities are often seen as higher-risk investments compared to debt securities, as their value is directly tied to the financial performance of the issuing company. If the company performs well, the stock price increases, leading to capital gains for the investor. However, if the company faces financial difficulties or economic downturns, the value of the equity securities can decline, and investors may experience losses. Despite these risks, equity investments provide opportunities for significant returns, particularly in the long term, as successful companies can grow their earnings and enhance shareholder value (BlackRock, 2025). For businesses and banks, equity securities offer a way to raise capital without taking on debt, as investors are essentially providing funding in exchange for a share of ownership in the company. Thus, equity investment securities are vital in both wealth creation and capital formation, providing a balance of risk and reward for investors.

2.1.4 Long-Term Debt Investment Security

Long-term debt investment security refers to financial instruments in which an investor lends money to an issuer, typically a government or corporation, in exchange for regular interest payments and the promise of the return of the principal amount at the end of the bond's maturity period (Securitisation, 2025). These securities are classified as long-term because they generally have a maturity period of more than one year, often extending for several years or even decades. Long-term debt securities are issued by entities to raise capital for various purposes, such as funding infrastructure projects, expanding operations, or refinancing existing debt. In exchange for the loan, investors receive a fixed or variable interest rate, which represents the return on their investment (Australian Bureau of Statistics, 2021).

Investing in long-term debt securities allows investors to lend money to issuers in exchange for a stream of income generated from interest payments. These instruments are generally considered less risky than equity securities because they provide a more predictable return and priority in claims over the issuer's assets in the event of default. The length of the investment commitment can vary significantly, ranging from a few years to several decades, which influences the yield offered to investors. The value of long-term debt securities can fluctuate in response to changes in interest rates, credit ratings, and overall market conditions. When interest rates rise, the market value of existing bonds tends to fall, and vice versa. This sensitivity to interest rates adds a layer of risk to the investment, which investors must consider alongside the issuer's creditworthiness.

For investors, long-term debt securities are considered relatively lower risk compared to equity securities, as they typically offer predictable interest payments over time. However, these securities are not without risk, as there is the potential for the issuer to default on its debt obligations, particularly if the company or government faces financial distress.

Long-term debt securities are often used by institutions, such as banks, pension funds, and insurance companies, which seek stable, long-term returns on their investments. These debt instruments can also provide diversification for investors who may already hold riskier assets like stocks (Australian Bureau of Statistics, 2021). For businesses and banks, long-term debt securities provide a cost-effective way to raise capital without diluting ownership, as they do not involve issuing shares.

2.1.5 Derivative Investment Security

Derivative investment security refers to a financial contract whose value is derived from the performance of an underlying asset, index, or benchmark (Agbaeze et al., 2023). Derivatives include instruments such as options, futures, and swaps, which allow investors to speculate on or hedge against price movements of underlying assets, such as stocks, bonds, commodities, or currencies (Chanzu & Gekara, 2014). Unlike traditional securities, where the investor directly owns the asset, derivatives give the right or obligation to buy or sell an asset at a predetermined price on a specific future date. These contracts can be highly leveraged, meaning that small changes in the price of the underlying asset can result in significant profits or losses for the investor.

Investing in derivatives allows market participants to manage risk, speculate on future price changes, or enhance portfolio returns through strategic positions. Derivatives provide flexibility by enabling investors to hedge against adverse price movements or to leverage their positions, magnifying potential gains or losses. Because their value is tied to an underlying asset, the complexity and risk associated with derivatives can be substantial, requiring a thorough understanding of market dynamics. The nature of derivative investments involves agreements between parties to exchange payments or assets based on specified conditions. For example, options grant the right but not the obligation to buy or sell an asset at a predetermined price within a certain timeframe. Futures contracts obligate both parties to transact the underlying asset at a future date and

price agreed upon at the outset. These arrangements create opportunities for price discovery and risk transfer within financial markets.

The primary purpose of derivatives is to manage risk by allowing investors to hedge against price fluctuations in the underlying asset (Agbaeze et al., 2023). For instance, a bank may use derivatives to protect itself from adverse movements in interest rates or currency exchange rates. Additionally, derivatives offer investors the potential for high returns, as they can take advantage of price movements without having to own the underlying asset. However, this leverage also increases the potential for significant losses, particularly in volatile markets. Derivatives are often used by sophisticated investors and institutional players, such as hedge funds and investment banks, due to their complexity and risk (Chanzu & Gekara, 2014). They are also subject to stringent regulatory oversight, especially after the 2008 financial crisis, which exposed the risks of unregulated derivative trading.

2.1.6 Hybrid Investment Security

Hybrid investment security refers to a financial instrument that combines characteristics of both debt and equity securities (Pires, 2024). These securities are designed to offer investors a combination of fixed income, typically in the form of interest payments, along with the potential for capital appreciation or ownership features. One of the most common examples of hybrid securities is convertible bonds, which are initially issued as debt but can be converted into equity at the discretion of the bondholder. Hybrid securities are attractive to investors because they provide the safety and predictability of debt securities along with the potential upside of equity securities (Das & Sundaram, 2007). For example, if the issuing company performs well, the investor may benefit from the appreciation in the value of the underlying stock after converting the bond into shares.

Investing in hybrid securities offers a unique balance, providing some level of income certainty through fixed dividends or interest while allowing investors to participate in the

upside potential if the issuer performs well. Convertible bonds, for instance, begin as debt instruments that can be converted into a predetermined number of shares of the issuing company, giving investors the option to switch from creditor to shareholder. Preferred shares often offer fixed dividends and have priority over common shares in dividend payments and during liquidation. These securities appeal to investors seeking both stability and growth opportunities, as they combine the protective features of debt with the potential rewards of equity ownership. The hybrid nature of these investments often results in complex valuation considerations, as their price can be influenced by interest rates, the creditworthiness of the issuer, and the underlying stock's performance.

For issuers, hybrid securities provide a means to raise capital at a potentially lower cost than straight equity, as they offer investors an additional benefit beyond just the interest payments, such as the potential for conversion into shares (Pires, 2024). These securities are also less dilutive than issuing equity outright since the investor's ownership stake in the company is not immediately increased. However, the hybrid nature of these instruments can introduce complexity in pricing and managing risks (Das & Sundaram, 2007). The hybrid structure may involve a trade-off between the interest rate and the equity conversion features, depending on the market conditions and the issuing company's financial health. In financial markets, hybrid securities are often used by banks and corporations as a way to attract a diverse range of investors, providing both income and growth potential. As such, hybrid investment securities serve as a useful tool in capital markets, offering a flexible approach to raising funds while managing risk for both issuers and investors (Pires, 2024).

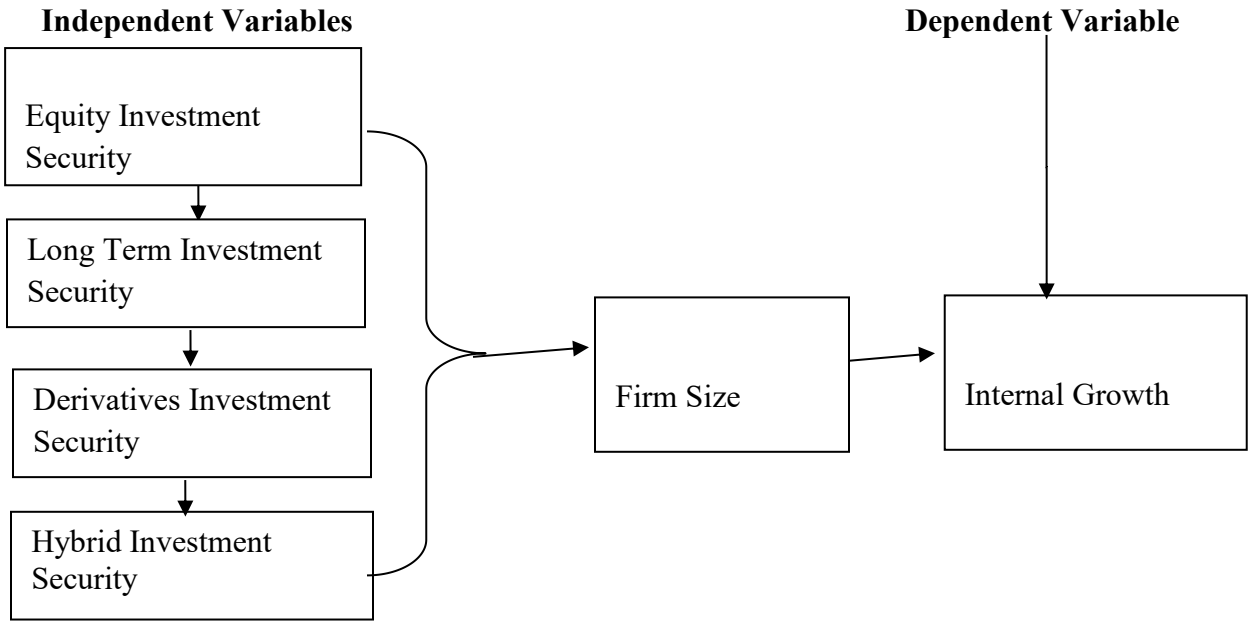
2.1.7 Internal Growth

Internal growth refers to the expansion and development of a business through its own resources and operations, rather than relying on external acquisitions or mergers (Corporate Finance Institute, 2025). This growth is typically driven by increasing sales, improving operational efficiency, expanding market share, and enhancing product or service offerings. For firms, internal growth is a critical factor in sustaining long-term profitability and competitiveness (Gibb, 2021). It is achieved through investments in innovation, staff development, technology, marketing, and other areas that directly impact the company's operations. The key advantage of internal growth is that it often leads to organic expansion, where the firm retains control over its growth process and avoids the risks associated with acquisitions, such as integration challenges or overpaying for a target company.

A company experiencing internal growth often reinvests in areas like research and development, marketing, or infrastructure to build a stronger competitive position. This reinvestment may lead to increased production capacity, improved efficiency, or the introduction of new products and services. Over time, the accumulation of these efforts results in greater market share, enhanced profitability, and a more robust financial standing. Internal growth provides several advantages, including reduced dependence on external financing, which can carry costs or dilute ownership. It encourages disciplined management of resources and promotes a focus on sustainable, long-term success. However, it can also be a slower process compared to growth achieved through mergers, acquisitions, or external capital injections. This mode of growth often reflects a company’s confidence in its operations and its ability to generate consistent profits. It requires careful planning to balance current expenses and investments in future opportunities. The ability to grow internally is often seen as a sign of financial health and operational efficiency.

Internal growth is often seen as a sustainable and less risky form of expansion, as it relies on the firm's existing strengths and resources rather than external factors. For banks, internal growth may manifest in increasing the number of customers, enhancing product offerings like loans or investment products, improving operational efficiencies, or expanding into new geographical areas. This form of growth is essential for maintaining a strong financial foundation, especially in markets where competitive pressures and regulatory environments are constantly evolving (Corporate Finance Institute, 2025). However, internal growth is measured using the formula below taken from Corporate Finance Institute (2025):

2.1.8 Conceptual Framework



Source; Researcher's Concept (2025)

2.2.1 Resource-Based View

The study is anchored on Resource-Based View (RBV) of the firm which was propounded y Jay Barney in 1991 (Fahy & Smithee, 1999). The theory emphasized the importance of a firm's internal resources as key drivers of competitive advantage and sustained performance. RBV emerged as a response to traditional economic theories that focused on market positioning and external factors. Instead, it emphasized the critical role that a firm's unique resources and capabilities play in achieving superior performance, suggesting that firms with valuable, rare, inimitable, and non-substitutable resources can create long-term competitive advantages. The RBV theory challenges the view that external factors alone shape a firm's strategy, highlighting that internal resources and competencies are vital in determining a firm's success and growth.

The main postulations of the RBV focus on the idea that firms gain competitive advantage through the ownership and utilization of valuable, rare, inimitable, and non-substitutable resources (Fahy & Smithee, 1999). According to Barney et al. (2011) these resources are the key drivers behind a firm's sustained competitive advantage. The theory distinguishes between physical, human, and organizational resources, asserting that firms with unique and valuable resources are better positioned to achieve superior performance and long-term growth. In addition, the RBV emphasizes the importance of resource heterogeneity (firms possess different resources) and immobility (resources are not easily transferable across firms). By leveraging their unique resources, firms can innovate, create barriers to entry for competitors, and ensure sustained success in competitive environments (Barney et al., 2011).

The Resource-Based View is particularly relevant to the study because investment securities, as a form of financial resource, allow banks to diversify their income streams, manage risks, and enhance their capital base. The RBV theory suggests that banks with superior resources such as larger capital reserves, more sophisticated investment

strategies, and better risk management systems will be able to leverage investment securities more effectively to drive internal growth. Furthermore, the moderating effect of firm size in this context aligns with the RBV's emphasis on resource heterogeneity, as larger banks often have greater access to a wider array of resources, enabling them to better exploit opportunities in investment securities.

Empirical Review

Babarinde et al. (2025) investigated how investment securities influence the financial performance of deposit money banks in Nigeria over the period from 2010 to 2020. The study focused on examining the relationship between investment securities and key financial indicators such as earnings per share, return on assets, and return on equity. Secondary data were obtained from the audited financial statements of selected banks and analyzed using the Panel Autoregressive Distributed Lag (P- ARDL) model. The research constructed three models, each corresponding to one of the dependent variables, with investment securities, customer loans and advances, and bank size as explanatory variables. Results revealed that investment securities are positively and significantly associated with earnings per share and return on assets, while a negative and significant relationship exists with return on equity. In the long term, investment securities showed a negative but statistically insignificant impact on earnings per share, while in the short term, the effect was negative and significant. The influence of investment securities on return on assets was positive yet not significant in both short- and long-run scenarios. Conversely, their impact on return on equity was consistently negative and significant across both timeframes. Based on these findings, the study concluded that investment securities may have adverse implications for financial performance and recommended that banks diversify their portfolios to reduce exposure to low-yield, high-risk investment instruments.

Nwoye et al. (2025) analyzed how income generated from government securities and dividends influences the performance of publicly listed commercial banks in Nigeria. The study specifically assessed their impact on net profit margin and return on equity over a 12-year period (2013–2024), using a sample of seven internationally licensed banks. Descriptive and correlation analyses were initially applied to summarize the data and address the research questions. The hypotheses were tested using a panel estimated generalized least squares regression method. The results showed that income from government securities had a significant but negative impact on net profit margin, while dividend income also negatively and significantly affected the same metric. In contrast, both government securities income and dividend income demonstrated a positive and significant effect on return on equity. The study concluded that while these income sources adversely influence profitability margins, they contribute positively to shareholder returns, highlighting their mixed effects on financial performance metrics.

Aprilianto and Mahdi (2025) evaluated how different investment instruments affect returns in Islamic insurance firms. The study aimed to assess the influence of deposits, Islamic stocks, corporate sukuk, state-issued sharia securities (SBSN), Islamic mutual funds, direct investments, and other financial instruments on investment returns. Employing a quantitative approach, the study utilized secondary data obtained from the Financial Services Authority (OJK) for the period from January 2014 to December 2022. Multiple linear regression analysis was applied to assess the relationships. The findings indicated that all variables—except SBSN—had a significant impact on investment returns, with SBSN showing no statistically meaningful effect. This suggests that while most investment avenues contribute to profitability, SBSN may not offer significant returns in this context.

Cho and Cho (2025) explored how corporate security management activities influence business performance, using sales revenue and operating profit as outcome variables. The study also examined the moderating role of formal security certifications, such as ISMS

or ISO. Drawing on data from 545 Korean companies that submitted information security activity reports to the Ministry of Science and ICT, the study applied multiple regression and moderation analyses. The results indicated that while high levels of IT investment alone can negatively affect performance, this impact is mitigated when organizations implement standardized security frameworks. These findings emphasize the importance of integrating structured information security systems into corporate strategy to foster both innovation and financial success.

Esfandiari et al. (2025) conducted an applied study to identify the major determinants of investment security in Iran. Using a grounded theory approach, they combined institutional data analysis with interviews involving 25 industry experts, leading to the identification of 18 thematic categories. Participants included university academics, investment firm executives, and private investors. Employing Cochran's formula, the sample size was set at 384 respondents. The analysis grouped the investment security determinants into six key dimensions: central phenomena, causal conditions, intervening variables, consequences, background conditions, and strategic responses. These findings provide a comprehensive framework for understanding the factors that influence investment security in the Iranian context.

Saleh and Igbinedion (2024) conducted a study to evaluate how fixed income securities influence the financial performance of deposit money banks in Nigeria, focusing on data covering the period from 1991 to 2021. The analysis considered government bonds, corporate bonds, treasury bills, and commercial papers as indicators of fixed income securities, while financial performance was assessed using the total assets of the banks. Employing Ordinary Least Squares (OLS) regression via EViews 8.0, the study utilized secondary time series data from the Central Bank of Nigeria. The findings revealed that government bonds and treasury bills had a significant and positive effect on banks' financial performance. Commercial papers also showed a positive and significant impact, whereas corporate bonds had a positive but statistically insignificant effect. In conclusion,

fixed income securities generally play a meaningful role in enhancing the financial performance of Nigerian banks. Based on these results, the study recommended that both federal and subnational governments consider issuing more domestic bonds to boost capital market development and provide investment opportunities for banks.

Obadiaru and Ogunyemi (2024) examined how interest income and non-interest income contribute to the profitability of deposit money banks in Nigeria. The study utilized secondary data drawn from the annual financial statements of selected banks over a 12-year period (2010–2021). Through the application of descriptive statistics and the Generalized Linear Model (GLM), the researchers tested their hypotheses. The findings indicated that interest income had a statistically significant positive relationship with profitability, whereas non-interest income had no significant effect. Based on these hints, the authors recommended that banks adopt policies aimed at attracting both interest and non-interest income sources to enhance overall performance in the Nigerian banking sector.

Ehiedu and Nwaokocha (2024) analyzed the connection between financial derivatives and the performance of deposit money banks in Nigeria, focusing on data from 2013 to 2022. The study measured financial derivatives using indicators such as financial liabilities derivatives, foreign exchange derivatives, trading income from derivatives, loan and advances to customers, and bank size. Return on assets (ROA) served as the performance metric. Utilizing an ex-post facto design and panel data from ten banks with international operations listed on the Nigerian Exchange Group, the study conducted unit root and cointegration tests before performing multiple regression analysis with EViews 9.0. The findings showed mixed outcomes: trading income from derivatives, loans and advances, and bank size significantly influenced ROA, whereas financial liabilities derivatives and foreign exchange derivatives did not. The study concluded that while certain types of derivatives positively impact bank performance, others may have

negligible or even adverse effects. Consequently, it was recommended that banks limit exposure to derivative liabilities that could harm profitability.

Kharel (2024) investigated how investment activities influence the profitability of commercial banks in Nepal. Employing a descriptive and causal-comparative design, the research focused on a sample of 20 banks, including NABIL Bank Limited and Standard Chartered Bank Limited, selected through purposive sampling. Secondary data from published reports were analyzed using tools such as mean, standard deviation, correlation coefficients, and regression analysis. The results indicated that balances held with the central bank (NRB) and investments in securities were positively correlated with both ROA and ROE, suggesting that liquidity reserves and securities holdings contribute positively to profitability. On the other hand, while loans and advances showed a positive correlation with ROA, they were negatively associated with ROE, implying that increased lending may dilute returns to shareholders. Regression analysis highlighted bank size as the most influential factor on ROA, followed by NRB balances and loans and advances, whereas investment in securities had a moderate effect.

Tao (2023) assessed how securities investments impact corporate performance in Chinese firms listed on the A-share market between 2009 and 2020. This timeframe was chosen to avoid distortions from the 2008 financial crisis and the COVID-19 pandemic. Regression analysis was employed to evaluate the relationship between securities investment and firm performance. The results showed that investment in securities positively affects corporate performance. However, firm size was found to negatively moderate this relationship, indicating that larger firms may not experience the same level of benefit from securities investments as smaller ones. These findings suggest that while securities investment can be a valuable strategy, its effectiveness may vary depending on organizational scale.

Kayode et al. (2023) explored the relationship between investment diversification and the financial performance of commercial banks in Nigeria over a ten-year period from 2012 to 2021. Using multiple regression analysis, the study aimed to provide strategic hints for enhancing bank performance. The findings revealed that both investments in securities and the size of loan portfolios significantly and positively influenced financial performance. In contrast, investment in associate companies showed a notable negative correlation. Bank size also emerged as a positive determinant of performance. While macroeconomic factors such as interest rates, exchange rates, and the COVID-19 pandemic were included in some models, their influence on performance was largely insignificant. Despite this, ongoing monitoring of these external variables remains essential. The study recommended that banks implement well-structured diversification frameworks, strengthen risk management practices, optimize loan portfolios, and maintain strategic flexibility in response to economic shifts.

Amahalu et al. (2023) assessed how investment diversification influences the financial performance of listed commercial banks in Nigeria. Diversification was represented by investments in debt instruments, equity holdings, and subsidiary companies, while return on assets was the chosen metric for measuring financial performance. Using a sample of thirteen publicly listed banks over a period spanning from 2009 to 2022, the study employed an ex-post facto research design and analyzed secondary data using EViews 10. Descriptive statistics and inferential tools, including Pearson correlation and Panel Least Squares regression, were used in the analysis. The findings demonstrated that all three forms of investment—debt, equity, and subsidiaries—had a significant and positive association with return on assets. The authors recommended that commercial banks enhance their diversification strategies to better manage the financial risks posed by rapid innovations in the banking sector. Additionally, the adoption of derivative instruments was encouraged as a means to mitigate asset-related risks.

Agbaeze et al. (2023) investigated how derivative-based financial instruments affect the performance of commercial banks in Nigeria, covering the years 2014 to 2021. The research relied on aggregate annual data sourced from the Central Bank of Nigeria, the Securities and Exchange Commission, and the Nigeria Deposit Insurance Corporation. Profit before tax was used as a proxy for bank performance, while derivative instruments were categorized into foreign exchange, financial, and money market derivatives. Fully Modified Ordinary Least Squares (FMOLS) was used for the analysis following tests confirming data stationarity. The results revealed that foreign exchange and money market derivatives positively and significantly influenced bank performance. However, financial derivatives had a significant but adverse effect. Based on these results, the study suggested that banks increase their use of foreign exchange-related derivatives as a risk mitigation tool, particularly to guard against currency volatility, while exercising caution in the use of other complex derivative products.

Ani and Ugwuanyi (2023) examined how different income streams influence shareholder wealth in Nigerian insurance companies. The study focused on gross premium income, investment income, and interest income, with net assets used to represent shareholder wealth. The sample included five listed insurance firms and covered the period from 2011 to 2020. The analysis, based on time-series data, utilized descriptive statistics and multiple regression techniques. Results showed that both gross premium and investment income had a positive but statistically insignificant impact on net assets, while interest income had a significant positive effect. These findings emphasize the relevance of income diversification in helping insurance firms fulfill their primary goal of enhancing shareholder wealth in a competitive financial landscape.

Rintari and Muema (2023) analyzed how debt securities affect the performance of commercial banks in Nyeri County, Kenya. Employing a quantitative descriptive design, the study surveyed 16 banks with 194 respondents from various departments. Data analysis included descriptive statistics such as means and frequencies, as well as

inferential methods including correlation and regression. Findings revealed that gross profit had the highest mean value, with peak performance observed in 2019 and 2022, while 2020 recorded the lowest profits. A Pearson correlation coefficient of 0.312 (at 99% confidence) indicated a significant positive link between debt securities and financial performance. However, some products like commercial papers were found to be less attractive due to associated risks and low client awareness. The study recommended that bank management implement mandatory staff training programs focused on improving understanding of both traditional and non-traditional financial instruments, including securities like commercial papers, to better support revenue generation and client portfolio growth.

Zakari (2023) investigated how investment diversification relates to the financial performance of selected deposit money banks in Nigeria. The study examined how loan advances, investments in subsidiaries, investment properties, and investment securities impact return on equity as an indicator of performance. Eight internationally recognized and licensed banks were purposively selected from the total of 32 operating banks. A random effects panel regression approach was used to estimate the relationships. The results showed that both loan advances ($B = 0.25$, $p < 0.005$) and investment in subsidiaries ($B = 1.548$, $p < 0.005$) had significant negative effects on financial performance. Investment securities, however, exhibited no significant influence. The authors recommended that banks adopt a balanced diversification strategy, employ rigorous risk management, strategize resource allocation, and make informed investment decisions.

3.0 Methodology

This study adopted an ex-post facto research design to investigate the moderating effect of firm size on the relationship between security investment and internal growth of listed deposit money banks in Nigeria. An ex-post facto design is suitable for this study as it facilitates the examination of relationships between variables that have already occurred, especially when the independent variables cannot be manipulated. The population for this study consisted of seven (7) banks with international authorisation include: Access Bank Limited, Fidelity Bank Plc, First City Monument Bank Limited, First Bank Nigeria Limited, Guaranty Trust Bank Limited, United Bank of Africa Plc, and Zenith Bank Plc. A purposive sampling technique was employed in this study to select only firms that have comprehensive and consistent financial data available for the period from 2012 to 2024. Only banks with Tier-1 capital were selected into the sample size. Access Bank Limited, First Bank Nigeria Limited, Guaranty Trust Bank Limited, United Bank of Africa Plc, and Zenith Bank Plc. The justification is because firm size was used as a moderating variable. There is a need to select banks whose asset base and capital are relatively comparable. Secondary data was employed for this study, sourced from the annual reports and financial statements of the selected deposit money banks. These documents will be accessed through the Nigerian Exchange Group's database and the official websites of the respective banks. Data to be collected include variables related to equity investment security, long-term debt security investment, derivative security investment, hybrid security investment, firm size (measured by total assets), and internal growth indicator. The study period covered thirteen years, from 2012 to 2024, providing a total of 65 firm-year observations. The study employed descriptive and inferential statistical techniques for data analysis. Descriptive statistics was used to provide summaries of the key variables, including mean, standard deviation, minimum, and maximum values. Prior to the hypotheses testing proper, a number of model diagnostics were carried out such as Hausman specification test, and normality test. For inferential analysis, panel estimated

generalised least square was applied, which allows for the examination of cross-sectional and time-series variations. This technique is suitable for estimating models involving moderating variables, as it accounts for heteroskedasticity and dependence commonly associated with panel data. Moderated fixed effect model was used to test the effect of independent variables on the dependent variable, as suggested by Hausman test.

Operational Measurement of Variables

Variable	**Measurement**	**Source**
Equity Investment Security	Natural log of total equity investment security example, Ordinary Shares, Preference Shares, Rights Issues	Bodie et'al (2020). Reilly, & Brown, (2019).
Long-term Debt Security	Natural log of total long-term debt investment security, examples, Corporate Bonds, Government Bonds	Scherr, & Hulburt, (2017), Colla, et'al. (2013)
Derivative Security	Natural log of total derivative investment security, examples, future contracts, forward contracts	Black, & Scholes, (1973)
Hybrid Security	Natural log of total hybrid investments security example, Convertible Bonds, Preference Shares	Saunders, & Cornett, (2020)
Firm Size	Natural log of total assets	Ujam et'al 2023
Internal Growth	IGR =(PAT/Total Asset) * (1- dividends paid/ PAT) * 100/1	Brigham, & Ehrhardt, (2020), Chodorow-Reich et'al (2022)

Source: Researcher's Compilation (2025)

Model Specification

To analyze the moderating effect of firm size on the relationship between various forms of security investment and internal growth, the study will adapt the model by Babarinde et al. (2025) who formulated the under-listed functional model:

$ROE = f(INVESTSEC, LATC, BSIZE)$……(i)

Where:

ROE = Return on equity
INVESTSEC = Investment security
LATC = Loan and advances to customers
BSIZE = Board size
However, modification will be made the functional model above to arrive at the under-stated:

IGit = β0 + β1EISit + β2LDSit + β3DSit + β4HSit + β5FSit + *εit* ……. *(ii)*

Since this study will equally assess the *moderating effect of* firms size, the baseline model will be further expanded as shown below:

IGit = β0 + β1EISit*FSit + β2LDSit*FSit + β3DSit*FSit + β4HSit*FSit + *εit* ……. *(ii)*

Where:

IG = Internal Growth (measured by growth in revenue or profit)
EIS = Equity Investment Security
LDS = Long-term Debt Security Investment
DS = Derivative Security Investment
HS = Hybrid Security Investment
FS = Firm Size (measured by total assets)
β0 = Intercept

β1-5 = Parameters of the models

* = Moderation identity

εit = Error term

4.1 Data Presentation

This study aimed to examine the moderating effect of firm size on the relationship between security investment and internal growth of listed deposit money banks in Nigeria. Specifically, it investigated how firm size influenced the impact of equity investment, long-term debt, derivative, and hybrid security investments on internal growth. An *ex-post facto* research design was adopted, focusing on secondary data collected from the annual reports and financial statements of five selected banks from 2012 to 2024.

4.2 Descriptive Analysis of Data

Data analysis involved descriptive statistics for summarizing key variables.

Table 4.1 Descriptive Analysis

	IG	EIS	LDS	DS	HS	FS
Mean	1.703457	7.430398	8.791150	6.682771	8.777396	9.696552
Median	1.407394	7.713642	8.757489	7.522966	8.767486	9.631823
Maximum	6.140031	8.878752	10.02933	9.308198	9.616085	10.61803
Minimum	-0.292674	0.000000	7.900198	0.000000	7.967698	9.180629
Std. Dev.	1.124462	1.491420	0.486626	2.486091	0.409016	0.332555
Skewness	1.369415	-3.842154	0.166415	-2.023206	-0.090027	0.680899
Kurtosis	5.720333	19.65215	2.454639	5.903214	2.131946	2.794683
Jarque-Bera	40.35798	910.9283	1.105527	67.17237	2.128581	5.136754
Probability	0.000000	0.000000	0.575358	0.000000	0.344972	0.076660
Sum	110.7247	482.9759	571.4247	434.3801	570.5308	630.2759
Sum Sq. Dev.	80.92253	142.3574	15.15553	395.5614	10.70680	7.077957
Observations	65	65	65	65	65	65

Source: Researcher's Compilation (2025)

The internal growth (IG) variable in Table 4.1 shows a mean of 1.703, suggesting that on average, the banks experienced moderate internal growth over the study period. The maximum value of 6.140 indicates that some banks achieved significantly higher growth, while the minimum of -0.293 shows that a few experienced slight declines in growth. The standard deviation of 1.124 reflects moderate variability around the mean, indicating differences in internal growth performance among the banks. The skewness of 1.369 suggests a right-skewed distribution, meaning higher growth values are more spread out

than lower values. Kurtosis of 5.720 indicates a leptokurtic distribution, suggesting that extreme growth values are more frequent than in a normal distribution. The Jarque-Bera probability of 0.000 confirms that IG is not normally distributed, although, by the central limit theorem, the mean can still be considered reliable given the sample size of 65 observations.

Equity investment security (EIS) has a mean of 7.430, indicating that banks generally invested a substantial portion of their assets in equity securities. The maximum value of 8.879 and minimum of 0 show wide variability in equity investment practices, with at least one bank having no equity investments in a given year. A standard deviation of 1.491 reflects significant dispersion around the mean. The highly negative skewness of -3.842 indicates a left-skewed distribution, showing that most banks clustered at higher investment values while few had very low or zero equity investment. Kurtosis of 19.652 reveals extreme peakedness, implying a strong concentration of values around the mean with heavy tails. The Jarque-Bera probability of 0.000 confirms non-normality, but with 65 observations, the central limit theorem allows statistical inferences on the mean to remain valid.

Long-term debt security (LDS) presents a mean of 8.791, suggesting that banks consistently maintained significant investments in long-term debt securities. The maximum and minimum values of 10.029 and 7.900, respectively, indicate a relatively narrow range, showing less variability compared to EIS. The standard deviation of 0.487 confirms low dispersion, meaning most banks' long-term debt investments were similar. Skewness of 0.166 implies a nearly symmetrical distribution, while kurtosis of 2.455 is close to the normal value of 3, indicating moderate tail behavior. The Jarque-Bera probability of 0.575 indicates no significant deviation from normality, reinforcing that the distribution of LDS is fairly normal.

Derivative security (DS) shows a mean of 6.683, indicating moderate use of derivatives among the banks. Its maximum of 9.308 and minimum of 0 suggest that while some banks used derivatives extensively, others did not engage in them at all during the period. The high standard deviation of 2.486 reflects considerable variability in derivative usage. Skewness of -2.023 indicates a left-skewed distribution, meaning most banks had higher DS values with a few low or zero values. Kurtosis of 5.903 points to a leptokurtic distribution, suggesting a concentration of values with more extreme observations than a normal distribution. The Jarque-Bera probability of 0.000 confirms non-normality, though the sample size supports reliable mean estimation under the central limit theorem.

Hybrid security (HS) has a mean of 8.777, showing that banks maintained relatively high hybrid security investments. The maximum of 9.616 and minimum of 7.968 indicate limited variation, which is supported by a low standard deviation of 0.409. Skewness of -0.090 suggests a nearly symmetric distribution, and kurtosis of 2.132 indicates a slightly flatter distribution than normal. The Jarque-Bera probability of 0.345 confirms no strong evidence against normality, and the sample size allows confidence in mean-based analyses.

Firm size (FS) shows a mean of 9.697, indicating that the banks in the study had large asset bases on average. The maximum and minimum values of 10.618 and 9.181 suggest moderate variability in bank sizes, with a standard deviation of 0.333 confirming relative consistency among the sampled banks. Skewness of 0.681 indicates a slight right skew, meaning a few banks were considerably larger than most. Kurtosis of 2.795 points to a distribution slightly flatter than normal. The Jarque-Bera probability of 0.077 suggests borderline normality, and the central limit theorem supports using the mean for inferential purposes given the 65 observations.

4.2.1 Analysis of Research Questions

The Pearson correlation analysis in Table 4.2 shows the strength and direction of linear relationships between internal growth (IG) and the independent variables.

Table 4.2 Correlational Analysis
Pearson Correlational Analysis:
Ordinary
Date: 01/26/26 Time: 04:46
Sample: 1 65
Included observations: 65

Correlation Probability	IG	EIS	LDS	DS	HS	FS
EIS	-0.098370 0.4356	1.000000 -----				
LDS	0.160574 0.2013	0.397078 0.0011	1.000000 -----			
DS	-0.280311 0.0237	0.097215 0.4411	0.264385 0.0333	1.000000 -----		
HS	0.002848 0.9820	0.420720 0.0005	0.904650 0.0000	0.235116 0.0594	1.000000 -----	
FS	0.172767 0.1687	0.315397 0.0105	0.742693 0.0000	0.502921 0.0000	0.564615 0.0000	1.000000 -----

Source: Researcher's Compilation (2025)

The Pearson correlation analysis in Table 4.2 shows that for equity investment security (EIS), the correlation with IG is -0.098, indicating a very weak negative relationship, and the probability value of 0.436 shows that this association is not statistically significant. This suggests that variations in equity investment levels do not meaningfully correspond with changes in internal growth among the sampled banks.

Long-term debt security (LDS) has a weak positive correlation of 0.161 with IG, but the p-value of 0.201 indicates that this relationship is also not statistically significant. In contrast, derivative security (DS) shows a moderate negative correlation of -0.280 with IG, with a probability of 0.024, implying a statistically significant negative relationship. This finding suggests that increased investment in derivatives is associated with lower internal growth within the banks studied.

Hybrid security (HS) and firm size (FS) show very weak correlations with IG, at 0.003 and 0.173 respectively, and neither relationship is statistically significant ($p = 0.982$ and 0.169). These results indicate that variations in hybrid security investments and differences in firm size have little to no linear association with internal growth in this sample.

4.2.2.4 Hausman Specification Test

Table 4.6 Hausman Specification 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	33.597365	4	0.0000

Source: Researcher's Compilation (2025)

The Hausman specification test, shown in Table 4.6, evaluates whether the random effects or fixed effects model is more appropriate for panel data analysis by testing for correlation between the regressors and individual effects. The Chi-square statistic of 33.597 with a p-value of 0.000 indicates that the random effects assumption is violated, suggesting that a fixed effects model is the suitable approach for this study to obtain consistent estimates.

4.3 Test of Hypotheses

The moderated regression estimates how firm size changes the effect of different types of security investments on internal growth, rather than just measuring their direct effect. It shows the marginal effect of each investment at different levels of firm size, highlighting whether larger or smaller banks experience stronger or weaker effects. This approach allows for a more nuanced understanding of how internal growth is influenced by both investments and the scale of the bank.

Table 4.9 Test of Hypotheses

Dependent Variable: IG
Method: Panel EGLS (Cross-section SUR)
Date: 01/26/26 Time: 04:39
Sample: 2012 2024
Periods included: 13
Cross-sections included: 5
Total panel (balanced) observations: 65
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EIS*FS	-0.003674	0.005236	-0.701684	0.4858
LDS*FS	0.140529	0.032296	4.351275	0.0001
DS*FS	-0.009605	0.002553	-3.762032	0.0004
HS*FS	-0.108054	0.038749	-2.788557	0.0072
C	-0.196082	1.050745	-0.186613	0.8526

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.652687	Mean dependent var	2.417451
Adjusted R-squared	0.603070	S.D. dependent var	1.861566
S.E. of regression	1.057949	Sum squared resid	62.67839
F-statistic	13.15471	Durbin-Watson stat	1.938116
Prob(F-statistic)	0.000000		

Source: Researcher's Compilation (2025)

Table 4.9 shows that the model is robust and reliable for testing the moderating effect of firm size. The adjusted R-squared is 0.603, indicating that approximately 60.3% of the variation in internal growth (IG) is explained by the interaction of firm size with different security investments. This shows a moderately strong explanatory power, slightly higher than the unmoderated model, suggesting that including firm size as a moderator improves the model's predictive ability. The Durbin-Watson statistic is 1.938, close to the ideal value of 2, indicating no serious autocorrelation in the residuals. The F-statistic is significant (p = 0.000), meaning that collectively, the interaction terms significantly affect internal growth, validating the model for hypothesis testing.

The constant (C) of -0.196 is not statistically significant at 5% (p = 0.853), indicating that the baseline internal growth, when all interaction terms are zero, is not meaningfully different from zero. This contrasts with the unmoderated model, showing that controlling for firm size as a moderator shifts the baseline effect closer to neutral, highlighting the importance of firm size in explaining internal growth outcomes.

4.3.1 Test of Hypothesis I

H01) Firm size has no significant moderating effect on equity investment security and internal growth of deposit money banks in Nigeria.

The coefficient for the interaction term EIS*FS is -0.004 (p = 0.486), indicating a very small negative marginal effect of firm size on the effect of equity investment security on internal growth. Specifically, for each one-unit increase in the product of equity investment and firm size, internal growth is expected to decrease by 0.004 units, holding other factors constant. However, this effect is not statistically significant at 5%, suggesting that firm size does not meaningfully alter how equity investments affect internal growth. Therefore, the null hypothesis that firm size moderates the effect of equity investment security on internal growth is accepted.

4.3.2 Test of Hypothesis II

H02) Firm size has no significant moderating effect on long-term debt security investment and internal growth of deposit money banks in Nigeria.

The coefficient for LDS*FS is 0.141 (p = 0.0001), indicating a positive marginal effect. This means that as firm size increases, the positive effect of long-term debt security on internal growth strengthens, with a one-unit increase in the interaction term corresponding to an increase of 0.141 units in internal growth. The effect is statistically significant at 5%, confirming that firm size significantly moderates the effect of long-term debt investments on internal growth. This supports the alternate hypothesis that larger banks benefit more from long-term debt security in terms of internal growth.

4.3.3 Test of Hypothesis III

H03) Firm size has no significant moderating effect on derivative security investment and internal growth of deposit money banks in Nigeria.

The coefficient for DS*FS is -0.010 (p = 0.0004), showing a small but statistically significant negative effect. This indicates that as firm size increases, the negative effect of derivative security on internal growth becomes slightly stronger, with each one-unit increase in the interaction term reducing internal growth by approximately 0.010 units. The effect is significant at 5%, supporting the alternate hypothesis that firm size moderates the effect of derivative security, but the moderation exacerbates the negative influence on internal growth.

4.3.4 Test of Hypothesis IV

H04) Firm size has no significant moderating effect on hybrid security investment and internal growth of deposit money banks in Nigeria.

The coefficient for HS*FS is -0.108 (p = 0.007), indicating a negative marginal effect. This means that larger firm size amplifies the negative effect of hybrid security on internal growth, with a one-unit increase in the interaction term lowering internal growth by 0.108 units, holding other variables constant. The effect is statistically significant at 5%, supporting the alternate hypothesis that firm size significantly moderates the impact of hybrid security investments, making the negative effect on internal growth stronger in larger banks.

4.4 Discussion of Findings

Firm Size and Equity Investment Security (EIS*FS)

The finding that firm size does not significantly moderate the effect of equity investment security on internal growth (β = -0.004, p = 0.486) suggests that banks, regardless of size, experience similar marginal effects from equity investments. This result may be due to the relatively uniform mechanisms through which equity securities contribute to internal growth, such as dividend inflows or retained earnings, which are not strongly influenced by the scale of a bank. Studies like Aprilianto & Mahdi (2025) in the Indonesian insurance sector support this by showing that certain investment instruments do not significantly impact returns. Similarly, Zakari (2023) found that investment securities did not significantly influence bank performance, while Amahalu et al. (2023) indicated that derivatives were more influential than equities for growth, highlighting the limited effect of equity investments across firm sizes. Conversely, Babarinde et al. (2025) observed that some equity-related instruments negatively influenced ROE, reflecting that the type of equity or the investment horizon may moderate performance outcomes rather than firm size. These findings collectively suggest that equity investments may provide standardized returns or incremental effects that do not vary with the asset base or capital scale of the banks.

Firm Size and Long-Term Debt Security (LDS*FS)

The positive and significant moderation effect of firm size on long-term debt security (β = 0.141, p = 0.0001) indicates that larger banks are able to leverage debt instruments more effectively to boost internal growth. This can be attributed to their greater capacity to access favorable borrowing terms, manage interest obligations, and deploy debt into profitable ventures. Rintari & Muema (2023) and Saleh & Igbinedion (2024) similarly reported that long-term debt instruments such as government bonds and commercial papers positively influenced bank performance. Kayode et al. (2023) also found that larger banks benefitted more from financial investments, supporting the notion that scale enhances debt utility. In contrast, Babarinde et al. (2025) noted that short-term debt could negatively affect performance, suggesting that the duration and structure of debt interact with firm size to shape growth outcomes. Thus, the finding aligns with the idea that firm size enhances the positive marginal effect of long-term debt on internal growth, as larger banks can optimize financial leverage better than smaller counterparts.

Firm Size and Derivative Security (DS*FS)

The negative and significant moderation of firm size on derivative security (β = -0.010, p = 0.0004) reflects that as banks grow larger, the potentially adverse effects of derivative investments on internal growth intensify. This could be due to increased exposure to complex derivative instruments that require sophisticated risk management, which larger banks may not always execute optimally, resulting in marginal growth losses. Ehiedu & Nwaokocha (2024) found that certain derivatives had adverse effects on performance, while Agbaeze et al. (2023) observed negative impacts of financial derivatives on banks' internal metrics. Ghosh (2017) also reported that derivative use could reduce profitability post-crisis, highlighting risks that may increase with scale. Conversely, Amahalu et al. (2023) noted derivatives can aid risk management, but the effectiveness is contingent on expertise and monitoring. This pattern emphasizes that increased firm size may magnify

the marginal negative impact of derivative securities when management or operational controls are not proportionally strengthened.

Firm Size and Hybrid Security (HS*FS)

The significant negative moderation of firm size on hybrid security (β = -0.108, p = 0.007) indicates that larger banks experience greater reductions in internal growth from hybrid securities than smaller banks. This may arise from the higher costs or complexity associated with hybrid instruments, such as convertible bonds or preference shares, which can dilute returns or strain internal capital management in larger institutions. Deboben & Würtz (2015) observed consistent negative relationships between hybrid capital and performance in European insurance companies, while Babarinde et al. (2025) reported that certain hybrid instruments could reduce ROE. Cho & Cho (2025) highlighted that sophisticated security systems require careful integration to improve performance, implying that without effective management, larger firms may face amplified negative effects. Saleh & Igbinedion (2024) also noted that fixed-income and hybrid instruments have mixed effects, emphasizing that complexity rather than the scale of investment alone drives growth outcomes. This finding reinforces that firm size can magnify the negative marginal effects of certain securities when operational or strategic management is not optimized.

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The findings indicated that:

1. Firm size does not significantly moderate the effect of equity investment security on internal growth ($\beta = -0.004$, $p = 0.486$).

2. Firm size significantly strengthens the positive effect of long-term debt security on internal growth ($\beta = 0.141$, $p = 0.0001$).

3. Firm size significantly increases the negative effect of derivative security on internal growth ($\beta = -0.010$, $p = 0.0004$).

4. Firm size significantly amplifies the negative effect of hybrid security on internal growth ($\beta = -0.108$, $p = 0.007$).

5.2 Conclusion

The study's results highlight the complex dynamics between security investment types, firm size, and internal growth, revealing that the scale of a bank can meaningfully alter the way financial strategies translate into growth outcomes. While equity investments appear relatively unaffected by the size of the firm, suggesting a uniform effect across banks regardless of scale, other forms of investment interact with firm size in ways that can either enhance or constrain growth. Larger banks benefit more from long-term debt securities, which indicates that access to substantial assets or capital allows these institutions to leverage debt more effectively in driving internal growth. Conversely, derivative and hybrid securities show stronger negative effects as firm size increases, reflecting that more extensive or complex portfolios in larger banks may expose them to greater risks or inefficiencies that dampen growth. These patterns suggest that internal growth is not solely dependent on the amount or type of investment, but also on how the structural characteristics of a bank, particularly its size, shape the efficiency and outcome of investment activities. The differential effects emphasize the necessity of considering organizational scale when analyzing the growth potential associated with various

financial instruments, as the interaction between size and investment strategy can create divergent trajectories in performance. Thus, the results point to a subtle setting where the benefits of certain securities are amplified or offset depending on the firm's capacity, revealing that growth is influenced by the interplay between strategic financial decisions and the resources inherent to the institution, rather than by investment type alone. This understanding provides a broader perspective on how internal growth emerges in banking institutions, emphasizing the layered and conditional nature of financial outcomes.

5.3 Recommendations

Equity Investment Security: Bank management should maintain a consistent approach to equity investments across all branches and subsidiaries, as firm size does not significantly alter their effect on internal growth, ensuring standardized monitoring and reporting practices for these investments.

Long-Term Debt Security: Financial strategists and treasury managers in larger banks should actively leverage long-term debt instruments to enhance internal growth, using the firm's size to secure favorable borrowing terms and deploy debt into profitable projects.

Derivative Security: Risk management teams in large banks should carefully monitor and control derivative positions, as firm size amplifies the negative effect of derivative securities on internal growth, ensuring that complex instruments are managed with advanced hedging strategies.

Hybrid Security: Investment officers and corporate finance managers should exercise caution in issuing or acquiring hybrid securities in larger banks, implementing rigorous evaluation and management systems to mitigate the amplified negative impact on internal growth.

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