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Capital market instruments and development in Nigeria: The mediating role of corporate taxation

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ABSTRACT

This research aims to evaluate the role of investment instruments in fostering capital market growth in Nigeria. It employs time series data covering the period from 1991 to 2023. The investment assets include equity, government bonds, and corporate bonds, while corporate tax is considered a moderating factor. The Vector Error Correction Model is employed for data analysis in this study. The results indicate that, in the long run, corporate bonds lead to a 6.4% increase in capital market expansion, while other predictors tend to suppress it. All things being equal, government bonds, equity, and corporate tax substantially decrease capital market growth in the long term by 4.7%, 51.4%, and 65.5%, respectively. There is a 69.1% convergence to equilibrium in the current period, meaning the previous years' deviation from long-run asymmetry is corrected at an adjustment speed of 69.1% in the short run. A percentage change in corporate tax is associated with a 1.1% increase in capital market growth in the short term. Additionally, a percentage change in equity, government bonds, and corporate bonds in the short run decreases capital market growth by 80.9%, 10.5%, and 5.8%, respectively. Further tests show that market capitalization responds negatively to shocks from corporate bonds and equities across nearly all periods, while it reacts positively to government bonds and corporate tax. Thus, the study proposes a limit on the issuance of government bonds to foster private sector access to funds, which are essential for supporting capital market growth and performance in the country.

Contribution/Originality: This study enriches the existing literature by demonstrating that the capital market responds negatively to shocks in equity and corporate bonds, while government bonds and taxes do not experience the same adverse response. The study confirms that government bonds hinder firms' growth, negatively impact the private sector, and impede capital market development.

1. INTRODUCTION

Capital market expansion is intentional and most desired in all emerging economies. It serves as a crucial component of the global economic system, acting as a channel that connects capital holders and users. As an indispensable part of the financial system, it performs three vital functions. First, it mobilizes savings, addresses information disparities between borrowers and lenders, and supplies resources for risk management (Pocius, Stungurienė, & Paškevičius, 2014). Capital markets enable the trading of long-term investment vehicles such as stocks and bonds, providing businesses with the financial resources to develop and offering individuals the opportunity to enhance their wealth. Enterprises issuing securities in countries with robust capital markets experience a more

pronounced increase in their sales and production potential than those in financial systems that are primarily bank-based.

Capital markets facilitate the flow of funds into productive sectors, thereby enhancing the efficient distribution of resources (Ariff, 2018). By offering liquidity, facilitating value unearthing, minimizing transaction charges, and allowing for risk transfer, capital markets support individuals, organizations, and governments in acquiring funds through the sale of stocks and bonds (Shamalime & Yohane, 2024). Financial sectors also raise funds from the capital market whenever it is necessary. Apart from their usual operations designed to attract financial resources, such as loan issuance, deposit management, commission services, currency trading, bank transfers, and import-export dealings, financial institutions may access the investment market to secure funding from potential investors (Batrancea & Fetita, 2023). They control market demands and stakeholders' concerns to satisfy resource consumption and direct investments towards companies exhibiting stable growth, utilizing price mechanisms and market dynamics (Ariff, 2018).

In Nigeria, the capital markets serve as a key mechanism for unlocking funds for money-spinning undertakings. The market enables investors to engage their funds in various financial instruments, including stocks and bonds, which are then leveraged to support positive initiatives such as business development, infrastructure projects, and research and innovation. The investment market in Nigeria is a financial sector that facilitates the collection and distribution of intermediate to long-term capital through the issuance and exchange of economic assets. It is governed by the Securities and Exchange Commission (SEC) and primarily operates within the Nigerian Stock Exchange (NGX). Major stakeholders include the SEC, NGX, stockbrokers, trustees, issuing houses, and registrars. The NGX is a prominent trading platform in Africa, supporting transactions in stocks, fixed income instruments, government and corporate bonds, as well as market-traded derivatives.

However, the advancement and efficiency of the capital market serve as significant indicators of a country's development, its competitive standing, and the opportunities available for investors to secure funding when necessary. As noted by Pocius et al. (2014), the challenges and efficacy of the capital market are influenced by various factors, including market liquidity, investor behavior, the economic conditions of a country, and its tax framework, among others. According to Bojana and Tino (2016), the legal and institutional framework plays a crucial role, with privatization strategies being pivotal in the advancement of investment market expansion. Although SMEs rarely obtain external funding directly from capital markets, the development of these markets may enhance SMEs' ability to obtain funding by augmenting the accessibility of bank credits (Sommer, 2024). However, the resolution of political risks, adherence to the rule of law, and improved administrative quality contribute to the robustness of capital markets (Bojana & Tino, 2016).

The global financial downturn and investment challenges have profoundly affected market capitalization. Investors have become increasingly wary of capital market instruments, as evidenced by the low demand for ordinary shares, bonds, and other debt instruments, following a series of investment losses, decreases in share values, and the collapse of firms registered in the stock exchange market. Investors no longer have confidence in investing in capital market instruments. Furthermore, investment asset buyers face the quandary of crossing the intricacy of determining whether stocks are underrated or overrated, as any fresh statistics are speedily mirrored in the price of securities issued in the capital market (Manao, Waspada, & Sari, 2025; Vinogradova, 2021).

A number of studies conducted previously have analyzed the contribution of capital markets and their instruments on fiscal evolution (Azimi, 2022; Bhattarai, Gautam, & Chettri, 2021; Ogbuji, Mesagan, & Alimi, 2020; Omir, Ainagul, Zhanat, Gaukhar, & Nazigul, 2024; Omodero & Alege, 2022; Petlele & Buthelezi, 2025; Wahidin, Akimov, & Roca, 2021; Yener, Seven, Ertuğrul, & Ulussever, 2017). In earlier research, capital market instruments, mainly government bonds, have been found to have a large negative effect on economic growth (Ogbuji et al., 2020; Yener et al., 2017), while the study by Omodero and Alege (2022) found a substantial positive connection between economic progress and government bonds. Considering the effects of macroeconomic factors on capital market

expansion, inflation has always been detrimental to capital market growth, as shown by Keswani, Puri, and Jha (2024); Megaravalli and Sampagnaro (2018); Nguyen and Minh (2025), and Olokoyo, Oyakhilome, and Babajide (2020). Nevertheless, limited empirical works have been done on the effects of investment market tools on capital market growth (Dibal, Haruna, Onyejiaku, Ogbole, & Onwumere, 2023; Emmanuel, Jonah, & Gofwan, 2024; Ishak, Nordin, Hamzah, & Rasedee, 2025; Olaniyan & Ekundayo, 2019; Osayi & Nwani, 2024). The obvious gap that remains is that there is a scarcity of works that have been targeted towards examining the liquidity of Nigeria's capital market, which reveals a predominance of equity, government, and corporate bonds, as made available to investors based on their investment needs. The corporate income tax landscape is crucial in shaping these investment selections; in this way, the capital market dynamism will be sustained. Consequently, this research seeks to investigate the expansion of the asset market through equity and bonds, alongside the mediating influence of corporate tax in Nigeria.

In order the achieve the major aim of this investigation, the study specifically wishes to:

i. Ascertain the effect of government bonds on capital market expansion.
ii. Evaluate the extent to which corporate bond affects capital market growth.
iii. Assess the level at which equity influences capital market development.
iv. Determine the impact of corporate tax on capital market growth.

2. REVIEW OF EXISTING LITERATURE

2.1. Definitions of Notions

Olusegun and Ajao (2024) define a capital market as a venue that connects buyers and sellers for the trading of investment tools such as bonds and stocks. In the context of finance, a financial instrument is a contractual arrangement that leads to the emergence of a pecuniary asset for one organization and a matching fiscal obligation or ordinary share for another entity (Briggs, 2015). On the other hand, equity securities denote the ownership interest that shareholders hold in a company, represented by shares of capital stock, which include both common and preferred varieties (Jibril, 2021). Corporate bonds perform a dynamic role in providing funding for companies' investment prospects, primarily due to agency costs, tax advantages, and the challenges firms face in attracting equity investors (Asimakopoulos, Asimakopoulos, & Li, 2023; Bai, Qiu, & Yu, 2024; Jensen & Meckling, 1976). Government bonds are typically leveraged to finance infrastructure projects, which can invigorate economic activity and contribute to overall economic growth (Petlele & Buthelezi, 2025). As stressed by Biza, Kapingura, and Tsegaye (2015), the utilization of government bonds for financing productive investments, such as infrastructure and education, can enhance economic growth by increasing government expenditure. In this study, market capitalization is used to represent capital market growth and development, as reflected in the values of all securities traded in the capital market. This is adequately employed in the study of (Şerban, Mihaiu, & Ţichindelean, 2022).

2.2. Notional Analysis

2.2.1. Intensive Capital Demand Theory

According to this theory, the process of economic growth engenders a greater demand for a range of financial services and instruments, which subsequently encourages the development of the capital market (Robinson, 1952). As the economy becomes increasingly multifaceted and varied, it calls for more streamlined processes for the allocation of capital across different sectors and organizations. According to the demand-following theory, the advancement of capital markets is contingent upon structural shifts taking place in the economy (Czupryn & Majchrowska-Szewczyk, 2024). In light of the evolving economy, commerce, asset buyers, and various fiscal players are striving for progressively sophisticated and flexible investment tools to manage their expanding financial needs. Abraham, Cortina, and Schmukler (2021) suggest that if the heightened request for funding by businesses is the key factor driving the increase in bond issuance, then domestic bond yields are likely to rise, assuming other conditions remain stable.

This would also indicate analogous yield fluctuations in other investment markets where firms obtain loans, a rise in control among entities acquiring the loans, and that companies will largely deploy the earnings from the bonds issued (Abraham et al., 2021). As a result of this surge in demand, capital markets are beginning to introduce an array of fresh facilities and investment tools, such as stocks, government, and corporate bonds, that support asset deployment, risk diversification, and effective reserve allocation. Government bonds can stimulate demand for loanable funds, which may lead to an increase in interest rates, potentially crowding out private investment and adversely affecting economic growth (Biza et al., 2015; Omodero & Alege, 2022). Thus, it is maintained that governments should primarily focus their initiatives on enhancing commercial evolution through operational improvements, such as the denationalization of state-owned enterprises, deregulation of labor markets, modifications to the tax arrangements, and statutory and governing modifications intended to create an environment conducive to private sector growth.

2.2.2. Supply-Side Expansion Theory

This notion postulates that a well-functioning capital market is indispensable in facilitating economic growth by optimizing resource circulation (Jung, 1986). Capital markets enable the movement of wealth from entities with excess resources to those in need of additional funds for investment or operational purposes. The corporate bond market offers firms a different means of financing, and being largely influenced by supply-side dynamics, it stands out as one of the most vibrant sub-markets in capital market development (Yener et al., 2017). If the increase in domestic bond financing is mainly driven by a supply-side expansion from investors eager to purchase bonds, it could result in reduced yields on bond issuances, faster leverage growth for new issuers compared to those that issue bonds regularly, and a build-up of cash from issuance proceeds as companies take advantage of positive liquidity environments to borrow more than what is necessary for their current operations (Abraham et al., 2021).

2.2.3. Regimented Capital Market Hypothesis

The stock market hypothesis emphasizes that share prices broadly reflect all existing information. It incorporates three variations: the 'weak', 'semi-strong', and 'strong' arrangements. The feeble arrangement of the efficient market hypothesis advocates that the transaction data of assets is already included in their values. If the weak form is in force, then technical analysis would not be capable of generating higher yields (Udo, Chinedum, & Ikechi, 2021). The semi-strong form of the efficient market hypothesis asserts that all publicly available information is reflected in asset prices. Conversely, the strong form maintains that both public and insider information are incorporated into prices, indicating that even insiders cannot reliably achieve higher returns through trading on their exclusive knowledge. According to Manao et al. (2025), the evaluation of Efficient Capital Markets reveals that investors can be more careful in determining the most suitable investment strategies. According to Ambar, Astuti, Purwiyanta, and Rizky (2025), fluctuations in capital market performance are influenced by the economic business cycle and the confidence of investors.

Often, investors decide to invest in markets that present both appropriate access to the financial resources they are interested in and a protective measure for their investments (Tilică, Dragotă, Delcea, & Tătaru, 2024). To efficaciously accomplish this role, investors need to access a comprehensive array of pertinent information, including insights into the legal basis, transaction guidelines, and obtainable assets (Yildiz, 2021). The government is also resolute in generating ample tax revenue to support its intended initiatives and targets. On that note, an exceedingly effective approach to realizing this objective is to create a mutually beneficial fiscal and legal structure that promotes a favorable economic climate overall, with an explicit emphasis on the transaction method (Tilică et al., 2024). Thus, efficient capital markets contribute to economic performance by ensuring liquidity, lowering transaction costs, and allowing for risk diversification (Ambar et al., 2025).

2.3. Review of Previous Empirical Works

2.3.1. Capital Market and Economic Growth

Yener et al. (2017) conducted an analysis of the relationship between the level of capital market development and economic growth in Turkey. Their study revealed a long-term co-integrating relationship between these two factors. It was also found that, among the capital market instruments studied, only government bonds had a negative correlation with economic growth. In confirmation that government bonds are hurtful to economic growth, Ogbuji et al. (2020) compared the effects of money and capital markets on the economy of Ghana. Their analysis revealed that market capitalization and the total value of stocks traded, which are indicators of the capital market, positively and significantly affected short-run growth. The study also found that monetary policy and treasury bill rates had a significant negative influence on growth in both the short and long term.

In the scrutiny by Omodero and Alege (2022), the effects of various public-sector bonds on Nigeria's economic growth were examined. The study concluded that treasury bills and FGN bonds had a significant positive effect on economic growth, while government treasury bonds and inflation adversely affected economic growth in a substantial manner. To further validate the negative phenomenon of government bonds, the research conducted by Petlele and Buthelezi (2025) centered on the active interactions between the state borrowing tool (bond), their vintages, and pecuniary progress in South Africa. Their findings suggested that shocks to short-term government bonds primarily resulted in a decline in GDP growth due to crowding-out effects, while mid-term government bonds produced a 'W-shaped' effect on growth. Moreover, shocks to short-term bond yields caused a sharp decrease in GDP, while long-term bond yield shocks led to an initial decline followed by a later increase in growth.

Bhattarai et al. (2021) discovered a long-term unidirectional causal association between the stock market development index and economic growth. The size and liquidity of the stock market were important indicators, revealing that the market successfully mobilized money and mitigated risks through increased trading efficiency, which promoted economic growth in Nepal. Wahidin et al. (2021) investigated the impact of bond market development on economic growth in the wake of the worldwide financial meltdown. Their findings indicated clear evidence that the global financial crisis changed the link between bond market development and economic growth: prior to the crisis, the bond market had a beneficial impact on economic growth, but, after the crisis, the evidence appeared inconsistent.

Azimi (2022) assessed the influence of capital and money market predictors on the economic growth of China. The results indicated that a decrease in money market rates leads to positive shocks that promote growth, while an increase results in negative shocks that restrict it. Additionally, the study found that negative shocks from real interest rates and total liquidity enhance short-term growth, while positive shocks have a detrimental effect. Moreover, the findings revealed that both positive and negative shocks from market capitalization and stock market turnover support economic growth, whereas shocks from total stock traded adversely affect growth in both the short and long term. Omir et al. (2024) used the financial instruments to assess the impact of the capital market on the economic growth of Kazakhstan and the CIS countries. Their findings indicated that the capital market had a substantial impact on economic growth in Kazakhstan and the CIS countries.

2.3.2. Macroeconomic Forces Interacting with Capital Market Growth

Megaravalli and Sampagnaro (2018) measured both the long-term and short-term interactions between stock markets and indispensable macroeconomic indicators in the ASIAN 3 economies. Their discoveries specified that the exchange rate exerted a positive and significant long-term influence on stock markets, whereas inflation demonstrated a negative and statistically insignificant long-term impact. In the short term, no significant statistical relationship was found between macroeconomic variables and stock markets. Considering the devastating effect of inflation, Olokoyo et al. (2020) examined the sustained effects of macroeconomic indicators such as interest rates, foreign capital inflows, exchange rates, GDP growth, inflation, and trade on the performance of Nigeria's capital market. Their

results exposed that interest rates, inflation, and trade had a detrimental effect on market capitalization, while exchange rates, GDP growth, and foreign capital inflows had a beneficial effect.

The findings of Hossin and Hamid (2021) emphasized a notable long-term connection between market capitalization and stock turnover, as well as a significant positive correlation between the stock market and Bangladesh's GDP. Sukesti, Ghozali, Fuad, Kharis Almasyhari, and Nurcahyono (2021) investigated the variables that impact stock prices in Indonesia. Their results demonstrated that the debt-equity ratio, net profit margin, and return on assets significantly contribute to an increase in stock prices. Gachilhi (2022) analyzed the key factors that contribute to the development of the capital market in Kenya. The findings from the regression analysis showed that stock market liquidity, investment, and foreign direct investment are vital determinants of capital market growth in Kenya. Jabeen et al. (2022) established that the gold index, interest rate, and exchange rate served as highly significant and negative macroeconomic effects for all countries examined, which included Turkey, the US, and Hong Kong, among others.

Shamalime and Yohane (2024) investigated the constraints on capital market growth in Zambia, specifically targeting the Lusaka Stock Exchange. Their findings revealed that investments in educational programs, technological advancements, and workable development initiatives significantly contributed to fostering market resilience and inclusivity, which are important for capital market growth. According to Keswani et al. (2024), there exists a statistically significant long-term relationship between Indian stock prices and certain macroeconomic factors, which encompass GDP, disposable income, and the role of Foreign Institutional Investors in the market. Additionally, the investigation pointed out the lasting detrimental relationship between stock returns and factors like interest rates, state policies, exchange rates, and inflation.

Chang and Li (2024) examined the correlation between capital market turbulence and economic development in the context of the national capital market. The quantitative research found that the impact of capital transfers on economic growth variability differed among capital markets due to varying degrees of risk in the macro-capital market. Frimpong, Akwaa-Sekyi, Anyars, Peprah-Yeboah, and Saladrigues Sole (2024) investigated the connection between macroeconomic variables and the liquidity of the stock market and Venture Capital (VC) market in Europe. The findings indicated that the interest rate had a significant inverse relationship with VC market liquidity. Nevertheless, overall, inflation and unemployment did not show a significant correlation with VC market liquidity.

The study of Nguyen and Minh (2025) revealed that human assets, growth in turnover, earnings, control, and risk management are positively correlated with capital market growth, whereas FDI, rising costs of goods and services, and fiscal expansion exert a negative influence on it. They remarked that the negative impact of macroeconomic factors illustrates how a declining macroeconomic setting can undermine asset values, subsequently affecting growth. Hence, the authors concluded that ensuring the steadiness of economic forces is vital for firms and economic stability. Humpe, McMillan, and Schöttl (2025) found that in Anglosphere countries, there is a substantial helpful adaptable long-run relationship between stock prices and real GDP, and a weighty undesirable flexible relationship with the consumer price index. This implies that economic progress positively affects the investment market, while inflation has a negative effect in established countries. In the case of BRICS countries, they identified a momentous, constructive, and inflexible long-run relationship between stock prices and the consumer price index, suggesting that stock markets in these unindustrialized countries act as a hedge against price increases.

2.3.3. Effects of Capital Market Instruments on Capital Market Growth

The work of Olaniyan and Ekundayo (2019) focused on the effect of government bonds on the Nigerian capital market's growth. Their findings demonstrated that public bonds had a considerable and favorable effect on the development of the market, boosting the trajectory of the NSE All-Share indices. This is further supported by Ishak et al. (2025), who conducted an analysis of the causal relationships between the stock, bond, sukuk, and foreign exchange markets and their effects on the economic growth of Malaysia. The results indicated that these market tools

positively influenced economic growth in both the short and long term. Conversely, the research revealed that the combined effect of the bond and sukuk markets was statistically significant in the short term.

Dibal et al. (2023) found that pension fund investments had a substantial long- and short-term impact on the growth of Nigeria's stock market. While Osayi and Nwani (2024) analyzed the interface between capital market assets and the activities of Nigerian commercial banking institutions. The information collected in the study found that government bonds have a very valuable and substantial influence on the financial health of these banking institutions, as measured by their overall assets, whereas commercial bonds had a beneficial but mathematically negligible contribution. In a further study, Emmanuel et al. (2024) compared reserve assets and stock savings baskets to measure the consequences of stock investments on capital market expansion in Nigeria. Given the conclusions, equity fund investments had a substantial and useful influence on Nigeria's capital market development, but resource investing vehicles had an adverse and minor effect. The study found that stock fund investments are an outstanding tool for improving capital market enlargement.

3. STUDY RESOURCES AND APPROACHES

The study focuses on the contribution of investment market instruments in engendering growth in the Nigerian capital market. In this context, market capitalization is the response parameter, while the predictors include government bonds, corporate bonds, equity, and corporate tax as the mediating factors. The unit root assessment outcomes confirm that all datasets are integrated at order one; as a result, co-integration tests were conducted using the Johansen co-integration test and the Max Eigen Unrestricted Co-integration Rank Test. Both results indicate a long-run connection within the equation. Accordingly, this research employs the Vector Error Correction Model (VECM) for its analysis, and the suitability of this technique for the study is validated by the works of Adjasi and Biekpe (2005), Keswani et al. (2024); Olokoyo et al. (2020), and Ambar et al. (2025). The equations are outlined below:

$$LKMPT = f(LGBND, LCBND, LEQTY, LCITN) \quad (1)$$

To perform the econometric analysis, Equation 1 above is improved in Equation 2 as follows:

$$LKMPT_{t-1} = \beta_0 + \beta_1 LGBND_{t-1} + \beta_2 LCBND_{t-1} + \beta_3 LEQTY_{t-1} + \beta_4 LCITN_{t-1} + \mu_{1t} \quad (2)$$

According to Pesaran, Shin, and Smith (2001), VECM is employed to suitably analyze the series that are stable at I(1) following its long run relationship. Thus, the model is provided in Equation 3 below:

$$\Delta LKMPTt = \propto + \sum_{i=1}^{k-1} = \beta i \Delta LKMPTt - i + \sum_{j=1}^{k-1} = \emptyset j \Delta LGBNDt - j + \sum_{j=1}^{k-1} = \emptyset j \Delta LCBNDt - j + \sum_{j=1}^{k-1} = \emptyset j \Delta LEQTYt - j + \sum_{m=1}^{k-1} = \varphi m \Delta LCITNt - m + \lambda_1 ECMt - 1 + \mu_1 t \quad (3)$$

On this basis:

Δ = Represents the difference parameter.

L = Specifies the ordinary logarithm conversion.

t =It is used to represent a period.

k = Shows the determined interval.

β = Characterizes the coefficients.

$\emptyset$ = Symbolizes the variance in parameters.

The code $k-1$ = implies a reduction in the lag dimension by one unit.

The parameter λ = is articulated with an adverse symbol and designates the speed of modification when there is an error.

The constants βi, $\emptyset j$, and φm = are connected with the short-run active coefficients pertinent to model modification and long-term equilibrium.

The term $ECMt-1$ is the error correction term represents the lagged value of the residuals generated from the co-integrating regression of the dependent variable and the regression factors. An Error Correction Model (ECM) is instrumental in investigating the relationships among time series data, especially when the variables are co-integrated and demonstrate both short-term and long-term dynamics. It facilitates understanding of how swiftly variables return

to their long-run equilibrium after experiencing a shock or deviation. The ECM delineates the process by which deviations from this long-run equilibrium are corrected over time, addressing both short-run and long-run dynamics. Longstanding intuitions are derived from the co-integrating interaction over the long run. In conclusion, $\mu_1 t$ denotes the residuals, generally known as stochastic error terms, instincts, inventions, or surprises.

Table 1 displays the data report:

Table 1. Data report.

Variable encryptions	Details	Source
KMPT	This denotes market capitalization. The figures were collected in billions of Naira from 1991 to 2023 and were converted into natural logarithms.	Central Bank of Nigeria (CBN)
GBND	The code indicates a government bond. The data is collected in billions of Naira (N), and the natural logarithm is used for analysis.	CBN
CBND	This denotes the commercial debt instrument. The data has been collected in billions of Naira, spanning from 1991 to 2023. The conversion employed is the ordinary log.	CBN
EQTY	This specifies the equity capital of companies operating in Nigeria. The data is gathered in billions of Naira for a period covering 1991-2023. Natural log was used to transform it for analysis.	CBN
CITN	The code represents corporate income tax in Nigeria. The data is collected in billions of N. The transformation type is natural log.	Nigeria Revenue Service

4. RESULTS

This section provides a detailed outcome of the data analysis using VECM. There are sub-sections according to the results presented.

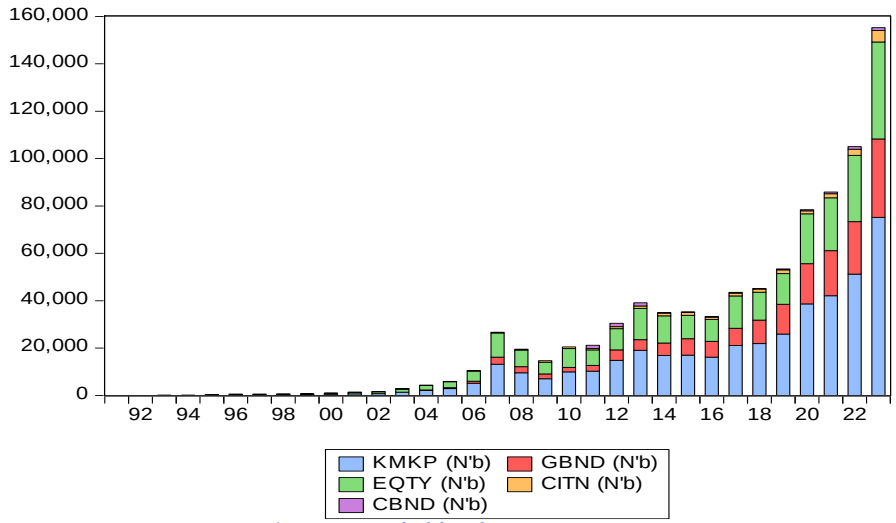

Figure 1. Trend of data from 1991 to 2023.

4.1. Trend Analysis

The data employed in this analysis is graphically represented in Figure 1, showcasing the joint effects and their variations over time, whether they are increasing or decreasing as the situation dictates. Examining the years from 1991 to 2006, the presence of all investment assets was not particularly prominent. This implies that the capital market operations in Nigeria during this period were somewhat subdued. Nevertheless, an upward trajectory appeared from 2017 to 2023. This indicates that a larger array of investment instruments became appealing to investors, as there was a surge in investments in bonds and equities that bolstered market capitalization.

Table 2. Summary statistics.

	KMKP	GBND	CBND	EQTY	CITN
Mean	7.910	5.632	3.430	7.626	5.338
Median	8.858	7.574	2.307	8.515	5.806
Maximum	11.23	10.41	7.244	10.62	8.496
Minimum	3.139	0.742	0.336	2.912	1.386
Std. Dev.	2.379	3.619	2.485	2.197	1.961
Skewness	-0.522	-0.256	0.337	-0.660	-0.421
Kurtosis	1.998	1.336	1.478	2.241	2.018
Jarque-Bera	2.879	4.168	3.809	3.189	2.299
Probability	0.237	0.124	0.149	0.203	0.317
Sum	261.0	185.8	113.2	251.6	176.2
Sum Sq. Dev.	181.1	419.3	197.7	154.4	123.1
Observations	33	33	33	33	33

4.2. Descriptive Analysis and Unit Root Test

The aim of the descriptive analysis found in Table 2 is to ensure that the datasets used in this research are appropriately distributed. Examining the mean values alongside the standard deviation indicates a low spread in the data, as the standard deviation values are lower than the mean values. Additionally, negative skewness is observed for KMKP, GBND, EQTY, and CITN, while CBND exhibits positive skewness. The kurtosis values are within acceptable ranges, with none exceeding 3. Importantly, the p-values from the Jarque-Bera test are above the 0.05 threshold for all variables (KMKP, GBND, CBND, EQTY, and CITN). This summary provides the essential information from the descriptive statistical analysis. Consequently, the datasets are deemed suitable and properly distributed for this study.

Table 3. Unit root test.

Variables	ADF-statistic	Critical value @ 5%	P-value	Order of Integration
LKMPT	-4.395	-2.960	0.002	I(1)
LGBND	-3.654	-2.960	0.010	I(1)
LCBND	-5.244	-2.960	0.000	I(1)
LEQTY	-4.763	-2.960	0.001	I(1)
LCITN	-4.821	-2.960	0.000	I(1)

Table 3 summarizes the unit root results obtained for this study. The focus typically lies on the stationarity level of each series in the datasets. From Table 3, it can be seen that each series stabilizes at order I(1) or first difference. This test is crucial in preventing regression errors and the improper use of econometric tools in regression analysis. Therefore, having established that the series is stable at order one, the next step is to confirm whether there is a long-term or short-term relationship among the series. The initial step is to select the lag order and conduct a co-integration test.

Table 4. VAR Lag Order Selection Criteria.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-113.4	NA	0.001	7.636	7.868	7.712
1	11.99	202.2*	2.256*	1.162*	2.549*	1.614*
2	31.39	25.04	3.716	1.523	4.067	2.352

Note: * indicates lag order selected by the criterion.

4.3. VAR Lag Order Selection Criteria and Co-Integration Analysis

The VAR lag order selection criteria shown in Table 4 indicate that all criteria opt for lag 1. Although the selection is fundamentally based on the AIC, it is interesting to note that every other criterion aligns with the AIC choice. Therefore, lag 1 is utilized to establish the long-term relationship.

Table 5. Johansen cointegration rank test.

Hypothesized		Trace	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical value**	**P-value**
None *	0.709	73.35	69.82	0.025**
At most 1	0.399	35.06	47.86	0.445
At most 2	0.298	19.25	29.79	0.475
At most 3	0.195	8.265	15.49	0.437
At most 4	0.048	1.542	3.841	0.214
Max eigen cointegration rank test				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	P-value
None *	0.709	38.29	33.88	0.014**
At most 1	0.399	15.81	27.58	0.682
At most 2	0.298	10.98	21.13	0.649
At most 3	0.195	6.723	14.26	0.522
At most 4	0.048	1.542	3.841	0.214

Note: ** represents significance level at 5%.

It is necessary to verify whether a long-term relationship exists among the series, and to achieve this, conducting a cointegration test is essential. Table 5 presents two cointegration tests: the Johansen test and the Max Eigen Cointegration Rank Test. The p-values marked with an asterisk indicate the presence of at least one cointegration equation among the variables. Both the Johansen and Max Eigen Cointegration Rank Tests yield identical results. Consequently, we deduce that a long-term relationship exists among the variables, which necessitates the use of a vector error correction model.

Table 6. Vector error correction model.

	Coefficient	Standard Error	T-statistics
Long-run estimation			
LGBND(-1)	-0.047	0.017	-2.837
LCBND(-1)	0.064	0.018	3.419
LEQTY(-1)	-0.514	0.067	-7.707
LCITN (-1)	-0.655	0.086	-7.643
LKMKP(-1)	1.000		
C	-0.449		
Short-run estimation			
CointEq1 (ECM)	-0.691	0.443	-1.558
D(LKMKP(-1))	1.327	1.015	1.307
D(LGBND(-1))	-0.105	0.141	-0.739
D(LCBND(-1))	-0.058	0.074	-0.779
D(LEQTY(-1))	-0.809	0.847	-0.955
D(LCITN(-1))	0.011	0.339	0.033
C	0.152	0.091	1.667

4.4. Estimation of Long and Short Relationships using VECM

As presented in Table 6, the VECM results indicate the long-term and short-term effects of investment tools on the growth of the capital market. In the long run, government bonds, equities, and corporate taxes have led to a decrease in capital market growth by 4.7%, 51.4%, and 65.5%, respectively. Conversely, corporate bonds have resulted in a 6.4% increase. This is because firms encounter difficulties in managing bond servicing and expanding their businesses in the short term. However, as the business becomes fully stable and operational over time, corporate bonds prove to be highly beneficial to the capital market, as they offer investors better returns for reinvestment. Despite this, a majority of investors are risk-averse and generally avoid corporate bonds in the short term. Other contributing factors include fiscal policies that lead to increased government borrowing through bonds, which can

crowd out private sector activities and limit their access to funding. This is strongly supported by Petlele and Buthelezi (2025).

Additionally, political instability in Nigeria significantly affects the improvement of capital market instruments. During election periods, investors tend to be very protective of their funds to avoid potential losses. This is primarily because, after elections, numerous fiscal policies often impact financial institutions and capital market operations. Some banks may close due to substantial unrecoverable loans given to politicians, which ultimately harms depositors. The standard errors for all predictor variables are less than 1, indicating that the predictions in these results are accurate. The Error Correction Model (ECM), as indicated by CointEq1, forecasts that any long-term discrepancies will revert to equilibrium in the short term at an adjustment speed of 69.1%.

This implies that any variations from the long-term equilibrium noted in prior years are adjusted in the present period at a rate of 69.1%. Moreover, the results indicate that in the short run, government bonds, corporate bonds, and equities suppress capital market growth by 10.5%, 5.8%, and 80.9%, respectively. In contrast, corporate tax promotes market growth by 1.1%. These outcomes differ from the conclusions of Osayi and Nwani (2024) but are consistent with those of Petlele and Buthelezi (2025). The analytical assessments in Table 7 confirm that these results and the model are homoscedastic (0.754 > 0.05) and free from serial correlation (0.192 > 0.05). The heteroskedasticity result shows that the variance of the error term in a regression model is equal at all levels of the independent variables.

Table 7. VECM residual heteroskedasticity tests.

Chi-sq	Df	Prob.
166.6427	180	0.754
VECM residual serial correlation LM tests		
Lags	LM-Stat	Prob
1	30.94	0.191

4.5. Diagnostic Tests

Further evaluations in this investigation include the response to Cholesky one standard deviation innovators, which is utilized to assess the reactions of the dependent variable to different shocks from the predictors. The outcomes are depicted in Figure 2 and Table 8. In this instance, capital market growth (KMKP) reacts positively to LGBND and CITN, while the responses to LCBND and EQTY are negative (see Figure 2 and Table 8). This indicates that investors are more likely to favor government bonds due to their consistent interest payments as scheduled. Furthermore, government regulations regarding corporate tax compliance guarantee that firms meet this obligation before they can offer their bonds and equity for sale in the capital market. In a well-functioning market, investors tend to favor firms that adhere to their tax responsibilities, especially when there is a significant demand for loanable funds and equity from these firms. This is consistent with the intensive capital demand theory articulated by Robinson in 1952.

On the contrary, if government bonds persist in undermining corporate bonds and equities, it indicates that government bonds could be crowding out private sector initiatives. The significance of this finding was emphasized by Petlele and Buthelezi (2025), indicating that government bonds tend to crowd out private sector activities. This occurs due to the more favorable investment conditions they provide, which appeal to the investment community, consequently leaving firms with limited opportunities to secure adequate funding in the capital market. As a result, this situation hampers their growth and operational capabilities. Hence, it is crucial to achieve a balance, which requires a comprehensive policy that establishes guidelines for investors, corporate entities, and the government concerning the allowable amounts of investment transactions for each participant. In Figure 3 and Table 9, we assessed the influence of predictors on LKMKP. The results demonstrate that, in the short term, all predictors had no contribution to LKMKP. In contrast, in the long term, all predictors contributed positively, with corporate bonds and taxes making a more significant positive contribution to market growth than government bonds and equities.

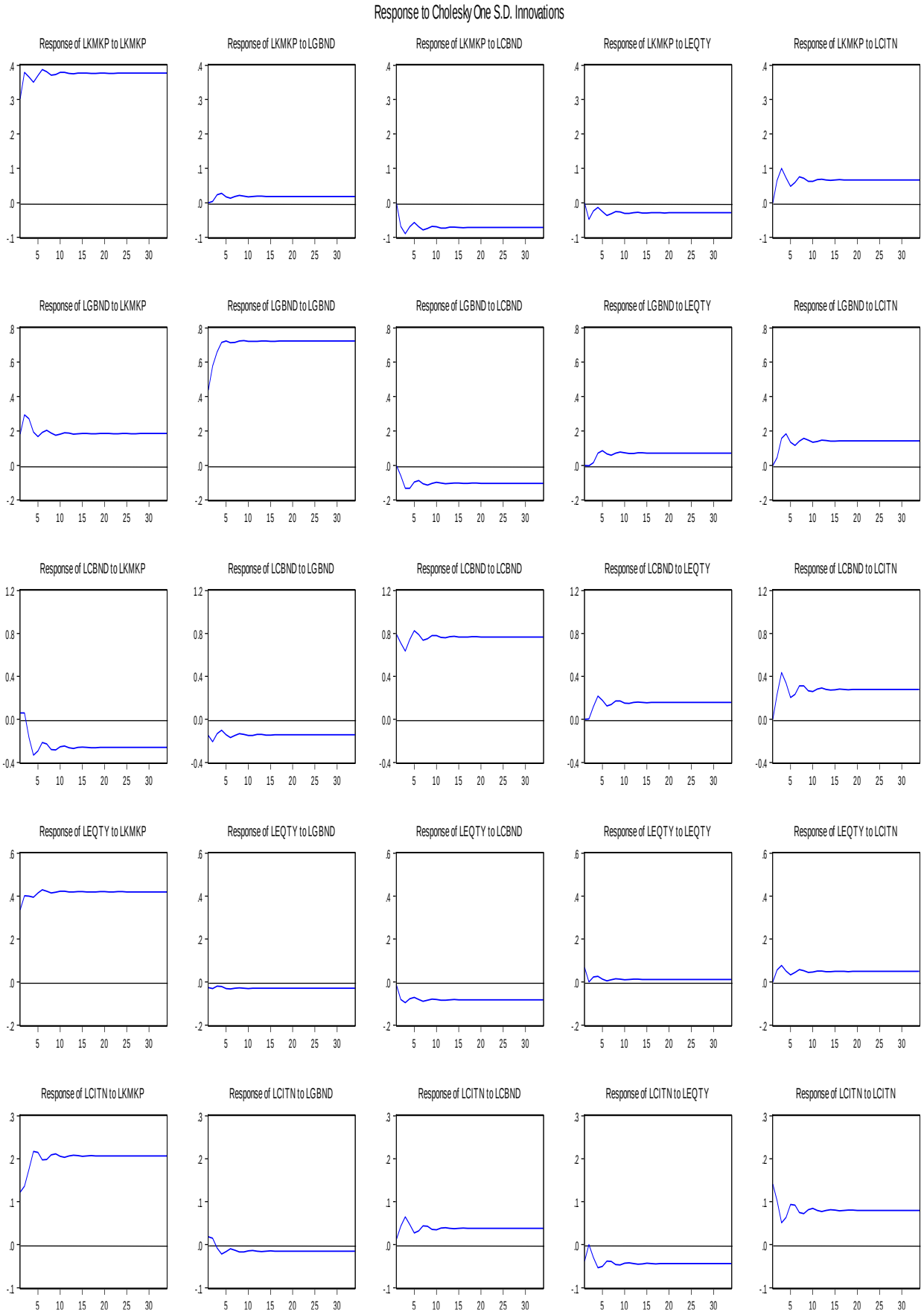

Figure 2. LKMKP response to shocks.

Table 8. Response of LKMKP to shocks.

Response of LKMKP:					
Period	**LKMKP**	**LGBND**	**LCBND**	**LEQTY**	**LCITN**
1	0.302	0.000	0.000	0.000	0.000
2	0.379	0.003	-0.069	-0.048	0.065
3	0.366	0.023	-0.091	-0.024	0.100
4	0.350	0.027	-0.069	-0.013	0.072
5	0.369	0.017	-0.058	-0.025	0.047
6	0.386	0.013	-0.069	-0.036	0.059
7	0.381	0.018	-0.078	-0.032	0.075
8	0.371	0.021	-0.074	-0.025	0.072
9	0.372	0.019	-0.068	-0.026	0.062
10	0.378	0.016	-0.069	-0.031	0.062
Response of LGBND:					
Period	LKMKP	LGBND	LCBND	LEQTY	LCITN
1	0.182	0.437	0.000	0.000	0.000
2	0.293	0.578	-0.058	-0.002	0.043
3	0.272	0.661	-0.133	0.015	0.156
4	0.193	0.714	-0.133	0.071	0.182
5	0.167	0.723	-0.095	0.084	0.134
6	0.192	0.714	-0.088	0.066	0.115
7	0.203	0.714	-0.107	0.058	0.140
8	0.187	0.723	-0.114	0.070	0.156
9	0.176	0.726	-0.104	0.077	0.145
10	0.182	0.722	-0.098	0.072	0.134
Response of LCBND:					
Period	LKMKP	LGBND	LCBND	LEQTY	LCITN
1	0.059	-0.149	0.794	0.000	0.000
2	0.059	-0.208	0.710	0.004	0.234
3	-0.169	-0.134	0.636	0.117	0.434
4	-0.334	-0.101	0.743	0.217	0.336
5	-0.294	-0.142	0.824	0.179	0.202
6	-0.213	-0.168	0.787	0.123	0.232
7	-0.229	-0.150	0.737	0.136	0.312
8	-0.281	-0.132	0.749	0.172	0.311
9	-0.282	-0.138	0.781	0.171	0.265
10	-0.254	-0.149	0.780	0.152	0.257
Response of LEQTY:					
Period	LKMKP	LGBND	LCBND	LEQTY	LCITN
1	0.336	-0.025	-0.014	0.067	0.000
2	0.401	-0.031	-0.081	1.205	0.056
3	0.399	-0.019	-0.095	0.023	0.078
4	0.394	-0.020	-0.078	0.026	0.051
5	0.415	-0.030	-0.071	0.014	0.033
6	0.428	-0.033	-0.082	0.006	0.045
7	0.422	-0.029	-0.089	0.011	0.057
8	0.415	-0.027	-0.084	0.016	0.052
9	0.417	-0.029	-0.079	0.014	0.045
10	0.422	-0.031	-0.081	0.011	0.046
Response of LCITN:					
Period	LKMKP	LGBND	LCBND	LEQTY	LCITN
1	0.122	0.018	0.012	-0.038	0.141
2	0.135	0.015	0.042	-0.000	0.102
3	0.175	-0.008	0.065	-0.030	0.051
4	0.217	-0.021	0.047	-0.053	0.063
5	0.214	-0.016	0.027	-0.050	0.093
6	0.197	-0.009	0.032	-0.037	0.092
7	0.197	-0.012	0.043	-0.038	0.074
8	0.209	-0.017	0.042	-0.046	0.072
9	0.211	-0.016	0.035	-0.047	0.081
10	0.205	-0.014	0.035	-0.043	0.084

4.6. Discussion of Findings

The outcomes of this investigation indicate that government bonds and equities adversely affect capital market growth in both the short and long term. Supporting this assertion, Yener et al. (2017) found a negative relationship between government bonds and economic growth in Turkey. Petlele and Buthelezi (2025) confirmed that government bonds led to a decrease in economic progress. Omodero and Alege (2022) demonstrated that Treasury bonds negatively impacted economic growth in Nigeria. Wahidin et al. (2021) showed that the global economic crisis resulted in negative and inconsistent effects of bonds on economic expansion. This finding does not align with the conclusions of Emmanuel et al. (2024); Ishak et al. (2025); Olaniyan and Ekundayo (2019); Omir et al. (2024), and Osayi and Nwani (2024). Furthermore, corporate bonds promote capital market growth in the long term, although they do not do so in the short term. This phenomenon arises because when firms integrate bonds into their business activities, they gradually stabilize and begin to produce returns that lead to further investments, thus enhancing the capital market and contributing to overall fiscal growth. Moreover, the growth of the capital market reacts negatively to shocks in equity and corporate bonds, while it positively responds to government bonds and corporate taxation. The reality of this situation is that the benefits associated with government bond investments attract more investors, which consequently diminishes the marketability of equity and corporate bonds within the capital market. Corporate tax compliance is also essential for firms that wish to issue shares and bonds. This is why it is obvious that the capital market will benefit from every modification in corporate tax policies. Thus, further analysis to confirm the contribution of these investment tools shows that in the short term, there is zero involvement, but in the long run, the input of corporate bonds and taxation to the growth of the capital market exceeds that of government bonds and equity investments.

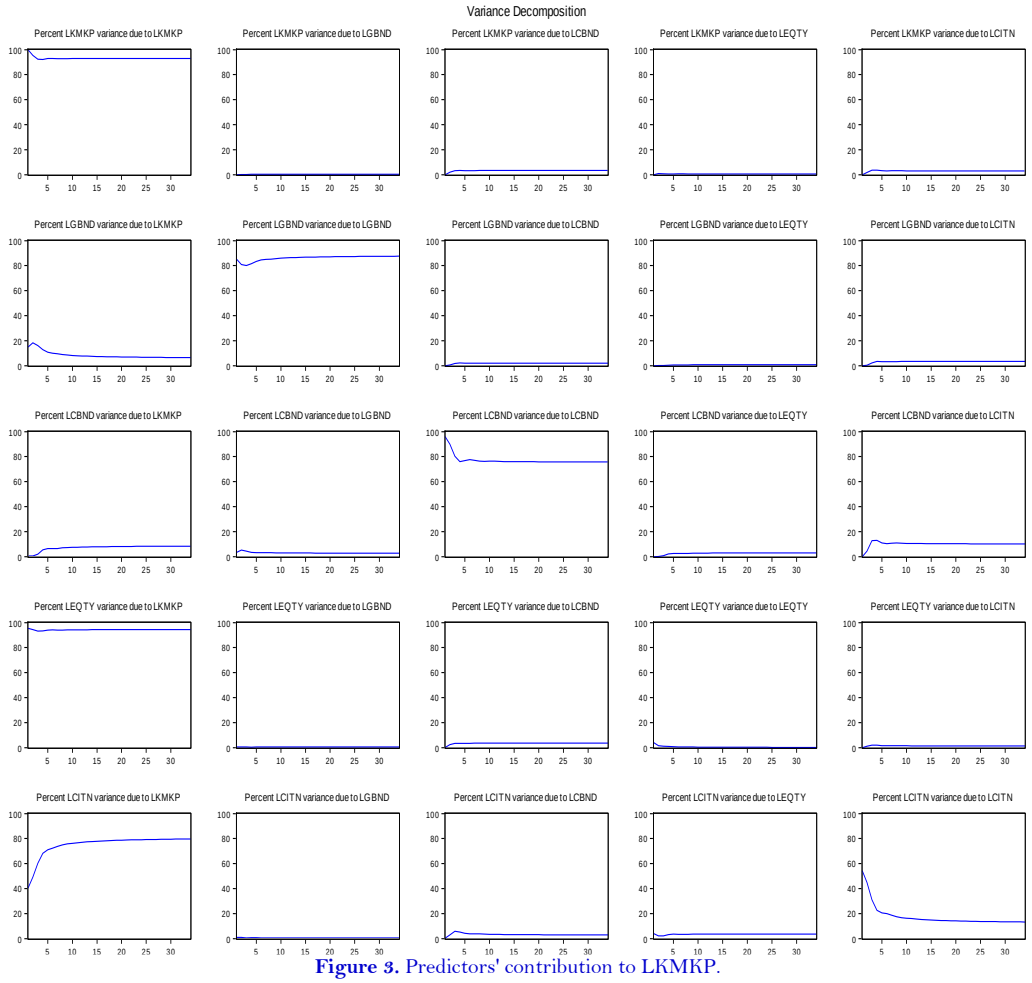

Figure 3. Predictors' contribution to LKMKP.

Table 9. Predictors' contribution to LKMKP.

Variance decomposition of LKMKP:						
Period	**S.E.**	**LKMKP**	**LGBND**	**LCBND**	**LEQTY**	**LCITN**
1	0.302	100.0	0.000	0.000	0.000	0.000
2	0.496	95.37	0.006	1.934	0.953	1.733
3	0.632	92.30	0.144	3.243	0.735	3.576
4	0.730	92.16	0.250	3.340	0.584	3.658
5	0.822	92.84	0.243	3.130	0.560	3.223
6	0.914	93.03	0.218	3.112	0.615	3.028
7	0.997	92.81	0.216	3.243	0.621	3.113
8	1.069	92.72	0.227	3.304	0.596	3.156
9	1.137	92.81	0.229	3.286	0.584	3.091
10	1.202	92.88	0.225	3.275	0.588	3.031

5. CONCLUSION AND RECOMMENDATION

The research investigates the function of investment instruments, which encompass equity, government bonds, and corporate bonds, alongside the mediating influence of corporate tax on enhancing capital market expansion in Nigeria. The analysis covers the period from 1991 to 2023 and utilizes VECM for evaluation. The long-term analysis reveals that corporate bonds play a role in market growth, contributing 6.4%, while other factors (government bonds, equity, and corporate tax) are linked to a reduction in growth by 4.7%, 51.4%, and 65.5% respectively. This phenomenon arises as firms achieve stability over time, thereby supporting the capital market. Nevertheless, government bonds impede growth due to fiscal policies and political instability, leading risk-averse investors to refrain from investing in equity, as the future of these companies remains uncertain during political pressure. As a result, share prices may decline, and investors could find it challenging to locate viable buyers for their equity. In the short-term assessment, the ECM verifies that any deviation from equilibrium will return to stability in the short run at an adjustment rate of 69.5%. Although corporate tax shows a positive effect in the short term at the tone of 1.1%, all other predictors (GBND, CBND, and EQTY) indicate a decline in capital market growth by 10.5%, 5.8%, and 80.9% respectively. An extensive analysis of how market capitalization reacts to predictors and corporate tax reveals that it responds positively to shocks from government bonds and corporate tax, but negatively to corporate bonds and equity. Moreover, the predictors show no contribution to market capitalization in the short term. In contrast, there are positive contributions in the long term, with corporate bonds and taxation representing a substantial share of these contributions.

Reflecting on these outcomes, the research suggests that the government should make efforts to regulate capital market operations to allow corporate organizations to obtain a larger share of the market. When the market is predominantly filled with government bonds, there is a high likelihood that investors will favor government bonds over corporate bonds and equities. The consequence of this is that the private sector may be pushed out if there are no funds available to sustain business operations. In light of the long-term results indicating that corporate bonds promote market growth, it is apparent that funding is vital for corporate organizations to progress and also to contribute to the capital market's sustainability. Although the effects may not be immediate, the expansion of businesses influences every aspect of the economy. Therefore, it is essential to regulate the market in a way that ensures government bonds offered to the public do not surpass a specific limit that serves the interests of corporate entities. When businesses secure funding through equity and corporate bonds, they thrive and contribute to tax revenues. This, in turn, fosters commercial progress and the expansion of the capital market, as investors engaging with corporate entities earn higher returns and subsequently reinvest in the market by purchasing additional bonds and shares.

This study, however, is subject to numerous constraints, including scarcity of data, time constraints, and challenges in accessing key capital market participants for interviews. We could not gather data from other regions in Sub-Saharan Africa because they were not similar and could not be aligned with our country of focus. Furthermore,

we intended to conduct interviews with key capital market officials in Nigeria, but we were unable to reach them due to timing problems. Future research should incorporate a review of the factors influencing investors' decisions regarding equity versus bond investment instruments. This proposed study could also be expanded to include other countries in Sub-Saharan Africa for comparative analysis.

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Transparency: The author states that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Data Availability Statement: Cordelia Onyinyechi Omodero can provide the supporting data of this study upon a reasonable request.
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