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Research paper

Corporate financing and taxation in an emerging economy

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Abstract

The present study analyzes the effects of corporate financing arrangements on corporate income tax in Nigeria over the period from 1991 to 2023. It is a common practice for businesses to strategically plan their capital structures by leaning towards debt financing, to lower their corporate tax liabilities. This situation poses a challenge, as the interest payments to creditors are tax exempt and deductible finance expense before determining the taxable profits of companies. As a result, some entities find themselves with insufficient taxable income after interest deductions, thereby limiting government's chances to collect taxes needed for social duties. This research evaluates the interaction between corporate income tax and the financing structures of firms in Nigeria, setting itself apart from existing studies that focus on how corporate tax influences capital structure. Data concerning corporate income tax is obtained from the Federal Inland Revenue Service, now known as the Nigeria Revenue Service. Statistics on equity, corporate bonds, private sector bank loans, and borrowing cost is sourced from the Central Bank of Nigeria. The study applies the Vector Error Correction Model to investigate the short- and long-term effects of the predictor variables on corporate income tax. Findings indicate that both in the short and long term, equity, corporate bonds, private sector bank loans, and their borrowing costs have significant harmful effect on corporate income tax. In view of this outcome, the research recommends that the government should implement a policy that will mandate firms to adopt a corporate financing structure that prioritizes and increases their equity percentage above debt financing.

Keywords: *Corporate Financing, Equity, Corporate Bond, Bank Loan, Private Sector; Borrowing Cost.*

1. Introduction

A corporate financial framework is the blend of long-lasting funding avenues that include loans, preferred stock, and ownership stakes that comprise the long-term assets used to support an entity. It merely represents the firm's fixed capitalization. The prevailing view is that corporate and personal income taxes substantially impact the investment, financing, and dividend decisions made by firms (Haugen & Senbet, 1986). It is not yet certain the extent to which companies' financial structure could affect companies' income tax. The focus has been to analyze the consequences of commercial tax on organizations' returns and dividend policies. Meanwhile, the corporate financing structure of companies could be arranged in such a manner as to prevent authorities from receiving the needed tax revenue to pursue social goals and development. According to Gertler and Hubbard (1990), corporate financing that is more dependent on debt hurts an economy in the long run. The underlying reason for this phenomenon is that businesses focus on managing their debt, thereby experiencing considerable borrowing costs in the form of interest.

Notably, taxes will not be levied until the borrowing cost is removed, and any tax liability can only be charged on the profits that remain, should there be any. In the absence of other costs associated with debt or tax-driven differences in returns, the relatively favorable treatment of interest payments often leads companies to prefer debt financing (Haugen & Senbet, 1986). According to Freebairn (2022), it is only those returns resulting from equity fund investments made by companies that are liable for company income tax. Given this situation, the corporate income tax will be relatively low, which will not facilitate economic growth or empower the government to undertake its social responsibilities. Tax modifications seldom impact only one specific industry, company, or individual; rather, they often have widespread implications for all economic participants, influencing everything from ownership frameworks to the institutional landscape (Ali et al., 2022).

According to Okoyeuzu (2012), if a corporation is funded by shareholders' capitals, or equity investment, then dividends on the stock will be payable from earnings after taxation, ensuing in an obligation for individual earnings duty. However, firms would normally prefer a loan since the tax break provided by deductible interest payments enhances corporate value. Gertler and Hubbard (1990) believe that tax considerations, rather than a focus on efficiency, are the primary forces propelling the movement of firms towards greater reliance on loans as a major source of corporate funding. In a theoretical framework of a flawless capital market, the absence of costs related to bankruptcy, taxes, and transactions implies that an organization's worth is not contingent upon its funding arrangement, thereby supporting the irrelevance of capital structure (Tesema, 2024). Following this insight, the ongoing discourse surrounding the financing plan and its inferences for corporate financing decisions has led to the growth of further models and empirical investigations that assess the impact of the funding

plan on firms' growth (Tesema, 2024). The theory of financing strategy is essential for guiding firms' financing policies, as it addresses the pivotal question of whether an optimal capital structure can be identified—an inquiry that remains extremely important, intricate, and debated issues in business sponsorship scholarship. This discourse addresses both the performance of firms and the effectiveness of government tax revenue collection from firms, following the fact that the composition of firms' capital structure may not be dominated by equity financing.

In examining the corporate financing mix that effectively lowers tax liabilities and promotes revenue growth for businesses, this research contends that a strategic blend of financing methods is necessary to support both business expansion and the enhancement of corporate tax income, thereby allowing the government to fulfill its obligations to public welfare. Moreover, it is important to understand that businesses thrive in a supportive operational context; an adverse business environment can hinder success, regardless of the effectiveness of their capital structure in minimizing tax burdens. The government's duty to create a safe business climate can only be achieved through tax revenues, with corporate taxes playing a crucial role in generating income that supports the safety of businesses and their stakeholders. This study argues that the corporate financing mix should prioritize enhancement of tax revenue, ensuring that the government's commitments to social welfare and infrastructure provision are not compromised.

In addition, the influence of global financial regulations and multinational corporations (MNCs) is substantial in Nigeria's tax environment. MNCs, particularly those operating in the oil and gas sector, frequently engage in practices designed to reduce their tax exposure, which can negatively affect government revenue and the availability of public services (Otusanya, 2011). Concurrently, international measures such as the OECD's BEPS framework and discussions of a worldwide minimum corporate tax aim to minimize these abuses. Nigeria is also dealing with double taxation difficulties, which necessitate careful planning to avoid taxation on the same revenue in both Nigeria and the multinational corporation's home country. Furthermore, the introduction of digital taxation changes, as supported by the Finance Act 2020, is altering the dynamics by compelling international technology businesses to pay taxes on revenue derived from Nigerian customers, independent of their physical presence in the country.

Modigliani and Miller (1958) emphasized the implication of tax policy in shaping the capital structure of organizations, promoting debt funding as the preferred choice while criticizing equity financing for its role in increasing corporate tax liabilities. An analysis of existing literature shows that many studies (Ali et al., 2022; Chen & Murray, 2021; Lei, 2020; Lei et al., 2022) have predominantly focused on the effects of commercial tax on corporate financing plans and investment. The present research aims to alter the prevailing narrative by positioning corporate tax as a critical tool for the government to achieve social and economic development. It contends that the corporate financing mix should be optimized to enhance tax revenue rather than reduce it, thereby improving government corporate tax income. The study is divided into five phases: the introduction shows the background of the study, phase two deals with existing literatures and previous works, section three discusses the methods and materials used in the study, part four displays the results of the analysis, and section five provides the summary, policy implications, and research suggestions for future studies.

2. Appraisal of prevailing works

2.1. Explanation of concepts

2.1.1. Business tax, debt, and equity financing

The notion of corporate financing encompasses selecting the fitting mixture of loan and stock as depicted in the statement of financial position, or balance sheet, while also accounting for all forms of short- and long-term capital utilized by an enterprise (Olusola et al., 2022). Capital, on the other hand, refers to the quantity of money made available to a company for it to perform its task (Okoyeuzu, 2012). The composition of a corporation's funding strategy, which embraces the balance of loan and ordinary shares used for funding, pointedly influences tax liabilities of companies. Since interest payments are generally eligible for tax deductions while dividends are not, this creates a preference for increased debt usage among companies. Additionally, the lack of financing costs, the existence of incomplete markets, supply adjustments, and the possibility of tax avoidance without costs contribute to unrealistic corner solutions in both leverage and dividend policies (Haugen & Senbet, 1986). As a result, firms may experience a reduction in taxable income and an overall decrease in their tax burden. According to Kluzek and Schmidt-Jessa (2021), the selection of financing sources is significantly affected by several factors, including the size, age, liquidity, profitability, progress chances, and funding plan of the establishment. Again, financial leverage is determined by the advancement of the investment marketplace, the finance sector's condition, lending charges, inflation, and the GDP of the respective country (Kluzek & Schmidt-Jessa, 2021).

In numerous countries, businesses are permitted to subtract borrowing costs from taxable income, while dividends paid to equity holders is generally not deductible. At the corporate level, interest payments are deductible and function as a duty buffer, whereas dividends from stock contributions do not lead to tax distortions. This makes debt a more attractive corporate financing option than equity (Rünger, Niemann & Haring, 2019). As a result, debt financing is favored over investment funding through retained earnings or equity (Brekke et al., 2017). The fact that borrowing costs are allowable expenditure for tax purposes, unlike dividend outflows to stockholders, leads organizations to favor loan financing over financing by ordinary shares (Auerbach, 2012; Clausing, 2013; Devereux & Vella, 2014; Feld et al., 2013; Mirrlees et al., 2012). Petutschnig and Runger (2022) argue that although equity and debt financing are interconnected, there may be non-tax factors that inhibit companies from raising their equity ratios, particularly about investors' preferences for dividends. By adhering to this viewpoint, companies impose limits on the equity capital ratio that can be raised, which in turn lessens the amount of corporate income tax that the government can collect.

2.1.2. Conceptual model

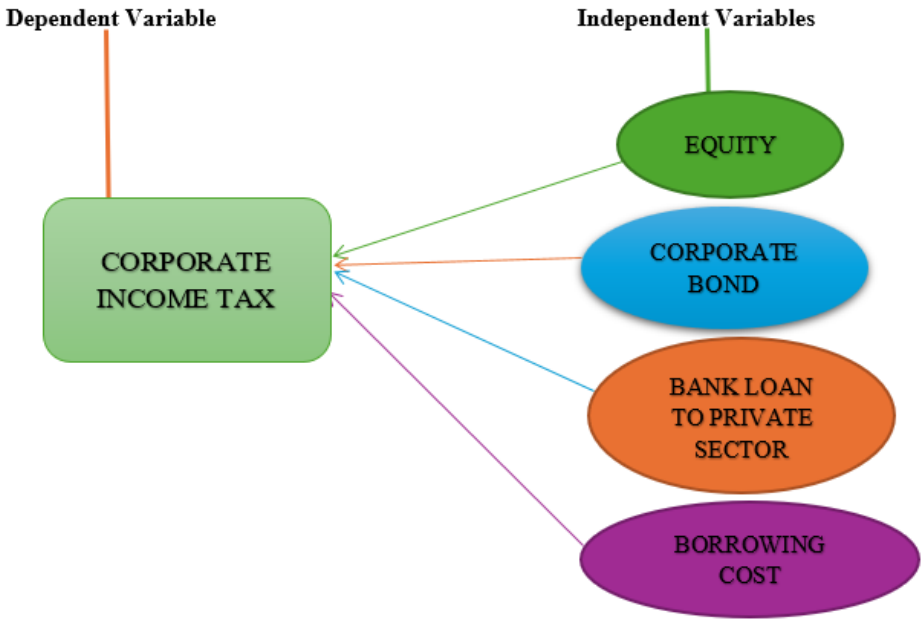

Fig. 1: Conceptual Framework in A Diagrammatical Form.

In Figure 1, the model delineates the foundational assumptions of this research, suggesting that various corporate financing strategies, including corporate bonds, equity, and bank loans to the private sector, along with their associated borrowing costs, have an impact on corporate income tax. These influences may be either beneficial or detrimental, occurring over both short and long-time frames. Then, Figure 2 shows statistically, the trend of the data collected for all the variables used in this study.

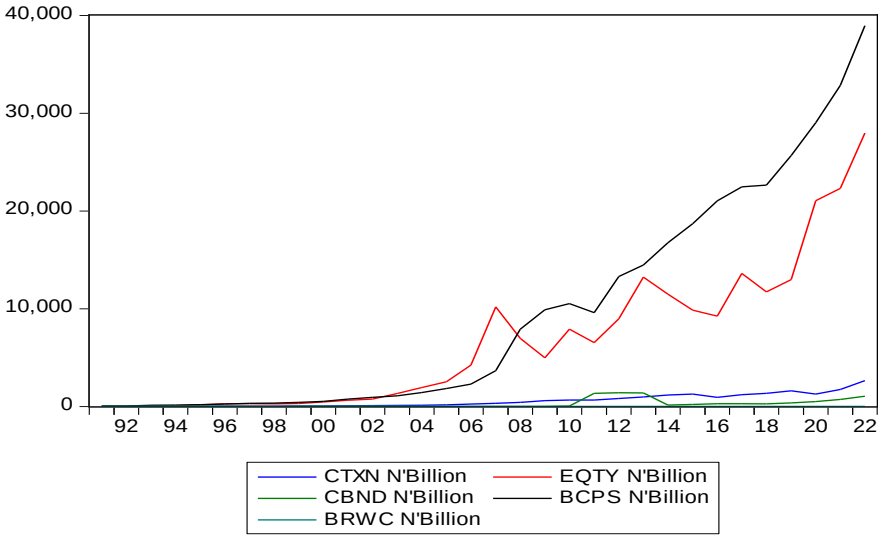

Fig. 2: Visual Representation of the Conceptual Model and the Relationship Between Financing Strategies and Tax Revenue.

2.2. Theoretical framework

The study is anchored on capital structure trade-off theory. The capital structure trade-off theory, which analyzes the best possible combination of debt and equity financing, is often considered a progression of the original research conducted by Modigliani and Miller (1958), with Myers (1977) enhancing their theoretical framework. The prevailing theoretical perspective of Modigliani and Miller (1958) suggests that within most taxation systems, companies are permitted to deduct interest expenses from their taxable income, whereas distributions to equity holders are not deductible (Feld et al., 2013). As a result, the benefit of the tax shield provided by interest deductions and the incentive to prefer debt financing over equity increase with the marginal tax rate (Modigliani & Miller, 1963). The capital structure trade-off theory by Myers (1977) advocates for companies to identify a corporate financing mix that optimally leverages the benefits of debt financing, while concurrently minimizing the costs associated with it, including the risks of financial distress or potential economic failure. Thus, companies are expected to maintain a balanced approach to debt and equity financing, which is essential for avoiding adverse business conditions and financial crises that could lead to liquidation. This expected balance in corporate financing will also allow the government to collect corporate taxes, as the interest deductions will not be so high as to consume all profits subject to income tax assessment. As noted by Colombo and Caldeira (2018), taxation is a key factor influencing business financial decisions. The interconnectedness of various financial instruments enables companies to leverage debt and equity tax shields as alternative strategies for modifying their financial approaches. Still, this goal must not jeopardize the corporate tax income; if it does, the delivery of social welfare that the public seeks may not be adequately addressed by the government.

Building on this theoretical foundation, past works have examined the effect of tax on capital structure, corporate financing, and investment. Thus, all past studies are outlined under empirical review in section 2.3.

2.3. Empirical review

Ohrn (2018) analyzed how changes in a firm's effective corporate income tax rate in the United States affect investment, financing, and payout decisions. This analysis utilized the quasi-experimental variation introduced by the Domestic Production Activities Deduction, a corporate tax incentive established in 2005. The findings revealed that a 1 percentage point decrease in tax rates led to a 4.7 percent increase in investment relative to installed capital, a 0.3 percent rise in payouts as a percentage of sales, and a 5.3 percent reduction in debt as a proportion of total assets. Lei (2020) utilized a random-effects model to investigate the relationship between the corporate income tax shield effect and corporate capital structure, drawing on a sample of 224 listed companies in China from 2002 to 2017. The study's findings highlighted a significant positive relationship between the debt tax shield and corporate capital structure, while the non-debt tax shield was found to have a significant negative correlation with corporate capital structure. Moreover, the impact of both types of tax shields on corporate capital structure was shown to vary by industry. Gamze (2020) examined the influence of corporate taxation on firm performance. The findings indicated a notably adverse effect of corporate tax rates on the performance of firms. Additionally, the study revealed that factors such as financial crises, the developmental status of countries, and the size of firms significantly influenced this dynamic.

Sobiech et al. (2021) looked at how bank taxation influences company choices regarding financing and investment behaviours. Using parametric tax variations at the financial institution threshold, the study demonstrated that taxing banks' gross earnings increased bank leverage and reduced risk and credit availability. The reduction in the availability of credit had an impact on business debt funding and investment activities. Business organizations with a higher exposure to banks liable for gross profit tax had lower leverage and depended less on bank financing. Corporations can partially overcome reduced bank funding by moving to bond financing. Bond financing costs rose as corporate tax exposure grew. Increased exposure also has a detrimental influence on business investment activities.

Chen and Murray (2021) explored the ramifications of taxation on corporate financing and investment through an equilibrium model that encompassed both corporate and personal tax elements. Their analysis indicated that, within a steady-state equilibrium, the corporate tax rate significantly affected production levels, despite the allowance for interest deductibility at the corporate level, while household-level taxes on interest and dividends did not demonstrate a similar influence. The findings of Ali et al. (2022) revealed a notable positive impact of tangibility, risk, profitability, and non-debt tax shields on the long-term and total debt aspects of capital structure. In contrast, the study found that short-term debt was significantly and negatively correlated with tangibility, non-debt tax shields, and liquidity, while it was positively linked to firm risk. Furthermore, the effective tax rate and firm size were shown to have an insignificant negative relationship with the leverage choices of multinational enterprises, and liquidity was significantly inversely related to long-term and total debt.

Harju et al. (2022) reviewed how corporate taxes affected firm-level capital and commercial activity in Finland, concentrating on a 6-percentage-point cut in the corporation tax rate between 2012 and 2014. They used operational data and a difference-in-differences technique to compare small firms that obtained tax reduction to similar entities that did not face any tax adjustments. The findings found no substantial overall shifts in capital; nevertheless, an average rise in yearly sales of 1.6% and variable expenditures of 2% was seen when comparing the years preceding (2008-2011) and following (2014-2016) the tax cuts. Lee et al. (2023) analyzed the direct and significant implications of tax avoidance on the costs of debt and equity, with a particular emphasis on capital structure decisions. Their use of logit regression revealed a positive relationship between tax avoidance and the probability of choosing equity issuance over debt financing.

Sani et al. (2024) assessed the consequences of tax avoidance by corporate entities on loan financing for Nigerian conglomerate enterprises. Their primary research revealed a strong negative association between the effective tax rate and the book tax difference with both the debt-to-equity and debt-to-total assets ratios. These findings imply that circumventing tax is positive, enhancing the chance of increased loan capital for Nigerian listed firms. Nu et al. (2024) investigated the impact of corporate income taxes on the financing arrangements of nonfinancial officially traded enterprises in Vietnam between 2019 and 2022. The results they obtained demonstrated that CIT had a detrimental effect on the long-term loan ratio, reaching statistical significance at the 1% threshold.

3. Methodological approach

The purpose of this research is to explore the influence of various corporate financing types on corporate tax revenue in Nigeria over a 32-year timeframe, from 1991 to 2023. The financial composition of a business is frequently characterized by a blend of equity and debt, both of which entail tax implications (Sani et al., 2024). Modigliani and Miller (1958) claim that a firm's capital structure is insignificant in the absence of taxes and bankruptcy costs, among other assumptions. However, acknowledging the impracticality of a tax-free scenario, Modigliani and Miller (1963) revised their earlier assertion, positing that since most tax systems provide advantages for debt financing compared to equity, firms may be more inclined to choose debt. Brusov and Filatova (2021) made significant improvements to the Modigliani–Miller theory by factoring in an essential condition of how companies operate, particularly regarding their obligation to pay income tax and file estimated taxes based on their profits. Although we explore the corporate financing mix in this study to understand how it supports firms in generating profits for tax payments, our main objective is to highlight the government's accountability to the public by evaluating the influence of corporate financing on tax matters. We underscore that any funding strategy implemented by organizations must yield benefits for the government, in addition to serving the interests of funding providers, such as those who receive interest or dividends. This requires that there be enough assessable profits to enable the government to collect taxes.

In this context, corporate income tax is the dependent variable, while the independent variables that represent the corporate financing mix include equity financing, corporate bonds, bank loans to the private sector, and borrowing costs. Data for corporate tax income is collected from the Federal Inland Revenue Service (FIRS), which has been renamed the Nigeria Revenue Service (NRS) in line with the new Nigerian Tax Reform Bill of 2025. Accordingly, data for all independent factors has been sourced from the Central Bank of Nigeria. The unit root test results (refer to Table 3) confirm that all datasets are stationary at the first difference, leading us to conduct a co-integration test as shown in Table 4. The findings from the Johansen co-integration test indicate a long-run relationship within the equation. Therefore, the study employs the Vector Error Correction Model (VECM) for its analysis. The equations are outlined below:

$$\ln CTXN = f(\ln CBND, \ln EQTY, \ln BCPS, \ln BRWC) \quad (1)$$

Where: CTXN represents the corporate tax income, CBND is the corporate bond, BCPS is the bank credit to the private sector, and BRWC is the borrowing cost. For econometric analysis, equation 1 above is transformed into equation 2 as follows:

$$\ln CTXN_{t-1} = \beta_0 + \beta_1 \ln CBND_{t-1} + \beta_2 \ln EQTY_{t-1} + \beta_3 \ln BCPS_{t-1} + \beta_4 \ln BRWC_{t-1} + \mu_{1t} \quad .(2)$$

However, to properly situate the VECM for this study, the model employed for this purpose is stated in equation 3 as shown below:

$$\Delta \ln CTXNt = \propto + \sum_{i=1}^{k-1} = \beta i \Delta \ln CTXNt - i + \sum_{j=1}^{k-1} = \emptyset j \Delta \ln CBNDt - j + \sum_{l=1}^{k-1} = \emptyset j \Delta \ln EQTYt - l + \sum_{l=1}^{k-1} = \emptyset j \Delta \ln BCPSt - l + \sum_{m=1}^{k-1} = \varphi m \Delta \ln BRWCt - m + \lambda^1 ECTt - 1 + \mu^1 t \quad (3)$$

In this framework, ln symbolizes the natural logarithm transformation, t stands for Time, k indicates the maximum lag, β represents the coefficients, and ∅ denotes the difference in parameters. The notation $k - 1$ signifies a decrease in the lag length by one unit. The parameter λ, which is expressed with a negative sign, indicates the speed of adjustment. The coefficients βi, ∅j, and φm are associated with the short-run kinetic coefficients relevant to model modification and long-term stabilization. The term $ECTt - 1$ is the error correction term, representing the lagged value of the residuals generated from the co-integrating regression of the dependent variable and the regression factors. Long-term insights are derived from the co-integrating interaction over the long run. Finally, $\mu_1 t$ denotes the residuals, commonly referred to as stochastic error terms, impulses, innovations, or shocks.

Data sources and information is presented in Table 1 below:

Table 1: Data Description and Source

Variable codes	Description and measurement	Source
CTXN	This is the corporate income tax collected in Billions of Naira from 1991-2023, and the logged version was used for the analysis.	Federal Inland Revenue Service
CBND	This represents the corporate bond. The data is collected in billions of local currencies from 1991-2023. The transformation type is natural logarithm.	Central Bank of Nigeria
EQTY	This stands for the equity capital of companies in Nigeria. The data is gathered in billions of Nigerian currency for a period covering 1991-2023. Natural log was used to transform it for analysis.	Central Bank of Nigeria (CBN)
BCPS	Bank lending rate to the private sector in billions of Naira from 191-2023. The natural log was applied to transform it.	CBN
BRWC	The borrowing cost is the prevailing bank lending rate to the private sector. The collection period was from 1990-2023, and in percentage.	CBN

Source: Authors' data report, 2025.

4. Results

Section 4 presents the results of the analysis conducted for this study. The descriptive statistics in Table 2 is used to study the nature of the datasets used in this study.

Table 2: Descriptive Statistics

	CTXN	CBND	EQTY	BCPS	BRWC
Mean	5.238	3.333	7.531	7.814	2.900
Median	5.655	2.302	8.432	7.972	2.890
Maximum	7.882	7.244	10.24	10.57	3.466
Minimum	1.386	0.693	2.890	3.713	2.398
Std. Dev.	1.908	2.417	2.166	2.112	0.206
Skewness	-0.461	0.416	-0.671	-0.340	0.128
Kurtosis	1.963	1.551	2.215	1.761	4.255
Jarque-Bera	2.568	3.723	3.220	2.665	2.187
Probability	0.277	0.155	0.199	0.264	0.335
Sum	167.6	106.6	241.0	250.0	92.81
Sum Sq. Dev.	112.8	181.1	145.4	138.2	1.312
Observations	32	32	32	32	32

Authors' estimation, 2025.

The major indicator to guarantee the normality of the dataset is the result produced by Kurtosis, and most importantly Jarque-Bera probability value. The p-values of the Jarque-Bera in Table 2 are above 5% level of significance to show that our datasets are normally distributed. Unit root test is carried out to ensure that datasets are stable to avoid spurious regression outcomes.

Table 3: Unit Root

Variable	ADF-statistic	Critical value @ 5%	P-value	Order of integration
lnCTXN	-5.382	-2.964	0.000	I(1)
lnCBND	-4.982	-2.964	0.000	I(1)
lnEQTY	-4.696	-2.964	0.001	I(1)
lnBCPS	-4.072	-2.964	0.004	I(1)
lnBRWC	-5.996	-2.964	0.000	I(1)

Authors' estimation, 2025.

The results in Table 3 show that all series are stationary at first difference. When a situation like this occurs, it is a pointer that a long-run relationship might be present in the equation or not. However, to establish this process, it is necessary to conduct a cointegration test. However, the cointegration test will require a VAR Lag Order Selection as indicated in Table 4. Being that all the series chose lag 1, this choice enables the cointegration test that is conducted using the Johansen co-integration test as shown in Table 5.

Table 4: VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-80.56	NA	0.000	5.704	5.937	5.778
1	33.08	181.8*	5.760*	-0.205*	1.196*	0.243*
2	55.26	28.10	8.090	-0.017	2.551	0.804

* indicates lag order selected by the criterion.
Authors' estimation, 2025.

The Johansen co-integration test is utilized to validate the findings of the unit root test and to determine the existence of a long-term relationship among the variables. To confirm this long-term association, the Johansen co-integration table must indicate at least one co-integrating equation; otherwise, it will be concluded that no long-run relationship exists within the equation. At a significance level of 5%, the trace statistics presented in Table 5 reveal the existence of two co-integrating equations, with probability values of 0.001 and 0.038. Conversely, at a 10% significance level, three co-integrating equations are identified, with p-values of 0.086, 0.085, and 0.071.

Table 5: Johansen Co-Integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.748	90.48	69.82	0.001
At most 1 *	0.509	49.02	47.86	0.038
At most 2	0.367	27.67	29.79	0.086
At most 3	0.299	13.92	15.49	0.085
At most 4	0.103	3.265	3.841	0.071

Authors' estimation, 2025.

Thus, the Vector Error Correction Model (VECM) is utilized to evaluate the adjustment speed and to analyze the significant relationships that exist among the variables. This model enhances our understanding of how quickly deviations from the long-term equilibrium are corrected and provides valuable insights into the dynamic relationships among the variables.

Table 6: Vector Error Correction Estimates (VECM) – Long - and Short–Run Estimation. Dependent Variable: D(Lnctxn)

Cointegrating Equations	Results	Coefficients	Standard Error	T-statistic
lnCBND(-1)		-0.037	0.011	-3.362
lnEQTY(-1)		-0.366	0.029	-12.48
lnBCPS(-1)		-0.497	0.035	-14.15
lnBRWC(-1)		-0.318	0.099	-3.189
lnCTXN	1.000			
C	2.453			

Long run estimation.

CointEq1		-0.641	0.375	-4.377	-0.641	-4.377
D(lnCTXN(-1))		0.528	0.253	2.083	0.528	2.083
D(lnCBND(-1))		-0.064	0.036	-1.756	-0.064	-1.756
D(lnEQTY(-1))		-0.189	0.110	-1.721	-0.189	-1.721
D(lnBCPS(-1))		-0.546	0.270	-2.019	-0.546	-2.019
D(lnBRWC(-1))		-0.356	0.224	-1.592	-0.356	-1.592
C		0.274	0.058	4.708	0.274	4.708
R-squared	0.516					
Adj. R-squared	0.389					
S.E. equation	0.153					
F-statistic	4.084					

Short run estimation.
Authors' estimation, 2025.

In this study, Table 6 outlines the long and short-run outcomes of the VECM estimation. The coefficients are instrumental in revealing the impact of the independent variables on the dependent variable, while the standard error indicates the reliability of our estimates. A standard error of less than 1 signifies that the predictions are devoid of error. The t-statistic further indicates the significance of the findings, with a value of around 2 or greater regarded as significant in this context. The findings presented in Table 6 indicate that, in the long term, corporate bonds, equities, bank credit to the private sector, and borrowing costs reduce corporate tax revenue by 3.7%, 36.6%, 49.7%, and 31.8%, respectively. The standard errors of 0.011, 0.029, 0.035, and 0.099 support the reliability of these results, while the t-statistics of (--3.362, -12.48, -14.15, 3.189) demonstrate their statistical significance.
The Error Correction Model (ECM), as represented by CointEq1, predicts that any long-term imbalance will return to equilibrium in the near term at a 64.1% adjustment rate. This suggests that deviations from long-term equilibrium recorded in earlier years are corrected in the present period at a 64.1% adjustment rate. The statistical importance of this discovery is highlighted by a t-statistic of -4.377, which surpasses the threshold of 2, and a standard error of 0.375, which is less than one. Individual predictor analysis demonstrates that corporation tax income is self-reinforcing at a one-period lag by 52.8%, a statistically significant result. In contrast, corporate bonds, stock, bank loans to the private sector, and borrowing costs all have a detrimental effect on corporation tax collection by 6.4%, 18.9%, 54.6%, and 35.6%, respectively. This suggests that a percentage change in CBND, EQTY, BCPS, and BRWC is associated with average CTXN declines of 6.7%, 18.9%, 54.6%, and 35.6%, respectively, in the near term, assuming everything else remains constant.

Table 7: VEC Residual Heteroskedasticity Test

Chi-sq	df	Prob.
194.7	180	0.215

Authors' calculation, 2025.

Heteroskedasticity occurs when there is a lack of uniformity in the variability of error terms, which is influenced by the unequal distribution of predictor variables in a dataset. To demonstrate that heteroskedasticity is absent in the equation, the Chi-Square (Chi-sq) probability value should not be lower than 5%. According to Table 8, the probability value of 0.215 is not significant at the 5% level, indicating that heteroskedasticity is not present in the equation.

Table 8: VEC Residual Serial Correlation LM Test

Lags	LM-Stat	Prob
1	37.10209	0.057

Authors'calculation,2025.

This approach was utilized to assess the presence of autocorrelation, also known as serial correlation, in the model. Autocorrelation is characterized by the correlation between two or more independent variables, which should ideally operate independently. To confirm the absence of autocorrelation in the equation, the p-values must remain statistically insignificant at a 5% significance level. As indicated in Table 9, the p-value of 0.057 is not statistically significant at the 5% level, thereby suggesting that there is zero autocorrelation in the model.

5. Summary and recommendation

The goal of this study is to investigate the impact of various methods of company financing on corporate tax collection in Nigeria during 32 years, from 1991 to 2023. The corporate funding variables employed in this study includes: corporate bond, bank loan to the private sector, equity, and borrowing cost. Our response variable is the corporate income tax collected by the government from the companies operating in Nigeria. Table 6 shows that, over time, corporate bonds, shares, bank loans to the private sector, and borrowing costs lower business tax revenue by 3.7%, 36.6%, 49.7%, and 31.8%, respectively. Corporate bonds, shares, bank loans to the private sector, and borrowing costs all have a short-term negative impact on corporation tax collection of 6.4%, 18.9%, 54.6%, and 35.6%, respectively. Both the short and long -term results confirm that corporate financing mix in Nigeria has not been in the interest of the government, meanwhile, both individuals and companies expect the government to fulfil its social obligations for both businesses and citizens.

The findings indicate that companies are likely to persist in tax avoidance by leveraging their financing mix that supports the use of more debt instruments (Modigliani & Miller, 1963). This is also shown in our result on Table 6, which provides evidence that all financing methods result in a decrease in tax revenue. Thus, without clear government regulations on the permissible corporate financing mix ratio, significant revenue losses will continue. Therefore, this study proposes a financing structure wherein equity financing is prioritized over debt financing. If a company's capital structure is overly reliant on debt, a policy for capital restructuring should be established with a specific timeline to align with the government's goal of favoring equity. Although creating a benchmark for equity-based financing is fraught with potential challenges, such as reluctance from firms that opt for debt financing, the complexities involved in measuring and validating equity accurately, and fears regarding the overall impact on financial stability. Additionally, the task of establishing a well-defined concept and practical implementation of equity-focused financing within the existing regulatory framework can be quite complex, especially when factoring in the variety of business models and industry practices. It is essential for all stakeholders, including auditors, tax authorities, banks, and the Corporate Affairs Commission, to endorse and facilitate the implementation of this policy to improve tax revenue collection from businesses. This study advocates that, just as dividend payments should not supersede corporate tax obligations, the same principle should apply to interest payments on debt financing. The interest a company owes to its lenders should not exceed the taxes it is required to pay to the government annually. Subsequent research could broaden the scope of this study to encompass additional countries in sub-Saharan Africa.

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