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## **Examining the Financial Structure and Performance of Listed SMEs in Nigeria**

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### **Abstract**

*Listed SMEs in the Alternative Securities Market have continued to perform below expectation in terms of profitability and return on investment, which made investors lose billions of Naira in the sector. Hence, many of these firms were delisted. This was in spite of the recent creation of these specialised boards for emerging and high-growth SMEs to access equity funds in the capital market to ease their financial need. It seemed that the optimal combination of this newly introduced equity with the hitherto used debt in their financial structure might pose a challenge, and that provided the motivation for this study. The main objective of this study was to examine the relationship between financial structure and the performance of listed SMEs in Nigeria. This relationship was examined after controlling for firm size and sales growth. An ex-post facto research design was adopted for the study. The population size was the 16 listed firms in these specialised boards. A sample size of 11 was selected based on the availability of their financial statements from*

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2012 to 2021. The independent variable was financial structure proxied by total debt to total equity ratio (TDTE), current ratio (CACL), long-term leverage ratio (LDTC), and total leverage ratio (TDTC). The dependent variable was financial performance measured by return on investment (ROI). The data were analysed using descriptive statistics, while the multiple regression technique was used to analyse the variables. From the analyses, TDTE indicated a negative, insignificant influence on ROI. The current ratio indicated a positive, insignificant influence on ROI, while both LDTC and TDTC indicated a negative, significant influence. It was concluded that financial structure has significant influence on the performance of listed SMEs in Nigeria. It is recommended that listed SMEs in Nigeria maintain a healthy leverage ratio, as too much debt may negatively influence their ROI. They should also devise new strategies for the proper management of liquidity, as their current ratio values imply poor management of liquid assets.

**Keywords:** Financial Structure, Return on Investment, Leverage Ratio, Liquidity Management, Listed SMEs in Nigeria.

### **Introduction**

Financial structure decisions are of great importance when considering the factors that influence the financial performance of a firm. In recent times, financial managers have increasingly focused on financial structure as one of the major tools for enhancing sound and efficient financial performance. One of the most significant goals of financial managers is to maximise shareholders' wealth by determining the best mix of financial resources for a firm and maximising the firm's value through efficient allocation of resources. This objective applies not only to large firms but also to small and medium-sized enterprises (SMEs).

SMEs play a vital role in promoting economic growth by creating jobs, developing vibrant private sectors, and encouraging economic diversification. Nnanna (2004) asserts that over 90% of businesses in Africa, and Nigeria in particular, are small and medium-scale enterprises (SMEs), and these enterprises are the largest

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employers of labour. Despite their economic importance, however, SMEs face significant challenges in accessing finance. Although this problem exists in many advanced, emerging, and developing economies, it is particularly pronounced in countries with less developed financial sectors (Ariyo, 2014).

In 2017, the International Finance Corporation (IFC) estimated that the financing gap for formal SMEs in developing countries was approximately \$5.2 trillion, representing about 19% of the gross domestic product (GDP) of the countries surveyed. SMEs in Nigeria are therefore deprived of the necessary funds that could propel them toward improved performance. This situation arises partly because SMEs are often perceived as risky borrowers. As a result, fund providers such as banks attempt to minimise their credit risk exposure by granting small loans at very high costs rather than providing full financing (Akinbola & Tijani, 2013). Consequently, many SME operators resort to personal savings, as well as loans and grants from relatives, friends, and business associates to finance their businesses (Okafor & Onebunne, 2012). This financing constraint contributes to the high mortality rate of SMEs (Aremu & Adeyemi, 2011).

Policymakers and development partners have therefore emphasised the need to expand SMEs' access to non-bank sources of funding, particularly public equity financing. To achieve this objective, the Nigerian Exchange Group created the Alternative Securities Market (ASEM) in 2013 to enable emerging SMEs to raise capital through the capital market, thereby addressing the inadequacies of the financial system in mitigating SMEs' funding challenges (Oteh, 2014). However, in June 2018 it was reported that, due to the poor financial performance of firms in the sector, investors lost about ₦1.3 billion in the Alternative Securities Market. As a result, shares of several listed SMEs were delisted from the floor of the Nigerian Stock Exchange because of their poor performance (Oji, 2018). This development has become a source of concern for stakeholders in the sector.

### **Statement of the Problem**

In an effort to address the financing needs of SMEs, many developed and developing countries have established dedicated segments within their capital markets to enable emerging SMEs to raise equity funds for business expansion and development. The

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objective is to enable these firms to contribute significantly to economic growth and employment generation. In Nigeria, the Nigerian Exchange Group established the Alternative Securities Market (ASEM) in 2013 and later introduced the Growth Board in 2020 to provide SMEs with a cost-effective platform for raising long-term capital. These platforms are intended to promote liquidity, attract investors, enhance corporate visibility, and create a regulatory framework that supports business growth (Okunade, 2020).

Several countries have recorded gradual success with such initiatives. For example, the London Alternative Investment Market (AIM) expanded from an initial ten companies valued at £82 million in 1995 to approximately 850 companies with a combined market capitalisation of £104 billion by 2020 (Lowcock, 2020; Hayes, 2021).

However, the situation in Nigeria appears different. Listed SMEs on the ASEM and Growth Board have continued to perform below expectations in terms of profitability and return on investment. In 2018 alone, investors in the sector reportedly lost more than ₦1.3 billion (Ojoje, 2016; Oji, 2018). Consequently, several of these firms were delisted. This development has raised questions among stakeholders regarding the optimal combination of the newly introduced equity capital and the previously utilised debt in the financial structure of these listed firms.

Some stakeholders attribute the poor performance to investors' apathy toward the sector due to inadequate information flow and general economic slowdown. Others argue that the firms lack the experience required to effectively combine the newly introduced equity with existing debt capital. A few observers also attribute the situation to high operating costs arising from poor infrastructural development in the country.

Given these concerns, it becomes necessary to critically examine the financial structure of listed SMEs in Nigeria in order to determine whether financial structure significantly influences their performance. This study is therefore motivated by the need to investigate whether the combination of financing sources has contributed to the low performance of listed SMEs in the sector. To the best of the researcher's knowledge, limited empirical studies have specifically examined the influence of

financial structure on the performance of listed SMEs in Nigeria at the time this research was conducted. Hence, there is a need for further investigation.

### **Objectives of the Study**

While the main objective of the study was to investigate the influence of financial structure on the performance of listed SMEs in Nigeria, the specific objectives were to:

- i. Examine the influence of the total debt to total equity ratio on the return on investment (ROI) of listed SMEs in Nigeria.
- ii. Evaluate the effect of the current evaluation ratio on the ROI of listed SMEs in Nigeria.
- iii. Assess the influence of the long-term leverage ratio on the ROI of listed SMEs in Nigeria.
- iv. Examine the effect of the total leverage ratio on the ROI of listed SMEs in Nigeria.
- v. Evaluate the aggregate influence of the total debt to total equity ratio, current ratio, long-term leverage ratio and total leverage ratio on ROI of listed SMEs in Nigeria.

### **Research Questions**

The following research questions were developed with a view to achieving the research objectives:

- i. What is the influence of the total debt to total equity ratio on the return on investment (ROI) of listed SMEs in Nigeria?
- ii. What is the influence of the current ratio on the ROI of listed SMEs in Nigeria?
- iii. What is the influence of the long-term leverage ratio on the ROI of listed SMEs in Nigeria?
- iv. What is the influence of the total leverage ratio on the ROI of listed SMEs in Nigeria?

- v. What is the aggregate influence of the total debt to total equity ratio, current ratio, long-term leverage ratio and total leverage ratio on the ROI of listed SMEs in Nigeria?

### **Research Hypotheses**

The following null hypotheses were developed to guide the study:

- i. There is no significant influence of the total debt to total equity ratio on the ROI of listed SMEs in Nigeria.
- ii. The current ratio has no significant influence on the ROI of listed SMEs in Nigeria.
- iii. The long-term leverage ratio has no significant influence on the ROI of listed SMEs in Nigeria.
- iv. The total leverage ratio has no significant influence on the ROI of listed SMEs in Nigeria.
- v. There is no aggregate significant influence of the total debt to total equity ratio, current ratio, long-term leverage ratio and total leverage ratio on the ROI of listed SMEs in Nigeria.

### **Theoretical Review**

This study is hinged on four key financial theories: trade-off theory, pecking order theory, agency theory, and life cycle theory, which collectively explain how firms make financing decisions and their impact on performance.

The Trade-off Theory, introduced by Kraus and Litzenberger (1973) and expanded by Myers and Majluf (1984), posits that firms balance the benefits of debt, particularly the tax shield, against the costs of financial distress to achieve an optimal capital structure. It assumes that profitability is positively correlated with leverage and that firms target a debt level that maximises value without risking bankruptcy. This theory is relevant as it highlights how listed SMEs in Nigeria balance borrowing costs and long-term financing benefits to enhance profitability.

Pecking Order Theory (Myers and Majluf, 1984) posits a financing hierarchy which involves internal funds first, debt second, and equity as a last resort. This arises from information asymmetry, as issuing equity may signal overvaluation. The theory

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assumes managers have superior knowledge of the firm, and they aim to minimise financing costs while protecting existing shareholders. It is relevant because it explains SMEs' prioritisation of liquidity, debt, and equity when making financing decisions. Agency Theory, developed by Berle and Means (1932) and formalised by Jensen and Meckling (1976), addresses conflicts between managers and owners. Debt acts as a disciplinary mechanism, aligning managers' actions with shareholder interests by reducing free cash flow and incentivising efficient management. This theory is pertinent to understanding how leverage influences managerial behaviour and firm performance in Nigerian SMEs.

The life cycle theory (Disiboshi, 1989) posits that firms' financing choices vary across stages of growth: introduction, growth, maturity, and decline. Young firms rely on savings and minimal debt, mature firms increase borrowing to exploit tax shields, and declining firms reduce debt, relying on retained earnings. This theory explains how firm age and growth stage influence debt usage and financial performance. Together, these theories provide a framework for analysing the relationship between financial structure and performance in listed Nigerian SMEs, combining insights on optimal debt levels, financing hierarchies, managerial incentives, and life cycle considerations.

### **Review of Empirical Studies**

Evidence from emerging and developed markets presents mixed results regarding the relationship between leverage, liquidity and profitability. Several studies report negative effects of debt on performance. For instance, Nguyen et al. (2023) found that long-term and short-term debt negatively influenced the profitability of Vietnamese listed firms, while liquidity had a positive influence. Similar negative relationships were reported by Nassar (2017) in Turkey, Dai (2017) in Thailand, Birru (2016) in Ethiopia and Phan (2016) in industrial enterprises, all of which concluded that higher leverage reduces firm performance. In the Nigerian context, Yinusa et al. (2019) observed a non-monotonic relationship, indicating that moderate debt enhances performance but excessive debt impairs it. Opoku-Asante et al. (2022) further documented a significant negative relationship between capital structure and performance in Ghana and Nigeria, while Onwe et al. (2020) reported that short-term

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debt significantly reduced return on assets among listed Nigerian firms. These findings largely align with the predictions of agency cost and pecking order theories, particularly in environments characterised by high borrowing costs and financial constraints.

On the contrary, several empirical studies documented positive relationships between capital structure and performance. Ajibola et al. (2018) reported a positive significant correlation between total debt, long-term debt and return on equity among listed manufacturing firms in Nigeria. Abdullah and Tursoy (2021) found a significant positive association between leverage and performance among non-financial firms in Germany, attributing the outcome to tax shield benefits and lower debt costs. Similarly, Oke et al. (2019) established a significant positive relationship between capital structure and performance of conglomerate firms in Nigeria. Studies conducted in Kenya (Zachary, 2019), Indonesia and Vietnam (Dinh and Pham, 2020) also revealed significant positive effects of certain debt components on profitability. Some authors, however, observed differential effects of debt maturity. Robert et al. (2019) found long-term debt positively related to performance while short-term debt was negatively related among listed SMEs in Paris. Amjed (2018) documented the positive effect of short-term debt but the negative effect of long-term debt in Pakistan. These variations suggest that the impact of financial structure on performance depends on the composition of debt, cost structure and institutional environment.

Some studies focused specifically on SMEs also produced diverse findings. Nakiranda and Ronald (2022) in Uganda and Ruri and Omagwa (2018) in Kenya found that capital structure significantly influences SME performance, though the strength of influence varies across financing sources. Akani and Chukwuemeka (2021) reported largely insignificant effects of leverage components on listed SMEs in Nigeria, while Palacios et al. (2016) established that internal financing significantly improves the performance of manufacturing SMEs in México. Mugisha et al. (2022) highlighted the mediating role of financial capacity in strengthening the capital structure–performance relationship. Liquidity was also found to play an important role, as evidenced by Madushanka and Jathurika (2018) and Zeb et al. (2016), who reported a positive influence of liquidity ratios on profitability. Overall, empirical evidence remains inconclusive, with results varying across sectors, countries and

methodological approaches. This divergence underscores the need for further investigation into the financial structure–performance nexus, particularly among listed SMEs in Nigeria where contextual, institutional and market-specific factors may shape financing decisions and outcomes.

Most existing studies concentrated on capital structure of large firms rather than SMEs (Ajibola et al., 2018; Oke et al., 2019; Opoku-Asante et al., 2022), while SME-focused studies were largely conducted outside Nigeria (Ruri and Omagwa, 2018; Thi and Phung, 2021; Palacios et al., 2016). Research on financial structure also mainly examined non-SME sectors (Onwe et al., 2020; Amjed, 2018), and studies on listed SMEs in Nigeria focused on other areas such as capital market development (Akani, 2020; Nwakoby and Okoye, 2014; Joshua et al., 2021). The only closely related Nigerian study addressed capital structure and performance of listed SMEs but excluded key variables such as liquidity (Akani and Chukwuemeka, 2021). As observed, no study has examined the financial structure and performance of listed SMEs on the Alternative Securities Market and Growth Board of the Nigerian Exchange Group, thereby justifying this study.

### **Methodology**

This study adopted an ex-post facto research design, relying on secondary panel data obtained from the audited financial statements of listed SMEs on the Alternative Securities Market and Growth Board of the Nigerian Exchange Group between 2012 and 2021. From a population of 16 quoted firms, 11 were purposively selected based on listing status, operational continuity and availability of published financial records, namely: Capital Oil Plc, Juli Plc, RAK Unity Petroleum Plc, Smart Products Nigeria Plc, McNichols Consolidated Plc, Chellarams Plc, Living Trust Mortgage Plc (formerly Omoluabi Mortgage Bank), The Initiates Plc, Anino International Plc, Briclinks Africa Plc and Ronchess Global Resources Plc. Financial performance was proxied by return on investment (ROI), while financial structure was measured using total debt to total equity (TDTE), current ratio (CACL), long-term debt to total capital (LDTC) and total debt to total capital (TDTC), with firm size and sales growth included as control variables. Panel multiple regression analysis was employed to examine the influence of financial structure on performance, and diagnostic tests like

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the variance inflation factor for multicollinearity, Breusch–Pagan/Cook–Weisberg for heteroskedasticity and the Hausman specification test were conducted to ensure the robustness and validity of the results. The multiple regression equation for the study was expressed basically as follows:

$$\text{FINPER} = f(\text{FINSTR}) \quad - \quad - \quad - \quad - \quad \text{Equation 3.1}$$

Where:

FINPER represented the financial performance of listed SMEs measured by the ROI. FINSTR represented the financial structure which was measured by its specified proxies: total debt to total equity (TDTE), current liability to current asset (CACL), long term debt to total capital (LDTC) and total debt to total capital (TDTC). In addition to these specified proxies and in order to enhance the robustness of the model, firm size (FSIZE) and sales growth (SG) were introduced as control variables. These control variables were not the focal variable of the study. Hence, the model became:

$$\text{ROI} = f(\text{TDTE}, \text{FSIZE}, \text{SG}) \quad - \quad - \quad - \quad - \quad \text{Equation 3.2}$$

$$\text{ROI} = f(\text{CACL}, \text{FSIZE}, \text{SG}) \quad - \quad - \quad - \quad - \quad \text{Equation 3.3}$$

$$\text{ROI} = f(\text{LDTC}, \text{FSIZE}, \text{SG}) \quad - \quad - \quad - \quad - \quad \text{Equation 3.4}$$

$$\text{ROI} = f(\text{TDTC}, \text{FSIZE}, \text{SG}) \quad - \quad - \quad - \quad - \quad \text{Equation 3.5}$$

$$\text{ROI} = f(\text{TDTE}, \text{CACL}, \text{LDTC}, \text{TDTC}, \text{FSIZE}, \text{SG}) \quad - \quad \text{Equation 3.6}$$

Thus, in econometrics form with the introduction of a constant, coefficient and error term, the models were ultimately expressed as:

$$\text{ROI} = \alpha_0 + \alpha_1 \text{TDTE} + \alpha_2 \text{FSIZE} + \alpha_3 \text{SG} + e \quad - \quad \text{Equation 3.7}$$

$$\text{ROI} = \sum_0 + \sum_1 \text{CACL} + \sum_2 \text{FSIZE} + \sum_3 \text{SG} + e \quad - \quad \text{Equation 3.8}$$

$$\text{ROI} = \Omega_0 + \Omega_1 \text{LDTC} + \Omega_2 \text{FSIZE} + \Omega_3 \text{SG} + e \quad - \quad \text{Equation 3.9}$$

$$\text{ROE} = \beta_0 + \beta_1 \text{TDTC} + \beta_2 \text{FSIZE} + \beta_3 \text{SG} + e \quad - \quad \text{Equation 3.10}$$

$$\text{ROI} = \epsilon_0 + \epsilon_1 \text{TDTE} + \epsilon_2 \text{CACL} + \epsilon_3 \text{LDTC} + \epsilon_4 \text{TDTC} + \epsilon_5 \text{FSIZE} + \epsilon_6 \text{SG} + e \quad - \quad \text{Equation 3.11}$$

Where:

- ROI= Return on investment,
- $\alpha, \beta, \Omega, \sum, \epsilon$  = Intercepts for model 1. Model 2, model 3 and model 4 respectively.
- $A_0, \alpha_1, \alpha_2, \alpha_3$  = Coefficient of the independent and control variables for model 1

$\beta_0 + \beta_1\beta_2, \beta_3$  = Coefficient of the independent and control variables for model 2  
 $\Omega_0 + \Omega_1\Omega_2, \Omega_3$  = Coefficient of the independent and control variables for model 3  
 $\Sigma_0 + \Sigma_1\Sigma_2, \Sigma_3$  = Coefficient of the independent and control variables for model 4

TDTE = Total Debt to Total Equity Ratio  
CACL = Current Asset to Current Liability Ratio  
LDTC = Long Term Debt to Total Capital Ratio  
TDTC = Total Debt to Total Capital Ratio  
FSIZE = Firm size  
SG = Sales Growth  
e = Error term(s)

### Theoretical Specification of Models

Theoretical specification of models and description or measurement as well as their expected signs or *a priori* expectation of the dependent variables are presented in Table 1.

**Table 1: Description and measurement of variable**

Variables	Variable Type	Model Expression	Model Definition	Apriori Sign	Source
Financial Performance: Return on Investment (ROI)	Dependent	$EBIT_{j,t}/CE_{j,t}$	EBIT = Earnings before Interest and Tax of firm j for the year t. CE = Capital Employed CE = Equity + Long Term Debt Or Total Asset – Current Liability		ACCA (2006)
Total Debt to Total Equity (TDTE)	Independent	$TD_{j,t}/TE_{j,t}$	TD = Total debt of firm j in year t. TE = Total equity of firm j in time t.	-	Onwe <i>et al.</i> (2020)
Total Leverage Ratio (TDTC)	Independent	$TD_{j,t}/TC_{j,t}$	TD = Total debt of firm j in year t TC = Total capital of firm j in time t. TC = Total Debt + Total Equity	-	Yinus <i>aet al.</i> (2019)

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Long Term Leverage Ratio (LDTC)	Independent	$LTD_{j,t}/TC_{j,t}$	LTD = Long term debt of firm j in year t. TC = Total capital of firm j in year t	-	Yinus aet al. (2019); Addea et al. (2013)
Current Ratio (CACL)	Independent	$CA_{j,t}/CL_{j,t}$	CA = Current Asset of firm j in year t. CL = Current Liability of firm j in year t.	+	Zeb et al. (2016); Zachary (2019)
Firm Size (FSIZE)	Control	Log N ( $TA_{j,t}$ )	The natural logarithm of firm j Asset base in year t.		Amjed, 2018; Addea et al., 2013
Sales Growth (SG)	Control	$\frac{SC - SP}{SC}$	SC = Sales in current year SP = Sales in previous year		Rajan and Zingales, 1995; Ozkan, 2001

Source: Researcher's compilation (2023)

**Data Analysis and Results**

**Table 2: Descriptive statistics**

	N	Min	Max	Mean	Std. Dev.	Skewness	Kurtosis	Std. Error	Std. Error
ROI	99	-114.8	56.4	2.68	22.697	-1.81	0.243	8.349	0.48
Total Debt to Total Equity	99	-675.8	43,181.3	2,030.39	8120.010	4.30	0.243	17.312	0.48
Total Leverage Ratio	99	1.6	117.4	48.09	28.553	0.31	0.243	-0.779	0.48
Long Term Leverage Ratio	99	0.0	96.4	17.50	25.550	1.44	0.243	0.783	0.48
Current Ratio	99	0.0	130.9	4.99	16.157	5.93	0.243	40.340	0.48
Firm Size	99	4,236,635	16,136,030,000	1,318,352,645	0.715	3.73	0.243	19,454	0.48
Sales Growth	99	-91.6	12234.8	168.23	1263.165	9.18	0.243	87.486	0.48
Valid N (listwise)	99								

Source: Researcher's Computation (2023)

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Table 2 summarises the descriptive statistics of the sampled SMEs. The mean ROI was 2.68%, indicating low but positive returns, with a wide dispersion (SD = 22.69%), negative skewness (-1.814), and leptokurtic distribution (kurtosis = 8.349). The average total debt to equity ratio (TDTE) was high at 2,030.38%, with substantial variability (SD = 8,120.01%), right-skewed (skewness = 4.30), and highly leptokurtic (kurtosis = 17.31). Total leverage (TDTC) averaged 48.09%, moderately dispersed (SD = 28.5%), approximately symmetric (skewness = 0.31), and slightly platykurtic (kurtosis = -0.779%), while long-term debt (LDTC) averaged 17.50%, positively skewed (skewness = 1.44%) and leptokurtic (kurtosis = 0.783%). Liquidity, measured by current ratio (CACL), averaged 4.99, showing high variability (SD = 16.15), extreme positive skewness (5.93) and extreme leptokurtosis (40.34). Firm size ranged from N4.2 million to N16.1 billion (mean ≈ N1.32 billion), positively skewed (3.734) and leptokurtic (19.454). Sales growth exhibited extreme variation, from -91.6% to 12,234.8% (mean = 168.23%), with high dispersion (SD = 1,263.16), extreme positive skewness (9.184), and heavy-tailed distribution (kurtosis = 87.486), indicating the presence of outliers.

**Table 3: Simple correlations**

		R OI	Total Debt to Total Equity	Total Leverage Ratio	Long Term Leverage Ratio	Curren t Ratio	Firm Size	Sales Growth
ROI	Pearson Correlation	1	-0.044	-0.430**	-0.301**	0.177	0.044	0.002
	Sig. (2-tailed)		0.666	0.000	0.002	0.079	0.668	0.686
	N		99	99	99	99	99	99
Total Debt to Total Equity	Pearson Correlation		1	0.438**	0.558**	-0.075	-	-0.028
	Sig. (2-tailed)			.000	.000	.460	0.321	0.784
	N			99	99	99	99	99

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Total Leverage Ratio	Pearson Correlation	1	0.729**	-	-	0.047
				0.385**	0.002	
	Sig. (2-tailed)		0.000	0.000	0.682	0.643
	N		99	99	99	99
Long Term Leverage Ratio	Pearson Correlation	1	-0.174		-	-0.036
					0.167	
	Sig. (2-tailed)			0.086	0.098	0.722
	N			99	99	99
Current Ratio	Pearson Correlation			1	0.034	-0.020
	Sig. (2-tailed)				0.737	0.848
	N				99	99
Firm Size	Pearson Correlation				1	0.212*
	Sig. (2-tailed)					0.035
	N					99
Sales Growth	Pearson Correlation					1
	Sig. (2-tailed)					
	N					

**Source: Researcher's Computation (2023)**

From the simple correlation computed and presented on Table 3, there was no indication of multi-collinearity in all the independent variables. Statistically, a correlation coefficient of 0.90 and above indicated the presence of multicollinearity between variables (Pallant, 2010; Hair *et al.*, 2010). This range has been used in many empirical studies including Wonet *al.* (2017). The data in the table shows that the correlation coefficients with each independent variable were all less than 0.90 (90%).

### Control Variables Evaluation

For the purpose of comparing the results of the analysis with and without control variables of firm size and sales growth in the multiple linear regression model, the evaluation of control variables was computed and presented on Table 4 below:

**Table 4: Control variable evaluation**

Statistics	Without Control Variable	With Control Variable
R <sup>2</sup>	0.213	0.216
Adjusted R <sup>2</sup>	0.180	0.165
DW	1.013	1.002
F-stats/p-value	6.372(0.000)	4.232 (0.001)
(Constant)	20.432	20.112
Total Debt to Total Equity (p-value)	.201 (0.072) (significant)	.203 (0.073) (significant)
Total Leverage Ratio (p-value)	-.464 (0.002) (significant)	-.482 (0.002) (significant)
Long Term Leverage Ratio (p-value)	-.074(0.612) (insignificant)	-.054 (0.724) (insignificant)
Current Ratio (p-value)	.001(0.995) (insignificant)	-.004 (0.968) (insignificant)
Firm Size		.050 (0.606) (insignificant)
Sales Growth		.017(0.855) (insignificant)

**Source: Researcher's Computation (2023)**

From the Table 4, it can be observed that there were some variations in coefficients of the individual independent variables as well as the F-ratio computed between the two models. Despite the variations, the significance levels remained the same. It can also be observed that even when there were variations in the Durbin-Watson values between the two models, the two values lied within the acceptable range of 1 and 3 (Field, 2009). It can therefore be observed that non-autocorrelation assumptions were met. In other words, there was no significant level of autocorrelation.

### Test of Hypotheses

These hypotheses were tested by conducting regression models which gave coefficient values, standard error, t-value and p-values as outputs. The beta coefficients gave the

nature of influence while the P-value was used to analyse the variables by indicating whether the hypothesis would be accepted or not.

As a rule, where the p-value was less than the chosen level of significance, the null hypothesis was rejected and concluded that the effect was significant. On the other hand, where the p-value was greater than the chosen level of significance, the null hypothesis was accepted and concluded that the effect was not significant. The effect of financial structure on performance as provided by TDTE, TDTC, LDTC and CACL was established. The regressions output gave the coefficient values, the standard error, the t-value and p-values and the results interpreted accordingly.

**H<sub>01</sub>:** There is no significant influence of total debt to total equity ratio on ROI of listed SMEs in Nigeria.

**Table 5: Regression results for hypothesis one**

Variable	Beta(β)	t-Stat.	P-value	Remark	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-stats
Constant	26.88	0.948	0.346		0.009	-0.022	0.301(p-value 0.824)
Total Debt to Total Equity	-0.047	-0.457	0.649	Insignificant t			
Firm Size	-0.088	-0.848	0.399	Insignificant t			
Sales Growth	0.016	0.156	0.876	Insignificant t			

**Source: Researcher's Computation (2023)**

From Table 5, total debt to total equity (TDTE) indicates a negative and insignificant influence on return on investment of listed SMEs in Nigeria. This was because the computed values of both t-statistics and p-values were observed to be insignificant. The negative influence was because the coefficient of total debt to total equity computed value showed a negative sign. This shows that a percentage increase in TDTE ratio brought about a 4.7% decrease in ROI of listed SMEs in Nigeria. The

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control variable of firm size exerted a negative insignificant influence, while sales growth exerted a positive insignificant influence on the ROI of listed SMEs in Nigeria. The adjusted R-squared of -0.022 indicates exactly 2.2% variation in ROI was caused by the influence of the TDTE ratio for the period of the study. The R-squared value of 0.009 indicates that about 0.9% of the variation in ROI was caused by the total debt to total equity ratio, while the remaining 99.1% was due to other factors not included in the model. The null hypothesis, which stated that there is no significant influence of total debt to total equity ratio on ROI of listed SMEs in Nigeria, was accepted. According to the result of the analysis, the effect of the control variables on the ROI of SMEs was insignificant, as the p-values of the control were all greater than 0.05.

**H<sub>02</sub>:** Current ratio has no significant influence on ROI of listed SMEs in Nigeria.

**Table 6: Regression result for hypothesis two**

Variable	Beta(β)	t-Stat.	P-value	Remark	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-stats
Constant	29.733	1.065	0.289		0.042	0.012	1.383 (p-value = 0.253)
Current Ratio	0.187	1.853	0.067	Insignificant			
Firm Size	-0.104	1.018	0.311	Insignificant			
Sales Growth	0.024	0.236	0.814	Insignificant			

**Source: Researcher’s Computation (2023)**

From Table 6, the current ratio (CACL) indicated a positive and insignificant influence on the return on investment (ROI) of listed SMEs in Nigeria. This was because the computed values of both t-statistics and p-values were observed to be insignificant. The positive influence was because the coefficient of the current ratio computed value showed a positive sign. This indicated that a percentage increase in TDTE brought about an 18.7% increase in ROI of listed SMEs in Nigeria. The control variable of firm size exerted a negative insignificant influence, while sales growth exerted a positive insignificant influence on the ROI of listed SMEs in Nigeria.

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The adjusted R-squared of 0.012 indicated that exactly 1.2% variation on ROI was caused by the influence of the current ratio for the period of the study. The R-squared value of 0.042 indicates that about 4.2% of the variation in ROI was caused by current ratio, while the remaining 95.8% was due to other factors not included in the model. The regression model was insignificant at  $F = 1.383$  ( $p = 0.253$ ), indicating that the current ratio may have a small influence on ROI, but this influence was not statistically significant. Therefore, the null hypothesis which stated that the current ratio has no significant influence on the ROI of listed SMEs in Nigeria was accepted.

**H<sub>03</sub>**: Long term leverage ratio has no significant influence on ROI of listed SMEs in Nigeria.

**Table 7: Regression result for hypothesis three**

Variable	Beta( $\beta$ )	t-Stat.	P-value	Remark	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-stats
Constant	30.721	1.135	0.259		0.098	0.069	3.425(p-value = 0.020)
Long Term Leverage Ratio	-0.301	-3.084	0.003	Significant			
Firm Size	-0.086	-0.867	0.388	Insignificant			
Sales Growth	0.006	0.063	0.950	Insignificant			

**Source: Researcher's Computation (2023)**

From Table 7, the long-term debt-to-capital ratio (LDTC) indicated a negative and significant influence on the return on investment (ROI) of listed SMEs in Nigeria. This was because the computed values of both t-statistics and p-values were observed to be significant. The negative influence was because the coefficient of the LDTC computed value showed a negative sign. This indicated that a percentage increase in LDTE brought about a 30.1% decrease in ROI of listed SMEs in Nigeria. The control variable

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of firm size exerted a negative insignificant influence, while sales growth exerted a positive insignificant influence on the ROI of listed SMEs in Nigeria.

The adjusted R-squared of 0.069 indicated that exactly 6.9% variation in ROI was caused by the influence of the LDTC ratio for the period under study. The R-squared value of 0.098 indicates that about 9.8% of the variation in ROI was caused by the long-term leverage ratio, while the remaining 90.2% was due to other factors not included in the model. The regression model was statistically significant ( $p = 0.020$ ), meaning that the long-term leverage ratio has a significant effect on ROI. The F-statistic of 3.425 with a corresponding p-value of 0.020 supports this conclusion. The t-value of -3.084 and the corresponding p-value of 0.003 indicated that the coefficient was statistically significant. Therefore, the null hypothesis which stated that long-term leverage ratio has no significant influence on ROI of listed SMEs in Nigeria was rejected.

**H<sub>04</sub>:** Total leverage ratio has no significant influence on ROI of listed SMEs in Nigeria.

**Table 8: Regression result for hypothesis four**

Variable	Beta( $\beta$ )	t-Stat.	P-value	Remark	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-stats
Constant	32.608	1.270	0.207		0.188	0.162	7.337(p-value = 0.000)
Total Leverage Ratio	-0.427	-4.600	0.000	Significant			
Firm Size	-0.050	-0.533	0.595	Insignificant			
Sales Growth	0.031	0.328	0.743	Insignificant			

**Source: Researcher's Computation (2023)**

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From Table 8, the total leverage ratio (TDTC) indicates a negative and significant influence on return on investment (ROI) of listed SMEs in Nigeria. This was because the computed values of both t-statistics and p-values were observed to be significant. The negative influence was because the coefficient of the TDTC computed value showed a negative sign. This indicated that a percentage increase in TDTE brought about a 42.7% decrease in ROI of listed SMEs in Nigeria. The control variable of firm size exerted a negative insignificant influence, while sales growth exerted a positive insignificant influence on the ROI of listed SMEs in Nigeria.

The adjusted R-squared of 0.162 indicated that exactly 16.2% variation on ROI was caused by the influence of the total leverage ratio for the period of the study. The R-squared value of 0.188 indicates that about 18.8% of the variation in ROI was caused by total leverage ratio, while the remaining 81.2% was due to other factors not included in the model. The regression model was statistically significant ( $p = 0.000$ ), meaning that the long-term leverage ratio has a significant effect on ROI. The F-statistic of 7.337 with a corresponding p-value of 0.000 supported this conclusion. The t-value of -4.600 and corresponding p-value of 0.000 indicated that the coefficient was statistically significant. Therefore, the null hypothesis which stated that the total leverage ratio has no significant influence on the ROI of listed SMEs in Nigeria was rejected.

**H<sub>05</sub>:** There is no aggregate significant influence of the total debt to total equity ratio, current ratio, long-term leverage ratio and total leverage ratio on the ROI of listed SMEs in Nigeria.

**Table 9: Regression Result for Hypothesis Five**

Statistics	Beta	t-Stat.	p-value	Remarks	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F-stats	Sig
Constant	20.112	3.893			0.465	0.216	0.165	4.232	0.001
TDTE	0.203	1.816	0.073	Insignificant					
TDTC	-0.482	-3.223	0.002	Significant					
LDTC	-0.054	-0.354	0.724	insignificant					
CACL	-0.004	-0.041	0.968	insignificant					
FS	0.050	0.518	0.606	insignificant					
SG	0.017	0.184	0.855	insignificant					

**Source: Researcher's Computation (2023)**

The R of 0.465 in Table 9 indicates that the independent variables and control variables (TDTE, TDTC, LTTC, CACL, FS and SG) jointly have 46.5% influence with the dependent variable (ROI). From each variable's perspective, an overview of the result showed that the total leverage ratio has the highest positive correlation with the dependent variable. This is followed by the long-term leverage ratio, current ratio and total debt to equity ratio, **respectively (Appendix)**.

The coefficient of determination (R-squared) on the influence of all the independent and control variables on the dependent variable was 0.216. This depicts that taken jointly, the independent and control variables (TDTE, TDTC, LTTC, CACL, FS and SG) accounted for 21.6% of the variance in ROI. The adjusted R-squared of 0.16 indicated that exactly 16.5% variation on ROI was caused by the influence of the combined influence of the independent and the control variables for the period of the study. Based on the information in Table 9, the result was statistically significant because the p(Sig) value of 0.001 was less than 0.05. Thus, the null hypothesis that there is no significant joint influence of TDTE, CACL, LDTC, and TDTC on ROI of listed SMEs in Nigeria was rejected.

## **Discussion of Findings**

### **Total Debt to Total Equity Ratio and ROI of Listed SMEs in Nigeria**

The researcher examined the influence of total debt to total equity ratio on the ROI of listed SMEs in Nigeria. The results indicated that there was a negative, insignificant influence of the two variables. This implied that total debt to total equity did not have significant influence on the financial performance of the firms. In this case the increase in total debt has no significant influence on performance. The negative coefficient of -0.047 indicated that accumulation of debt reduced the equity of shareholders slightly by 4.7%, which was not good for the performance of listed SMEs in Nigeria.

The findings support the work of Olamide and Paul (2021), Olaoye and Adesina (2022), Akani and Chukwuemeka (2021), and Onwe *et al.* (2020), who found an insignificant influence of the TDTE ratio on performance. The finding contradicted the findings of Iftikhar and Masood (2021), Rao and Suryanarayana (2018), Birru (2016), Hantono (2018) and Zeb *et al.* (2016), who found that total debt to total equity

is significantly related to the performance of firms. Based on this, managers of these firms should be concerned about the level of their total debt to total equity for better financial performance. This was because the findings of this study revealed a negative, insignificant influence on financial performance.

### **Current Ratio and ROI of Listed SMEs in Nigeria**

Based on the analysis presented, the current ratio has a positive insignificant influence on ROI. This implied that the current ratio did not have substantial influence on the ROI of listed SMEs in Nigeria. Although the regression model was insignificant at the 0.05 significance level, the R-squared value was very low, indicating that the current ratio was not a strong predictor of ROI. The findings of this study were consistent with those of previous studies conducted by Madushanka and Jathurika (2018) and Hantono (2018), which showed that the current ratio had no effect on the firm's performance. This finding also contradicted the study by Zeb *et al.* (2016), who found significant influence of current ratio on performance.

The implication is that a higher percentage of the current ratio might mean the company has better ability in terms of paying off its short-term debt with its current assets. However, the components of the current ratio included other non-cash assets which might take longer to convert. Thus, shareholders might view the current ratio as a misleading indicator of proving company liquidity, which is why the current ratio did not have direct significant influence on performance. However, a study by Zeb *et al.* (2016) contrasted this result and showed that the current ratio had significant influence on performance. These mixed findings suggested that the influence of the current ratio on firm performance might vary depending on the context and other factors that affect the performance of SMEs. The results of this analysis suggested that while the current ratio might be important for assessing a firm's liquidity and short-term solvency, it might not be a strong predictor of long-term profitability for listed SMEs in Nigeria. Other factors, such as management quality, may have played a more significant role in determining the influence of current ratio on financial performance of listed SMEs in Nigeria.

### **Long-Term Leverage Ratio and ROI of Listed SMEs in Nigeria**

The findings from the analysis presented suggested that the long-term leverage ratio has a negative significant influence on the ROI of listed SMEs in Nigeria. The adjusted R-squared value of 0.069 indicated that only 6.9% of the variation in ROI can be explained by the long-term leverage ratio, while the remaining 93.1% was due to other factors not included in the model. The ANOVA result in Table 4.8 indicated that the regression model was statistically significant, with a p-value of 0.020, meaning that the long-term leverage ratio has a significant effect on ROI. The result showed that long-term debt to total assets has a negative significant influence on the financial performance of listed SMEs in Nigeria. The implication of this finding was that the lower the long-term debt to total capital ratio of a firm, the better the performance. The result provided a basis for rejecting the third hypothesis, which stated that long-term leverage ratio has no significant effect on the performance of listed SMEs in Nigeria. The findings indicated that agency issues might lead listed SMEs in Nigeria to pursue a very high debt policy, thus resulting in lower performance.

This result is consistent with previous empirical studies that have found a significant negative influence on leverage ratio and firm performance (Anozie *et al.*, 2023; Robert *et al.*, 2019; Amjed, 2018). The result showed that an increase in the long-term leverage ratio was associated with a decrease in ROI. This negative coefficient indicated that listed SMEs in Nigeria should be cautious about taking on too much long-term debt, as it might lead to a decrease in their ROI. The result was inconsistent with the work of Opoku-Asante (2022), Olamide and Paul (2021), and Daniel and Nduka (2020), who found an insignificant relation of the long-term debt ratio with performance. In conclusion, the findings from the analysis indicated that the long-term leverage ratio has a significant effect on the ROI of listed SMEs in Nigeria. However, the R-squared value and adjusted R-squared value indicated that other factors not included in the model might also be important in explaining variations in ROI. Therefore, SMEs in Nigeria should be cautious about taking on too much long-term debt and also ensure that they maintain a healthy leverage ratio.

### **Total Leverage Ratio and ROI of Listed SMEs in Nigeria**

The findings of the regression analysis indicated that there was a significant negative influence of the total leverage ratio and ROI of listed SMEs in Nigeria. The results served as a basis for rejecting the fourth hypothesis, which stated that total leverage ratio has no significant influence on the financial performance of listed SMEs in Nigeria. This indicated that SMEs should maintain a healthy leverage ratio, as too much debt might negatively influence their ROI. This finding was consistent with previous empirical studies (Olamide and Paul, 2021; Phan, 2016; Thi and Phung, 2021). The finding was inconsistent with the work of Opoku-Asante (2022), who found an insignificant influence of total debt ratio on performance.

The results indicated that managers of listed SMEs have been using much debt to finance their firms in a way that equity investments of outside equity investors are protected and enhanced. The findings indicated that listed SMEs in Nigeria might use agency issues to pursue very high debt policy, thus resulting in lower performance. This result also conformed with the negative theoretical prediction of the agency theory that the use of excessive debt might worsen the underinvestment problem of a firm (Stulz, 1990). The result indicated that listed SMEs in Nigeria may use excessive debt as a disciplinary device to reduce managerial cash flows in line with the agency theory. This excess debt might be used for sub-optimal investment, which increases the default risk, thereby making debt repayment very difficult. This can eventually accumulate the firm's debt, which can drastically reduce the firm's performance. In view of this, debt might not produce the desirable better performance that shareholders expected from the use of debt through the reduction of the agency problem to ensure better performance as stated in the agency theory. The negative significant result of the total leverage ratio on the firm's performance in this study reflected the true state of how debt financing affects shareholders' investments of firms in Nigeria.

Similarly, the result of findings has a reflection on the life cycle theory. The theory divided the corporate life cycle into four stages: the introduction stage, the growth stage, maturity and the declining stage. Emerging SMEs listed in the capital market could be classified under the growth stage. Life cycle theory stated that fast-growing firms do not borrow much since this would affect their flexibility to take up projects. Firms at the maturity stage made large and stable profits. Hence, such firms

might use more debt in their financial structure so as to take advantage of interest tax shields (Anil and Zenner, 2005). The theory further stated that bigger firms with high profitability and liquidity with fewer expected distress costs used more debt in their financial structure, while growing firms with low profitability and low collateral at the introduction or growth stages should use low levels of debt.

### **Total Debt to Total Equity Ratio, Current Ratio, Long-Term Leverage Ratio, Total Leverage Ratio and ROI of Listed SMEs in Nigeria**

The findings of the regression analysis indicated that the combined influence of the independent and control variables has a significant influence on the ROI of listed SMEs in Nigeria. The results served as a basis for rejecting the fifth hypothesis, which stated that there was no aggregate significant influence of TDTECACL, LDTC and TDTC ratios on ROI of listed SMEs in Nigeria. This indicated that SMEs should maintain a balance in their financial structure, as an imbalanced financial structure might negatively influence their ROI. However, in spite of the seemingly low coefficient of determination (0.216), the statistical significance of the result ( $p = 0.001$ ,  $p < 0.05$ ) is not in doubt. This level of significance showed that TDTECACL, LDTC and TDTC, taken jointly with the control variables (firm size and sales growth), have a significant influence on ROI. This finding was consistent with the previous empirical study by Olamide and Paul (2021).

### **Control Variables**

Firm size has a negative insignificant influence on the ROI of listed SMEs in Nigeria. This corroborated the findings of Olamide and Paul (2021) that the size of a firm in most cases did not determine performance. This could be due to the fact that at the onset, these firms had weak initial capitalisation coupled with weak guarantees, which deprived them of possibilities for growth and development. As a counter-reaction, these firms tried to inflate their growth and size as much as possible with the intention of attracting external funding. They, however, remained insolvent due to their small size, coupled with low solvency as seen by funding parties such as banks. In addition, bankruptcy costs were high in SMEs compared to large companies. This finding was inconsistent with Nguyen *et al.* (2023), who found that firm size plays a positive role in determining a firm's profitability. The researcher concluded that the bigger and more

mature the firm is, the better its profitability. Sales growth has a positive, insignificant influence on ROI. The low insignificant influence could be due to high payment of debt interest associated with high gearing.

### **Conclusion**

The researcher examined the influence of different financial ratios and return on investment (ROI) of listed SMEs in Nigeria. It was concluded that maintaining a healthy leverage ratio is crucial for optimizing ROI, as too much debt negatively influences ROI. Specifically, the study found a negative insignificant influence of total debt to total equity ratio on ROI. This shows that accumulation of debt reduces the equity of shareholders (though slightly), which is not good for the performance of listed SMEs in Nigeria. Current ratio was not found to have significant influence on ROI, indicating that other factors might be more important in determining the financial performance of SMEs in Nigeria. Both long-term leverage ratio and total leverage ratios have negative significant correlation with ROI. This meant that listed SMEs in Nigeria should be cautious about taking too much long-term debt and total debts. Generally, the findings of this study have practical implications for financial managers and investors, providing insight into the factors that influence the ROI of SMEs in Nigeria. Further research is needed to fully understand other factors that affect the performance of SMEs in Nigeria.

### **Recommendations**

Based on the findings of the study, the following recommendations are made:

- i. Listed SMEs in Nigeria should maintain a balance between debt and equity financing to optimize their ROI. They cannot only depend on equity capital due to its low risk, and cannot also survive wholly on debts due to high risk. The firms should develop an investment policy that will enable them maintain an optimum capital structure. They should be concerned about the level of their total debt to total equity, for better financial performance. This is because the findings of this study revealed a negative, though insignificant influence on performance.

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- ii. Listed SMEs should devise new strategies for the proper management of liquidity as their current ratio values implied poor management of liquid assets. Mostly they can apply new and effective strategies of inventory management techniques such as Just in Time (JIT) and apply modern technologies for effective inventory management which could enhance the performance of their firms. They should also pay attention to other factors such as management quality which may likely play more significant role in determining the performance of listed SMEs in Nigeria.
- iii. Listed SMEs should aim at maintaining healthy leverage ratio, as too much long-term debt has significant negative influence on ROI. Long-term debt should be approached with caution. They should look out for low-cost short-term debt with reasonable terms that can enhance the financial performance of these listed firms. They should source for low-cost debt capital and taking advantage of tax shield that will increase shareholders wealth.
- iv. It is also recommended that operators of listed SMEs should therefore be encouraged to use more retained earnings and raise equity in the capital market.

### **Suggestion for Further Studies**

The study acknowledges the issues surrounding listed SMEs in Nigeria cannot be fully addressed in a single research, highlighting the need for further investigation. Future studies could examine high-growth SMEs not listed on the capital market using primary data, explore alternative performance measures such as return on equity, return on assets, net profit margin, or Tobin's Q to provide clearer guidance on optimal financing mixes, and incorporate non-financial information beyond audited reports. Also, subsequent research could investigate external economic factors, like tax policies, interest rates, and inflation, to better understand their impact on SME performance.

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