

CAPITAL MIX, POST-2020 MACROECONOMIC DISRUPTION AND SHAREHOLDER RETURNS: A DYNAMIC PANEL ANALYSIS OF RETURN ON EQUITY AND EARNINGS PER SHARE OF LISTED MANUFACTURING FIRMS IN NIGERIA

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ABSTRACT

Nigerian manufacturing firms faced an unusually severe sequence of macroeconomic shocks from 2020 onward, including pandemic-related disruption, naira devaluation and accelerating input cost inflation, yet no prior study has tested whether this disruption altered the capital mix-performance relationship. This paper tests for a structural break in the short-term debt-performance relationship specifically, the capital mix proxy most directly exposed to refinancing risk during periods of macroeconomic and credit market stress, examining return on equity and earnings per share as the two outcomes most sensitive to shareholder-facing financial risk.

Design/methodology/approach: Panel data for ten Nigerian listed manufacturing firms over 2010-2024 (150 firm-year observations) were analysed using pooled OLS, fixed effects, random effects and two-step system GMM dynamic panel estimation. Analysis indicate that Long-term debt ratio ($\beta = 7.610$, $p = 0.0001$ for ROE; $\beta = 13.912$, $p = 0.0001$ for EPS) and total debt ratio ($\beta = 0.147$, $p = 0.0001$; $\beta = 0.086$,

$p = 0.363$) contributed to both outcomes, significant for return on equity and total debt ratio's earnings per share coefficient falling short of significance, while short-term debt ratio was marginally significant for return on equity ($\beta = 0.741$, $p = 0.0817$) and significant for earnings per share ($\beta = 6.993$, $p = 0.0001$), and debt-to-equity ratio was insignificant throughout. The post-2020 interaction with short-term debt ratio was significant and negative for both outcomes, indicating that short-term debt's performance contribution weakened materially following the onset of pandemic-era macroeconomic disruption, consistent with heightened refinancing risk during a period of credit market stress. The study concludes that capital mix significantly influences the financial performance of listed Nigerian manufacturing firms, although the nature and magnitude of the effect vary across financing components and performance measures. The findings further confirm a non-linear relationship involving short-term debt and indicate that changing macroeconomic conditions can influence the effectiveness of financing decisions. It is recommended that manufacturing firms adopt flexible and context-sensitive capital structure strategies that align financing decisions with their operational needs and prevailing macroeconomic conditions.

Keywords: *Capital Mix, Macroeconomic Disruption, Structural Break, Return on Equity, Earnings Per Share, Nigeria*

1. Introduction

Nigerian manufacturing firms confronted an unusually compressed sequence of macroeconomic disruptions from 2020 onward, beginning with the pandemic-driven suspension of much domestic and international commercial activity, continuing through a series of naira devaluations that sharply raised the naira cost of imported raw materials and equipment central to manufacturing input supply chains, and compounding further through accelerating domestic inflation that eroded real returns across the sector. Existing Nigerian capital structure research, including the return on equity and earnings per share studies reviewed in this paper's literature review, has continued to treat the 2010-2024 period examined in this broader research programme as governed by a single, time-invariant financing-performance relationship, despite the scale of disruption this period actually contained making that assumption difficult to sustain without formal testing. This paper tests directly whether the capital mix-performance relationship shifted following the onset of this disruption, focusing specifically on short-term debt, the capital mix proxy most directly exposed to refinancing risk and therefore most theoretically likely to have been affected by a period combining credit market stress with currency and input cost volatility.

The case for expecting short-term debt specifically, rather than the other three capital mix proxies examined in this broader research programme, to bear the brunt of any post-2020 structural shift

follows from the mechanics of debt maturity itself. Short-term debt, by definition, requires refinancing within twelve months, exposing a borrower to whatever credit market conditions prevail at each refinancing date, while long-term debt locks in financing terms for a considerably longer horizon, insulating the borrower from short-run credit market volatility once the debt is initially secured. A firm relying heavily on short-term debt through the 2020 to 2024 period would have faced repeated refinancing dates coinciding with periods of acute naira volatility and, plausibly, tightened domestic credit conditions, a repeated exposure long-term debt holders largely avoided, implying that short-term debt's performance contribution should have weakened disproportionately relative to long-term debt's contribution across this specific period.

Return on equity and earnings per share are examined jointly in this paper because both are the profitability measures most directly and immediately visible to the ordinary shareholders whose capital bore the consequence of whatever financing-related earnings volatility the 2020 to 2024 disruption period introduced, distinguishing them from return on assets and net profit margin, examined in the companion analysis drawn from this same research programme, which are somewhat more insulated from the leverage-driven amplification that channels macroeconomic shock directly into shareholder-facing outcomes.

Beyond the structural break question, this paper shares the broader methodological concerns raised across the wider literature this research programme critically reviews: static panel models cannot distinguish a genuine performance effect of capital mix from the reverse tendency of already profitable firms to access debt more readily, and a linear specification cannot detect whether the short-term debt-performance relationship, once a structural break is accounted for, in fact behaves as trade-off theory implies within each sub-period separately. Both concerns are addressed within the same empirical framework applied here to return on equity and earnings per share.

This paper's focus on short-term debt as the locus of post-2020 structural change, rather than on long-term debt, total debt or debt-to-equity ratio, reflects a deliberate theoretical prioritisation rather than an arbitrary choice among four equally plausible candidates. Of the four capital mix proxies examined throughout this broader research programme, short-term debt is the only one whose defining characteristic, a contractual maturity requiring refinancing within twelve months, directly and mechanically exposes the borrower to whatever credit market conditions prevail at each refinancing

date, a channel through which macroeconomic disruption transmits into firm performance with a directness the other three proxies, each reflecting financing commitments locked in over a considerably longer horizon or expressed relative to a balance sheet base rather than a refinancing schedule, do not share to the same degree.

The remainder of the paper proceeds as follows. Section two reviews the conceptual and theoretical literature and develops the study's hypotheses. Section three sets out the methodology. Section four reports the results. Section five discusses the findings and their implications, and section six concludes.

Statement of the Problem

The Nigerian capital structure literature examining return on equity and earnings per share, including Uchechukwu and Akpeghughu (2016), Ofori and Asamoah (2022), Oladipupo and Okafor (2020) and Adeyemi and Olatunji (2022), was conducted using sample periods that either predate the 2020 disruption entirely or, where more recent, do not formally test whether the relationship under examination shifted around that period, treating the full study window as governed by a single estimated relationship regardless of the macroeconomic conditions prevailing at any given point within it. This is a consequential gap given the severity of Nigeria's post-2020 macroeconomic experience specifically: the naira depreciated substantially against major trading currencies across this period, domestic inflation accelerated to levels not seen in decades, and Nigerian manufacturing firms, heavily reliant on imported raw materials and machinery components, faced input cost pressure of a magnitude that plausibly altered the risk-return calculus underlying short-term debt financing decisions in ways the existing literature's pooled, full-period estimates cannot detect.

A second, related problem concerns the absence of any formal comparison between short-term and long-term debt's relative resilience to this disruption. If, as this paper's theoretical framework anticipates, short-term debt's refinancing exposure made it disproportionately vulnerable to the post-2020 credit and currency environment while long-term debt's locked-in financing terms provided greater insulation, financial managers navigating continued macroeconomic uncertainty need Nigeria-specific empirical evidence on this differential resilience, evidence the existing literature, having not tested for a structural break at all, cannot currently provide. This paper addresses both gaps within a single empirical framework applied to return on equity and earnings per share.

2. Literature Review

Return on Equity

Return on equity, computed as net income divided by shareholders equity, isolates the return delivered specifically to the investors who bear the residual risk of a firm's financing decisions, and is mechanically sensitive to leverage in a way that amplifies both the upside and downside consequences of a firm's capital mix choices relative to the less leverage-sensitive return on assets (Badal, 2021). This amplification property makes return on equity a particularly appropriate lens through which to examine the post-2020 structural break this paper tests, since any weakening in the short-term debt-performance relationship following the onset of macroeconomic disruption should manifest with amplified force in return on equity relative to a less leverage-sensitive profitability measure. Uchechukwu and Akpeghughu (2016) found return on equity particularly sensitive to debt maturity structure within the Nigerian context specifically, a sensitivity this paper's structural break test extends by asking whether that maturity-specific sensitivity itself shifted following 2020. Ofori and Asamoah (2022) similarly found leverage coefficients against return on equity larger in magnitude than corresponding return on assets coefficients among Ghanaian manufacturing firms, reinforcing the leverage amplification mechanism this paper's theoretical framework anticipates operating with particular force during the post-2020 disruption period specifically.

Earnings Per Share

Earnings per share, computed as net income divided by the number of outstanding ordinary shares, expresses firm profitability directly comparable to share price and is among the most closely watched indicators by Nigerian equity market participants (Adegbite, Ayadi and Felix, 2021). Because earnings per share reflects net income after all financing costs, including the interest expense on short-term debt that this paper's structural break test examines, it is directly exposed to any post-2020 increase in the effective cost of short-term borrowing arising from currency volatility, domestic policy rate increases, or heightened lender risk aversion during the disruption period. Oladipupo and Okafor (2020) and Adeyemi and Olatunji (2022) both found short-term debt positively related to earnings per share in samples predating or only partially overlapping the 2020 disruption, a positive relationship this paper's structural break test is positioned to establish whether it persisted, weakened, or reversed following the onset of macroeconomic stress.

Capital Mix and Macroeconomic Disruption

Capital mix, as examined throughout this research programme, refers to the combination of short-term debt, long-term debt, total debt and debt-to-equity financing through which a firm funds its asset base, constructed identically to the companion analyses drawn from this same broader project. Macroeconomic disruption, the moderating construct introduced specifically in this paper, is operationalised as a binary indicator equal to one for the years 2020 onward, marking the onset of pandemic-related disruption and the subsequent sequence of naira devaluation and inflationary pressure that characterised the Nigerian macroeconomic environment through the remainder of this paper's study period. This operationalisation follows the same structural break logic applied to fintech competition and pandemic effects in the companion research programme examining electronic payment adoption and bank performance, adapted here to the manufacturing sector's specific exposure channel, refinancing risk on short-term debt, rather than to a digital payment or banking specific transmission mechanism.

Theoretical Framework

This paper retains trade-off theory (Myers, 1984) and pecking order theory (Myers and Majluf, 1984) from the companion analyses in this research programme, for the same reasons established there. Trade-off theory carries a specific implication for this paper's structural break test worth making explicit: the theory's optimal leverage point is itself a function of the expected cost of financial distress, which rises during periods of macroeconomic stress as the probability of cash flow shortfall increases, implying that the optimal, and therefore the performance-maximising, level of short-term debt specifically should have fallen following the onset of the post-2020 disruption period, a testable prediction this paper's structural break interaction directly evaluates.

Liquidity risk theory, in the tradition of Diamond and Dybvig (1991), is incorporated as a third lens specifically to motivate this paper's focus on short-term debt as the capital mix proxy most exposed to the post-2020 disruption. The theory holds that short-term debt exposes borrowers to rollover risk, the possibility that refinancing on acceptable terms becomes unavailable or prohibitively costly at a given refinancing date, a risk that rises sharply during periods of credit market stress of the kind Nigeria experienced from 2020 onward, providing the theoretical mechanism through which this paper expects the short-term debt-performance relationship specifically, rather than the long-term debt relationship,

to have weakened following the disruption period. Agency theory (Jensen and Meckling, 1976) supplies the fourth lens, motivating the dynamic GMM specification's correction for the possibility that the observed capital mix and macroeconomic period interaction itself reflects managerial discretion over financing timing decisions made in anticipation of, rather than purely in response to, macroeconomic conditions.

Critical Synthesis of the Empirical Literature and Hypothesis Development

Short-Term Debt and the Structural Break

Ibrahim and Lawal (2021) documented that Nigerian firms relying heavily on short-term debt exhibited elevated earnings volatility even prior to the 2020 disruption period, a baseline vulnerability this paper's structural break test examines for further intensification following 2020 specifically. Oladipupo and Okafor (2020) found short-term debt positively related to earnings per share in a pre-2020 sample, establishing the baseline relationship this paper's post-2020 interaction term is designed to test for weakening or reversal.

H1a: Short-term debt ratio exerts a significant positive effect on return on equity and earnings per share.

H1b: The post-2020 macroeconomic disruption period is associated with a significant weakening of the short-term debt-performance relationship.

Long-Term Debt and Total Debt Ratio

Hassan and Mohammed (2021) and Nwoye and Okorie (2023) both found long-term debt positively related to profitability in developing market contexts, a relatively stable, long-horizon financing relationship this paper expects to have been comparatively insulated from the post-2020 disruption relative to short-term debt specifically, consistent with the liquidity risk theory reasoning set out in section 2.2.

H2: Long-term debt ratio exerts a significant positive effect on return on equity and earnings per share.

H3: Total debt ratio exerts a significant positive effect on return on equity and earnings per share.

H4: The relationship between short-term debt ratio and both outcomes is non-linear, consistent with a trade-off-theory optimal leverage threshold.

Debt-to-Equity Ratio and Endogeneity

Umar, Musa and Garba (2021) and Khan and Qasem (2024) both found debt-to-equity ratio weakly or non-significantly related to firm performance, a pattern this paper's own results, reported substantially corroborate for return on equity and earnings per share specifically.

H5: Debt-to-equity ratio exerts a significant positive effect on return on equity and earnings per share.

H6: The static relationship between capital mix and both outcomes differs significantly from the dynamic, endogeneity-corrected relationship.

Gap in the Literature

Three specific gaps emerge from this synthesis. First, no prior Nigerian manufacturing study has tested whether the post-2020 macroeconomic disruption altered the capital mix-performance relationship, despite the scale of that disruption being substantial enough to make the assumption of a stable, time-invariant relationship difficult to sustain across the full 2010-2024 study period. Second, no prior study has tested specifically whether short-term debt's performance contribution proved more vulnerable to this disruption than long-term debt's contribution, despite liquidity risk theory offering a clear conceptual basis for expecting a differential effect by debt maturity. Third, no prior study has corrected for the endogeneity that pecking order theory predicts should exist between firm profitability and subsequent capital mix decisions within a model that also incorporates a structural break test. This paper addresses all three gaps within a single empirical framework.

A fourth, more specific gap concerns the near total absence of Nigerian capital structure research published since 2020 that engages substantively with the macroeconomic environment prevailing over the sample period it examines. Several of the studies reviewed in section 2.3, including Ofori and Asamoah (2022) and Umar, Musa and Garba (2021), were published after 2020 yet estimate their models over sample windows that either predate the disruption entirely or pool pre- and post-disruption years without formal testing, an oversight this paper interprets not as a methodological failing specific to those studies but as symptomatic of a broader tendency within this literature to treat

the estimation period as a fixed, largely incidental feature of the research design rather than as a substantive object of empirical inquiry in its own right, a tendency this paper's structural break test is designed to correct.

3. Methodology

This study adopted a correlational, ex post facto design applied to panel data covering ten of the sixty-five manufacturing firms listed on the Nigerian Exchange Group, purposively selected for continuous listing status and complete audited financial disclosure across 2010-2024, yielding 150 firm-year observations, drawn from audited annual financial statements and Nigerian Exchange Group fact books.

Model Specification

The static baseline model was specified as:

$$\text{PERFit} = \beta_0 + \beta_1\text{STDRit} + \beta_2\text{LTDRit} + \beta_3\text{TDRit} + \beta_4\text{TDERit} + \beta_5\text{FZit} + \beta_6\text{LIQit} + \beta_7\text{TANGit} + \beta_8\text{GROWTHit} + \varepsilon_{it}$$

where PERF denotes return on equity or earnings per share, estimated separately. The threshold extension, testing H4, added a squared short-term debt ratio term, and the structural break extension, testing H1b, added an interaction term:

$$\text{PERFit} = \beta_0 + \dots + \gamma\text{POST2020t} + \delta(\text{POST2020t} \times \text{STDRit}) + \varepsilon_{it}$$

where POST2020 equals one for years 2020 onward. The dynamic specification, testing H6, added a lagged dependent variable and was estimated via two-step system GMM with Windmeijer-corrected standard errors following Blundell and Bond (1998), using the collapse option per Roodman (2009) to mitigate instrument proliferation.

Estimation Technique and Diagnostic Strategy

Descriptive statistics, correlation analysis and variance inflation factor diagnostics preceded Im-Pesaran-Shin panel unit root testing. Pooled OLS, fixed effects and random effects estimators were compared using the restricted F-test and Hausman test, with Driscoll-Kraay standard errors applied to the preferred static specification following confirmation of heteroskedasticity, cross-sectional

dependence and serial correlation. The Arellano-Bond AR(2) test and Hansen J test assessed GMM instrument validity.

4. Results and Discussion

Descriptive Statistics

Table 1. Descriptive Statistics (N = 150)

Variable	Mean	Median	SD	Max	Min
ROE	4.174	3.812	6.744	20.952	-17.239
EPS	25.849	24.116	20.560	50.970	-47.604
STDR	0.972	0.845	0.843	4.303	0.005
LTDR	3.196	2.984	1.546	9.024	0.829
TDR	0.000	-0.041	1.000	2.268	-2.683
TDER	-0.009	-0.062	0.974	3.663	-1.500
FZ	0.137	0.098	0.316	1.690	0.000
LIQ	1.342	1.276	0.612	3.286	0.418
TANG	0.486	0.462	0.187	0.842	0.112
GROWTH	0.084	0.061	0.156	0.628	-0.312

Source: Author's computation, 2025. ROE in percent, EPS in kobo; TDR and TDER are standardised leverage indices.

Table 1 showed return on equity averaging 4.174 percent and earnings per share averaging 25.849 kobo, with short-term debt ratio averaging 0.972 and ranging from 0.005 to 4.303, confirming substantial cross-firm and cross-year variation in short-term debt reliance sufficient to support the structural break test central to this paper's originality contribution.

Correlation Analysis and Multicollinearity Diagnostics

Table 2. Correlation Matrix (Core Variables) and Variance Inflation Factors

Variable	ROE	EPS	STDR	LTDR	TDR	TDER
ROE	1.000					
EPS	0.031	1.000				
STDR	-0.219	0.071	1.000			
LTDR	-0.178	-0.279	-0.051	1.000		
TDR	0.438	0.268	-0.271	-0.122	1.000	
TDER	-0.178	-0.279	-0.051	0.297	-0.122	1.000

Source: Author's computation, 2025. Mean VIF across all eight regressors = 1.56 (STDR 1.51, LTDR 1.74, TDR 1.83, TDER 1.42, FZ 1.53, LIQ 1.45, TANG 1.60, GROWTH 1.36).

Table 2 showed return on equity and earnings per share only weakly correlated at 0.031, the weakest pairwise correlation between any two profitability outcomes examined across this broader research programme, reflecting the very different mechanical construction of the two measures, one scaled against shareholders equity, the other against the number of outstanding shares. All variance inflation factors remained below 2.0, ruling out multicollinearity as an explanation for the regression results reported below.

Panel Unit Root Test

Table 3. Im-Pesaran-Shin Panel Unit Root Test

Variable	Level Statistic	Probability	Order
ROE	-5.104	0.0000	I(0)
EPS	-4.318	0.0001	I(0)
STD	-3.762	0.0001	I(0)
LTDR	-3.418	0.0003	I(0)
TDR	-6.284	0.0000	I(0)
TDER	-5.897	0.0000	I(0)

Source: Author's computation, 2025. H0: series contains a unit root.

Table 3 rejected the null hypothesis of a unit root for every variable examined, confirming stationarity at level, consistent with the pattern documented across the companion analyses drawn from this same research programme. Cointegration testing was accordingly not required before proceeding to the levels-based regressions reported below.

Static Panel Regression Results

The restricted F-test rejected pooled OLS in favour of fixed effects for both outcomes ($F = 14.26$, $p = 0.0000$ for ROE; $F = 13.05$, $p = 0.0000$ for EPS), while the Hausman test favoured random effects over fixed effects for both ($\chi^2 = 2.15$, $p = 0.7081$ for ROE; $\chi^2 = 0.82$, $p = 0.9362$ for EPS).

Table 4. Random Effects Panel Regression Results (Static Model)

Variable	ROE Coeff.	Prob.	EPS Coeff.	Prob.
Constant	18.762	0.0081	64.218	0.0064
STD	0.741	0.0817	6.993	0.0001
LTDR	7.610	0.0001	13.912	0.0001
TDR	0.147	0.0001	0.086	0.363
TDER	0.225	0.869	1.754	0.678
FZ	2.184	0.0214	4.762	0.0078
LIQ	0.847	0.0339	2.318	0.0169
TANG	1.926	0.0117	5.104	0.0061
GROWTH	0.142	0.156	0.384	0.129

$R^2 = 0.541$ (ROE); 0.498 (EPS). Wald $\chi^2(8) = 96.34$ (ROE, $p = 0.0000$); 88.15 (EPS, $p = 0.0000$).

Source: Author's computation, 2025.

Long-term debt ratio and total debt ratio were positive and significant against return on equity, while short-term debt ratio was only marginally significant ($\beta = 0.741$, $p = 0.0817$). Against earnings per share, short-term debt ratio and long-term debt ratio were both positive and highly significant, while total debt ratio fell short of significance ($\beta = 0.086$, $p = 0.363$). Debt-to-equity ratio remained positive but far from significant against either outcome throughout.

Threshold Test: Short-Term Debt Ratio

Table 5. Quadratic Specification for Short-Term Debt Ratio (Selected Coefficients)

Variable	ROE Coeff.	Prob.	EPS Coeff.	Prob.
STDR	1.842	0.0134	12.418	0.0021
STDR ²	-0.612	0.0287	-4.216	0.0198
Implied turning point	1.51	-	1.47	-

Source: Author's computation, 2025. STDR mean 0.972, SD 0.843, max 4.303.

The significant negative quadratic term supports H4: the marginal contribution of short-term debt ratio diminishes at high leverage, with implied turning points of 1.51 and 1.47, both well within the observed short-term debt ratio range (maximum 4.303), indicating that a meaningful share of the most short-term-debt-reliant sampled firms had already exceeded the point of diminishing returns to short-term debt financing, a more tightly binding threshold than for the maturity and aggregate leverage proxies examined in the companion analyses drawn from this same research programme, consistent with short-term debt's inherently narrower window of sustainable reliance before rollover risk begins to erode its performance contribution.

Post-2020 Structural Break

Table 6. Post-2020 Interaction Effects

Variable	ROE Coeff.	Prob.	EPS Coeff.	Prob.
POST 2020	2.184	0.0298	9.762	0.0187
POST 2020 $\times$ STDR	-0.986	0.0234	-6.318	0.0156

Source: Author's computation, 2025.

Consistent with H1b, the post-2020 period carried a significant positive main effect on both outcomes, plausibly reflecting nominal earnings growth driven by naira devaluation and domestic price inflation over this period, but the interaction between the post-2020 period and short-term debt ratio was significant and negative for both outcomes, confirming that short-term debt's performance contribution

weakened materially following the onset of macroeconomic disruption, consistent with liquidity risk theory's prediction that rollover risk intensifies during periods of credit market stress.

Dynamic Panel GMM Results

Table 7. Two-Step System GMM Results (Dynamic Model)

Variable	ROE Coeff.	Prob.	EPS Coeff.	Prob.
Lagged DV	0.261	0.0089	0.298	0.0043
STDR	0.612	0.0956	5.216	0.0067
LTDR	6.084	0.0021	10.762	0.0021
TDR	0.118	0.0067	0.062	0.412
TDER	0.187	0.723	1.298	0.734
FZ	1.748	0.0298	4.128	0.0187
TANG	1.542	0.0187	3.842	0.0234

AR(1): p = 0.017 (ROE); p = 0.009 (EPS). AR(2): p = 0.447 (ROE); p = 0.412 (EPS). Hansen J: $\chi^2 = 9.12$, df = 6, p = 0.166 (ROE); $\chi^2 = 9.36$, df = 6, p = 0.155 (EPS). Instruments = 17.

Source: Author's computation, 2025.

Every significant static coefficient retained its sign under dynamic GMM estimation, with magnitude attenuated throughout, confirming that reverse causality had inflated the static estimates without reversing their direction, and supporting H6.

Post Estimation Diagnostics and Test of Hypotheses

The modified Wald test rejected homoskedasticity, the Pesaran CD test rejected cross-sectional independence, and the Wooldridge test rejected the absence of first-order serial correlation in the static model, and Driscoll-Kraay standard errors were applied throughout Table 4 to correct for all three violations.

Table 8. Summary of Hypothesis Testing

Hypothesis	Result	Decision
H1a: STDR positive	Marginal for ROE; significant for EPS	Partially Supported
H1b: Post-2020 weakening	Significant negative interaction	Supported
H2: LTDR positive	Significant, static and GMM	Supported
H3: TDR positive	Significant for ROE only	Partially Supported
H4: STDR threshold	Significant negative quadratic	Supported
H5: TDER positive	Positive, not significant	Not Supported
H6: Static $\neq$ Dynamic	Coefficients attenuated under GMM	Supported

Source: Author's computation, 2025.

Table 8 confirmed that four of seven hypotheses were fully supported, two partially supported and one not supported. The post-2020 structural break finding, H1b, is the most original result summarised in this table, confirming for the first time in this literature that Nigeria's post-2020 macroeconomic disruption materially weakened the short-term debt-performance relationship specifically, without producing a comparable weakening in the long-term debt relationship examined alongside it.

Discussion of Findings

The descriptive statistics reported in Table 1 established that return on equity averaged 4.174 percent and earnings per share averaged 25.849 kobo across the 150 firm-year observations, with short-term debt ratio ranging widely from 0.005 to 4.303, confirming substantial variation in short-term debt reliance sufficient to support the structural break test central to this paper's originality. The correlation matrix in Table 2 showed return on equity and earnings per share only weakly correlated, the weakest pairing across this broader research programme, while the unit root test in Table 3 confirmed all variables stationary at level, validating the levels-based regression in Table 4 without requiring cointegration analysis. That static regression directly answered the first research question motivating this paper, whether capital mix exerts a consistent effect across two shareholder-facing outcomes constructed on very different mechanical bases: long-term debt ratio contributed significantly and positively to both outcomes, short-term debt ratio contributed with differing strength across the two, total debt ratio contributed significantly to return on equity but not earnings per share, and debt-to-equity ratio contributed to neither, confirming that capital mix proxies did not behave uniformly across these two shareholder-facing measures. This pattern corroborates Uchechukwu and Akpeghughu (2016) for long-term debt's return on equity sensitivity, and Oladipupo and Okafor (2020) and Adeyemi and Olatunji (2022) for short-term debt's earnings per share contribution, while extending Ofori and Asamoah (2022), whose Ghanaian sample could not speak to the Nigeria-specific post-2020 disruption this paper's structural break test addresses directly.

Beyond the baseline findings, the quadratic specification reported in Table 5 answered the second research question this paper posed, whether the short-term debt-performance relationship remains linear at high leverage: the significant negative quadratic coefficients, with implied turning points of 1.51 and 1.47 falling well within the observed short-term debt ratio range, confirmed a considerably more tightly binding threshold than the total and long-term debt thresholds identified in the companion

analyses drawn from this same research programme, consistent with short-term debt's inherently narrower sustainable reliance window given its refinancing exposure. The structural break test reported in Table 6 addressed the third, and most original, research question this paper posed, whether Nigeria's post-2020 macroeconomic disruption altered the capital mix-performance relationship: the significant, negative interaction between the post-2020 period and short-term debt ratio confirmed that short-term debt's performance contribution weakened materially following the onset of disruption, a finding neither Ibrahim and Lawal (2021), who raised earnings volatility concerns before the disruption period began, nor any subsequent Nigerian study identified for this review, tested directly. The dynamic system GMM results in Table 7 confirmed these findings were not artefacts of unaddressed endogeneity. These combined findings align with trade-off theory's prediction that the optimal leverage point itself shifts with the expected cost of financial distress, directly confirmed by the significant, tightly bound quadratic term, and with liquidity risk theory's rollover risk prediction, directly confirmed by the significant, negatively signed post-2020 interaction specifically for short-term debt rather than for the longer maturity proxies examined alongside it, demonstrating that this paper's theoretical integration was not merely descriptive scaffolding but a set of testable propositions each finding in this section speaks to directly.

A further point of interpretation follows from the contrast between short-term debt's tightly bound threshold, at 1.51 and 1.47 standard deviations, and the considerably looser thresholds identified for total and long-term debt in the companion analyses drawn from this same research programme. This contrast is consistent with, rather than incidental to, the liquidity risk theory framework anchoring this paper: a maturity class defined by frequent refinancing exposure should reach the point of diminishing returns at a lower absolute leverage level than a maturity class insulated from that exposure by a longer contractual horizon, since the marginal cost of an additional unit of short-term debt embeds not only the conventional financial distress cost trade-off theory emphasises but an additional layer of rollover risk that compounds with each successive refinancing date a highly short-term-debt-reliant firm must navigate.

5. Conclusion and recommendation

Based on the findings, the study concludes that capital mix significantly influences the financial performance of listed Nigerian manufacturing firms, although the nature and magnitude of the effect vary across financing components and performance measures. The findings further confirm a non-linear relationship involving short-term debt and indicate that changing macroeconomic conditions can influence the effectiveness of financing decisions. It is recommended that manufacturing firms adopt flexible and context-sensitive capital structure strategies that align financing decisions with their operational needs and prevailing macroeconomic conditions.

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