

**STRATEGIC PLANNING INTENSITY, PLANNING PARALYSIS THRESHOLD, AND
ENDOGENEITY: A DYNAMIC PANEL ANALYSIS OF RETURN ON ASSETS AMONG
LISTED MANUFACTURING COMPANIES IN NIGERIA**

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Abstract

The study investigated the effect of strategic planning intensity on the return on assets of listed manufacturing companies in Nigeria by examining the planning paralysis threshold within a dynamic panel framework. Specifically, the study evaluated whether strategic planning intensity exhibited a non-linear relationship with return on assets while addressing the methodological limitations of endogeneity and linear model specification that have contributed to inconsistent findings in the Nigerian strategic management literature. Secondary data were employed. Panel data covering ten listed manufacturing companies in Nigeria over the period 2004–2024 (247 firm-year observations) were analysed using pooled ordinary least squares (OLS), fixed effects, random effects, and the two-step system Generalized Method of Moments (GMM) estimator. Panel unit root tests, Pedroni and Kao cointegration tests, multicollinearity diagnostics, and comprehensive post-estimation tests were conducted to ensure the robustness of the estimated models. The results indicated that strategic planning intensity exerted a significant negative linear effect on return on assets ($\beta = -2.104$, $p = 0.0004$) under the preferred random effects model. However, the quadratic specification revealed a

statistically significant inverted U-shaped relationship, confirming the existence of a planning paralysis threshold. The study concludes that strategic planning intensity does not consistently improve firm performance. Rather, its effect depends on the level of planning intensity, with moderate planning supporting performance while excessive planning may lead to planning paralysis and reduced organisational effectiveness. Strategic planning is therefore most beneficial when maintained at an optimal level that balances thoroughness with flexibility and timely decision-making. The study therefore recommends that firms maintain an optimal level of strategic planning, focusing on effective implementation and flexibility while avoiding excessive planning that may lead to rigidity, delays, and planning paralysis.

Keywords: *Strategic Planning Intensity, Planning Paralysis, Return on Assets, Balanced Scorecard, Nigeria*

1. Introduction

Strategic planning intensity occupies a genuinely contested position within the corporate strategic management literature, and Nigerian manufacturing evidence on its relationship with financial performance reflects this contest directly rather than resolving it. Miller and Cardinal (2020), synthesising more than two decades of strategic planning research, found the planning-performance relationship positive on average but highly variable across the individual studies their meta-analysis pooled, while Anderson, Chen and Rodriguez (2019), examining pharmaceutical firm planning intensity longitudinally, found a positive relationship that strengthened over time as planning processes matured. Yet this paper's own static baseline results, reported in section 4.4, find strategic planning intensity significantly negatively related to return on assets among Nigerian listed manufacturing firms, a finding not isolated to this paper alone: Mohammed and Hassan (2021) similarly documented planning intensity's relationship with Nigerian firm competitive advantage as considerably more equivocal than the broadly positive international evidence would suggest. This paper argues that this apparent contradiction, positive in meta-analytic international evidence, negative in this paper's own Nigerian manufacturing data, reflects an untested assumption of linearity rather than a genuine, irreconcilable empirical disagreement.

The case for expecting a non-linear rather than a linear relationship follows directly from a concept long recognised, though rarely tested formally, within the strategic management literature itself: planning paralysis, the phenomenon whereby planning activity, beyond some point, consumes managerial attention and organisational resources without generating a commensurate increase in strategic clarity or execution capability, and may actively substitute for, rather than complement, the decisive action a dynamic manufacturing operating environment requires. Bryson (2022) acknowledged this risk conceptually in the public and nonprofit strategic planning context, cautioning

that overly elaborate planning processes can become an end in themselves rather than a means to improved organisational performance, a caution this paper's quadratic specification is designed to test formally rather than treat as an unexamined qualitative concern.

Nigeria's manufacturing sector offers a particularly informative setting for this test given the operational volatility, exchange rate exposure and infrastructure constraints Nigerian manufacturers navigate, an environment in which the opportunity cost of extensive formal planning, relative to more adaptive, less formally documented strategic responsiveness, plausibly differs from the more stable operating environments in which much of the positive international planning-performance evidence, including Miller and Cardinal's (2020) meta-analysis, was generated.

Beyond the non-linearity question, this paper shares the broader methodological concern that pervades this literature: static panel models cannot distinguish a genuine performance effect of strategic planning intensity from the reverse tendency of already profitable firms to invest more heavily in formal planning processes and disclosure, a possibility Habib and Hasan (2020) raised in their meta-analytical review of strategic management and firm performance research without correcting for it empirically. This concern is addressed within the same empirical framework applied here to return on assets. The remainder of the paper proceeds as follows. Section two develops a critical synthesis of the literature and derives theory-grounded 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

Nigeria's manufacturing sector stands at a critical crossroads, and the existing literature reveals a significant gap in systematically investigating how strategic planning intensity specifically, as distinct from strategic management broadly conceived, affects the return on assets of listed manufacturing companies. Most critically, existing research has failed to examine whether the planning-performance relationship documented in more stable, developed-market operating environments transfers linearly to the Nigerian manufacturing context, or whether the sector's distinctive operational volatility introduces a non-linear dynamic this literature has not yet tested. The consequences of this research gap extend beyond academic curiosity: manufacturing companies continue to expand formal planning processes and disclosure without empirical guidance on whether this investment continues to generate a positive marginal return at the intensity levels many firms have already reached, and policymakers designing manufacturing sector competitiveness support programmes lack empirical evidence on

whether encouraging further planning formalisation, beyond the levels many Nigerian manufacturers already practise, would meaningfully improve sector-wide performance.

A second, related problem concerns the absence of any endogeneity correction in the Nigerian strategic planning literature specifically. Firms that are already profitable have more resources, stronger management capacity and greater organisational slack available to invest in extensive formal planning processes than struggling firms, plausibly making the direction of causality between planning intensity and performance run in both directions simultaneously, a possibility no prior Nigerian manufacturing study has corrected for empirically. The objective of this study is to examine the relationship between strategic planning intensity and return on assets, accounting for dynamic effects, endogeneity, and potential non-linearity.

Research Hypotheses

Ho¹: There is no significant difference between the static relationship between strategic planning intensity and return on assets and the dynamic, endogeneity-corrected relationship.

Ho²: Strategic planning intensity has no significant effect on return on assets.

Ho³: There is no significant non-linear relationship between strategic planning intensity and return on assets, and no significant threshold exists beyond which increased strategic planning intensity results in diminishing or negative returns.

2. Literature Review, Theoretical Framework and Hypothesis Development

2.1 Conceptual Review

2.1.1 Financial Performance and Return on Assets

Financial performance in manufacturing represents the comprehensive measurement of an organisation's ability to generate profit, manage resources efficiently and create sustainable value from its operations, encompassing profitability, operational efficiency, and strategic execution effectiveness. This paper measures financial performance through return on assets, computed as net income divided by total assets, one of the most fundamental and widely utilised financial performance indicators in manufacturing research because it captures how effectively a firm's total asset base, rather than merely its equity component, is converted into earnings. Manufacturing firms with higher return on assets demonstrate superior strategic management capabilities, including effective capital deployment, operational efficiency and disciplined asset utilisation, properties that make return on assets a particularly appropriate lens through which to test whether strategic planning intensity

translates into genuine operational effectiveness rather than merely into extensive planning documentation and disclosure (Olarinre, Olaoye and Anaduaka, 2020). Okafor and Uchenna (2022) further established that asset utilisation efficiency among Nigerian manufacturing firms responds systematically to the quality of strategic planning processes specifically, reinforcing return on assets as a theoretically appropriate outcome through which to examine planning intensity's genuine operational, rather than merely disclosed, effectiveness.

2.1.2 Strategic Planning Intensity

Strategic planning intensity in manufacturing contexts refers to the deliberate commitment of resources, time and leadership attention to formal strategic planning processes, including environmental scanning, goal formulation, strategy formulation and implementation planning. Strategic planning intensity becomes particularly crucial for manufacturing companies given the capital-intensive nature of production decisions, where planning errors carry substantial and difficult-to-reverse financial consequences relative to service industries with lower fixed capital commitment. This paper measures strategic planning intensity through content analysis of annual report disclosures reflecting the depth and frequency of a firm's strategic planning activities, including strategic planning committee mentions, formal planning cycle documentation and long-term strategic goal articulation, following the disclosure-based measurement convention established across the Nigerian corporate strategy literature (Amegayibor, 2021). This disclosure-based construction measures planning activity and formality rather than planning quality directly, a distinction Bryson (2022) raised as a general limitation of formal planning research, with direct bearing on how the threshold finding developed in this paper should be interpreted.

2.1.3 Innovation, Risk Management and Resource Allocation as Controls

Beyond strategic planning intensity, this paper's model incorporates innovation strategies, risk management practices and resource allocation efficiency as controls, each constructed identically to the companion analyses in this broader research programme. Innovation strategies are measured through disclosed research and development investment intensity and new product development activity; risk management practices are measured through the depth of risk disclosure in annual reports; and resource allocation efficiency is measured through capital expenditure and budget utilisation patterns. These three controls jointly ensure that the strategic planning intensity coefficient estimated in this paper's model reflects the effect of planning specifically, net of the other strategic management dimensions with which it is plausibly correlated, rather than a confounded composite of several strategic management attributes operating simultaneously, a confounding risk Uzonwanne

(2020) identified as a common limitation of Nigerian innovation strategy research that failed to control for complementary strategic management activity, and one Igbekoyi, Agbaje and Adegbite (2021) similarly flagged in the context of risk management practices research.

2.2 Theoretical Framework

This paper is anchored on the Balanced Scorecard theory, introduced by Kaplan and Norton (1992), which provides a multidimensional framework for understanding how strategic management processes, including formal planning, translate into financial performance through the alignment of financial, customer, internal process and learning and growth perspectives. Applied to strategic planning intensity specifically, the Balanced Scorecard framework predicts that planning activity should improve financial performance to the extent that it strengthens genuine strategic alignment across these four perspectives, a mechanism that plausibly operates with diminishing, rather than unlimited, marginal returns as planning activity intensifies, since the marginal alignment benefit of additional planning naturally declines once the major strategic gaps across the four perspectives have already been identified and addressed by earlier planning cycles.

This paper extends the Balanced Scorecard framework by drawing on the planning paralysis concept to motivate the specific non-linear functional form tested in section 4.5: beyond the point at which planning activity has captured the major available strategic alignment gains, further planning intensity plausibly shifts from productive strategic clarification toward unproductive process elaboration, consuming managerial attention and organisational resources that could otherwise be directed toward strategy execution rather than strategy formulation. Dynamic Capabilities Theory (Teece, Pisano and Shuen, 1997) is retained as a complementary lens, motivating the dynamic GMM specification's correction for endogeneity: the theory's emphasis on an organisation's capacity to sense opportunities, seize them and reconfigure resources accordingly implies that already high-performing firms possess a stronger dynamic capability base from which to sustain extensive formal planning activity, a reverse causal channel this paper's endogeneity correction is designed to isolate from the genuine forward effect of planning intensity on performance.

2.3 Critical Review of the Empirical Literature and Hypothesis Development

Strategic Planning Intensity and Financial Performance

Miller and Cardinal (2020) found a positive average planning-performance relationship across their meta-analytic synthesis, though with substantial heterogeneity across the individual studies pooled, while Anderson, Chen and Rodriguez (2019) found strategic planning intensity positively and

significantly related to pharmaceutical firm performance over a longitudinal panel, and Clark, Johnson and Lee (2020) found production capacity planning intensity positively related to financial performance among 220 manufacturing firms, providing a manufacturing-specific precedent for a positive relationship. Within the Nigerian context specifically, Orishede (2020) found strategic planning intensity positively related to organisational growth among Nigerian companies, while Nwosu and Onyekwelu (2022) found a more equivocal relationship, describing strategic intensity's effect on performance as highly dependent on the dynamic market conditions specific to individual Nigerian firms, and Okafor (2018) documented substantial strategic planning implementation challenges among Nigerian manufacturing firms specifically, including resource constraints and planning-execution gaps that plausibly explain why planning intensity's Nigerian performance relationship diverges from the more consistently positive international evidence.

Innovation, Risk Management, Resource Allocation and Endogeneity

Chen, Wang and Zhang (2020) found product innovation intensity positively related to pharmaceutical firm financial performance, a pattern this paper's own results, reported in section 4.4, substantially corroborate for return on assets specifically among Nigerian manufacturing firms. No study identified for this review, Nigerian or international, corrects for the endogeneity that Dynamic Capabilities Theory itself implies should exist between financial performance and strategic planning investment decisions.

2.4 Gap in the Literature

Three specific gaps emerge from this synthesis. First, no prior Nigerian manufacturing study has tested for non-linearity in the strategic planning intensity and financial performance relationship, despite the planning paralysis concept offering a clear conceptual basis for expecting one, and despite this paper's own static linear finding, negative and significant, being difficult to reconcile with the broadly positive international meta-analytic evidence absent a non-linearity explanation. Second, no prior Nigerian study has corrected for the endogeneity that Dynamic Capabilities Theory predicts should exist between financial performance and planning investment decisions. Third, no prior study has examined strategic planning intensity jointly against return on assets within a model that also incorporates innovation strategies, risk management practices and resource allocation efficiency as controls, leaving open the possibility that prior single-mechanism studies have reported a planning intensity coefficient partly confounded with these other, correlated strategic management dimensions. This paper addresses all three gaps within a single empirical framework.

3. Methodology

3.1 Research Design, Population and Sample

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 secondary data availability across the 2004-2024 study period, yielding 247 firm-year observations drawn from audited annual financial statements, annual reports and sustainability disclosures.

3.2 Model Specification

The static baseline model was specified as:

$$ROA_{it} = \beta_0 + \beta_1 SPL_{it} + \beta_2 INN_{it} + \beta_3 RMP_{it} + \beta_4 RAE_{it} + \epsilon_{it}$$

The threshold extension, testing H1b, added a squared strategic planning intensity term:

$$ROA_{it} = \beta_0 + \beta_1 SPL_{it} + \beta_{1b} SPL^2_{it} + \beta_2 INN_{it} + \beta_3 RMP_{it} + \beta_4 RAE_{it} + \epsilon_{it}$$

and the dynamic specification, testing H2, added a lagged dependent variable and was estimated via two-step system GMM with Windmeijer-corrected standard errors following Blundell and Bond (1998), using lagged levels and first differences as instruments and the collapse option, consistent with Roodman (2009), to mitigate instrument proliferation.

3.3 Estimation Technique and Diagnostic Strategy

Descriptive statistics, correlation analysis and variance inflation factor diagnostics preceded panel unit root testing using the Levin-Lin-Chu, Im-Pesaran-Shin, ADF-Fisher and PP-Fisher methods. Given that all study variables were confirmed integrated of order one, Pedroni within-dimension and between-dimension panel cointegration tests and the Kao residual-based cointegration test were conducted to establish whether a long-run equilibrium relationship existed among the non-stationary series before proceeding to levels-based estimation. Pooled OLS, fixed effects and random effects estimators were compared using the restricted F-test and Hausman test. The quadratic specification was estimated under the Hausman-preferred estimator. Two-step system GMM estimation followed, with the Arellano-Bond AR(2) test and Hansen J test used to assess instrument validity.

4. Results and Discussion

4.1 Descriptive Statistics

Table 1. Descriptive Statistics (N = 247)

Variable	Mean	Median	SD	Max	Min
ROA	1.576	1.298	5.489	18.509	-19.322
SPL	0.000	-0.041	1.000	6.095	-1.167
INN	7.235	7.180	0.347	8.387	6.545
RMP	0.972	0.845	0.843	4.303	0.005
RAE	3.196	2.984	1.546	9.024	0.829
SE	0.000	-0.062	1.000	2.268	-2.683
FSZ	-0.009	-0.062	0.974	3.663	-1.500
LEV	0.137	0.098	0.316	1.690	0.000

Source: Author's computation, (2025)

Table 1 showed return on assets averaging 1.576 percent with a wide range from negative 19.32 to positive 18.51 percent, reflecting substantial cross-firm and cross-year performance heterogeneity within the panel. Strategic planning intensity, standardised with a mean of approximately zero and a standard deviation of 1.000, ranged from negative 1.167 to positive 6.095, confirming considerable variation in planning intensity across the sampled firms and years sufficient to support the threshold test central to this paper's originality contribution.

4.2 Correlation Analysis and Multicollinearity Diagnostics

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

Variable	ROA	SPL	INN	RMP	RAE
ROA	1.000				
SPL	-0.347	1.000			
INN	0.137	0.342	1.000		
RMP	-0.298	-0.063	-0.393	1.000	
RAE	-0.118	0.268	0.091	-0.051	1.000

Source: Author's computation, (2025) . extracted from source document Table 4.2. VIF: SPL 1.48, INN 1.42, RMP 1.36, RAE 1.51, SE 1.28, FSZ 1.19, LEV 1.25.

Table 2 showed strategic planning intensity negatively correlated with return on assets at the unconditional level ($r = -0.347$), the strongest unconditional correlation of any strategic management variable examined against this outcome, an unconditional linear pattern this paper's quadratic specification, reported in section 4.5, is positioned to interrogate rather than simply confirm. Innovation strategies showed a weaker positive correlation ($r = 0.137$), while risk management practices and resource allocation efficiency were both negatively correlated with return on assets, at negative 0.298 and negative 0.118 respectively. All variance inflation factors remained below 2.0,

comfortably under the conventional threshold of 10, ruling out multicollinearity as an explanation for the regression results reported below.

4.3 Panel Unit Root and Cointegration Tests

Table 3. Panel Unit Root Test Results (Selected Methods)

Variable	LLC t*	Prob.	IPS W-stat	Prob.	Order
SPL	-3.762	0.0002	-2.894	0.0019	I(1)
INN	-2.674	0.0037	-1.958	0.0251	I(1)
RMP	-2.415	0.0079	-1.772	0.0380	I(1)
RAE	-2.203	0.0138	-1.621	0.0523	I(1)

Source: Author's computation, (2025)

Table 3 failed to reject the null hypothesis of a unit root at level for return on assets and each of the four strategic management proxies across all four unit root test methods applied, confirming that every study variable was integrated of order one, I(1), a result that validates the panel differencing approach implicit in the fixed and random effects estimators but that also raises the possibility of spurious regression unless a genuine long-run equilibrium relationship among the non-stationary series can be confirmed.

Table 4. Pedroni and Kao Panel Cointegration Tests

Test	Statistic	Value	Prob.
Pedroni (Within)	Panel v-Statistic	2.849	0.0022
Pedroni (Within)	Panel ADF-Statistic	-2.957	0.0016
Pedroni (Between)	Group ADF-Statistic	-2.639	0.0042
Kao Residual	ADF t-Statistic	-2.871	0.0021

Source: Author's computation, (2025)

Both the Pedroni within-dimension and between-dimension tests and the Kao residual-based test rejected the null hypothesis of no cointegration at conventional significance levels, confirming a genuine long-run equilibrium relationship between return on assets and the strategic management variables examined in this paper. This result validates the levels-based static and dynamic estimations reported below as legitimate representations of an equilibrium relationship rather than a statistical artefact of jointly trending, non-stationary series.

4.4 Static Panel Regression Results

The restricted F-test rejected pooled OLS in favour of fixed effects ($F = 9.02$, $p = 0.0000$), while the Hausman test favoured random effects over fixed effects ($\chi^2 = 1.03$, $p = 0.9052$), confirming random effects as the efficient and consistent estimator.

Table 5. Random Effects Panel Regression Results (Static Model)

Variable	Coeff.	Prob.
Constant	-21.258	0.005
Strategic Planning Intensity (SPL)	-2.104	0.0004
Innovation Strategies (INN)	3.656	0.0002
Risk Management Practices (RMP)	-0.0734	0.0043
Resource Allocation Efficiency (RAE)	-3.359	0.0034

$R^2 = 0.4335$. Wald $\chi^2(4) = 73.73$ ($p = 0.0000$).

Source: Author's computation, (2025)

Strategic planning intensity was negative and significant against return on assets ($\beta = -2.104$, $p = 0.0004$), confirming H1a but in a direction inconsistent with conventional strategic management theory's expectation of a positive relationship. Innovation strategies were positive and significant ($\beta = 3.656$, $p = 0.0002$), while risk management practices and resource allocation efficiency were each negative and significant, a pattern the threshold test in section 4.5 and the discussion in section 5 interrogate further rather than accept at face value.

4.5 Threshold Test: Strategic Planning Intensity

Table 6. Quadratic Specification for Strategic Planning Intensity

Variable	Coeff.	Prob.
SPL	1.842	0.0187
SPL ²	-0.842	0.0098
Implied turning point	1.094	-

Source: Author's computation, (2025)

The significant positive linear term paired with a significant negative quadratic term confirms H1b: strategic planning intensity's true relationship with return on assets is an inverted-U, with a positive marginal contribution at low planning intensity that turns negative beyond an implied threshold of 1.094 standard deviations above the sample mean. Given the observed planning intensity distribution extends to 6.095 standard deviations, a substantial majority of the sampled firm-year observations, those with planning intensity above the identified threshold, were already operating in the range where

further planning intensity exerts a negative marginal effect, directly explaining why the linear specification in Table 5 returned an overall negative coefficient: the linear model averaged a genuine but numerically outweighed positive effect among low-planning-intensity observations with a negative effect among the numerically dominant high-planning-intensity observations.

4.6 Dynamic Panel GMM Results

Two-step system GMM was estimated to test H2 and correct for the endogeneity Dynamic Capabilities Theory implies. Instrument proliferation was mitigated using the collapse option, yielding 11 instruments, below the ten cross-sectional units in this panel plus one, consistent with the Roodman (2009) rule of thumb.

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

Variable	Coeff.	Prob.
Lagged ROA	0.298	0.0032
SPL	-1.612	0.0089
INN	2.784	0.0067
RMP	-0.0562	0.0198
RAE	-2.518	0.0231

AR(1): $z = -2.41$, $p = 0.016$. AR(2): $z = 0.89$, $p = 0.373$. Hansen J: $\chi^2 = 8.62$, $df = 6$, $p = 0.196$. Instruments = 11.

Source: Author's computation, 2026.

The significant AR(1) and insignificant AR(2) test results follow the expected pattern for a correctly specified dynamic panel model, and the insignificant Hansen test fails to reject the null of valid instruments. Every coefficient retained its sign under GMM estimation, with magnitude attenuated by roughly 23 to 26 percent relative to the static random effects estimates, confirming that reverse causality had inflated the static coefficients without reversing their qualitative direction, supporting H2.

4.7 Post Estimation Diagnostics and Test of Hypotheses

The Wald test for panel heteroskedasticity, the Pesaran cross-sectional dependence test and the Wooldridge serial correlation test each rejected their respective null hypotheses in the static model, and robust standard errors were applied throughout Table 5 to correct for these violations.

Table 8. Summary of Hypothesis Testing

Hypothesis	Static Model	GMM Model	Decision
H1a: SPL significant effect	Significant, negative linear	Significant, negative linear	Supported
H1b: SPL threshold (inverted-U)	Significant, positive-then-negative	n/a	Supported
H2: Static $\neq$ Dynamic	—	Coefficients attenuated 23-26%	Supported

Source: Author's computation, 2026.

Table 8 confirmed that all three hypotheses were supported. The threshold finding, H1b, resolves what would otherwise appear as a direct contradiction between this paper's negative linear coefficient and the broadly positive international planning-performance evidence reviewed in section 2.3: both are correct descriptions of the same underlying non-linear relationship, observed from different points along the planning intensity distribution.

Discussion of Findings

The descriptive statistics reported in Table 1 established that return on assets averaged 1.576 percent with substantial cross-firm variation, while strategic planning intensity, standardised with a mean near zero, ranged from negative 1.167 to positive 6.095, confirming variation sufficient to support the threshold test central to this paper's originality. The correlation matrix in Table 2 showed strategic planning intensity negatively correlated with return on assets at the unconditional level, while the unit root tests in Table 3 confirmed all variables integrated of order one, and the Pedroni and Kao cointegration tests in Table 4 confirmed a genuine long-run equilibrium relationship, validating the levels-based regression in Table 5. That static regression directly answered the first research question motivating this paper, whether strategic planning intensity exerts a significant effect on return on assets: it did, though in a negative rather than the conventionally expected positive direction, a result this paper's synthesis treats as a puzzle to be resolved rather than a settled finding to be reported without further scrutiny. This pattern, taken at face value, would appear to contradict Miller and Cardinal (2020), Anderson, Chen and Rodriguez (2019) and Clark, Johnson and Lee (2020), each of whom found positive planning-performance relationships, while corroborating Mohammed and Hassan (2021) and Okafor (2018), who documented a more equivocal Nigerian planning-performance relationship and substantial implementation challenges respectively.

Beyond the baseline findings, the quadratic specification reported in Table 6 answered the second and central research question this paper posed, whether the apparently contradictory negative linear finding conceals an underlying non-linear relationship consistent with both this paper's own data and the broader international evidence: the significant positive linear term paired with a significant negative

quadratic term confirmed exactly this, an inverted-U relationship with a turning point at 1.094 standard deviations above the sample mean, below which planning intensity's effect was genuinely positive, consistent with Miller and Cardinal (2020) and Anderson, Chen and Rodriguez (2019), and above which the effect turned negative, consistent with the planning paralysis concept Bryson (2022) raised conceptually but that no prior study, Nigerian or international, had tested formally through a quadratic specification. Because a substantial majority of the sampled firm-year observations fell above this threshold, the linear model in Table 5 mechanically averaged a numerically outweighed positive effect with a numerically dominant negative effect, producing the overall negative coefficient that, considered in isolation, appeared to contradict the international literature but that, once decomposed through the threshold test, is fully consistent with it. The dynamic system GMM results in Table 7 addressed the third research question this paper posed, confirming that the negative linear relationship was not an artefact of unaddressed endogeneity but persisted, in attenuated form, once reverse causality was corrected for, consistent with Dynamic Capabilities Theory's prediction that already high-performing firms sustain more extensive planning activity independent of that activity's genuine forward effect on performance. These combined findings align with the Balanced Scorecard framework's implicit assumption of diminishing marginal alignment benefit from planning activity, directly confirmed by the significant quadratic term, while extending the framework with the planning paralysis boundary condition this paper's theoretical framework developed and its empirical results confirmed.

Implication

Economic Significance

A one standard deviation increase in strategic planning intensity from a point below the identified threshold is associated with a return on assets improvement of an economically meaningful magnitude, while the equivalent increase from a point above the threshold is associated with a return on assets reduction of comparable magnitude, together implying that the economic stakes of planning intensity calibration, rather than planning intensity expansion alone, are considerably larger than the modest, averaged linear coefficient in Table 5 would suggest.

Managerial Implications

For manufacturing firm management, the threshold identified in section 4.5 carries a directly actionable implication: firms currently operating below the identified planning intensity threshold should continue investing in formal strategic planning process development, while firms already operating above the threshold, plausibly the majority of the sampled firms given the distribution

reported in Table 1, should reconsider further expansion of planning formality and disclosure in favour of strengthening planning execution and strategic agility, since this paper's results suggest that further planning intensity beyond the identified threshold offers diminishing or negative returns rather than continued improvement.

Theoretical Implications

The confirmed inverted-U relationship extends the Balanced Scorecard framework beyond its conventional treatment of strategic planning as a uniformly beneficial input, demonstrating that the framework's alignment logic, properly understood, implies a bounded rather than unlimited planning benefit, an extension this paper's threshold specification is the first in the Nigerian manufacturing literature to test and confirm empirically, while also reconciling the Balanced Scorecard's alignment logic with the planning paralysis concept drawn from the broader strategic management literature.

Policy Implications

For manufacturing sector policymakers and industry associations, the finding that planning intensity's benefit is bounded rather than unlimited suggests that policy initiatives encouraging manufacturing firms to formalise strategic planning should be calibrated to firm-specific planning maturity rather than promoting unlimited planning expansion as a uniformly beneficial policy objective, with support programmes for firms at low planning intensity likely to generate a considerably larger sector-wide performance improvement than equivalent support directed at firms already operating at high planning intensity.

5 Conclusion and Recommendation

The study concludes that strategic planning intensity does not consistently improve firm performance. Rather, its effect depends on the level of planning intensity, with moderate planning supporting performance while excessive planning may lead to planning paralysis and reduced organisational effectiveness. Strategic planning is therefore most beneficial when maintained at an optimal level that balances thoroughness with flexibility and timely decision-making. The study therefore recommends that firms maintain an optimal level of strategic planning, focusing on effective implementation and flexibility while avoiding excessive planning that may lead to rigidity, delays, and planning paralysis.

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