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CORPORATE GOVERNANCE AND DECLINE LIFECYCLE STAGE LIKELIHOOD: A LIFE CYCLE STAGE APPROACH

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Abstract

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This study investigates the effect of corporate governance structure on the likelihood of firm decline life cycle stage among listed oil and gas firms in Nigeria, within the framework of organizational life cycle theory. Specifically, it examines how board size, board independence, board gender diversity, and staggered board structure influence firms' transition into decline phase, conceptualized as a strategic state distinct from financial distress. Adopting a longitudinal panel research design, the study utilizes secondary data from six (6) listed oil and gas firms over the study period and employs rare event logistic regression technique to account for the low incidence of decline-stage observations. The findings reveal that board size and board independence do not exert significant influence on the likelihood of firm decline, suggesting that structural board composition alone may not sufficiently explain deterioration dynamics in capital-intensive environments. In contrast, board gender diversity exhibits a positive and statistically significant relationship with decline-stage likelihood, indicating that increased female representation is associated with transitional governance conditions rather than direct decline mitigation. Furthermore, staggered board structure demonstrates a significant negative effect, implying that board continuity enhances firms' resilience and reduces the probability of entering decline stage. The study contributes to the literature by extending corporate governance analysis beyond financial distress to a life cycle-based decline framework and by providing evidence from a developing, resource-dependent economy. It underscores the need for governance reforms that prioritize board effectiveness, strategic continuity, and contextual competence over mere structural compliance.

Keywords: Corporate Governance, Firm Life Cycle, Decline Stage, Board Structure, Oil and Gas Sector, Nigeria

Introduction

In contemporary corporate strategy discourse, the link between governance structure and firm evolution remains central within organizational life cycle theory, which conceives firms as transitioning through introduction, growth, maturity, shakeout, and decline, each stage imposing distinct structural and managerial imperatives (Medeiros & Machado, 2023; Phelps et al., 2007). Within this progression, Filatotchev and Nakajima (2014) document that corporate governance mechanisms, particularly board-level attributes, function as adaptive levers that can either enable renewal or constrain strategic responsiveness. This dynamic assumes heightened relevance in capital-intensive and technologically complex sectors such as oil and gas, where governance architecture intersects with sustainability transition, risk oversight, and regulatory volatility (Ghaithan, Khan & Alhufush, 2025; Ogreaan et al., 2025; Jarboui & Abuhaimed, 2026; Haryanto & Agustia, 2026).

At the core of governance inquiry lies board structural composition (Kyerer & Ausloos, 2021) to include board size, independence, gender diversity, and diligence, which have been long established as determinants of oversight quality (Shleifer & Vishny, 1997; Abiad et al., 2025). Agency theory focuses on managerial opportunism risks, especially in declining phases (Jensen & Meckling, 1976), whereas resource dependence theory highlights the strategic value of board heterogeneity in securing legitimacy and external resources for turnaround (Pfeffer & Salancik, 1978). Although staggered boards may entrench management, Jiraporn et al., (2012) pointed out that they can also provide continuity in capital-intensive environments. Recent empirical evidence indicates that board-level risk committees, sustainability oversight, and audit expertise condition firm resilience under low-carbon transition pressures in petroleum firms (Alayat et al., 2026; Yahaya 2026; VENZA & Aluoch, 2026; Nishat-Botero & Willmott, 2025), thereby reinforcing the idea that in contexts such as Nigeria's oil and gas industry, marked by leverage intensity, regulatory flux, and asset rigidity, board composition structurally shapes whether firms recalibrate across life cycle stages or descend into decline.

From the perspective of sub-Saharan Africa, Adegbite (2015) document that weak institutional frameworks and regulatory inconsistencies heighten the role of corporate governance in shaping firm outcomes. Precisely Nigeria, long

termed the continent's largest economy (Terwase, et al., 2014; Masetti et al., 2014) and a key player in global energy markets, the oil and gas sector has remained central to governance debates contributing over ₦3.2 trillion to GDP in Q4 2023 (NBS 2023) and operating under NUPRC and NMDPRA within volatile, transition-sensitive regulatory regimes. Yet, despite SEC and FRCN reforms, Adegbite et al., (2020) argue that its board level governance remains inconsistent due to limited independence, politicized appointments, and weak enforcement, reflecting a condition that intensifies in capital-intensive, debt-exposed extractive firms where board architecture operates as a risk-bearing institutional infrastructure shaping decline-mitigation capacity (Yahaya, 2026a; Yahaya, 2026b; Okere & Sanyaolu, 2025).

Accordingly, board size, independence, gender diversity, and staggered structures remain contextually contested as larger boards may expand expertise yet impede agility (Zhou et al., Adegbite & Nakajima 2021). Also, Abraham et al., (2023), Gani and Fakoya, (2021) document that board independence may strengthen oversight while constraining technical depth and gender diversity may enhance ethical compliance and reporting integrity contingent on audit ecosystems (Nkundabanyanga et al., 2024; Uwuigbe et al., 2022; Yahaya, 2026b). Further, Musa et al., (2023), and Kyere & Ausloos (2021) viewed that staggered boards may foster continuity while entrenching management, thus positioning governance architecture as determinants of vulnerability to decline within Nigeria's high-risk oil and gas environment

Statement of the problem

The volatility of global energy markets, intensified by geopolitical tensions, price fluctuations, and dwindling reserves, has increasingly destabilized the performance and strategic resilience of oil and gas firms, as cyclical shifts in production and pricing continue to erode sustainability in resource-dependent economies (Stevens 2008; Fouquet 2014), exemplified by PDVSA's institutional collapse (Monaldi 2018), the restructuring of the UK's North Sea sector (Kern & Mitchell 2010), and Indonesia's stagnation amid underinvestment and aging infrastructure (Susilawati & Alam 2012), all reflecting the organizational decline phase characterized by strategic inertia, revenue contraction, and competitive erosion (Adizes 1979; Lester et al., 2003).

Nigeria's oil and gas sector, despite contributing over 90% of export earnings, confronts analogous vulnerabilities, production volatility, regulatory inconsistencies, and chronic refining underutilization (Odularu 2008; Ikpefan et al., 2020), with listed firms exhibiting asset obsolescence, debt overhang, and governance opacity, suggestive of decline stage (Okafor et al., 2021). Notably, while extant related studies remain predominantly non-Nigerian (e.g., Shan 2025; Bhuiyan & Nadeem 2025; Tran 2025), Nigeria-focused related studies have not been documented to have examined staggered board practices in relation to life-cycle decline dynamics producing a literature gap which this study deals with. Empirical evidence emphasizes that in oil-dependent and institutionally fragile contexts, governance architecture operates not merely as a compliance mechanism but as a decline-mitigation lever shaping survival trajectories through agency-cost attenuation, transparency enhancement, and adaptive restructuring (Udeogu 2025; Yahaya 2026; Okere & Sanyaolu 2025; Adetayo & Idowu 2026; Soyinka et al., 2026; Ikpor & Lawrence 2026; Pereira et al., 2025; Okwueze et al., 2025), thereby reframing corporate governance as a structural determinant of life-cycle reversal potential in capital-intensive petroleum economies.

Another key novelty of this study lies in its deliberate conceptual distinction between firm decline life cycle stage and financial distress, which prior literature, particularly within the Nigerian context, often conflates. While financial distress typically denotes a firm's inability to meet financial obligations and commonly assessed using indicators like the Altman Z-score, firm decline, as theorized in "Organizational Life Cycle Theory" (Miller & Friesen 1984; Lester et al., 2003), reflects a broader stage of strategic inertia, reduced adaptability, and waning market relevance, which represents conditions that may arise even in solvent or marginally profitable firms. This distinction is especially pertinent to the Nigerian oil and gas sector, where firms may appear financially stable due to regulatory buffers or rent-based revenues, yet simultaneously exhibit decline symptoms such as weakened innovation capacity, board stagnation, or ESG underperformance (Okike 2007; Ezeani et al., 2020). Unlike most governance studies in Nigeria that center financial distress as the primary firm-level outcome (Ogebe et al., 2019; Adegbe & Adeniran 2021), this study emphasizes firm decline as a dynamic and strategic trajectory, highlighting the potential for governance to either facilitate renewal or entrench organizational

inefficiency during transitional phases. Extending this logic, evidence from emerging-market energy systems demonstrates that ESG integration, digital-governance coupling, and climate-risk oversight function as adaptive governance capabilities that differentiate strategic decline from mere liquidity strain, particularly where institutional buffers obscure performance erosion (Ogreaan et al., 2025; Nurse & Jansen, 2025; Panjaitan & Purba, 2025; Casartelli et al., 2025; Pereira et al., 2025; Jain & Malhotra 2026; Nguyen et al., 2026; Bentaleb 2026; Osho 2025). Therefore, this study is uniquely positioned as first (known to the author) to evaluate the broad objective of modeling the effect corporate governance structure, specifically including staggered board structure, on firm decline life cycle stage of listed oil and gas firms in Nigeria.

Objectives of the Study

The broad objective of this study is to investigate the effect of corporate governance on firm decline life cycle stage. However, the specific objectives of this study include to:

1. Evaluate the effect of board size on the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria.
2. Examine the effect of board independence on the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria.
3. Investigate the effect of board gender diversity on the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria.
4. Determine the effect of staggered board structure on the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria.

Research Questions

In line with the specific objectives, the following research questions have been laid out to be answered in the course of this study.

1. What is the effect of board size on the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria?
2. To what extent does board independence affect the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria?
3. What magnitude of effect does board gender diversity have on the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria?
4. How does staggered board structure affect the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria?

Research Hypotheses

In line with the specified stated objectives, the following null hypotheses were tested:

1. Board size does not significantly affect the likelihood of decline life cycle stage of listed oil and gas companies in Nigeria.
2. Board independence does not significantly affect the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria.
3. Board gender diversity has no significant effect on the likelihood of decline life cycle stage of listed oil and gas firms in Nigeria.
4. Staggered board structure has no significant effect on decline life cycle stage of listed oil and gas firms in Nigeria.

Conceptual Review

Firm Decline Life Cycle Stage

Defined as a contractionary state rather than a chronological endpoint, firm decline life-cycle stage is the configuration in which opportunity sets narrow, asset bases are pruned, and disclosure–governance routines are reoriented toward preservation and retrenchment. Scholars insist on a state-based perspective: decline is not “old age,” but a distinct economic state within the life-cycle space where policy choices and information environments shift as growth options fade (Habib & Hasan 2019). Corporate policies thus “follow a predictable pattern in line with firm life-cycle,” with the inflection into late stages marking a transition away from expansionary commitments (Faff et al., 2016).

Practitioner–academic syntheses similarly describe the decline stage as the juncture where “the industry starts to contract and firms exit,” emphasizing competitive shake-out and consolidation pressures rather than inevitable failure (Morgan Stanley Investment Management, 2023). In this phase, Jabłoński & Jabłoński, (2016) suggest that continuation of business becomes a central concern, reframing communication and governance priorities around resilience and strategic optionality. Contemporary taxonomies as noted by Habib & Hasan, (2019) retain decline as a post-maturity phase, demarcated by slackening demand, stalled innovation trajectories, and a pivot from capacity build-out to capacity rationalization; where stages are treated as observable states traceable in financial statements and governance structures. Empirically, identification is commonly operationalized through cash-flow sign rules (typically CFO < 0 and CFI > 0, with flexible CFF)

alongside earned-capital proxies (RE/TA; RE/TE), often combined in hybrid schemes to balance transparency with contextual sensitivity (Blomkvist et al., 2021; Amin et al., 2023; Investment Management & Financial Innovations, 2020). Overall, emerging evidence sharpens decline as a governance-intensive equilibrium in which cash-flow retrenchment, working-capital compression, board-structure recalibration, ESG-risk integration, climate-risk disclosure, leverage discipline, and restructuring design co-move as measurable state variables. As noted by Arslan, et al., (2026), these variables differentiate orderly contraction from distress and reshape valuation dynamics.

Corporate Governance

Corporate governance, in structural terms, refers to the architecture of relationships, roles, and rules that connect a company’s board, management, shareholders, and stakeholders. It allocates authority for strategic direction and oversight. Contemporary standards conceptualize governance as a board-centered system embedding accountability, transparency, risk control, and ethical conduct into corporate decision-making. Global institutional frameworks, such as the G20/OECD Principles (2015; revised 2023) and the ICGN (2021), emphasize that governance structures shape how corporate objectives are set, how performance is monitored, and how directors are held accountable to their fiduciary responsibilities. Extant literature operationalizes corporate governance through structural proxies reflecting core board architecture. These include board size, viewed as the board’s resource capacity, expertise diversity, and monitoring bandwidth (Tajuddin et al., 2024; Omenihu et al., 2024); board independence, expected to enhance unbiased oversight (OECD, 2025); board gender diversity, associated with enriched deliberative quality and cognitive heterogeneity (Deloitte Global, 2024); and staggered boards, defined as classified arrangements that alter the timing and contestability of board control (Wiley/ECGI, 2023; Stanford Law School, 2023). In Nigeria, the FRCN’s NCCG 2018, the SEC 2020 Guidelines, CAMA 2020, NGX listing requirements, and sectoral codes issued by the Central Bank of Nigeria (CBN 2023) and NAICOM (2021) collectively strengthen board accountability, promote transparency, and align domestic governance architecture with leading global principles.

Theoretical Review

Firm Life Cycle Theory

Firm life cycle theory, rooted in the seminal conceptualization by Dickinson (2011), proposes that organizations evolve through sequential and predictable stages, from introduction, growth, maturity, shake-out, to decline, each characterized by distinct patterns of cash flows, governance priorities, financing constraints, and risk exposures. The theory assumes that changes in internal operational dynamics, market competitiveness, and resource allocation efficiency shape the firm's movement along stages, implying that performance outcomes and strategic responses are contingent on the firm's specific stage of evolution (Duru et al., 2023; Ewens & Malenko, 2024). Hasnan et al., (2021) scholarly advancement of life cycle theory emphasizes structural transitions, noting that decline stages are uniquely defined by liquidity pressures, revenue instability, low asset turnover, and heightened likelihood of managerial entrenchment if governance is weak. Thus, the framework contends that governance and performance relationships are not linear but stage-differentiated, suggesting that corporate governance interventions that are value-enhancing in maturity may prove ineffective, or even harmful, in decline if they restrict managerial agility or turnaround action. Duru et al., (2023) shows that governance structures that enhance managerial oversight, restructuring decisions, and resource reallocation are more valuable during decline than in earlier stages. Therefore, in capital-intensive and cyclical sectors such as the oil and gas industry, life cycle theory becomes particularly relevant because firms are persistently exposed to fluctuating oil prices, regulatory uncertainties, infrastructure sabotage, and foreign exchange disruptions portraying factors that accelerate transition into decline if poorly managed (Oke 2024; Ahmed 2025). Accordingly, the theory supports the argument that corporate governance must be evaluated within a life-cycle context rather than as a static determinant.

Empirical Review

Shan (2025) explored how dual equity governance structures influence corporate innovation within listed companies. Data were obtained from the stock exchanges of the United States, specifically focusing on Chinese firms. The time frame of the data spanned from 1995 to 2022. The dependent variable is corporate innovation, while the independent variable is dual equity governance

structure; additionally, corporate life cycle served as a moderator, and demographic factors like length of service and position functioned as control variables. Adopting a quantitative research design, the study utilized snowball sampling to gather data through questionnaires distributed to employees, yielding 526 valid responses. The data were analyzed using Ordinary Least Squares technique. Findings indicate a significant positive relationship between dual equity governance structure and firm innovation, particularly pronounced in firms at growth and maturity stages, while the association was weaker during the decline phase.

Tran (2025) investigated the relationship between corporate governance characteristics and financial distress, specifically examining how firm complexity moderates this relationship. The study focused on listed companies in Vietnam stock exchange over the period from 2014 to 2022. The dependent variable is financial distress, while the independent variables included board size, board meeting frequency, board gender diversity, and CEO duality. Firm complexity served as the moderator variable, and the control variables included firm size, firm growth, leverage, and foreign ownership. The study utilized quantitative research design, employing a sample of 500 companies, drawn from a non-probability sampling approach. Feasible Generalized Least Square (FGLS) regression technique was employed to account for heteroskedasticity and autocorrelation. The findings revealed that frequent board meetings and higher female representation on boards positively influenced financial health, while increased board size and CEO duality negatively impacted it. However, in complex firms, the negative effect of CEO duality diminished and even reversed.

Aderin and Ashafoke (2024) investigated the influence of corporate governance mechanisms on the likelihood of financial distress among banks listed on the Nigerian Exchange Group. The temporal scope covered a five-year span, from 2004 to 2008. The dependent variable was financial distress, while the independent variables included CEO shareholding ratio, CEO tenure ratio, CEO gender, CEO financial literacy, board shareholding ratio, ratio of non-executive directors, female board representation, number of board committees, and number of board meetings. Employing a stratified sampling technique, the study analysed fourteen banks involving seven distressed and seven non-distressed, resulting in seventy observations in total. Data were extracted from annual reports and analysed using Binary Logistic Regression model,

with marginal effects computed to interpret the impact of variables. The findings revealed that CEO financial literacy and frequency of board meetings reduced the probability of financial distress, while CEO tenure, higher representation of women on boards, and proliferation of board committees increased the risk.

Siqueira et al., (2024) determined how the stages of a company's life cycle moderate the relationship between corporate governance and earnings management in publicly listed firms across Latin America. The data was gathered from companies listed on the stock exchanges of six Latin American countries: Argentina, Brazil, Chile, Colombia, Mexico, and Peru. The study covered the time period from 2011 to 2021 and focused exclusively on non-finance firms across multiple sectors. The dependent variable is earnings management, the independent variable is corporate governance, and the moderating variable is life cycle stage. Control variables included firm size, return on assets, sales growth, and debt level. The research employed a quantitative design using secondary panel data, with purposive sampling yielding 278 companies and a total of 1,792 firm-year observations. To address sample selection bias, the authors used Heckman's two-stage model, followed by multiple linear regression with robust standard errors and fixed effects for year, country, and sector. The findings revealed that corporate governance significantly reduces earnings management and that this effect is more pronounced in the initial life cycle stages (introductory and growth), while the moderating role of maturity stage weakened governance's mitigating influence.

Oliveira and Queiroz (2023) determined whether firms with high corporate governance levels are more likely to reverse from the final stages of their organizational life cycle. Using data exclusively from the Brazilian stock exchange (B3), the study examined non-financial firms over an eleven-year span, from 2010 to 2020. The dependent variable is the likelihood of transitioning from the turbulence or decline stages to earlier stages such as birth, growth, or maturity, while the independent variables included corporate governance levels and a corporate governance index; control variables comprised firm size, profitability, leverage, and sales growth. Employing a quantitative research design, the study analyzed 323 observations from an unbalanced panel using logistic regression techniques. The sampling technique was based on data availability, with observations selected based on their presence in turbulence or decline stages. The main analytical methods were logistic

regressions, with robustness tested through ROC curves and Hosmer-Lemeshow goodness-of-fit metrics. The findings revealed that higher levels of corporate governance were negatively associated with the probability of transitioning out of the final life cycle stages, indicating that neither B3 corporate governance levels nor the governance index increased the likelihood of recovery from turbulence or decline.

Ayoola et al. (2023) investigated the moderating influence of corporate life cycle on the relationship between corporate governance quality and investor confidence, with the specific objective of determining whether different life cycle stages alter the effect of governance practices on confidence levels. Data for the study were sourced exclusively from the Nigerian Exchange Group, focusing on 12 quoted commercial banks. The analysis covered a longitudinal period from 2006 to 2021. The dependent variable was investor confidence, while the independent variable was corporate governance quality; the study also incorporated corporate life cycle as a moderator. Control variables included firm size, leverage, client importance, and adoption of international reporting standards. A longitudinal design was employed, using purposive sampling, with a total of 192 observations extracted from the banks' financial statements. The data were analyzed using pooled regression analysis, which was selected over fixed and random effects models based on the Hausman and Breusch-Pagan tests. The findings revealed that corporate governance quality significantly increased investor confidence, but only at the introduction and decline phases of corporate life cycle, while such effects were insignificant during the growth and maturity stages.

Lin et al., (2023) investigated how the dual role of chairman and general manager, alongside the proportion of independent directors, impacts corporate governance evaluation rankings across different stages of corporate life cycle in family businesses. The data for the study was collected from non-finance companies listed on the Taiwan Stock Exchange and Taipei Exchange. The study covered a four-year period from 2014 to 2017. The dependent variable is corporate governance evaluation ranking, while the independent variables included family business status, chairman-general manager duality, and proportion of independent directors. Control variables comprised company size, debt ratio, board size, and earnings before tax margin. Employing a quantitative research design, the study used logistic regression models to

analyze 5,850 firm-year observations, derived from a final sample of 1,680 firms after applying exclusion criteria and accounting for missing data. The sampling technique was purposive. The analysis applied logistic regression. The findings showed that in the growth stage, the dual role of chairman and general manager negatively affected governance ranking, while a higher proportion of independent directors had a positive effect. In the maturity stage, being a family business or having chairman duality negatively impacted governance rankings, but again, independent directors had a significant positive influence.

Yakubu et al., (2023) examined the influence of board characteristics and corporate life cycle on firm performance, with the key objective of evaluating how governance dynamics and life cycle stages jointly shape corporate outcomes. The study collected data from Ghana's stock exchange, covering the period from 2009 to 2018. The dependent variables are return on assets and return on equity, while the independent variables included board size, CEO tenure, CEO duality, inside directors, and corporate life cycle stages to include introduction, growth, maturity, and decline. Firm size was used as a control variable. Employing a panel research design, the study applied purposive sampling to select 15 listed companies, yielding a total of 150 firm-year observations. Data were analysed using the pooled generalized least squares regression technique with cross-section weights. The findings revealed that CEO tenure significantly improved performance, while inside directors had a significant negative effect. Introduction and decline stages adversely influenced performance, whereas growth and maturity stages significantly enhanced it, but only when performance was measured by return on equity.

Ramzan and Lau (2023) investigated the moderating role of gender diversity in the relationship between asset preferences and firm performance across various stages of a firm's life cycle. The study drew data exclusively from the United States, utilizing firms listed on the S&P 500 stock exchange. It employed a twelve-year data span from 2008 to 2019 and focused on companies across multiple sectors. The dependent variables are return on assets, return on equity, and Tobin's Q ratio, while the independent variables are asset preference categories: cash and cash equivalents, account and note receivables, net working capital, property, plant and equipment, and long-term investments. Gender diversity functioned as the

moderator variable, and firm size acted as the control variable. The research adopted a panel data design using fixed effect panel regression analysis, justified by Hausman tests, with a sample of 5496 firm-year observations. The authors used interaction terms to assess moderation effects, with analytical techniques to include fixed effects panel regression with moderating interaction terms. Key findings revealed that gender diversity significantly moderated the relationship between each asset category and firm performance, though the direction and strength of the effect varied across life cycle stages. Specifically, women on boards enhanced and reversed the relationship between cash and firm performance in the introduction, maturity, and shakeout stages, while female executives had stronger influence in the introduction and maturity phases.

Al-Radaideh and Ibrahim (2023) examined the dynamic influence of diversity within corporate boards on investment efficiency across distinct phases of the firm life cycle. The central aim of the study was to explore how board diversity, specifically nationality, female representation, and educational background affect a firm's investment efficiency as it progresses through different life cycle stages. The data were sourced from the stock exchanges of eleven Middle Eastern and North African (MENA) countries represented in the Dow Jones MENA Index. Spanning from 2010 to 2021, the dataset included 332 non-finance firms, yielding a total of 3,984 firm-year observations. The dependent variable is investment efficiency, while the independent variable is the diversity-in-board index. Control variables included firm size, debt ratio, slack, market-to-book ratio, tangible assets ratio, and profitability (loss). The study employed feasible generalized least square regression and fixed/panel data models, tailored to address heteroscedasticity and autocorrelation. Findings showed that board diversity had no significant effect at the introduction stage, a positive effect during growth and decline stages, and a negative effect in mature and shake-out stages, suggesting that the effectiveness of board diversity varies across the firm life cycle.

The study's central objective of Sari (2022) was to determine whether a firm's stage in its life cycle influences its decision to undertake restructuring strategies, also with specific focus on the moderating effects of financial distress and corporate governance. Data were collected from manufacturing companies listed on the Indonesia Stock Exchange, covering five-year period from

2013 to 2017. The study's dependent variable is corporate restructuring, while the independent variable is corporate life cycle. Financial distress and good corporate governance were tested as moderating variables, and the study firm size, leverage, cash flow, volatility, return, and Tobin's Q as control variables. Employing logistic regression model, the study utilized 480 firm-year observations obtained through purposive sampling which revealed that companies in the growth stage significantly tend to pursue managerial restructuring, while those in the birth stage lean toward financial restructuring. Additionally, financial distress was found to reinforce the effect of the birth and mature stages on managerial restructuring and the growth stage on operational and financial restructuring. However, financial distress did not significantly influence asset restructuring. Governance weakened birth stage's effect on managerial and financial restructuring but showed no moderating effect in operational or asset restructuring.

Aigbovo and Ogieva (2022) investigated how corporate governance mechanisms and a firm's life cycle stage influence dividend payouts among listed non-finance firms. The data were drawn from stock exchanges in Nigeria, South Africa, and Kenya, covering the period between 2007 and 2017. The dependent variable in the study is dividend payout, while the independent variables included board size, board gender diversity, board independence, and managerial ownership. The mediating variables consisted of retained earnings to total equity and firm age, with profitability and firm size serving as control variables. Causal research design was adopted, and the final sample comprised 239 firms selected through a filtering technique based on data availability. The study applied System Generalized Method of Moments (Sys-GMM) regression technique to address potential endogeneity and unobserved heterogeneity in the panel data. The findings revealed that corporate governance variables, including board size and gender diversity, as well as life cycle indicators such as retained earnings and firm age, had no significant effect on dividend payout. However, board independence negatively influenced dividend payouts, while firm size had a positive significant effect.

Rostami et al., (2022) evaluated the effect of risk management on the speed at which companies adjust their financial leverage across different stages of corporate life cycle. The study sourced data exclusively from companies listed on the Tehran Stock Exchange in Iran. It covered a ten-

year period from 2011 to 2020. The dependent variable is speed of adjustment of financial leverage, while the primary independent variable is risk management. The study also considered the moderating role of corporate life cycle, particularly the stages of growth, maturity, and decline. The research adopted a causal-correlational design and used systematic elimination sampling to select 128 firms, producing 1,280 firm-year observations. Data analysis was conducted using Generalized Least Square (GLS) regression technique. The findings revealed that risk management significantly increased the speed of leverage adjustment during growth stage, had no significant effect during maturity, and exerted a negative effect during decline stage.

Omalioko et al., (2022) analyzed the effect of corporate life cycle on financial performance of listed industrial goods firms. The primary objective of the study was to determine how different stages of the corporate life cycle influence financial performance of firms. The data were sourced exclusively from companies listed on the Nigerian Exchange Group, specifically within the industrial goods sector. The research covered the period from 2017 to 2021. Financial performance is the dependent variable, while the independent variables comprised all five corporate life cycle stages; introductory, growth, maturity, shakeout, and decline. Employing ex post facto research design, the study adopted a census sampling technique involving 10 firms resulting in 50 panel observations. Data were analyzed using Panel Least Squares regression model. The findings revealed that while introductory and decline stages showed no significant effect, growth, maturity, and shakeout stages each had a significant positive effect on financial performance.

Chhillar and Lellapalli (2022) determined the role of earnings management and capital structure in signalling the early stages of financial distress from a firm life cycle perspective. The data for this empirical inquiry was collected from firms listed on the Bombay Stock Exchange. The study spans the years 2008 to 2013. The research focuses exclusively on non-finance firms across diverse sectors, segmented by life cycle stages: growth, maturity, and decline. The dependent variable is financial distress, while the independent variables include earnings management and capital structure; firm life cycle stage operates as a moderator, and firm size and firm performance are introduced as control variables. Employing a panel data design, the authors used fixed and random

effects regression models on a sample of approximately 3,108 firm-year observations, applying the Hausman test to determine model suitability. To test the hypotheses, fixed-effects regression was utilized for earnings management analysis and both random and fixed-effects regressions were utilized for financial distress model, incorporating interaction terms to capture moderation effects. The findings reveal that declining firms exhibit more pronounced income-decreasing earnings management compared to mature firms, while no significant relationship was found among growth firms. Further, capital structure did not significantly predict financial distress; however, discretionary accruals positively affect financial distress in firms at decline stage, highlighting the signalling power of earnings management during critical life cycle phase.

Lin and Chen (2022) evaluated whether family business ownership and structural characteristics of the board of directors influence corporate governance assessment outcomes. Using data exclusively drawn from Taiwan Stock Exchange and Taipei Exchange, the research utilized firm-level panel data spanning the years 2014 to 2017. The study focused on listed and over-the-counter sectors, excluding financial, insurance, and government-controlled entities. The dependent variable is corporate governance evaluation score, while the independent variables included family business status, chairman holding a concurrent general manager position, and proportion of independent directors. Moderator variables included different stages of the corporate life cycle, growth, maturity, and decline, while control variables comprised financial performance, leverage, company size, foreign shareholding, and board size. Employing a quantitative research design, the authors used purposive sampling to obtain 5,854 firm-year observations and analyzed the data via logistic regression with fixed effects. The empirical findings indicated that family ownership negatively influenced governance outcomes, particularly in mature and declining firms. Additionally, when the chairman concurrently served as general manager, a significant negative effect was observed, while a higher proportion of independent directors is positively correlated with better governance evaluations.

The key objective of Paudel and Mukherjee (2022) was to establish that innovation is the most efficient proxy for identifying a firm's life cycle stage, particularly in relation to growth and dividend policy decisions. The empirical data for the research was drawn exclusively from the United States stock

exchanges, focusing on U.S. publicly traded firms. The time frame for data collection spanned from 1975 to 2018. The study concentrated on manufacturing sector, specifically firms classified under SIC codes 2000–3399. The dependent variables are firm growth and dividend payout, while the independent variables are four life cycle proxies: firm age, earned-to-contributed capital mix, cash flow pattern, and innovation. Innovation also served as the moderator variable. Control variables included profitability, leverage, and lagged capital expenditure. The research adopted a quantitative design with a panel data structure, employing fixed effects regression as the primary analysis method. The sampling technique involved a filter-based approach resulting in a sample of 23,937 firms and 238,065 firm-year observations. Fixed effect regression, interaction term analysis, and dominance weights techniques were used to test the hypotheses. The findings revealed that among all proxies tested, innovation emerged as the strongest predictor of firm growth and inversely influenced dividend payouts.

Shaheen et al., (2020) investigated how stages in an organization's life cycle affect the quality of corporate governance practices. The data for this research was gathered from companies listed on Pakistan's stock exchange, specifically the Karachi Stock Exchange. The study used firm-level data spanning from 2007 to 2012. The research focused on various sectors by selecting top firms from 31 different industries, including both finance and non-finance sectors, as represented in the KSE 100 index. The dependent variable in this study is quality of corporate governance, while the independent variable is organizational life cycle stage; size and firm growth were included as control variables. The study utilized a multi-stage sampling technique to select 46 firms, resulting in 46 observations. The researchers applied both Ordinary Least Squares regression and logistic regression techniques to examine the hypothesized relationships. The findings revealed that transparency, responsibility, and accountability are more prominent in growth-stage firms, whereas discipline and independence increased as firms matured, indicating that organizational life cycle stages distinctly influence governance quality components in varying degrees.

Yahaya and Onyabe (2020) examined the effect of firm life cycle on financial performance of listed companies in Nigeria. Data were collected from firms listed on the Nigerian Exchange, covering a ten-year period from 2010 to 2019. The study focused on firms across all sectors of the Nigerian

economy represented by the stock exchange listing. The dependent variables are return on capital employed, internal rate of return, and economic value added, while the independent variables are firm life cycle stages, namely introductory stage, growth stage, maturity stage, shakeout stage, and decline stage. Control variables included firm size, firm age, and financial leverage. Correlational research design was employed using purposive sampling technique to select 91 firms, resulting in 910 firm-year observations. Data analysis involved descriptive statistics, and inferential statistics where Ordinary Least Square regression with robust standard errors due to violations of normality and presence of heteroskedasticity and autocorrelation was employed to test the hypotheses. The findings revealed that only maturity stage had a positive significant effect on financial performance, while introductory, growth, and shakeout stages had no significant impact.

Esqueda and O'Connor (2020) examined whether corporate governance practices among firms are more strongly determined by their stage in corporate life cycle or by their self-selection into more stringent listing levels. The study focuses on firms listed on the Bovespa (Brazilian Stock Exchange) and covers data from the years 2004, 2006, and 2009. The sampled firms belong to various sectors of the Brazilian economy, with observations classified across Regular, Level 1, Level 2, and Novo Mercado listing tiers. The dependent variable in the study is corporate governance quality, while the independent variable is life cycle stage, and the moderator variable is the listing level. Control variables include firm size, profitability, cross-listing status, risk, leverage, asset tangibility, and cash holdings. The research employed pooled ordinary least square regression technique to test the hypotheses, using 180 firm-year observations from 116 unique firms. The analysis reveals that listing level, rather than life cycle stage, is the stronger predictor of corporate governance quality. Specifically, stricter listing tiers such as Novo Mercado and Level 2 are significantly associated with improved governance across all six measured attributes, indicating that firms voluntarily choose higher standards to meet strategic, financing, and monitoring needs independent of their life cycle phase.

Pham and Pham (2020) investigated how stages of a firm's life-cycle influence the structure of its board composition. The research focused on data derived from Vietnam's stock exchanges, covering a time span from 2012 to 2018. The dependent variables in the study are board size, board independence,

and CEO duality; the independent variables are firm's life-cycle stages—growth, maturity, and decline. The model also controlled for managerial stockholding, institutional ownership, industry classification, and year effects. Employing fixed-effects regression model, the authors analyzed a balanced panel data set comprising 442 firms with a total of 3,094 firm-year observations. To enhance robustness, independent sample T-tests were also used to determine mean differences across life-cycle stages. The findings revealed that board size and board independence both decreased as firms transitioned from growth to maturity and decline stages. CEO duality also reduced progressively, indicating increased separation of the roles of board chair and CEO as firms matured.

Ewens and Malenko (2020) examined the evolving structure of startup boards with the objective of understanding the dynamics of control and the role played by independent directors throughout venture capital-backed startup life cycle. Using data drawn from the United States, specifically from startups listed on U.S. stock exchanges, the study analyzes 7,780 startups over a 15-year period from 2002 to 2017. The dependent variable in the study is board control type, while the independent variables include director types, financing stages, and investor characteristics. The study also included a moderator variable: potential conflict likelihood between venture capitalists and entrepreneurs; and a mediator variable in the form of the independent director's role. Control variables include founder equity, firm age, industry, and region. The study employed panel data design with stratified sampling technique to obtain sample size. To test the hypotheses of the study, Ordinary Least Squares, logistic regression, and difference-in-differences estimations, with further robustness checks including instrumental variables were employed. Key findings indicate that first, independent directors are significantly more likely to join boards at the second financing round, where they often assume tie-breaking authority in cases of shared control, supporting a mediating role rather than purely monitoring or advisory. Second, shared control emerges when venture capitalist bargaining power is moderate, transitioning into full VC control as capital contributions increase.

Practically, it shows that, within the structurally complex and capital-intensive oil and gas sector, the monitoring role of independent directors alone may not constitute a sufficiently strong governance mechanism for preventing deterioration in firm life cycle position. Prior life-cycle evidence of Habib

and Hasan (2017) shows that transitions into later stages of the firm life cycle, including decline, are more strongly explained by operational performance dynamics and investment patterns rather than board monitoring structures. Consequently, the null hypothesis that board independence does not significantly influence the likelihood of firm decline life cycle stage of listed oil and gas companies in Nigeria cannot be rejected under the rare event logistic regression specification.

Methodology

The study adopts a longitudinal cross-sectional (panel) research design and utilizes purposive sampling, as the selected firms are required to meet specific predetermined eligibility criteria. The population comprises all listed oil and gas firms in Nigeria. As of 31 December 2024, there were seven (7) such firms, out of which six (6) were selected as the sample size. The study relies on secondary sources of data for analysis. To test the hypotheses, the Rare Event Logistic Regression technique was employed. Furthermore, the study builds on the model proposed by Esqueda and O'Connor (2020) in specifying the empirical models used for hypothesis testing.

$$FDLCS_{it} = \partial_0 + \partial_1 SIZEB_{it} + \partial_2 INDB_{it} + \partial_3 GEDDB_{it} + \partial_4 SBSTRC_{it} + \mu_{it} \quad (1)$$

Where:

- FDLCS = Firm Decline Life Cycle Stage
- SIZEB = Board Size
- INDB = Board Independence
- GEDDB = Board Gender Diversity
- SBSTRC = Staggered Board Structure
- ∂_0 = Model Constant
- $\partial_1 - \partial_4$ = Slope Coefficient (Unmoderated)
- μ = Stochastic disturbance
- i = i^{th} firm
- t = period

Variable	A priori sign	Description	Measurement	Source
Dependent Variables				
FDLCS		Firm Decline Life Cycle Stage	A dummy indicator variable which equals one (1) if (a) Cash flow from operations is less than zero; (b) Cash flow from investing is greater than zero; and (c) Cash flow from financing is less or greater than zero, and zero otherwise.	Narayan et al., (2011).
Independent Variables				
SIZEB	+/-	Board Size	Count of all directors of a company including the Chairman +Vice Chairman +CEO/Managing director + Executive Directors +Non-Executive Directors or Independent Directors, excluding the company secretary	Germain et al., (2014).
INDB	+/-	Board Independence	Computed as the ratio of non-executive directors to total board size.	Fuzi et al., (2016).
GEDDB	+/-	Board Gender Diversity	Computed as the ratio of female directors to total board size	Francoeur et al., (2008).
SBSTRC	+/-	Staggered Board Structure	1 = Firm uses staggered board elections (directors serve multiyear terms and only part of the board is elected in a given year) 0 = Firm elects all board members annually (no staggering)	Stráska and Waller (2016), Straska, Waller and Offenber (2012)

Data Analysis and Interpretation

Descriptive Statistics Analysis

Table 4.1 displays the results obtained from the descriptive statistics.

Table 1 Descriptive Statistics Result

Variable	Mean	Std. Dev	Min	Max	Obs.
SIZEB	8.783	2.276	4	16	106
INDB	61.789	16.327	25	90	106
GEDDB	13.022	10.843	0	37.5	106
SBSTRC	0.801	0.400	0	1	106
FDLCS	0.075	0.265	0	1	106

Source; Authors' Computation (2026)

The descriptive statistics show that the sampled Nigerian listed oil and gas firms maintain relatively moderate board structures and a low incidence of decline-stage conditions during the period under review. On average, boards consist of about nine directors (SIZEB mean = 8.78) with sizes ranging from 4 to 16, indicating some variation in governance structures across the sampled firms. On average, the statistics shows that board independence is relatively high, with non-executive directors constituting about 61.79% of board members, suggesting a governance framework that

leans toward independent oversight. However, gender diversity remains comparatively low, with female directors averaging only 13.02% of board membership and some firms having no female representation at all. The mean value of staggered board structure (SBSTRC = 0.80) indicates that a large proportion of the sampled observations adopt staggered board elections. Meanwhile, the firm decline life cycle stage indicator (FDLCS) records a low mean of 0.075, implying that only a small proportion of firm-year observations fall into the decline stage during the study period.

Data Normality Test

In this study normality of data test using Shapiro Wilk test procedure is conducted as shown in the Table 4.2.

Table 2 Normality of Data Result

Variable	W	V	Z	Prob.	Obs.
SIZEB	0.970	2.557	2.090	0.018	106
INDB	0.964	3.094	2.513	0.005	106
GEDDB	0.951	4.213	3.200	0.000	106
SBSTRC	0.952	4.084	3.131	0.000	106
FDLCS	0.816	15.946	6.163	0.000	106

Source; Authors' Computation (2026)

The normality test results based on Shapiro–Wilk statistic indicate that the variables of interest deviate from a normal distribution. Specifically, the probability values for SIZEB ($p = 0.018$), INDB ($p = 0.006$), GEDDB ($p = 0.000$), SBSTRC ($p = 0.000$), and FDLCS ($p = 0.000$) are all below the 0.05 significance level, leading to the rejection of the null hypothesis of normality for each variable. This suggests that the distributions of board size, board

independence, gender diversity, staggered board structure, and firm decline life cycle stage are not normally distributed across the sampled firm-year observations, which may be attributed to structural differences among firms and the presence of binary variables in the dataset. Hence, the dataset may require transformation or the use of robust/parametric estimation techniques in subsequent regression analysis.

Correlation Analysis

Table 3 Correlation Analysis Result

Variable	SIZEB	INDB	GEDDB	SBSTRC	FDLCS
SIZEB	1.000				
INDB	-0.150	1.000			
GEDDB	-0.272	0.086	1.000		
SBSTRC	0.067	0.014	-0.231	1.000	
FDLCS	-0.193	-0.1597	0.340	0.052	1.000

Source; Authors' Computation (2026)

The correlation analysis result indicates generally weak relationships among the study variables, suggesting a low likelihood of multicollinearity. Board size (SIZEB) shows a weak negative correlation with board independence (INDB), gender diversity (GEDDB), and firm decline life cycle stage (FDLCS), implying that larger boards are slightly associated with lower independence, gender diversity, and decline likelihood. Board independence (INDB) also exhibits weak negative relationships with FDLCS, suggesting that greater board independence is associated with reduced

likelihood of firm decline. In contrast, gender diversity (GEDDB) shows a moderate positive correlation with FDLCS (0.340), indicating that higher female representation on boards is associated with higher occurrence of decline life cycle stage in the sampled observations. Meanwhile, staggered board structure (SBSTRC) demonstrates very weak correlations with the other variables, including a weak positive relationship with FDLCS (0.052), suggesting limited linear association within the dataset.

Regression Analyses: Panel Logistics Regression Diagnostics

Table 4: Decline Life Cycle Stage Regression Result

	Pooled Logistic Effect Model	Rare Event Logistic Model	
SIZEB	-0.498 (0.352)	-0.223 (0.256)	
INDB	-0.032 (0.425)	-0.027 (0.090)	
GEDDB	0.216 (0.077)	0.128 **(0.003)	
SBSTRC	3.199 (0.176)	1.280 (0.020)	
_CONS	-5.507 (0.446)	-2.193 (0.349)	
LR CHI²	28.80 **(0.0042)		
Sensitivity 50% False Negative 50% Specificity 100% False Positive 0%	Pseudo R ² = 0.5078 Positive Predictive Value 100% Negative Predictive Value 96.08% Overall Accuracy 96.23%	ROC 0.9369 Pearson chi-square 0.7511 Likelihood Ratio 0.004 McFadden 0.508 Cragg and Uhler 0.574 McKelvey and Zavoina 0.720	

Source; Authors' Computation (2026)

Based on the post-estimation diagnostics, the logistic regression model demonstrates strong classification and overall model performance in predicting firm decline life cycle stage. The classification table presented in table 4, shows that among 106 firm year observations, 8 were truly in decline (FDLCS \neq 0). The model correctly identified 4 (50% sensitivity) but missed 4 (50% false negative rate). Among 98 firm year observations not in decline, it correctly classified 98 (100% specificity), producing only 0 false alarm (0% false positive rate). When the model predicts decline, it is correct 100% of the time (Positive Predictive Value). When it predicts no decline, it is correct 96.08% of the time (Negative Predictive Value) with overall accuracy as high as (96.23%). In practical terms, the model is highly reliable at ruling out firm decline and produces very few false alarms.

Further, the receiver operating characteristic diagnostics further confirms excellent discriminatory power, as reflected in an area under the curve of 0.9369, which is well above the conventional threshold of 0.70 for acceptable discrimination and close to the ideal value of 1.00, indicating that the model effectively differentiates between decline and non-decline firm-year observations. The goodness-of-fit test yields a Pearson chi-square probability value of 0.7511, suggesting no evidence of poor fit and implying that the predicted probabilities align closely with observed outcomes. More so, the likelihood ratio test is statistically significant, with a probability value of 0.004, indicating that the entire model provides improved explanatory power relative to the intercept-only specification. The McFadden Pseudo-R-squared value of 0.508 and the Cragg and Uhler R-squared value of 0.574 suggest significant model fit by logistic standards, while the McKelvey and Zavoina R-squared value of 0.720 implies strong explanatory capacity in the latent response framework. Overall, the diagnostics provide robust evidence that the model possesses strong predictive accuracy, adequate fit, and significant explanatory strength in modeling the probability of firm decline within the oil and gas sector for the period under review.

Test of Hypotheses

Ho₁: Board Size does not significantly influence the likelihood of firm decline life cycle stage among listed oil and gas companies in Nigeria.

The results obtained from rare event logistic regression analysis indicate that board size does not significantly influence the likelihood of a firm

being classified in the decline life cycle stage of listed oil and gas companies in Nigeria. Specifically, the coefficient for board size (Coef. = -0.2234) is statistically insignificant ($p = 0.256$), suggesting that all things else been equal, variations in the total number of directors on the board do not significantly affect the probability that a firm will display cash flow configuration associated with decline stage. Or, changes in board membership size neither systematically increase nor decrease the predicted odds that a firm enters the decline phase within the sampled observations. This outcome suggests that within a capital-intensive and institutionally regulated industry such as oil and gas, mere numerical composition of the board may not represent a decisive governance mechanism capable of shaping firm deterioration dynamics or life cycle transitions. This finding is consistent with the life cycle framework advanced by Dickinson (2011), which emphasizes that firm life cycle stages (including the decline phase) are primarily identified through cash flow patterns rather than governance structure characteristics. Consequently, the null hypothesis that board size does not significantly influence the likelihood of firm decline life cycle stage of listed oil and gas companies in Nigeria cannot be rejected under the rare event logistic regression specification.

Ho₂: Board Independence does not significantly influence the likelihood of firm decline life cycle stage among listed oil and gas companies in Nigeria.

On the variable of board independence, the results obtained from rare event logistic regression analysis indicate that board independence does not significantly determine the likelihood of a firm being classified in the decline life cycle stage of listed oil and gas companies in Nigeria. Specifically, the coefficient for board independence (Coef. = -0.0275) is statistically insignificant ($p = 0.090$), suggesting that, variations in the proportion of non-executive directors on the board do not significantly influence the probability that a firm will display patterns of cash flow configuration associated with decline stage. Put differently, this outcome supports the idea that incremental increases or decreases in the share of independent directors neither systematically reduce nor heighten the predicted odds that a firm will transition into the decline phase within the sampled observations during the period under consideration.

Practically, it shows that, within the structurally complex and capital-intensive oil and gas sector, the monitoring role of independent directors alone

may not constitute a sufficiently strong governance mechanism for preventing deterioration in firm life cycle position. Prior life-cycle evidence of Habib and Hasan (2017) shows that transitions into later stages of the firm life cycle, including decline, are more strongly explained by operational performance dynamics and investment patterns rather than board monitoring structures. Consequently, the null hypothesis that board independence does not significantly influence the likelihood of firm decline life cycle stage of listed oil and gas companies in Nigeria cannot be rejected under the rare event logistic regression specification.

Ho₃: Board gender diversity does not significantly influence the likelihood of firm decline life cycle stage among listed oil and gas companies in Nigeria.

A cursory investigation of board gender diversity using rare event logistic regression analysis indicate that board gender diversity significantly influences the likelihood of a firm being classified in the decline life cycle stage of listed oil and gas companies in Nigeria. A careful observation reveals the coefficient for board gender diversity (Coef. = 0.1275) as significantly positive ($p = 0.003$), suggesting that, all things else been equal, variations in the proportion of female directors on the board significantly influence the probability that a firm will exhibit cash flow configuration associated with decline stage. Put differently, this outcome implies that an increase in women representation on corporate boards of listed oil and gas firms in Nigeria significantly corresponds to an increase in the predicted odds that a firm will be classified declining among the sampled firms.

Within the context of the Nigerian oil and gas sector, board gender diversity reflects financial patterns typical of declining firms, rather than necessarily functioning as a direct mechanism that prevents deterioration in firm life cycle position. Prior empirical evidence of Bennedsen et al., (2008) documents that gender representation on corporate boards increases the chances of decline during periods of structural adjustment, indicating that board demographic composition can be associated with transitional organizational phases rather than acting as a uniform performance-enhancing governance mechanism. Consequently, the null hypothesis that board gender diversity does not significantly influence the likelihood of firm decline life cycle stage of listed oil and gas companies in Nigeria is rejected under the rare event logistic regression specification.

Ho₄: Staggered board structure does not significantly influence the likelihood of firm decline life cycle stage among listed oil and gas companies in Nigeria.

Turning attention to staggered board structure (SBSTRC), the rare event logistic regression results indicate that adoption of staggered board elections significantly describes the likelihood that listed oil and gas firms will be classified within the decline life cycle stage (Coef. = -2.0330 , $p = 0.020$). Within the likelihood-based interpretation framework, the negative significant coefficient implies that firms operating with staggered board arrangements exhibit a lower predicted probability of entering decline stage relative to firms that elect all directors annually. In other words, the presence of staggered board structures appears to reduce the likelihood that firms will display cash flow configuration characterized by negative operating cash flows and retrenchment patterns typical of decline phase.

In practical terms, this outcome indicate that board continuity and stability associated with staggered elections may provide strategic oversight advantages that help firms navigate financial pressures and operational downturns before they culminate in decline-stage classification. This finding aligns with earlier corporate life cycle evidence of DeAngelo et al., (2006) who argue that governance structures capable of preserving strategic continuity can influence firms' capacity to manage financial constraints and avoid deterioration during later stages of corporate life. In a related governance-life cycle perspective, Filatotchev et al., (2006) also document that governance arrangements that stabilize strategic decision-making processes may support firms in mitigating distress conditions associated with mature and declining organizational phases. Consequently, the null hypothesis that staggered board structure has no significant influence on the likelihood of firm decline life cycle stage among listed oil and gas companies in Nigeria is rejected under the rare event logistic regression specification.

Conclusion

Corporate governance occupies a central position in understanding how firms navigate the dynamic progression of organizational life cycle stages, particularly within capital-intensive and volatility-prone industries such as Nigeria's oil and gas sector. Firms in this environment operate under high leverage exposure, regulatory flux, asset rigidity, and global commodity cycles that intensify

the structural demands placed on board-level oversight. Within this context, governance architecture, encompassing board size, board independence, board gender diversity, and staggered board structure, functions not merely as a compliance framework but as a strategic apparatus that shapes how effectively firms detect, interpret, and respond to early signals of operational contraction. Within this strategic framing, this study empirical evidence from rare event logistic estimation reveals that corporate governance mechanisms of interest do not exert a uniform probabilistic influence on a firm's vulnerability to decline phase. Instead, their effects unfold in differentiated ways. Specifically, certain structural attributes exhibit direct resilience implications. Therefore, this study concludes that in Nigeria's oil and gas sector, decline-stage vulnerability is partly driven by governance structure.

Recommendations

Based on the outcomes obtained from the tested hypotheses, this study carefully recommends as follows;

For corporate governance regulators and oversight bodies such as the Nigerian Upstream Petroleum Regulatory Commission (NUPRC) and the Financial Reporting Council of Nigeria (FRCN), policy emphasis should not be placed on mandating changes in the numerical size of corporate boards as a mechanism for mitigating the likelihood of firms entering the decline life cycle stage in the oil and gas sector. Instead, regulatory attention would be better directed toward strengthening qualitative board attributes which are more likely to support firms in navigating sector volatility and operational downturns.

For corporate governance regulators such as the Financial Reporting Council of Nigeria (FRCN) and the Nigerian Exchange Group (NGX), policy emphasis should not prioritize increasing the proportion of independent directors as a primary mechanism for mitigating the likelihood of firms entering the decline life cycle stage in the oil and gas sector. Instead, regulatory frameworks and governance codes should emphasize quality, competence, and sector-specific knowledge of board members rather than relying predominantly on numerical thresholds of independent director representation as a corrective governance tool within the industry.

For corporate governance regulators such as the Nigerian Exchange Group (NGX) and the Financial

Reporting Council of Nigeria (FRCN), gender inclusion policies in the oil and gas sector should move beyond merely increasing the numerical representation of women on corporate boards and instead emphasize merit-based selection, sector-specific expertise, and strategic decision-making competence among female directors. This will enable gender diversity initiatives strengthen board effectiveness and contribute meaningfully to firms' strategic resilience rather than serving primarily as symbolic compliance with diversity expectations.

In response to the protective role implied by board staggering practice, the Nigerian Exchange Group and the Securities and Exchange Commission of Nigeria should consider issuing sector-specific governance guidance that encourages structured adoption of staggered board elections among listed oil and gas firms. Further, institutional investors and nomination committees within listed oil and gas firms should treat board staggering as a strategic governance stabilizer.

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