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Interacting Effect of Ownership Structures on Audit Quality Factors and Financial Reporting Timeliness of Listed Non-Financial Companies in Nigeria

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Abstract

The timely release of audited financial statements is a critical corporate governance issue in Nigeria, where reporting delays among listed non-financial firms harm investor trust, distort capital allocation, and reduce financial transparency. Previous Nigerian studies examined ownership structures in isolation and used basic statistical models that failed to account for count-based data properties. This study examined the interacting effect of ownership structures specifically ownership concentration and institutional ownership on audit firm size, audit tenure, audit fees, and auditor competence affect financial reporting timeliness. Anchored on Agency Theory alongside Resource Dependence, Stakeholder, and Signaling Theories, the quantitative study analyzed secondary data from 70 listed non-financial firms across 628 firm-year observations over ten years. Using negative binomial regression selected after confirming overdispersion in the data the study applied rigorous diagnostic tests to ensure statistical reliability across seven distinct models. The results showed that Big Four audit firm engagement and longer auditor tenure significantly reduced financial reporting lag. Conversely, higher audit fees and auditor competence increased reporting delays, driven by audit complexity and more rigorous verification procedures. Individually, ownership concentration and institutional ownership exerted weak moderating effects. However, the study's central finding revealed a significant joint moderating effect: the simultaneous presence of both concentrated and institutional ownership triggered a governance substitution effect, which actively neutralized the timeline-compressing benefits of Big Four auditors. The study concluded that Big Four auditing and stable auditor tenure are the strongest drivers of prompt financial reporting, whereas dense dual ownership structures create administrative friction that undermines external audit efficiency. Regulators and corporate boards are advised to maintain stable auditor-client relationships and align ownership oversight with external audit processes to reduce financial reporting delays in Nigeria.

Keywords: *Audit Quality Factors, Audit Firm Size, Audit Tenure, Audit Fees, Audit Competence, Ownership Concentration, Institutional Ownership, Financial Reporting Lag. Non-Financial Firms, Negative Binomial Regression.*

1.0 Introduction

In capital markets, the timely publication of audited financial statements is essential for operational efficiency, investor confidence, and effective capital allocation (Abdul-Wahab et al., 2019). Financial Reporting Lag (FRL) refers to the time elapsed between a firm's fiscal year-end and the public submission of its audited annual report to authorities such as the Nigerian Exchange Group (NGX) (Blankespoor et al., 2020).

In Nigeria, reporting delays remain a critical issue, signaling weak corporate governance, operational inefficiencies, or financial distress, while eroding stakeholder trust and impairing decision-making (Adeniyi & Temitope, 2021; Salawu et al., 2017).

The speed and efficiency of financial reporting depend significantly on key audit quality determinants (Choi & Lee, 2018): Audit Firm Size: Larger auditors (e.g., Big 4) utilize superior resources, expertise, and reputational protection to streamline audits and reduce reporting lags (Olowokure et al., 2023). Audit Tenure (AT): Extended relationships can shorten lags through deeper familiarity with client systems or increase lags if auditor independence diminishes (Obeidat & Yaseen, 2021). Audit Fees (AF): Reflect the degree of audit effort and underlying engagement complexity, influencing the overall duration of the audit process (Ogunro & Akinteye, 2022).

Auditor Competence (AC): Industry-specific expertise enables auditors to resolve complex accounting matters rapidly, accelerating reporting timelines (Uwuigbe et al., 2018).

Ownership structure shapes agency relationships and firm governance, determining how audit factors impact timeliness (Jensen & Meckling, 1976): Institutional Ownership: Institutional investors (pension funds, insurance firms, mutual funds) demand rigorous monitoring and transparency, pressuring management to engage reputable auditors and publish reports promptly (Alhassan & Adegbite, 2023; Nzekwe et al., 2022). Ownership Concentration: Concentrated holdings can enhance oversight and decision speed, but may also facilitate collusion between dominant owners and management, compromising auditor independence and extending delays (Ibrahim & Lawal, 2021; Kim et al., 2019).

While prior accounting literature has studied individual relationships between ownership structure, audit quality, and reporting timeliness and deployment of either panel poisson regression or Ordinary Least Square to analyze count data, limited empirical research addresses the joint interacting effect of ownership concentration and institutional ownership, particularly within Nigeria's distinct emerging-market regulatory environment (Uwuigbe et al., 2020) and the used of Negative Binomial Regression to measure count data after conducting overdispersion Check as against prior studies.

The objective of the study is to evaluates how audit quality factors directly impact financial reporting lag among Nigerian listed non-financial firms, while analyzing how institutional ownership and ownership concentration jointly interact with these relationships between audit quality factors and financial reporting timeliness among listed firms in Nigeria.

2.0 Literature Review

This section reviews the conceptual, theoretical and empirical literature relevant to the study. Specifically, the section examined the concept of financial reporting lag, audit quality factors and ownership structures and the theoretical perspectives underpinning these relationships.

2.1 Conceptual Review

2.1.1 Financial Reporting Lag

Financial reporting lag refers to the number of days that pass between a company's fiscal year-end and the public release of its audited financial statements, with shorter lags generally indicating more prompt, transparent, and useful financial disclosures (Sultana et al., 2015; Blankespoor et al., 2020). The length of financial reporting lag is influenced by several factors including audit complexity, organizational size, corporate governance arrangements, and regulatory requirements, and can vary significantly across companies and industries (Abernathy et al., 2017; Baatwah et al., 2019). In the Nigerian context, the Financial Reporting Council mandates specific reporting deadlines for listed firms, and non-compliance can attract regulatory penalties including fines and suspension from trading (Bala et al., 2020; Saidu & Aifuwa, 2020). Prolonged financial reporting lag diminishes the usefulness of financial information for investors, creditors, and other stakeholders, signals potential governance issues or financial distress, reduces investor confidence, and impairs capital market efficiency in allocating resources (Afify, 2019; Habib & Bhuiyan, 2016). Ownership structure plays a crucial role in shaping the financial reporting lag relationship, as firms with concentrated ownership may experience shorter reporting lags due to streamlined decision-making, while those with dispersed ownership may face delays due to more complex approval procedures (Adegbite et al., 2020). Strong corporate governance practices, including functional audit committees and effective internal controls, promote transparency and facilitate faster financial reporting (Abernathy et al., 2017). This study adopted the definition of financial reporting lag provided by Habib and Bhuiyan (2016) as the length of time between the end of the fiscal year and the release of audited financial statements.

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2.1.2 Audit Quality and Audit Quality Factors

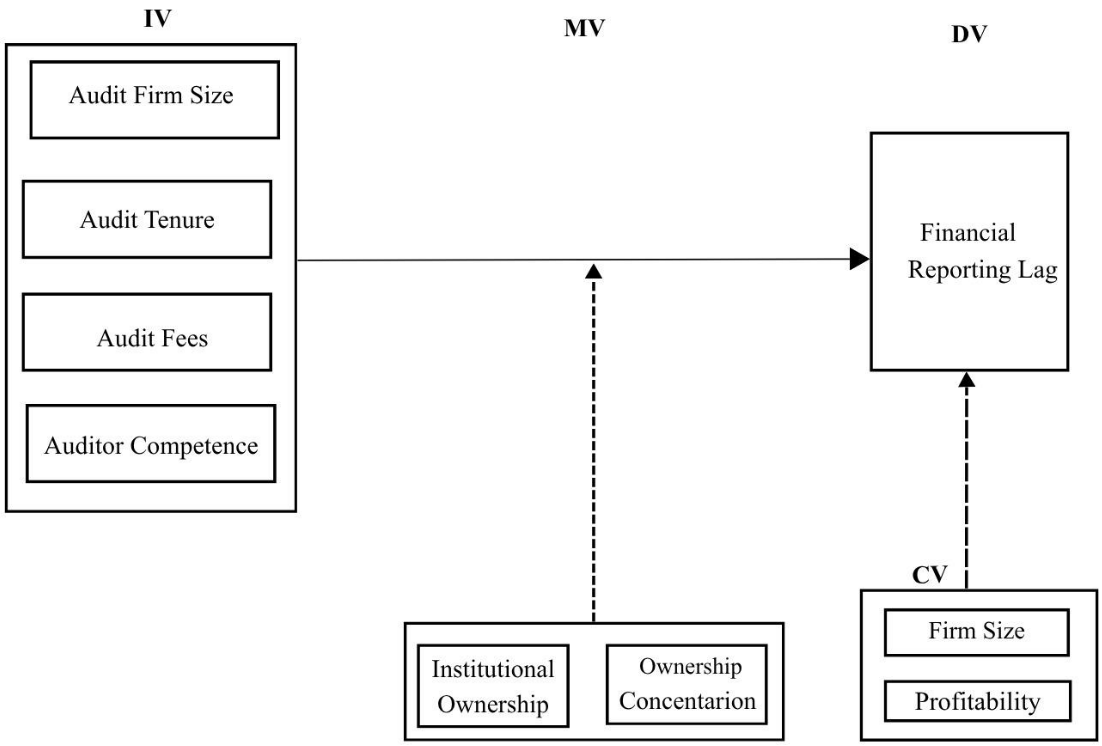
Audit quality refers to the extent to which an audit effectively ensures that errors or fraud are unlikely to materially affect financial statements, and encompasses the audit's ability to detect and communicate significant misstatements (DeFond & Zhang, 2014). High audit quality increases stakeholder confidence in financial information and functions as a mechanism for mitigating agency conflicts by promoting managerial actions aligned with shareholder interests. Audit quality factors are the attributes and conditions that enhance the reliability and credibility of the audit process and affect the auditor's capacity to identify and disclose material misstatements. Audit firm size significantly influences audit quality, as Big Four firms Deloitte, PwC, EY, and KPMG possess extensive resources, broader expertise, and more comprehensive support services that contribute to higher audit accuracy and shorter financial reporting lags, though the complexity of large audits can sometimes contribute to delays (DeFond & Zhang, 2018; Aliyu & Ishaq, 2015). Auditor tenure refers to the continuous period an auditor has provided services to a particular client, and while longer tenure enhances auditor familiarity and audit efficiency, prolonged tenure may raise concerns about auditor independence and objectivity, motivating regulatory bodies to impose mandatory rotation requirements (Kwon et al., 2014; Nigerian Code of Corporate Governance, 2018). Audit fees refer to the charges auditors impose for examining and verifying a company's financial reports, and higher fees are generally associated with more experienced personnel, greater resource allocation, and more timely financial reporting, though lower fees may result in diminished audit effort and extended reporting lags (Gul et al., 2019; Wondmagegnehu, 2017). Auditor competence encompasses the auditor's technical knowledge, practical experience, and professional judgement, and competent auditors with industry-specific expertise are better equipped to identify errors promptly, navigate regulatory complexities, and complete audits efficiently, thereby reducing financial reporting lag (Knechel, 2016; Umaru & Eze, 2020).

2.1.3 Ownership Structure

Ownership structure refers to the configuration and allocation of ownership rights and responsibilities among various stakeholders in a company, determining who controls the organization, how decision-making power is allocated, and how profits and risks are shared (Jensen & Meckling, 1976). Ownership concentration occurs when a small group of shareholders holds a large percentage of a company's shares, and while concentrated ownership can improve audit quality and reduce financial reporting lag when controlling shareholders demand transparency and timely reporting, it can also compromise audit quality and extend reporting lags when controlling shareholders pursue personal interests or engage in complex transactions (Bennedsen & Nielsen, 2019; Al-Adeem, 2021). Institutional ownership refers to the proportion of a company's shares held by institutional investors such as mutual funds, pension funds, insurance companies, and hedge funds, and while institutional investors generally advocate for higher audit quality and timely financial reporting due to their fiduciary responsibilities and dependence on accurate financial information, they may also push for comprehensive audits that take longer to complete, creating a trade-off between audit quality and reporting speed (Davis & Kim, 2021; Hassan, 2016). The present study focused on ownership concentration and institutional ownership as the key ownership structure dimensions examined as joint moderating variables in the relationship between audit quality factors and financial reporting lag among Nigerian listed non-financial firms.

Based on conceptual review above, the conceptual model below illustrated the connection between audit quality factors, ownership structure and financial reporting lag.

Figure 2.1: Conceptual Model



Source: Researcher's Compilation 2026

2.2 Theoretical Framework

The interacting effect of ownership concentration and institutional ownership on audit quality factors and the financial reporting lag of Nigerian listed non-financial firms is a complex subject that can be examined through multiple theoretical frameworks. This study was underpinned by Agency Theory analysis draws supports from Stakeholder Theory, Signaling Theory, and Resource Dependency Theory to provide a comprehensive understanding of the dynamics involved.

2.2.1 Agency Theory

The origin of agency theory can be traced back to Adam Smith's seminal work, "The wealth of Nations" (1976), where he discussed issues related to the separation of ownership and management. However, it was Jensen and Meckling's 1976 paper that truly laid the foundation for modern agency theory. They provided a comprehensive framework that explored the costs associated with resolving conflicts between principals and agents known as agency costs. These agency costs include monitoring expenses incurred by the principal, bonding costs incurred by the agent, and the residual loss which represents the cost due to the divergence between the principal's and agent's interests. This paper was pivotal in the development of agency theory, introducing key concepts like agency costs and the principal-agent problem (Jensen & Meckling, 1976). The paper was published in the Journal of Financial Economics and has since become a cornerstone in the study of corporate governance, finance, and economics.

In Agency Theory, conflicts may arise between principals (owners) and agents (managers) due to their differing objectives and because agents typically possess more information than principals (Jensen & Meckling, 1976). The relationship between the owner and other stakeholders can significantly influence how effectively such conflicts are addressed. Ownership structure, specifically, who holds the company's shares, can affect the level of oversight on management, which in turn may influence audit effectiveness and the timeliness of financial reporting. The primary purpose of Agency Theory is to explain and predict behaviour within organizations, particularly the mechanisms required to align the interests of managers and shareholders. This theory is especially relevant because agents do not always act in the best interests of principals, potentially leading to inefficiencies and mistrust. The theory proposes mechanisms, such as incentive schemes and monitoring frameworks, to address potential conflicts and to ensure that agents act in accordance with the interests of the principals.

Audit quality and ownership structure serve as agency control mechanisms with high-quality auditors acting as independent monitors and certain ownership structures (e.g., institutional or ownership concentration) providing oversight to align managerial behaviour with shareholder interests (Al-Matari, 2021; Okolie et al., 2023). Therefore, Agency Theory offers the core rationale for examining how governance mechanisms can reduce financial reporting lag and improve transparency in the Nigerian context, where monitoring inefficiencies are prevalent.

Although Agency Theory provides a valuable framework for understanding the relationship between shareholders (principals) and managers (agents), it has been widely criticized for its narrow assumptions and limited contextual applicability. The theory assumes that managers are inherently self-interested and motivated primarily by financial incentives, ignoring the influence of ethical values, trust, and professional commitment that also guide managerial behavior (Khandelwal et al., 2023). Critics argued that Agency Theory overemphasizes formal control mechanisms such as audits and monitoring, while underestimating the role of informal governance systems like organizational culture and professional norms (Amin, 2024). In emerging markets such as Nigeria, the theory's Western-centric assumptions often fail to reflect the realities of weak institutional frameworks, concentrated ownership, and regulatory inefficiencies (Yusof, 2016).

Furthermore, the traditional principal-agent model is too simplistic to capture the complex network of relationships that exist among multiple stakeholders, including institutional investors, minority shareholders, and regulators (Zogning, 2022). Scholars also note that the focus on short-term monitoring and performance incentives may discourage long-term stewardship and sustainable value creation (Schillemans & Bjurstrom, 2020). In addition, the costs and practical limitations of monitoring mechanisms such as audits and board oversight are often underestimated, particularly in environments with limited enforcement capacity (Al-Faryan, 2024). These criticisms suggest that while Agency Theory remains relevant to understanding audit quality and ownership structure, it should be complemented with perspectives such as stewardship and institutional theories to better explain the variation in financial reporting lag among Nigerian listed non-financial firms.

2.3 Empirical Review

The empirical literature on audit quality factors, ownership structure, and financial reporting lag among Nigerian listed non-financial firms has grown considerably over the past decade, spanning a range of theoretical perspectives, methodological approaches, and contextual settings. Adeyemi and Fagbemi (2015) found a negative relationship between audit fees and financial reporting lag among 70 Nigerian non-financial firms from 2011 to 2014, indicating that firms paying higher audit fees experienced shorter reporting delays, though the study was limited by its narrow measurement of audit quality, short observation period, and omission of ownership structure variables. Olowokure and Asaolu (2016) established that Big Four audit firms were associated with significantly shorter financial reporting lags among 50 Nigerian non-financial firms from 2010 to 2014, making an early contribution to the financial reporting lag literature, though the study was constrained by its exclusive reliance on Agency

Theory, focus on a single audit quality dimension, omission of ownership structure variables, modest sample size, and use of standard regression without comprehensive diagnostic testing. Adeyemi and Fagbemi (2016) found that longer auditor tenure was associated with shorter financial reporting lags among 100 Nigerian non-financial firms from 2010 to 2015, with the effect stronger when combined with larger audit firms, though the study was limited by its single theoretical framework, focus on a single audit quality factor, omission of ownership structure, and absence of control variables. Okolie and Izedonmi (2017) similarly confirmed that Big Four audit firm engagement significantly reduced financial reporting lag among 80 Nigerian non-financial firms from 2012 to 2016, and additionally found that audit tenure and auditor independence jointly contributed to reducing reporting delays, though the study adopted a single theoretical lens, did not systematically examine all audit quality dimensions, and completely omitted ownership structure as a governance variable.

Uwuigbe et al. (2018) found that ownership concentration significantly reduced audit report lag while institutional ownership showed no significant direct effect among Nigerian manufacturing companies, making an early contribution to the ownership-reporting lag literature, though the study treated ownership structure as a direct determinant rather than a moderating variable, restricted its scope to manufacturing companies, and did not incorporate audit quality factors as independent variables. Adamu and Ibrahim (2018) found that institutional ownership positively influenced audit quality and reduced financial reporting lag among 50 Nigerian non-financial firms from 2010 to 2017, though the study relied exclusively on Agency Theory, treated ownership variables as direct determinants rather than moderators, and did not comprehensively examine audit quality factors as formally hypothesized independent variables. Okafor and Arowoshegbe (2018) found that concentrated ownership strengthened the positive effect of audit quality on reporting timeliness using a mixed-methods approach, though the study examined only a single ownership dimension, treated audit quality as an undifferentiated construct, and raised concerns about objectivity and replicability due to its mixed-methods design. Olagunju and Owolabi (2018) found that higher audit fees and larger audit firm size were negatively correlated with financial reporting lag among 85 Nigerian non-financial firms from 2012 to 2017, though the study relied on a single theoretical lens, omitted audit tenure and auditor competence, and completely excluded ownership structure variables. Akinyemi and Adeola (2018) similarly confirmed that bigger audit firms produced financial reports earlier among

40 Nigerian non-financial firms from 2013 to 2017, though the study lacked a clearly articulated theoretical framework, focused exclusively on audit firm size, and neglected ownership structure entirely.

Moving into 2019, Nwoye and Okafor (2019) found that longer audit tenure reduced financial reporting lag among 70 Nigerian non-financial firms, with the effect varying by ownership type audit tenure accelerated reporting in dispersed ownership firms but was insignificant in concentrated ownership firms. Adeyemi et al. (2019) and Okafor and Mgbemena (2019) both confirmed that Big Four audit firms were associated with faster financial reporting, further reinforcing the audit firm size-reporting timeliness relationship in the Nigerian context. In 2020, Adeyemi and Olatunji (2020) found that ownership concentration reduced the impact of audit on reporting delay, Adebayo and Salami (2020) found that institutional investors improved financial reporting speed through audit quality, Adebisi and Ajayi (2020) confirmed that audit fees were inversely related to financial reporting lag even after controlling for audit complexity, and Akinbuli and Kelilume (2020) confirmed that both Big Four engagement and higher audit fees were associated with shorter reporting lags.

Subsequently, Okeke and Uche (2021) found that experienced auditors helped avoid longer reporting gaps, Eze and Chukwuma (2021) found that institutional ownership amplified the reduction in reporting lag associated with higher audit fees, and Akintola and Okechukwu (2021) found that concentrated ownership improved the positive effect of audit tenure on reducing reporting delays. Alabi and Ibrahim (2021) found that high ownership concentration led to better audits and shorter reporting times, though the study's survey-based design and small sample of 40 firms raised significant concerns about generalizability and reliability. Eze and Uche (2022) confirmed that concentrated ownership enhanced audit quality and reduced reporting lag, Ahmed and Hassan (2022) found that institutional ownership was associated with better audit evaluations and faster reporting, Eze and Chukwuma (2022) found that ownership structure significantly moderated the audit quality-reporting lag relationship, and Adeyemo and Alabi (2022) confirmed significant negative relationships between both auditor independence and audit firm size and financial reporting lag.

In the most recent strand of the literature, Nwachukwu and Obi (2023) found that institutional ownership significantly moderated the impact of audit quality on financial reporting lag among 55 non-financial firms, Balogun and Onyekachi (2023) confirmed that audit team competence significantly reduced reporting lag, and Sani and Oke (2023a, 2023b) found that longer auditor tenure and larger audit firm size were both associated with shorter reporting lags, with independence and audit complexity as important conditioning factors. Yusuf and Salami (2024a) confirmed that audit firm size significantly reduced financial reporting lag, Yusuf and Salami (2024b) found that concentrated ownership significantly moderated the audit tenure-reporting lag relationship, and Yusuf and Salami (2024c) found that institutional ownership significantly moderated the audit fees-reporting lag relationship.

A critical review of the existing empirical literature revealed several recurring limitations in prior Nigerian studies, including the exclusive use of single audit quality proxies that treated audit quality as a single-dimensional construct, the systematic exclusion of ownership structure variables from empirical models, short observation periods of four to five years that restricted temporal generalizability, small and statistically unjustified sample sizes that reduced statistical power, and reliance on conventional multiple regression techniques that were inappropriate for the count-based distributional properties of financial reporting lag. The present study addressed these limitations simultaneously by adopting a comprehensive multi-theoretical framework, formally examining four audit quality factors alongside institutional ownership and ownership concentration as joint moderating variables, employing a ten-year panel dataset of 628 firm-year observations from 70 Nigerian listed non-financial firms, determining the sample size using G*Power software, incorporating relevant control variables, and deploying negative binomial regression analysis complemented by a rigorous battery of pre- and post-estimation diagnostic tests, thereby providing deeper, more reliable, and more policy-relevant insights into the governance determinants of financial reporting timeliness in the Nigerian corporate environment.

From the literature review, the followings null hypotheses have been formulated for the study:

H_{01}: Audit firm size does not have significant effect on financial reporting lag of Nigerian listed non-financial firms.

H_{02}: Auditor tenure does not have significant effect on financial reporting lag of Nigerian listed non-financial firms.

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H_{03}: Auditor fee does not have significant on financial reporting lag of Nigerian listed non-financial firms.

$H_{04:}$ Auditor competence or expertise does not have significant effect on financial reporting lag in Nigerian listed non-financial firms.

$H_{05:}$ Ownership concentration does not significantly moderate the effect of individual audit quality factors on financial reporting lag of Nigerian listed non-financial firms.

$H_{06:}$ Institutional ownership does not significantly moderate the effect of individual audit quality factors on financial reporting lag of Nigerian listed non-financial firms.

$H_{07:}$ Ownership Concentration and Institutional ownership jointly do not exert significant moderating effect on individual audit quality factors and financial reporting lag of Nigerian listed non-financial firms. Specifically.

3. 0 Methodology

3.1 Sample and Data

The study used the longitudinal research design and covered period from 2015 to 2024 as 104 listed non-financial firms which are statutory required to prepared and file audited financial statements annually to statutory regulatory bodies such as the Nigerian Exchange Groups. The Nigerian listed non-financial firms has about 104 population across ten sectors. These sectors includes Agricultural sector comprising five (5) firms, Conglomerates sector comprising six (6) firms, Construction/Real Estate sector comprising ten (10) firms, Consumer Goods sector comprising twenty (20) firms, Health Care sector comprising seven (7) firms, ICT sector comprising eight (8) firms, Industrial Goods sector comprising thirteen (13) firms, Natural Resources sector comprising four (4) firms, Oil and Gas sector comprising nine (9) firms, and Services sector comprising twenty-two (22) firms.

To ensure appropriateness in sample determination considering the estimator applied, G-Power software was deployed and the outcome indicated 74 as the sample. As a result of incomplete data, only 70 listed non-financial firms met the criteria with firm's years observation of 628 were analyzed. In selecting sample, the proportionate stratified sampling technique was first deployed to ensure that all sectors were fairly represented and the simple random sampling technique was employed to select sample from each sector. The simple random sampling technique was applied with the use of STATA Version 25 soft-ware. Oranefo (2022); Kurawa and Alhassan (2021) have also employed proportionate stratified sampling technique and simple random sampling technique in their studies.

The audited annual financial reports and accounts of the sampled firms were the main sources of the data for the variables of the study and these annual financial reports were obtained from the firm's websites and the Nigerian Exchange Groups website. The description and measurements of the variables on which the data were extracted from annual reports are summarized in table 1 Appendix A.

3.2 Model Specifications

The study employed the following models in the analysis of data. These models are:

$P(FRL)_{it} = \beta_0 + \beta_1 AFS_{it} + \beta_2 AT_{it} + \beta_3 AF_{it} + \beta_4 AC_{it} + \beta_5 FS_{it} + \beta_6 ROA_{it} + e_{it}$..........................equa.1.

$P(FRL)_{it} = \beta_0 + \beta_1 AT_{it} + \beta_2 AF_{it} + \beta_3 AFS_{it} + \beta_4 AC_{it} + \beta_5 FS_{it} + \beta_6 ROA_{it} + \beta_7 OC_{it} + \beta_8 AT{*}OC_{it} + \beta_9 AF{*}OC_{it} + \beta_{10} AFS{*}OC_{it} + \beta_{11} AC{*}OC_{it} + e_i$……………………………………………………..equa. 2.

$P(FRL)_{it} = \beta_0 + \beta_1 AT_{it} + \beta_2 AF_{it} + \beta_3 AFS_{it} + \beta_4 AC_{it} + \beta_5 FS_{it} + \beta_6 ROA_{it} + \beta_7 IO_{it} + \beta_8 AT{*}IO_{it} + \beta_9 AF{*}IO_{it} + \beta_{10} AFS{*}IO_{it} + \beta_{11} AC{*}IO_{it} + e_i$……………………………………………………….equa.3.

$P(FRL)_{it} = \beta_0 + \beta_1 AT_{it} + \beta_2 AF_{it} + \beta_3 AFS_{it} + \beta_4 AC_{it} + \beta_5 FS_{it} + \beta_6 ROA_{it} + \beta_7 OC_{it} + \beta_8 IO_{it} + \beta_9 AT{*}OC{*}IO_{it} + \beta_{10} AF{*}OC{*}IO_{it} + \beta_{11} AFS{*}OC{*}IO_{it} + \beta_{12} AC{*}OC{*}IO_{it} + \beta_{13} FS_{it} + \beta_{14} ROA_{it} + e_i$
………………………………………………………………………………………………..equa.4

Where:
FRL_{it} = Financial Reporting Lag of Firm $_i$ at Time $_t$
AFS_{it} = Audit Firm Size of Firm $_i$ at Time $_t$
AT_{it} = Audit Tenure of Firm $_i$ at Time $_t$
AF_{it} = Audit Fees of Firm $_i$ at Time $_t$
AC_{it} = Auditor Competence of Firm $_i$ at Time $_t$
IO_{it} = Institutional Ownership of Firm $_i$ at Time $_t$
OC_{it} = Ownership Concentration of Firm $_i$ at Time $_t$
(i) represents the firm (1-70)
(t) represents the time period (2015 and 2024)
(β_0) is the intercept term
(β_1 to β_{14}) are the coefficients for the effects of the audit quality factors, ownership concentration and institutional ownership, control variables and coefficient for the interaction terms
(e) is the error term capturing unobserved factors

4.1 Estimation Technique and Model

Prior to the main regression estimation, a distributional check was conducted to ascertain the suitability of the count data estimator for the dependent variable. The results presented in Table 4.1 revealed that the mean of the financial reporting lag variable was 92.995 days while its variance was 2,689.77, yielding a dispersion ratio of approximately 28.92 and indicating that the variance was approximately 28.92 times greater than the mean. This substantial divergence between the mean and variance confirmed the presence of severe overdispersion in the financial reporting lag variable, decisively rejecting the equidispersion assumption underpinning the standard Poisson regression model and validating the adoption of the negative binomial regression estimator as the most appropriate and statistically efficient count data estimator for the present study, consistent with the recommendations of Cameron and Trivedi (2013) and Greene (2018). See table 4.1 for Poisson Distribution Check

Table 4.1: Poisson Distribution Assumption Check

Variable	Obs	Mean	Std. Dev.	Variance
FRL	628	92.9952	51.8630	2689.77

Source: STATA 14 OUTPUT (2026)

4.2 Results and Discussions

Table 4.2: Negative Binomial Regression

Variables		Coefficient	Z-Value	P- Value
AFS		-.3890714	-5.57	0.000***
AT		-.0233783	-4.43	0.000***
AF		.1259572	4.35	0.000***
AC		.2719026	3.92	0.000***
OC		-.0428037	0.73	0.466
IO		-.0889762	-1.58	0.115
FS		-.0963464	-4.15	0.000***
ROA		-.0243348	-0.57	0.567
AFSOCIOMC		2.283087	2.30	0.022**
AFOCIOMC		-.33579	-1.52	0.130
ATOCIOMC		.0367267	0.64	0.520
ACOCIOMC		-1.358488	-1.47	0.142
NO. of observations	628			
LR $Chi^2_{(12)}$	74.62			
Probability Chi 2	0.0000			
Pseudo R2	0.0117			
Loglikelihood 3142.2424	-			
Inalpha		-1.821113		
Alpha		-1618455		

Source: STATA 14 OUTPUT (2026)

Likelihood-ratio test of alpha = 0: chibar2 (01) = 9198.26 prob>=chibar2=0.000
*** Significant at 1% level; ** Significant at 5% level; * Significant at 10% level

The negative binomial regression model presented in Table 4.2 above was estimated on 628 firm-year observations and demonstrated strong overall statistical significance, with a likelihood ratio chi-square statistic of 74.62 and a probability value of 0.0000, confirming that the model significantly explained the variation in financial reporting lag among the sampled Nigerian listed non-financial firms. The pseudo R-squared of 0.0117 and log likelihood of -3142.2424 indicated a meaningful improvement in model fit relative to specifications examining ownership dimensions individually, suggesting that the joint moderation framework contributed meaningfully to the explanatory power of the model. The likelihood ratio test of alpha yielded a chi-bar-square statistic of 9198.26 with a probability value of 0.000, confirming significant overdispersion and validating the negative binomial estimator.

Audit firm size recorded a negative and statistically significant coefficient of -0.3891 at the one percent level ($z = -5.57$, $p = 0.000$), confirming that firms audited by Big Four audit firms consistently experienced significantly shorter financial reporting lags compared to those audited by non-Big Four firms. This finding was theoretically grounded in Agency Theory, which established that larger audit firms served as more effective independent monitors of managerial behaviour that reduced information asymmetry and facilitated timely financial disclosures (Jensen & Meckling, 1976), and Signalling Theory, which posited that Big Four engagement served as a credible and costly signal of firm quality and financial transparency that incentivised timely reporting practices (Spence, 1973). The finding was strongly consistent with the evidence of Olowokure and Asaolu (2016), Okolie and Izedonmi (2017), Adeyemi et al. (2019), Akinbuli and Kelilume (2020), Adeyemo and Alabi (2022b), Sani and Oke (2023b), and Yusuf and Salami (2024a), all of whom confirmed that larger audit firms delivered more efficient engagements that facilitated earlier release of audited financial statements in the Nigerian context.

Audit tenure recorded a negative and statistically significant coefficient of -0.0234 at the one percent level ($z = -4.43$, $p = 0.000$), confirming that longer auditor-client relationships were consistently associated with shorter financial reporting lags, supporting the auditor familiarity hypothesis. This finding was theoretically grounded in Resource Dependence Theory, which established that established auditor-client relationships constituted a valuable organisational resource that reduced audit complexity, minimised familiarisation time, and enabled more efficient audit completion as auditors accumulated deeper client-specific knowledge (Pfeffer & Salancik, 1978). The finding was consistent with the evidence of Okolie and Izedonmi (2014), Adeyemi and Fagbemi (2016), Nwoye and Okafor (2019), Sani and Oke (2023a), and Akintola and Okechukwu (2021), all of whom documented significant negative relationships between audit tenure and financial reporting lag in the Nigerian context.

Audit fees recorded a positive and statistically significant coefficient of 0.1260 at the one percent level ($z = 4.35$, $p = 0.000$), indicating that higher audit fees were associated with longer rather than shorter financial reporting lags contrary to the theoretical expectation derived from Agency Theory that higher fees reflected greater audit effort and quality reducing reporting delays (Jensen & Meckling, 1976), and contrary to the findings of Adeyemi and Fagbemi (2015), Adebisi and Ajayi (2020), Akinbuli and Kelilume (2020), and Yusuf and Salami (2024c). The positive relationship was interpreted through the audit complexity hypothesis, which posited that higher fees reflected the greater time, resources, and expertise required to complete more complex audit engagements rather than superior audit quality, and was consistent with the Resource Dependence Theory perspective that firms with more complex reporting environments faced greater dependence on auditor expertise that extended audit duration irrespective of fee levels paid.

Auditor competence recorded a positive and statistically significant coefficient of 0.2719 at the one percent level ($z = 3.92$, $p = 0.000$), indicating that higher levels of auditor competence were associated with longer rather than shorter financial reporting timeliness contrary to the theoretical expectation that more competent auditors would conduct more efficient engagements and reduce reporting delays as predicted by Agency Theory and supported by Okafor and Ezeagba (2018), Adeoye and Babalola (2019), Okeke and Uche (2021), and Balogun and Onyekachi (2023). Several explanations were advanced for this counterintuitive finding, including the possibility that more competent auditors exercised greater professional scepticism, applied more rigorous procedures, and identified a broader range of complex financial reporting issues requiring additional resolution time, and the possibility that the measurement proxy for auditor competence based on observable credentials rather than direct audit process efficiency introduced interpretive uncertainty.

Ownership concentration recorded a negative but statistically insignificant coefficient of -0.0428 ($p = 0.466$), and institutional ownership recorded a negative but statistically insignificant coefficient of -0.0890 ($p = 0.115$), confirming that neither ownership dimension exerted a significant independent direct effect on financial reporting lag across any model specification, consistent with the study's theoretical proposition that ownership governance influence operated primarily through joint moderating roles rather than as independent direct determinants.

The standalone interaction analysis in Model Two revealed that ownership concentration did not exert a statistically significant moderating effect at the five percent level, with only a marginal conditioning effect on the audit tenure-reporting lag relationship detected at the ten percent threshold ($p = 0.059$), demonstrating that standalone concentration was insufficient to drive reporting timelines without external institutional backing and justifying the transition toward the integrated joint moderation framework. This finding aligned with Afify (2009) and offered tentative support consistent with the evidence of Okafor and Arowoshegbe (2018), Adeyemi and Olatunji (2020), Akintola and Okechukwu (2021), and Yusuf and Salami (2024b). Model Three similarly revealed that institutional ownership did not exert a statistically significant moderating effect at the five percent level, though null hypothesis H06(i) was rejected at the ten percent level, indicating that institutional ownership marginally moderated the audit firm size-reporting lag relationship, consistent with the theoretical predictions of Agency Theory and Stakeholder Theory and partially consistent with the findings of Nwachukwu and Obi (2023), Okon and Adeyemi (2024), and Yusuf and Salami (2024c).

Model Four, the most comprehensive and theoretically central specification, introduced four centred three-way interaction terms examining the joint moderating effect of both ownership dimensions simultaneously. The joint interaction between audit firm size, ownership concentration, and institutional ownership recorded a positive and statistically significant coefficient of 2.2831 at the five percent level ($z = 2.30$, $p = 0.022$), with a 95 percent confidence interval of 0.3355 to 4.2307 entirely excluding zero, constituting the most important and novel finding of the entire study. The positive coefficient indicated that the simultaneous presence of both high ownership concentration and high institutional ownership weakened rather than strengthened the negative effect of Big Four audit firm engagement on financial reporting lag, generating a governance substitution effect whereby dual ownership monitoring partially substituted for the timeliness benefits of Big Four audit engagement, reducing the marginal contribution of audit firm size to reporting timeliness in firms where both ownership mechanisms were simultaneously strong. This finding was theoretically interpretable within Agency Theory, which posited that when strong dual ownership governance mechanisms were simultaneously present, the incremental monitoring benefits of Big Four auditors became partially redundant as governance needs were already substantially addressed by joint ownership monitoring (Jensen & Meckling, 1976). The remaining three-way interaction terms for audit fees ($p = 0.130$), audit tenure ($p = 0.520$), and auditor competence ($p = 0.142$) were all statistically insignificant, indicating that the joint moderating influence was selective rather than universal, being most significantly manifested in its interaction with audit firm size the most prominently visible and reputationally salient audit quality dimension. This novel finding extended the evidence of Okafor and Arowoshegbe (2018), Nwachukwu and Obi (2023), and Okon and Adeyemi (2024) by demonstrating that examining each ownership dimension in isolation was insufficient to detect the governance substitution dynamic that emerged from their simultaneous presence.

Firm size recorded a consistently negative and statistically significant coefficient of -0.0963 at the one percent level ($z = -4.15$, $p = 0.000$) across all model specifications, confirming that larger firms experienced shorter financial reporting lags attributable to their more developed accounting systems, sophisticated internal controls, and experienced financial reporting teams, consistent with the broader empirical literature. Profitability recorded consistently negative but statistically insignificant coefficients across all specifications ($p = 0.567$), confirming that financial performance was not a primary driver of financial reporting timeliness in the Nigerian non-financial sector context, as both profitable and less profitable firms faced comparable institutional and regulatory pressures to comply with reporting deadlines irrespective of financial performance.

Conclusion and Recommendations

To conclude, this study established that while audit firm size and auditor longevity (tenure) serve as robust, economically significant direct compressors of financial reporting delays in Nigeria's capital market, multi-layered governance and audit variables interact non-linearly to reshape reporting timelines. Counterintuitively, higher audit fees and superior auditor competence function as operational proxies for severe transactional complexity and meticulous professional skepticism, which naturally prolongs the verification lifecycle in favor of absolute precision over raw speed. Furthermore, while internal ownership concentration and external institutional ownership fail to exert any statistically significant independent moderating leverage on the audit-reporting lag nexus when operating in isolated vacuums, their simultaneous, joint presence under a three-way interaction framework generates a pronounced governance substitution effect. This dual-ownership structure introduces overlapping monitoring demands, conflicting strategic agendas, and severe administrative friction that actively neutralizes the incremental timeliness benefits of Big Four audit engagements. Ultimately, these groundbreaking insights demonstrate that piling on multiple layers of intense internal and external oversight without clear boundary controls turns corporate governance into an operational drag rather than an efficiency catalyst, providing a critical diagnostic blueprint for regulators, corporate boards, and market analysts to reframe how they evaluate financial reporting lifecycles within complex corporate ecosystems.

i. Corporate boards especially of newly listed or highly leveraged firms should deliberately engage Tier-1 (Big Four) audit firms, as empirical evidence identifies audit firm size as the strongest compressor of Financial Reporting Lag (FRL).
ii. Regulators (FRCN and SEC) should adopt flexible firm tenure policies (enforcing partner-level rather than rigid firm-level rotations) to preserve the client familiarity that empirically accelerates audit completion.
iii. Boards must recognize higher audit fees as signals of underlying transaction complexity rather than speed premiums, requiring pre-audit data standardization. Similarly, boards must adjust corporate calendars to accommodate the thorough compliance checks associated with highly competent auditors.
iv. Firms should encourage institutional ownership and leverage concentrated blockholders to support audit efficiency, while recognizing that isolated ownership channels cannot single-handedly optimize reporting cycles.
v. Regulatory bodies (SEC) must abandon "one-size-fits-all" mandates that stack uncoordinated monitoring mechanisms onto firms. Empirical findings show that dense blockholder networks and institutional investors jointly produce administrative friction that neutralizes the time-saving advantages of Big Four auditors.

vi. Governance reforms should focus specifically on streamlining the auditor selection interface in dual-ownership firms, avoiding unnecessary compliance burdens on audit tenure, fees, or auditor competence where no dual-ownership friction exists.

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APPENDIX A: VARIABLES AND MEASUREMENTS

Table 3.2: Summary of Variables and Measurements

Variable Name/Nature	Variable Code	Measurement	Expected Outcome	Sources of Measurement
Financial Reporting Lag (Dependent Variable)	FRL	FRL refers to the period between a firm's or company's fiscal year-end and the date when its financial statements are publicly disclosed. This will be measured using the length of time from a firm or company's financial year-end to date of publication of audited report. Therefore, FRL is date of publication of audited report minus accounting year-end (DPR - AYE)		(Al-Hadi et al., 2016).
Audit Firm Size (Independent Variable)	AFS	This is the size of the audit firm and the size of the audit engagement. It will be measured by the dummy variable of 1 if it is audited by the Big Four and 0 if it is audited by non-Big Four firms	Positive	(Elghuweel et al., 2017).
Audit Tenure (Independent Variable)	AT	Auditor tenure refers to as the length of the continuous relationship between an audit firm and its client. This will be measured in term of ln(Auditor Tenure).	Positive or Negative	(Kim & Son, 2024).
Audit Fees (Independent Variable)	AF	Audit fees refer to the monetary compensation paid by a firm or company to its external auditors for conducting financial statements audits. Audit fees (AF) will be measured as the natural logarithm of the audit fee amount disclosed in the	Positive	(Darmawan et al., 2020).

		firm's financial statements.		
Auditor Competent (Independent Variable)	AC	Auditor competence (AC) is operationally defined as the auditor's proficiency in understanding and evaluating a client's financial information, supported by continuous education and industry expertise. This working definition followed after the study of Knechel (2016). AC will be measured in term of auditor industry specialization which is defined as auditors with significant experience in a specific industry. Auditor industry specialization will be measured as the market share of audit firms within the sector (e.g., auditors with at least 10% of the audit market share in the industry). Binary variables will be employed in measuring auditor industry specialization as 1 if the auditor has audited at least 10% of firms in a specific industry (indicating industry specialization), and 0 if the auditor has audited less than 10% of firms in a specific industry (indicating non-industry specialization) or coding auditors as specialists (1) and non-specialists (0)	Positive	(Ananda & Faisal, 2023).
Ownership Concentration (Moderating Variable)	OC	Ownership concentration is defined as the proportion of the firm shares held by a certain number of majority shareholders. This, will be measured as the shares owned by top five largest shareholders to the total	Likely to be mixed - both positive and negative	(Omoye & Eriki, 2019).

		shares of the company.		
Firm Size (Control Variable)	FS	Firm Size is defined and operationalized as the natural logarithm of total assets of a firm and measured using the natural logarithm of total assets. It will be measured ln (total assets)	Negative	(Lodo & Zhou, 2021).
Profitability	ROA	Profitability (ROA) reflects a firm's financial performance and the ability to generate returns from its assets. ROA will be measured as Net income divide by Total assets	Negative	(Ilaboya & Christian, 2020).