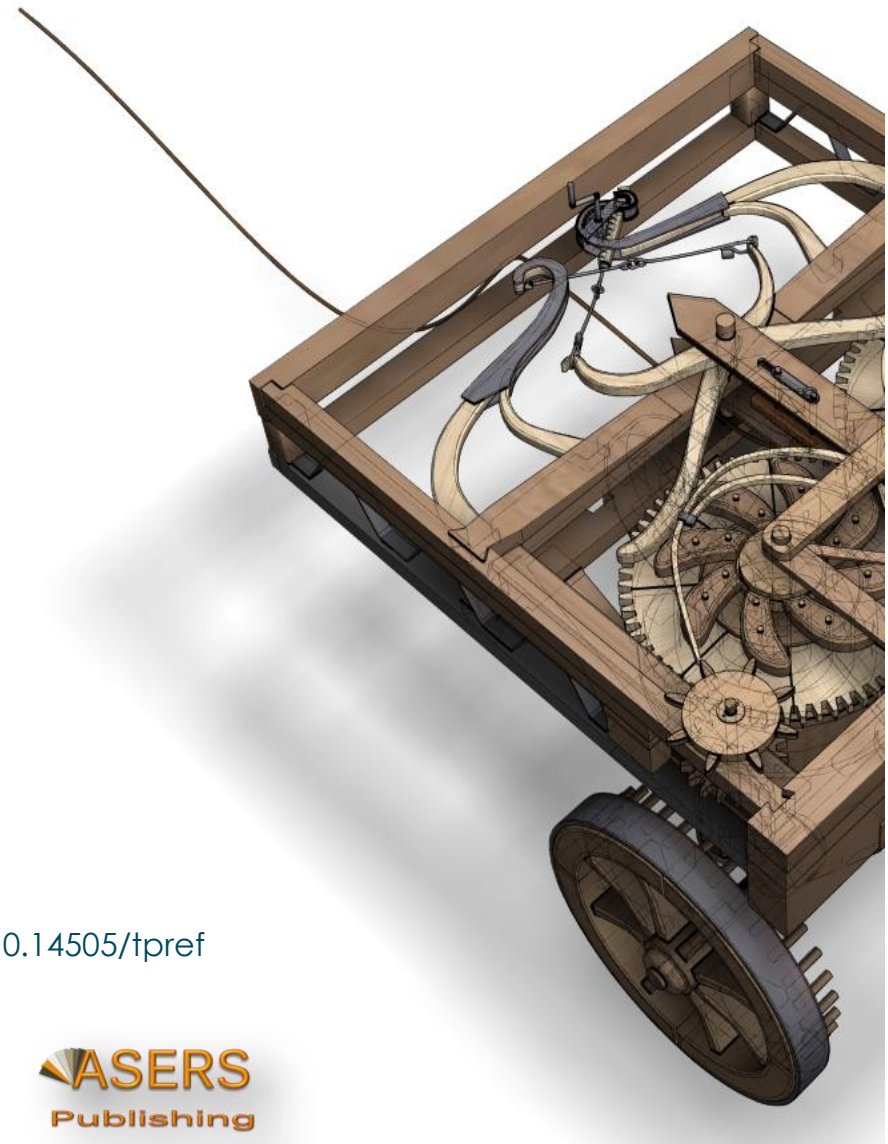
Theoretical and Practical Research in Economic Fields



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Competition in an Audit Segmented Market: Evidence from the Nigerian Listed Non-Financial Firms

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Abstract: The study examines the effect of competition on audit price and quality. We measure competition using initial audit price, static, and dynamic competition indicators. Static competition is measured using audit concentration, while the dynamic competition is measured using client mobility. The study fills in the gap in the literature by examining audit competition in a segmented audit market, considering audit complexity, and separating the Nigerian non-financial institution audit market into oligopolistic and atomistic segments. Our study employs ordinary least squares to analyse the data collected. The results show that audit concentration positively affects audit fees and improves quality in both segments. The study indicates that client mobility positively affects audit fees in both fragmented markets and provides evidence that audit clients react to low quality competitively by switching auditors within the segments. Finally, our results show that audit firms engage in lowball practices in the initial audit year as a marketing strategy, and initial year audit fee discounting improves audit quality. Our study provides evidence of competition within an audit-segmented market when the basis of delineation is audit complexity. Our results provide empirical evidence of audit competition in the oligopolistic segment, contrary to the traditional view of Structure Conduct Performance (SCP).

Keywords: competition; audit price; audit quality; atomistic; oligopolistic; structure; conduct; performance.

JEL Classification: L13; D 43; M 42; M48; R10.

Introduction

Auditors are expected to improve the quality of financial statements; however, the market power of large audit firms poses a threat to audit competition, invariably affecting the price and quality (Elayan *et al.* 2024; Kim *et al.* 2024). For decades, financial regulators (*e.g.*, Financial Reporting Council, 2018; General Accounting Office (GAO), 2003; 2008; Oxera, 2006; 2007; United States (US) Treasury, 2008) in advanced and emerging economies have been sceptical of audit market competition due to the high level of concentration, instituting several policies and reforms to safeguard audit quality and price. Extant Studies on audit market competition have primarily focused on the holistic audit market or oligopolistic segment from a static perspective, overlooking the atomistic segment and dynamic audit competition, including auditing literature in Nigeria. Globally, the audit market is a dual structure consisting of the oligopolistic and atomistic segments. The question is whether there is

less competition among auditors' operations in the atomistic section. Does high concentration connote less competition? Our study examines audit competition among Nigerian non-financial institutions in both the atomistic and oligopolistic segments, from both static and dynamic perspectives.

There are two conflicting views of audit concentration and its effect on competition. The first strand, anchored on the industrial economic theory of Structure Conduct Performance (SCP) paradigm, assumes that high concentration results in a lack of competition, leading to the exploitation of audit clients in terms of audit price and quality due to limited choice of audit firms (Competition & Markets Authority, 2019; Kitto, 2024). Based on the SCP paradigm, financial and audit regulators argue that highly concentrated markets lead to higher audit prices and impaired audit quality. Conversely, large audit practitioners and studies challenged the SCP paradigm view, premising on the spatial competition theory. For instance, PricewaterhouseCoopers (PwC) (2012) responds to the ongoing discourse about audit competition, arguing that competition exists among the Big Four. The proponents of spatial competition theory argue that the audit market's high audit concentration is a consequence of audit clients' preference for audit quality at the right price (Numan & Willekens, 2012; Pearson & Trompeter, 1994). The spatial competition theory argues that firms compete with their closest rival (Numan & Willekens, 2012; Pearson & Trompeter, 1994) but not outside their segment. Audit firms compete aggressively for clients by discounting audit fees in the initial engagement year and providing quality audit services (Cho & Krishnan, 2021). Studies show that audit fee discounting is rampant in the atomistic audit segment, the non-Big Four (Chan, 1999; Ghosh & Lustgarten, 2006; Simac & Willekens, 2024). Empirical evidence on audit competition indicates that large clients engage the Big Four to meet the demand for complex and intensive audit procedures that require immense technological input (Marrian & Pong, 2007; Scheidt, 2020).

Furthermore, large audit clients respond to audit quality impairment by switching to another auditor despite the limited choice within the Big Four (Xin *et al.* 2023; Van Raak *et al.* 2020; Willekens *et al.* 2023), evidencing competition. Studies indicate less competition between the Big Four and non-Big Four; this could be due to complexity (Chen *et al.* 2023; Peel, 2013; Kitto, 2024; Scheidt, 2020; Van Raak *et al.* 2020). However, limited studies have considered audit complexity in audit competition studies (Xin *et al.* 2023; Van Raak *et al.* 2020) despite the substantial spatial difference between the Big Four and the non-Big Four.

The Nigerian audit market, just like in most countries, is highly seller-concentrated and dominated by the Big Four (Ajaegbu, 2012; Asien, 2014; Ayoola *et al.* 2022; Eguasa & Uroghide, 2017) and has witnessed audit impairments (*e.g.*, Cadbury, Leverbrother) involving large and small audit firms. The Nigerian policymakers (FRCN, 2011) failed to address audit competition directly. However, the Nigerian audit regulatory bodies have initiated policies such as mandatory statutory audits, audit firm rotation, audit fee ceilings, audit fee disclosure, and non-audit service fee caps to improve audit quality and control audit prices. Despite the abovementioned, audit competition has received little attention in Nigeria (Ayoola *et al.* 2022). The Nigerian auditing literature on audit competition has neglected audit complexity, indicating a lack of studies in the atomistic segments; despite studies (Asien, 2014; Urhoghide & Izedonmi, 2015) show that the non-big four audit firms control no less than 30 per cent of the audit market of firms listed on the Nigerian Exchange Group Plc (NGX). Furthermore, these limited studies proxy competition from the industrial economic theory (see Eguasa & Uroghide, 2017), neglecting dynamic, audit complexity, and fee discounting during the initial engagement year.

Our study contributed to knowledge by adding to the limited empirical evidence, firstly by considering audit complexity, segregating the non-financial audit market into atomistic and oligopolistic segments to ascertain the effect of competition within each segment, which is novel and the first of its kind in Nigeria, if not Africa. Secondly, our study examines competition through the audit cycle, from the initial audit engagement period to price and quality, which is rare in audit competition literature. The study investigates audit price and quality competition using static and dynamic measures. Finally, we theoretically contribute to knowledge by testing the market power and the alternative view of the SCP paradigm in the non-financial segregated audit market. The rest of the paper is divided into the following sections. Section two relates to literature review and hypothesis development; section three is research design. Section four discusses findings, and section five shows the study's summary, conclusion, and limitations.

The Nigerian Financial Regulatory framework is weak and litigious (Nwosu, 2023; Ogbe & Oyibokure, 2023), just like most regulatory frameworks in Africa (Salifu *et al.* 2024). Studies (Asien, 2014; Ayoola *et al.* 2022; Eguasa & Uroghide, 2017; Okaro & Okafor, 2013) evidenced that the Nigerian audit market is highly concentrated and dominated by the Big Four. In support of the abovementioned empirical evidence, Asien (2014) asserts that the Big Four controls 67.5 per cent of the entire audit market of public companies. Furthermore, the 50th president of the Institute of Chartered Accountants of Nigeria (ICAN), Ajaegbu (2012), claims that the Big Four

dominate the Nigerian audit market, lack competition and proposes a joint audit to increase the market share of Nigerian-owned audit firms.

As earlier mentioned, the Nigerian financial regulations (*e.g.*, CAMA 2020; FRCN, 2011; NCCG 2016; 2018) failed to address audit competition directly; the institute addresses audit-related issues such as audit price, quality, and independence, which invariably form part of our concern in the study. The FRCN (2011) stipulates that all listed firms licensed in Nigeria are mandated to disclose the audit fee and not allowed to receive more than 25 per cent of their annual audit income from any of their clients, evidencing the existence of an audit fee cap. There is no regulation on the audit fee floor as compared to other advanced economies. For example, the Chinese government set a minimum audit fee to guide against lowballing and aggressive competition (Huang *et al.* 2016; Zhang, 2012). Furthermore, NCCG (2016) Section (19.4) stipulates that an audit firm is restricted from performing statutory audits and a significant proportion of non–audit services (NAS) to the same client to promote auditor independence.

A critical analysis of the abovementioned indicates that these audit policies impact audit price, quality competition, and lowballing in several instances. First, the mandatory audit fee disclosure makes the audit fee observable and increases the clients' bargaining power in the audit fee negotiation process. Secondly, the mandatory audit fee disclosure and the restriction of NAS limit the possibility of lowballing practices, as recovering the initial audit fee loss from subsequent audit fees is low due to the possibility of clients switching to other audit firms and the availability of market information. Conversely, the absence of an audit fee floor policy increases the likelihood of aggressive audit competition during the initial audit engagement year through lowballing practices. The audit firms may compromise audit quality to compensate for the initial audit fee loss. The audit fee cap creates a gap between the atomistic and the oligopolistic segments, preventing the auditors operating within the atomistic segment from having large audit clients to ensure audit independence.

1. Literature Review and Hypotheses Development

1.1 Audit Market Segments

The audit market is fragmented into three tiers: the first, mid, and last (Peel, 2013; IAB, 2013). The first tier of the audit market structure is the oligopolistic segment consisting of the Big Four audit firms (namely: PricewaterhouseCoopers (PwC), Ernst & Young (EY), Deloitte, Klynveld Peat Marwick Goerdele (KPMG)). The Big Four dominate the audit market and increase their market power through product and price differentiation (Pindyck & Rubinfeld, 2018) and possess large audit clients (Ascher, 2008; Guo *et al.* 2017; Kacer, 2023). The mid-tier is the second audit segment, containing the medium-size auditors characterised by a limited number of audit firms, just like the Big Four, with less operating and technical capacities when compared to the first-tier auditors, with small public and private firms as its clients (Simons & Zein, 2016). The last-tier audit segment includes small, local auditors with few public company clients.

There is a general perception that the audit market structure is oligopolistic. The existence of the oligopolistic audit market invariably creates an atomistic fragment of the audit market. The audit market structure is fragmented into oligopolistic and atomistic (Chung & Lee, 2024; Marrian & Pong, 2007). The atomistic segment consists of the numerous non-Big Four, but not unlimited, having a smaller proportion of the entire audit market. Furthermore, the atomistic segment is characterised by low audit concentration and non-specialised auditors, audit privacy, and the audit clients usually small listed and unlisted clients (Dey, 2010; 2013; Dunn *et al.* 2008). For the purpose of the study, we assume that the audit big four audit firms operate in the oligopolistic segments, while the non-Big four operate in tha atomistic segment.

1.2 Audit Competition

The economic theory posits that competition should result in cost efficiency and product innovation (Hay & Liu, 1997; Pilat, 1996). The regulatory bodies contend that the audit market lacks competition due to a limited choice of audit firms and barriers to new entry (GAO, 2003; 2008; Oxera, 2006). Based on the traditional view of the SCP paradigm, in an oligopolistic market, the sellers have the market power either through collusion or individually taking advantage of the clients by charging a higher price or reducing the quality (Day *et al.* 2002; Noll, 2004). Conversely, the alternative view of SCP posits that there is competition in the oligopolistic market. Cabral (2017) argues that there is no consensus on the acceptable measurement of competition; hence, the study measures competition from the static perspective using audit concentration (the Herfindahl index) and dynamic perspectives using client Mobility.

1.2.1 Audit Market Concentration

The traditional view of the SCP paradigm posits that the market structure determines the conduct and performance of audit firms. The traditional view of SCP argues that in an oligopolistic market, concentration increases the market power of the audit oligarchs (large audit firms), resulting in a reduction in competition, audit price exploitation, and impairment of audit quality (Ayoola *et al.* 2022; Elbardan *et al.* 2023; Kamolane & Odendaal, 2021). The financial regulatory bodies (*e.g.*, Competition & Markets Authority, 2019; Financial Reporting Council, 2018; GAO, 2008; Oxera, 2006; 2007; US Treasury, 2008) express scepticism due to the danger identified by the traditional view of SCP on concentration. The traditional view assumes that audit market concentration is exogenous and positively related to audit price but negatively related to audit quality (Azizkhani *et al.* 2022; Kallapur *et al.* 2010; Newton *et al.* 2013). Contrarily, the proponents of the alternative view of SCP argue that audit concentration is endogenously determined by clients' demand for audit quality (Etro, 2014; Sutton, 1991). The differentiation hypothesis posits that audit clients engage first-tier auditors to have a competitive advantage over their rivals through financial reporting quality (Peel, 2013; Zerni, 2012). However, a limited number of audit firms have the resources to meet the audit quality expectation (Sirois & Simunic, 2011), explaining the rationale for high audit concentration. Van Raak *et al.* (2020) argue that audit complexity should be accounted for in audit concentration–price and audit concentration-quality studies; however, audit complexity is an omitted determinant that has received little attention.

There are limited empirical studies on audit concentration; however, the limited archival literature has generated mixed results (Scheidt, 2020; Van Raak *et al.* 2020). While studies (Eshelman & Lawson, 2017; Huang *et al.* 2016) assume that concentration is positively related to audit price, conversely, empirical evidence (Numan & Willekens, 2012; Pearson & Trompeter, 1994) indicate that audit concentration is negatively associated with audit price.

Concerning audit quality, audit concentration studies are limited and inconclusive (Gunn *et al.* 2019; Scheidt, 2020; Van Raak *et al.* 2020). While studies (Huang *et al.* 2016; Kallapur *et al.* 2010; Newton *et al.* 2013) indicate that audit quality improves with an increase in concentration, conversely studies (Boone *et al.* 2012; Francis *et al.* 2013) also indicate a negative association between the two variables. Based on those mentioned above and limited empirical evidence, we postulate that:

H_1: Audit market concentration significantly affects audit price.

H_2: Audit market concentration significantly affects audit quality.

1.2.2 Client Mobility

The traditional view of SCP posits that concentration is inversely related to competition. In line with this assertion, the Cournot competition model contends that competition reduces as the number of sellers declines. The proponents of the traditional view (Ciconte *et al.* 2015; Kallapur *et al.* 2010) proxy competition using concentration based on the structural economic theory. However, the alternative view of SCP contends that concentration is a static measure of competition; hence, it does not reflect rivalry among market players (Carlton & Perloff, 1994) except in a perfectly competitive market and similar size (Van Raak *et al.* 2020). However, the alternative view proponents argue that high audit concentration does not necessarily translate to a lack of competition. Hence, suggest a dynamic measure of competition (Ayoola *et al.* 2022; Baldwin & Gorecki, 1998; Buijink *et al.* 1998) proxy with client mobility, client market share, and spatial distance difference, among others.

Client mobility is a competitive response by audit clients to a change in audit price or quality. The audit client may switch to another audit firm in response to a change in audit price or quality. Client mobility reflects the dynamic rivalry among audit firms for clients. Contrary to the traditional view, the alternative view asserts that competition may exist in a duopoly or oligopolistic audit market. To buttress the abovementioned, Nicholson and Snyder (2008) postulate that pricing decisions fall within the two theoretical markets of monopoly and perfectly competitive market in an oligopolistic market. Premising on this hypothesis, the auditors operating in the oligopolistic market charge a fair or exploitative price. Furthermore, Asthana *et al.* (2018) and Gunn *et al.* (2019) claim that the audit oligopolist market does not necessarily connote the exploitation of clients in terms of audit price and quality. Similarly, studies (*e.g.*, Cabral, 2017; Stiglitz, 1987) contend that audit firms operating in the oligopolistic market face aggressive audit competition as the numbers of suppliers reduce.

Studies (Buijink *et al.* 1998; Dekeyser *et al.* 2021; Newton *et al.* 2013; Willekens *et al.* 2023) indicate that the dynamic competition reflects rivalry among audit firms, especially within the oligopolistic section. However, there are limited empirical studies on dynamic audit competition (Van Raak *et al.* 2020). Based on theory and existing empirical studies, we hypothesise that

H_3: Dynamic audit competition significantly affects the audit price.

H_4: Dynamic audit competition significantly affects audit quality.

1.2.3 Initial Audit Engagement

The initial audit engagement year is the first year the auditor is on a specific audit assignment. Auditors are accused of lowballing in the initial audit engagement year. Lowballing charges an audit fee less than the actual audit cost to compete, win, and retain the client (Carswell & Francis 1999; DeAngelo, 1981; Desir *et al.* 2014; Krishnan & Tany, 2020). The regulators are concerned that the initial audit fee discounting impairs auditors' independence and quality (Liu & Huang, 2024). Empirical evidence shows that auditors under-price in the initial year of engagement (Ettredge & Greenberg, 1990; Simon & Francis, 1988). Furthermore, studies (Chan, 1999; Cho *et al.* 2021; Dye, 1991) show that lowballing is practised by auditors operating in a competitive market, especially in the atomistic section.

According to the traditional view of the SCP paradigm, the market and bargaining power of the audit firm increases with its concentration. Based on the structural theory, the oligopolistic segment auditors are less likely to lowball and are supported by empirical evidence (Ghosh & Lustgarten, 2006; Ghosh & Pawlewicz, 2009; Huang *et al.* 2015). Conversely, Cabral (2017) contends that the oligopolistic market does not lack competition; studies report aggressive competition in the oligopolistic market (Cho *et al.* 2021; Stiglitz, 1987). Empirical evidence of lowballing subsists in the atomistic and oligopolistic markets as both the Big – Four and non–Big Four engaged in initial-year audit fee discounting (Cho *et al.* 2021; Desir *et al.* 2014). Also, as expected, studies (Chan, 1999; Ghosh & Lustgarten, 2006; Ettredge & Greenberg, 1990) evidence that audit fee discounting is well practised in the atomistic section.

Based on empirical evidence and applicable theory. We postulate that lowballing practices in the non-financial sector's atomistic, oligopolistic, and total audit market structure.

H_5 – *The lowballing exists in the initial audit engagement year*

Conversely, studies show that an initial audit year discounting is a marketing strategy and a sunk cost and does not compromise audit independence and quality (Cho *et al.* 2021; Liu & Huang, 2024). Studies show lowballing in the initial audit year impairs audit quality (Barua *et al.* 2020; Cassell *et al.* 2020; Dye, 1991; Huang *et al.* 2016). Based on theory and existing empirical evidence, we hypothesise that,

H_6 – lowballing practices have a significant effect on the audit quality

2. Research Methodology

2.1 Data and Sample

Our study focuses on the Nigerian listed non-financial institution because the sector has a significant portion of the atomistic segment (see Asien, 2014; Soyemi *et al.* 2025). We repeatedly collected a sample size of 960 firm-year observations from 80 listed non-financial firms from 2011-2022 from the Nigeria Exchange Group (NGX) and the audited financial report of the sampled firm. Our study chooses 2011 as the base year due to the FRCN (2011) mandatory audit Fee Disclosure Act, while 2022 is the latest financial report available during the study. The sample of 960 firm-year observations is arrived at using the following criteria:

- The company's stock is actively traded over 2011 -2022,
- The financial report of the company is published over the period,
- The audit client must only switch within its audit segment, and
- Data on all the variables of interest are readily available in financial reports or fact books.

2.2 Measurement of Variables and Specification of Models

2.2.1 Dependent Variable

The study has two dependent variables: audit fee and audit quality.

Audit Fee

The study measures the audit fee as a natural logarithm of the actual audit price charged by the statutory auditor for his engagement service. Our surrogate for the dependent variable is consistent with similar studies (Asthana *et al.* 2018; Ayoola *et al.* 2022; Van Raak, 2020).

Audit Quality

The study assumes that the audit quality is unobservable and measured from an earnings management perspective consistent with studies (Van Raak *et al.* 2020; Willeken *et al.* 2023). We employ the discretionary accrual method of modified Jones by Jeter and Shivakumar (1999) and Ball and Shivakumar (2006) model as well as the performance-adjusted modified Jones model (Dechow *et al.* 1995):

$$tacc_{it} = \beta_0 + \beta_1[\Delta\text{rev} - \Delta\text{rec}] + \beta_2 ppe_{it} + \beta_3 \text{roa} + e_{it} \quad (1)$$

$$tacc_{it} = \beta_0 + \beta_1 \Delta rev_{it} + \beta_2 ppe_{it} + e_{it} \quad (2)$$

Where tacc_{it} indicate the total accruals, Δrev represents changes in revenue, Δrec indicates a change in receivables, the net property, plant, and equipment is coded as ppe, roa connotes return on assets, e_{it} represents the discretionary accruals. The inverse of the discretionary accrual represents the audit quality.

2.2.2 Independent Variables

Our study proxy audit competition using both static and dynamic perspectives. Static competition is measured by the inverse of the Herfindahl-Hirschman Index (HHI), while dynamic competition is measured using client mobility.

Audit concentration

The study measures static competition using audit concentration. We employ audit market concentration to test the market power of the auditors in the segment and the industry using the Herfindahl-Hirschman Index (HHI). The HHI measures each audit firm's market size in terms of the total market size in the segment and the industry. The HHI is the square of the proportion of the total audit fee of each client in its segment, consistent with studies (Boone *et al.* 2012; Kamolane & Odendaal, 2021; Newton *et al.* 2013). The Herfindahl index is stated as follows:

$$\text{HHI} = \sum_{i=1}^{N} \left(\frac{s_i}{S}\right)^2 \quad (3)$$

Where N is the total number of statutory auditors operating in the market, s_i is the size of the audit firm, which is measured using the audit fee paid to the audit firm, and S is the size of the audit market, which is measured using the total audit fees paid in the segment.

Client Mobility

Our study measures the dynamic competition using percentage change in the market share of each auditor, which is in line with the study (Ayoola *et al.* 2022; Buijink, 1998; Van Raak *et al.* 2020). The client's mobility is stated as follows:

$$CM_{it} = \sum_{A=1}^{N} \{MS_{Ai,t} - MS_{Ai,t-1}\} \quad (4)$$

Where CM connotes Client mobility, MS represents the market share.

Initial Audit Engagement Year

The study uses a dichotomous variable to measure the initial year of the audit, consistent with studies (Barua *et al.* 2020; Cassell *et al.* 2020), by ascribing a value of one to the initial year of audit engagement and zero otherwise for another successive year of the auditor's engagement.

2.2.3 Control Variables

Our study controls firm-specific and audit characteristics. Firm-specific characteristics, namely size, complexity, and profitability, are included in the model. We measure client size using the natural logarithm of total assets consistent with the prior studies (Eshelman *et al.* 2017; Van Raak *et al.* 2020) and expect a positive association between client size and audit price as a more significant audit effort is required when performing the audit engagement of large clients. Concerning audit quality, we postulate that larger clients have the financial capacity to employ specialised audit firms and improve the audit quality. We proxy client complexity by the number of employees and business segments and expect client complexity to be positively associated with price and inversely related to audit quality.

Furthermore, the study introduces the financial performance indicator of Return on Assets (ROA) and loss. The study measures the ROA as profit after tax scaled down by the total assets, while the loss is a binary variable, one of which is accorded when the firm suffers a loss at the closing date of the accounting year and zero otherwise. We predict a positive relationship between ROA and audit fees and quality. Also, clients with losses at fiscal year-end tend to engage in aggressive financial reporting. In line with these arguments, we expect the auditors to charge a high price when there is a loss, but the association of the variable with audit quality is expected to be mixed.

Our study controls financial stability by employing the firm's current ratio (CR) and Leverage (LEV). The current ratio is current assets divided by current liability, while the Lev is the debt to total assets ratio. The

financial stability depicts the business risk; the higher the ratio, the likelihood that the auditor demands a higher fee, consistent with similar studies (Eshelman & Lawson, 2017; Van Raak *et al.* 2020). Also, financial stability may likely harm audit quality.

Furthermore, the Busy is defined as the auditors' season, which is usually December 31 of every year in Nigeria. The busy is proxy by a binary variable of one if the accounting date is December 31 and zero otherwise. The audit clients with December fiscal year-end tend to pay more for audit assurance services, as the audit firms are on-season, and most companies have a fiscal year-end of December 31 (Hay *et al.* 2006; López & Peters, 2011; Ng *et al.* 2018). Also, we introduce the audit type represented by the Big Four. The Audit type is represented as a dichotomous variable of one when the big four undertake the audit assignment and zero otherwise. Like other related studies, we assume that large audit firms provide a better quality based on their resources and charge a premium price.

Finally, we introduce audit tenure (aud_ten) and assume that the audit price increases with a long audit tenure, especially if the auditor lowballs in the initial audit year. However, there is evidence of the learning effect, which claims that audit price decreases as the tenure increases due to reduced subsequent audit costs. Regarding audit quality, the learning effect posits that auditors improve with time; however, the opponents of audit tenure posit that auditors' independence is likely compromised as audit tenure increases due to an increase in familiarity threat associated with long audit tenure.

2.3 Model Specification

To achieve this objective, we employ audit price and competition models. The effect of competition on pricing is functionally stated as follows:

$$\ln(\text{afee}) = \beta_0 + \beta_1 \text{conc}_{it} + \beta_2 initial + \beta_3 \text{big\_}4_{it} + \beta_4 \ln(\text{ta})_{it} + \beta_5 \ln(\text{emp})_{it} + \beta_6 \text{lnseg}_{it} + \beta_7 aud\_ten_{it} + \beta_8 \text{roa}_{it} + \beta_9 \text{loss}_{it} + \beta_{10} \text{lev}_{it} + \beta_{11} \text{cr}_{it} + \beta_{12} \text{busy}_{it} + \sum \text{yjind} + e_{it} \quad (5)$$

While

To achieve this objective, we employ audit quality and competition models. The effect of competition on pricing is functionally stated as follows:

$$\text{QA} = \beta_0 + \beta_1 \text{conc}_{it} + \beta_2 initial + \beta_3 \text{big\_}4_{it} + \beta_4 \ln(\text{ta})_{it} + \beta_5 \ln(\text{emp})_{it} + \beta_6 \text{lnseg}_{it} + \beta_7 aud\_ten_{it} + \beta_8 \text{roa}_{it} + \beta_9 \text{loss}_{it} + \beta_{10} \text{lev}_{it} + \beta_{11} \text{cr}_{it} + \beta_{12} \text{busy}_{it} + \sum \text{yjind} + e_{it} \quad (6)$$

Where AFEE is the natural logarithms of audit fees, CONC is audit market concentration, which measures the Herfindal index, the initial measure of the first year of the audit engagement, BIG_4 is the four largest audit firms, namely (KPMG, Ernst and Young, Deloitte, PWC). Ln (ta)is the natural logarithms of total assets, and lnseg is the natural logarithms of the number of business segments a client operates. The roa connotes the return on assets; LOSS is the firm's loss, and Lev represents leverage. Cr is the current ratio. Busy is the fiscal year-end of the clients, and the aud_ten represents audit tenure, whereas AQ represents audit quality measured by the inverse of the residue in equations 1 and 2.

3. Research Results

3.1 Descriptive Statistics

Table 1 shows the descriptive statistics of variables employed in achieving the study's objective. The variables are the natural logarithm of audit fee (ln-aud fee), Herfindahl Index (HHI), client mobility (CM), initial audit engagement year (initial), the Big Four (big-four), the natural logarithm of total assets (lnta), number of employees (emp), the logarithm of the numbers of the business segment (ln-seg), audit tenure (aud_ten), return on asset (roa), current year loss (loss), leverage (Lev), current assets (cr) and busy accounting period (busy).

Table 1 shows that the industrial audit fee (ln-aud fee), in the natural logarithm form, is 9.3, amounting to ₦11,731,120 (as the original figure is stated in thousand). Furthermore, the audit fee statistic shows a significant difference of 7.39 (in natural logarithm form) between the two segments, evidencing high audit price disparity between the oligopolistic and the atomistic auditors. The rationale for the premium audit price in the oligopolistic market could be due to the client's size and audit complexity, which results in the demand for specialised auditors with high technological capabilities and human resources. Table 1 shows that the entire sample HHI has an average value of 0.264. The result evidence that the Nigerian non-financial audit market is sellers concentrated with an average value greater than the hurdle of 0.25 (HHI > 0.25). The maximum value of 0.393 is above the cut-off point of 0.25 (HHI > 0.25), indicating the existence of a tight oligopolistic segment. The HHI minimum value

of 0.139 is lower than the threshold, supporting the intense competition and existence of the atomistic section. The meaning of the HHI in the atomistic and oligopolistic segments are 0.11 and 0.38, respectively. The segmented results of HHI indicate an aggressive atomistic and tight oligopolistic market. The statistics of the HHI competition show that the market is relatively stable, with a standard deviation of 0.073. Table 1 shows that client mobility averages 0.25, 0.3, and 0.21 in the industrial, atomistic, and oligopolistic segments. The result evidenced the audit competition in each segment measured from a dynamic perspective. The availability of audit choice enables client mobility in industry, atomistic and oligopolistic. The client mobility descriptive statistic displays that atomistic is highly competitive, as the mean statistics show that the audit firm loses an average of 15 per cent of its clients (0.3/2) to its rivals annually.

Table 2 shows that the initial year engagement statistics have an average industrial value of 0.2, indicating a 20% likelihood of lowballing in the industry. Also, the initial value indicates that the lowballing auditors dominate the atomistic section, with a mean value of 0.25, concordance with structural economic theory. Also, in support of the market competitiveness of the atomistic segment, the auditor's tenure is shorter, with a mean of 3.8 years, indicating a frequent change compared to the oligopolistic market, which has an average of approximately six years. Furthermore, the Table shows that the non-Big Four controlled a significant proportion of the audit market, 45% of the total market share (measured by the number of clients), while the Big Four controlled the majority, controlling 55%.

Table 1. Descriptive statistics

	FULL SAMPLE							Market		Diff
								Atom	Oligo	
variables	mean	median	std. dev	min	Q1	Q3	max	mean	mean	Diff
ln_aud_fee_	9.37	9.51	1.51	2.64	8.64	10.25	13.31	5.09	12.48	7.39
hhi	0.26	0.26	0.07	0.14	0.18	0.27	0.39	0.11	0.38	0.27
cm	0.25	0.24	0.05	0.13	0.04	0.21	0.41	0.21	0.30	0.09
initial	0.20	0.00	0.40	0.00	0.00	0.00	1.00	0.25	0.17	-0.08
big_four	0.55	1.00	0.50	0.00	0.00	1.00	1.00			
lnta	16.23	16.35	1.95	10.63	13.24	18.82	19.97	11.10	19.94	8.84
emp	5.97	6.05	1.50	3.33	3.59	8.37	12.07	5.64	6.21	0.57
ln_seg_	0.93	1.10	0.54	0.00	0.56	1.30	1.95	0.30	1.38	1.08
aud_ten	4.08	4.00	0.28	2.00	2.74	4.80	9.00	3.80	5.88	2.08
roa	0.04	0.04	0.27	-0.93	0.03	0.14	4.28	0.03	0.04	0.01
loss	0.21	0.00	0.41	0.00	0.00	0.00	1.00	0.27	0.17	-0.10
lev	0.52	0.55	0.22	0.01	0.03	0.83	1.00	0.56	0.49	-0.07
cr_	1.88	1.18	3.43	0.01	1.24	2.54	36.41	1.69	2.02	0.33
busy	0.66	1.00	0.47	0.00	0.00	1.00	1.00	0.25	0.96	0.71

Source: Authors' Computation (2024)

Note: The full sample size is n=960 obs, n (Atomistic)= 432 obs, and n(Oligopolistic) = 528 obs

The CR. (current ratio) of the firms in the industry is fairly below the acceptable ratio of 2:1, with a mean value of 1.960 and median of 1.180; it could be inferred that the Nigerian listed non-financial firms overtrade and possibly have short-term financial stability problems. Also, there is a high dispersion of individual firms from the industrial average, evidenced by a standard deviation value of 3.433. Also, the Table shows information about the strength of staff in the industry. The exponential value regarding the employee shows that each firm operating has an average of 393 employees. Table 2 also shows that the auditor is engaged for an average of four years, with a maximum value of ten years. The audit tenure statistics indicate that auditors are engaged on a medium-term basis; this could affect the acquaintance process with the client's nature of business, internal control, and, invariably, audit quality. However, the audit clients operating in the non-financial industry comply with the maximum audit tenure of ten years. However, a voluntary audit switch may be difficult amid competition because most firms have a closing year-end of December 31. However, there is no existing legal imposition of the fiscal year-end date in the Nigerian non-financial sector, unlike the financial sectors, where all the firms must comply with the December 31 financial year-end as stipulated by the CBN through circular of BSD/DIR/GEN/VOL.2/004.

3.2 Correlation Analysis

Table 2 shows the results of the correlation analysis and the Variance Inflation Factor (VIF) of the variables employed in achieving the objectives. The Pearson pairwise correlation of the variables indicates that the model has less multicollinearity problem with the highest correlation of r = 0.58 occurring between the HHI and client mobility, which is less than the threshold of 0. 8. The results of the VIF of the regressors as displayed in Table 2 is less than the benchmark of 5. The VIF results corroborate the lesser existence of the multicollinearity problem with the highest value of 4.88, less than the threshold of 5.

There is a need to explain the pairwise relationship of variables with economic importance. The static audit competition, measured by HHI, has a positive and significant association with audit price (r = 0.04, p =0.00), indicating that high audit concentration possibly leads to the exploitation of clients in terms of price. However, the dynamic competition, measured by client mobility (CM), is negatively associated with audit fee (ln_aud_fee_) (r = -0.58, p = 0.00), indicating that an increase in audit fee may reduce the market share of the audit firm. The Big Four has a significant positive association with audit fees (r =0.24, p =0.00) and HHI (r = 0.15, p = 0.00). However, there is a negative association between Big Four and Client mobility (r = -0.13, p = 0.01) and initial (r = -0.03, p =0.02). The pairwise association of the Big Four and the other variables of interest indicate that the Big Four charges a premium audit fee; the result indicates that the Big Four is possibly exploiting their client in terms of price due to high concentration. However, there is still a tendency for competition as clients are switching to other competitors, and the Big Four is lowballing to prevent market share loss. For brevity and conciseness, the economic interpretation of the correlation analysis is limited to the primary variable of interest.

Table 2. Correlation Matrix and Variance Inflation Factor of Full Sample

Probability	1	2	3	4	5	6	7	Tolerance	VIF
ln_aud_fee_(1)	1.00								
	0.00								
hhi (2)	0.04	1.00						0.56	1.79
	0.00	*0.00*							
cm (3)	-0.01	0.58	1.00					0.21	4.88
	0.02	*0.00*	*0.00*						
initial (4)	0.01	0.02	0.01	1.00				0.30	3.37
	0.41	*0.00*	*0.00*	*0.00*					
big_four (5)	0.24	0.15	-0.13	-0.03	1.00			0.92	1.09
	0.00	*0.00*	*0.01*	*0.02*	*0.00*				
ln_ta (6)	0.51	0.09	0.00	0.02	0.21	1.00		0.48	2.07
	0.00	*0.03*	*0.92*	*0.39*	*0.00*	*0.00*			
employ (7)	0.16	0.18	0.21	-0.03	0.12	0.12	1.00	0.85	1.17
	0.00	*0.00*	*0.00*	*0.48*	*0.01*	*0.01*	*0.00*		
seg (8)	0.08	-0.01	0.01	-0.07	-0.02	-0.02	0.25	0.53	1.88
	0.03	*0.90*	*0.85*	*0.17*	*0.74*	*0.68*	*0.00*		
aud_ten (9)	0.03	-0.03	-0.02	-0.09	-0.07	0.06	0.05	0.55	1.82
	0.61	*0.52*	*0.65*	*0.06*	*0.14*	*0.23*	*0.35*		
roa (10)	0.03	0.00	0.00	0.01	0.19	0.07	0.05	0.45	2.20
	0.48	*0.97*	*0.92*	*0.82*	*0.00*	*0.17*	*0.27*		
loss (11)	0.06	0.08	0.08	0.07	-0.09	0.01	-0.06	0.59	1.71
	0.25	*0.09*	*0.11*	*0.15*	*0.08*	*0.88*	*0.26*		
lev (12)	-0.04	-0.03	-0.01	0.12	0.08	0.02	0.15	0.60	1.67
	0.38	*0.55*	*0.79*	*0.02*	*0.11*	*0.66*	*0.00*		
cr (13)	0.19	0.02	0.00	0.02	-0.06	-0.14	0.08	0.75	1.34
	0.00	*0.68*	*0.93*	*0.67*	*0.22*	*0.01*	*0.11*		
busy (14)	0.19	0.22	0.23	-0.02	0.03	0.00	0.04	0.53	1.88
	0.00	*0.00*	*0.00*	*0.68*	*0.50*	*0.98*	*0.46*		

Probability	1	2	3	4	5	6	7	Tolerance	VIF
	8	9	10	11	12	13	14	Tolerance	VIF
seg (8)	1.00							0.53	1.88
	0.00								
aud_ten (9)	0.05	1.00						0.55	1.82
	0.35	***0.00***							
roa (10)	-0.01	-0.12	1.00					0.45	2.20
	0.06	***0.01***	***0.00***						
loss (11)	-0.01	0.05	-0.52	1.00				0.59	1.71
	0.82	***0.32***	***0.00***	***0.00***					
lev (12)	0.14	0.01	0.08	-0.04	1.00			0.60	1.67
	0.00	***0.84***	***0.12***	***0.41***	***0.00***				
cr (13)	0.02	0.10	0.04	-0.14	-0.05	1.00		0.75	1.34
	0.70	***0.05***	***0.38***	***0.00***	***0.30***	***0.00***			
busy (14)	-0.21	0.04	0.16	-0.03	-0.09	0.16	1.00	0.53	1.88
	0.00	***0.48***	***0.00***	***0.49***	***0.09***	***0.00***	***0.00***		

The figures not bold are the pairwise correlation, while the bold and italicised figures are probability values.

4. Results and Discussion of Findings

The study performs the unit root Test, the Hausman Test and the Breush Pagan Test; these results are not displayed because of brevity. The unit root test result indicates that all the variables used in the study are stationary at level, supporting the use of the ordinary least square analysis method. The results of the Hausman and Breush Pagan Test support our reasons for using the Fixed Effect Method (FEM), among the FEM, Random Effect Method (REM), and the pooled effect. Table 3 displays the regression output of Equation 5 using the Fixed Effect Method of Ordinary Least Square Regression (OLS). The output in Table 3 represents the result of the hypotheses of the audit competition-price model (H_1, H_3, and H_5) and audit competition-quality model (H_2, H_4, and H_6). Hypotheses $H_{1\&2}$ relate to audit concentration, $H_{3\&4}$ relate to client mobility of the audit competition-price model, and $H_{5\&6}$ provide information regarding the initial audit engagement year. Columns 1, 2, and 3 depict information about the audit price competition in the non-financial industry and the atomistic and oligopolistic segments estimated using Equation 5. For audit competition, the estimate of Equation 6 for the atomistic and oligopolistic segments is displayed in columns 4, 5 and 6, respectively.

Furthermore, Table 3 provides the test result for hypothesis H_1 concerning the association of audit concentration (HHI) and audit price. The entire sample, atomistic and oligopolistic results are presented in column 1(β =14.96; t=4.60), column 2 (β =13.07; t=3.69), and column 3 (β =21.30; t=6.35), respectively, under the HHI. The audit concentration, proxy by the Herfindal index (HHI), is positive and significantly related to the audit price in each segmented audit market, and it is statistically indifferent from the entire total sample. The result aligns with our postulation, as shown in hypothesis H_1, consistent with studies (Van-Raak *et al.* 2020), evidence that audit concentration is positively associated with audit price in both segmented audit markets.

The result of the client mobility (CM) on audit price for the entire sample, an atomistic and oligopolistic fragment of the non-financial audit market, is displayed in columns one, two, and three under the CM. of Table 3. The results of the atomistic section (β =-18.74; t=-3.53) and the oligopolistic segment (β =-32.83; t=-7.24) show that client mobility is negatively associated with audit fees at a 1 per cent level of significance. The association of these variables further demonstrates the existence of competition in the two fragmented audit markets. The results indicate that the client responds to a price increase by switching to auditors who provide approximately the same level of assurance. The complete sample statistics (β =-21.36; t=-4.71) further prove competition within the two fragmented markets.

Table 4 column 2 shows that in the atomistic segment, the initial audit engagement year (initial) is negative and significantly related to audit price with a statistic (β =-0.16; t=-3.15). The initial statistics indicate intense competition in the lower segment of the audit market as audit firms engage in a price war as a marketing strategy to attract and win new clients over in the initial audit year. The result aligns with our proposition in hypothesis 5, H_5, premised on numerous audit firms competing for a small defined audit market; the result is consistent with the SCP theory. Furthermore, column 3 of Table 3 indicates that in the initial audit year, the Big Four auditors

operating in the oligopolistic fragment compete for new audit clients by offering audit fee discounting, evidenced by a negative relationship between the audit price and the initial audit year with statistics of (β =-0.18; t=-3.25). The initial audit year and price results contradict the SCP paradigm postulation but support the spatial competition theory, evidencing competition in an Oligopolistic market despite the limited choices aligning with studies (Cho *et al.* 2021; Desir *et al.* 2014). Finally, the result of the initial audit year in the Nigerian audit market shows the existence of lowballing despite the mandatory audit fee disclosure.

Concerning competition-audit quality, concentration (HHI) has a positive association with audit quality in the atomistic and oligopolistic segments with statistics (β =8.04; t=3.51) and (β =11.71; t=2.78) shown in columns 5 and 6, respectively. The result in the oligopolistic section indicates that despite the Big Four having market power due to limited choices to the audit clients, the audit quality is not impaired in contrast to the traditional SCP paradigm. For the dynamic competition, client mobility (CM) has a negative association with the audit quality in the atomistic and the oligopolistic segment with a statistic (β =-16.84; t=-3.02) and (β =-12.34; t=-3.87) shown in columns 5 and 6 on Table 4. Client mobility and audit quality results in the atomistic and oligopolistic markets show that audit clients respond to low audit quality by substituting the engaged audit firm. The result of the HHI and CM is a testimony of competition in the oligopolistic audit segment despite the limited choice of audit firms. Our result aligns with studies (Ayoola *et al.* 2022; Baldwin & Gorecki, 1998; Buijink *et al.* 1998; PwC, 2012; Van Raak *et al.* 2020) and is consistent with our postulations in hypothesis 2 and 4.

Furthermore, in the atomistic segment, the association of HHI and AQ., as indicated in column 5 of Table 3, supported the claim of audit market segmentation based on audit complexity, as the non-Big Four provide quality audits within its segments. The result of the CM and AQ. with a significant negative association indicates a positive response to change in lower quality, which is in line with the economic theory.

Table 3 indicates that despite the existence of lowballing in the two segments, the audit quality is not compromised; this is supported by the statistics of (β =1.52; t=3.79) in the atomistic section and (β =-12.34; t=-3.87) in the oligopolistic market. The results of these two segments are indications that the initial audit fee is a market pricing strategy and sunk cost. The result aligns with cognitive dissonance theory and studies (Cho *et al.* 2021; Liu & Huang, 2024).

Table 3. Regression of audit market segmentation on audit price or audit quality

Market	**Full sample**	**atom**	**oligo**	**Full sample**	**atom**	**Oligo**
Dependent Variable	(1) ln_aud_fee_	(2) ln_aud_fee_	(3) ln_aud_fee_	(4) aq	(5) aq	(6) aq
Independent variable	β (t-stat)	β (t-stat)	β (t-stat)	β (t-stat)	β (t-stat)	β (t-stat)
hhi*-1	14.96***	13.07***	21.30***	10.95***	11.71***	8.04***
	(4.60)	(3.69)	(6.35)	(5.79)	(2.78)	(3.51)
cm	-21.36***	-18.74***	-32.83***	-16.81***	-16.84***	-12.34***
	(-4.71)	(-3.53)	(-7.24)	(-10.88)	(-3.02)	(-3.87)
initial	0.124***	0.16***	0.18***	-0.06***	1.52***	0.61***
	(4.39)	(3.15)	(3.25)	(-4.29)	(3.79)	(2.79)
big_four	0.49***			1.87***		
	(5.27)			(3.85)		
lnta	0.64***	0.65***	0.68***	0.39***	0.37***	0.68***
	(8.01)	(7.86)	(3.56)	(6.68)	(8.83)	(4.30)
emp	-0.03	0.08	-0.06	0.88***	0.57**	0.09
	(-0.77)	(1.09)	(-0.75)	(3.84)	(2.88)	(0.59)
ln_seg_	-0.22*	-0.16*	-0.09*	-0.06	0.17	-0.14
	(-1.66)	(-1.71)	(1.95)	(-0.27)	(0.35)	(-0.54)
aud_ten	-0.04	-0.02	-0.13***	0.03	0.04	-0.02
	(-0.99)	(-0.63)	(-17.19)	(0.39)	(0.43)	(-0.53)
roa	1.87***	0.76***	1.14**	0.02	1.11	0.97
	(5.41)	(2.33)	(2.00)	(0.01)	(0.81)	(0.96)

Market	Full sample	atom	oligo	Full sample	atom	Oligo
loos	0.69***	0.74***	0.89***	1.09***	0.70	1.11***
	(3.43)	(8.88)	(11.39)	(3.77)	(1.19)	(3.65)
lev	-0.33***	-0.36***	-0.28***	-1.36**	-0.73**	-0.51**
	(-8.64)	(-9.73)	(-6.53)	(-2.09)	(-2.32)	(-2.49)
cr_	-0.51***	-0.33***	-0.17*	-0.72**	-0.62	-0.47***
	(-6.91)	(-3.88)	(-1.08)	(-2.21)	(-1.44)	(-2.59)
busy	-1.49***	-1.38***	1.19***	-1.54***	-1.72***	-1.45***
	(-10.35)	(-10.22)	(6.99)	(-6.94)	(-3.86)	(-7.10)
c	2.89***	1.49***	1.62***	2.45***	3.75**	1.30
	(4.59)	(3.22)	(4.04)	(2.56)	(2.15)	(1.34)
R-Sq	0.83	0.82	0.87	0.42	0.36	0.84
Adj R-Sq.	0.82	0.81	0.86	0.39	0.33	0.83
F-stat	93.92	91.83	90.85	14.82	3.04	101.63

Source: Authors Computation (2024)

*Where ***, ** and* indicated level of significant at 1%,5%and10% respectively*

4.1 Robustness Check

The study performs a robustness check using variable substitutions. Ball and Shivakumar (2006) replaced the modified Jones model, while dynamic competition represented by client mobility was replaced by "DIFFERENCE". The DIFFERENCE is the differential value between the largest auditor's fee and the incumbent auditor scaled down by the total audit fee at a given period. The results of the hypothesis displayed in Table 4 are validated using the fixed effect method of OLS.

Concerning HHI and audit price, the results are positive and significant, with a statistic of (β =11.88; t=4.57) for atomistics and (β =2.85; t=5.43) for the oligopolistic segment. The concentration and audit price results in both segments are consistent with the results obtained in Table 3. Furthermore, the relationship between dynamic competition (DIFF) and audit price is positively related, with statistics of (β =-18.34; t=-4.10), (β =-16.99; t=-4.73) and (β =-4.19; t=-5.21) for the total sample, oligopolistic and atomistic segments respectively as presented in Table 4 column 1, 2, and 3 respectively, validating the association of the two variables as mentioned in Table 3 discussion. Table 4 confirms that auditors offer audit fee discounting in the initial year of audit, regardless of the size of the auditors, consistent with the result in Table 3 with a corresponding statistic of (β =-0.04; t=-2.41) for oligopolistic and (β =-1.53; t=-4.92) for atomistics.

Table 4.

Market	Full sample	atom	oligo	Full sample	atom	Oligo
Dependent Variable	(1) lnaud_fee	(2) lnaud_fee	(3) lnaud_fee	(4) aq	(5) aq	(6) aq
Independent variable	β (t-stats)	β (t-stats)	β (t-stats)	β (t-stats)	β (t-stats)	β (t-stats)
hhi*-1	12.68***	11.88***	2.85***	8.00***	2.02**	0.68***
	(4.15)	(4.57)	(5.43)	(8.88)	(2.40)	(3.99)
diff	-18.34***	-16.99***	-4.19***	-12.52***	-2.65**	-0.60***
	(-4.10)	(-4.73)	(-5.21)	(-8.51)	(-1.97)	(-2.83)
initial	-0.15**	-1.53***	-0.04**	0.35**	0.04***	0.04**
	(-2.54)	(-4.92)	(-2.41)	(2.50)	(2.79)	(2.46)
big_four	0.82***			0.48***		
	(6.79)			(5.74)		
lnta	0.63***	0.38***	0.01***	0.70***	0.01**	0.01**
	(17.45)	(8.76)	(2.92)	(2.89)	(1.89)	(2.22)

emp	0.11	0.57***	-0.01	-0.01	0.00	0.00
	(1.48)	(3.29)	(-0.39)	(-0.32)	(0.35)	(0.12)
ln_seg_	-0.12	0.21	0.09*	-0.24***	0.12**	0.09**
	(-1.49)	(0.91)	(1.77)	(-2.70)	(1.99)	(1.98)
aud_ten	-0.02	0.03	0.06***	-0.02	0.03***	0.02***
	(-0.56)	(0.62)	(14.20)	(-0.82)	(4.58)	(5.18)
roa	0.59**	1.14	0.15***	0.94	0.05	0.45
	(2.05)	(1.14)	(2.59)	(1.51)	(0.68)	(0.69)
loos	0.82***	0.92***	0.08**	0.98***	0.09***	0.04***
	(9.48)	(3.08)	(2.07)	(7.23)	(2.55)	(2.68)
lev	-0.39***	-0.90***	-0.00	-0.39***	-0.01	-0.00
	(-8.81)	(-2.92)	(-0.06)	(-7.51)	(-0.69)	(-0.19)
cr_	-0.46***	-0.78***	0.10***	-0.54***	0.13***	0.02
	(-5.81)	(-2.62)	(3.64)	(-7.50)	(3.21)	(0.94)
busy	-1.89***	-1.70***	-0.16***	-1.29***	-0.03	-0.01
	(-12.56)	(-8.73)	(-2.75)	(-15.29)	(-0.67)	(-0.20)
c	1.89***	3.85***	12.90***	1.66***	12.54***	12.89***
	(4.95)	(3.71)	(7.37)	(3.59)	(8.16)	(82.21)
R-Sq	0.82	0.38	0.99	0.85***	0.39	0.97
Adj R-Sq.	0.81	0.36	0.97	0.83	0.37	0.91
F-stat	110.56	18.44	6879.78	135.05	704.96	5024.47

Source: Authors Computation (2024)

*Where ***, ** and* indicated level of significant at 1%,5%and10% respectively*

Furthermore, Table 4 validates that the Big four market power improves audit quality with a positive relationship of HHI and AQ shown in column 6 with a statistic (β =0.68; t=3.99). The result of Dynamic competition (DIFF) with audit quality (AQ) shows that audit clients' response to lower quality by changing their clients with a statistic of (β =-2.65; t=-1.95). The initial association validated that lowballing is a marketing strategy, as the audit quality is not impaired in the oligopolistic market.

Finally, column 5 shows competition in the atomistic audit market for the non-big Four as the initial relationship is positively associated with audit quality. The result validated the earlier submission that the non-Big Four provide quality audits.

Conclusions and Further Research

From a holistic perspective, the study examines audit competition efficiency in the Nigerian non-financial sector. We controlled audit complexity to achieve this objective by delineating the non-financial audit market into oligopolistic and atomistic segments. The oligopolistic audit market contains a few large, highly specialised firms categorised as the Big Four. The atomistic segment involves numerous non-specialised audit firms branded as the non-Big Four. Our study observes competition in the initial audit engagement year by examining its effect on the price and quality. Furthermore, we measure competition from static and dynamic perspectives using audit concentration and client mobility, respectively. We investigate the effect of audit concentration and client mobility on audit price and quality in the entire and segmented non-financial institution audit market.

To achieve the objectives, we hand-collected secondary data from the audited financial report of 80 listed Nigerian non-financial institutions from 2011-2022, resulting in 960 observations for the entire sample size. The oligopolistic segment contains 55 per cent of the total observations. The ordinary least square method is employed in estimating the audit price and audit quality models.

The result indicates that the initial audit year is negatively related to audit prices in the atomistic, oligopolistic, and holistic markets - however, the audit fee discounting improves audit quality in both audit-segmented markets. Regarding audit market concentration, the variable is positive and significantly associated with audit price and audit quality in the segmented market and the industry. The dynamic competition, measured by market mobility, shows that dynamic audit competition is positively and significantly related to audit price and negatively associated with audit quality in the oligopolistic and atomistic audit market. Our study shows intense audit competition in the oligopolistic market, evidenced by the audit price war among the specialised auditors,

which is used to win over clients and still provides a quality audit assurance service, contrary to the traditional view of SCP. Furthermore, the result of the dynamic competition measure by the client mobility corroborates the existence of competition in the oligopolistic market as the auditor's market share reduces with an increase in audit price and impairment of audit quality in line with the alternative view of SCP.

Furthermore, our study concludes that the auditors within the atomistic segment lowball in the initial audit engagement year but improve audit quality. Concerning the audit concentration, our result aligns with the alternative view of SCP, which is that the audit concentration is inversely related to audit price and quality. Finally, judging from the dynamic audit competition, we conclude that aggressive competition in the atomistic segment may affect the audit quality.

The limitation of the study may stem from the measurement of audit quality, as there are several methods of measuring the concept. Also, some controlled variables may have been omitted from the study. Finally, our study considers the intra-segment audit competition, disregarding inter-segment rivalry. These possible limitations will not invalidate our result as we proxy the audit quality with one of the widely acceptable proxies in audit literature. Also, we select widely acceptable variables for the control variables included in the models for the audit price and quality model. The inter-segment audit competition is disregarded to avoid distortion and ensure a proper delineation and definition of the audit market segments to capture our audit environment for the study effectively.

Our study recommends that the financial regulatory body formulate a policy to minimise lowballing practices to guarantee audit quality as introduced in advanced economies like China. Furthermore, the policymakers should investigate the Nigerian audit market concentration and release policy to curb its inherent danger. Finally, further studies on Nigerian audit competition may examine the inter-audit segment's effect on price and audit quality competition. Also, other measures of dynamic competition can be exploited in Nigerian non-financial institutions.

Credit Authorship Contribution Statement

Eghosa Godwin Inneh: the contributions are Conceptualization, Investigation, Methodology, Formal analysis, Writing – original draft Data curation, Validation, Writing – review and editing, Visualisation.
Tajuden John Ayoola's contributions are Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Supervision, Data curation, Validation, Writing – review and editing.
Lawrence Ogechukwu Obokoh: Investigation, Project administration, Formal analysis, Supervision, Writing – review and editing, Visualisation, Funding acquisition.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

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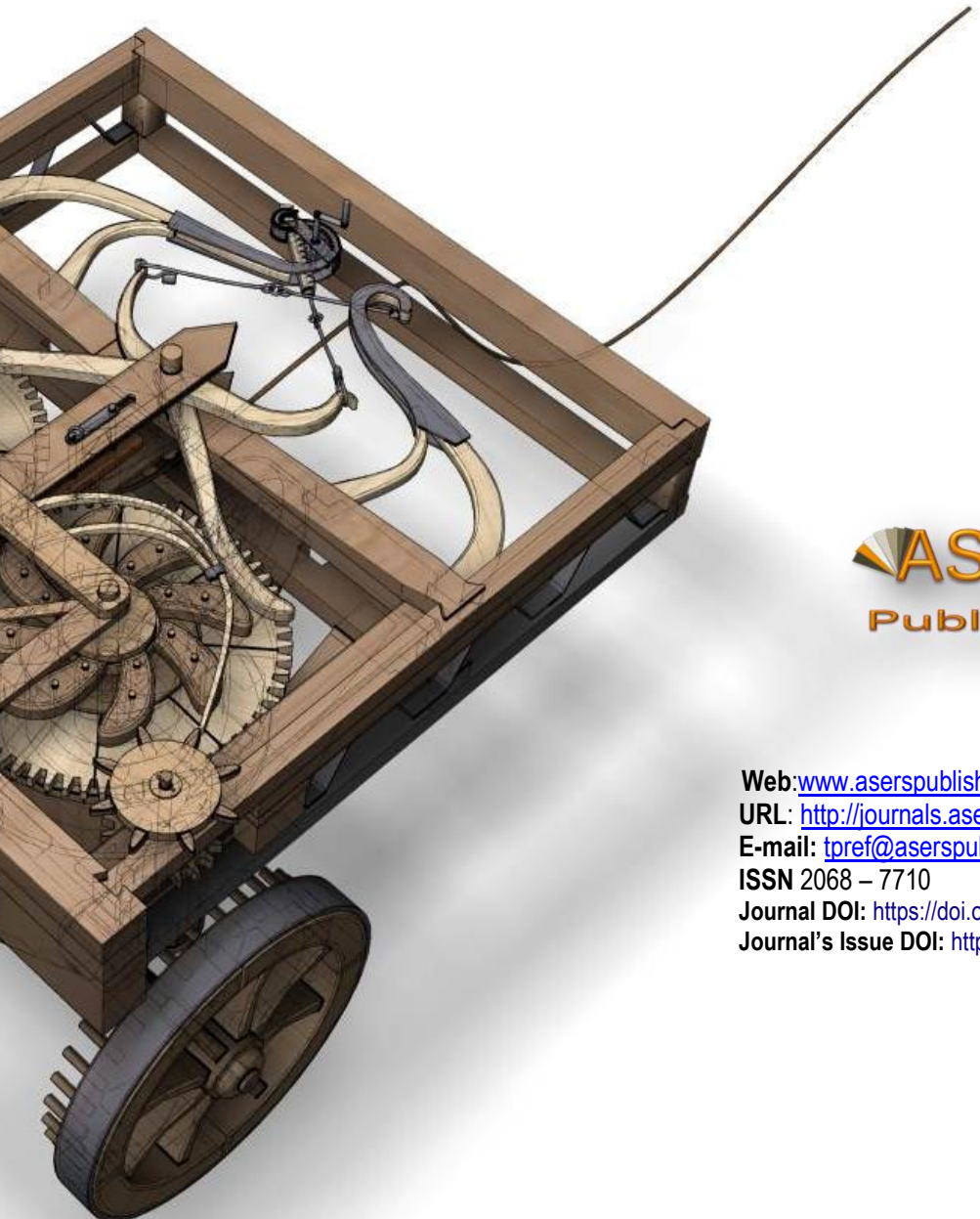

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