



AUDIT QUALITY IN THE IFRS ERA: DOES AUDITOR SIZE MATTER IN NIGERIA?

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ABSTRACT

The quality of the big four firms was perceived to be the best until indications of poor audit began to be unveiled as highbrow companies went under in spite of their financial reports' endorsement by the big four. Sequel to IFRS regime which has now attracted global attention, this study examined how the audit quality of big four firms may have been affected by IFRS adoption in Nigeria. A longitudinal econometric model was estimated on the data extracted from 52 listed companies across all industries covering the periods between 2005 and 2019. The study found that subsequent to IFRS adoption, the audit quality of the big four firms for companies in non-financial services industry reduced (4.68, $p < 0.01$ & $t = 4.68$, $p < 0.01$). Meanwhile, companies in the financial services sector was indifferent to the quality of audit based on audit size during the IFRS regime ($t = -0.89$, $p > 0.10$ & $t = 0.02$, $p > 0.10$). The study thus concluded IFRS adoption reduced the capability of big four firms to checkmate discretionary accruals by managers and preparers of account. It further revealed that the big four firm do not enjoy the monopoly of audit quality as smaller audit firms could perform quality audits if supported and enables by the financial reporting stakeholders. Hence, entities and financial reporting regulators are urged to, on the basis of this findings of this study, enhance the quality to audit without necessarily laying emphasis on the engagement of big four firms. Smaller audit firms are also encouraged to merge across horizontal lines to better economies of scale.

Keywords: Auditor size, big four, IFRS, audit quality, discretionary accrual



1. INTRODUCTION

Traditionally, accounting firms are in two strata with respect to their sizes. The big four firms – KPMG, Deloitte, PricewaterhouseCoopers (PwC) and Ernst & Young – and other firms. The big four audit almost all the leading corporations, world over and receive millions to hold businesses and their managers to account (Sikka et al, 2018). The perceived disparity that exists between the big four and other accounting firms have been extended to the discourse of audit quality to the extent that, researchers measure quality of audit with reference to firm size thereby perceiving the big four as only firms with quality output (DeAngelo, 1981; Hu & Tang, 2007; Wu 2006; Yang, 2014). The discourse has been further entrenched by IFRS adoption wherewith competitive advantage was created for the big four since other companies in other IFRS countries prefer the services render by big four to local auditors (Tawiah, 2019). The big four are at the fore front in promoting IFRS adoption after the International Accounting Standard Board through enormous sensitization programs through publications, public enlightenment and other means, hence triggering auditors' switching by companies in Africa (Owolabi & Iyoha, 2012; Tawiah & Musvosvi, 2017).

IFRS adoption may have promoted the big four in good light and reshaped public image about their quality, however the post-IFRS era has witnessed massive financial malpractices with the apparent fingerprints of the big four both globally and locally. This worrisome event further calls the fidelity of the audit to question, particularly the big four. On the global scene, the panama papers, Swiss leaks, Luxembourg leaks and paradise papers have some or all the big four firms complicit in the unveiled financial mishaps on an industrial scale (Sikka, et al, 2018). Locally in Nigeria, widely reported cases of professional misconduct after IFRS adoption featured only the 'big' firms such as the Subsidy Scam saga and the failure of Akintola Williams Deloitte (AWD) and Olusola Adekanola and co. to provide required professional guidance in subsidies payment which was payable in absolute reliance on their oversight functions as auditors to the Petroleum Product Pricing Regulatory Agency (PPPRA) (House of Representatives, 2012). Klynveld, Peat, Marwick and Goerdeler (KPMG) Professional Services was also found negligent in the audit of the financial statements of Stanbic IBTC Holdings for years 2013 and 2014 respectively (Financial Reporting Council of Nigeria, 2015).



Entwining the adoption of IFRS and the role of the big four in the process embeds good news for improvement of audit quality in Nigeria. However, the bad news the succeeded the process calls for concerns among practitioners and researchers alike. Studies have previously examined how the participation of big four audit firms in the Nigerian audit market has affected audit quality (see Kumar & Lim, 2014; Aggreh, 2019; Otuya 2019) even though examining IFRS may have reshaped the impact is close to non-existence. It is therefore the prerogative of this study to examine the moderating effect of auditor size on the relationship between IFRS adoption and audit quality of companies listed on the Nigerian Exchange.

2. LITERATURE REVIEW

Concept of Audit Firm Size

Economic interests in the provision of accounting and auditing services are not insulated from the ills of commercial interests. Financial dealings are carried out with the use of accounting acumen which are usually at the behest of professional accounting firms due to their possession of requisite accounting acumen. As a result, auditors have state-guaranteed markets and use it to sell other services such as corporate governance, pension services and the likes (Sikka, et al, 2018). Auditors, just like other businesses, operate at different levels in terms of size and sophistication of processes. In the audit market, four audit firms – KPMG, Deloitte, Ernst & Young and PWC – stand out as the four topmost accounting services firms across the globe. They are proudly referred to as big four. As a result of their growing influence and network across the globe, the big four has created a distinct gap between itself and other categories of auditors.

Discourse on the competition among auditors in the basis of size is not new. Simunic (1980) related how the “Big Eight firms as a group have been accused of monopolizing the market for audits” (p.161). Gow and Kells (2018) noted that “accountancy is notably less competitive than other professions, such as law and engineering. Competition is specially weak in the market for audit services”. (p. 4) as the “regulators and commentators have raised concerns about the monopoly power of the Big four” (p.4). They continue to penetrate the market and legitimize their stead, even to the extent of earning combined global revenues at a growing rate that dwarfed the GDP of economies liked Hungary, Kuwait and Ukraine as at 2017. According to Sikka et al (2018), their combination makes the 56th largest economy



in the world. They have state-guaranteed services to offer and unhindered access to senior management of largest entities in the world.

In Nigeria, the big four and their affiliated firms have almost taken over the entire audit market. World Bank (2011) noted the monopolization of the audit market by the big four thereby under-developing small audit firms. Big firms with international network perform audit for most listed companies (World Bank, 2011) and as a result, employ their monopoly in colonizing the audit market for financial gains at the expense of audit quality (Otusanya & Lauwo, 2012). To buttress this, all the banks named for scandalous practices that led to the loss of N2tr in the Nigerian Banking Sector were audited by the ‘big four’ audit firms (Otusanya & Lauwo, 2012). Their combined revenue in Nigeria from the 25 of biggest companies listed on the Nigerian stock exchange and representing over 80% of the market capitalization stood at N7.53 billion for 2019 audits (John, 2019). In Ghana, the big four earned GHS 17.4 million from the audit of 23 largest company with combined market capitalization of 95% as at 2019 (Bosoko, 2020). There is also an ongoing debate on the regulation of the activities of the big four in South Africa. These are evidence to understand the level of dominance of the big four in the African audit market. Within the context of the discourse of market dominance however, audit quality, audit development and standardization as well as the economies of auditing in Africa are pertinent issues.

This dominance have been applauded by some and assailed by others. It may be applauded for the possibility of enhancing easy inflow of accounting acumen into developing nations, ensuring standardization of audit practice as well as providing an enabling environment for foreign direct investment into Africa. However, it has been assailed for decimating the growth potential of local audit firms and eroding their quality (World Bank, 2011). To Sikka et al (2018), “auditing industry is dominated by the big four firms who are routinely implicated in scandals and seem incapable of delivering high quality audits” (p.3). Such scandals are notable in Nigeria and almost took over major Nigerian banks. In the accounting literature, audit firm size is usually benchmarked on Big 4 (Boone, Khurana & Raman, 2010; Lawewnce, Minutti-Meza & Zhang, 2011; Shan, Troshani & Tarca, 2019; EL Guindy & Trabelsi, 2020), Big 6 (Bauwhede, Willekens & Gaeremynck, 2003) or Big 8 (Palmrose, 1986) firms depending on the time with the use of binary variable. To the limit of our search and knowledge, audit firm size hardly takes other metrics empirically.



Concept of Audit Quality

A generally accepted conceptualization of audit quality does not exist according to the International Auditing and Assurance Standard Board (2014). Notwithstanding, an understanding of the key objective of auditing – holding business managers and account preparers to account regarding the reported numbers – may provide an insight into its basic connotation. It involves instilling confidence in the users of financial report through communicating the expression of truth and fairness view on financial reports by auditors. Hence, stakeholders in the financial reporting circle perceives quality audit with the increase in the level of confidence of uses experienced as a result of audit outcome. Audit quality has been benchmarked on different frameworks by various regulatory organizations including the IAASB, Public Company Accounting Oversight Board, the Canadian Centre for Audit Quality (CAQ) as well as the Nigerian Standard on Quality Control (NSQC). The PCAOB (2018) identifies audit quality indicators as factors embedded in a portfolio that qualitatively measures insights which lead to the achievement of audit quality. More specifically, the IAASB explains audit quality as an audit which encompasses the key factors that enable the likelihood of consistent performance of quality audits on a consistent basis. Other definitions offered for the description of audit quality relies largely on the framework or PCAOB or IAASB or both (Centre for Audit Quality, 2019; Institute of Chartered Accountants of Nigeria, 2013).

Meanwhile, the IAASB (2014) specifies the attainment of audit quality if an audit team is able to, amongst others, exhibit ethics, attitudes and appropriate values, possess sufficient knowledge, skills and experience with adequate audit time, provide useful and timely report, able to rigorously conduct the audit and apply necessary quality control procedures in compliance with relevant laws, applicable standards and regulatory requirements as well as ensure appropriate interactions with relevant stakeholders. As a result, the framework identifies the ability of a firm to provide a quality audit with its possession of requisite expertise in strengthening the input, process, outputs, key interactions and contextual factors in the audit process. Largely, this procedure is adopted with few amendments by most regulatory authorities of auditing globally. Audit quality is therefore conceived, from the foregoing, as the deliverable of an audit firm, in form of a reliable report on financial statement borne out of rigorous application of requisites skills, human and material resources capable of boosting the confidence of financial reporting stakeholders.



Therefore, events and incidences capable of berating audit quality are such that emanate from accounting scandals and audit mistakes. The widely reported accounting and audit scandals and malpractices in the business world involving audit firms of ‘global repute and renown integrity’ would indicate that all may not be well with audit quality. Financial statements that may have somehow, received a clean bill of health from the auditors have turned out to be flukes afterwards. Expensive scandals in complicity with auditors in recent times proves a problematic audit quality. Such incidence include the collapse of a 20-year old Carillion construction giant in 2018 in a deal of £1.5 billion pounds with the complicity of KPMG which, despite it £1.5 million annual audit fee, misrepresented the reality of the business for several years; a 92-year old Patisserie Valerie café chain also collapsed in 2018 shortly after the auditor, Grant Thornton, signed off the account with a ‘fictitious’ net cash reported to be £21.5 million. In this case, the auditor claimed it was not his role to look for fraud (O’Dwyer, 2019).

Prior to these accounting scandals, the fall of Arthur Anderson in 2001 following complicities in Enron Collapse, the fall of HIH insurance as well as other fraudulent audit practices have attracted public outcry. The take-over of banks by the Nigerian government and a host of Banks CEOs’ sack by the CBN are examples in the Nigerian context. These scandals and several others have taken a toll on the public perception on the fidelity of the audit process thereby putting audit quality in the spotlight. Although, proactive measures have either been taken on some scandals or reactions have been made by global accounting regulatory bodies to strengthen the quality of audit, much may still be desired in restoring public confidence in the audit profession.

In the academia, measurement of audit quality has been predicated on a number of metrics namely audit size (DeAngelo, 1981; Hu & Tang, 2007; Wu 2006; Yang, 2014), audit fee premium (Abbott, Parkers, Peters, & Raghunandan, 2003; Dang et al, 2022; Ghafran & O’Sullivan, 2017; He, Pittman, Rui, & Wu, 2017; Zaman, Hudaib, & Haniffa, 2011), likelihood of audit client receiving a modified going concern opinion (Gunn & Michas, 2016; Lisic, Myers, Seidel & Zhou, 2018; Che, Langli, and Svanström (2021) and a host of other measures. Francis (2011) argued that measuring audit quality of going concern opinions are binary audit quality which perceives the absence of audit failure as quality and not quality otherwise. He argues that the measure is misleading as most incidence of litigation against auditors are



usually less than 1% of all audit and are either lost by the plaintiff or settled out of court (Palmrose, 1988, Carcello & Palmrose, 1994). Nonetheless, the extremes in-between the binary measures ignores varying degrees of audit quality that should be measurable given audit quality as a continuum that takes on varying values. Issuance of going-concern report is perhaps, the third measure of audit quality noted in literature as being under the entire control of the auditor. Going-concern audit opinions which do not precede clients' business failure are deemed audit failure in audit quality literature. Lennox (1999) as well as Defond and Lennox (2011) studied audit quality, measuring it with audit reporting accuracy if clients' business failure were preceded by going concern audit reports that signaled or warned against an impending failure. This measure, though points to the usefulness of the proxy, also identifies a less than 1% incidence of audit failure conjectured in the research therefore, indicating another low binary audit quality proxy. Moreover, auditors hardly issue going concern report in practice for fear of losing clients that may change auditors after having received a going-concern report (Krishnan, 1994).

Most research on audit quality relies on the figures reported in the audited financial statements since those figures are produced out of the joint efforts of both the management and its auditors. Audit quality can thus be measured across the continuum, thus, considered more appropriate than subjecting audit quality measurement to binary extremes. Audited financial statements provide opportunity for the linkage of audit characteristic with statistical properties of client financial statements. Becker, DeFond, Jiambbalvo and Subramanyam, 1998; Francis, Maydew and Sparks, 1999; Lawrence, Minutti-Meza and Zhang, 2011; Lennox, Wu and Zhang, 2014; Lennox, 2016; Wang, Yuan and Wu, 2017; Singh, Sultana and Evans 2019; Kuo, Du and Lee (2022) all noted the responsiveness of certain audit characteristics to the widely adopted expected accrual model developed by Jones (1991). Basically, they all consider audit quality a function of audit characteristics amidst other control variables. Lawrence, Minutti-Meza and Zhang (2011) used the modified Jones (1991) model as recommended by Kothari, Leone and Wasley (2005) to examine the audit quality difference between the big four and the non-big four audit firms.

Hypothesis Development

Several studies on audit quality observed audit characteristics and related variables rather than being specific on the IFRS-adoption effects. Zahmatkesh and Rezazadeh



(2017) examined how audit quality is affected by auditor features. Auditor features are explained by audit work experience, professional competence, auditor motivation, audit norm, ethical norm, auditor accountability and auditor objectivity. With primary data collection through questionnaire in Iran, the study modelled a relationship between each of the independent variables and audit quality and ran a regression test. It submits that none of the saved variables affect audit quality except work experience of auditor, professional competence, audit accountability and audit objectivity respectively.

This result corroborates the findings of Abbott, Daugherty, Parker and Peters (2015) which submits to the proposition of professional competence and independence being jointly necessary to achieve audit quality. Although, it considers the presence of the duo simultaneously, the result was based on data gathered through primary sources with the use of questionnaire. Over 900 respondents were sampled over the period of the study but the study was specific about internal audit quality. Prior to these, a similar study of individual auditor's effect on audit quality conducted by Gul, Wu and Yang (2013), 800 individual auditors' records in China were sampled to examine how auditors' characteristics affect audit quality. The result of the primary longitudinal data indicated that audit quality varies across varying characteristics of auditors. The study did not identify any specific auditors' characteristics that lead to improved audit quality.

Meanwhile, a study of audit quality, firm rotation and audit independence on Egypt Big four auditors conducted by Mohamed and Habib (2013) which also adopted a survey design to isolate the key driver of audit quality between auditor's independence and mandatory firm rotation revealed that, in the country of the study, auditor independence is poor and has a direct consequence for audit quality. It suggests the application of audit firm rotation to the country to enhance auditors' independence and by extension, improve audit quality. Subsequently, Rahmina and Agoes (2014), studied senior auditors through a survey design concluded that audit quality exists in direct proportion with audit independence. It also adopted a survey design to examine 150 auditors in Indonesia. With a regression run, the research submits that audit quality is significantly affected by auditor independence. Another study on audit features and audit quality (Andreas, Zarefar & Rasuli 2016) conducted on 119 auditors in Indonesia equally submits that audit quality is affected by auditors' experience. Diametrically however, the study of Furiady and Kurnia (2015)



revealed that experience do not affect audit quality in Indonesia with a sample of 194 auditors.

Hardies, Breesch and Branson (2014), examined whether gender impair audit quality through the lens of going-concern audit opinions. The Studied 7,105 observations of distressed companies in Belgium with the use of longitudinal analysis. The result of the study suggested high audit quality for audit exercise conducted by female audit engagement partners. Later, a study on audit quality and auditors' features (Garcia-Blandona, Argilés-Bosch & Ravenda, 2019) which obtained data from secondary sources in Spain isolated the gender effect on audit quality. With a longitudinal data spanning 728 observations, the study concluded using a univariate analysis of mean and median differences that, firms with female auditors shows significantly better audit quality. It provides similar outcome with all the measures of audit quality adopted in the study for both parametric and non-parametric analyses. With the outcome of the multivariate analysis, similar results were observed. Although Salem, Usman and Ezeani (2021) adopted big four, co-audit and a number of other variables to proxy audit quality against loan loss provision, they observed that audit size was a major factor that restrained managers' opportunistic behaviours.

Ozili, and Outa (2018) examined how banks' earnings smoothing reacted to the IFRS adoption in Nigeria. With loan loss provisioning as a proxy for earnings management, the study observed Nigerian banks shortly after IFRS adoption period between 2012 and 2014 involving more than 80% of all Nigerian banks at the time. It was discovered that the quality of accounting figures was enhanced during the mandatory adoption of IFRS even though, the study does not suggest that Nigerian banks smooth earnings during the period under study. Prior to this study, Miko and Kamardin (2014) have noted how audit quality has interacted with earnings management in wake of corporate governance reform in Nigeria. Although, the study lacks generalization, it submits that there is a notable use of discretionary accrual in manipulating accounts and misleading investor. In another study on the quality of earnings, Egbunike and Odum (2018) examined how earnings quality is affected by board leadership structure in Nigeria. The study sampled 45 non-financial listed firms over a period covering 2011 to 2016. It was discovered from the study that, although board size and composition significantly affect earnings quality positively, nonetheless, the proportion of non-executive directors on the board impacted



negatively on earnings quality. Despite its discourse on earnings quality, the study also precludes the effect of IFRS adoption.

Of direct relevance to audit quality in Nigeria is the study of Adeniyi and Mieseigha (2013) which examines how auditor's tenure affect the quality of audit through a cross sectional analysis of 2010 financial data of companies listed on the Nigerian Stock Exchange. The study finds that audit tenure does not improve quality audit in Nigeria. Relatedly, Mgbame, Eragbhe and Osawuwa (2012) studied the effect of audit partner tenure on the quality of audit. As with the study of Adeniyi and Mieseigha (2013), audit quality was proxied by the likelihood of a company, engaging the services of any of the big four audit firms in Nigeria. The study's output also confirms an inverse relationship between the two variables. Related to the tenure of audit is audit firm rotation. The studies of Ebimobowei and Keretu (2011) as well as Onwuchekwa, Erah and Izedonmi (2012) examined how mandatory audit rotation requirement affect audit quality.

The study of Onwuchekwa, Erah and Izedonmi (2012) was a survey study premised on the Central Bank of Nigeria's requirement of audit rotation of banks after 10 years despite the quality of their audit. The study sampled 500 audit stakeholders and ran a binary logistic regression to examine the relationship among the variables of interest to the researcher. The conclusion of the study points a negative relationship between Mandatory Audit Rotation and audit quality in Nigeria. Similarly, Ebimobowei and Keretu (2011) conducted a survey of 250 auditors and users of financial statement to study if mandatory audit rotation affects audit quality in Nigeria. Data analysis of the study was done using the spearman rank correlation and alluded to the submission that audit quality is not significantly affected by mandatory audit rotation in Nigeria. Studies that link audit quality with IFRS adoption and auditor size is close to non-existent in Nigeria. Hence the proposition:

Does audit firm size moderate the impact of IFRS adoption on the audit quality of listed companies in Nigeria?

3. METHODOLOGY

Design, Sample and Data

Panel research design was adopted in this study. Data were sourced from the audited financial statements of listed companies the stock exchange over 14-years (2005-2018) period. The sample period covered the period that follows the World Bank's



Observance of Standards and Codes of 2004 and 2011 in Nigeria and the subsequent adoption of IFRS through its post adoption period thereby covering two equal halves of pre and post IFRS adoption. Although, the study population comprises of all companies listed in Nigeria comprising 166 at 2018-year end. There are 11 sub sectors therefrom (NEG, 2019). Study data were extracted from annual financial reports of the companies excluding firms with incomplete data. The annual reports were retrieved from the website of African Financials and those of reporting entities.

As at December 2018, one hundred and sixty-six (166) companies were listed on the Nigerian Stock Exchange. However, seventy-three (73) companies were excluded partly because of unavailability of annual reports and incomplete data. All insurance firms were also excluded due to the non-compliance with IFRS during the period covered by this study. Details of sample selection is presented in table 1.

Table 1
Sample Selection

Sectors	Population of firms	Sample	% of Pop	Freq. of obs	Percent Firm
Financial Services	53	12	23%	179	26
Services	25	6	24%	79	11
Consumer Goods	20	12	60%	154	22
Industrial Goods	13	1	8%	14	2
Oil and Gas	12	6	50%	75	11
Healthcare	10	4	40%	52	7
Construction/Real Estate	9	3	33%	39	6
ICT	9	1	11%	12	2
Conglomerate	6	3	50%	41	6
Agriculture	5	2	40%	26	4
Natural Resources	4	2	50%	25	4
Total	166	52	31%	696	100

Source: Authors' Computation, (2021)

The overall sample selected represents 31% of the entire sample frame. The sample selection criteria were chosen to ensure that all sectors are, at least represented in the sample selection. Various sectorial representation as shown in Table 1 reveals that both ICT and Industrial Goods sectors account for the least representation in sample



selection because of non-availability of financial statement of most of the companies of the two sectors in the public domain. On the other hand, consumer goods account for the highest sample selection in all, as consumer goods sector account for the highest sample representation among the non-financial firms' sub-sector. The final sample include 40 listed companies covering a period of 14 years and results in 517 observations fewer missing data

Model of Operational Relationship among Variables

Audit quality = $f(\text{IFRS Adoption, Auditor Size})$. (1)

$$AQ = \alpha_0 + \alpha_1\text{IFRS}_{it} + \alpha_2\text{Assize}_{it} + \alpha_3\text{IFRS}*\text{Assize}_{it} + \alpha_4\text{Ctrls}_{it} + \varepsilon \quad (2)$$

AQ = Audit quality were measured as residuals from the estimated regression from Jones (1991) Model as modified by Kothari et al (2005) using the pooled approach (McNichols & Stubben, 2018) to showcase the level of bias tolerated within the financial statement by the auditors as infused by the management in account preparation, hence audit quality measure for listed non-financial services companies. Beaver and Engel (1996) as well as Kanagaretnam (2004) Models were adopted for studies on financial firms due to the peculiar operations of the financial service sector as well as their and regulatory peculiarity which informs different composition of data in their financial statements. Discretionary accruals estimated with the discretionary portion of loan losses as a set of variables including loans written off, loans outstanding and non-performing loans. Following the works of Kim and Kross, (1998), Wahlen, (1994) and Beatty, Chamberlain and Magliolo, (1995) discretionary components of loan loss provision was estimated with the residual derivable for the regression of beginning loans deflated by loan loss provision on the non-performing loan beginning balance, change in total loan and change in non-performing loan. Thus, four (4) models were estimated to derive audit quality proxies. The models are stated thus:

Jones (1991) Model as modified by Kothari et al (2005)

$$TA_{it} = \alpha_0 + \alpha_1(1/ASSETS_{it-1}) + \alpha_2 \Delta SALES_{it} - \Delta AR_{it} + \alpha_3 PPE_{it} + \varepsilon_{it} \quad (3)$$

Performance Adjusted Jones (1991) Model as modified by Kothari et al (2005)

$$TA_{it} = \alpha_0 + \alpha_1(1/ASSETS_{it-1}) + \alpha_2 \Delta SALES_{it} - \Delta AR_{it} + \alpha_3 PPE_{it} + \alpha_4 ROA_{it} + \varepsilon_{it} \quad (4)$$

Where:

TA = change in current assets minus cash minus change in current liabilities less depreciation and amortization, divided by lagged total assets.



Δ SALES = sales change over lagged total assets

Δ AR = account receivable change

ASSETS = Total Assets

PPE = Property, Plant and Equipment over lagged total assets.

ROA = Return on Assets

Beaver and Engel (1996) Model

$$ALL_{it} = NALL_{it} + DALL_{it} \quad (5)$$

$$ALL_{it} = \alpha_0 + \alpha_1 CO_{it} + \alpha_2 LOAN_{it} + \alpha_3 NPA_{it} + \alpha_4 \Delta NPA_{it+1} + \varepsilon_{it} \quad (6)$$

Where $\varepsilon_{it} = DALL_{it} + z_{it}$

NALL is therefore, estimated by regressing the ALL on the explanatory variables in Eq. (5) with the residual eventually taken to be an estimate of DALL with error and hence audit quality of financial firms.

NALL = Allowance for loan losses

ALL = Allowance for loan losses

DALL = discretionary portion of the allowance account

CO = Charge-Offs

LOAN = Loan Outstanding

NPA = Non-Performing Assets

Kanagaretnam and Lobo (2004) Model

$$LLP_{it} = \alpha_0 + \alpha_1 NPL_{it-1} + \alpha_2 CHNPL_{it} + \alpha_3 CHLOAN_{it} + \varepsilon_{it} \quad (6)$$

where,

LLP_{it} = loan losses provision deflated by beginning loans;

NPL_{it-1} = nonperforming loans at the beginning of the period deflated by loans at the beginning of the period;

$CHNPL_{it}$ = change in the value of nonperforming loans deflated by loans at the beginning of the period;

$CHLOAN_{it}$ = change in value of loans deflated by beginning loans.

In equation (6), the independent variables account for the non-discretionary component of LLP, and therefore, the discretionary component (DLLP) is given by the residual term which in turn is used as proxy for audit quality.



Control Variables

In consonance with previous studies, variables identified to have affected audit quality were identified as controlled for in the study model to avert the possibility of omitted variable bias. Auditor industry specialization was controlled for because it affects audit quality (Flemming, Hee & Romanu, 2014; Neal & Riley, 2004). More so, market capitalization, leverage, return on asset were found in the study of Ball, Tyler and Wells (2015) with varying degree of effect on audit quality. Jiang, Habib and Zhou (2015) also found an association between audit quality and loss, firm size, price/earnings ratio as well as asset turnover. Singh, Singh, Sultana and Evans (2019) included lagged total accrual, lagged loss and sales growth in their audit quality model as previous literature also suggested their effects on audit quality. Given the identification of relevant control variable, the full specification of the models is stated thus:

$$AQ = \alpha_0 + \alpha_1 \text{IFRS}_{it} + \alpha_2 \text{Assize}_{it} + \alpha_3 \text{IFRS} * \text{Assize}_{it} + \alpha_4 \text{Mcpt}_{it} + \alpha_5 \text{Lev}_{it} + \alpha_6 \text{Roait}_{it} + \alpha_7 \text{Loss}_{it} + \alpha_8 \text{Fsz}_{it} + \alpha_9 \text{Pe}_{it} + \alpha_{10} \text{Ato}_{it} + \alpha_{11} \text{Sgr}_{it} + \alpha_{12} \text{Tact1}_{it} + \alpha_{13} \text{Lloss}_{it} + \varepsilon$$

Where:

Assize = audit firm size measured as one for big four firms and zero for other categories of auditors

IFRS = IFRS adoption represented by dummy variable;

Afee = Audit fee premium

Mcpt = market capitalization scaled by average total assets

Loss = one if firm reported loss and zero otherwise;

Fsz = firm size measured by natural log of assets

Lev = leverage of firm measured as ratio of total long-term debt of firm to market value of equity

Pe = Price to earnings ratio for firm i in year t.

Ato = Asset turnover measured as total sales divided by total assets.

Sgr = clients' Sales growth of firm i in period t

Tact1 = Total accrual in year t-1 scaled by t-2 total assets

Lloss = Lagged loss



4. DATA ANALYSIS AND PRESENTATION OF RESULT

Table 2
Descriptive Analysis

Panel A: Non- Financial Firms									
Overall				Big four firms			Non-Big four firms		
Var	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Aq	517	0.8601	8.7375	353	0.2890	0.2643	164	2.0892	15.4694
Ifrs	517	0.5397	0.4989	353	0.4788	0.5003	164	0.6707	0.4714
Assize	517	0.6828	0.4658	353	1.0000	0.0000	164	0.0000	0.0000
Afee	517	-0.0001	0.0206	353	-0.0004	0.0064	164	0.0005	0.0354
Ato	517	3.1543	10.7230	353	1.7257	2.3827	164	6.2293	18.3794
Fsz	517	9.9422	1.7364	353	10.4673	0.7579	164	8.8122	2.5343
Lev	517	0.6700	2.0501	353	0.4835	0.9806	164	1.0714	3.3153
Lloss	517	0.1838	0.3877	353	0.1416	0.3492	164	0.2744	0.4476
Loss	517	0.1838	0.3877	353	0.1388	0.3462	164	0.2805	0.4506
Mcpt	517	1.8209	6.7028	353	1.2793	1.8025	164	2.9868	11.5415
Pe	517	-90.757	2420.7960	353	-136.008	2929.6100	164	6.6406	57.1638
Sgr	517	13.4719	260.9012	353	19.6388	315.6939	164	0.1980	1.2998
tact1	517	-8.83E+21	-8.82E+21	353	-1.30E+21	1.06E+22	164	4.82E+19	1.93E+2

Panel B: Financial Firms									
Overall				Big four firms			Non-Big four firms		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Aq	178	0.0839	0.1240	167	0.0749	0.1099	11	0.2216	0.2219
Ifrs	178	0.5112	0.5013	167	0.5030	0.5015	11	0.6364	0.5045
Afee	178	0.0000	0.0007	167	0.0000	0.0007	11	0.0000	0.0007
Assize	178	0.9382	0.2415	167	1.0000	0.0000	11	0.0000	0.0000
Ato	178	0.1169	0.0474	167	0.1119	0.0328	11	0.1919	0.1237
Fsz	178	11.9059	0.4731	167	11.9310	0.4765	11	11.524	0.1462
Lev	178	0.7560	0.3656	167	0.7220	0.2035	11	1.2721	1.1688
Lloss	178	0.8989	0.3023	167	0.9162	0.2780	11	0.6364	0.5045
Loss	178	0.9045	0.2947	167	0.9222	0.2687	11	0.6364	0.5045
Mcpt	178	0.1525	0.1251	167	0.1586	0.1263	11	0.0586	0.0432



Pe	178	9.2753	22.2967	167	9.8970	22.8861	11	-0.1633	0.5251
Sgr	178	0.2515	0.6918	167	0.2619	0.7073	11	0.0931	0.3717
tact1	177	0.0483	0.3960	166	0.0372	0.4038	11	0.2158	0.1915
Aq	178	0.0839	0.1240	167	0.0749	0.1099	11	0.2216	0.2219

Source: Authors' Computation, (2021)

As shown in panel A of table 2, the proxy of audit quality (aq), absolute discretionary accrual as residuals of Jones model for companies listed in the non-financial industry, indicates an average of 0.86 for the observation. This implies that absolute value of discretionary accrual is 86% on the average, of the total assets of the firms sampled for the purpose of this study. It shows a standard deviation of 8.73. Audit quality proxy shows a that 74% of total asset for pre-IFRS period while 96% was depicted for the post-IFRS period thereby implying a possible increase in discretionary accrual as reported by firms and tolerated by auditors suggesting a decrease in audit quality.

Further, the mean values of AQ proxy, discretionary accrual imply that audit quality may be higher for companies audited by big four than their non-big four across all companies in both industries. This is complemented by higher service charge in terms of audit fees paid to the big four firms. Average values in the non-financial services companies are higher for firm size, leverage, market cap, price/earnings, asset turnover and sales growth for companies audited by the non-big four audit firms. These may suggest that audit firm size does not really affect the value of for the identified metrics. For the firms audited by the big four, sales growth and asset turnover are higher while other control variables, such as, leverage, market capitalization, loss, price/earnings firm size and sales growth produces smaller average values for financial services companies audited by the non-big four firms.



Table 3
Correlation Matrix of Non-Financial Firms

Pwcorr	Ifrs	Afee	Assize	Aispec	Mcpt	lev	roa	Loss	fsz	Pe	ato	sgr	tact1	cir	lloss
Ifrs	1														
Afee	0.005	1.000													
Assize	-0.179*	-0.021	1.000												
Aispec	0.096*	-0.005	-0.031	1.000											
Mcpt	0.070	-0.022	-0.119*	0.035	1.000										
Lev	0.131*	0.008	-0.134*	0.042	0.011	1.000									
Roa	0.021	-0.004	-0.027	0.138*	0.540*	0.086	1.000								
Loss	0.108*	0.002	-0.170*	-0.160*	0.064	0.191*	-0.148*	1.000							
Fsz	0.043	-0.018	0.4440*	0.290*	-0.439*	0.001	0.121*	-0.356*	1.000						
Pe	0.048	0.022	-0.028	0.001	-0.006	0.013	0.006	-0.098*	-0.002	1.000					
Ato	0.034	0.800*	-0.196*	-0.156*	0.252*	0.080	-0.081	0.261*	-0.391*	0.010	1.000				
Sgr	-0.055	0.000	0.035	0.072	0.000	-0.016	0.005	-0.024	0.003	0.002	-0.011	1.000			
tact1	0.026	0.014	0.073	0.031	-0.005	0.010	0.004	0.015	0.046	-0.008	-0.034	-0.001	1.000		
Cir	0.046	0.001	-0.068	0.109*	0.600*	0.134*	0.965*	-0.017	0.027	0.004	-0.011	-0.004	0.006	1.000	
Lloss	0.068	0.014	-0.160*	-0.154*	0.063	0.188*	-0.080	0.420*	-0.320*	0.019	0.144*	0.090*	0.019	-0.016	1.000
	Ifrs	Afee	asize	aispec	mcpt	Lev	roa	Loss	fsz	Pe	ato	sgr	tact1	cir	Lloss
VIF	1.13	5.48	1.53	1.26	3.4	1.15	21.04	1.78	2.83	1.02	6.92	1.03	1.02	21.41	1.34
Tolerance	0.887	0.182	0.653	0.794	0.294	0.866	0.048	0.563	0.354	0.978	0.144	0.973	0.983	0.047	0.749

Source: Authors' Computation, (2021)



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Table 4
Correlation Matrix of Financial Firms

Pwcorr	Ifrs	Afee	Assize	Aispec	mcpt	lev	Roa	loss	Fsz	Pe	ato	sgr	tact1	Lloss
Ifrs	1.000													
Afee	0.000	1.000												
Assize	-0.064	0.000	1.000											
Aispec	-0.023	0.334*	0.3287*	1.000										
Mcpt	-0.307*	-0.144	0.193*	0.103	1.000									
Lev	0.139	0.000	-0.363*	-0.203*	-0.257*	1.000								
Roa	0.129	0.000	0.188*	0.244*	0.311*	-0.323*	1.000							
Loss	0.218*	0.000	0.234*	0.142	0.172*	-0.316*	0.716*	1.000						
Fsz	0.537*	0.000	0.208*	0.242*	-0.224*	-0.049	0.169*	0.22*	1.000					
Pe	-0.077	-0.075	0.109	0.008	0.163*	-0.100	0.046	0.21*	0.035	1.000				
Ato	0.068	-0.355*	-0.408*	-0.207*	0.044	0.567*	-0.119	-0.23*	-0.203*	-0.062	1.000			
Sgr	-0.078	-0.078	0.059	0.066	-0.003	-0.070	0.057	0.036	0.078	-0.041	-0.008	1.000		
tact1	-0.305*	0.083	-0.389*	-0.240*	-0.134	0.1725*	-0.285*	-0.45*	-0.362*	-0.081	0.147	0.052	1.00	
Lloss	0.082	-0.077	0.2235*	0.131	0.139	-0.209*	0.131	0.145	0.2196*	0.020	-0.045	0.102	-0.48*	1.000
	Ifrs	Afee	Assize	aispec	mcpt	lev	Roa	Loss	fsz	pe	Ato	sgr	tact1	Lloss
VIF	1.85	1.57	1.59	1.53	1.51	2.01	2.58	2.86	1.87	1.14	2.41	1.08	2.05	1.41
Tolerance	0.541624	0.63808	0.630741	0.65365	0.66433	0.49789	0.387135	0.3499	0.533435	0.878978	0.414567	0.928501	0.4883	0.7092

Source: Authors' Computation, (2021)

Multi-Collinearity Test

Pearson correlation was run to assess the possibility of linearity among the predictors in each of the models. The coefficients, coupled with tolerance test and the variance inflation factors presented in tables 3 and four for both categories of samples. The highest coefficient of $r=0.965$ and significant at 90% confidence interval exists between Return on Assets and Capital Intensity Ratio. The VIF of both variables are 21.04 and 21.41 respectively while their tolerance indicate 0.048 and 0.047 respectively. Accordingly, the results indicated for both variables are signals of co-linearity threat for the model (Field, 2009), given a linear relationship among the independent variables above 0.8 or 0.9. According to Myers (1990), VIF value above 10 indicate co-linearity problem and tolerance (1/VIF) that falls below 0.2 is nobly a pointer to similar problem (Menard, 1995). As a result, capital intensity ratio was excluded from the model as it is the only variable that encounters similar problem across both sample strands of financial and non-financial services firms. The next highest coefficient is between the asset turnover and IFRS adoption (0.800) and its still below the multi-collinearity threshold of 0.80.

The relationship between IFRS adoption and the audit quality of listed companies in Nigeria is not significantly moderated by audit firm size.

Table 5
Regression Output

<u>Sector –</u> <u>Model –</u> <u>Predictors</u>	<u>Non-Financial Services</u>		<u>Financial Services</u>	
	<u>Jones</u>	<u>Kothari et al</u>	<u>Kanagaratnam</u>	<u>Beaver & Engel</u>
	<u>Aq</u>	<u>Aq</u>	<u>Aq</u>	<u>Aq</u>
Ifrs	-3.390** (-4.04)	-3.390** (-4.04)	0.0124 (0.52)	-0.00878 (-0.10)
Assize	-3.190** (-4.25)	-3.192** (-4.25)	-0.0159 (-0.82)	-0.118** (-3.69)
Ifrsasz	3.571** (4.68)	3.572** (4.68)	-0.0216 (-0.89)	0.00143 (0.02)
Mcpt	0.185* (1.65)	0.185* (1.65)	0.0340 (1.31)	0.0245 (0.40)
Roa	7.703** (16.16)	7.704** (16.16)	-0.543** (-4.38)	-1.099* (-1.71)
Lev	0.171** (2.60)	0.172** (2.60)	-0.00810 (-0.80)	-0.0130 (-0.34)
Loss	2.790**	2.792**	-0.0201	-0.162**



	(9.18)	(9.18)	(-1.40)	(-2.49)
Fsz	-0.235	-0.235	0.00270	0.0111
	(-0.57)	(-0.57)	(0.36)	(0.56)
Pe	0.0000238***	0.0000239***	0.0000317	0.000155
	(2.78)	(2.80)	(0.25)	(0.66)
Ato	-0.0518***	-0.0518***	-0.0445	-0.268
	(-3.24)	(-3.24)	(-0.57)	(-1.28)
Sgr	0.000119	0.000122	0.00844**	0.00831
	(1.21)	(1.25)	(2.15)	(1.34)
tact1	9.65e-24**	9.66e-24**	0.100*	-0.0924***
	(2.19)	(2.19)	(1.85)	(-5.43)
Lloss	-0.620*	-0.621*	-0.00468	-0.0378
	(-1.75)	(-1.75)	(-0.40)	(-1.54)
_cons	4.930	4.932	0.0447	0.298
	(1.18)	(1.18)	(0.49)	(1.27)
N	517	516	177	178
R ²	0.872	0.872	0.397	0.486
adj. R ²	-	-	0.348	0.446
Hausman(X ²)	42.53***	42.58	4.97	3.03
Year (F)	1.66*	1.64*	-	-
Het (x ²)	37175***	36934***	191.39***	83.88***
Serial corr (F)	9.574***	9.541***	2.161	2.315
Model	6588.68***	6589.52***	8.24***	14.03***
F/Wald(X ²)				
BPLM Random	-	-	0.00	0.00
Est Method	PCSE	PCSE	OLS	OLS

t statistics in parentheses * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Authors' Computation, (2021)

Test of Hypothesis

Table 5 depicts the hypothesis test with four different models consisting of Panels A and B for results of non-financial firms' audit quality represented by Jones and Kothari's models respectively. For firms in finance industry, Panels C and D's audit quality were derived from Kanagaratnem and Beaver & Engel models. Duplication of models was considered important for each strand of industries so as to enhance the results' validity and reliability as well as mitigate possible misspecification of issues that may be inherent in a mono-model analysis.

Diagnostic tests conducted to ensure that appropriate choices of model estimation technique were made for each of the specified models include; Hausman tests



($x^2=27.98$, $p<0.01$) and ($x^2=28.39$, $p<0.01$) for the non-financial services firms depicted under Panels A and B of Table 5, as well ($x^2=7.04$, $p>0.10$) and ($x^2=8.92$, $p>0.10$) for Panels C and D representing the financial service industry. Given the outcome, fixed effect would have been apt to estimate panels A and B excluding year effect indicated by ($f=1.68$, $p>.05$ & $f=1.65$, $P>0.05$) but heteroscedasticity issue indicated by ($x^2=27484.1$, $p<0.01$) as well as ($x^2=27498.47$, $p<0.01$) with serial correlation of ($f=9.993$, $P<0.01$ & $f=9.959$, $P<0.01$) are suggestive of the appropriateness of Panel Corrected Standard Error to estimate panels A and B.

Following the Hausman test of Panels C and D, random effect method would have been appropriate but Breusch and Pagan Lagrangian Multiplier (BPLM) test result ($\text{Chibar}^2 = 0.00, p>0.10$ & $\text{Chibar}^2 = 0.00, p>0.10$) are suggestive of the use of Ordinary Least Square Method in estimating the models. Both models have problems no autocorrelation issues ($f=0.202$, $p>0.10$ and $f=2.556$, $p>0.10$).

Consistency was noted for Panels A and B across all variable. The results signals the rejection of the null hypothesis ($t=-1.66$, $p<0.10$ & $t=-1.66$, $p<0.10$) thus suggesting the acceptance of alternative hypothesis which proposed that IFRS adoption significantly affects audit quality. The negative coefficient points to an improvement possibility in audit quality as a result of the adoption of IFRS showing that it accounts for at least 53% increase in the quality of audits in the non-financial service firms. The model parameters are indicate good statistics ($f=5816.09$, $P<0.01$ & $f=5824.30$, $P<0.01$) for both. R^2 of 86.8% each respectively for the models. They both present negative significant effects of leverage, ROA, PE, loss, sales growth and lagged total accruals on discretionary accrual which therefor indicate that audit quality is negatively affected by them. The coefficients and significance of lagged loss and asset turnover suggest improved audit quality the non-financial services firms.

Panels C and D also produced results that are largely consistent among the variables. It suggests the retention of the null hypothesis ($t=-0.78$, $p>0.10$ & $t=-0.16$, $p>0.10$). This indicate a submission to the proposition that IFRS adoption does not affect audit quality significantly. Meanwhile, the negative coefficient increase in audit quality as a result of IFRS adoption even though both models' results are not statistically significant at 10% confidence interval. The parameters of the model are indicative of a good model ($Wald=9.02$, $P<0.01$ & $Wald=8.77$, $P<0.01$) with adjusted R^2 of 33.4% and 41.3% respectively.



Furthermore, the significant interaction between IFRS and auditor size ($t=4.68$, $p<0.01$ & $t=4.68$, $p<0.01$) indicate an unsigned significant coefficient with audit quality thereby, indicating that the improvement in audit quality caused by audit size applied to the entire periods prior to IFRS adoption while simultaneously suggesting that auditor size after the IFRS adoption led to the reduction in audit quality for the non-financial firms. In other words, since the adoption of IFRS, Big4 firms have become less proficient in constraining earnings management thus, impairing audit quality. The model parameters signal good result with model statistics ($f=6588.68$, $P<0.01$ & $f=6589.92$, $P<0.01$) for both models and R^2 of 87.2% for the respective models. More so, both the models present unsigned significant effects of ROA, lev, loss, PE, lagged total accruals and lagged loss on discretionary accrual which thus suggests that audit quality is impaired by their presence in the model whilst the coefficients and significance of asset turnover are suggestive of improved audit quality for firms in non-financial services at 99% confidence interval.

The results of panels C and D are also largely consistent with one another in respect of most of the variables saved for the financial services firms. It provides evidence ($t=-0.82$, $p<0.01$ & $t=-3.69$, $p<0.01$) that audit quality is significantly affected by auditor size. This submission is however not consistent across pre and post IFRS-adoption periods as indicated by the coefficient of the interaction of auditor size and IFRS ($t=-0.89$, $p>0.10$ & $t=0.02$, $p>0.10$). In the post IFRS period, audit quality is significantly reduced by IFRS adoption when moderated with auditor firm size across all sampled firms in the financial services industry. The model parameters also signal good result with model statistics ($Wald=8.24$, $P<0.01$ & $Wald=14.03$, $P<0.01$) for both models and adjusted R^2 of 34.8% and 44.6% for both models respectively. Model D presents signed significant effects of ROA, loss, and lagged total accruals on discretionary accrual which thus suggests that audit quality is improved by their presence in the model and this is qualitatively similar to the results in Model C thereby affirming the consistence of the results across different measures of audit quality for both financial and non-financial firms.

The results of the hypothesis conform to the supposition that that there is statistically negative significant relationship between IFRS adoption and audit quality moderated by audit firm size in the non-financial services industry. The result of the financial services firm is though not significant, it qualitatively has similar interpretation as indicated by their unsigned coefficient.



5. CONCLUSION AND RECOMMENDATIONS

This study examined the effect of IFRS on the relationship between auditor size and audit quality of listed companies in Nigeria. The study noted that auditor size led to a change in the behaviour of auditor after IFRS adoption. That is auditors, particularly the big four auditors reduced, their proficiency in checkmating account manipulation after IFRS adoption and that led to poor audit quality. The audit quality of big four firms that was higher across all firms and industry prior to IFRS adoption reduced after the adoption. Given the nature of the evidence gathered across methodologies, it was concluded that audit quality is not the monopoly of any form or size of auditor.

We have evidence from the result that audit quality of big four firms is higher across all firms and industry prior to IFRS adoption. This confirms popular outcomes of previous works of Asthana, Khurana and Raman (2019) who noted that audit quality is a continuum and improves in response to fee completion among the big four. Donelson, Ege, Imdieke and Maksymov (2020) as well as Che, Hope, Langli (2020) concluded that big four auditors perform better quality audits than their non-big four counterparts. Interacting big four with IFRS however produced a different result. For the firms in non-financial industry, it was revealed that the proficiency of big four to constrain discretionary accrual significantly reduced due to IFRS adoption. It offers opportunity for more use of discretionary measures by accountants while also providing difficulty for auditors challenge such manipulations as they are IFRS compliant. The results presented for different industries in the sector provide better explanations. They reveal that reduction of audit quality for big four firms after IFRS adoption occurred only in the consumer goods and the oil and gas sectors.

The study recommends that smaller audit firms as well as indigenous auditors should be strengthened to compete favourably in the audit market since the outcome of the hypothesis has proven that quality audits are not the monopoly of the foreign-linked auditors. Small and indigenous auditors also produce quality audits. Although this study is not oblivious of the market forces notable in driving competition in the audit market, regulation of the market such that a ceiling will be set for an auditor regarding the clients it can comfortably accept at a time will enable the growing firms to thrive and prove their skills in providing quality audits.



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