DILIGENCE AND INDEPENDENCE OF CORPORATE BOARD COMMITTEES AND THE QUALITY OF REPORTED EARNINGS AMONG LISTED COMPANIES IN NIGERIA

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Abstract

This work examines the concepts of diligence and independence of committees of corporate boards and assesses their effects on earnings quality of firms. By adopting a systematic elimination and stage wise sampling method, 62 firms were purposely sampled, and secondary data were carefully extracted from their financial statements over 10 years period (2011 – 2020). The data were panel in nature and both the random and fixed effect analyses were conducted alongside the Hausman test for endogeneity as applicable. Regression outcome proved that the diligence of all board committees jointly influences earnings quality of firms. In the same way, independence of board committees significantly reduces accruals and real activities manipulation thereby improving earnings quality of firms. The study lucidly recommends among others that regulations that mandates the inclusion of reasonable number of independent directors in respective board committees should be made and enforced by regulators.

Keywords: Accrual manipulation, governance, independent directors, Board committees, earnings management.

JEL classification: G34, C33; M41

1. INTRODUCTION

Corporate governance systems in entities consist basically of individuals (people), processes and various activities directed at building the culture of organizational stewardship that harnesses the overall assets and resources of organizations. Good corporate governance structures have so far been singled out as tools that largely guarantees the proper management and utilization of organization's resources in the collective interests of owners and stakeholders alike (Lin & Hwang, 2010). Dabor and Ibadin (2013) notes that corporate governance is mostly

considered as one significant factor that determines managements' intentions to engage in the manipulation of earnings and related acts. Given its importance, most countries have developed applicable codes of corporate governance to guide the operations of companies within their respective domain. Specifically, the variables addressed by codes of corporate governance include, but not limited to such variables previously addressed by prior studies – ownership structures, board structure, audit committee independence, board independence (Jeroh, Ekwueme & Okoro, 2015; Odjaremu & Jeroh, 2019; Ukolobi & Jeroh, 2020; Ideh, Jeroh & Ebiaghan, 2021), and in recent time, measures of risk committee, nomination committee and other committees. These variables largely determine what managers can or cannot do within the organization and inevitably, they form the fundamental framework on which organizations make vital decisions.

Believably, with good structure of corporate governance, earnings manipulation would be mitigated; thus, resulting to improvements in the quality of the reported earnings of companies (Ideh, Jeroh & Ebiaghan, 2021). Accordingly, Khalid (2018) maintained that corporate governance ensures the integrity, reliability, impartiality, transparency and disclosure of necessary decisions relating to all aspects of business operations in addition to holding such organizations accountable and answerable to shareholders and the generality of stakeholders. The unassuming importance of designing governance codes for entities thus engineered the desire of countries like Nigeria to develop corporate governance codes with subsequent revisions, with the most recent, being the revised Nigerian Code of Corporate Governance of 2018, which took effect from 2020.

Despite the reviewed regulations or code of Corporate Governance, cases of corporate failure still abound in Nigeria and beyond (see Jeroh, 2020a). In Nigeria for instance, in 2006, Cadbury Nig. Plc. failed due to the falsification of financial data by way of inflating profit figures (Salaudeen, Ibikunle & Chima, 2015). Similarly, the 2009 financial statement of Afribank Nigeria Plc. presented high profits amid accusations by its former Managing Director that the Board of Directors conspired with the company's auditors to perpetrate gross acts of window dressing of the financial records of the bank (Mmadus & Akomolafe, 2014). It is therefore incontrovertibly true that several widely publicized cases of financial and other accounting improprieties abound. In Nigeria for instance, prior to 2009, banks like Oceanic Bank Plc, FinBank Plc, Intercontinental Bank, AfriBank, Union Bank Spring Bank and the likes had issues relating to the perceived lack of vigilant oversight functions of corporate boards; leading to situations where boards carelessly relinquished controls to chief executives who pursued self-interests thus subjecting corporate boards to become remiss in being accountable to relevant stakeholders (Uadiale, 2010; Jeroh & Okoye, 2015). These acts are not significantly different from what happened in Diamond Bank Plc, which certainly appear to be more recent among such existing known cases in Nigeria.

No doubt, investors and other users of financial reports have become skeptical about the quality of the reported earnings of organizations generally; thereby raising concerns on the level of efficiency and the nature of the oversight

functions of corporate boards and their respective committees. This partly spurred the thrust of our current study.

1.1. PROBLEM STATEMENT

Notably, prior accounting studies have looked at the concept of earnings quality (EQ_{ual}) from the financial reporting based factorial approach which measured EQ_{ual} using discretionary accruals and/or accrual quality (accrual earnings management) as proxy. From the literature, we noticed that Roychowdhury (2006) observed that the focus of prior earnings management studies which concentrated basically on the analysis of total accruals by decomposing same into non-discretionary and discretionary accruals failed to adequately segregate the abnormal component of earnings that is traceable to the manipulation of not only earnings, but real activities. This calls for further research investigation on earnings quality of companies by deploying models that will take cognizance of abnormal components of earnings resulting from real activities manipulation alongside the manipulation of accruals.

Notwithstanding, studies that previously applied real earnings or possibly examined the possibility of substituting between real and accrual earnings abound (Cohen & Zarowin, 2010; Al-Haddad & Whittington, 2019). As observed, empirical evidence indicate that most prior studies in Nigeria were majorly based on the Jones model or the modified Jones model that failed to adequately account for the effect of real activities' manipulation on the quality of earnings reported by companies. This however creates one empirical gap which needs to be filled.

Furthermore, we observed that most prior studies on banks and insurance companies (financial service sector) showed similar results (Nkanbia-Davis, Gberegbe, Ofurum and Egbe, 2016; Azzoz & Khamees, 2016); while studies that focused respectively on companies in the manufacturing and the oil and gas sector produced similar results (Shehu & Farouk, 2014; Ojugbeli, 2018). However, a closer look at the outcomes from most of these studies revealed the existence of conflicting findings/conclusions (Azzoz & Khamees, 2016; Erah and Ikhu-Omoregbe, 2017). While we believe that the sectorial divide and difference in scope may have possibly accounted for the presumed conflicting findings of prior studies, the fact that Nigerian studies have not considered arguments on the possibility of earnings manipulation by companies through a combination of several approaches (including real activities' manipulations) calls for further empirical inquiry.

To fill these identified gaps, this study however modifies existing earnings management models (Kothari, Leone & Wasley, 2005; Roychowdury, 2006; Acar & Coskun, 2020) to develop a holistic model that measures earnings quality by obtaining the residuals of the Roychowdhury (2006) model and combining same with that of the Performance Matched Model (PMM) of Kothari *et.al* (2005) in order to holistically examine the statistical link between measures of the committees of corporate boards and earnings quality of listed Nigerian companies in the light of the changes in the revised 2018 code of corporate governance that took effect from

January 1, 2020. On this note, we specifically examined the influence which diligence and independence of board committees possibly exert on earnings quality of listed firms by obtaining statistical evidence from Nigeria.

This study would not only provide the empirical and theoretical evidence in the academia but also have practical managerial and regulatory value. In the light of the findings, the study will be useful to researchers and members of the academia, managers of corporate organizations and regulators of financial reporting within and outside Nigeria as it provides substantial evidence to support various regulatory activities especially in streamlining the regulatory agencies of companies listed outside the financial service sector (non-financial sectors) by providing insights on monitoring requirements and the level of implementation of prevailing disclosure requirements. The study also offers avenue for the assessment of the effectiveness of the codes of corporate governance regulating the various sectors (Corporate Governance Best Practices) in refining the quality of earnings reported by listed Nigerian firms. Thus, our study specifically examines:

i.   whether diligence of board committees has significant influence on earnings quality of listed firms in Nigeria.
ii. whether independence of board committees has significant influence on earnings quality of listed firms in Nigeria.

2. CONCEPTUAL AND EMPIRICAL REVIEW

2.1. EARNINGS QUALITY (EQ$_{ual}$) CONCEPTUALIZED

Earnings quality is viewed as a conceptual term with definitions from different perspectives (see Kamarudin & Ismail, 2014; An, 2017; Nakashima, 2019). Succinctly, the term "earnings quality" has therefore been viewed from both the financial statement users' or decision-usefulness perspective and the standard setters' or economic-based perspective. Inspite of the existing discourse on the concept, EQ$_{ual}$ is deemed to be high if the reported earnings of companies are useful for decision making. Thus, analysts are more likely to consider profits to be of good quality when they accurately reflect the company's current operational success and may thus be used to predict future operating performance and firm value (Dechow & Schrand, 2004). High quality earnings are therefore viewed by investors and creditors as earnings that can be easily convertible into cash flows, thus reflecting managers' actual performance. Within this context, EQ$_{ual}$ can be defined with respect to the near absence of earnings management or all forms of financial statements' manipulation. This is because, within the bounds of accounting standards, purposeful manipulation of earnings by management may affect the usefulness of earnings to users. Arguably, consistent and predictable earnings may not necessarily depict high quality in as much as they are the results of earnings management. Expectedly, chief executives who manage earnings have variety of reasons which range from capital market inducements, to improved bonuses and compensations, debt/lending contracts amongst others. Irrespective of the motives for managing earnings, the undisputed fact is that the level of manipulation/management of earnings in any

given circumstance has multiplier effect on the quality of whatever earnings that may have been reported in a company's financial statement. Hence, earnings quality depends largely on the level of earnings management in organizations. This is why the concept has mostly been defined with reference to the subject of earnings manipulation/earnings management.

Recent studies (Dempster & Oliver, 2019; Nakashima, 2019; Takacs, Szucs, Kehl & Fodor, 2020; Saleh, Abu Afifa & Alsufy, 2020) clearly highlights on the fact that the quality of earnings are essential indicators of the economic reality and trustworthiness of companies' financial information. Impliedly, the quality of earnings is good where present earnings accurately depict the current position and sustainability of companies. Thus, the quality of earnings may therefore be a function of the extent to which companies deviate and/or comply with existing accounting standards while preparing their financial statements. No doubt, since compliance levels may be affected by the level of diligence and independence of existing committees of corporate boards, this study thus examines the link between earnings quality (EQ_{ual}) and the level of diligence and independence of corporate board committees of companies.

2.1.1. MEASURING EARNINGS QUALITY

Prior researches have deployed several measurements initiatives to evaluate earnings quality of firms. Accordingly, Fanani (2011) suggests that the construct of earnings quality can be measured either by investigating probable factors that ignites higher levels of earnings quality or by examining the response of financial statements' users to the quality of reported earnings of firms. When the focus is on the factors that increases the quality of earnings, emphasis will aptly be placed on the main drivers of reporting earnings that are presumably of good quality. Such factors are mostly internal or intrinsic (inherent) factors which in most cases are termed firm specific or firm characteristics. Conversely, when the focus is on assessing the responses of financial statements' users, the focus will be on external factors that may possibly influence users' responses to financial reporting quality and by extension, the quality of earnings.

In discussing the factors, the drives reporting quality, Fanani (2011) suggests seven (7) attributes which by extension may possibly affect the quality of reported earnings. These attributes consist of four (4) accounting based attributes (accrual quality, earnings' smoothing, persistence, and predictability) and three (3) market based attributes (value relevance, timeliness and conservatism). This argument justifies prior existing approaches to the measurement of earnings management and by extension, the quality of reported earnings of firms. As observed, the bulk of empirical documentations have stressed that in measuring earnings quality, concerns should be on the level of persistence, predictability, volatility, timeliness, earnings management and accrual quality (Khairul & Wan Adibah, 2014; Ramadan, 2015; Saleh, Abu Afifa & Alsufy, 2020). Thus, this present study measures earnings quality with reference to existing models for measuring financial reporting and

earnings management. Detailed discussion on this is presented under the section for methodology.

2.2. EMPIRICAL REVIEW AND HYPOTHESES DEVELOPMENT

2.2.1 DILIGENCE OF BOARD COMMITTEES AND EARNINGS QUALITY

The structure of every instituted board committee has now become integral to the functioning and efficiency of different corporate boards believed to be saddled with several responsibilities including oversights on matters relating to risk management, audit, remuneration, nomination and the overall governance of organizations. Given that entities operate in very complex and dynamic environment, calls have been made for corporate boards to be more effective in the performance of their verification, oversight and monitoring functions by improving their levels of independence, competence and diligence (Maraghni & Nekhili, 2014). No doubt, diligence as a concept, has received the attention of researches in recent time because of the growing concerns on corporate governance globally (Eluyela, Akintimehin, Okere, Ozordi, Osuma, Ilogho, & Oladipo, 2018; Kakanda, Salim & Chandren, 2018; Hamdan, 2020; Ugwu, Ekwochi & Ogbu, 2021). While we note the increased attention given to board diligence, we observed that most of the prior studies in this domain focused on the relationship between the performance of firms and the diligence of corporate boards and their respective committees. Ghosh (2007) examined how companies' performance as measured by their respective adjusted Q and return on asset is affected by board diligence and directors' busyness amidst other variables. Data analyzed were obtained from records of 200 manufacturing firms that were listed in India. The researcher controlled for several firm specific factors by adopting the instrumental variable approach. Estimation was conducted with linear regression techniques. Summing up, the study found that performance measures of Indian companies are significantly influenced by the level of diligence of their respective corporate boards. Though consistent with other findings, it is evident that the results of this study do not provide empirical documentation on the effect which board diligence may have on earnings quality.

With arguments that the relationship between board diligence and earnings management appears to be ambiguous, Adamu, Ishak and Chandren (2017) examined the effect which attributes of corporate boards may have on real earnings management (REM). The study focused on financial service institutions in Nigeria and data were collated from the accounts of the sampled firms for periods between 2011–2016. REM was therefore measured using the residuals from Roychowdhury (2006) model while the expertise of board members, female directors, diligence amongst other variables were employed as explanatory variables. Data were analyzed with the Panel-Corrected Standard Errors (PCSEs) regression method. Evidence from this study suggests that board diligence alongside other variables exert significant positive impact on REM. Again, this study could not provide explanations on the relationship between diligence of board committees and earnings quality.

Eluyela et.al (2018) examines in the Nigerian context, the association between frequency of board meetings (board diligence) and the performance of banks. Listed banks were sampled for the study and data were spawned from the financial statements of 15 banks for 6 years (2011 – 2016) and analyzed using panel regression approach. Other tests conducted includes multicollinearity tests, Hausman tests amongst others. Indications from this study is that board diligence significantly improves the level of performance of banks in Nigeria. The study provides empirical justification for why banks should comply with existing corporate governance codes in the country, though, there was no documentation on the association between board committee diligence and earnings quality of listed banks or other firms outside the financial service sector.

Hamdan (2020) examined how audit committee can help to improve earnings quality of companies. Data were sought from 23 industrial driven companies in the financial markets of the Gulf Cooperation Council (GCC). The study covered 5 years spanning from 2014 – 2018. Panel data for earnings quality which was measured with accruals derived by the De Angelo (1981) model were regressed against the proxy for audit committee diligence amongst other measures of audit committee characteristics. Overall, the outcome from the fixed-effect regression estimations proved that audit committee diligence has no impact on the quality of reported earnings of industrial companies. While providing insight on the association between the level of diligence of audit committees and earnings quality, the study could not explain the direction of relationship between diligence and earnings quality. Also, since the measurement of earnings quality in the study did not consider possible implications of real activities' manipulation on earnings quality, it becomes necessary for further researches to unravel holistic measures of earnings quality and subsequently assessing the link between audit committee diligence and earnings quality.

In the Dutch milieu, the impact which audit committee may have on REM was examined. In this study, Mardessi and Fourati (2020) obtained secondary data from 80 companies (specifically, non-financial companies) listed on the floor of the Amsterdam Stock Exchange, covering 8 years (2010 – 2017). The diligence of audit committee as measured by number of meetings (AC-MEET) was among the variables of interest. The regression model was adopted to estimate the relationship between REM and measures of audit committee characteristics after controlling for several factors. Consistent with similar studies, evidence from the results suggests that AC-MEET exhibits a negative relationship with REM. Impliedly frequent meetings (increased level of diligence) reduces REM and improves earnings quality. Though the study contributes significantly to the literature on topical issues relating to corporate governance, earnings management amongst others, it is difficult to assume from the study's result that diligence in other board committees will significantly improve the quality of earnings of firms.

The study of Altass (2022) analyzed the interrelationship between firm performance and board effectiveness as measured by diligence, size and independence of corporate boards. Pooled data were obtained from the reports of

companies in the materials sector in Saudi Arabia and analysis was done using the pooled OLS regression method. The study measured performance with return on assets (ROA) and return on equity (ROE). The study concludes from the results of the analysis that diligence, as measured by board meetings may not significantly improve the financial performance of companies. Specifically, the results indicate a negative association between financial performance and board diligence. While we agree that the study's finding provides further insight into the effect which board diligence exert on performance, the obvious is that the result does not present clear documentation on whether earnings quality is significantly affected by diligence of corporate boards and their respective committees.

As observed, most of the prior studies on diligence either focused on the corporate board, or the focus was on audit committees of companies alone. In addition, we observe that the bulk of prior research enquiries dwelt on diligence and firm performance with little attention to the association between board committees' diligence and the quality of the reported earnings of companies. To bridge this gap, empirical data on measures of diligence of four (4) board committees (risk management committee, audit committee, nomination committee, remuneration committee) have been sought to assess their respective and collective relationship with earnings quality.

In view of the previously mentioned, we hypothesize thus:

Ho₁: *Diligence of board committees does not significantly influence earnings quality of listed firms in Nigeria.*

2.2.2 INDEPENDENCE OF BOARD COMMITTEES AND EARNINGS QUALITY

Efforts by corporate organizations to woo unsuspecting stakeholders by intentionally manipulating records of financial transactions have ignited series of financial scandals globally. As observed, accounts of corporate failures occasioned by financial scandals are not peculiar to only developing countries (Monye-Emina & Jeroh, 2014; Jeroh, 2018; Jeroh, 2020a; Aleqab & Ighnaim, 2021). The situation has therefore spurred empirical concerns on possible causes and/or deterrents of financial statements' manipulation, with a few to establishing important variables that may help to effectively improve on the monitoring capabilities of corporate boards while simultaneously reducing acts of earnings management/accounts manipulations. Among the variables discussed in the literature in this sphere of discourse is board independence. According to Akpomedaye and Williamson (2021), independence of corporate boards abound where board members are completely and unconditionally free from all forms of interference or bias in deeds and appearance to the extent that the exercise of their respective authorities and the discharge of their statutory functions are done without fear, favor or otherwise. Thus, prior discussions on the concept of board independence have explained the concept on the premise that to guarantee efficient monitoring mechanism within entities, corporate boards and their respective committees must be independent of company's

management and/or chief executives. Believably, higher levels of board independence are associated with reduced acts of earnings management which ultimately increases earnings quality.

Justified by renewed global efforts targeted at strengthening governance frameworks within companies, Liu, Harris and Omar (2013), examined several principles relating to measures of board committee's *vis-a-vis* their relationship with earnings management. Data from 138 firms were sampled from listed companies in Australia for four (4) financial years (2004 - 2007). Hypotheses were specified and tested using selected relevant statistical tools. Variables examined include board independence, independence of remuneration and audit committees, among others. Results from the OLS estimation technique proved that independence of the board's audit committee have negative influence on earnings management thereby suggesting that for firms to guarantee integrity of financial statements and other financial records, the board's audit committee/sub-committee should be protected from the influence of management. Similarly, the study also found that the presence of nomination committees negatively affects earnings management. On the contrary, remuneration committee appeared to exhibit a positive relationship with earnings management. While providing insights and contributing to the discourse on the subject "corporate governance", the study did not make empirical documentation on the direction of relationship between independence of nomination committee and earnings quality.

Furthermore, poised by the calls for companies to place higher attention to the institution of efficient risk management frameworks within public companies, Kakanda, Salim and Chandren (2018) examined how market performance of firms may be influenced by risk management committee characteristics (RMC). The study therefore obtained data from a panel of 45 firms (specifically, bank and non-bank financial institutions). The study's coverage was 5 years (2012 - 2016). Hypotheses were designed and tested with relevant and applicable statistical tools like the panel corrected standard errors regression model. The study measured RMC using size, composition (independence) and number of meetings (diligence), while market to book value ratio was the proxy for market performance of firms sampled during the study. As observed, empirical findings indicate among others that the composition of risk committees of companies (independence) exerts significant and positive impact on firms' market performance.

In the Malaysian context, Al-Absy, Ismail, Chandren and Al-Dubai (2020) examined the effect which the level of involvement of companies' chairmen in their respective audit committees (independence) may have on earnings management. The study focused on firms that were listed in the Malaysian Bursa with evidence of low positive earnings. Data analyzed were drawn to cover only 3 years - 2013 to 2015 (yearly data) culminating into 864 observations. Hinged on the Jones Model as modified by Kasznik (1999), discretionary accruals were computed as proxy for earnings management, whereas independence was measured using the level of companies chairman involvement in audit committees of companies and the proportion of independent directors in the respective audit committees of the

sampled companies. Findings show that greater levels of discretionary accruals were associated with companies whose audit committees were highly influenced by companies' chairmen.

Tran, Kabir and Huang (2020) examined the effect which board independence and the reforms in corporate governance may have on earnings management. The study drew empirical evidence from Vietnam; and the data used were sourced from published accounts of 523 Vietnamese listed non-financial firms covering 7 years (2009 - 2016). One major concern of the study was to find out if earnings management is significantly reduced by the mandatory requirement that corporate boards of Vietnamese companies must be independent. From the results of the analysis which were done using several regression models alongside robustness tests, the study reports that the level of earnings management among Vietnamese companies recorded no significant link with board independence.

In a study conducted in Bahrain, we observed that Buallay, and Desoky (2021) examined how attributes of audit committees (AC) affect earnings quality. Prominent among the variables understudied is AC independence. The study measured earnings quality by the presumed absence of earnings management. Data for 5 years (2015 - 2019) were collated from companies' financial statements and were analyzed using multivariate hierarchical multiple regression and Pearson correlation technique. The result gives further evidence that AC independence improves earnings quality.

Noticeably prior empirical documentations on diligence and/or independence of corporate boards and their respective committees were mostly interested on their effect on either performance or earnings management; though with very few exceptions. Studies on earnings quality tend to concentrate more on accrual quality as a measure of earnings quality; yet, studies have shown that the quality of earnings also depends largely on real activities' adjustments or manipulations. The need to apply a holistic measure of earnings quality that takes accrual quality and real activities manipulation into cognizance spurred the interest in this current study which examines how diligence and independence of board committees relates with earnings quality of corporate organizations in Nigeria. On this note, we hypothesize thus:

Ho₂: *Independence of board committees does not significantly influence earnings quality of listed firms in Nigeria.*

2.3 CONCEPTUAL MODEL FOR DETERMINANTS OF EARNINGS QUALITY

Based on the specific objectives and the hypotheses formulated in this study, the variables of interest in this study are thus operationalized with the underlying conceptual assumptions, drawing their respective links in Fig 1. Note that while analyzing the relationship between earnings quality and the explanatory variables (diligence and independence of board committees) two control variables were introduced - revenue growth and market capitalization. This is justified by the belief

that the level of growth in revenue and the trends of companies' market capitalization may largely control for the influence of board committees' diligence and independence on management tendencies to alter the quality of earnings.
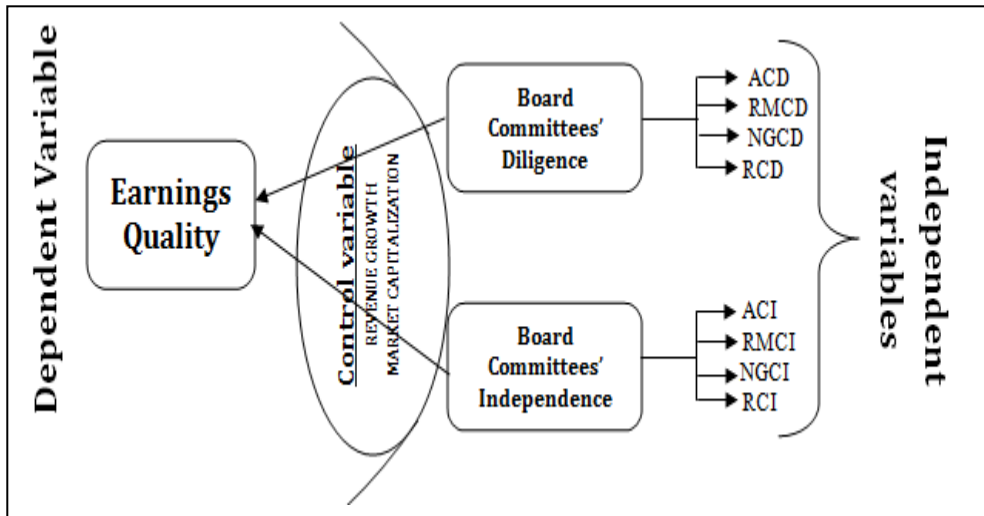

Figure 1. *Conceptual Model for the Study*
Source: *Conceptualized by the Researchers, 2022*

3. DATA AND RESEARCH METHODS

This study adopted the Ex-post facto research design. This design was adopted because the research relied on historical data generated from annual reports and accounts of Listed Firms in Nigeria. The population of the study consists of all the companies listed companies outside the financial service sector on the floor of the Nigerian Exchange Group as at 31st December, 2021. It should be noted however that as at 31st December, 2021, the number of listed firms in the non-financial service sector stood at one hundred and seven (107) as indicated in Table 1.

Understandably, availability and accuracy of the data is very crucial for studies of this nature. For uniformity and proper representation of the entire population, the researcher systematically selected and reviewed only companies with updated financial statements whose listing status as at 31st December, 2021 were still active. Thereafter some filters were applied to ensure that companies with relevant data within the study period across the concerned sectors are sampled for the study. Thus, since the study covered the period 2011 to 2020 (10 years), a systematic elimination and stage wise sampling method, otherwise known as the purposive sampling method, was adopted. Companies were therefore sampled from 10 sectorial categories as indicated in Table 1 if they meet the following selection criteria:

1. The shares of the company must be actively traded on the floor of the Nigerian Stock Exchange within the study period

2. Companies delisted and/or stocks suspended from active trading for a period extending beyond two (2) years are disqualified.
3. The company must have published accounts with data relevant to the variables of interest in this study.
4. The company must not be categorized under the financial service sector and the main operating activities of the company must not include the rendering of financial services to clients.

In all, firms that did not meet the stated criteria were excluded; such that a total of sixty-two (62) companies met the criteria and were therefore selected to constitute the sample size of this study.

Table 1. *Spread of Listed Companies Across Sectors*

S/N	Sectorial Category	Number of Listed Companies	Sample Obtained
1	Agriculture	5	3
2	Conglomerate	5	5
3	Construction/Real Estate	8	2
4	Consumer Goods	20	16
5	Health Care	8	6
6	ICT	9	4
7	Industrial Goods	13	10
8	Natural Resources	4	3
9	Oil and Gas	10	5
10	Services	25	8
	Total	**107**	**62**

Source: Fieldwork, 2021

3.1 DESCRIPTION OF VARIABLES

3.1.1. DEPENDENT VARIABLE

Earnings Quality (EQ_{ual}) being the study' dependent variable was built based on models developed by prior studies (Kothari et.al, 2005; Roychowdhury, 2006; Zang, 2012; Acar & Coskun, 2020). Our argument is that since companies combine the accrual based tactics with the manipulation of their real activities, the measurement of earnings quality will be more appropriate when both divides of earnings management measurement models are holistically combined. Thus, the residuals of the Roychowdhury (2006) model and that of Kothari et.al (2005) were obtained to derive a holistic model that best measures earnings quality. Our choice of using the model of Kothari et.al (2005) is hinged on the submission of Darmawan, Sutrisno and Endang (2019) who in a cross-country study that examined several models used in predicting discretionary accruals concluded that the PMM developed by Kothari et.al. (2005) had the highest explanatory power among prior accrual based models on earnings management. The holistic approach to the measurement of earnings quality developed by this study is hinged on the belief that the earnings quality is a function of the aggregate level of earnings manipulation within firms.

The higher the level of manipulation, the lower the quality of earnings, *ceteris paribus.*

3.1.2 INDEPENDENT VARIABLE

Table 2. Variables' Definition, Labels and Description

VARIABLES	DESCRIPTION	LABELS	DEFINITIONS
DILIGENCE AND INDEPENDENCE OF CORPORATE BOARD COMMITTEES	Audit Committee Diligence	ACD	Number of times audit committees meet yearly
	Audit Committee Independence	ACI	Percentage of independent directors in audit committees of firms.
	Risk Management Committee Independence	RMCI	Percentage of independent directors in risk management committees of firms.
	Risk Management Committee Diligence	RMCD	Number of times risk management committees meet yearly
	Nomination & Governance Committee Independence	NGCI	Percentage of independent directors in nomination and governance committees of firms
	Nomination & Governance Committee Diligence	NGCD	Number of times nomination and governance committees meet yearly
	Remuneration Committee Independence	RCI	Percentage of independent directors in remuneration committees of firms
	Remuneration Committee Diligence	RCD	Number of times remuneration committees meet yearly
CONTROL VARIABLES	Revenue Growth	REVG	Growth in firm's revenue as measured by sales in current year less Sales for previous year divided by last year's sales
	Market Capitalization	MCAP	Logarithm of firm's market capitalization in Naira.

Source: Fieldwork, 2021

The independent variables have several measures/proxies as indicated in the conceptual model of this study. Notwithstanding, these variables which are the respective measures of corporate governance in this study have been presented in Table 2 for clarity.

3.2 MODEL SPECIFICATION

Given the hypotheses earlier advanced in this study, and in line with arguments that the quality and nature of firms' earnings significantly depends on the combination of accrual quality and the level of real activities' manipulation (Acar & Coskun, 2020) we derived a single measure of earnings quality by holistically combining the ideologies of accrual based earnings management models alongside the Roychowdhury's model. Recall that the PMM developed by Kothari et al., (2005), measured discretionary accruals (DACC), by scaling down total accruals by the lag of total assets for a particular firm, *i,* in any given year, *t*. Based on this, Kothari et al., (2005) developed the following regression model:

$$\frac{TA_{i\text{®}}}{A_{i\text{®}-1}} = \alpha_0 \frac{1}{A_{i\text{®}-1}} + \alpha_1 \frac{\Delta SALE_{it} - \Delta REC_{i\text{®}}}{A_{i\text{®}-1}} + \alpha_2 \frac{PPE_{i\text{®}}}{A_{i\text{®}-1}} + \alpha_3 \frac{ROA_{i\text{®}}}{A_{i\text{®}-1}} + \varepsilon_{it} \qquad (1)$$

Also, going by the model of Roychowdhury (2006), real earnings management (REM) is measured using:

$$REM = (ACFO * -1) + APROD + (ADISEXP * -1) \qquad (2)$$

The variable labeled ACFO shown in Eqn.2 stands for abnormal cash flow whose values were derived from the residuals of the model designed by Roychowdhury (2006) to estimate the value of operating cash flow as shown below:

$$\frac{CFO_t}{TA\,t-1} = \alpha_0 + \alpha_1(1/TAt-1) + \beta_1(St/TAt-1) + \beta_2(\Delta St/TAt-1) + \varepsilon \quad (3)$$

Similarly, APROD represents abnormal production costs which was derived to estimate production costs as:

$$\frac{PROD_t}{TA\,t-1} = \alpha_0 + \alpha_1\frac{1}{TA\,t-1} + \beta_1\frac{St}{TAt-1} + \beta_2\frac{\Delta St}{TAt-1} + \beta_3(\Delta St - 1/TA\,t-1) + \varepsilon \quad (4)$$

Whereas, ADISEXP represents abnormal discretionary expenses which on its part was derived to estimate discretionary expenses such that:

$$\frac{DISEXP_t}{TAt-1} = \alpha_0 + \alpha_1\frac{1}{TAt-1} + \beta_1\frac{St-1}{TAt-1} + \varepsilon \qquad (5)$$

Where: PRODt = production costs (that is Cost of Goods Sold + yearly inventory changes); CFOt = firm cash flow from operations; DISEXP = discretionary expenses (SG&A expenses + R&D expenses + advertising expenses); TA = total assets; ΔSt = sales change at year *t*).

This study drew insight from the models above (Eqn.1 to Eqn.5) to derive a holistic measure for EQ_{ual} given as:

$$EQ_{ual} = DACC + REM \qquad (6)$$

Thus:

$$EQ_{ual} = DACC + (AFCO * -1) + APROD + (ADISEXP * -1) \quad (7)$$

Where:
DACC = Discretionary accruals

Thus, our statistical tests of the formulated hypotheses are based on the following composite model:

$$EQ_{ual} = f(Board\ Committee\ Diligence, Board\ Committee\ Independence)$$

$$(8)$$

Based on the above, specific models were developed to guide the researchers in the test of this study's formulated hypotheses. For clarity, each model is specified in line with the formulated hypothesis and the variables of measurements. Both the implicit and the explicit forms of each model have been specified:

3.2.1 MODELS FOR TEST OF HYPOTHESES

Model I
$$EQ_{ual} = f(BCDil, REVG, MCAP) \qquad (9a)$$

$$EQ_{ual} = \alpha_0 + \beta_1 RMCD_{it} + \beta_2 ACD_{it} + \beta_3 NGCD_{it} + \beta_4 RCD_{it} +$$
$$\beta_5 REVG_{it} + \beta_6 MCAP_{it} + \varepsilon \qquad (9b)$$

Mode II

$$EQ_{ual} = f(BCInd, REVG, MCAP) \qquad (10a)$$

$$EQ_{ual} = \alpha_0 + \beta_1 RMCI_{it} + \beta_2 ACI_{it} + \beta_3 NGCI_{it} + \beta_4 RCI_{it} +$$
$$\beta_5 REVG_{it} + \beta_6 MCAP_{it} + \varepsilon \qquad (10b)$$

Where:

EQ_{ual}	=	Earnings Quality
$\beta_1 ... \beta_{10}$	=	Regressors
it	=	Firms at time t.
ε	=	Error Term

4. RESULTS AND DISCUSSION

4.1 SUMMARY STATISTICS

The summary statistics for the variables used in this study are outlined in Table 3. Observably, the summary statistics reports results for selected measures of central tendencies for the study's variables. Specifically, the total numbers of observations (Obs.) were reported alongside results for mean values (average values), standard deviations (Std.Dev.), minimum values (Min.Val.) and maximum values (Max.Val.). From the reported results (see Table 3), the number of observations (Obs.) for all variables were 740. This number is below the expected 760 observations that ought to be obtained from the records of 76 sampled firms across a 10 year period. Having observations below 760 is expected since the study's data were pooled from the sampled 76 companies over the 10 years with the removal of periods with incomplete dataset where applicable. Noteworthy, the purposive exclusion of periods with incomplete dataset (totaling 20 observations) has no significant consequence on the study's overall outcome.

Table 3. *Summary Statistics of the Study's Variables*

Variables	Obs.	Mean	Std.Dev.	Min.Val.	Max.Val.
EQ_{UAL}	620	-0.0314	0.4621	-4.5001	2.4423
ACD	620	3.8839	0.7769	1	9
RMCD	620	1.5096	1.8051	0	12
NGCD	620	0.4823	1.1274	0	8
RCD	620	1.0806	1.5535	0	9
ACI	620	0.4739	0.1223	0	1
RMCI	620	0.3703	0.3953	0	1
NGCI	620	0.2051	0.3927	0	3
RCI	620	0.4001	0.4582	0	1
REVG	620	11.6479	76.2860	-100	1,354.2550

| MCAP | 620 | 6.8793 | 0.9899 | 4.8562 | 9.6205 |

Source: Researchers' Computation, 2022

The average value of EQ_{ual} is -0.0314, while the standard deviation is 0.4621. The low standard deviation implies that data for EQ_{ual} relatively exhibited similar trends among the sampled companies though with insignificant magnitude of perceived deviations. This situation evidently suggests that the quality of reported earnings of the firms exhibits similar trend across sectors throughout the sampled period. The variables for board committee diligence (ACD, RMCD, NGCD and RCD) had average values of 3.8839, 1.5096, 0.4823 and 1.0806, respectively. Values for their respective standard deviations which ranged from 0.7760 (ACD) to 1.8051 (RMCD) appears to be low. This again indicates that the level of diligence of board committees in Nigeria appears to be relatively similar across firms and industrial categories. The minimum values of 0 for RMCD, NGCD and RCD means that there are companies wherein risk management committees, nomination and governance committees and remuneration committees had no meetings in some years within the sampled period. Contrary to this observation, ACD had minimum value of 1; meaning that there was never a case where audit committees of companies failed to meet in any financial year. On the part of independence, ACI, RMCI, NGCI and RCI had average values of 0.4739, 0.3703, 0.2051 and 0.4001, respectively. In all cases, their respective minimum value was 0 implying that within the period of the study, there are some years that board committees existed without having at least, an independent director as a member. Apart from REVG, all the explanatory variables obtained low standard deviations, thus signaling a good trend in terms of the nature of the data collected for the variables.

4.2 HYPOTHESES TESTS AND DIAGNOSTICS

4.2.1 CORRELATION ANALYSIS FOR EQ_{UAL} AND BOARD COMMITTEE DILIGENCE

The correlation result for variables used in analyzing our test of Hypothesis I is thus presented. Correlation result explains the direction of relationship between variables; in our case, earnings quality and measures of diligence of board committees. Also, prior studies have used correlation results to check whether there are signs of multicollinearity among given datasets. Where estimated Pearson R for pairs of independent variables exceeds 0.80, such dataset may possibly have multicollinearity problems (see Jeroh, 2019, Jeroh 2020b). From Table 4, we saw that apart from ACD, the correlation coefficient between EQ_{ual} and the predictor variables were negative. This means that every unit of increase in the level of diligence among most board committees (risk, remuneration and nomination and governance committees respectively), translates into a reduction in earnings manipulation; thus, improving the quality of earnings of firms. This is not the case with ACD and EQ_{ual} whose coefficient was positive. Thus, higher levels of diligence among audit committees do not necessarily translate into reduction in the manipulation of accruals and real activities of firms.

Table 4. *Correlation Results For Measures of Diligence of Board Committees*

Variables	EQ$_{UAL}$	ACD	RMCD	NGCD	RCD	REVG	MCAP
EQ$_{UAL}$	1.0000						
ACD	0.0210	1.0000					
RMCD	-0.0671	0.1494	1.0000				
NGCD	-0.0208	0.0032	0.3077	1.0000			
RCD	-0.0864	0.2313	0.4427	0.1678	1.0000		
REVG	-0.2672	-0.0040	-0.0006	-0.0250	0.0491	1.0000	
MCAP	-0.0894	0.1642	0.2004	0.0957	0.2550	0.0300	1.0000

Source: Researchers' Computation, 2022

The highest coefficient recorded between the predictor variables is 0.4427. Since this value is below stipulated threshold our argument is that our specified model is fit and does not suffer from multi-collinearity issues. We further confirmed this position with the result of the multi-collinearity and heteroscedasticity tests which is presented in Table 5.

4.2.2. MULTICOLINEARITY AND HETEROSCEDASTICITY TESTS FOR MEASURES OF DILIGENCE OF BOARD COMMITTEES (DOBC).

In testing for multicollinearity, we employed the Variance Inflation Factor (VIF) test. Conversely, the Breusch-Pagan/Cook Weisberg (B-P/C.W) test was employed for the purpose of testing for heteroscedasticity among the dataset. Table 5 presents the empirical outcomes in this regard.

Table 5. *Results for Multicollinearity and Heteroscedasticity Tests For DOBC*

Test For Multicollinearity							
Variables	RMCD	RCD	NGCD	MCAP	ACD	REVG	Mean VIF
VIF	1.35	1.33	1.11	1.10	1.08	1.00	**1.16**
1/ VIF (Tolerance)	0.7393	0.7509	0.8996	0.9131	0.9296	0.9954	

Test For Heteroskedasticity	
Chi2(1)	358.09
Prob>Chi2	0.0000

Source: Researchers' Computation, 2022

With the results in Table 5, it is evident that the dataset obtained for the test of Hypothesis I have no signs of multicollinearity. Evidently, the mean VIF of 1.16 with VIF scores ranging from 1.00 (REVG) to 1.35 (RMCD) clearly shows that the VIF scores for all variables together with the mean VIF fell below the maximum thresholds in all cases. This result clears doubt on the possible existence of multi-collinearity problems among the data collated for the study's variables (see Ezinando & Jeroh, 2017; Jeroh, 2020c). Notwithstanding, the Chi2(1) of 358.09 (p-value = 0.0000 < 0.05) suggests that the OLS regression technique does not suit the current

study's regression model given the nature of the data obtained. This therefore necessitate the use of either the fixed effect or random effect model, depending on the outcome of the Hausman test. In this context therefore, the test for endogeneity was conducted using the Hausman test (see Table 6). The choice of the model to use in testing Hypothesis I is thus determined by the outcome of the Hausman test which we present in Table 6.

Table 6. Hausman Test For Endogeneity Using Data for Variables in Hypothesis I

Variables	FE	RE	DIFFERENCE	S.E.	Chi2(6)	Prob>Chi2
ACD	0.0388	0.0379	0.0008	0.0058		
RMCD	0.0084	0.0022	0.0062	0.0053		
NGCD	0.0165	0.0122	0.0043	0.0078	6.64	0.3552
RCD	0.0057	-0.0035	0.0092	0.0086		
REVG	-0.0016	-0.0016	-7.9800	0.00003		
MCAP	0.0320	-0.0285	0.0605	0.0556		

Source: Researchers' Computation, 2022

Given the result of the test for endogeneity, the null hypothesis that the difference in coefficients is not systematic could not be rejected since the Chi2(6) of 6.64 from the Hausman test produced a probability value (p-value) of 0.3552 (p-value = 0.3552 > 10%). Thus, our test for Hypothesis I is based on the outcome of the REM which is presented in Table 7. Also notice the low values for standard errors, confirming the near absence of possible vagueness in the ability of the Rem model in specifying the exact relationship between our variables deployed for the test of Hypothesis I.

Table 7. REM Result for the Test of Hypothesis I

EQ$_{UAL}$	Coeff.	Std.Error	Z	P>|z|
ACD	0.3797	0.0224	1.69*	0.091
RMCD	0.0022	0.0124	0.17	0.862
NGCD	0.0122	0.0179	0.68	0.498
RCD	-0.0035	0.0155	-0.22	0.823
REVG	-0.0016	0.0002	-7.95***	0.000
MCAP	-0.0284	0.0319	-0.89	0.372
_CONS	0.0306	0.2311	0.13	0.895
sigma_u	0.2461			
sigma_e	0.3744			
Rho	0.3017			
Wald chi2(6)	68.40			
Prob > chi2	0.0000***			
OBS.	620			

*significant at 10%; **significant at 5%; ***significant at 1%
Source: Researchers' Computation, 2022

Going by the outcome of the REM result in Table 7, ACD, RMCD and NGCD had positive regression coefficients of 0.3797, 0.0022 and 0.0122, respectively. The import of this is that diligence among most of the instituted board committees (audit, risk management and nomination and governance committees) exerts positive influence on conscious acts of manipulation of accruals and real activities by companies' management team. Conversely, with a negative regression coefficient of -0.0035, the obvious is that diligence of remuneration committee exerts negative influence on efforts targeted at manipulating accruals and real activities by companies' management team. Similarly, given the respective coefficient of -0.0016 and -0.0284, it is clear that REVG and MCAP have negative effect on earnings manipulation. Although, the Z_{stat} suggests that when taken alone, the level of diligence of each committee of corporate boards may not significantly influence earnings quality, contrarily, with the result from the Wald chi2(6) which is 68.40 (p-value=0.0000), the implication is that diligence of corporate board committees jointly exert significant influence on efforts targeted at manipulating accruals and real activities by companies' management team. This result thus confirms that diligence of board committees significantly influences earnings quality of listed firms in Nigeria.

4.2.3 CORRELATION ANALYSIS FOR EQ$_{UAL}$ AND BOARD COMMITTEE INDEPENDENCE

The correlation results obtained while testing the Hypothesis II of this study is thus presented (see Table 8). We observe that all the predictor variables were negatively correlated with EQ$_{ual}$ thus implying that any unit increase board committee independence (that is, independence of risk, remuneration and nomination and governance committees respectively), translates into a reduction in earnings manipulation which ultimately improves earnings quality of firms.

Table 8. *Correlation Results For Measures of Independence of Board Committees*

Variables	EQ$_{UAL}$	ACI	RMCI	NGCI	RCI	REVG	MCAP
EQ$_{UAL}$	1.0000						
ACI	-0.0601	1.0000					
RMCI	-0.0586	0.1207	1.0000				
NGCI	-0.0616	0.0668	0.2931	1.0000			
RCI	-0.1155	0.0879	0.4113	0.2163	1.0000		
REVG	-0.2672	0.0179	-0.0146	-0.0168	0.0319	1.0000	
MCAP	-0.0894	0.1588	0.1934	0.1253	0.2959	0.0300	1.0000

Source: Researchers' Computation, 2022

Noteworthy, the highest regression coefficient between predictor variables obtained in Table 8 is 0.4113. This coefficient is between RMCI and RCI. Coefficient values below the stipulated threshold noted by prior studies (Jeroh, 2016; Jeroh, 2020a) means that our specified model is fit and does not suffer from multi-collinearity issues. We further confirmed this position with the result of the multi-collinearity and heteroscedasticity tests which is presented in Table 9.

4.2.4. MULTICOLINEARITY AND HETEROSCEDASTICITY TESTS FOR MEASURES OF INDEPENDENCE OF BOARD COMMITTEES (IOBC).

Table 9. Results for Multicollinearity and Heteroscedasticity Tests For IOBC

Test For Multicollinearity							
Variables	**RCI**	**RMCI**	**MCAP**	**NGCI**	**ACI**	**REVG**	**Mean VIF**
VIF	1.29	1.28	1.13	1.11	1.04	1.00	**1.14**
1/ VIF (Tolerance)	0.7740	0.7782	0.8880	0.9002	0.9656	0.9969	
Test For Heteroskedasticity							
Chi2(1)			341.95				
Prob>Chi2			0.0000				

Source: Researchers' Computation, 2022

In conducting the B-P/C.W test, we employed the VIF test to examine whether collinearity issues abound in our dataset. The pertinent empirical findings are shown in Table 9 in this regard. As can be seen, the data used do not appear to have any signal of multicollinearity issues. The VIF scores for all variables and the mean VIF fell within relevant thresholds. As seen, the mean VIF of 1.14 and the VIF scores ranging from 1.00 (REVG) to 1.29 (RCI) dispels any uncertainty regarding the potential existence of multi-collinearity issues in the data collected for this investigation. However, given the nature of the data acquired, the Chi2(1) of 341.95 (p-value = 0.0000<0.05) implies that the OLS regression technique does not fit the current study's regression model. As a result, based on the results of the Hausman test, one of the two models—fixed effect or random effect—must be used. Table 10 therefore presents the result of the Hausman test for Model II.

Table 10. Hausman Test For Endogeneity Using Data for Variables in Hypothesis II

Variables	FE	RE	DIFFERENCE	S.E.	Chi2(6)	Prob>Chi2
ACI	-0.0374	-0.0451	0.0077	0.0510		
RMCI	0.1294	0.0773	0.0521	0.0347		
NGCI	0.0417	0.0133	0.0284	0.0345	**12.74**	**0.0473**
RCI	0.0045	-0.0381	0.0426	0.0402		
REVG	-0.0016	-0.0016	2.26e-06	0.00002		
MCAP	0.0345	-0.0248	0.0593	0.05599		

Source: Researchers' Computation, 2022

Pertinently, results from Table 10 shows an overall Chi2(6) of 12.74 with a probability value of 0.0473. Thus, the null hypothesis that the difference in coefficients is not systematic is rejected since the Chi2(6) of 6.64 from the Hausman test produced a probability value (p-value) of 0.0473 (p-value = 0.0473 < 10%). This result leaves us with the choice of testing Hypothesis II based on the outcome of the FEM which is presented in Table 11.

Table 11. *FEM Result for the Test of Hypothesis II*

EQ$_{UAL}$	Coeff.	Std.Error	t	P>| t	
ACI	-0.0374	0.1581	-0.24	0.813
RMCI	0.1294	0.0704	1.84	0.066
NGCI	0.0417	0.0675	0.62	0.537
RCI	0.0045	0.0696	0.06	0.949
REVG	-0.0016	0.0002	-7.87***	0.000
MCAP	0.0345	0.0642	0.54	0.592
_CONS	-0.2901	0.4476	-0.65	0.517
sigma_u	0.2939			
sigma_e	0.3745			
Rho	0.3812			
Wald chi2(6)	11.61***			
Prob > chi2	0.0000			
OBS.	620			

*significant at 10%; **significant at 5%; ***significant at 1%
***Source:** Researchers' Computation, 2022*

With the FEM result in Table 11, it is evident that apart from ACI and REVG, a sizeable number of the predictor variables (RMCI, NGCI, RCI and MCAP) all obtained positive regression coefficients. The significance of this is that independence of board committees correlates positively accrual and real activities' manipulation. For correctness, the negative coefficient of -0.0374 shows that audit committee independence has negative relationship with organizations' effort at manipulating accruals, operational and other real activities. Thus, higher levels of independence will likely reduce earnings management of firms and *vice-versa*.. Although, the t$_{stat}$ suggests that when taken alone, the level of independence of each committee of corporate boards may not significantly influence earnings quality, contrarily, with the result of the F$_{stat}$ which is 11.61 (p-value=0.0000), the obvious is that independence of corporate board committees jointly exert significant influence on efforts targeted at manipulating accruals and real activities by companies' management team. This result thus demonstrates that independence of board committees jointly influences in significant terms, the level of earnings quality of listed firms in Nigeria.

5. CONCLUSION AND RECOMMENDATIONS

Motivated by the claims that peculiar qualities of corporate boards may likely impact on the degree of earnings management among enterprises, this study investigates the connection and/or effect which diligence and independence of corporate boards may have on earnings quality of listed firms. Specifically, the individual and joint effect which these measures may have on earnings quality was examined. Overall, while we demonstrate that when considered in isolation, the independence and level of diligence of most board committees could not significantly influence earnings quality, the result of our study however show that

the joint effect of diligence and independence of board committees on earnings quality was significant. Importantly, our findings justify argument that increased efficiency among board committees would reduce accruals and real activities' manipulation of firms, thus guaranteeing improvement in the quality of entities' reported earnings. The study therefore recommends that:

- Members of corporate boards must remain diligent while performing their oversight functions in whatever committee they are appointed into.
- Practical steps must be taken by regulatory bodies to constantly monitor the constitution of board committees of enterprises to the extent that regulations that mandates the inclusion of reasonable number of independent directors in respective board committees should be made and enforced.

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