Auditors Independence and Audit Quality of Health-Care Firms in Nigeria

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Abstract
This study examines the effect of auditor independence on audit quality of twenty industrial goods companies in Nigeria for a period of ten years spanning 2012 to 2021. The objectives were centered on assessing possible effect of client importance, auditor reputation, audit opinion and auditor professional qualification on audit quality of health care companies in Nigeria. To achieve this set objectives, this study employed ex-post-facto research design based on data sourced from selected firm's yearly reports for time period that ranged from 2012 to 2021. Adopting an ex-post factor and longitudinal research design, the secondary data collected were subjected to some preliminary data tests such as descriptive analysis, Pearson moment correlation matrix and multi-collinearity analysis using Variance Inflation Factor (VIF). The research used panel least square procedure based on fixed and random effect framework and houseman test was equally employed in selecting the best model to estimate parameters contained in the model. Emanating from the review of relevant literature and theories on auditor's independence and audit quality and based on the data collected, analyzed and the hypotheses tested the study found that auditor reputation and auditor professional qualification recorded a positive and significant effect on audit quality which was statistically significant at 5% level of significance. On this basis, therefore, it may be recommended that there is need for the audit firm to protect its independence by working within its statutory duties. The management of health care companies is hereby advised to always source for the services of reputable audit firms with professional qualification and expertise to ensure quality of audit in their firms.

Keywords: Audit quality, client importance, opinion, auditor reputation and qualification.
JEL Classification Number-G6000

Introduction

As Nigeria battles and surges towards breaking loose from the current excruciating economic recession, the need to maintain investors' confidence in the capital market through high quality auditing and transparent financial reporting is unequivocally paramount (Ofor, Orjinta & Onuigwe, 2022; Ekwueme, Anichebe & Orjinta; 2020). Considering that several investors in Nigeria, in the past fifteen years, appeared to have lost confidence on the authenticity, integrity, effectiveness and significance of the audit function owing to cases of incessant accounting scandals which were largely linked to poor audit quality associated with a perceived lack of auditor independence, among other factors (Akintayo & Akosile, 2022; Hafizaha, Wahyudib, & Azwardi, 2022; Babatolu, Aigienohuwa & Uniamikogbo, 2016). Ensuring higher audit quality through auditor's independence may do the magic of wholesomely restoring investors' confidence at this critical economic situation the country is facing. To maintain the highest ethical standard for the auditing profession, independence should be tailored towards the quality of being free from influence, persuasion or bias (Akintayo & Akosile, 2022). In the absence of independence, the value of audit services will be greatly impaired.

In this context of these challenges and contradictions above, numerous studies have attempted to establish a relationship between auditors' independence and audit quality for different firms especially financial firms (Akintayo & Akosile, 2022; Hafizaha, Wahyudib, & Azwardi, 2022; Memiş & Çetenak, 2012; Okolie, Izedonmi, & Enofe, 2013; Okolie, 2014) without taking cognizance of health care sector. Even in Nigeria, many of the empirical evidence from this area of study dwell more on listed financial firms which includes insurance companies and deposit money banks (see Ogbeide, Okaiwele & Ken-Otokiti, 2018, Babatolu et al., 2016 and Enofe, Mgbame, Okunega, & Ediae, 2013). Not much empirical studies exist, particularly about auditor's independence among Nigerian health care firms, considering the vital roles that health care companies play in the development of the non-financial sector. Therefore, beaming the research light on auditor's independence in the health care sector will contribute to the recent discussions on auditor reputation, auditor opinion and client importance in pursuance of increased auditor independence in response to global best practices. This is an indication of a possible paucity of auditor independence researches in the health care sector, hence the need for this study. Also, numerous studies have attempted to examine the nexus between audit independence and audit quality in the Nigerian firms using different proxies of auditors' independence. Majority of the existing studies, such as Enofe, Mgbame, Okunega, and Ediae (2013); Akpom and Dimkpah (2013); Oladipupo and Emife (2016); Babatolu et al (2016), were of the view that, audit fees, audit firm size and the length of the audit tenure were among the major factors that impair auditor's independence. In Nigeria also, Semiu and Kehinde (2011) and Semiu and Johnson (2012) empirically examine the perception of auditor independence in Nigeria and reported that the size of audit fee is the most influencing factor capable of deterring auditor independence in Nigeria. However, his findings reveal that there are a number of threats to auditor independence and one of which is familiarity, which comes as a results of long-term audit firm-client relationship.

As a result of this inconsistency in results above, this study is set to examine the effect of auditors' independence on audit quality of health care firms in Nigeria. In view of the fact that not much research work has been carried out or conducted on this study in Nigeria health care sector and more so, that the few available studies appear very contradictory to one another. This

development has necessitated the need for this study and variables such as auditor reputation, client importance, auditor opinion and auditor professional expertise and qualification which were not earlier considered by previous studies have now been accommodated, thus giving rise to another huge variable gap. To this extent, the broad objective of this paper is to expand the empirical evidence to the stream of research on auditor independence and audit quality in Nigerian health care sector. In order to empirically investigate this objective, this research paper is sub-divided into five sections including this introduction. The second section reviewed all the existing literature, third section dwelt on methodology, while in the fourth section, we presented the results and discussions and finally draw our conclusion and recommendation in the final section.

2.2   THEORETICAL CONSTRUCTS AND HYPOTHESIS DEVELOPMENT
Audit independence and Audit Quality
Auditor independence is defined as an auditor' unbiased mental attitude in making decisions throughout the audit and financial reporting. According to Akintayo and Akosile (2022), auditors' independence refers to the auditors' ability to maintain an objective and impartial mental attitude throughout the audit. Aronmwan, Ashafoke,and Mgbame, (2013) quoting Davidson and Neu (1993) regard audit quality as the ability of auditors to identify and bring to light material misstatements and manipulations in reported net income. This is similar to the definition put forward by Salehi and Azary (2008). Therefore, to maintain the highest ethical standard for the auditing profession, independence should be tailored towards the quality of being free from influence, persuasion or bias (Akintayo & Akosile, 2022). In the absence of independence, the value of audit services will be greatly impaired. Compromised independence results in a lower level of audit quality being provided on financial statements. In other words, if the auditor is not independent, the incentive to do a high quality audit is weakened, as misstatements will not be reported even if found (pike, 2003). Some of the auditors' independence proxies used in this study and their relationship with the audit quality were discussed below as follows:

Client Importance and audit quality
Client importance is the extent to which a client is essential to an audit firm. Clients who are large in size or pays higher audit fees are usually of more importance than smaller clients. Kerler and Brandon (2010) define client importance as the client's relative financial importance for auditors. The main client is a client who has a large number of assets from an audit office, so auditors often spend a longer time with the client. The client's importance harms audit quality by the initial expectations that an economic bond between the auditor and the client causes low audit quality. Auditors sacrifice their independence to retain economically significant clients. Within an auditor's portfolio, economically important client holds greater importance, and the auditor could have a greater tendency to meet the requirement of major clients (Tepalagul & Lin, 2015). Based on the accounting theory, the firm's immense size is more likely to compromise their independence because clients are considered essential (Mautz & Sharaf; 1961 as quoted by Fadilah & Fitriany; 2021). Also, economically potential clients are often identified as prime clients by auditors (Johnson & Reynolds, 2002). Nevertheless, considering the contradicting theoretical argument, this paper does not predict any sign for the effect of client importance on audit quality but propose that *there is a significant relation between client importance and audit quality (Hypothesis 1)*

Auditor Firm Reputation and Audit Quality

Audit firm reputation refers to the corporate image built over time by auditing firms. It may be as a result of the array of auditors the firm possesses, the brand name, the perceived audit quality resulting from little or no litigations, the fees charged etcetera (Aronmwan, Ashafoke & Mgbame, 2013). Manel Hadriche (2015) quoting DeAngelo (1981) argued that auditor size is a proxy for auditor reputation. Big auditors have greater expertise, resources, experiences, and are better able to discover a significant anomaly in financial statements. Okolie et al. (2013) advocated that, relative to small audit firms, big auditors provide higher audit quality and, as such, more aggressively constrain their clients' attempts to manage earnings. So, large auditing offices help improve the quality of financial reports (Hamdan, Mushtaha, & Al-Sartawi, 2013). Consistent with the documented evidence, Zulkarnain, Shamsher and Yusuf (2006) argued that the Big Four firms were perceived to be superior compared to the non-Big Four firms in all aspects relating to independence from their clients. They also asserted that Big Four auditors are better able to resist management pressure in conflict situations and are more effective at detecting activities that will affect clients' company continuity. Zulkarnain, Shamsher and Yusuf (2006) were of the opinion that big audit firms are more risk averse and thus more disinclined to be associated with public scandals and/or audit failures. The findings suggest that the Big Four auditors are perceived to be more independently than the non-Big Four auditors. However, there are some inconsistencies that existed in the literature, for that reason, the current study does not intend to propose any sign, rather we hypothesize that *there is significant relation between auditor reputation and audit quality (Hypothesis 2).*

Auditor Opinion and Audit Quality

The auditor's opinion is the ultimate result of the accountant's investigative work. Auditors must firstly collect and evaluate audit evidences; secondly, they should express their opinion as to whether the audited financial statements are in accordance with the financial reporting framework. This opinion is inserted in audit report that is communicated to users of the company financial statements (Manel Hadriche, 2015). Clients who receive a going concern opinion may change their auditors, hoping that the auditors will be flexible, resulting in more favorable financial reports (Li, 2009). Prior researches find decreasing earnings management in firms involved in bankruptcy and having qualified audit opinion. Manel Hadriche (2015) quoting Charitou, Lambertides, and Trigeorgis (2007) suggested that qualified audit opinion drives managers of distressed firms to be more conservative in their financial reporting. Etemadi, Dehkordi, and Amirkhani (2013) suggested that under the pressure of audit opinion, distressed firms are compelled to employ conservatism procedures in earnings reporting. Therefore, qualified audit opinion exerts pressure on managers to follow more conservative earnings behaviour. Notwithstanding the contradicting theoretical argument, this research paper does not predict any sign for the effect of auditor opinion on audit quality but propose that *there is a significant relation between auditor opinion and audit quality (Hypothesis 3)*

Auditor Professional Qualification and Audit Quality

Auditor professional qualification is one of the major attributes that enhances audit quality. Auditor education involves the process of enlightening, training and creating awareness on the statutory duties of the auditor to users of financial information and the general with the aim of improving their level of understanding of the functions of an audit process; and subsequent bridging the gap between expectations of the public and performance of the auditor. Auditors

with post-graduate degree provide more qualified audit work than auditors with bachelor's degree because of having more knowledge (Cahan & Sun, 2015; Che, Langli & Svanström; 2017), being more capable and competent and exerting more effort (Bröcheler, Maijoor, & van Witteloosetuijn, 2004; Che et al., 2017; Ye, Cheng, & Gao, 2014). These qualifications of educated auditors make them more conservative when they are performing audit tasks and can help educated auditors use their time more efficiently and help them overcome the problems that can result from lack of time. As stated in Che et al. (2017) and Lai, Sasmita, Gul, Foo, and Hutchinson (2016)'s studies, highly educated auditors exert more effort, greater audit effort is likely to improve audit quality. However, there are some inconsistencies that existed in the literature, for that reason, this research paper does not intend to propose any sign, rather we hypothesize that *there is significant relation between auditor professional qualification and audit quality (Hypothesis 4).*

The above scholars attempted to study effect of auditors' independence on audit quality but none of them created a study in Nigeria health care sector. The scholars also used audit tenor, joint provision of audit and non - audit services, audit fees, audit rotation to proxy auditors' independence but this study used client importance, auditor reputation, audit opinion and auditors' professional qualification and expertise in addition to the previously used ones by prior studies and extended the study for a long period of time (10years) spanning from 2012 to 2021. Moreover, there is no indigenous study that has used client importance, auditor reputation and audit opinion to proxy auditors' independence. This is the knowledge gap this study intends to address therefore contributing to the existing literature. These are the rationale behind this study. Hence this diagram

Source: Researchers' conceptual Framework (2023)

Theoretical Framework

This paper is anchored on agency theory that was developed by Jensen and Meckling in (1976). This theory most commonly focuses on the contractual relationship between principals (shareholders) and agents (management) who have conflicting interests (Jensen & Meckling, 1976), due to the separation of corporate ownership and control in modern corporations. Ofor, Orjinta and Onuigwe (2022) explain that the demand for quality external audits occurs because of agency problems caused by differences in interests between ownership and company management. External audit acts as the main supervision system for evaluating the performance of company management. Audit quality is also related to public needs for the guarantee of higher quality information. Wijaya, (2020) quoting Lin and Hwang (2010) state that agency problems raise the risk of information asymmetry between management and owner. The asymmetry information will increase the demand for external audits. External auditors are responsible for verifying financial statements fairly by following GAAP, and financial statements shows the actual economic conditions and real profits according to company operation. Thus, verification conducted by the auditor will increase the credibility of the financial statements.

Empirical Studies

Akintayo and Akosile (2022) focused on the relationship between auditors' independence and quality of audit report. They adopted a survey research design to gather data from the respondents through the distribution of questionnaires to 120 respondents comprised of 12 auditors and 108 senior staff of the 12 randomly selected Deposit Money Banks (DMBs) in Nigeria. In addition, 120 copies of questionnaires were distributed to the respondents from which only 118 questionnaires were returned and used for the study. Both descriptive and inferential statistics of logit regression was adopted for the study. The result obtained from the regression analysis showed that there was a significant positive relationship between auditor independence and quality of audit report. This assertion was premised on the fact that the p-value of the LR-statistics computed for the test of 0.0000 was less than the critical value of 5%. It was concluded that auditor independence and quality of auditor report were sufficiently related. It was recommended that auditors should not interfering with the affair of its client in order not to erode its independence.

Hafizaha, Wahyudib, and Azwardi, (2022) analyzed and tested the effect of auditor independence and complexity on audit quality using a descriptive analysis, and a Likert scale measurement for primary data sources. The survey method is distributing questionnaires to auditors who work at BPK RI Representatives of South Sumatra. Their findings revealed that audit independence has a positive and significant effect on audit quality. This means that the increasing independence of auditors will improve audit quality. Also, audit independence has a positive and significant effect on the reputation of the institution. This is with increasing auditor independence will improve the reputation of the institution, the complexity of the audit has a positive and significant effect on audit quality means that every increase in audit complexity will improve audit quality, audit complexity has a positive and significant impact on the reputation of the institution. This condition means that every increase in audit complexity will increase the reputation of the institution.

Bassey, Omini, Aminu, Etore, and Archibong, (2020) basically conducted to ascertain possible connections between audit independence and quality of auditing in Nigeria. The objectives were centered on assessing possible effect of audit cost, audit workers' rotation and audit tenure on quality of audit in Nigeria. To achieve this set objectives, this study employed ex-post-facto research design based on data sourced from selected firm's yearly reports for time period that ranged from 2010 to 2019. The research used panel least square procedure based on fixed and random effect framework and houseman test was equally employed in selecting the best model to estimate parameters contained in the model. Findings from research analyses revealed that audit cost negatively and appreciably effected audit quality in these selected Nigeria based banks, and that audit workers' rotation negatively and inappreciably effect audit quality in these selected Nigeria based banks. Lastly, the research revealed that audit tenure negatively and inappreciably effects audit quality in these selected Nigeria based banks. Based on these findings, it was prescribed that audit firms should ensure that audit cost is based on professional prescribed benchmark in ways that their independence is appreciably assured to enhance audit quality.

In the same vein, Wakil, Alifiah and Teru (2020) examined Auditor independence and audit quality in Nigeria public sector. They extensively debated among researchers that there is greeter desire for consistency among researchers and practitioner, to date there is no consensus on how to assess audit quality. The word audit quality is a subject that is debatable among both public and private sector of the economy. In the Nigerian public sector audit quality plays a crucial role in ensuring accountability and transparency. To attain audit quality, auditors need to be independent both in fact and in appearance. Therefore, this paper was designed to examine the correlation between auditor independence and audit quality of the public sector in Nigeria. The researcher expects a clear positive relationship between auditor independence and public sector audit efficiency.

Following the same line of thought, Aliu, Okpanachi, and Mohammed (2018) examined the effect of auditor's independence on audit quality of listed oil and gas companies in Nigeria over a period of ten (10) years (from 2007 to 2016). The sample size comprises of nine (9) out of the fourteen (14) companies listed in the downstream sector of the Nigeria Stock Exchange selected using purposive sampling technique. The study uses secondary data which were sourced from the audited annual financial statements of the sampled companies. The panel data were analyzed using descriptive statistics, correlation matrix and binary logit regression technique. The findings show that there is a significant positive relationship between auditor's independence and audit quality, while the control variable of company size and leverage showed positive and negative relationship with audit quality respectively.

Babatolu, (2018), examined auditors' independence and audit quality, a study of selected deposit money banks in Nigeria. Their tests revealed that the need to ensure reliable and high quality audit work, it must be ensured that auditors must not be too familiar with their clients in order not to jeopardize their integrity and in return impair their independent opinion. Their study also revealed that there is a positive relationship between audit fee, audit firm rotation and audit quality. It therefore recommended that Auditor's independence should be strengthened by taking different measures to address the issue which could create threats for auditors. The researchers failed to proxy other variables like compliance with statutory provisions and Professional Experience of auditors to actually juxtapose their findings.

3   Methodology

Ex-post facto research design was used to describe the effects of auditors' independence on audit quality of quoted health care firms in Nigeria by using existing secondary data on the selected proxies from financial statement of the quoted firms which cannot be manipulated or altered by the researcher. The following seven (7) health care companies were selected based on complete availability of data as follows: Neimeth Intl Plc, Fidson Health Plc, Morison Industrial Plc, Glaxosmoth Plc, Pharma-Deko Plc, May and Baker Plc and PZ Cussons Nig Plc. Audit quality was measured using audit fees while client importance, auditor reputation, audit opinion and auditors' professional qualification and expertise were adopted as proxies for auditor independence. The model adopted in this study assumed a linear relationship between auditors' independence and audit quality and panel least square was adopted for the purpose of hypothesis testing and was guided by the following linear model:

$$ADQUAL_{it} = \beta_{0it} + \beta_1 CLIMP_{it} + \beta_2 AUDREP_{it} + \beta_3 AUDOP_{it} + \beta_4 APQUAL + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots 1$$

Where,

ADQUAL stands for Audit Quality, measured using quantum of audit fees paid, CLIMP stands for Client Importance measured as *the extent to which a client is essential to an audit firm represented as a dichotomous variable 1 if the client is a primary or major client and 0 if otherwise*, AUDREP connotes Audit Reputation measured as *audit firm size captured using Big4 audit firms or the type of external auditor engaged by the company which is a categorical variable where 1 represents the engagement of any of the 'big four' audit firms (Price Waterhouse Coopers-PWC, Akintola Williams Deloitte, Ernst and Young and KPMG) and 0 if otherwise*, AUDOP stands for Audit Opinion *measured as a dichotomous variable 1 if a firm is issued unqualified audit report and 0 if otherwise and* APQUAL *stands for Auditor Professional Qualification and expertise proxy* using *auditors with post-graduate education measured as a dichotomous variable 1 if the auditor has post-graduate education qualification and 0 if otherwise.*

4.   ESTIMATION RESULTS AND DISCUSSION OF FINDINGS

The study investigated the empirical effect that exists between auditor's independence and audit quality of listed health care firms for a period of 10 years spanning 2012 to 2021. The study carried out some preliminary data tests like descriptive statistics, correlations and variance inflation factor (VIF) analysis. The table below shows the descriptive statistics of the 7 selected health care firms that make up our sample.

Table 4.1   Descriptive Statistics Analysis

	ADQUAL	CLIMP	AUDREP	AUDOP	APQUAL
Mean	0.190913	0.614286	0.457143	0.942857	0.514286
Median	0.067200	1.000000	0.000000	1.000000	1.000000
Maximum	2.322100	1.000000	1.000000	1.000000	1.000000
Minimum	0.025200	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.471549	0.490278	0.501757	0.233791	0.503405
Skewness	4.076085	-0.469574	0.172062	-3.815836	-0.057166
Kurtosis	18.47575	1.220500	1.029605	15.56061	1.003268
Jarque-Bera	892.3738	11.80848	11.66922	630.0328	11.66670
Probability	0.000000	0.002728	0.002925	0.000000	0.002928

| Observations | 70 | 70 | 70 | 70 | 70 |

Source: researcher's summary of descriptive result (2023) using E-view 12

The aim of the descriptive statistics was to describe the general distributional properties of the data, to identify any unusual observations or any unusual patterns of observations that may cause problems for later analyses to be carried out on the data. Thus, initial exploration of the data using simple descriptive tools was provided to describe and summarize the data generated for the study. Audit quality which was the dependent variable was measured using audit fees which was captured using quantum of audit fees received. It was observed that over the period under review audit fee has a mean value of #19.09 million and a standard deviation of 0.471 suggesting considerable clustering of audit fees for the distribution around the mean value. The maximum, minimum and median values are #232.2 million, #2.52 million and #6.72 million respectively. Client importance was measured as a dichotomous variable 0 and 1 for clients classified as primary or essential client and the descriptive analysis was presented in table 4.1. above. On the average about 61% of the clients in this study were classified as more important than others. This suggests that auditors who depend on large firms are more likely to compromise their independence because clients are considered essential. The summary descriptive statistics in table 4.1 above shows that on average the auditor with post-graduate education qualification were about 51% with standard deviation of 50.3%, the minimum and maximum values of auditor professional qualification as measured by dichotomous variable are 0 and 1 respectively. Generally, the JB Probability values of 0.0000 shows that all the variables are normally distributed at 1% level of significance. It is an indication that all variables are approximately normally distributed and were all maintained in the model. This also justifies the use of panel least square estimation techniques. Hence, any recommendations made to a very large extent would represent the characteristics of the true population of study.

4.2: Pearson Correlation Matrix

Pearson's correlation matrix was applied to check the degree of association between auditor independence and audit quality of quoted health care firms in Nigeria so as to determine the nature or degree of association i.e. positive or negative correlation and the magnitude of the correlation between dependent variable (audit quality) and independent variables with other explanatory variables.

Table 4.2: Correlation Analysis Result

	ADQUAL	CLIMP	AUDREP	AUDOP	APQUAL
ADQUAL	1.000000				
CLIMP	-0.328405	1.000000			
AUDREP	-0.218578	-0.274369	1.000000		
AUDOP	-0.036999	0.057801	0.225913	1.000000	
APQUAL	-0.284096	0.169451	0.547544	0.253320	1.000000

Source: researcher's summary of correlation result (2023) using E-view 12

The result of the correlation coefficient showed mixed correlation. This association identified buttresses the point that majority of our variables have an inverse relationship with varying degrees of direction. Furthermore, the strength of the relationship between variables measured by

the Pearson product-moment correlation showed that the association between the variables is relatively small and was below the threshold of 0.80, suggesting the absence of the problem of multicollinearity in the predictor variables. In this section we present and discuss the Pairwise correlations among the variables of auditor independence and audit quality. It was discovered that audit quality has negative but strong association with auditors' independence. In checking for multicollinearity, the study noticed from the correlation table above that no two explanatory variables were perfectly or highly correlated and thereby ruled out the case of having an outlier. This indicates the absence of multi-collinearity problem in the model used for the analysis. This also justifies the use of the panel regression analysis and variation inflation factor (VIF).

4.3:   Variance Inflation Factor (VIF)

Multicollinearity was tested by computing the Variance Inflation Factor (VIF) and its reciprocal or the tolerance. Collinearity diagnostics measure how much regressors are related to other regressors and how this affects the stability and variance of the regression estimates. To further check for multi-collinearity problem or to know whether the independent variables used are perfectly correlated, we conducted Variance Inflation Factor (VIF) to further check for the multi-collinearity problem. The result of the Variance Inflation Factor (VIF) is provided below in table 4.2.3 below:

Table 4.3:   Variance Inflation Factor Result

Variance Inflation Factors
Date: 02/15/23 Time: 09:22
Sample: 2012 2021
Included observations: 70

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.076681	5.101685	NA
CLIMP	0.038472	2.045274	1.079424
AUDREP	0.061769	2.457235	1.598415
AUDOP	0.045108	3.674588	1.006700
APQUAL	0.039043	2.250151	1.563116

Source: Researcher's summary of VIF result (2023)

To detect multicollinearity, we used the variance inflation factor (VIF) test to quantify its severity in our model, where the variance factors of each variable is calculated. According to the guidelines of this test, the existence of multicollinearity can be confirmed only in circumstances where the value of the variance inflation factor is more than 10. Sequel to the guidelines of this test, we found that there is no intercorrelation between our independent variables as all the variables had a variance inflation factor (VIF) of less than 10. This implies that there was no multicollinearity problem with the variables, thus all the variables were maintained in the regression model. Even if there are, they are not likely to distort the conclusion and are therefore reliable for drawing generalization. This also supports the use of Jacque Bera (JB) in descriptive analysis to check for the problem of normality and multi-collinearity. Our finding also justifies the use of least square estimation techniques. Hence, any recommendations made to a very large

extent would represent the characteristics of the true population of study and thus can be used to draw conclusion.

4.4: Regression Results and Discussion of findings

In order to examine the relationship between the dependent variable (ADQUAL) and the independent variables (CLIMP, AUDREP, AUDOP and APQUAL) and to test the formulated hypotheses, we employed panel least regression analysis since the data had both time series (2012-2021) and longitudinal properties (7 quoted health care firms). However, the study takes into cognizance the non-homogeneity nature of the firms, hence the need for testing its effect on the data. This necessitated the use of Hausman effect test to ascertain which effect to explain. That is whether fixed effect or random effect is to be used in interpreting the regression result. Below is the summary of the Hausman test result:

Table 4.4.   Hauseman Effect Tests
Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.002635	4	0.5574

Source: Researcher's summary of Hausman effect analysis result (2023)

The Hausman test result above shows a chi-square statistics value of 3.0026 and probability value of 0.5574 which was greater than 5%, this means that there is heterogeneity in the collection of the firms' data. Since the Chi-square (Prob) value is greater than 5%, hence we accept the random effect and interpret its regression while the fixed effect is rejected. The random effect regression result is presented in table 4.2 below:

Table 4.5:   Random Effect Regression Result
Cross-section random effects test equation:
Dependent Variable: ADQUAL
Method: Panel Least Squares
Date: 02/15/23 Time: 09:20
Sample: 2012 2021
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.096575	0.297872	-0.324215	0.7469
CLIMP	-0.004276	0.264539	-0.016165	0.9872
AUDREP	0.067850	0.391259	2.173415	0.0529
AUDOP	0.294300	0.214301	1.373300	0.1749
APQUAL	0.035750	0.247454	2.144471	0.0456

Effects Specification			
Cross-section fixed (dummy variables)			
Root MSE	0.351947	R-squared	0.434868
Mean dependent var	0.190913	Adjusted R-squared	0.339083
S.D. dependent var	0.471549	S.E. of regression	0.383354
Akaike info criterion	1.063612	Sum squared resid	8.670654
Schwarz criterion	1.416947	Log likelihood	-26.22641
Hannan-Quinn criter.	1.203961	F-statistic	4.540040
Durbin-Watson stat	1.956259	Prob(F-statistic)	0.000091

Source: Researcher's summary of regression result (2023).

The table 4.5 above shows the random panel regression analysis of quoted health care firms in Nigeria. From the result above, the value of R- squared which is the coefficient of determination stood at 43.5% which implies that 43.5% of the systematic variations in individual dependent variables of auditor's independence of our sampled companies over the 10years period were explained in the model while about 56.5% were unexplained thereby captured by the stochastic error term. Moreover, the F-statistics value of 4.540 and its probability value of 0.0000 shows that the overall auditor's independence model used for the analysis were statistically significant at 1% level. This confirms the appropriateness of our model used for the analysis. Moreover, the Durbin Watson statistic of 1.956 showed that the model is well spread since the value is approximately 2 and that there have not been self or auto correlation problem and that error are independent of each other. It was observed that client importance exerts negative but insignificant effect on audit quality having recorded a negative coefficient value of -0.0042 and a probability value of 0.9872 while auditor reputation recorded a positive and significant effect on audit quality. This implies that the large reputable audit firm with relevant expertise do not compromise independence in the course of their audit exercise, as indicated by a positive effect on audit quality. Similarly, auditor professional expertise showed a positive and statistically significant effect on audit quality of health care companies in Nigeria hence when an auditor obtains an additional qualification, auditors independence is boosted as these qualifications make them more conservative when they perform audit tasks thereby increasing the quality of audit. As auditors with post-graduate degree provide more qualified audit work than auditors with bachelor's degree because of having more knowledge, being more capable and competent, and exerting more effort. These qualifications of educated auditors make them more conservative when they perform audit tasks. As a result of this significant effect we documented for our second and fourth null hypothesis, we therefore conclude that auditor reputation and auditor professional qualification has positive and significant effect on audit quality of health care firms in Nigeria which was statistically significant at 5% level of significance respectively.

5. Conclusion and Recommendations
Reviewed literature generally accepted that a better standard of independence of auditors improves a robust audit efficiency that results in accurate financial reporting. Building from the literature reviewed, the independence of the auditor has significant association with the quality of the audit. It is crystal clear from the review that some studies indicated a positive relationship

between auditor independence and audit quality while others showed contrary due to the type of study design employed, sample size, data collection instruments and analysis techniques used. Nevertheless, this study discusses and theoretically explores the correlation between the independence of the auditor and its proxies (client importance, auditor reputation, auditor opinion, and auditor professional qualification and expertise) and audit quality. Emanating from the review of relevant literature and theories on auditor's independence and audit quality and based on the data collected, analyzed and the hypotheses tested the study found that auditor reputation and auditor professional qualification recorded a positive and significant effect on audit quality which was statistically significant at 5% level of significance. On this basis, therefore, it may be recommended that there is need for the audit firm to protect its independence by working within its statutory duties. The management of health care companies is hereby advised to always source for the services of reputable audit firms with professional qualification and expertise to ensure quality of audit in their firms.

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Appendix I: **OUTPUT OF RAW DATA**

DESCRIPTIVE RESULT

	ADQUAL	CLIMP	AUDREP	AUDOP	APQUAL
Mean	0.190913	0.614286	0.457143	0.942857	0.514286
Median	0.067200	1.000000	0.000000	1.000000	1.000000
Maximum	2.322100	1.000000	1.000000	1.000000	1.000000
Minimum	0.025200	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.471549	0.490278	0.501757	0.233791	0.503405
Skewness	4.076085	-0.469574	0.172062	-3.815836	-0.057166
Kurtosis	18.47575	1.220500	1.029605	15.56061	1.003268
Jarque-Bera	892.3738	11.80848	11.66922	630.0328	11.66670
Probability	0.000000	0.002728	0.002925	0.000000	0.002928
Sum	13.36390	43.00000	32.00000	66.00000	36.00000
Sum Sq. Dev.	15.34271	16.58571	17.37143	3.771429	17.48571
Observations	70	70	70	70	70

CORRELATION RESULT

	ADQUAL	CLIMP	AUDREP	AUDOP	APQUAL
ADQUAL	1.000000	-0.328405	-0.218578	-0.036999	-0.284096
CLIMP	-0.328405	1.000000	-0.274369	0.057801	0.169451
AUDREP	-0.218578	-0.274369	1.000000	0.225913	0.547544
AUDOP	-0.036999	0.057801	0.225913	1.000000	0.253320
APQUAL	-0.284096	0.169451	0.547544	0.253320	1.000000

VARIANCE INFLATION FACTORS RESULT

Variance Inflation Factors
Date: 02/15/23 Time: 09:22
Sample: 2012 2021
Included observations: 70

Variable	Coefficient Variance	Uncentered VIF	Centered VIF

C	0.076681	5.101685	NA
CLIMP	0.038472	2.045274	1.079424
AUDREP	0.061769	2.457235	1.598415
AUDOP	0.045108	3.674588	1.006700
APQUAL	0.039043	2.250151	1.563116

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	3.002635	4	0.5574

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CLIMP	-0.004276	-0.198994	0.031509	0.2727
AUDREP	0.067850	-0.132641	0.091314	0.5070
AUDOP	0.294300	0.253908	0.000817	0.1577
APQUAL	-0.035750	-0.053190	0.022190	0.9068

Cross-section random effects test equation:
Dependent Variable: ADQUAL
Method: Panel Least Squares
Date: 02/15/23 Time: 09:20
Sample: 2012 2021
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.096575	0.297872	-0.324215	0.7469
CLIMP	-0.004276	0.264539	-0.016165	0.9872
AUDREP	0.067850	0.391259	0.173415	0.8629
AUDOP	0.294300	0.214301	1.373300	0.1749
APQUAL	-0.035750	0.247454	-0.144471	0.8856

Effects Specification

Cross-section fixed (dummy variables)

Root MSE	0.351947	R-squared	0.434868
Mean dependent var	0.190913	Adjusted R-squared	0.339083
S.D. dependent var	0.471549	S.E. of regression	0.383354
Akaike info criterion	1.063612	Sum squared resid	8.670654
Schwarz criterion	1.416947	Log likelihood	-26.22641
Hannan-Quinn criter.	1.203961	F-statistic	4.540040
Durbin-Watson stat	1.956259	Prob(F-statistic)	0.000091