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Audit Pricing and Audit Market Concentration in Nigeria: The Moderating Effect of Firm Attributes

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Abstract

The purpose of this study is to examine audit market concentration and audit pricing in Nigeria with the moderating effect of firm attributes. The fundamental theory explored in this research is the agency theory. The sample size of 66 statistical observations was taken from the listed Health and Pharmaceutical Firms in the Nigerian Exchange Group (NGX) for the period of 2012 to 2022. The data were analyzed using least square regression technique. The outcome of the testing model showed that audit market concentration has a positive and significant effect on audit pricing at 1% level while a moderating effect between firm attributes and audit market concentration on audit pricing was positive and significant at 5% level. The study recommended that management of listed Health and Pharmaceutical firms in Nigeria should ensure that audit pricing is based on audit market concentration for quality audit reporting. In addition, management should consider the presence of firm attributes as fundamentals in the pricing of audit engagement by client firm as it contributes immensely to audit quality immensely.

Keywords: Agency Theory, Audit Market Concentration, Audit Pricing, Firm Attributes, Firm Size.

Introduction

The audit research has been characterized with the issue of audit pricing in recent times based on the audit failures experienced in Enron and other corporations (Okoli, 2021). Meanwhile, audit market concentration has become a controversial subject after the accounting and auditing scandals in the world that led to many companies' bankruptcy such as World Com, Parmalat, Xerox Tyco, Adelphia, Royal Ahold N, and Health South among others (Escaloni & Mareque, 2021). These firms had been given a "clean bill of health" by the external auditor. The search for vivid point for the audit market concentration, auditor independence and audit quality in relation to audit pricing is the evolving scenario as documented in the literature. The peculiarity of the audit market is a concerned area in relation to audit fee determination, auditor independence and audit quality (Soltani & Rekik, 2013).

The concentration of audit service in favour of the Big 4 (Deloitte, Klynveld Peat Marwick Goerdeler (KPMG), Ernst & Young and Pricewaterhouse coopers (PWC)] in a competitive audit market increase the cost efficiency and reduces the quality of audit and increases barriers of entry for small and medium-sized audit firms exist. Aggreh (2019) stressed that accounting and auditing scandals in the world that led to the collapse of Arthur Andersen in 2002 which results to tense audit market concentration by the big audit firms. Meanwhile, the demise of Arthur Andersen reduces the number of big audit firms to 4 big firms creates room for concerns about non-competitive pricing policy of the audit engagement.

Among the Big 4 audit firm are Price Waterhouse Coopers, Ernest and Young, KPMG and Akintola Williams/Deloitte. Furthermore, assigning the same personnel or audit firm on the same audit client over a long period of time is viewed to impair audit independence because of self-interest and familiarity threat (Eilifsen, Messier Jr, Glover & Prawitt, 2014). Chersan (2019) maintained that amount paid for audit is questioned as a of audit quality provided by the financial auditors has become a growing issue over the last few years, especially due to the financial scandals, where the role of auditors has sometimes been direct. The firm attributes that have moderating effect on audit pricing and audit market concentration is firm size and firm leverage (Kajola, Olabisi, Tonade & Agbatogun, 2022). To the best of the researchers' knowledge few studies had been conducted on the audit pricing and audit market concentration with a moderating effect of firm attributes. This is the research gap that the study addressed in knowledge. The aim of this study is to examine the moderating effect of firm attributes on the relationship between audit pricing and audit market concentration in Nigeria.

Literature Review

Audit Pricing

The pricing of audit of firms has gain momentum in developed and developing economies based on the antecedent of audit failure experienced in Enron-Arthur Andersen, KPMG-Guptas, KMPG-Ted Baker, Grant Thornton-Patisseries Valerie Scandals, among others (Petra & Spieler, 2020). Akrawah and Akhor (2016) defined audit pricing as the sum's payable to the auditor, for carrying out audit services offered to the auditing company. Okoli (2021) affirmed that audit pricing is the memorandum of determining auditor's remuneration. Audit is the amount of money paid to audit firm by the client firms for the services rendered. The audit pricing is the sum payable/paid to the auditor, for carrying out audit services offered to the auditing company (client). The price of audit is the amount of money the client pays to external auditor for auditing the financial statements of the company (Urhoghide & Izedonmi, 2015). Audit fees are payments made to the auditor during the course of the carrying out the audit function and non-audit fee is the payments for other non-audit services carried out by the auditor which may not be part of the audit engagement negotiation. However, "the presence of audit committees may be primarily interested in negotiating a lower audit fee for their clients instead of going for higher audit quality that attract a higher audit pricing (Asthana, Khurana & Raman, 2019).

Audit Market Concentration and Audit Pricing

Audit market concentration is premised among the Big 4 audit firms [Price Waterhouse Coopers, Ernest and Young, KPMG and Akintola Williams/Deloitte]. The concentration of audit market is based on the reputation of the audit firm. Friedrich and Quick (2023) affirmed that non-audit fees service has been consider by Big 4 accounting firms for maintaining high audit firm's reputation. The presence of audit market concentration results to struggle for market coverage among suppliers and low level of audit quality. In the report of World Bank (2011), there are twenty thousand (20,000) audit firms competing for audit among unquoted and quoted firms in Nigeria. On the contrary, about ninety (90) percentage of the audit market in Nigeria is being controlled by Big 4 audit firms. In a market environment where the value of share is dominated or concentrated by either few Big-4 audit firms or Big-4 clients experience higher level of accruals with less conservative earnings and losses (Francis, Michas & Seavey, 2013). They argued that in a concentrated Big-4 audit firms of either one or two witness low level of audit quality due to lack of competition.

Hobaishi, Sharabi, Mehgani and Mohammed (2024) studied the impact of certain fundamental characteristics of audit firms and their clients on the application of the business risk audit approach based on audit fees determination in Yemen and revealed the audit firm size exhibit a significant impact on business risk audit approach based on audit fees determination. Furthermore, big audit firms are known for reporting higher audit quality because these firms possessed the needed infrastructures and modern technology, large audit teams and higher levels of competency, and huge investment in human capital development and training

(Dzikrullah *et al*., 2020). Alharasis, Alidarous and Jamaani (2022a) studied the relationship between auditor industry expertise and external audit prices in Jordan. They used secondary data collected from listed firms in Amman Stock Exchange and OLS regression technique for the data analysis. The result shows that a significant relationship exists between big-4 audit firms associated with auditor industry expertise and audit fees.

In Nigeria, Eguasa and Urhoghide (2017) conducted a study on the relationship between audit market concentration and audit quality in Nigeria. They used panel data research design where sixty (60) Nigeria listed companies from the period of 2007- 2015 with 540 firm-year observations. The analysis was conducted using E-views 8.0 econometric software. The results showed that audit market concentration exerts a significant positive relationship with audit quality. Musa, Salman and Amoo (2021) conducted a study on the determinants of audit fees in quoted financial and non-financial firms in Nigeria and documented that auditor size, auditee size, risk, reputation, engagement lag, and International Financial Reporting Standards (IFRS) implementation had significant effect on audit fees.

Hypothesis

The following hypothesis are set to direct the focus of the study:

Ho1: Audit market concentration has no significant effect on audit pricing

Ho2: Firm attributes have no moderating effect on the relationship between audit pricing and audit market concentration.

Moderating effect of Firm Attributes on Audit Pricing and Audit Market Concentration

Firm attributes are firm mechanism that enhances the systematic approach of audit pricing in relation to audit market concentration. Firm attributes in this study are measured by firm leverage and firm size. Firm size provides information about the size of the company which can be seen based on the total assets or sales of the company (Santi & Wardani, 2018). The incorporation of company size, represented by the natural log of total assets in this study, stems from the recognition in various literatures that other firm characteristics may influence the sustainability accounting disclosure. The assumption posits that a larger firm size may correspond to a higher expected agency problem that the firm is likely to face. Company size is measured as the natural logarithm of total assets in accounting, auditing and management related research field (Ishaka, Mohammed, Yahaya & Agbi, 2023).

Indriasih, Susetyo, Muttaqin and Ulummudin (2023) examine the relationship between audit complexity, company size, audit risk, company risk and audit fee in Indonesia showed that firm size had a significant positive relationship with audit fee. Egbunike, Igbinovia, Okafor and Mmadubuobi (2023) studied the relationship between industry-related, auditors attribute, board attribute, audit fee and real income smoothening in Nigeria and revealed that a significant relationship exists between firm profitability, firm size, audit quality, audit report lag, board size, board independence and audit fees. Similarly in Jordan, Shakhatreh and Alsmadi (2021) established that firm size is significantly related with audit fees. Almeida and Silva (2020) carried an empirical study in Spain to examine the connection between audit fees and financial crisis. Secondary data were collected from Spanish manufacturing industries and analyzed using regression technique. They found out that size of the firm has a significant relationship with audit fees. Olutokunbo, Yisa and Abdullahi (2020) examined the relationship between corporate characteristics and audit fees in Nigeria showed that firm size, audit firm type, board independence and profitability had a positive effect on audit fees and leverage and board size has a negative effect on audit fees. Al-Nimer and Hasan (2019) studied the determinants of audit pricing in Jordan. Secondary data were gathered from the Jordanian banking sector and analyzed using correlation matrix and OLS regression estimation approach. The result revealed that company size has a significant effect on audit pricing.

Theoretical Framework

The agency theory was propounded by Jensen and Meckley (1976). The agency cost faced by shareholders is reflected in the fees charged by audit firms to carry out an audit. In the market for professional services, high quality services are normally associated with higher wages. The main characteristics that an influence audit fee is the size of the auditee company, the complexity and audit risk detected (Akhor *et al*, 2023).

Methodology

The study explored the use of longitudinal research design to examine the moderating role of firm attributes on the relationship between audit pricing and audit market concentration of listed health and pharmaceutical firms in Nigeria. Hence, the population of this study consists of quoted health care and pharmaceutical companies as at 31st December, 2022. In considering sample size, the filtering method was used to select six (6) out of the eight (8) companies which include: Fidson Healthcare Nigeria Plc, Glaxosmikline Nigeria Plc, May and Baker Nigeria Plc, Morison Industries, Neimeth International Pharmaceutical, Pharma Deko Nigeria Plc while Evans Medical Nigeria Plc and Union Diagnostic annual reports are not available for the sampled periods (2012 to 2022).

Model Specification

The least square regression model was employed in the study. The regression econometric models are specified below;

$$AUDP_i = \beta_0 + \beta_1 AMKC_i + \varepsilon_{it} \quad \text{...} \quad 1$$

Moderating effect of firm attributes on the relationship between audit pricing and audit market concentration is expressed in the econometric equation (3.2) below;

$$AUDP_i = \beta_0 + \beta_1 AMKC_i + \beta_2 FAT_i + \varepsilon_{it} \quad \text{...} \quad 2$$

AUDP= Audit pricing. It was measured by measured by the logarithms of the audit fees (Egiyi, 2022)

AMKC = Audit market concentration. It was measured by The Hirschman-Herfindahl index was used to measure the market concentration. It is calculated based on the sum of the squares of the ratios of each audit firm's size to the total size of the audit market (Sanja & Mateja, 2015).

FAT = Firm attributes was prozied by firm size. It was therefore measured by the log of total asset (Akrawah, et al., 2020)

β = variables that vary across companies but do not vary over time

ε_{it} = error terms over the cross section and time.

The presumptive signs of the parameters in the specifications are:

$\beta_1, \beta_2 > 0$

Method of Data Analysis

This study employed the least square regression technique and moderating regression in testing the formulated hypotheses and analyzed using EViews 13.0 econometric software.

Result of the Findings

A least square regression technique was employed to examine the moderating effect of firm attributes on the relationship between the audit pricing and audit market concentration in Nigeria. The regression results obtained was presented in Table 1.

Table 1: Robust Regression Technique

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	3.789456	0.059534	63.65174	0.0000
AMKC	2.616282	0.867170	3.017034	0.0026
R-squared	0.113233	Adjusted R-squared		0.099378
Scale	0.303080	Deviance		0.091857
Rn-squared statistic	9.102492	Prob(Rn-squared stat.)		0.002553
Mean dependent var	3.886047	S.D. dependent var		0.333615
S.E. of regression	0.337169	Sum squared resid		7.275705

Source: EViews 13.0 Output (2024)

Decision Rule: Hypotheses is tested at 5% (0.05) at level of significance. The null hypothesis (H_{O1}) was accepted, if the probability value (p-value) was greater than 5% (0.05) otherwise rejected.

It was observed from table 1 that R^2 value of 0.113233 which revealed that about 11% of the variation in audit pricing which was jointly explained by audit market concentration leaving about 89% unexplained by factors not captured in the model. On account of the overall significance of the model, the Rn- R^2 statistic value of 9.10 and its associated probability of 0.00 indicated that all the independent variable taken holistically significantly captured the model. Based on the individual relationship of the variables, the signs of the z-statistics showed that audit market concentration (AMKC) exerted a positive (2.6162) and significant (0.0026) effect on audit pricing (AUDP). This indicates that the presence of audit market concentration strongly influences audit pricing and statistically significant at 1% level.

More importantly, the result of the moderating effect of firm attributes on audit pricing was presented in Table 2.

Table 2: Moderating Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.733810	0.077092	48.43295	0.0000
AMKC*FSIZE	0.369616	0.160349	2.305077	0.0244
R-squared	0.076657	Mean dependent var	3.886047	
Adjusted R-squared	0.062230	S.D. dependent var	0.333615	
S.E. of regression	0.323068	Akaike info criterion	0.607925	
Sum squared resid	6.679861	Schwarz criterion	0.674279	
Log likelihood	-18.06154	Hannan-Quinn criter.	0.634145	
F-statistic	5.313382	Durbin-Watson stat	0.253724	
Prob(F-statistic)	0.024416			

Source: EViews 13.0 Output (2024)

Decision Rule: Hypotheses is tested at 5% (0.05) at level of significance. The null hypothesis (H_{O2}) was accepted, if the probability value (p-value) was greater than 5% (0.05) otherwise rejected.

It was observed from table 2 that R^2 value of 0.076657 which revealed that about 8% of the variation in audit pricing which was jointly explained by moderating effect of firm attributes leaving about 92% unexplained by factors not captured in the model. On account of the overall significance of the model, the F-statistic value of 5.31 and its associated probability of 0.02 indicated that all the independent variables taken holistically significantly captured the model. The moderating effect between firm attributes and audit market concentration (AMKC*FSIZE) on audit pricing (AUDP) was positive (0.3696) and significant (0.0244). This implies that the moderating effect firm attributes would contribute immensely to high level of audit pricing and statistically significant at 5% level.

Discussion of Findings

The results showed that audit market concentration has a positive and significant effect on audit pricing at 1% level. The result is diadem with the findings of Hobaishi et al (2024) that audit firm size as a measure of audit market concentration has a significant impact on audit fees determination. The findings of Alharasis, et al., (2022a) and Musa, et al. (2021) also supported the result that a significant relationship exists between the big-4 audit firms associated with auditor industry expertise and audit fees. The moderating effect between firm attributes and audit market concentration on audit pricing was positive and significant at 5% level. The result is diadem with the findings Indriasih *et al* (2023) that firm attributes proxied by firm size had a significant positive relationship with audit pricing. The findings of Egbunike *et al* (2023) supported the result that a significant relationship exists between firm size and audit fees. This aligned with the findings of Almeida and Silva (2020) and Olutokunbo *et al* (2020) that firm attributes proxied by firm size has a positive effect on audit fees.

Conclusion

The audit study has been characterized with the issue of audit pricing in recent times based on the audit failures experienced in Enron and other corporations. The quality of audit has been questioned due to the corporate failure witnessed as a result of poor board governance practice by corporate firms. The aim of this research is to examine the moderating effect of firm attributes on the relationship between audit market concentration and audit pricing in Nigeria. The concentration of audit market is based on the reputation of the audit firm. The study outcome showed that audit market concentration has a positive and significant effect on audit pricing at 1% level while a moderating effect between firm attributes and audit market concentration on audit pricing was positive and significant at 5% level.

Recommendations

Based on the findings of the study, the following recommendations were made;

i. The study recommended that management of listed Health and Pharmaceutical firms in Nigeria should ensure audit pricing is based on audit market concentration for quality audit reporting.

ii. Management should consider the presence of firm attributes as fundamentals in the pricing of audit engagement by client firm as it contributes immensely to audit quality.

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