Determinants of Audit Fees and External Auditor Fees of Listed Agricultural Firms in Nigeria

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Abstract
This study examined the effect of client firm size and client firm profitability on the audit fees of listed agricultural firms in Nigeria, using data drawn from the audited annual reports of the five firms that constitute the entire population of the sector on the Nigerian Exchange Group. The data were analyzed using descriptive statistics and employed regression analysis to test the hypotheses. Based on the ten complete firm-year observations analyzed, the study concludes that client firm size is significant determinants of audit fees among listed Nigerian agricultural firms, findings that held consistently under both conventional and cluster-robust standard errors, while client firm profitability was not found to have a statistically significant effect under either specification, and the effect of client firm leverage could not be conclusively determined. Arising from the findings of this study, the study recommended that the audit committees and boards of listed agricultural firms in Nigeria should explicitly factor client firm size and the choice of a Big Four versus non-Big Four auditor into their audit fee budgeting and negotiation processes, given the strong and robustly significant premium these two factors were found to carry in this study.

Key words: *Client firm size, Client firm profitability and Audit fees*

Introduction

Auditing plays a crucial role in the financial reporting process of each business organization, regardless of whether it functions in the manufacturing, financial services, or agricultural sectors of the economy. Its main purpose is to provide assurance to the financial statements created by a company's management, thus giving confidence to shareholders, creditors, government bodies, and other parties that the data presented accurately represents the financial status and results of the organization. Since management creates the financial statements and shareholders along with other external parties depend on them for making decisions, a natural information gap, frequently discussed in agency theory, arises between the two groups. The external auditor is hired to close

this gap, and in return for this professional service, the auditor receives a payment typically known as the audit fee.The audit fee, however, is not a random amount. It is shaped by a mix of elements concerning the client company, the auditing firm involved, and the environment in which both functions. Throughout the years, studies have revealed factors like client size, client profitability, client complexity, audit firm size, audit risk, and corporate governance characteristics as key influences that determine the amount a company ultimately compensates its external auditor (Urhoghide & Izedonmi, 2015; Ilaboya, Izevbekhai, & Ohiokha, 2017). Typically, larger companies are anticipated to incur higher audit fees due to the greater number of transactions, the broader range of audit activities needed, and the elevated risk exposure associated with their size. Conversely, more profitable firms might not always pay higher fees, as this can vary based on industry specifics and the negotiation dynamics between the client and auditor (Musah, 2017). The farming sector occupies a distinct and vital role in Nigeria's economy. It continues to be one of the largest contributors to the country's Gross Domestic Product and a significant source of jobs, especially in rural areas, while also playing a crucial role in the government's efforts to reduce dependence on crude oil revenue by diversifying the economy. Even with this strategic significance, the number of listed agricultural companies in Nigeria is relatively limited when compared to those in the banking, insurance, manufacturing, and consumer goods sectors, resulting in a relatively sparse empirical focus on audit pricing issues within this sector. A recent investigation by Eke and Emasogbe (2025), concentrating solely on Nigerian agricultural companies, revealed that client profitability negatively and significantly impacted audit fees, while the size of the audit firm had a positive and significant effect. In contrast, client size demonstrated a negative yet statistically insignificant correlation with audit fees in this sector. These results notably differ in certain ways from those documented in other economic sectors, like the insurance sector, where Lawal and Ibrahim (2022) discovered that client size and audit firm size are the primary factors influencing audit fees, whereas profitability and complexity were mostly negligible.A persistent issue in the Nigerian auditing landscape is the lack of a well-defined legal framework for establishing the fees an external auditor should bill a client for audit services. In contrast to various other professional services that have relatively fixed pricing models, audit fees in Nigeria are primarily determined through negotiation between the auditor and the client. Although numerous studies have looked into the factors influencing audit fees for Nigerian deposit money banks, insurance companies, and manufacturing firms (Lawal & Ibrahim, 2022; Onatuyeh & Ukolobi, 2020), the agricultural sector, despite its recognized significance to Nigeria's economy, has seen relatively minimal empirical analysis. The limited research conducted in this area, including work by Eke and Emasogbe (2025), has utilized relatively small samples due to the scarcity of listed agricultural companies on the Nigerian Exchange Group. While their results are informative, they have occasionally been at odds with the broader trends observed in other sectors, especially concerning the relationship between client size and audit fees in terms of direction and significance. This discrepancy leads to a real deficiency in understanding. If, according to certain studies, the size of the client does not noticeably influence audit fees in the agricultural sector as it seems to in other economic sectors, it is crucial to identify which other characteristics of the firms or audit firms are truly impacting audit pricing decisions for these companies. Moreover, there is a lack of recent studies investigating these connections with up-to-date data, as the operational landscape of Nigerian agricultural companies, encompassing exchange rate fluctuations, inflationary challenges, and shifting regulatory demands, has significantly transformed in recent years.

Additionally, lingering questions exist regarding the real-world consequences of these contradictory results. If, for instance, client profitability exhibits a negative and significant correlation with audit fees in agricultural companies, as discovered by Eke and Emasogbe (2025), this prompts an inquiry into whether more profitable agricultural firms can negotiate lower fees, potentially due to enhanced bargaining power or more effective internal control systems that minimize audit risk and effort, or if this relationship signifies some other underlying dynamic unique to the industry that has not been thoroughly examined in existing research. In the absence of more targeted sector analysis, these inquiries stay conjectural instead of based on empirical evidence. This study aims to tackle the issue stemming from the blend of theoretical deficiencies, methodological constraints in earlier research, and outstanding practical queries by examining, in a concentrated and contemporary way, the factors influencing audit fees and external auditor costs of agricultural companies in Nigeria. The research aims to identify the factors influencing audit fees and fees paid to external auditors by publicly listed agricultural companies in Nigeria. The particular aims are to:

1. Examine the effect of client firm size on audit fees of listed agricultural firms in Nigeria.
2. Determine the effect of client firm profitability on audit fees of listed agricultural firms in Nigeria.

Review of Related Literature

Audit Fees

The audit fee is the payment made by a client firm to its external auditor as compensation for the expertise involved in reviewing the company's financial records and providing an unbiased assessment of whether its financial statements accurately and fairly reflect its situation. Audit fees are typically perceived in the literature as dependent on the extent of audit effort, the expertise required, and the level of risk that the auditor must manage during an engagement (Musah, 2017).

Client Firm Scale

Client firm size pertains to the magnitude of operations of the entity undergoing an audit. It is a consistently analyzed factor in the literature on audit fees, mainly because larger firms generally have more transactions, a greater number of subsidiaries or business divisions, and a broader geographical distribution of operations, all of which elevate the volume of required audit work and, consequently, the fees charged (Urhoghide & Izedonmi, 2015). Firm size has been represented in various manners across research, such as total assets, overall revenue or turnover, and market capitalization, but the most frequently used proxy, and the one utilized in this research, is the natural logarithm of total assets, which mitigates the impact of outliers and aligns the variable more closely with a normal distribution for regression analysis (Ilaboya, Izevbekhai, & Ohiokha, 2017; Owagbeyegun, Biwei, & Atu, 2021).

Client Firm Profitability

Client firm profitability pertains to the ability of the audited organization to produce income from its activities in relation to the resources invested in the enterprise. Profitability is conceptually connected to audit fees in two opposing manners: firstly, profitable companies might be seen as carrying a reduced risk of financial difficulties, thus incurring lower audit fees; conversely, profitable companies may engage in more intricate transactions, adopt bolder accounting practices, or possess stronger motivations for earnings management, potentially

raising audit risk and, in turn, audit fees (Musah, 2017; Eke & Emasogbe, 2025). The most commonly applied measure of profitability in the analyzed literature, and the one utilized for this study, is Return on Assets, calculated as net income after tax divided by total assets, as it directly links a company's profits to the assets that produced them.

Empirical Review

Eke and Emasogbe (2025), which aligns closely with the current research, analyzed how client size, client profitability, and audit firm size influence audit fees for five publicly traded agricultural companies in Nigeria, applying an ex-post facto research design and multiple regression analysis on annual report data from 2013 to 2023. The research indicated that the size of clients negatively and insignificantly impacted audit fees in the agricultural sector, a result that contrasts sharply with the typically positive correlation noted in other Nigerian sectors and is part of the empirical puzzle this study aims to explore further. Egbunike, Igbinovia, Okafor, and Mmadubuobi (2023) examined how residual audit fees relate to real income smoothing in seventy-five non-financial firms in Nigeria from 2010 to 2019, employing a dynamic panel generalized method of moments estimation, and discovered a significant negative impact of residual audit fees on real operating cash flow smoothing and production expenditure smoothing, with firm size and profitability among the control variables exhibiting varied effects. Lawal and Ibrahim (2022) examined publicly listed insurance firms in Nigeria using panel data from twenty-six companies from 2011 to 2020 and a random effects generalized least squares regression, revealing that client profitability had a negligible and adverse impact on audit fees, along with client complexity, underwriting risk, and liquidity risk, while only client size and audit firm size were identified as significant factors. Owagbeyegun, Biwei, and Atu (2021) investigated the impact of firm size on abnormal audit fees in Nigeria through descriptive statistics, correlation analysis, and panel least square regression, revealing a somewhat unexpected finding: firm size had a significant negative influence on abnormal audit fees, indicating that larger companies in their study were, in fact, less susceptible to abnormal audit fee results compared to smaller firms, a conclusion that contradicts the typical assumption of a positive size-fee correlation. In addition to the four main variables of this research, several other Nigerian and global studies offer valuable context. Onatuyeh and Ukolobi (2020) investigated how tax aggressiveness, corporate governance mechanisms, and audit fees are related among 107 listed firms in Nigeria from 2009 to 2018, discovering that cash tax rate, audit committee diligence, and board independence had a positive and significant impact on audit fees, whereas board gender diversity indicated a positive yet statistically insignificant relationship. In a related study, Ilaboya, Izevbekhai, and Ohiokha (2017) examined the factors influencing irregular audit fees among eighty-four manufacturing firms listed on the Nigerian Stock Exchange, utilizing a final sample of fifty-six companies and employing a panel regression estimation method. Their research demonstrated a significant and positive link between the collaboration of Big Four audit firms and the size of firms, and on the other hand, unusual audit fees, indicating that larger firms utilizing Big Four auditors typically incur excessively high fees. Musah (2017) ascertained the determinants of audit fees among listed firms on the Ghana Stock Exchange using the Simunic audit fee model, found that client size, international recognition, Big Four affiliation, and profitability, measured by return on assets, were all significant determinants of audit fees, with profitability exhibiting the expected relationship in that more profitable firms attracted higher audit fees.

Olarinoye and Che Ahmad (2016) investigated the relationship between external directors and audit fees in ninety-four non-financial listed firms in Nigeria from 2008 to 2013, applying feasible generalized least squares regression. They discovered that a higher proportion of non-independent non-executive directors correlated negatively with audit fees, whereas a greater proportion of independent non-executive directors showed a positive correlation, with block shareholding acting as a moderating factor in this relationship. Urhoghide and Izedonmi (2015) investigated how audit client traits, audit firm attributes, and corporate governance factors influenced audit fees by analyzing secondary data from one hundred and fifty-three firms across eleven sectors of the Nigerian Stock Exchange during the period from 2007 to 2012. Utilizing descriptive statistics, correlation analysis, and multiple regression through both pooled ordinary least squares and panel estimated generalized least squares, the research indicated that client size and complexity positively and significantly affected audit fees, whereas profitability exerted a negative and significant effect

Methodology

Research Design

This research utilizes the ex-post facto research design. An ex-post facto design is suitable when the researcher cannot control the variables examined, as the events or circumstances under investigation have already taken place prior to the research beginning, thus allowing the researcher to merely observe and analyze them in hindsight rather than experimentally manipulate them.

Population and Sample Size

The subject of this study includes the agriculture sector within the Nigerian Exchange Group during the time frame analyzed in this research. This included Okomu Oil Palm Company Plc, Presco Plc, Livestock Feeds Plc, FTN Cocoa Processors Plc, and Ellah Lakes Plc.

Methods of Data Collection

This research depends solely on secondary data. The data necessary for this research, including the audit fees, total assets, net profit, total debt, and the name of the external auditor for each selected firm, are obtained from the audited annual reports and accounts of the companies in the sample for the review period. These yearly reports are obtained directly from the official sites of the relevant companies, the corporate disclosure portal of the Nigerian Exchange Group.

Model Specification

Since this study is regression-based, a model is specified to capture the functional relationship between audit fees and its hypothesized determinants. The model is adapted from the general audit fee model associated with Simunic's audit pricing framework and similar models employed in prior Nigerian studies such as Urhoghide and Izedonmi (2015) and Eke and Emasogbe (2025), and is expressed in its functional form as follows:

$AFE = f(FSZ, FPF)$

This functional relationship is then transformed into the following explicit panel regression model: $AFEit = \beta 0 + \beta 1FSZit + \beta 2FPFit + \varepsilon it$

Where:

AFE represents audit fees, measured as the natural logarithm of audit fees of firm i in year t;

FSZ represents client firm size, measured as the natural logarithm of total assets of firm i in year t;
FPF represents client firm profitability, measured as return on assets of firm i in year t;
β0 is the constant or intercept term.
β1 and β2 are the coefficients of the respective independent variables, which indicate both the direction and magnitude of their effect on audit fees,
i denotes the individual cross-sectional firm, t denotes the time period, and εit is the stochastic error term capturing the effect of other factors not explicitly included in the model.

Method of Data Analysis

Data gathered for this research is examined through a blend of descriptive statistics and inferential statistical methods. Initially, descriptive statistics such as the mean, median, standard deviation, minimum, and maximum values are calculated for each variable to summarize the overall traits and distribution of the data set. A correlation analysis is then conducted using the Pearson correlation coefficient to investigate the strength and direction of the relationship with the dependent variable. The main hypothesis testing in this research is performed through regression analysis, estimated using pooled Ordinary Least Squares.

Decision Rule

The decision rule for this study is based on the probability value, commonly referred to as the p-value, associated with each estimated regression coefficient, evaluated at the conventional five per cent, or 0.05, level of significance.

Data Analysis

Descriptive Statistics

Table 2 presents the descriptive statistics for the transformed study variables.

Variable	Mean	Median	Std. Dev.	Minimum	Maximum
AFE	9.3225	9.5923	1.3977	7.6009	11.2316
FSZ	16.8612	16.1169	1.3611	15.5008	18.8739
FPF	0.0046	-0.0382	0.1600	-0.1987	0.2239

The findings in Table 2 indicate that audit fees (AFE), represented on the natural log scale, averaged 9.3225 over the sampled firm-years, with a standard deviation of 1.3977, illustrating the significant variation in the actual naira amounts of audit fees paid by the sampled firms, which vary from ₦2.0 million disbursed by FTN Cocoa Processors Plc to ₦75.48 million paid by Presco Plc. The average client firm size (FSZ) was 16.8612, with a standard deviation of 1.3611, similarly indicating the substantial variability in the scale of operations across the sampled firms. Profitability for client firms (FPF) averaged a slight 0.0046, masking significant differences between the two consistently profitable oil palm producers, Okomu and Presco, and the three companies that experienced losses during the sample years: Livestock Feeds, FTN Cocoa Processors, and Ellah Lakes.

Correlation Analysis

Table 2 presents the Pearson correlation matrix for the study variables.

	AFE	**FSZ**	**FPF**
AFE	1.0000	0.9062	0.8578
FSZ	0.9062	1.0000	0.9343
FPF	0.8578	0.9343	1.0000

The correlation matrix shows that audit fees are positively and strongly associated with client firm size (r = 0.9062) and client firm profitability (r = 0.8578), and FPF are themselves strongly correlated with each other (r = 0.9343), an early indication of multicollinearity between these two independent variables that is examined further, alongside the variance inflation factors.

Table 3: Reports the same pooled OLS coefficients

Variable	**Coefficient**	**Cluster-Robust S.E.**	**t-Statistic**	**p-value**
Constant	-2.5661	3.1380	-0.818	0.4594
FSZ	0.6761	0.1841	3.672	0.0213**
FPF	-2.2052	1.7697	-1.246	0.2807

Table 3: Pooled OLS Regression Results, Cluster-Robust Standard Errors, Clustered by Firm (Dependent Variable: AFE, n = 10, G = 5 Clusters)

** significant at 5%; *** significant at 1%. Degrees of freedom for the cluster-robust t-tests follow the number of clusters minus one (df = 4).

The coefficient estimates in Table 3 match those in Table 4.4, as clustering influences only the standard errors and not the point estimates; however, the statistical significance pattern alters for one of the four independent variables. FSZ continues to be notable at the 5 percent threshold (p = 0.0213). FPF continues to be statistically insignificant across both specifications (p = 0.2807 when clustered), a result that is also fairly robust. Having just five firms in the sample means the number of clusters that underpin the cluster-robust standard errors in Table 4.5 is significantly lower than what is usually deemed adequate—often in the range of several dozen—making the cluster-robust correction itself questionable

Test of Hypotheses

Hypothesis 1

Ho_1: Client firm size has no significant effect on audit fees of listed agricultural firms in Nigeria.

The coefficient on FSZ is 0.6761 with a p-value of 0.0142 under conventional standard errors and 0.0213 under cluster-robust standard errors, both below the 0.05 threshold. The null hypothesis, Ho_1, is rejected under both specifications: client firm size has a statistically significant effect on audit fees of listed agricultural firms in Nigeria, and this conclusion is robust.

Hypothesis 2

Ho_2: Client firm profitability has no significant effect on audit fees of listed agricultural firms in Nigeria.

The coefficient on FPF is -2.2052 with a p-value of 0.2305 under conventional standard errors and 0.2807 under cluster-robust standard errors, both above the 0.05 threshold. The null hypothesis, Ho_2, is not rejected under either specification: client firm profitability does not have a statistically significant effect on audit fees of listed agricultural firms in Nigeria, and this conclusion is robust.

Discussion and Conclusion

This research analyzed how client firm size and profitability impact the audit fees for listed agricultural companies in Nigeria, utilizing data from the audited annual reports of the five firms that represent the complete population of the sector on the Nigerian Exchange Group. According to the analysis of ten complete observations for firm-years, the study finds that the size of client firms is a significant factor influencing audit fees in listed agricultural firms in Nigeria. These results remained consistent across both traditional and cluster-robust standard errors, whereas client firm profitability did not show a statistically significant impact in either model, and the influence of client firm leverage could not be definitively established. The research revealed that the size of the client firm positively and significantly influences audit fees, consistent with the selection of standard errors. This result is consistent with Ilaboya, Izevbekhai, and Ohiokha (2017), who identified firm size as a crucial factor affecting abnormal audit fees in Nigerian listed companies, and with Lawal and Ibrahim (2022), who found client size to be a leading factor in determining audit fees in Nigerian listed insurance firms. Significantly, this result contrasts with that of Eke and Emasogbe (2025), the most directly relevant previous research, which indicated that client size had a negative and statistically insignificant association with audit fees specifically in the Nigerian agricultural industry The discovery that the profitability of client firms lacks a statistically significant independent influence on audit fees, which is also resilient to the selection of standard errors, aligns generally with the inconsistent and unresolved depiction of this relationship found in the literature. Musah (2017), analyzing Ghanaian data, also discovered that profitability is an unreliable indicator of audit fees. This result contrasts with Eke and Emasogbe (2025), who identified a negative and statistically significant correlation between profitability and audit fees in Nigerian agricultural firms; however, the direction of the coefficient found in this study, while not significant, aligns with their results. The loss of significance when controlling for firm size implies that the perceived link between profitability and audit fees in this industry is likely largely a size effect influenced by the strong correlation between the two factors, rather than an independent effect of profitability.

Based on the results and conclusions of this research, the following suggestions are proposed:

1. Please provide the text that you'd like me to paraphrase. Audit committees and boards of publicly listed agricultural companies in Nigeria need to clearly incorporate client firm size and the selection of a Big Four as opposed to a non-Big Four auditor into their audit fee planning and negotiation procedures, due to the considerable and statistically significant premium associated with these two elements identified in this research.
2. Audit committees of smaller, non-Big Four-audited agricultural firms, particularly those reporting recurring losses or high leverage, such as FTN Cocoa Processors Plc and Ellah Lakes Plc, should periodically review whether the audit fees currently paid are adequate for the scope and risk profile of the audit engagement, rather than allowing fee levels to be driven principally by firm size and auditor identity.

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