

CAPITAL STRUCTURE, AGENCY COST, AND PROFITABILITY OF INFORMATION AND COMMUNICATION TECHNOLOGY COMPANIES IN NIGERIA

Andy U. Ugiagbe¹, Ruth O. Urhoghide (PhD)², Rachael E. Abusomwan (PhD)³

^{1,2,3}Department of Accounting, Faculty of Social and Management Studies,
Benson Idahosa University, Benin City, Edo State, Nigeria

Corresponding authors' email/Mobile: uyicosby@gmail.com/+2348054739166¹

Abstract

This study looks at the connection between capital structure, agency cost, and profitability of Information and Communication Technology (ICT) companies that are listed on the Nigeria Exchange Group. Specifically, it examines how debt ratio, equity ratio, CEO compensation, audit fees, and their interactions influence profitability. The study covers nine ICT companies listed on the Nigerian Exchange Group as at December 31, 2023, thereby using the entire population as the sample for a comprehensive analysis. Data were sourced from annual reports of the listed firms spanning from 2014 to 2023. The data sourced were analyzed using panel least squares regression. The results indicate that debt ratio, equity ratio, CEO compensation, audit fees, and the interaction between CEO compensation and equity ratio significantly affect profitability. However, the moderating effect of audit fees relative to equity does not show a significant impact. Based on the findings, the study recommends increased reliance on equity financing, implementation of performance-based CEO compensation structures, and efficient audit cost management without compromising audit quality. These strategies aim to enhance profitability in Nigerian ICT firms.

Keywords: agency cost, capital structure, firm size, profitability, information and communication technology companies

1. Introduction

Capital structure is a crucial factor that firms take into account while evaluating their financial performance (Kerim *et al.*, 2019). The analysis of a company's capital structure is essential for both improving profitability and understanding its influence on the firm's ability to navigate competitive environments. The objective of a company's capital structure may not necessarily be centered on maximizing wealth, but rather on protecting the interests of management, particularly in companies where control is determined by directors and the corporation's shares are closely held (Ajibola *et al.*, 2018).

The concept of agency cost pertains to the potential conflicts of interest and the corresponding expenses that arise among various stakeholders within an organization, specifically between shareholders (The principal) and management (The Agent) (Adebayo *et al.*, 2021).

Profitability is a fundamental metric used to evaluate the financial performance of a company; it serves as an indicator of its capacity to generate profits through its

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operational activities. The assessment of financial performance is commonly conducted through the utilization of financial ratios, including return on assets (ROA), return on equity (ROE), and Net Profit Margin.

The Information and Communication Technology (ICT) sector in Nigeria, has significantly contributed to Nigeria's Gross Domestic Product (GDP), with its share rising to 19.78% in Q2 2024, surpassing traditional sectors like oil and gas (Umeh, 2024). Unlike various sectors in Nigerian economy, such as the cement industry, manufacturing firms, non-financial companies, oil and gas companies, consumer goods firms, there has been a paucity of research examining the relationship between capital structure, agency cost and profitability and their interplay within this sector. This gap in the literature presents an opportunity for further investigation and analysis which this study intends to fill

The broad objective of the study is to examine the effect of capital structure and agency cost on profitability of listed firms of the ICT sector in the Nigeria Exchange Group. The specific objectives therefore are to: Ascertain the effect of debt ratio on profitability of ICT companies in Nigeria. Find out the effect of equity ratio on profitability of ICT companies in Nigeria. Determine the effect of CEO's compensation on profitability of ICT companies in Nigeria and to find out the effect of audit fees on profitability of ICT companies in Nigeria. Furthermore, to determine the extent to which audit fee moderate moderates the relationship between equity ratio and profitability of ICT companies in Nigeria, as well as the extent to which CEO compensation moderate the relationship between the equity ratio and profitability of ICT companies in Nigeria.

To achieve the objectives of the research, the following hypotheses are formulated, in the null form:

- H₀₁:** There is no significant relationship between debt ratio and profitability of ICT companies listed on the Nigeria Exchange Group.
- H₀₂:** There is no significant relationship between equity ratio and profitability of ICT companies listed on the Nigeria Exchange Group.
- H₀₃:** There is no significant relationship between CEO's compensation and profitability of ICT companies listed on the Nigeria Exchange Group.
- H₀₄:** There is no significant relationship between audit fees and profitability of ICT companies listed on the Nigeria Exchange Group.
- H₀₅:** Audit fee does not moderate the relationship between a firm's equity ratio and its profitability, such that the effect of equity ratio on profitability is stronger at higher level of audit fee.
- H₀₆:** CEO Compensation does not moderate the relationship between a firm's equity ratio and its profitability, such that the effect of equity ratio on profitability is stronger at higher level of CEO compensation.

The subsequent sections of this paper are as follows: section 2 reviews the literatures and relevant theories, immediately after that, section 3 discusses the study's methodology. Section 4 deals with the analysis of result, hypothesis testing and discussion of findings, and section 5 wraps up the research which is aimed at unraveling the intricate relationship between capital structure, agency cost and the profitability of

information and communication technology companies listed in the Nigerian Exchange Group.

2. Literature Review

Conceptual Review

Profitability

A key indicator of a business's financial performance is profitability, which shows how well the organization uses its resources and produces returns for shareholders. A company's profitability can be impacted by a number of factors, such as audit fees and CEO compensation. (Ledley et al., 2020). Profitability is a key factor in assessing a company's sustainability and financial performance.

Net Profit Margin (NPM)

One important indicator of management's capacity to increase revenue while reducing expenses is the net profit margin. The profitability of a business evaluates its ability to turn a profit from its ongoing operations. The analysis provides important details about a business's operational efficiency, environmental impact, and prospects for future growth. Investors and other stakeholders can assess a company's financial performance in comparison to its peers by comparing Net Profit Margins within the same industry (Mwangi, 2021).

Capital Structure

The way an organization finances its operations using a mix of debt and equity is referred to as its capital structure. The phrase describes a company's financial strategy that combines long-term capital sources like loans, loan stock, debentures, ordinary and preference shares, etc. and short-term debts such as other payables and overdrafts. (Chechet et al., 2014).

Debt Ratio

One measure that provides important information about how a company's assets are allocated, particularly with regard to how much of them are financed by debt, is the debt ratio. One indicator of how much a business relies on debt financing compared to equity financing is the debt ratio. A financial metric that assesses the relationship between a company's total debt and total equity is the debt ratio, also known as the debt-to-equity ratio. A greater proportion of equity in the capital structure is indicated by a lower debt ratio, while a higher debt ratio suggests a greater reliance on borrowed funds (Pratiwi, 2020).

Equity Ratio

The equity-to-assets ratio, sometimes referred to as the equity ratio, is a metric used to determine what percentage of a company's total assets are financed by equity. The metric is the percentage difference between a company's total equity and total assets (Kontesa, 2015). The equity ratio provides important information about how much ownership and control shareholders have over the business. A higher percentage of the company's assets financed by equity is indicated by a high equity ratio (Yapa, 2017). Given that shareholders own a sizable portion of the company's assets, this suggests a stronger financial position (Pratiwi, 2020).

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Agency Cost

CEO compensation, external audit fees, monitoring costs, and bonding costs are examples of agency costs. t. c, which results from the division between ownership and control in a business and causes a number of costs and disputes. When shareholders give managers decision-making authority, agency issues could occur. In this case, managers represent the owners as agents. These issues arise when managers' and shareholders' interests diverge, which could result in conflicts of interest and inefficiencies. The profitability of a business may be impacted by agency costs (Obeng et al., 2020).

Chief Executive Officer's (CEO) Compensation

The compensation of the CEO is a significant component of agency expenses. The CEO is in charge of running the business and making strategic choices. They might not always have the same interests as shareholders, though. CEOs' behavior and decision-making may be influenced by their compensation package. High CEO compensation, including bonuses, stock options, and salaries, can lead to agency issues. This may lead to opportunistic management. In the absence of corresponding improvements in the company's performance, high CEO compensation may result in increased agency costs and possibly decreased profitability (Obeng et al., 2020).

Audit Fees

A company's payment to an outside auditing firm for carrying out an impartial financial audit is known as the audit fee. Auditors are essential in giving shareholders confidence about the accuracy and dependability of a company's financial reports. The amount of audit fees may affect the profitability and expenses of the agency (Christie, 2021). Higher audit fees, according to Reddy (2013), may be a sign of a more complete and rigorous audit process, which could improve the caliber and openness of financial reporting.

Firm Size

The size of a company has an impact on its capacity to manage risk and access capital markets. Due to their creditworthiness, larger businesses frequently have better access to a wider range of financing options (Velnampy & Nimalathasan 2010). Additionally, different financial performance metrics are influenced by the correlation between firm size and risk and return profiles. The interaction of quantitative measurements and qualitative characteristics keeps advancing scholarly research and real-world understanding of the characteristics and consequences of firm size in the business world (Kalbuana et al., 2022).

Theoretical Framework

Pecking Order Theory

The pecking order theory, formulated by Donaldson in 1961 and later expanded by Stewart C. Myers and Nicholas Majluf in 1984, is a prominent framework that examines the dynamics between a firm's capital structure decisions, profitability, and its implications for corporate financing (Myers, 2015). This theory posits that firms prioritize funding their investment decision using internal resources, followed by debt financing and, as a last resort, equity issuance.

Agency Theory

Agency theory propounded by Stephen A. Ross in the late 1970s, provides a framework for understanding and analysing the relationship between principals (such

as shareholders or owners) and agents (such as managers or executives) in organizations (Glinkowska & Kaczmarek, 2015). Agency theory revolves around the principal-agent relationship, where one party (the principal) delegate's decision-making authority to another party (the agent) to act on their behalf. The principal seeks to align the interests of the agent with theirs, while dealing with information asymmetry and the potential for conflicts of interest.

Empirical Review

Debt Ratio and Profitability

Chechet et al., (2014) looked into the connection between profitability and capital structure in Nigerian companies that are listed on the Nigerian Exchange (NGX) Group. In particular, the Agency Theory served as the theoretical foundation for the researchers' investigation. During the ten-year period from 2000 to 2009, the study looked at a representative subset of 70 companies out of a total population of 245 publicly traded firms. The Nigerian Exchange Group (NGX) Fact Book provided the data used in this analysis. The study employed fixed-effects, random-effects, and Hausman Chi-Square panel data analysis techniques. According to the study, profitability (PROF) and debt ratio (DR) had a negative correlation, which means that profitability fell as the debt ratio rose. Additionally, the study demonstrated a positive correlation between profitability (PROF) and equity (EQT).

Equity Ratio and Profitability

A study by Uremadu and Onyekachi (2018) sought to examine the relationship between capital structure and financial performance in Nigeria, with a particular emphasis on the consumer goods industry. Ordinary Least square (OLS) regression analysis was used to examine the gathered data. The study shows that there is no correlation between the equity ratio and the corporate success of consumer goods companies in Nigeria. The study found no relationship between long-term debt to total assets and total debt to equity and returns on assets.

CEO Compensation and Profitability

Fong et al. (2010) examined the effects of variations in CEO pay to determine how over compensation or under compensation affects eventual voluntary CEO removal, firm growth, and firm profitability, while accounting for the influence of the company's ownership structure. According to the study, CEO withdrawal and underpayment are strongly correlated in owner-controlled businesses. It also demonstrated a connection between changes in business size and inadequate CEO compensation.

Audit Fees and Profitability

In their 2019 study, Hoang, Jamal, and Tan investigate the factors that influence the profitability of audit engagements using confidential data from the national office of a Big 4 public accounting firm in Canada. Senior audit partners interviewed for this study confirmed that the audit realization rate is the main metric used to evaluate the profitability of engagements. The former was used in our archive research as a stand-in for engagement profitability. It has been discovered that increasing engagement profitability results from sacrificing audit quality as indicated by discretionary accruals and audit adjustments.

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Firm Size and Profitability

Scholars have undertaken a great deal of research on the complex dynamics that influence the relationship between firm size and profitability. According to Bolarinwa and Obembe (2019), larger businesses can spread fixed costs over a higher production output thanks to economies of scale. For example, research by Velnampy et al. (2010) and Rahman and Yilun (2021), stress that economies of scale help reduce costs, which could increase larger businesses' profitability. A company's debt and equity ratios, as well as its overall financial structure, affect how profitable it is. Furthermore, larger firms may have easier access to diverse funding sources, impacting their capital structure and, subsequently.

Gaps in Reviewed Literatures

The reviewed literature lays a theoretical foundation but fails to address how capital structure and agency costs jointly influence profitability, especially under the moderating effect of firm size. Additionally, the ICT sector in Nigeria remains underexplored despite its growing economic importance. These gaps justify a focused empirical study investigating these relationships with firm size as a moderator, using recent data and a context-specific approach.

3. Methodology

Research Design

The study employs a longitudinal research design, this design was chosen due to the nature of the data and the research objectives, which necessitate the analysis of identical variables over varying durations (McLeod, et al., 2011). The population of the study is the Nine (9) Information and Communication Technology (ICT) companies listed on the Nigeria Exchange Group as at 31st December, 2023. The study employed the census sampling technique, resulting in the inclusion of the entire population as the sample size. Therefore, the entire population stands as the sample size of nine (9). The data was collected and analyzed utilizing the annual reports of the nine (9) companies spanning the period of 2014 to 2023.

To examine the variables for the study, the multiple linear regression model developed for the study was adapted from Segun, et al. (2021) as stated below:

$$EPS = F (DBT, EQR, AUD) \dots \dots \dots (3.1)$$

Where: EPS is Earnings Per Share; DBT is Debt ratio; EQR is Equity ratio; AUD is Audit fees. However, the model for this study is stated below as:

$$NPM = F (DBT, EQR, CEO, AUD, AF_EQR, CC_EQR, SIZE) \dots \dots \dots (3.2)$$

Where: NPM is Net Profit Margin; DBT is Debt ratio; EQR is Equity ratio; CEO is CEO compensation; AUD is Audit fees; AFE is Audit Fee to Equity Ratio; CCE is CEO Compensation to Equity Ratio; SIZE is Firm Size.

The mathematical form of equation (3.2) makes it impossible to estimate. Equation (3.2) is stated linearly and econometrically to meet the requirements of regression analysis and estimation:

$$NPM_{it} = a_0 + a_1DBT_t + a_2EQR_{it} + a_3CEO_{it} + a_4AUD_{it} + a_5AF_EQR_t + a_6CC_EQR_{it} + a_7SIZE_{it} + \varepsilon_{it} \dots \dots \dots (3.3)$$

Where: i is firm 1 to 9 for the Nine (9) sampled firms; t = the year 2014 to 2023 for each of the Nine (9) sampled firms; $a_1 - a_7$ are variables coefficients to be estimated; ε is the stochastic element.

Operationalization of Variables

Table 1

Operationalization of Variables

S/N	Variable	Variable Type	Measurement	Apriori	Source
1	NPM = Net Profit Margin	Dependent	Net income divided by total revenue.		Adebayo, et. al (2021); Essel (2023)
2	DBT = debt ratio	Independent	Total debt divided by total assets	-	Segun, et. al (2021)
3	EQR = equity ratio	Independent	Shareholders' equity to total assets.	+	Segun, et. al (2021)
4	CEO = CEO compensation (Agency Cost)	Independent	The total compensation package (including salary, bonuses, stock options, etc.) of the Chief Executive Officer.	+/-	Adebayo, et. al (2021); Ayange, et. al (2021)
5	AUD = audit fees	Independent	The fees are paid to external auditors for auditing the company's financial statements.	+/-	Adebayo, et. al (2021); Essel (2023)
6	AF_EQR = Audit Fee to Equity Ratio	Independent	AUD*EQR	-	Abdul Rahman & Mohamed.S (2015)
7	CC_EQR = CEO compensation to Equity Ratio	Independent	CEO*EQR	-	Rahman M.M & Islam M.S (2022)
8	Size = Firm Size	Control	Total Net Assets for the period	+	Ayange, et. al (2021)

Source: Researcher's compilation (2024).

Method of Data Analysis

The data analysis method used in the research is the panel least squares method. The panel least squares method relies on several fundamental assumptions that were inherent to all least squares approaches in order to operate effectively. The static panel least squares (PLS) data analysis was employed in this study due to the nature of the dataset that possesses cross-sectional and time series. PLS is a powerful econometric

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technique that accounts for both cross-sectional and time-series variations in the data, making it well-suited for longitudinal studies with repeated observations over time.

Panel regression is a statistical method used to analyse data that involves multiple observations over time for the same subjects. This approach combines cross-sectional and time-series data, allowing for the examination of both individual and time-specific effects. Panel regression is chosen because it accounts for heterogeneity by allowing for individual-specific effects, controls for unobserved variables that may bias results, and provides more informative data, increased variability, and greater degrees of freedom.

The Panel Least Squares model assumption differs between the fixed effect and random effect model. The Decision Rule for hypotheses testing in this study is given as: Accept H_0 and reject H_1 – when the probability value is above 0.05 or Accept H_1 and reject H_0 – when the probability value is less than 0.05.

Decision rule for Hausman Test: H_0 – random effect is preferable to fixed effect; H_1 – fixed effect is preferable to the random effect; When chi-square probability value is less than 0.05 (5%) – rejects H_0 and accepts H_1 ; When chi-square probability value is greater than 0.05 (5%) – accepts H_0 and rejects H_1 .

This study conducted a normality test on the data set that was utilized for the study. It was imperative to ascertain whether the data adhered to a normal distribution curve. To accomplish this, the study focused on the Jarque-Bera test and standard deviation, as they possessed the capability to provide a concise assessment of the normality of variables. Data that exhibited a semblance of normal distribution were subjected to several preliminary tests to determine their time series characteristics.

Correlation Analysis

The correlation analysis was conducted using Pearson's correlation coefficient, which measured the linear association between pairs of continuous variables. The objective of the correlation analysis was twofold: firstly, to identify any significant correlations between the independent variables (DBT, EQR, CEO, AUD, SIZE) and the dependent variable (NPM), and secondly, to assess the presence of multi-collinearity among the independent variables.

The correlation analysis is a crucial step in examining the bivariate relationships among variables and assessing the preliminary evidence for the hypothesized associations in the study. By elucidating the interconnections between key constructs, correlation analysis served as a valuable tool for informing subsequent inferential analyses and drawing meaningful conclusions about the presence or absence of multicollinearity problem in the model.

4. Results and Discussions

Descriptive Statistics

Before making a formal estimate, it is crucial to do summary statistics. In this research, data collection was checked to confirm if it follows a normal distribution. It is possible to tell if the data set has a normal distribution curve by using the descriptive statistics. Normality may be quickly assessed by examining the standard deviations, skewness, kurtosis, and JarqueBera. The data is tabulated for convenience purposes below.

Table 2
Descriptive Statistics

	NPM	DBT	EQR	CEO	AUD	AF_EQ R	CC_EQ R	SIZE
Mean	-61.04611	0.766000	0.093222	11614477	678928.5	172118 .7	251001 5.	3.71E+08
Median	0.005000	0.690000	0.095000	5585744.	12407.50	708.93 50	351056 .9	497 471.0
Maximum	24.00000	3.800000	1.000000	61471630	5325444.	442386 9.	203271 89	3.68E+09
Minimum	-3574.910	0.000000	- 2.800000	0.000000	0.000000	- 427833 6.	- 115693 04	- 22316603
Std. Dev.	402.4097	0.715502	0.626420	16671221	1394516.	129102 0.	607531 8.	1.05E+09
Skewness	-7.874892	1.901466	- 2.345219	1.905083	2.027765	0.8181 50	1.1334 35	2.496644
Kurtosis	67.15021	7.819035	10.41283	5.545808	5.886436	7.0050 83	4.4110 23	7.280860
Jarque- Bera	16362.40	141.3202	288.5633	78.74440	92.92065	70.193 12	26.736 34	162.2201
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.0000 00	0.0000 02	0.000000
Obs	90	90	90	90	90	90	90	90

Source: Researcher's computation (2024) from E-views 10.0

From table 2, the mean Net profit margin is -61.05, indicating a generally high negative profitability (loss) for the sampled ICT firms. However, the maximum value of 24.0000 and the minimum value of -3574.910 suggest a significant variation in profitability across firms. The skewness of - 7.87 indicates a heavy negative skewed or skewed to the left tail, implying that a few firms have exceptionally high NPMs. The kurtosis of 67.15 further confirms the presence of extreme values, suggesting that the distribution is highly peaked. The Jarque-Bera statistic of 16,362.40 with a probability of 0.00 indicates that the NPM is not normally distributed and this could be attributed to the nature of the dataset and some outliers.

The mean value of debt ratio is 0.77, shows that firms on average have a moderate level of debt relative to their assets. The maximum value of 3.80 suggests that some firms are highly indebted, while the minimum value of 0.00 indicates that there are firms with no debt. The skewness of 1.90 and kurtosis of 7.82 imply a distribution with a long right tail and significant outliers. The Jarque-Bera statistic of 141.32 with a probability of 0.00 confirms that the debt ratio distribution is not normal.

The mean of the equity ratio is 0.09, indicating that equity financing is relatively low among the firms. The maximum value of 1.00 suggests that some firms are entirely equity-financed, while the minimum value of -2.80 (possibly a reporting or data error) indicates negative equity. The skewness of 2.35 and kurtosis of 10.41 imply a positively skewed and a distribution with a long right tail or extreme values. The Jarque-Bera

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statistic of 288.56 with a probability of 0.00 indicates that the equity ratio data is not normally distributed.

The mean CEO compensation is 11,614,477 million naira, indicating substantial remuneration. The maximum value of 61,471,630 and minimum value of 0.00 suggest wide disparities in CEO pay. The skewness of 1.91 and kurtosis of 5.55 suggest a right-skewed distribution with some high outliers. The Jarque-Bera statistic of 78.74 with a probability of 0.00 indicates that the CEO compensation distribution is not normal.

The mean audit fee is 678,928.5, indicating moderate auditing costs. The maximum value of 5,325,444 and minimum value of 0.00 indicate considerable variation in audit fees across firms. The skewness of 2.03 and kurtosis of 5.89 suggest a right-skewed distribution with some high outliers. The Jarque-Bera statistic of 92.92 with a probability of 0.00 confirms non-normality.

The mean Audit Fee to Equity Ratio is 172,118.7, showing the audit costs relative to equity. The maximum value of 4,423,869 and minimum value of -4,278,336 suggest large variability, with negative values possibly indicating reporting errors. The skewness of 0.82 and kurtosis of 7.01 suggest a right-skewed distribution with some high outliers. The Jarque-Bera statistic of 70.19 with a probability of 0.00 confirms non-normality.

The mean CEO Compensation to Equity Ratio is 2,510,015, showing the CEO compensation relative to equity. The maximum and minimum value of a combination of CEO compensation and Equity Ratio are 20,327,189 and -11,569,304 respectively. The skewness of 1.13 and kurtosis of 4.41 suggest a right-skewed distribution. The Jarque-Bera statistic of 26.74 with a probability of 0.00 confirms non-normality.

The mean value of firm size is 3.71E+08, and the maximum and minimum values of firm size stood at 3.68E+09 and -22316603 respectively. This shows that most of the firms are classified as large while a few of them are small based on their total asset values. The skewness of 2.49 shows that firm size is positively skewed, while the kurtosis value of 7.28 suggests a highly peaked distribution. The Jarque-Bera statistic of 162.22 with a probability of 0.00 indicates that the firm size dataset is not normally distributed.

These descriptive statistics provide a detailed overview of the financial characteristics of ICT firms in Nigeria, highlighting significant variations in profitability, leverage, equity, compensation, and auditing costs. The skewness and kurtosis values, along with the Jarque-Bera statistics, indicate that many variables do not follow a normal distribution, suggesting the presence of outliers and the need for robust statistical techniques in further analysis.

Table 3
Correlation Analysis

	NPM	DBT	EQR	CEO	AUD	AF_EQ R	CC_EQ R	SIZE
NPM	1.00000 0							
DBT	- 0.57531 3	1.00000 0						
EQR	0.62233 0	- 0.765183	1.0000 00					
CEO	0.06983 7	0.01793 1	0.1386 49	1.0000 00				
AUD	- 0.04298 8	0.01186 5	0.1267 43	0.0382 92	1.0000 00			
AF_EQ QR	0.31919 4	- 0.576072	0.7202 50	0.1661 54	0.5460 24	1.0000 00		
CC_EQ QR	0.31279 9	- 0.452484	0.6831 74	0.5729 88	0.4573 09	0.7261 72	1.000000	
SIZE	0.05412 8	- 0.265632	0.3839 57	0.1162 55	0.8472 40	0.8099 56	0.629347	1.0000 00

Source: Researcher's computation (2024) from E-views 10.0.

The correlation analysis presented in Table 3 provides insights into the relationships and degree of association between the various variables under study. The result shows that Debt Ratio and audit fee are negatively correlated with Net Profit Margin (NPM) following their correlation coefficient values of -0.5753 and -0.0429 respectively. They are therefore said to be moving in an opposite direction with NPM. While debt ratio (DBT) portrays a moderate correlation, audit fee (AUD) shows a very weak negative correlation with NPM.

On the other hand, the other variables Equity ratio, CEO compensation, the two interaction variables, and size appeared to be positively correlated with NPM following their correlation coefficient values of 0.6223, 0.0698, 0.3192, 0.3128 and, 0.0541 respectively. This shows that they are moving in the same direction as NPM and equity ratio are strongly associated with Net profit margin, while CEO compensation and firm size have weak positive associations with NPM.

From the correlation coefficients among the independent variables, a mixed correlation was found between the other independent variables and debt ratio (DBT) as some of them like CEO and AUD were found to be positively and weakly correlated with DBT while the other variables, EQR, AF_EQR, CC_EQR and SIZE are negatively correlated with debt ratio.

It was also observed from the correlation result that the other independent variables such as CEO, AUD, AF_EQR, CC_EQR and SIZE were positively correlated with equity ratio (EQR) going by their correlation coefficient values of 0.1386, 0.1267, 0.7203, 0.6832, and 0.3839 respectively. This implies that they move in the same direction as EQR.

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Similarly, AUD, AF_EQR, CC_EQR, and SIZE with their coefficient values of 0.0382, 0.1662, 0.5729, and 0.1163 respectively were found to be positively correlated with CEO compensation. AF_EQR, CC_EQR, and SIZE have a moderate and strong correlation with Audit fees (AUD).

In sum, looking at the correlation between the independent variables which are less than -0.85 and +0.85 being the benchmark for a very high negative and positive correlation respectively, we therefore conclude that there is likely no presence of multicollinearity problem in the model. However, the correlation result alone may not be sufficient to accept or reject the hypotheses. Thus, a more robust multicollinearity test will be discussed under the post-diagnostic session to ascertain the model's compliance with the absence of multiicollinearity following the correlation result.

Panel Data Regression Results

Table 4

Regression Results

Expected sign	POOLED OLS	Fixed Effect Model	Random Effect model	Robust Random Effect model
C	17.5421 {0.7992}	57.2352 {0.8727}	19.0740 {0.7878}	19.0740 {0.3945}
DBT	182.6899** {0.0161}	-298.0558 {0.0776}	185.3489** {0.0163}	-185.3489* {0.0007}
EQR	460.1017* {0.0002}	511.8171* {0.0083}	461.9843* {0.0000}	461.9843* {0.0000}
AF_EQR	-2.98E-05 {0.6562}	-000011 {0.3197}	-3.24E-05 {0.6305}	-3.24E-05 {0.5860}
CC_EQR	-1.93E-05 {0.1481}	-0.00002 {0.3624}	-1.89E-05 {0.1537}	-1.89E-05** {0.0124}
SIZE	-1.48E-07 {0.1231}	-8.79E-08 {0.9340}	-1.49E-07 {0.1179}	-1.49E-07* {0.0000}
F- statistics/Prob	11.1276 {0.0000}	3.6657 {0.0000}	11.2530 {0.0000}	25.37 {0.0000}
R- Squared	0.487	0.57	0.487	0.489
Hausman Test			3.0462 {0.8807}	
Observation (N)		90	90	90

Note: (1) bracket { } are probability-values (2) *, **, *, implies statistical significance at %1. 5% and 10% levels respectively.**

Source: Author's Compilation from E-VIEWS 10.0 Output (2024)

Table 4 presented the Pooled OLS and the Panel least squares result which consists of the fixed effect, random effect and robust random effect results of the model. The essence was to empirically give an explanation on the impact of capital structure and agency cost on the profitability level of the quoted ICT companies in Nigeria.

Going by the nature of the dataset which had both cross sessions and short time series we employed the static panel least square approach. This was commenced with the Pooled OLS estimate which was proceeded by the fixed effect model, followed by the random effect model. However, to ascertain the level of compliance of the model to the homoscedasticity assumption, the Bruesch-Pagan-Godfrey heteroscedasticity test was conducted on the pooled OLS result and based on the probabilities of both the F-STAT and the Obs*R-square was seen to be 0.0000 which is less than 0.05

The coefficient of determination (R-squared) for the robust random effect model which stood at 0.489 implies that about 49% of the variations in firms' profitability level as a proxy by net profit margin were explained by all the explanatory variables which consist of the capital structure and agency cost variables that were included in the model.

The test for the overall significance of the model as captured by the F-statistic stood at 25.37 with a probability value of 0.000, which is less than 0.05. Consequently, the F-statistic shows that the model is linear and statistically significant at the 5% level of significance. This implies that the overall model has a good fit and it significantly explains the variations in the firms' profitability level.

Equity Ratio (EQR) has a positive coefficient of 461.9843 and a p-value of 0.0000, indicates a 1% level of significance or highly significant. This implies a strong and positive relationship between EQR and the dependent variable, net profit margin.

The interaction variable that was employed to examine the association between agency cost (Audit fees), the capital structure (Equity ratio), and net profit margin proxied by (AF_EQR) has a negative coefficient (-3.24E-05) with a p-value of 0.5860 making it statistically insignificant. This implies that when we align the agency cost with capital it will increase the agency cost and reduced firms' profitability level.

Similarly, the interaction variable that was employed to examine the association between agency cost (CEO Compensation), the capital structure (Equity ratio), and net profit margin proxied by (CC_EQR) has a negative coefficient value of -1.89E-05 and a p-value of 0.0124, showing that a combination of CEO compensation and Equity will cause a detrimental effect on the profitability level of the firms. Judging by the p-value of CC_EQR, which stood at 0.0124, it is clear that CC_EQR is significant. This therefore implies the interaction of CEO compensation and Equity ratio has an adverse and significant impact on profitability.

The control variable, firm size was seen to be negatively and significantly related to net profit margin giving the coefficient value of -1.49E-07 and a p-value of 0.0000. This shows that the larger the firm size the lesser its profitability. This is against apriori expectation and the more its value will be. Looking at their probability value 0.0000, it was observed that SIZE is significant at a 1% level of significance.

Hypotheses Testing

The research hypotheses from earlier chapters are evaluated by analyzing the estimated coefficient as presented in table 4. The empirical foundation for the acceptance or rejection of hypotheses is established by a 5% level of significance. As such, results above 5% are rejected and vice versa.

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Hypothesis One: There is no significant relationship between debt ratio and profitability of ICT companies listed on the Nigeria Exchange Group

The "debt ratio" coefficient is determined to be negative and statistically significant (coefficient = -185.3489; p-value = 0.0007). Judging by the p-value that is less than 0.05, we therefore reject the hypothesis that there is no significant relationship between "debt ratio and profitability of ICT companies listed on the Nigeria Exchange Group" and we therefore conclude that debt ratio has a significant effect on profitability of ICT companies listed on the Nigeria Exchange Group.

Hypothesis Two: There is no significant relationship between equity ratio and profitability of ICT companies in Nigeria

The coefficient for the "equity ratio" variable is found to be positive and statistically significant (coefficient = 461.9843; p-value = 0.0000). Consequently, it is seen that there exists a positive statistically significant relationship between "the equity ratio and profitability of ICT firms listed on the Nigeria Exchange Group", as the p-value appears to be below 0.05. Consequently, we do not have enough evidence to accept the null hypothesis. We rather accept the alternative hypothesis.

Hypothesis Three: There is no significant relationship between CEO compensation and the profitability of ICT companies in Nigeria

The "CEO compensation" coefficient is determined to be positive and statistically insignificant (coefficient = 4.52E-06; p-value = 0.0037). Therefore, this study does not have sufficient evidence to accept the null hypothesis stated above since the p-value is less than 0.05. As such, it is argued that there is a positive and significant relationship between CEO's compensation and profitability of ICT companies in Nigeria.

Hypothesis Four: There is no significant relationship between audit fees and profitability in ICT companies in Nigeria

The "audit fees" coefficient is determined to be positive and statistically significant (coefficient = 0.0001; p-value = 0.0000). Therefore, this study does not have sufficient evidence to accept the null hypothesis stated above since the p-value is less than 0.05. As such, it is argued that there is a positive and significant relationship between audit fees and profitability of ICT companies in Nigeria.

Hypothesis Five: Does audit fee moderate the relationship between a firm's equity ratio and its profitability, such that the effect of equity ratio on profitability is stronger at higher level of audit fee

The coefficient (-3.24E-05) is negative, meaning that if there were any effect, higher audit fees would slightly weaken the relationship between a company's equity ratio and profitability. But the effect is very small. The p-value (0.5860) is much greater than 0.05, meaning the result is not statistically significant. This suggests that any observed effect is likely due to chance. Since the results are not significant, the study accepts the null hypothesis, meaning that audit fees do not significantly impact how a firm's equity ratio affects its profitability.

Hypothesis Six: Does CEO Compensation moderate the relationship between a firm's equity ratio and its profitability, such that the effect of equity ratio on profitability is stronger at higher level of CEO compensation

The results show a coefficient (-1.89E-05) is negative, meaning that higher CEO compensation weakens the effect of equity ratio on profitability, in other words, as CEO pay increases, the link between equity ratio and profitability becomes weaker. The p-value (0.0124) is less than 0.05, meaning the result is statistically significant. This indicates that the observed effect is real and not due to chance. Since the relationship is significant, the study rejects the null hypothesis, meaning that CEO compensation does play a role in weakening the impact of equity ratio on profitability in ICT companies in Nigeria. We therefore reject the null hypothesis, that CEO compensation does not moderate the relationship between firm's equity ratio and its profitability.

Discussion of Findings

The findings of this study provide significant insights into the relationships and moderating effects between various capital structure, agency cost and the profitability of ICT companies listed in the Nigeria.

Firstly, the debt ratio (DBT) exhibits an inverse and significant relationship with profitability. This implies that higher debt levels might be associated with a significant lower profitability due to increased interest obligations. This finding is in tandem with Shubita et al., 2017 and Aggreh, et al., 2022, which posit that Companies that possess a significant debt ratio may encounter difficulties in fulfilling their debt obligations and in turn experience reduced profitability,

In contrast, the equity ratio (EQR) shows a strong and positive relationship with profitability, which is highly significant. This indicates that, ICT companies with higher equity levels tend to be more profitable. This relationship underscores the importance of equity financing in enhancing the financial performance of ICT firms. Equity may provide a stable financial foundation, allowing companies to invest in innovation and growth without the pressure of debt repayment, thereby improving profitability. These findings agree with that of Alhassan (2021) and Musa, et al., (2021) but are in contrast with Rahman, et al., (2019).

CEO compensation was found to have a positive and statistically significant impact on the profitability level of ICT firms. This suggests that higher CEO pay does translate into higher profitability for the ICT companies in the study. This finding aligns with the fact that high CEO compensation packages can encourage the efficiency and effectiveness of the CEO which can in turn promote company performance. This finding supports those of Zoghlami (2021) and Bhuyan, et. al., (2022) who found positive significant results in France and USA respectively.

Audit fees (AUD) also exhibit a positive and statistically significant relationship with profitability. This indicates that the amount spent on auditing has a meaningful impact on the profitability of these companies. It suggests that while audit services are essential for compliance and accuracy in financial reporting, they directly contribute to improvement in audit quality which can translate to promoting financial performance measured by profitability. This result corroborates the findings of Ibrahim 2017, Etale 2020, and Nkak 2020 which support the notion that agency costs can significantly influence profitability. This finding negates that of Hoang, et al., (2019).

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To ascertain if audit fee moderates the relationship between a firm's equity ratio and its profitability, (AF_EQR) such that the effect of equity ratio on profitability is stronger at higher level of audit fee.

The results suggest that audit fees do not significantly impact how a firm's equity ratio affects its profitability in Nigeria's ICT sector. This implies that firms should not rely on audit expenditures as a way to influence profitability but rather focus on more direct factors such as capital structure optimization, operational efficiency, and strategic financial management.

This implies that the interaction between audit fees and financial leverage tends to reduce the positive influence of the equity ratio on the profitability level of ICT firms in an insignificant manner. These findings suggest that the effectiveness of audit fees in moderating the impact of equity on profitability is minimal in the context of Nigerian ICT companies.

Similarly, to ascertain if CEO Compensation moderates the relationship between a firm's equity ratio and its profitability, such that the effect of equity ratio on profitability is stronger at higher level of CEO compensation. The study's findings provide strong evidence that CEO compensation moderates the relationship between equity ratio and profitability in ICT firms in Nigeria. Specifically, higher CEO pay appears to reduce the positive impact of equity ratio on profitability, suggesting that firms should carefully structure executive compensation to align with firm performance. For policymakers and corporate boards, this result highlights the need for transparent and performance-driven CEO compensation structures to ensure that executive pay supports rather than hinders company profitability.

Overall, the study highlights the complexity of financial dynamics in the ICT sector. Financial leverage in the form of debt and Equity financing appeared to be critical drivers of profitability. The study also showed that agency costs in the form of audit fees, and executive compensation have significant and direct effect on ICT firms' profitability level.

5. Conclusion and Recommendations

In conclusion, this study delves into the dynamic relationship between "capital structure, agency costs, and profitability within the information and communication technology (ICT) sector listed on the Nigeria Exchange Group". Findings indicate that the debt ratio, equity ratio, audit fees, and CEO compensation significantly enhance profitability, highlighting the importance of capital structure and minimal agency cost in this sector. Conversely, the moderating effects of audit fees and equity ratios and the interaction of CEO compensation and equity ratio tend to reduce profitability insignificantly and significantly respectively.

These insights underscore the pivotal role of equity financing and agency costs in enhancing profitability with well-structured debt management, executive compensation, and audit. Overall, the findings provide valuable implications for financial strategies in the ICT sector, advocating for a stronger emphasis on equity financing and agency costs to bolster profitability and improve financial performance.

Based on the findings of this study, it is recommended that ICT firms operating in Nigeria consider a balanced approach to their capital structure decisions, focusing on the proportion of debt and equity in their financing. To further enhance the financial

performance of these companies, managers, policymakers, and investors should consider the following specific recommendations are stated:

- (i) Since the debt ratio was found to have a negative and significant relationship with profitability, ICT companies should focus on optimizing their capital structure by balancing debt with other forms of financing. Over-reliance on debt should be avoided to ensure financial stability and flexibility.
- (ii) Given the significant positive impact of the equity ratio on profitability, ICT companies should consider increasing their equity financing. This can be achieved through strategies like issuing more shares or retaining earnings to reinvest in the business, which can enhance long-term profitability.
- (iii) The significant relationship between CEO compensation and profitability suggests that simply increasing executive pay does guarantee better financial performance. Companies should adopt performance-based compensation packages that align CEO incentives with company profitability goals to ensure that executive actions are in the best interest of the firm. Firms should ensure that the increase in executives' pay must not exceed the normal.
- (iv) Since audit fees has a positive and significant impact profitability, ICT companies should aim to optimize their audit costs without compromising the quality of audits. Efficient audit processes and leveraging technology can help manage costs while maintaining thorough financial oversight.
- (v) Given the insignificant impact of audit fee to equity ratio on profitability, companies should maintain audit fees at levels that ensure comprehensive and effective auditing while balancing costs. Regular review and negotiation of audit fees can help manage this expense effectively.
- (vi) Since the CEO compensation to equity ratio does significantly reduce profitability, companies should ensure that executive pay is justified by performance and contributions to company growth rather than discouraging equity growth. Also, executives' pay should be align with a proper equity ratio that will not hinder profitability. Performance metrics should be comprehensive and reflect the broader goals of the organization.

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