

## DETERMINANTS OF INTELLECTUAL CAPITAL DISCLOSURE OF LISTED CONSUMER AND INDUSTRIAL GOODS COMPANIES IN NIGERIA

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### Abstract

*This study examines the determinants of intellectual capital disclosure of listed consumer and industrial goods companies in Nigeria. The study adopts ex post facto research design. The population of the study comprised of 34 (21 consumer goods and 13 industrial goods) companies as at 31<sup>st</sup> December 2022 listed on the Nigerian Exchange Group (NGX) of which thirty (30) firms were taken as the sample size using purposive sampling technique. Data from 2013 to 2022 were analysed using multiple regression. Finding revealed that firm size, leverage, audit committee meeting and audit committee financial expertise have significant positive effect on Intellectual Capital (IC) disclosure, while audit committee size has an insignificant positive effect on IC disclosure. Companies with huge total asset should ensure that IC is been disclosed annually. This is because the bigger a company is in terms of firm size, the higher the demand for the disclosure of IC.*

**Keywords:** Audit Committee's Characteristic, Intellectual Capital Disclosure, Firm Characteristics, Leverage.

### Introduction

The future drivers of any corporate economy can no longer be capital, land or equipment; but the people and their knowledge base (Ibikunle, Oba & Nwifo, 2013). Harirangga and Panggabean (2019) posit that knowledge is considered as an important aspect in the utilization of invisible resources. This implies that knowledge has become a vital tool for achieving a sustained competitive advantage for firms in this modern age (Olohunlana, Odeleye & Isola, 2022).

According to Baldini and Liberatore (2016), the importance of intellectual capital (IC) resources in firm's value creation process has continuously increased due to the transition from manufacturing-based economies towards knowledge-based economies. Dey and Faruq (2019) document that contemporary accounting standards do not require IC recognition in a firm's financial statements, and very few companies disclose such items of intellectual capital in annual reports because IC is hard to measure. Traditional reporting only focuses on the financial and physical assets that are normally expressed in monetary or quantitative measures (Rahman & Musman, 2013; Masturah, Wani, Ismah & Balkis, 2020; Munther, 2020). This has led to information asymmetry due to the absence of IC disclosures in the financial statements.

Organization for Economic Co-operation and Development (OECD), (1999) described IC as the economic value of two categories (organizational or structural capital and human capital) of intangible assets of a company. Internal or structural capital, external or relationship capital and human capital are the three elements of intellectual capital (Mondal & Ghosh, 2014; Jin & Wang, 2020). The internal capital refers to the knowledge that are found within organisational systems, structure, processes, databases, procedures,

routines, and culture, which is created by employees or brought in, but cannot be taken away from the organization by the employees. External capital refers to the knowledge established in the external relationship of an organisation, such as suppliers, customers, business partners. Human capital refers to the individual's knowledge such as employees' education, skills, training, values and experience.

A company's disclosure of IC is voluntary; however, it is something that companies are increasingly required to do due to the fact that nowadays they compete in areas such as innovation, ideas and creativity. IC involves non-physical resources that are used to ascertain value in the future. Kweh, Chan and Ting (2012) points out that value added is created within a company when information is organized into knowledge, and knowledge is transformed into IC. Investors and stakeholders are increasing demand for greater transparency in disclosing the IC information in order to effectively and properly assess the value of a company's IC. Naimah and Mukti (2019) argued that it is because of the significance of IC in generating company values encourages the company to conduct an IC disclosure in order to keep itself afloat against competitive business environment.

Oziegbe and Ofe (2020) agree that the efficacy of the audit committee in reporting is hinged on certain attributes such as audit committee size, audit committee independence, audit committee gender diversity, audit committee financial expertise and audit committee frequency of meeting. Dey and Faruq (2019) further explain that the value of intellectual or human capital cannot be measured in conventional accounting system because of the specific measurement principles of accounting standards.

Studies with opposing findings have been conducted to ascertain the effect of firm characteristics such as firm size and leverage on intellectual capital disclosure (Sugandi & Handojo, 2018; Susanto, Pradipta & Handojo, 2019; Nuzula, Rahayu & Wulandari, 2020; Dey & Faruq, 2019; Mujiani, Wilestari & Putri, 2020; Nicolo, Ferullo, Aversano & Ardito, 2022; Rahayu, Nuzula & Wulandari, 2022). In the same vein, there are conflicting findings from the study of the effect of audit committee's characteristic such as audit committee size, audit committee meeting and audit committee financial expertise on intellectual capital disclosure (Li, Mangena & Pike, 2012; Oziegbe & Ofe, 2020; Naimah & Mukti, 2019; Firmansa, Zakaria & Nindito, 2018; Abdulkarim & Juhmani, 2020; Dermawan & Nurastuti, 2021; Puwanenthiren, 2019; Widijaya & Angelica, 2021; Lari, Salehi, Mirzaei & NazariDavaji, 2020).

Most importantly from the literatures that were reviewed, it was discovered that there are limited studies that have examined the combined effect of firm and audit committee attributes on intellectual capital disclosure in Nigeria. The study of Dey and Faruq (2019) that was done in Bangladesh looked at board and firm attributes and not audit committee attributes. To the best of my knowledge, only Naimah and Mukti (2019) did a study to ascertain the influences of both audit committee's and company's characteristic on intellectual capital disclosure in Indonesia, making it an area to explore in Nigeria. Hence, this study contributes to the literature by being the first to examine the effect of both firm and audit committee attributes on intellectual capital disclosure of listed consumer and industrial goods companies in Nigeria.

### **Concept of Intellectual Capital Disclosure**

This study started with the concept of IC before moving to the concept of IC disclosure. Taliyang, Latif and Mustafa (2011) defined IC as intangible assets including technology, customer information, brand name, reputation and corporate culture. The study of Dey and Faruq (2019) delineate that IC comprises of skills, knowledge, copyright, patents and reputation. According to Shameem, Kavida and Harun (2018), IC includes the value of employee knowledge, business training and proprietary information of the business organization that provides the competitive advantage to that organization in the market. Susanto, Pradipta and Handojo (2019) opined that IC disclosure is a way to report the nature of the intangible value that is owned by the company.

### **Concept of Firm Attributes**

Mohammed (2017) defined firm attributes as those information disclosed in the financial statement of business entities that serve as the predictors of the firm quality of accounting information. In other words, firm attributes serves as behavioral patterns of company's operation which enables them to achieve their objectives throughout the period of their operations.

Leverage is a measure of the amount of assets financed from debt of an entity. Nuzula, Rahayu and Wulandari (2020) opined that leverage is the use of external sources of funds with the consequence that the company must bear a fixed burden in the form of interest and debt installments. Mujiani, Wilestari and Putri (2020) state that leverage is a ratio that measures the level of dependence on the use of funds originating from creditors to finance the company's assets.

Firm size could be the total assets or number of sales made by a firm, it represents the amount of firm activities. Nuzula, Rahayu and Wulandari (2020) defined firm size as a measure that indicates a condition or characteristic of an organization or company. In this study, firm size is the total asset of each company.

### **Concept of Audit Committee Attributes**

Audit committee is saddled with the responsibilities of carrying out oversight function over the management, external auditors and directors (Oziegbe & Ofe, 2020). It oversees the activities of the organisation, as it relates to corporate reporting, auditing and adherence to rules and regulations, on behalf of the shareholders. Idris (2021) refer to audit committee as a statutorily corporate governance mechanism introduced to curb financial reporting manipulation in order to enhance the quality of financial reports. However, the effectiveness of the audit committee is dependent on its attributes. The effectiveness of audit committees in overseeing the financial reporting process is found to be largely determined by several audit committee attributes, including audit committee independence, financial expertise, audit committee meeting and audit committee size.

Oziegbe and Ofe (2020) delineate that audit committee size involves the total number of audit committee members that make up the audit committee. Dermawan and Nurastuti (2021) describe audit committee meeting as the number of meetings audit committee holds in a year. Widijaya and Angelica (2021) assert that audit committee financial expertise as audit committee members who are knowledgeable on accounting and/or finance.

### **Review of Empirical Studies**

#### **Firm Size and Intellectual Capital Disclosure**

Larger companies may have a more significant influence on the extent of intellectual capital disclosure (Taliyang, Latif & Mustafa, 2011). The bigger a company is, the higher the demand on information disclosure will be (Naimah & Mukti, 2019). Susanto, Pradipta and Handojo (2019) carried out empirical evidence about the effect of firm size on IC disclosure of 76 listed manufacturing companies listed in Indonesia Stock Exchange between 2011 to 2014. IC disclosure is measured by the IC disclosure index using the content analysis method, firm size was measured using the log total asset. Data were analyzed using multiple regression method. The result disclosed that firm size had significant and positive influence on IC disclosure.

The study of Sugandi and Handojo (2018) was on the determinants of IC disclosure in 185 listed non-financial companies in Indonesia Stock Exchange during 2013 to 2015. Log of total assets was used to measure firm size, Multiple linear regression was used as the data analysis method. The result showed that firm size has significant positive effect on IC disclosure. This implies that as firm size increases, company tends to increase its disclosure on IC. The study of Ousama, Fatima and Majdi (2012) was on determinants of IC disclosure from the 2006 annual reports of 91 sampled Malaysian listed companies. From a disclosure index, a dummy variable 1 if an item is disclosed and 0 if not was used to measure IC disclosure, total asset was used to measure firm size. The regression analysis revealed that firm size has significant positive relationship with IC disclosure.

Nuzula, Rahayu and Wulandari (2020) examined the determining factors of IC disclosure of manufacturing companies in Indonesia. 105 firm-years observable data were used during the 2014-2018 period. The logarithm of total assets was used to ascertain firm size, while unweighted dichotomous score of 1 for disclosing specific items in the annual report and 0 if otherwise were used to measure IC disclosure. Finding from the regression analysis revealed that firm size has a significant negative effect on IC disclosure. Dey and Faruq (2019) did a study on the determinants of IC disclosure of top 30 firms known as DS30 companies that reflect around 51 percent of the total equity market capitalization in Bangladesh. The study used multiple regression analysis to ascertain the determinants of IC disclosure. Content analysis was used to extract the data from the annual report of the respective firm for the years 2013 to 2017. Natural logarithm of total assets was used to ascertain firm size. Finding revealed an insignificant negative impact of firm size on IC disclosure.

H<sub>01</sub>: Firm size has no significant effect on intellectual capital disclosure of listed consumer and industrial goods companies in Nigeria

### **Leverage and Intellectual Capital Disclosure**

Companies with high leverage have high agency costs due to high risks (default of interest), in order to reduce agency cost, companies with higher leverage are expected to disclose more information voluntarily (Ousama, Fatima & Majdi, 2012). Companies with high leverage may want to convince the creditors that the company's value is not solely dependent on financial performance by disclosing more information that are connected to intellectual capital voluntarily (Masturah, Wani, Ismah & Balkis, 2020).

Mujiani, Wilestari and Putri (2020) ascertained whether leverage affect IC disclosure. 12 out of 100 companies listed in the compass index on the Indonesia Stock Exchange from 2014-2018 were used. The study used content analysis in assessing disclosure of IC by giving a score of 1 on items disclosed in the company's annual report and a score of 0 for items that are not disclosed by the company in the annual report. Debt-to-equity ratio was used to ascertain leverage. The regression analysis revealed that leverage has a significant positive effect on IC disclosure. Rahman and Musman (2013) examined the level of IC disclosure among the 32 Malaysian government-linked companies for the period 2007-2009. IC disclosure was measured by the percentage of disclosure index while total debt divided by total asset was used to measure leverage. The regression analysis showed that there is a significant positive relationship between leverage and IC disclosure.

Mondal and Ghosh (2014) examined the determinants of IC disclosure practices of Indian companies. They used 30 Indian knowledge-intensive companies (software, pharmaceuticals, and finance) for the period 2009-2012. The study used content analysis of annual reports to generate IC disclosure index. Leverage was measured by total debt to shareholders' equity. Multiple regression analysis was used to analyse the data. The result showed that leverage has insignificant negative relationship with IC disclosure. Rahayu, Nuzula and Wulandari (2022) conducted a study to determine the effect of leverage on IC disclosure of 22 companies quoted on Indonesia stock exchange from 2014 to 2018. Total debt to total asset was used to measure leverage, while, Human capital disclosure index was used to measure IC disclosure. Data analysis was performed using warpPLS software. The result showed that leverage has an insignificant negative effect on IC disclosure.

Nicolo, Ferullo, Aversano and Ardito (2022) applied manual content analysis on the websites of a sample of 158 healthcare organisations to determine the level of voluntary IC disclosure in Italy. Leverage is measured by the ratio of total debt on total assets. The multivariate regression result revealed that leverage has a negative and insignificant effect on IC disclosure.

H<sub>02</sub>: Leverage has no significant effect on intellectual capital disclosure of listed consumer and industrial goods companies in Nigeria

### **Audit Committee Size and Intellectual Capital Disclosure**

Oziegbe and Ofe (2020) examined the impact of audit committee attributes on IC disclosure of eight (8) Nigerian listed banks from 2014-2017. Content analysis was used to extract intellectual IC items from the annual reports of the sampled banks. The total number of audit committee members of each bank was used to measure audit committee size. The multiple regression analysis of the data revealed that audit committee size has an insignificant positive impact on IC disclosure. Naimah and Mukti (2019) did a study to ascertain the influences of audit committee's and company's characteristic on IC disclosure among the LQ45-listed companies in Indonesia Stock Exchange between 2013 and 2014. The study used IC disclosure index percentage to determine IC disclosure while audit committee size was measured by the number of audit committee's members written in company's annual report. The study employed multiple linear regression and saturation sample as the analysis methods. Finding showed that size of audit committee has positive but does not significantly influence IC disclosure.

Li, Mangena and Pike (2012) investigate the relationship between audit committee characteristics and IC disclosure using data from 100 UK listed firms. Content analysis of which 61 IC item checklist was used to measure IC disclosure. The total number of audit committee members was used to measure audit committee size. Finding from the multiple regression disclosed that there is a significant and positive relationship between audit committee size and IC disclosure. Hizriyani, Zulfikar and Yulianto (2022) analyzed the effect of the audit committee characteristics on IC disclosure of 43 banks listed on the Indonesian stock exchange for the period 2014-2019. The data analysis used was the Ordinary Least Square (OLS) approach. Content analysis was used to generate IC disclosure. The result proved that size of audit committee has a significant positive effect on IC disclosure.

H<sub>03</sub>: Audit committee size has no significant effect on intellectual capital disclosure of listed consumer and industrial goods companies in Nigeria

### **Audit Committee Meeting and Intellectual Capital Disclosure**

Kavida and Harun, Murshid (2019) studied the relationship between audit committee mechanism and IC disclosure evidence from 30 Indian listed companies from 2018 to 2019. Content analysis was used to determine IC disclosure, while number of audit committee meeting that took place each accounting year was used to determine audit committee meeting. Multiple regression analysis revealed that audit committee meeting is significantly and positively related to the overall IC reporting. Abdulkarim and Juhmani (2020) examined the impact of the audit committee attributes on IC disclosures in the Gulf Cooperation Council listed firms. The empirical evidence derived from the regression result indicated that there is a significant positive association between audit committee meetings and IC disclosures.

Firmansa, Zakaria and Nindito (2018) examined audit committee meetings and IC disclosure of 107 listed companies on Indonesian Stock Exchange. The calculation of IC disclosure was carried out using the content analysis method. 1 (one) was assigned if the company discloses the attributes in the IC disclosure assessment scheme, and 0 (zero) if otherwise. The frequency of audit committee meetings was measured by the number of audit committee meetings during the observation year. The result showed that audit committee meeting frequency significantly and positively affects IC disclosure.

Dermawan and Nurastuti (2021) examined the effect of audit committee characteristics on IC disclosure of 95 quoted companies in Indonesia stock exchange. A checklist of 36 IC items was used to measure IC disclosure, the number of meetings audit committee holds in a year was used to measure audit committee meeting. Finding revealed a positive and insignificant effect of audit committee meeting on IC disclosure.

H<sub>04</sub>: Audit committee meeting has no significant effect on intellectual capital disclosure of listed consumer and industrial goods companies in Nigeria

### **Audit Committee Financial Expertise and Intellectual Capital Disclosure**

Widijaya and Angelica (2021) evaluate the impact of corporate governance on IC disclosure in companies listed on the Indonesia Stock Exchange from the 2016-2020. Audit committee financial expertise was represented by the percentage of specialist and financially knowledgeable members in the audit committee. The panel data regression result showed that audit committee financial expertise has a positive but insignificant effect on IC disclosure.

Puwanenthiren (2019) studied the relationship between audit committee characteristics and IC disclosure of 100 listed firm drawn from the Colombo stock exchange from 2016 to 2017. The study employed content analysis to ascertain disclosure, while audit committee financial expertise, a dummy variable 1 if one or more audit committee members have financial expertise, otherwise 0. The result from the regression analysis disclosed that there is a significant and positive relationship between audit committee characteristics and IC disclosure. Gan, Saleh, Abessi and Huang (2013) studied the relationship between audit committee financial expertise and IC disclosure of top 100 Malaysian companies based on their market capitalization from 2006 to 2008. Audit committee financial expertise was measured using the number of financial expert in the audit committee, while the level of IC disclosure was measured using a disclosure index via a content analysis. It was found from the multiple regression result that audit committee financial expertise has a positive and significant relationship with IC disclosure.

Lari, Salehi, Mirzaei and Nazaridavaji (2020) evaluate the impact of corporate governance on IC disclosure of 132 listed companies on the Tehran stock exchange during 2013 to 2016. The study measured IC disclosure from three different perspective: communicative, human, structural and value-added IC. The research hypotheses were analyzed using panel data and logistic regression models. Finding revealed that audit committee financial expertise has a negative and insignificant impact on IC disclosure.

H<sub>05</sub>: Audit committee financial expertise has no significant effect on intellectual capital disclosure of listed consumer and industrial goods companies in Nigeria

### **Theoretical framework**

#### **Signaling Theory**

Signaling theory is useful for describing behavior when two parties (individuals or organizations) have access to different information (Brian, Trevis, Duane & Christopher, 2011). Managers and directors generally have better information about the company's condition and future prospects than outsiders such as investors, creditors, the government and even the shareholders resulting to information asymmetry. In other words, asymmetry of information has the assumption that the management and investors of a company do not have the same access to information about a company. Signaling theory is fundamentally concerned with reducing information asymmetry between managers and shareholders. Spence (1973) was the pioneer of signaling theory, the labour market was used to model the signaling function of education. Other authors have built upon this theory by demonstrating how firm debt and dividend signals firm quality (Brian, Trevis, Duane & Christopher, 2011).

Signaling theory is based on two assumptions (Ibikunle, Oba & Nwifo, 2013; Susanto, Pradipta & Handoyo, 2019). Firstly, managers are better informed than shareholders or the public concerning the firm's position, secondly, since managers have the information advantage, they may choose to disclose information in an attempt to send signals to the public regarding the firm's position. The authors further explained that firm with good performance will want to disclose more IC information to their stakeholders as against their counterpart with bad performance. Similarly, Ousama, Fatima and Majdi (2012) assert that companies with good value will always disclose more information as a way to signal to the shareholders management effort in harnessing intangible assets.

The significance of signaling theory to IC disclosure in this study is that first, it reduces information asymmetry, shareholders and outsiders are better informed if companies disclose IC information, consequently, there is bridge of information gap between managers and shareholders. Secondly, IC disclosure will enhance investors decision making.

**Research Methodology**

This study adopts ex post facto research design. The population of the study comprised of 34 (21 consumer goods and 13 industrial goods) companies as at 31<sup>st</sup> December 2022 listed on the Nigerian Exchange Group (NGX) of which thirty (30) firms were taken as the sample size using purposive sampling technique. The two major criteria used for selecting the 30 firms were first, each of the firm must have a constant accounting year end within the ten years period of this study and secondly, each firm should not have more than six months of trading halt. Secondary data from each of the firm’s financial statement was used from 2013 to 2022. The technique for data analysis was multiple regression.

The model below represents the regression equation used in this study

$$ICD_{it} = F (FIRS_{it}, LEVE_{it}, ACSI_{it}, ACME_{it}, ACFE_{it}, \mu_{it})..... (1)$$

The above model can also be written as

$$ICD_{it} = \beta_0 + \beta_1FIRS_{it} + \beta_2LEVE_{it} + \beta_3ACSI_{it} + \beta_4ACME_{it} + \beta_5ACFE_{it} + \mu_{it}.....(2)$$

Where

- ICD = Intellectual Capital Disclosure
- FIRS = Firm Size
- LEVE = Leverage
- ACSI = Audit Committee Size
- ACME = Audit Committee Meeting
- ACFE = Audit Committee Financial Expertise
- $\beta$  = coefficient of the parameter
- it = Time coefficient
- $\mu$  = error term

**Table 1: Dependent and independent variables with the measurement parameters**

Variable	Variable Type	Measurement Parameters	Sources
ICD	Dependent	Disclosure index from content analysis, 1 if an item is being disclosed and 0 if otherwise.	Mujiani, Wilestari and Putri (2020), Oziegbe and Ofe (2020), Firmansa, Zakaria and Nindito (2018), Ousama, Fatima and Majdi (2012)
FIRS	Independent	Log of total asset	Dey and Faruq (2019), Susanto, Pradipta and Handojo (2019), Nuzula, Rahayu and Wulandari (2020), Sugandi and Handojo (2018),
LEVE	Independent	Debt to total asset	Nicolo, Ferullo, Aversano and Ardito (2022), Rahayu, Nuzula and Wulandari (2022), Rahman and Musman (2013)
ACSI	Independent	Total number of audit committee members	Naimah and Mukti (2019), Li, Mangena and Pike (2012), Oziegbe and Ofe (2020)
ACME	Independent	Total number of audit committee meetings in a year	Dermawan and Nurastuti (2021), Firmansa, Zakaria and Nindito (2018), Kavida and Harun, Murshid (2019)
ACFE	Independent	1 if one or more audit committee members have financial expertise, otherwise 0.	Puwanenthiren (2019), Gan, Saleh, Abessi and Huang (2013)

Source: Author’s Compilation (2022)

**Table 2: Intellectual Capital Disclosure Index**

Structural Capital	Relational Capital	Human Capital
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Intellectual property (Copyrights, Trademarks, Patents, Licenses, Trade secrets etc)	Customers	Education
Knowledge-based infrastructure	Brands	Entrepreneurial spirit
Management philosophy	Customer loyalty	Employee knowledge
Networking system	Licensing Agreements	Employee productivity
Innovation	Company reputation	Work-related Competencies
Research and Development	Customer retention	Number of employees
Technology	Research collaboration	Employee training
Corporate culture	Franchising Agreements	Employee teamwork
Management processes	Customer relation	Vocational Qualification
Quality management	distribution channels	Employee skill
Financial dealings	Market Share	Employee development
Information systems	Customer Satisfaction	Employee capabilities
Organizational learning	Company awards	Employee skill
	Relationship with suppliers	Employee attitudes/behaviour
	Knowledge Sharing	Employee relationship
	Favourable contracts	Employee commitments

Source: (Masturah, Wani, Ismah & Balkis, 2020; Susanto, Pradipta & Handojo, 2019; Rahman & Musman, 2013; Oziegbe & Ofe, 2020; Puwanenthiren, 2019; Baldini & Liberatore, 2016)

### Diagnostic Tests

This study conducted diagnostic test, the test include descriptive statistics test, hausman test for fixed effect and random effect, correlation matrix test, variance inflation factor and heteroskedasticity test.

**Table 3: Descriptive Statistics**

	ICD	FIRS	LEVE	ACSI	ACME	ACFE
Mean	0.005783	2.914757	0.737708	0.821709	3.620000	1.169687
Median	0.005954	3.000000	0.732644	0.602060	4.000000	1.176091
Maximum	0.007003	3.176091	0.839345	1.301030	4.000000	1.397940
Minimum	0.004019	2.000000	0.611664	0.301030	3.000000	1.000000
Std. Dev.	0.000859	0.295172	0.059337	0.340321	0.486197	0.104699
Skewness	-0.750157	-1.639993	0.196598	0.055472	-0.494451	-0.012224
Kurtosis	2.398841	4.818370	1.815023	1.231241	1.244482	2.493789
Jarque-Bera	32.65414	175.8098	19.48468	39.26020	50.74714	3.210591
Probability	0.000000	0.000000	0.000059	0.000000	0.000000	0.200830
Sum	1.734943	874.4270	221.3125	246.5127	1086.000	350.9061
Sum Sq. Dev.	0.000221	26.05086	1.052739	34.62962	70.68000	3.277614
Observations	300	300	300	300	300	300

Source: Eviews 10 output

The table above shows the descriptive statistics.

**Table 4: Correlation Matrix**

	ICD	FIRS	LEVE	ACSI	ACME	ACFE
ICD	1.000000					
FIRS	0.518013	1.000000				
LEVE	-0.048724	0.267595	1.000000			
ACSI	0.242998	0.528595	0.346942	1.000000		
ACME	0.008554	0.148620	0.158096	0.043446	1.000000	
ACFE	0.001426	0.265644	0.230875	0.055395	0.122902	1.000000



Source: Eviews 10 output  
The correlation matrix did not show any high relationship.

**Table 5: Variance Inflation Factors**

Sample: 1 300			
Included observations: 300			
	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
FIRS	0.000326	163.6718	1.655975
LEVE	0.000627	200.6895	1.285770
ACSI	0.000227	10.48605	1.530950
ACME	0.000770	60.09428	1.061335
ACFE	0.000197	158.9987	1.259611
C	0.000721	421.5152	NA

Source: Eviews 10 output  
Multicollinearity test is to check whether there is effect between the independent proxies which can mislead the result of the study. The result substantiates the absence of multicollinearity between the independent proxies with the use of Variance Inflation Factors (VIF). Since the centered VIF is less than 10, what this means is that there is no multicollinearity in the exogenous proxies.

**Table 6: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	25.02149	Prob. F(5,294)	0.1252
Obs*R-squared	89.55277	Prob. Chi-Square(5)	0.1395
Scaled explained SS	89.54278	Prob. Chi-Square(5)	0.1768

Source: Eviews 10 output  
Table 6 above represents the heteroskedasticity test, this test is conducted to check whether the variability of error is constant or not. One of the assumptions of linear regression is that there must be constant variance. The Breusch-Pagan-Godfrey test was employed to check whether this assumption was violated or not. The result revealed that the probability of chi-square 0.1395 (13.95%) which is insignificant at 5% indicate the absence of heteroskedasticity as the probability of the chi square is more than 5%. This implies that the variability of error will not affect the results.

**Table 7: Hausman Test**

Correlated Random Effects - Hausman Test			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	25.664422	5	0.0001

Source: Eviews 10 output  
Hausman test assist to choose between fixed effect and cross section random effect from the ordinary least square regression. If the probability is below 5%, use fixed effect, otherwise use the cross section random effect. The result suggests that the fixed effect regression model is most appropriate for the sampled data because the Hausman test Prob. value is less than 5%.

**Table 8: Panel Least Squares**

Dependent Variable: ICD				
Method: Panel Least Squares				
Sample: 2013 2022				
Periods included: 10				
Cross-sections included: 30				
Total panel (balanced) observations: 300				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FIRS	0.000841	0.000665	12.64654	0.0000
LEVE	0.001741	0.000585	2.976906	0.0032
ACSI	0.000581	0.000603	0.962615	0.3366
ACME	0.000498	0.000222	2.239216	0.0260
ACFE	0.000523	0.000126	4.149798	0.0000
C	0.001208	0.000401	3.013131	0.0028
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.966978	Mean dependent var		0.005783
Adjusted R-squared	0.962741	S.D. dependent var		0.000859
S.E. of regression	0.000166	Akaike info criterion		-14.46253
Sum squared resid	0.000728	Schwarz criterion		-14.03042
Log likelihood	2204.379	Hannan-Quinn criter.		-14.28960
F-statistic	228.2317	Durbin-Watson stat		0.888961
Prob(F-statistic)	0.000000			

Source: Eviews 10 output

The adjusted R-square of 0.96 indicates that 96% variation in IC disclosure is explained by the variables captured in the study, while only 4% is explained by other variables not included in the model. The F-statistic examines the overall significance of the regression model including all the variables. Therefore, by examining the overall fit and significance of the model, it could be observed that the model has a better fit since the probability (F-statistic) value of 0.00 is less than 0.05.

The panel regression result for the sampled consumer and industrial goods companies as presented in table 8 above showed that there is a significant positive effect of firm size on IC disclosure as explained by the prob. value of 0.00 and a coefficient of 0.00. The t-Statistic is 12.65. Based on the empirical evidence in respect of firm size, the null hypothesis of the study which states that firm size has no significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is rejected and the alternative hypothesis that states that firm size has significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is accepted. The result implies that as company's total asset increase, there will be increase on the disclosure of IC. This finding is consistent with the study of Sugandi and Handojo (2018), Ousama, Fatima and Majdi (2012), Susanto, Pradipta and Handojo (2019) who documented evidence of significant positive effect of firm size on IC disclosure. The result, however, contradicts the findings of Dey and Faruq (2019) who documented an insignificant negative impact of firm size on IC disclosure.

The next result from table 8 revealed a prob. value of 0.00, t-Statistic of 2.98 and a coefficient of 0.00 for leverage. At 5% significant, the result revealed that leverage has a significant positive effect on IC disclosure. The null hypothesis of the study which states that leverage has no significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is rejected and the alternative hypothesis that states that leverage has significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is accepted. The result indicates that an increase on a company's debt to total asset, will lead to higher disclosure of IC. The result is consistent with the study of Rahman and Musman (2013), Mujiani, Wilestari and Putri (2020) who documented that leverage has a significant positive effect on IC disclosure. The result,

however, is inconsistent with the findings of Nicolo, Ferullo, Aversano and Ardito (2022), Rahayu, Nuzula and Wulandari (2022) who documented an insignificant negative effect of leverage on IC disclosure.

The result from table 8 showed a positive effect of audit committee size on IC disclosure that is insignificant at 5% based on the coefficient of 0.00 and prob. value of 0.34. The t-Statistic is 0.96. What this means is that the size of audit committee will not influence a company to disclose IC. The null hypothesis of the study which states that audit committee size has no significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is accepted and the alternative hypothesis rejected. This finding is consistent with the findings of Naimah and Mukti (2019), Oziegbe and Ofe (2020). The result, however, is inconsistent with those of Hizriyani, Zulfikar and Yulianto (2022), Li, Mangena and Pike (2012) who documented that the size of audit committee has a significant positive effect on IC disclosure.

Table 8 disclosed a positive effect of audit committee meeting on IC disclosure that is significant at 5% based on the coefficient 0.00 and prob. value of 0.03. The t-Statistic is 2.24. This implies that the higher an audit committee meets in accordance with the number of meetings in a year, the higher the disclosure of IC. The null hypothesis of the study which states that audit committee meeting has no significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is rejected and the alternative hypothesis accepted. This result is consistent with the findings of Firmansa, Zakaria and Nindito (2018), Kavida and Harun, Murshid (2019), Abdulkarim and Juhmani (2020) who documented that there is a significant positive association between audit committee meetings and IC disclosures. The result, however, contradicts the findings of Dermawan and Nurastuti (2021) who documented an insignificant positive effect of audit committee meeting on IC disclosure.

Finally, table 8 showed that there is a significant positive effect of audit committee financial expertise on IC disclosure as explained by the prob. value of 0.00 and a coefficient of 0.00. The t-Statistic is 4.15. Based on the empirical evidence in respect of audit committee financial expertise, the null hypothesis of the study which states that audit committee financial expertise has no significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is rejected and the alternative hypothesis that states that audit committee financial expertise has significant effect on IC disclosure of listed consumer and industrial goods companies in Nigeria is accepted. The result implies that the presence of a financial expertise in an audit committee would influence the disclosure of IC. This finding is consistent with the study of Gan, Saleh, Abessi and Huang (2013), Puwanenthiren (2019) who documented that there is significant and positive relationship between audit committee financial expertise and IC disclosure. The result, however, is inconsistent with the findings of Lari, Salehi, Mirzaei and Nazarijavaji (2020) who documented that audit committee financial expertise has an insignificant negative impact on IC disclosure.

### **Conclusion and Recommendations**

Based on the findings discussed above the study concludes that:

Firm size has a significant positive effect on IC disclosure of listed consumer and industrial goods companies in Nigeria. This indicates that the higher a company's total asset, the higher the disclosure of IC.

Leverage has a significant positive effect on IC disclosure of listed consumer and industrial goods companies in Nigeria. This depicts that an increase in a company's debt to total asset ratio will necessitate a higher IC disclosure.

Audit committee size has an insignificant positive effect on IC disclosure of listed consumer and industrial goods companies in Nigeria. This implies that the size of audit committee will not influence a company to disclose IC.

Audit committee meeting has a significant positive effect on IC disclosure of listed consumer and industrial goods companies in Nigeria. This signifies that an increase in the number of meetings of an audit committee would increase the disclosure of IC.

Audit committee financial expertise has a significant positive effect on IC disclosure of listed consumer and industrial goods companies in Nigeria. This depicts that the presence of a financial expertise in an audit committee would influence the disclosure of IC.

Based on the conclusion of this study, the following recommendations were made:

Companies with huge total asset should ensure that IC is been disclosed annually. This is because the bigger a company is in terms of firm size, the higher the demand for the disclosure of IC. Since there is no generally accepted disclosure requirement for IC, this study hereby recommend that the minimum IC disclosure a company would disclose should be based on IC disclosure index as captured in table 2. Investors and shareholders will need more information on a company as soon as the company's leverage increases, hence, companies are expected to disclose more information voluntarily so as to mitigate against high risk and agency cost.

Users of financial statement should judge audit committee size on the basis of the capacity of the audit committee to oversee the activities of the company, as it relates to corporate reporting, auditing and compliance to rules and regulations. This is because audit committee size does not increase the disclosure of IC rather, it the quality of the composition of the audit committee that enhance disclosure of IC. Audit committee should ensure they meet quarterly as prescribe by Companies and Allied Matters Act (CAMA) as amended 2020 and other laws regulating companies in Nigeria as this will promote the disclosure of IC. Finally, audit committee should be dominated by members who are knowledgeable in accounting and finance, as this will promote the disclosure of IC.

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