# BOARD REMUNERATION GOVERNANCE AND INTELLECTUAL CAPITAL DISCLOSURE QUALITY: EVIDENCE FROM LISTED NON-FINANCIAL FIRMS IN NIGERIA

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**Abstract**
This study investigates whether the attributes of the board remuneration committee are associated with the extent of intellectual capital disclosure (ICD) by listed non-financial firms in Nigeria. Three attributes are examined: the experience of the committee chairperson, the financial or human-resource expertise of the chairperson, and the proportion of independent non-executive directors on the committee. Agency theory supplies the monitoring argument for all three hypotheses, resource dependence theory explains why the chairperson's experience and expertise should matter, and stakeholder theory explains why an independent committee would favour disclosure aimed at employees and other non-shareholder groups. ICD was scored by content analysis of annual reports against a 102-point checklist covering human, structural and relational capital. The sample is an unbalanced panel of 94 firms and 939 firm-years between 2012 and 2025, each firm contributing ten consecutive annual reports. After screening the data for coding errors and extreme values, fixed-effects regressions with firm-clustered standard errors show that committee independence is positively and significantly associated with ICDa one-standard-deviation rise in independence corresponds to about 5.4 percentage points more disclosure, roughly 14 percent of the sample mean. Chairperson experience and chairperson expertise show no significant association. The independence result holds under random effects, year effects, Driscoll–Kraay standard errors and several alternative data treatments. The results suggest that the structural independence of the remuneration committee, more than the profile of its chairperson, is the attribute most closely linked to richer intellectual capital reporting in Nigeria.

**Keywords:** Chairperson experience, chairperson expertise, committee independence, intellectual capital disclosure, Nigeria, remuneration committee.
**JEL Classification:** G34, M41, M12

## 1.0 Introduction

Firm value increasingly rests on resources that do not appear on the balance sheet. Employee know-how, internal systems and processes, and relationships with customers and suppliers, collectively described as intellectual capital, often drive a firm's competitive position more than its physical assets (Hidalgo et al., 2011). Because accounting standards recognise few of these resources, investors depend on narrative disclosure in the annual report to judge them, and the amount of such disclosure is largely at management's discretion (Li et al., 2008). Where managers disclose little, outside investors face wider information asymmetry, higher estimation risk and a weaker basis for pricing the firm.

In Nigeria, intellectual capital disclosure (ICD) has been described as low and uneven across listed firms (Sanni & Haji, 2014; Oladejo, 2025). Research on why some Nigerian firms disclose more than others has concentrated on board size, board independence, audit committee characteristics and ownership (Sanni & Haji, 2014; Adefemi et al., 2018; Bennee, 2025). The board remuneration committee has received far less attention, even though the Nigerian Code of Corporate Governance

issued by the Financial Reporting Council of Nigeria (FRCN, 2018; hereafter NCCG, 2018) requires listed companies to maintain one and to staff it with non-executive directors.

There are concrete reasons to expect the remuneration committee to influence ICD, and these go beyond its general oversight role. First, the committee designs executive incentive contracts, and the horizon and performance measures in those contracts shape whether managers are rewarded for building and reporting long-term intangible investment or for short-term accounting results. Second, the committee oversees remuneration and related human-resource policy for directors and senior management, and it is responsible for the remuneration report in the annual report. Information on staff competencies, training, succession and reward systems forms a large part of the human capital component of ICD, so the committee directly controls part of the disclosure that ICD indices measure. Third, an effective committee limits the extent to which executives can shape their own pay, and therefore reduces their incentive to withhold information that would invite scrutiny of that pay (Laksmana, 2008; Kanapathippillai et al., 2016). These three channels, incentive design, human-capital reporting and constraint on managerial opacity, are developed in Section 2.2.

This study differs from the existing literature in three specific ways. First, international research that links the remuneration committee to disclosure has examined disclosure *about remuneration* itself, such as the narrative explaining executive pay decisions (Laksmana, 2008; Kanapathippillai et al., 2016, 2019). Whether the committee is associated with wider voluntary reporting on intangible resources has not been tested. Second, Nigerian ICD studies have examined board-level attributes or the audit committee, and the one Nigerian study that considers compensation (Bennee, 2025) examines executive pay levels in financial firms, not the structure of the remuneration committee in non-financial firms. Third, work on the personal attributes of committee chairpersons has focused on the audit committee (Azizkhani et al., 2023) and, to a lesser extent, the nomination committee (Chaudhry et al., 2020). No study known to the authors has separated the remuneration committee chairperson's experience and expertise from the committee's overall independence and related them to ICD. Distinguishing these attributes matters for policy: the NCCG (2018) regulates committee composition directly, while the qualifications of the chairperson are left largely to boards.

The study therefore asks whether remuneration committee chairperson experience, chairperson expertise and committee independence are associated with the extent of ICD among listed non-financial firms in Nigeria. Using 939 firm-year observations for 94 firms over 2012–2025, it finds that committee independence is consistently and positively associated with ICD, while the chairperson attributes are not. The remainder of the paper is organised as follows. Section 2 reviews the concepts, the mechanism, the theory and the empirical evidence and develops the hypotheses. Section 3 describes the sample, the measurement of variables, data screening and the estimation strategy. Section 4 presents and discusses the results and the robustness tests, and Section 5 concludes with recommendations and limitations.

## 2.0 Literature Review

Intellectual capital is the stock of knowledge-based resources an organisation uses to create value. It is conventionally divided into human capital (the knowledge, skills and experience of employees), structural capital (systems, processes, intellectual property and culture that remain when employees leave) and relational capital (relationships with customers, suppliers, regulators and the community) (Hidalgo et al., 2011). ICD refers to the reporting of information on these

three components, mostly in narrative form, in annual reports and other corporate communications (Li et al., 2008; Haji & Ghazali, 2013).

Prior studies measure ICD by content analysis of annual reports against a predefined checklist. Each item is coded as present or absent, or scored on an ordinal scale reflecting the depth of disclosure, and the total is divided by the maximum attainable score to yield an index between 0 and 1 (Li et al., 2008). Because Nigerian reporting rules do not require ICD, its extent depends on management's choices and on the governance mechanisms that monitor and reward managers (Hidalgo et al., 2011; Sanni & Haji, 2014).

**How the Remuneration Committee Can Affect Intellectual Capital Disclosure**

The remuneration committee's formal mandate is narrower than that of the audit committee: it recommends remuneration policy and individual pay for directors and senior executives. Its influence on ICD therefore needs to be explained, and this study proposes three channels.

**Incentive design:** The committee sets the mix, horizon and performance conditions of executive pay. Contracts weighted toward short-term earnings reward managers for cutting discretionary spending on training, research and customer development, which are investments in intellectual capital, and give little reason to explain such investments to investors. Contracts with longer horizons and non-financial performance conditions make intangible investment, and its disclosure, part of how executives are evaluated. A committee able to design such contracts is therefore expected to be associated with more ICD.

**Ownership of human-capital reporting:** The committee oversees, and in practice drafts or approves, the remuneration report and related disclosures on reward policy, performance evaluation, succession and staff development. Many items in ICD checklists, especially in the human capital category, relate to these topics. Part of what an ICD index measures is therefore produced under the committee's direct supervision.

**Constraint on managerial opacity:** Executives who influence their own pay benefit from limited transparency, because detailed disclosure of the firm's human and organisational resources makes it easier for outsiders to judge whether pay matches value created. Evidence that stronger compensation committees are associated with fuller voluntary disclosure of compensation practices (Laksmana, 2008; Kanapathippillai et al., 2016) is consistent with this channel. An effective committee reduces the scope for such opacity and supports a disclosure culture that extends beyond pay.

Whether the committee uses these channels depends on its attributes. Independence determines whether it is free of executive influence; the chairperson's experience and expertise determine whether it understands the firm well enough, and is technically equipped, to design incentives and to judge the quality of disclosure.

**Theoretical Framework**

Three theories are used, each with a distinct role. Table 1 summarises which theory underpins each hypothesis and what it adds beyond agency theory.

**Agency Theory**

Agency theory (Jensen & Meckling, 1976; Fama & Jensen, 1983) treats the separation of ownership and control as a source of information asymmetry and conflicting interests. Managers

may withhold information on intellectual capital when disclosure would reveal weaknesses or expose their pay to scrutiny. Board committees reduce agency costs by monitoring managers. Agency theory is the base argument for all three hypotheses, because each attribute is expected to improve the committee's ability to monitor managerial disclosure choices. On its own, however, it predicts only *whether* the committee monitors, and treats directors as interchangeable monitors whose effectiveness depends mainly on their independence.

**Resource Dependence Theory**

Resource dependence theory (Pfeffer & Salancik, 1978) views directors as providers of resources such as knowledge, advice, legitimacy and links to the external environment. Hillman and Dalziel (2003) argue that a director's 'board capital', meaning their human capital (experience and expertise) and social capital, shapes both the monitoring and the resource-provision functions of the board. This adds something agency theory does not explain: why the *personal capabilities* of a particular director, rather than their independence, should matter. An experienced chairperson knows the firm's intangible assets; an expert chairperson can design incentive contracts that reward intangible investment and can judge what disclosure investors will value. Resource dependence theory is therefore the principal basis for H1 and H2.

**Stakeholder Theory**

Stakeholder theory (Freeman, 1984) holds that firms are accountable to groups beyond shareholders, including employees, customers, regulators and communities. Much of ICD, particularly human and relational capital information, is aimed at these groups rather than at investors. Agency theory, which focuses on shareholders, does not explain why a committee would favour disclosure aimed at employees or communities. Stakeholder theory does: directors who are independent of management are less tied to managerial interests and more exposed to the reputational consequences of failing wider stakeholder groups. Stakeholder theory is therefore used, alongside agency theory, to support H3.

**Table 1:**
***Theoretical Basis of the Hypotheses***

| Hypothesis | Primary theory | Supporting theory | Additional explanatory contribution |
|---|---|---|---|
| H01: Chairperson experience | Resource dependence | Agency | Firm-specific knowledge of intangible resources and authority to press for disclosure; agency theory alone does not explain why individual capabilities matter |
| H02: Chairperson expertise | Resource dependence | Agency | Technical capacity to design incentives that reward intangible investment and to evaluate disclosure quality |
| H03: Committee independence | Agency | Stakeholder | Agency explains monitoring of managers; stakeholder theory explains why independent members support disclosure aimed at employees and other non-shareholders |

**Source**: Authors' Compilation, 2026.

## Hypotheses Development

### Remuneration Committee Chairperson Experience

Chairperson experience is the knowledge accumulated through service, which the literature measures in several ways: years on the board, years on the committee, the number of directorships held or prior industry service (Vafeas, 2003; Kanapathippillai et al., 2016). This study focuses on *firm-specific* experience, measured as service on the firm's board of more than three years (Section 3.3), because the incentive-design and reporting channels in Section 2.2 depend on knowledge of the particular firm's intangible resources, which is gained only through service in that firm. A chairperson with this knowledge can identify which human, structural and relational resources matter, link pay to their development and press management to report them (Hillman & Dalziel, 2003). Longer service also gives the chairperson the authority to challenge executives (Vafeas, 2003). Against this, long-serving directors may become aligned with management and accept prevailing disclosure practice. On balance, the resource-provision and monitoring arguments lead to the expectation of a positive association, tested in null form:

> **$H_{01}$:** Remuneration committee chairperson experience has no significant effect on the intellectual capital disclosure of listed non-financial firms in Nigeria.

### Remuneration Committee Chairperson Expertise

Chairperson expertise refers to specialised competence relevant to the committee's work. Two forms are relevant to the remuneration committee. Financial expertise (an accounting or finance qualification, or senior finance experience) helps the chairperson to understand how pay is linked to accounting measures and how disclosure affects valuation (DeFond et al., 2005). Human-resource expertise (a qualification or senior experience in personnel or reward management) helps the chairperson to judge the firm's human capital and the policies that develop it, which are central to the human capital component of ICD. Direct evidence on remuneration committee chairs is limited; the closest evidence comes from audit committees, where chairs with financial expertise are associated with better and more timely disclosure (Schmidt & Wilkins, 2013; Azizkhani et al., 2023), and from Nigerian risk committees, where member expertise is associated with better risk disclosure (Wada et al., 2023). This evidence is indirect, because audit and risk committees have reporting mandates the remuneration committee lacks. Drawing on resource dependence theory, the study nevertheless expects an expert chairperson to be associated with more ICD:

> **$H_{02}$:** Remuneration committee chairperson expertise has no significant effect on the intellectual capital disclosure of listed non-financial firms in Nigeria.

### Remuneration Committee Independence

Committee independence is the proportion of independent non-executive directors among committee members. The NCCG (2018) excludes executive directors from the committee because executives should not determine their own pay. Independent directors depend less on management for their position and have reputational incentives to monitor rigorously (Fama & Jensen, 1983). Under agency theory, an independent committee is more likely to resist pay structures that reward opacity and to support fuller disclosure. Under stakeholder theory, independent members are more responsive to employees and other groups for whom human and relational capital information is relevant. Direct evidence links compensation committee independence and quality to fuller voluntary disclosure of compensation practices (Laksmana, 2008; Kanapathippillai et al., 2016, 2019), and board independence is associated with more ICD in Nigerian banks (Sanni & Haji,

2014) and in other markets (Hidalgo et al., 2011; Haji & Ghazali, 2013). A positive association is therefore expected:

> **$H_{03}$:** Remuneration committee independence has no significant effect on the intellectual capital disclosure of listed non-financial firms in Nigeria.

**Empirical Review**

The empirical literature relevant to this study falls into three groups that differ in how directly they bear on the hypotheses. The review distinguishes them to avoid treating indirect evidence as direct support.

**Direct Evidence: Remuneration Committees and Voluntary Disclosure**

Laksmana (2008) built a 23-item index of compensation disclosure for US firms and found that firms whose compensation committees met less often and had fewer members disclosed less about executive pay, and that fuller disclosure was associated with lower information asymmetry. Kanapathippillai et al. (2016) studied Australian listed firms and reported that both the existence and the effectiveness of the remuneration committee, measured by a composite of size, independence, chair independence, expertise and diligence, were associated with more narrative remuneration disclosure. Using 644 firm-year observations from the ASX 200, Kanapathippillai et al. (2019) found that firms with higher-quality remuneration committees were more likely to explain remuneration decisions by attributing them to performance factors. These studies provide direct evidence that remuneration committee attributes affect voluntary disclosure, but only disclosure about pay itself. None examines intellectual capital.

**Governance and Intellectual Capital Disclosure**

Li et al. (2008) analysed 100 UK firms and found that board composition, ownership structure and audit committee size and meeting frequency were associated with an ICD index, while CEO duality was not. Hidalgo et al. (2011) reported that board independence and ownership concentration were associated with ICD among Mexican listed firms. Haji and Ghazali (2013) found that ICD among Malaysian firms rose following governance code revisions and was related to board and audit committee attributes. In Nigeria, Sanni and Haji (2014) analysed 80 annual reports of banks over four years and found that board size, board independence and ownership structure were related to ICD. Oladejo (2025) reported that board capability interacted with intellectual capital in explaining forward-looking disclosure among Nigerian manufacturing firms, and Bennee (2025) found that executive compensation and audit committee independence were associated with intellectual capital among Nigerian financial firms. This group links governance to ICD but treats the board or the audit committee, not the remuneration committee, as the governance mechanism; the Nigerian evidence is also limited to banks, financial firms or one sector.

**Indirect Evidence: Chairperson and Member Attributes in Other Committees**

Azizkhani et al. (2023) found that audit committee chairs with financial expertise were associated with higher audit quality, and Schmidt and Wilkins (2013) found that audit committee expertise was associated with more timely disclosure of restatements. Chaudhry et al. (2020) reported that the expertise of audit and nomination committee chairs was associated with firm performance. In Nigeria, Wada et al. (2023) found that risk committee expertise was positively associated with risk disclosure quality among insurance firms. Studies of executive pay, such as Ntim et al. (2019) and Harymawan et al. (2020), examine the remuneration committee's effect on pay levels and

performance rather than on disclosure. This group motivates the chairperson-attribute hypotheses but does not test them, which is the gap the present study addresses.

## 3.0 Methodology

The study uses an ex-post facto longitudinal design based on secondary data from audited annual reports, because the variables are historical attributes that the researchers cannot manipulate. The population is the non-financial firms listed on the Nigerian Exchange Group. Financial firms (banks, insurers and other financial services firms) were excluded from the outset because they report under sector-specific regulation and disclosure requirements that would make their ICD not comparable with non-financial firms.

Firms were drawn from ten non-financial sectors. Of the 130 non-financial firms in the initial sampling frame, 36 were excluded because ten consecutive years of annual reports could not be obtained, because the firm was delisted or suspended during the period, or because the composition of the remuneration committee was not disclosed. The final sample comprises 94 firms. Each firm contributes ten consecutive annual reports: for 66 firms the window is 2012–2021 and for 28 firms (mainly in agriculture, conglomerates, construction/real estate and consumer goods) it is 2016–2025. For these 28 firms, annual reports for 2012–2015 could not be obtained at the time of data collection, so their ten-year window was drawn from the most recent consecutive reports available. Every firm therefore has the same number of observations, but the calendar years covered differ, which is why the panel spans 2012–2025 and is classified as unbalanced by calendar year. Year fixed effects are included in a robustness test to control for this (Section 4.6). After one firm-year was removed during data screening (*ICD above its upper bound.* One firm-year (Tourist Company of Nigeria Plc, 2016) had an ICD of 1.114, equivalent to 113.7 points on a 102-point checklist, which is impossible for a bounded index. It was identified as a coding error and removed. The same firm's scores for 2012–2015 (0.91–0.98) are high but within bounds; a robustness test excludes the firm entirely), the estimation sample is 939 firm-years. Table 2 shows the composition of the sample, and Appendix A lists every firm with its sector and window.

**Table 2:**
***Sample Composition by Sector and Observation Window***

| Sector | Firms 2012–2021 | Firms 2016–2025 | Total firms | Firm-years |
|---|---|---|---|---|
| Agriculture | 0 | 5 | 5 | 50 |
| Conglomerates | 0 | 5 | 5 | 50 |
| Construction/Real Estate | 0 | 7 | 7 | 70 |
| Consumer Goods | 5 | 11 | 16 | 160 |
| Healthcare | 6 | 0 | 6 | 60 |
| ICT | 7 | 0 | 7 | 70 |
| Industrial Goods | 11 | 0 | 11 | 110 |
| Natural Resources | 4 | 0 | 4 | 40 |
| Oil and Gas | 13 | 0 | 13 | 130 |
| Services | 20 | 0 | 20 | 200 |
| Total | 66 | 28 | 94 | 940 |

Note: One firm-year (Tourist Company of Nigeria Plc, 2016) was removed during data screening, giving 939 firm-years for estimation.
**Source**: Authors' Compilation, 2026.

**Measurement of Intellectual Capital Disclosure**

ICD is measured by manual content analysis of the annual reports. Each report was read against a disclosure checklist with three categories: human capital, structural capital and relational capital. The checklist, with the items in each category, is given in Appendix B. The checklist contains 34 items, 12 on human capital, 11 on structural capital and 11 on relational capital, adapted from prior ICD studies (Li et al., 2008; Haji & Ghazali, 2013; Sanni & Haji, 2014). Each item was scored on a four-point scale reflecting the depth of disclosure: 0 = not disclosed; 1 = general qualitative statement; 2 = specific qualitative or descriptive disclosure; and 3 = quantitative or monetary disclosure. The maximum attainable score is therefore 102 points (34 items × 3). All items carry equal weight, and no category is weighted more heavily than another. The ICD index for firm *i* in year *t* is:

$$ICD_{it} = (\text{total disclosure score of firm } i \text{ in year } t) \div 102$$

The index therefore lies between 0 and 1 and represents the proportion of the maximum attainable disclosure score. To ensure coding reliability, a coding manual setting out the definition of each item and the decision rule for each score level was prepared before coding began, and the same decision rules were applied to every annual report. A random subsample of annual reports was then independently re-coded by the second author, and differences between the two sets of scores were discussed and resolved before the final scores were recorded (Krippendorff, 2018).

**Measurement of Explanatory and Control Variables**

**Table 3:**

***Definition and Measurement of Variables***

| Variable | Symbol | Measurement | Source |
|---|---|---|---|
| Intellectual capital disclosure | ICD | Total content-analysis score on the 102-point checklist (Appendix B) divided by 102; range 0–1 | Li et al. (2008); Sanni & Haji (2014) |
| Remuneration committee chairperson experience | RCCE | 1 if the chairperson had served on the firm's board for more than three years (one NCCG term) at the reporting date; 0 otherwise | Vafeas (2003); Chaudhry et al. (2020); NCCG (2018) |
| Remuneration committee chairperson expertise | RCCEXP | 1 if the chairperson has a professional qualification or senior experience in accounting/finance or human-resource management; 0 otherwise | DeFond et al. (2005); Chaudhry et al. (2020) |
| Remuneration committee independence | RCINDP | Number of independent non-executive directors on the committee divided by total committee members | Kanapathippillai et al. (2016) |
| Firm size | FSIZE | Logarithm of total assets | Li et al. (2008); Haji & Ghazali (2013) |
| Leverage | LEV | Total debt divided by book value of equity | Haji & Ghazali (2013) |
| Return on assets | ROA | Profit after tax divided by total assets | Haji & Ghazali (2013) |

**Source**: Authors' Compilation, 2026.

**Chairperson experience (RCCE):** The literature measures experience in several ways (Section 2.4). This study uses firm-specific board service because the mechanism it proposes depends on knowledge of the particular firm. RCCE equals 1 where the chairperson had served on the firm's board for more than three years at the reporting date, and 0 otherwise. The three-year threshold corresponds to one complete term of office under the NCCG (2018), which sets the tenure of

independent non-executive directors at a maximum of three terms of three years each. A chairperson above the threshold has therefore completed at least one full board term and been through at least one full cycle of performance evaluation, pay setting and annual reporting with the firm. The same definition is applied to every firm-year. Industry experience, directorships elsewhere and committee tenure are not captured, and this limitation is discussed in Section 5.

**Chairperson expertise (RCCEXP):** RCCEXP equals 1 where the chairperson holds a professional qualification or senior experience in accounting/finance *or* in human-resource management, and 0 otherwise. The two forms are combined because both bear directly on the committee's two core tasks, pay design (finance) and human-capital policy (human resources), and because the theoretical prediction is the same for both. The study recognises that financial and human-resource expertise are distinct competencies that may relate to ICD differently: human-resource expertise is more closely tied to the human capital component and financial expertise to valuation-relevant disclosure. Separating them was not possible with the data collected, because the source data record only whether either form was present. The combined variable is therefore a test of whether *relevant* expertise of any kind is associated with ICD. It shows no association in any specification (Sections 4.5–4.6), which suggests that neither form has a large effect, but the possibility that the two forms have opposite effects that cancel out cannot be ruled out. This is acknowledged as a limitation.

**Data Screening**

Before estimation the data were examined for coding errors and extreme values, since such observations can drive results in panels of accounting ratios. Four issues were identified and treated as follows:

i. *ICD above its upper bound.* One firm-year (Tourist Company of Nigeria Plc, 2016) had an ICD of 1.114, equivalent to 113.7 points on a 102-point checklist, which is impossible for a bounded index. It was identified as a coding error and removed. The same firm's scores for 2012–2015 (0.91–0.98) are high but within bounds; a robustness test excludes the firm entirely.

ii. *Extreme ROA.* Two firm-years, McNichols Plc in 2016 (ROA = 14.89) and Aluminium Extrusion Industries Plc in 2018 (ROA = 8.92), implied profit after tax of nine to fifteen times total assets. These values arise from denominator or data-entry problems rather than real profitability, and they produced the extreme kurtosis (400.96) reported in the earlier version of this paper. The next largest value is 1.00.

iii. *Negative and constant leverage values.* Four firm-years had leverage below −1 (Anino International Plc, 2020 and 2021; Capital Oil Plc, 2020; Red Star Express Plc, 2012). A negative debt-to-equity ratio arises only when book equity is negative, that is, when accumulated losses exceed share capital and reserves, and these firms were in that position in those years. In addition, 165 firm-years from 20 firms record leverage of exactly −1.000 or −0.100. These constant values do not correspond to a computed debt-to-equity ratio; they were entered where the ratio could not be computed because interest-bearing debt was not separately reported in the financial statements. The extreme positive value of 8.86 (SCOA Nigeria Plc, 2023) reflects a very small equity base.

iv. *Treatment.* ROA and LEV were winsorised at the 1st and 99th percentiles across the panel, which replaces the 20 most extreme values of each variable with the percentile values (ROA: −0.195 and 0.952; LEV: −1.000 and 1.208) while retaining all observations. Because winsorisation does not address the constant leverage values, a robustness test re-estimates

the model excluding all 165 firm-years with these values, and another drops the two extreme ROA observations instead of winsorising (Section 4.6).

**Model Specification and Estimation Strategy**

The following model is estimated:

$$ICD_{it} = \alpha_i + \beta_1 RCCE_{it} + \beta_2 RCCEXP_{it} + \beta_3 RCINDP_{it} + \beta_4 FSIZE_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \varepsilon_{it} \quad (1)$$

where $\alpha_i$ is the firm-specific effect and the other variables are defined in Table 3. Estimation proceeds in four steps. First, the F-test for firm effects and the Breusch-Pagan Lagrange multiplier test are used to decide between pooled OLS and a panel estimator. Second, the choice between fixed and random effects is based on the Hausman test and, because the conventional Hausman test is invalid when errors are heteroskedastic or serially correlated, on a cluster-robust Mundlak (1978) test, which adds the firm means of the regressors to the random-effects equation and tests whether their coefficients are jointly zero (Wooldridge, 2010). Third, the residuals are tested for groupwise heteroskedasticity (modified Wald test), first-order serial correlation (Wooldridge test) and cross-sectional dependence (Pesaran, 2004 CD test), and their distribution is examined with the Jarque–Bera test. Fourth, inference is based on standard errors clustered by firm, which remain valid in the presence of heteroskedasticity and serial correlation within firms (Petersen, 2009); Driscoll and Kraay (1998) standard errors, which are also robust to cross-sectional dependence, are reported as a check (Hoechle, 2007). Non-normality of the variables is not itself a problem for the estimator; what matters is the behaviour of the residuals, and with 94 firms the cluster-robust standard errors provide valid large-sample inference without assuming normal errors. The estimates in the earlier version were produced in E-Views 14. For this revision, the screened-sample estimates, the cluster-robust and Driscoll-Kraay standard errors and the diagnostic tests were computed in Python (NumPy/SciPy), after confirming that the code reproduces the E-Views random-effects estimates exactly on the original data.

## 4.0 Results and Discussion

### Descriptive Statistics

**Table 4:**

***Descriptive Statistics***

| Statistic | ICD | RCCE | RCCEXP | RCINDP | FSIZE | LEV | ROA |
|---|---|---|---|---|---|---|---|
| Mean | 0.3934 | 0.9095 | 0.5421 | 0.1594 | 9.8701 | 0.1662 | 0.1949 |
| Median | 0.3909 | 1.0000 | 1.0000 | 0.1218 | 9.9757 | 0.1907 | 0.1080 |
| Maximum | 0.9829 | 1.0000 | 1.0000 | 0.6200 | 12.6223 | 1.2077 | 0.9525 |
| Minimum | 0.1471 | 0.0000 | 0.0000 | 0.0000 | 3.6869 | −1.0000 | −0.1946 |
| Std. Dev. | 0.1468 | 0.2871 | 0.4985 | 0.1170 | 1.2552 | 0.5361 | 0.2443 |
| Skewness | 0.7271 | −2.8588 | −0.1691 | 1.1081 | −1.1950 | −0.9155 | 1.4535 |
| Kurtosis | 3.7171 | 9.1859 | 1.0244 | 3.9422 | 5.7262 | 3.6190 | 4.4086 |
| Jarque–Bera | 102.03 | 2753.11 | 156.53 | 225.45 | 509.12 | 145.29 | 405.69 |
| Probability | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Observations | 939 | 939 | 939 | 939 | 939 | 939 | 939 |

Note: LEV and ROA winsorised at the 1st and 99th percentiles. Before screening, ROA had a maximum of 14.886 and kurtosis of 400.96, and LEV had a maximum of 8.861 and kurtosis of 43.83.

**Source**: Authors' Compilation, 2026.

Table 4 describes the data. The mean ICD of 0.3934 indicates that the average firm-year achieved about 39 percent of the maximum attainable checklist score, roughly 40 of 102 points, with scores ranging from 0.147 to 0.983. All values now lie within the 0–1 range of the index. This level of disclosure is moderate to low and consistent with earlier Nigerian evidence (Sanni & Haji, 2014; Oladejo, 2025).

The mean RCCE of 0.9095 shows that in about 91 percent of firm-years the committee was chaired by someone with more than three years' service on the board, so most chairpersons met the experience threshold. The mean RCCEXP of 0.5421 shows that a chairperson with financial or human-resource expertise led the committee in 54 percent of firm-years. Committee independence is low: on average only 16 percent of committee members were independent non-executive directors (median 12 percent), and the most independent committee had 62 percent independent members. Although the NCCG (2018) excludes executives from the committee, its members are mostly non-independent non-executive directors.

ROA has a mean of 0.195 and a median of 0.108, and its kurtosis falls from 400.96 to 4.41. Leverage averages 0.166 and its kurtosis falls from 43.83 to 3.62. The Jarque-Bera tests reject normality for every variable. This is expected for binary variables and accounting ratios and does not by itself affect the validity of the regression estimates; the relevant question is the behaviour of the regression residuals, which is examined in Section 4.4.

**Correlation Analysis**
**Table 5:**
***Pearson Correlation Matrix***

| | **ICD** | **RCCE** | **RCCEXP** | **RCINDP** | **FSIZE** | **LEV** | **ROA** |
|---|---|---|---|---|---|---|---|
| ICD | 1.0000 | | | | | | |
| RCCE | −0.0125 | 1.0000 | | | | | |
| RCCEXP | −0.1041*** | 0.0006 | 1.0000 | | | | |
| RCINDP | 0.3859*** | −0.1136*** | −0.0868*** | 1.0000 | | | |
| FSIZE | 0.0352 | −0.0068 | 0.0587* | 0.1121*** | 1.0000 | | |
| LEV | −0.0550* | −0.0373 | 0.0360 | 0.0643** | 0.1901*** | 1.0000 | |
| ROA | −0.1495*** | −0.0268 | −0.0280 | 0.0395 | 0.1035*** | 0.1748*** | 1.0000 |

Note: *, and * denote significance at the 1%, 5% and 10% levels. N = 939.
**Source**: Authors' Compilation, 2026.

Table 5 reports bivariate correlations. Committee independence has a moderate positive correlation with ICD (r = 0.386). Chairperson expertise has a weak negative correlation (r = -0.104), chairperson experience is essentially uncorrelated with ICD (r = -0.013) and ROA has a weak negative correlation (r = -0.150).

These coefficients describe simple associations between pairs of variables across all firm-years. They do not control for other variables or for differences between firms that persist over time, so they should not be read as estimates of the hypothesised effects. The fixed-effects estimates in Section 4.5 measure how ICD changes *within* a firm when a governance attribute changes, holding the other regressors constant. The two can differ. For example, the negative bivariate correlations of RCCEXP and ROA with ICD largely disappear once firm effects are controlled for, which indicates that they reflect differences *between* firms (firms with expert chairpersons or higher

profitability happen to disclose less) rather than changes within firms. The highest correlation among regressors is 0.190, between firm size and leverage, so pairwise multicollinearity is not a concern.

**Multicollinearity Test**

**Table 6:**

***Variance Inflation Factors***

| Variable | RCCE | RCCEXP | RCINDP | FSIZE | LEV | ROA |
|---|---|---|---|---|---|---|
| Centred VIF | 1.015 | 1.015 | 1.037 | 1.058 | 1.068 | 1.039 |

**Source**: Authors' Compilation, 2026.

All variance inflation factors lie between 1.015 and 1.068, well below the conventional thresholds of 5 and 10, confirming that multicollinearity does not affect the estimates.

**Specification and Diagnostic Tests**

**Table 7:**

***Model Specification and Residual Diagnostic Tests***

| Test | Null hypothesis | Statistic | p-value | Decision |
|---|---|---|---|---|
| F-test for firm effects | No firm-specific effects (pooled OLS adequate) | $F(93, 839) = 21.05$ | 0.000 | Reject: panel estimator required |
| Breusch–Pagan LM | No random firm effects | $\chi^2(1) = 1667.08$ | 0.000 | Reject: pooled OLS inadequate |
| Hausman | Random effects consistent | $\chi^2(6) = 24.61$ | 0.000 | Reject: fixed effects preferred |
| Mundlak (cluster-robust) | Firm means of regressors jointly zero | $\chi^2(6) = 17.36$ | 0.008 | Reject: fixed effects preferred |
| Modified Wald | Homoskedastic errors across firms | $\chi^2(94) = 153{,}846.10$ | 0.000 | Reject: heteroskedasticity present |
| Wooldridge | No first-order serial correlation | $F(1, 93) = 34.36$ | 0.000 | Reject: serial correlation present |
| Pesaran CD | No cross-sectional dependence | $CD = 0.02$ | 0.984 | Do not reject |
| Jarque–Bera (FE residuals) | Residuals normally distributed | $JB = 22.80$ | 0.000 | Reject: mild non-normality |

Note: Tests are based on the screened sample (N = 939; 94 firms).

**Source**: Authors' Compilation, 2026.

Table 7 reports the specification and diagnostic tests. The F-test and the Breusch–Pagan test both reject pooled OLS, so firm-specific effects must be modelled. In the earlier version of this paper, which used the unscreened data, the Hausman test did not reject random effects ($\chi^2 = 6.08$, $p = 0.415$). On the screened data, the Hausman test ($\chi^2 = 24.61$, $p < 0.001$) and the cluster-robust Mundlak test ($\chi^2 = 17.36$, $p = 0.008$) both reject the hypothesis that the firm effects are uncorrelated with the regressors. This assumption is not credible here: unobserved firm characteristics such as governance culture, ownership by founders or foreign parents, and the visibility of the firm's brand plausibly influence both how the board structures its remuneration committee and how much the firm discloses. Fixed effects, which remove all time-invariant firm characteristics, is therefore the main estimator. Random-effects estimates are reported for comparison.

The residual diagnostics show strong groupwise heteroskedasticity and first-order serial correlation, both common in corporate panels covering ten years per firm, but no evidence of cross-sectional dependence. The residuals depart mildly from normality (JB = 22.80, compared with 102–2,753 for the raw variables). These results determine the inference procedure: conventional standard errors would understate uncertainty, so all tests use standard errors clustered by firm, which remain valid under heteroskedasticity and arbitrary serial correlation within firms, and with 94 clusters do not rely on normal errors (Petersen, 2009; Wooldridge, 2010). Driscoll–Kraay standard errors are reported as a further check.

**Regression Results**

**Table 8:**

***Fixed-Effects and Random-Effects Regression Results (Dependent Variable: ICD)***

| Variable | FE coef. | Cluster s.e. | t | p | RE coef. | Cluster s.e. | p |
|---|---|---|---|---|---|---|---|
| Constant | — | — | — | — | 0.3448 | 0.0503 | 0.000 |
| RCCE | 0.0023 | 0.0135 | 0.17 | 0.867 | 0.0034 | 0.0134 | 0.802 |
| RCCEXP | −0.0023 | 0.0081 | −0.28 | 0.779 | −0.0033 | 0.0080 | 0.685 |
| RCINDP | 0.4611 | 0.1186 | 3.89 | 0.000 | 0.4665 | 0.1074 | 0.000 |
| FSIZE | −0.0024 | 0.0054 | −0.45 | 0.651 | −0.0028 | 0.0048 | 0.567 |
| LEV | 0.0013 | 0.0096 | 0.13 | 0.894 | −0.0025 | 0.0088 | 0.776 |
| ROA | 0.0172 | 0.0167 | 1.03 | 0.305 | 0.0054 | 0.0153 | 0.724 |
| Firm effects | Fixed | | | | Random | | |
| Within $R^2$ | 0.104 | | | | — | | |
| $R^2$ including firm effects | 0.756 | | | | — | | |
| Weighted $R^2$ (GLS) | — | | | | 0.112 | | |
| Joint test of regressors | F(6, 93) = 2.67 | | | p = 0.020 | | | |
| Observations / firms | 939 / 94 | | | | 939 / 94 | | |

Note: Standard errors are clustered by firm (94 clusters); p-values use t(93). FE = fixed effects (within estimator, main model); RE = Swamy–Arora random effects (for comparison).

**Source**: Authors' Compilation, 2026.

**Model fit**

The fixed-effects model has a within $R^2$ of 0.104: the six regressors explain about 10 percent of the year-to-year variation in ICD *within* firms. Including the firm effects, the model explains 76 percent of total variation, which shows that most variation in ICD is between firms and is stable over time. The joint test of the regressors, based on the cluster-robust covariance matrix, rejects the hypothesis that all six coefficients are zero (F = 2.67, p = 0.020). These measures should be

interpreted with care. A significant joint test shows only that the regressors together contain information about ICD; it does not show that the model is correctly specified or that omitted variables are absent. Equally, the $R^2$ of a random-effects model estimated by EGLS is computed on quasi-demeaned (weighted) data and is not comparable with an OLS $R^2$. In the earlier version of this paper the weighted $R^2$ of the random-effects model was misreported as 0.421; the correct value for that specification is 0.121 (adjusted 0.115), consistent with the reported F-statistic of 21.43. The Durbin–Watson statistic was also misreported and is 1.19, which, like the Wooldridge test, points to positive serial correlation.

**Remuneration Committee Chairperson Experience and ICD**

The coefficient on RCCE is small and insignificant ($\beta = 0.0023$, $p = 0.867$), so H01 is not rejected: a change in whether the chairperson has more than three years' board service is not associated with a change in ICD within the firm. This does not support the resource-dependence argument that firm-specific knowledge would lead the chairperson to promote disclosure. Two explanations are plausible. Because 91 percent of firm-years already meet the threshold, the variable changes within relatively few firms, which limits the precision of the within-firm estimate. Substantively, longer service may align the chairperson with existing disclosure practice rather than lead them to challenge it, consistent with the view that board tenure does not automatically produce more rigorous monitoring (Vafeas, 2003).

**Remuneration Committee Chairperson Expertise and ICD**

The coefficient on RCCEXP is small, negative and insignificant ($\beta = -0.0023$, $p = 0.779$), so H02 is not rejected. The weak negative bivariate correlation in Table 5 disappears once firm effects are controlled for, indicating that it reflects stable differences between firms rather than an effect of changing the chairperson. The finding does not support the expectation, drawn from the audit committee literature (DeFond et al., 2005; Azizkhani et al., 2023), that expert chairpersons promote disclosure. One explanation is that remuneration committee expertise in Nigerian firms is used mainly for the technical work of setting pay and ensuring compliance, not for shaping wider narrative reporting, so that the reporting channel in Section 2.2 is weak in practice. As noted in Section 3.3, the combined variable cannot rule out offsetting effects of financial and human-resource expertise.

**Remuneration Committee Independence and ICD**

The coefficient on RCINDP is positive and significant ($\beta = 0.4611$, cluster-robust $t = 3.89$, $p < 0.001$), so H03 is rejected. Because RCINDP is a proportion and ICD is the proportion of the maximum disclosure score, the coefficient can be interpreted directly. An increase of 10 percentage points in the share of independent members on the committee, for example from one in five to three in ten, is associated with an ICD about 4.6 percentage points higher, equivalent to about 4.7 additional points on the 102-point checklist. A one-standard-deviation increase in independence (0.117) is associated with an ICD about 5.4 percentage points higher, about 14 percent of the sample mean of 0.393 or 0.37 standard deviations of ICD. Because the estimate is identified from changes within firms, a more conservative benchmark is the within-firm standard deviation of independence (0.053), which corresponds to about 2.4 percentage points of ICD. The effect is therefore economically meaningful but moderate.

The result is consistent with agency theory, which predicts that directors independent of management monitor more effectively and resist opacity (Fama & Jensen, 1983), and with stakeholder theory, which predicts that independent members are more responsive to the

employees and other groups for whom human and relational capital information is relevant. It is also consistent with direct evidence that compensation committee independence and quality are associated with fuller voluntary disclosure (Laksmana, 2008; Kanapathippillai et al., 2016), and with evidence linking independence at board level to ICD (Hidalgo et al., 2011; Haji & Ghazali, 2013; Sanni & Haji, 2014). The present study extends that evidence from disclosure about pay to disclosure about intangible resources.

**Control Variables**

None of the control variables is significant in the fixed-effects model. In the earlier version of this paper, ROA had a negative and significant coefficient (−0.0134, p = 0.003). Further investigation shows that this result was driven by the two extreme ROA observations identified in Section 3.4: when they are winsorised or removed, the coefficient becomes positive and insignificant in every panel specification (Tables 8 and 9). The earlier interpretation of a negative profitability effect has therefore been withdrawn.

**Robustness Tests**

Table 9 reports the three hypothesis coefficients and ROA under alternative estimators and data treatments.

**Table 9:**
***Robustness Tests***

| Specification | RCCE | RCCEXP | RCINDP | ROA | Obs. / firms |
|---|---|---|---|---|---|
| (1) Original data, RE, conventional s.e. (earlier version) | 0.0040<br>(0.679) | −0.0036<br>(0.554) | 0.4779***<br>(0.000) | −0.0134***<br>(0.003) | 940 / 94 |
| (2) Original data, RE, firm-clustered s.e. | 0.0040<br>(0.763) | −0.0036<br>(0.651) | 0.4779***<br>(0.000) | −0.0134**<br>(0.034) | 940 / 94 |
| (3) Screened data, RE, firm-clustered s.e. | 0.0034<br>(0.803) | −0.0033<br>(0.686) | 0.4665***<br>(0.000) | 0.0054<br>(0.725) | 939 / 94 |
| (4) FE with year fixed effects, clustered s.e. | 0.0028<br>(0.834) | −0.0024<br>(0.766) | 0.4444***<br>(0.000) | 0.0196<br>(0.238) | 939 / 94 |
| (5) FE, Driscoll–Kraay s.e. | 0.0023<br>(0.625) | −0.0023<br>(0.707) | 0.4611***<br>(0.000) | 0.0172<br>(0.278) | 939 / 94 |
| (6) Pooled OLS, Driscoll–Kraay s.e. | 0.0131<br>(0.508) | −0.0218*<br>(0.067) | 0.4886***<br>(0.001) | −0.0958***<br>(0.003) | 939 / 94 |
| (7) FE, excluding constant LEV values | 0.0038<br>(0.796) | −0.0063<br>(0.503) | 0.3718***<br>(0.003) | 0.0243<br>(0.181) | 774 / 82 |
| (8) FE, two extreme ROA dropped, no winsorising | 0.0039<br>(0.772) | −0.0036<br>(0.644) | 0.4732***<br>(0.000) | 0.0230<br>(0.148) | 937 / 94 |
| (9) FE, excluding Tourist Company of Nigeria | 0.0022<br>(0.871) | −0.0019<br>(0.820) | 0.4655***<br>(0.000) | 0.0175<br>(0.300) | 930 / 93 |

Note: Coefficients with p-values in parentheses. *, and * denote significance at the 1%, 5% and 10% levels. All models include FSIZE and LEV; their coefficients are insignificant in every panel specification.

**Source**: Authors' Compilation, 2026.

The positive association between committee independence and ICD is stable. Its coefficient ranges from 0.372 to 0.489 and is significant at the 1 percent level in every specification: with random instead of fixed effects (columns 2-3), with year fixed effects to control for common shocks and for the two observation windows (column 4), with Driscoll-Kraay standard errors robust to cross-sectional dependence (column 5), and under each alternative data treatment (columns 7-9). The smallest estimate (0.372) occurs when the 165 firm-years with constant leverage values, and therefore 12 firms, are excluded. Chairperson experience is insignificant in every specification. Chairperson expertise is insignificant in every panel specification and is weakly significant ($p = 0.067$) only in pooled OLS (column 6), which ignores firm effects and was rejected by the specification tests. ROA is negative and significant only with the unscreened data (columns 1–2) or in pooled OLS, confirming that the earlier negative ROA result reflected extreme observations and between-firm differences rather than a within-firm relationship.

## 5.0 Conclusion and Recommendations

This study examined whether the experience and expertise of the remuneration committee chairperson and the independence of the committee are associated with intellectual capital disclosure among 94 listed non-financial firms in Nigeria over 2012–2025. After screening the data and using fixed-effects estimation with firm-clustered standard errors, it finds that committee independence is positively and significantly associated with ICD, while chairperson experience and chairperson expertise show no association. The independence result is robust to the choice of estimator, to year effects, to standard errors robust to cross-sectional dependence and to alternative treatment of extreme and questionable observations. Profitability, firm size and leverage are not associated with ICD once extreme observations are addressed.

The study concludes that, among the remuneration committee attributes examined, its structural independence is the one most closely linked to the extent of intellectual capital reporting, while the individual profile of the chairperson, as measured here, is not. Because the design is observational, these findings describe associations. Fixed-effects estimation removes the influence of firm characteristics that do not change over time, but it cannot exclude time-varying omitted factors or reverse causality, for example a firm that decides to become more transparent and appoints more independent directors at the same time. The results should therefore not be read as proof that increasing committee independence would by itself raise ICD.

### Recommendations

Subject to this limitation, the following recommendations are made:

i. The Financial Reporting Council of Nigeria and the Nigerian Exchange Group should consider strengthening the NCCG (2018) provisions on remuneration committee composition, for example by recommending a minimum proportion of independent non-executive directors, and should monitor compliance. The average committee in this sample had only 16 percent independent members, and committee independence is the attribute most consistently associated with fuller ICD.
ii. Boards and nomination committees of listed non-financial firms should treat the independence of remuneration committee members as a relevant consideration when constituting the committee, alongside the qualifications of its chairperson.
iii. Because neither the experience nor the expertise of the chairperson was associated with ICD, regulators and professional bodies should consider clearer guidance on intellectual

capital reporting, so that disclosure does not depend solely on the composition of board committees.

**Limitations and Suggestions for Further Research**

The study has several limitations that point to further research. First, the findings are associations; future studies could use quasi-experimental designs, such as changes in governance regulation that affect some firms and not others, or instrumental variables, to identify causal effects. Second, chairperson experience is measured as firm-specific board service above one NCCG term; industry experience, committee tenure and outside directorships were not captured, and continuous measures would allow finer tests. Third, financial and human-resource expertise are combined in one variable; separating them would test whether they relate to different components of ICD. Fourth, ICD is measured as a single index; analysing the human, structural and relational components separately would test whether the remuneration committee is more closely related to human capital disclosure, as the reporting channel in Section 2.2 suggests. Finally, the sample covers ten years per firm with two observation windows, and extending all firms to a common period would strengthen the comparison over time.

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