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KJMS is a bi-annual peer-reviewed research journal aimed at advancing knowledge in Management Sciences, to narrow the gap between theory and practice, and to set direction for policy initiatives. KJMS published in March and September by the Faculty of Management Sciences, Federal University of Kashere.

KJMS Vol. 5, Sept. 2022

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Original research papers are invited from researchers in the area of Management Sciences for publication in the any of the editions (March and/or September) of KJMS.

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- Papers must be sent in MS Word format written in English with a maximum of **15 pages,** including an abstract (maximum of 150 words), references, tables, figures and appendices.
- The title should be set in bold 14-point Times New Roman, sentence case and justified.
- The text of the paper should be formatted as follows: 12 font size, Times New Roman. The text should be set to 1.5 line spacing. Paragraphs should be justified.
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- Figures and tables, as originals of good quality and well contrasted, are to be in their final form, pasted in the appropriate place in the text.
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KJMS Vol. 5 Sept. 2022

Board attributes and intellectual capital disclosure of listed non-financial services firms in Nigeria

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Abstract
Intellectual capital is a hidden asset that generates wealth for organisation but which are rarely shown in the financial statement of firms. This study therefore examines the impact of board attributes on intellectual capital disclosure of four hundred and forty-four firm-year observations of listed non-financial services firms in Nigeria from 2011-2020. The study analysed the data by means of descriptive statistics to provide summary statistics for the variables. Similarly, the study adopted Robust Ordinary Least regressions to test the study hypotheses using STATA software. The regression results revealed that board gender and educational attributes have significant positive impact on intellectual capital disclosure. However, the study revealed that board ownership has no significant impact on intellectual capital disclosure of the firms. The study recommends that management should consider the inclusion of more women as part of the board of directors of the non-financial services firms in order to influence the decision to increase their intellectual capital disclosure. Also, in order to improve monitoring capacities and expertise diversity of the board towards improvement in intellectual capital, listed non-financial services firms in Nigeria should maintain the education level of the board members. Finally, the percentage of shares held by directors should be regulated by the firm's regulator in order to improve the intellectual capital disclosure of the firms.

Keywords: Board attributes, board gender, board education, intellectual capital disclosure.

INTRODUCTION

Intellectual capital (IC) is an asset that generates future profit for businesses, but it is rarely reflected in financial statements of firms (Oba & Bature, 2013; Dammak, 2015). However, the world has moved from the industrial to the information era/knowledge-based economy, in which IC, communication, and information technology have largely replaced manual and traditional production methods. The creation and manipulation of IC rather than the production of physical goods, is the source of economic value in a knowledge-based economy (Guthrie, Petty, Yongvanich & Ricerri 2004).

As the modern economy becomes more and more dependent on IC, so businesses assets structure dramatically changes towards intangible assets. However despite the various advantages of the reporting of value creating intangible resources, corporate practices, in both developed and developing countries are still weak in the field and perform below expectations (Li, Pike & Haniffa 2008). The authors therefore posit that lack of IC disclosure exacerbates the information asymmetry problem and makes deficiencies in the allocation of financial resources in the capital markets. Similarly, Bellora & Guenther (2013) found low levels both on quantity and quality of voluntary IC disclosure of 51 European firms. To buttress the effect of non disclosure of IC information, Edvinsson (1997) stated that in a major proportion of well established companies such as Intel, Microsoft and Netscape, there are substantial differences between market values and book values, which he calls the hidden values. Therefore, by disclosing IC information, these companies can publicly provide evidence about their true values and their wealth creation capabilities, which in turn may enhance the company's reputation and future cash flows.

Lerro and Schiuma (2013) define IC as a substantial value creator and a strategic component in boosting a company's competitiveness. Intellectual Capital Disclosure (ICD) represents the amount of information firms disclose on intellectual capital. It is also defined as a strategy carried out to report the nature of non-measurable (intangible) values that exist in the organization. Board attributes refer to the distribution of the differences between members of the board of directors relating to the characteristics of the differences in attitudes and opinions. The board provides entrepreneurial and strategic leadership. It also promotes an ethical culture and responsible corporate citizenship. The attributes of the board is an important control mechanism for monitoring managerial decisions and

ensuring a firm's efficient operation on behalf of its stakeholders. It is therefore imperative to examine the role of the corporate board in influencing the ICD of non-financial services firms in Nigeria.

The current research is based on several reasons: First, studies that have examined the determinants of IC voluntary disclosure in annual reports in Nigeria are still scarce. For example, Sanni and Haji (2014) examined the role of corporate governance and ownership structure attributes on IC disclosure practices of Nigerian banking sector during the period 2006–2009. Using content analysis and regression analysis, the finding of the study revealed that board independence and meetings have significant impact on ICD of the deposit money banks (DMBs). The study period is considered short as well as lack currency which failed to give correct insight to happenings in recent times. Similarly, Oba, Ibikunle and Damagum (2013) investigated the impact of board mechanisms on IC disclosure of ten Nigerian firms from 2006 to 2009. However, the number of firms studied is small as well as the study period which ended in 2009 is considered not recent.

Second, exploring the various components of board attributes in assessing the level of ICD practices among Nigerian firms is another motivation for this study. The few researches conducted in Nigeria have neglected the importance of board attribute variables such as board gender, board education and board ownership in their study.

Third, this study aims to address the call for more researches to examine the ICD in line with the studies of (Dumay 2016; Sudibyo and Basuki 2017) who called for more studies in IC field to deepen the understanding of the ICD phenomenon.

Fourth, disclosure of information on IC leads to reduction of information asymmetry between a company and external users of information. Information asymmetry may result in the misallocation of capital, which may eventually leads to social costs such as unemployment or reduced productivity. IC disclosure can help to increase the value relevance of financial statements. Failures to provide relevant information about IC may lead to a deterioration of the company's financial position and a loss of competitiveness in the long run (Canibano Covarsi & Sanchez 1999). Therefore, managers may find it difficult to determine relevant intangible investments needed for the company's operations. As a consequence, the provision of relevant IC voluntary information to managers and other users of financial statements can become important.

In view of the above, an attempt is made in this study to fill the gap in determining the specific influence of board attributes on ICD of non-financial services organizations' in Nigeria from 2011 to 2020.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Intellectual Capital Disclosure and Board Gender

Board gender diversity is defined as the proportion of women on the board to total number of board members. Traditionally, boards are composed of only male members. However, researches have shown that presence of women on the board leads to gender diversity and consequently, leads to diverse and new ideas. Rynan and Haslam (2005) argued that women are more likely to be placed in positions of leadership in circumstances of a downturn. The implication is that their presence on the board could be perceived by shareholders that significant change is on the way, thereby making them more confident in the company's success. Previous studies such as Kiliç and Kuzey (2016) and Wu (2016), showed that the inclusion of female directors on the board positively related to firm performance. Therefore, the presence of women directors on the board is expected to play a key role in influencing IC disclosure.

Using data from online intellectual capital disclosure in 123 Italian-listed firms, Giuseppe, Giuseppe and Serena (2021) found that women's presence on the boards is conducive to higher voluntary ICD. The finding also showed that Italian-listed firms conveyed more voluntary information on IC resources when a woman is appointed as a CEO. Similarly, Nadeem (2019) found that a significant positive relationship exist between BGD and IC disclosure. Whereas, Dan and Arianti (2017) reported that women directors showed a negative significant effect on ICD of Islamic Banks in Indonesia during the period 2011 to 2015. However, Kusumawardani *et al* (2021) reported that female board member variable had no significant impact on ICD among firms in Indonesia during the period 2008-2017. Similarly, Rahmawati, Fadlurrahman and Azzahra (2022) examined the effect of corporate governance on ICD of high IC-intensive companies in Indonesia and Malaysia during the period 2017 to 2018. Using regression analysis, the finding of the study revealed that board gender does not have

KJMS Vol. 5, Sept. 2022

significant impact on ICD of the two countries. Based on the above, the following hypothesis is proposed:
H_{01}: Board gender diversity does not have a significant impact on intellectual capital disclosure.

Intellectual Capital Disclosure and Board Educational Level
The education level of the board members could have a significant impact on ICD. It is defined as members of the board who are knowledgeable or acquired skills in accounting, finance, management, and economic education. The upper echelon theory argues that organizational outcomes, such as firm performance, strategic orientation, innovation and creativity and diversification, are influenced by top management diversity such as educational level, gender and nationality (Miller and Triane, 2009). The theory suggests that demographic diversity among board members provides a wider range of perspectives and solutions that enhance the effectiveness and efficiency of board's strategic decision-making. Welford (2007) stated that an educated director can have a broader perspective and superior pattern of thinking and, as a result, may likely understand the wider interests of various stakeholders. In a study by Rasmini, Wirakusuma and Yuniasih (2014), the authors found that variation of formal education background had no effect on ICD of financial companies listed on the Indonesia Stock Exchange during the period 2004-2009. However, Uzliawati and Djati (2015) reported that the educational background of financial accounting by board members is positively associated with ICD of 31 banks listed in Indonesia. Thus, the following hypothesis is formulated:
H_{01}: Board education level does not have a significant impact on intellectual capital disclosure.

Intellectual Capital Disclosure and Board Ownership
From another perspective, the level of shares held by directors is expected to be associated with IC. For instance, Saleh, Rahman and Hassan (2009) concluded that managers will focus on the firm's long-term value and make an investment that boosts long-term value, such as IC investments, if they own a piece of the company. Therefore, a greater percentage of stock owned by managers is expected to align the interests of managers and that of shareholders. The ability of owners to exercise control and influence management choices through voting powers is referred to as control. Entitlement to dividends and other share bonuses in relation to shareholdings is known as ownership. The act of allocating shares to management (executive directors) of the entity as a means of motivation is known as board ownership.
Dewi, Young and Sundari (2014) concluded that managerial ownership did not affect ICD of 146 services companies listed in Indonesia Stock Exchange during the period 2008-2012 significantly. Using data from pharmaceutical and chemical industries of Bangladesh for the period of 2016 to 2017, Rahman, Sobhan and Islam (2019) found that board ownership had a significant negative impact on ICD. Similarly, in a recent study, Ghassan, Amneh and Mahmoud (2022) found that management ownership has a significant negative impact on relational capital disclosures. of Jordanian listed firms during the period 2012 to 2018. Given the foregoing, the following hypothesis is proposed:
H_{03}: Board ownership does not have significant impact on ICD.

Theoretical review
The Stakeholders Theory
The postulates of this theory give general assumptions that firms operate within a complicated multi-party environment (Cots, 2011). Therefore, companies will disclose information voluntarily to address outside stakeholders' concerns and encourage their engagement in its different activities (Michelon & Parbonetti, 2012). Each category of stakeholders has their unique expectations from the business firms. In accordance with information requirements of every stakeholder, the stakeholder theory supports the view that companies are expected to satisfy all the information needs of these stakeholders. In addition, they communicate a different type of information via annual reports to address different types of stakeholders and in response to a varied and wide range of needs for information. Moreover, companies that adopt a responsive disclosure policy may find themselves in better communicative positions, which result in a better mental image and the ability to be more competitive than companies that neglect stakeholders' claims for information. Therefore, this study is based theoretically on the stakeholder theory.

KJMS Vol. 5, Sept. 2022

METHODOLOGY

Research Design

The researchers collected pre-existing data from 44 listed non-financial services firms which are seen to be more inclined to IC during the period 1st January, 2011 through 31st December, 2020. Stratified sampling technique was used in arriving at the sample size (sectoral selection) of this study. However, for firms to be part of this study, some criteria were employed which are: (I) firms must have been quoted on the floor of Nigerian Exchange Group as at 1st January, 2011 (II) firms must have not been delisted from the floor of the Nigerian Exchange Group during the period of study (III) firms must have not been taken over or merged during the period of study (IV) firms must have file complete annual reports on the Nigerian Exchange Group during the period of study. The descriptive statistics and regression analyses techniques were adopted for the study.

The robustness test was conducted in order to ensure the validity of all the statistical inferences for the study, so as to assess the effect of distribution problems in addition to the problems of outliers before deciding on the appropriate statistical method to adopt. The tests include Normality of residuals, heteroscedasticity, multicollinearity and hausman specification. In this study, the results of Shapiro-wilk Test revealed that the p-values of most of the variables are greater than 5%. However, , if the nature of the kernel density estimate (residual) is bell shaped, this affirms the normality of the research data Therefore, since the result of kernel density estimate (residual) is nearly bell shaped, it means the data is fairly normally distributed. Similarly, it was discovered that there is presence of heteroskedacity in this study, hence the robust regression was conducted and interpreted after the hausman test and Langrarian Multiplier test were carried out.

Table 1: Population and Sample Size

S/no	Sector Distribution	Population	Delisted/Quoted After 2011	Sample
1.	Consumer Goods	21	4	17
2.	Health Care	10	2	8
3.	Industrial Goods	15	6	9
4.	Information & Communication Technology (ICT)	7	2	5
5.	Conglomerates	6	1	5
	Total	59	15	44

Source: Author's Compilation, 2022

Table 1 presents the sectoral distribution of firms and sample used in the study. There are fifty-nine firms in all. Forty-four firms were selected while fifteen firms did not meet the criteria either for the fact that they were delisted during the study period or were not quoted as at 1st January 2011.

Measurement of variables

The Dependent Variable

Intellectual Capital Disclosure

This is the quantity of information that companies reveal about their intellectual property. Content analysis was used to acquire the data for this proxy from the narratives in financial statements. The quantity of information on the IC included in the annual reports of the firms was measured using a disclosure index following the works of prior researchers such as (Ax & Maton, 2008; Salman, Dandago & Isa 2013).

A 0 and 1 coding method was utilized. That is, if a particular index item is found, a 1 is recorded, and if the provided item is not found in Nigerian firms' annual reports, a 0 is recorded. The extent of disclosure was determined by dividing the number of recorded information items in yearly reports by the maximum number of information items in the disclosure index (Yi & Davey, 2010, Alshhadat, 2017; Al-Sartawi, 2017). The following formula is used to calculate the extent of ICD:

$$ICD_j = \frac{TADS_j}{MRDI_j}$$

Where ICD_j is intellectual capital disclosure, $TADS_j$ is the total actual disclosure score for a company j and $MRDI_j$ is the maximum relevant disclosure items of the company j.

Thirty-three items were utilized in previous investigations (Bozzollan, Favotto & Ricceri 2003; Abeysekera, 2010). (human capital 11 items; structural capital 12 and relational capital 10). However, we developed an IC framework/index for this study based on the information accessible to the researchers from past investigations and the Nigerian context.

Thus to examine the factors influencing the level of IC disclosure, this study used the count of IC related words as the unit of the content analysis. The study then aggregated the disclosure frequencies of occurrence to determine the quantity of IC disclosure using the content analysis conducted earlier.

Independent Variables

The board attributes which includes board gender; board education and board ownership are the independent variables in this study. Gender diversity is measured using Blau Index which is defined as $FEBLAU=1-\sum_{i=1}^{n} P_i^2$ where Pi is the percentage of members in each gender and n is the total number of genders (Nadeem, 2019). The ratio of board members with accounting, finance, management, and economic education backgrounds compared to all board members is used to quantify educational background variation (Rasmini *et al.,* 2014). Board ownership is measured as the proportion of executive share ownership to the total number of shares in a company (Dewi *et al.*, 2014; Rahman *et al*., 2019).

Control variables

In this study, some control variables are used. Previous researches have revealed that firm size, auditor type, firm age and audit committee (AC) attributes all have a significant impact on ICD (for example, Rasmini *et al*., 2014; Alshhadat, 2017; Oziegbe & Ofe 2020). As a result, the impact of firm size, auditor type and AC attributes (AC size, AC frequency of meeting and AC gender diversity) are taken into consideration in this study. Firm size is measured as the natural logarithm of Total Assets (Ferreira, Branco & Moreira 2012; Alshhadat, 2017). As for auditor type, a dummy variable 1, if audited by big four audit firms or its affiliation, otherwise, zero was used (Ferreira *et al*., 2012; Gan, Saleh, Abessi & Huang 2013; Firmasa Zakaria & Nindito 2018). AC size is measured as the total numbers of AC members, AC frequency of meeting is measured as the total number of times the AC members met during the year, and the AC gender diversity is measured as the proportion female AC members to total number of AC members. The measurement is done in accordance with previous studies on the topic.

Model specification

Robust Ordinary Least Squares regression was used to test the relationship between board attributes and ICD. The regression model for the study is as follows:

$ICD_{it} = \beta_0 + \beta_1 BGD_{it} + \beta_2 BED_{it} + \beta_3 BON_{it} + \beta_4 FSZ_{it} + \beta_5 ACSZ_{it} + \beta_6 ACGD_{it} + \varepsilon_{it}$

Where:

ICD_{it} = Intellectual Capital Disclosure of firm i in period t
BGD_{it}= Board Gender of firm i in period t
BED_{it}= Board Education of firm i in period t
BON_{it} = Board Ownership of firm i in period t
FSZ_{it} = Firm size of firm i in period t
$ACSZ_{it}$ = Audit Committee Size of firm i in period t
$ACGD_{it}$ = Audit committee Gender Diversity of firm i in period t
ε_{it} = Error term
β_0 = Constant
β_1= Constant

RESULTS AND DISCUSSIONS

This section presents analyses and interprets the data generated for the study. The data relating to each of the statistical hypotheses of the study are presented and analyzed.

Kjms Vol. 5 Sept 2022

Table 2: Descriptive statistics of the variables

Variables	Observation	Mean	Std. Dev.	Min.	Max.
ICD	440	0.84	0.31	0.1	1.34
BGD	440	0.44	0.12	0	0.60
BED	440	0.63	0.10	0.2	0.88
BON	440	0.12	0.17	0	0.92
FSZ	440	7.02	0.88	4.69	9.26
ACSZ	440	5.53	0.81	4	7
ACGD	440	0.19	0.16	0	0.67

Source: Author's computation 2022 using STATA software

Table 2 revealed that the overall mean ICD score for sampled non-financial services firms in Nigeria has an average information disclosure of about 0.84. This means that non-financial services firms in Nigeria disclosed IC at an average of 84%. The minimum disclosure level is 10% and maximum disclosure level is 134%. The mean value of the board gender diversity of the sampled non-financial services firms is 0.44, meaning that on the average; the firms had 44% of women represented on the board. The minimum value of 0 and maximum value of 0.60 implied that within the firms and the study period, there were firms that did not have any woman on their boards. The highest value implies that there was a firm that had 60% of women on the entire board. Board education recorded a minimum value of 0.20 and a maximum value of 0.88. This suggests that the minimum number of directors having accounting, finance, business and economics background is 20%, while the maximum number is 88%. Meanwhile, on the average, the number of board members with accounting, business and economics background was 63%. This means that most of the firms had 63% of their members with accounting, business and economics background.

Board ownership had a minimum value of 0 and a maximum value of 0.92, signifying that there were firms whose executive directors did not have shareholdings during the study period. While the highest percentage of shares held also by the directors was 92%. On the average, board ownership had a mean value of 0.12, meaning that, some of the firms' executive directors had shares to the tune of 11%. Firm size has a mean of 7.02, with a minimum of 4.70 and maximum of 9.26. The mean AC size was 5.53. The minimum value is 4 and the maximum value is 7. This means that there are firms who have minimum of 4 as AC members and maximum of 7 as AC members. Finally, AC gender composition has a mean of 0.19 with a minimum of 0 and maximum of 0.67. This means that there are firms who have no women as audit committee members and those with 67% AC women members.

Table 3: Summary of Robust Ordinary Least Square Regression

Variables	Coefficients	Robust Std. Error	t-stat.	Prob.
Cons	0.15	0.22	0.67	0.501
BGD	0.56	0.15	3.84	0.000
BED	0.42	0.13	3.13	0.002
BON	-0.04	0.08	-0.52	0.601
FSZ	0.10	0.02	5.04	0.000
ACSZ	0.00	0.02	0.09	0.929
ACGD	0.49	0.08	5.89	0.000
R-square	0.3681			
F-Statistic	20.71			
Prob. F	0.0000			

Source: Results Output from STATA

From table 3, the cumulative R-squared (R^2) of 0.3681 which is the multiple coefficient of determination, gave the proportion of the total variation in the dependent variable as explained by the independent variables jointly. Thus, it signified that 36.8% of the total variation in ICD of listed non-financial services firms in Nigeria is accounted for by the ratio of women directors on the board, percentage of board members with accounting, business and economics background to total numbers of board members and the percentage of shares owned by the directors. The F-statistics of 20.71,

Vol. 5, Sept. 2022

which is significant at one percent, indicates that board attributes and ICD model is fit. Therefore, the results from the regression can be relied upon. Furthermore, it means that the independent variables reliably predict the dependent variable of the study.

The table revealed that the coefficient value for board gender was 0.56 with a significant value of 0.000. This signifies that board gender has a significant and positive effect on ICD of the firms. This implies that for every increase in the number of women on the board of directors, the ICD of the non-financial services firms will increase by the coefficient value. This finding is in line with those of Nadeem (2019) and Giuseppe *et al.,* (2021). But it is contrary to those of Dan *et al.,* (2017) and Kusumawardani *et al.,* (2021).The percentage of board members with accounting, finance, business and economics background on the board for direct relationship has a coefficient value of 0.42 and a probability value of 0.002, which is significant at 5% level of significance. This means that education background of board members has a significant impact in influencing the ICD of the firms. This finding is in line with the study of Uzliawati *et al.* (2015). However, it is in contrast to the finding of Rasmini *et al* (2014).

As regards board ownership, the regression results showed a coefficient value of -0.04 which is neither significant at 1% nor at 5%. This indicates that board ownership has a positive but insignificant effect on ICD of the firms. This implies that for every increase in the percentage of shares held by executive directors, their ICD will reduce insignificantly by the coefficient value. The finding is in line with that of Dewi *et al*. (2014). But it is contrary to that of Rahman *et al.* (2019).

Firm size recorded a coefficient value of 0.12 which is significant at 1%. This indicates that large firms disclosed more IC voluntarily than smaller ones. AC size, had a coefficient value of 0.002 which is neither significant at 1% nor at 5%. Similarly, the coefficient value for AC gender composition was 0.491 with a significant value of 0.000. This signifies that AC gender composition had a significant and positive effect on ICD of the firms. This indicates that the size AC members has a positive but insignificant impact on intellectual capital disclosure of the firms during the period of study.

CONCLUSION AND RECOMMENDATIONS

In recent years, board attribute variables have drawn an increasing amount of research from all over the world. The majority of empirical studies on board attributes, however, have taken place in the developed world. Because diverse databases, regulatory systems, and environments affect board attributes in different nations, generalizing the findings of these studies in the Nigerian environment may be impossible. As a result, the study's goal is to examine the impact of board attributes on ICD in Nigerian listed non-financial services companies during the period 2011-2020. The study is based on the impression that diverse boards, through their experiences and professional competencies, have a significant influence on ICD.

The study concludes the presence of women on the boards of non-financial services firms in Nigeria significantly influence their ICD. Similarly, that having a large number of board members with background in accounting, finance, economics, or business is connected with a high degree of ICD based on the findings, analysis, and interpretation. Furthermore, according to the study's findings, having a large number of shares owned by management does not ensure increased ICD.

Based on the findings of this study, the study recommends that management should consider the inclusion of more women as part of the board of directors of the non-financial services firms in order to influence the decision to increase their ICD. Also, in order to improve efficiency, monitoring capacities, expertise diversity and knowledge base of the board towards improvement in ICD, listed non-financial services firms in Nigeria should maintain the education level of the board members. Finally, the percentage of shares held by directors should be regulated by the firm's regulator (for example, the Securities and Exchange Commission). When regulated, it makes managers to work in the interest of shareholders by improving the ICD of the firms.

Kjms Vol. 5, Sept. 2022

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KJMS Vol. 5, Sept. 2022

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KJMS Vol 5, Sept 2022