

## Determinants of Intellectual Capital Disclosures in Nigeria

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**Abstract:** The future drivers of any corporate economy can no longer be capital, land or equipment; but the people and their knowledge base. Several Nigerian firms have started disclosing information on Intellectual Capital. In the setting of our research, we study the determinants of the disclosure of Intellectual Capital information in annual reports of firms listed on the Nigerian Stock Exchange. A content analysis of annual reports complemented with archival data from sample firms was used to ascertain the determinants of the extent of Intellectual Capital information disclosure. The results highlight that the size of a firm and the industry type play significant roles as determinants for the disclosure of Intellectual Capital information in annual reports. However, in contrast with earlier studies and theoretical arguments of voluntary disclosure, this study does not document any relationship between the Intellectual Capital disclosure level and firm profitability. The paper contributes to literature by providing a better understanding in general to what kind of firms that actually disclose information on intellectual capital in Nigeria and also provides awareness that profitability as crucial as it might seem is not a driving determinant of the decision of Nigerian firms to disclose intellectual capital information.

**Keywords:** Accounting; Firm Performance; Firms

**JEL Classification:** M41; L25; L1

### 1. Introduction

From amassing evidence, it seems that the pressure on companies to report more is increasing. It is also abundantly clear that various levels of disclosure are possible and that companies must be clear about the distinctions if they are to proceed safely (Pike et al, 2002). According to Lev and Zarowin (1999), the relevance of traditional financial accounting information has diminished in the past few decades. Its limitations have attracted greater in the wake of a series of scandals

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and corporate collapses in recent years (Barsky et al, 2003). Financial statement information is only relevant if it is able to confirm or change investors' expectations regarding the value of stock or value of the firm. It is usually relied upon by market stakeholders in decision making; however, its emphasis is usually on monetary results without proper attention given to intangibles which are also substantial factors usually given paramount attention by investment participants. This position is actually a constraint of financial reporting. Nevertheless, Ardiansyah (2010) suggests that this problem can be reduced or avoided by using voluntary disclosure as supplementary information to financial statements. Voluntary disclosures reveal more qualitative information, most especially as it concerns intangible assets which are potentially important assets of the firm.

The issue of value relevance of intangibles is gaining grounds in the financial reporting literature due to the ever increasing interest in the components of intangible assets items including goodwill and intellectual capital (Shukor et al, 2008).

The terms Intellectual assets, Intellectual capital and intangible assets are used interchangeably as they represent a non-physical claim to future benefits (Ali et al, 2010). According to Kavida and Sivakoumar (2008), economists call them knowledge assets, management experts refer to them as intellectual capital and accountants call them intangible assets or intellectual assets. They are all one and the same. It is simply a set of knowledge, information, intellectual property, goodwill and expertise which can be used for the purpose of creating wealth (Stewart, 1997). According to Itami (1987), intellectual capital (IC) is an intangible asset which includes technology, brand name, customer loyalty, goodwill and copyrights. Basically, IC comprises of three components: human capital, structural capital and relational or customer capital (Yang and Lin, 2009). Human capital consists of skills, competencies and abilities of individuals and groups; structural capital refers to knowledge assets alternatively referred to as intellectual property such as patents, copyrights, trademarks, models, knowledge artefacts, computer networks/ software and so forth while customer capital is the strength of relationships with customers, suppliers and allies such as customer loyalty, brand equity, market share, etc. every organization possesses some or all of these variants depending on the industry type and strategy.

A major development in the history of intellectual capital (intangible assets) standardization in Nigeria is the recent compliance with International Accounting Standard and International Financial Reporting Standard. The Nigeria Accounting Standards Board (NASB) now Financial Reporting Council (FRC) issued SAS 26 (Business Combination) in 2007. It was to guide the specific accounting treatment of goodwill in compliance with IFRS 3. This has ushered a further interest in IC.

The rising interest in IC studies has spread all over the world in both developed and developing countries. Several prominent studies have been conducted (see Guthrie and Petty, 2000; Tayib and Salman, 2011; Li et al, 2006; Bontis, 2004, etc). In Nigeria, only few studies on IC have been documented. These include Okwy and Christopher, 2010; Tayib and Salman, 2011 and Angaye et al; 2010. These studies have concentrated on either the IC reporting practices or the interaction of IC with board mechanisms and investment decisions. None of these studies has attempted to examine the possible determinants of voluntary IC disclosure in Nigeria. In consequence, this study is poised at filling this gap. Thus our primary objective in this present study is to analyze the determinant factors of intellectual capital reporting in Nigeria.

## **2. Theoretical Underpinnings**

The signals theory provides an explanation to voluntary disclosure behaviors as a control mechanism geared towards reducing information asymmetry arising from separation between ownership and management. Voluntarily disclosed information is signals addressed to investors with a purpose of reducing the information gap between insiders and outsiders. The signals theory is based on two assumptions: Firstly, managers are better informed than shareholders or the public concerning the firm's position and also, given that 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 signals theory suggests that large, visible and profitable firms will disclose more information to inform their stakeholders about their sound performance. In other words, large firms with relatively good performance are more likely to disclose more IC information as compared to firms with bad performance (Neysi et al, 2012). This is possibly to engender legitimacy and acceptability so as to meet up with public expectation.

## **3. Literature Review and Hypotheses Development**

The amount of IC information has been increasing in the last decade in line with literature on communication to stakeholders which is of the belief that companies with major intangible values – e.g. Research and Development, patents, market share, etc- have to publish sophisticated and varied non-financial information in order to reduce the information gap (Bukh, 2002). Intellectual Capital information usually takes the form of voluntary disclosure which primarily acts to reduce information asymmetries. Such voluntary disclosure refers to information made available at the discretion of the company.

According to Rouf (2011), the extent of voluntary disclosure is influenced by changes in the attitudes in society, economic factors and behavioral factors such as the corporate culture. Several studies have analyzed the association between firm characteristics and disclosure in annual reports (see Chavent et al; 2006 for an exhaustive summary of disclosure studies. Most of these studies constructed a country-relevant disclosure index and related the bulk of information disclosed in the annual reports to selected corporate characteristics. Meek et al (1995) demonstrated that firm size, leverage, international listing status, and country of incorporation influence voluntary disclosure. Marston and Shrides (1995) reviewed 32 disclosure studies and have found controversial results with respect to a link between the level of voluntary disclosure and leverage, profitability and auditor firm size. Chow and Wong-Boren (1987) maintained that firm size, financial leverage and proportion of assets in place affect the level of disclosure.

There is mixed evidence on the determinants of voluntary information disclosure including IC information. Barako et al (2006) and Brammer and Pavelin (2006) after conducting their investigations observed that the larger the firm, the more likely they will make voluntary disclosure. Bruggen et al (2009) examined a sample of 125 publicly traded Australian firms and document that firm size is a determinant for intellectual disclosure of firms. Aripin et al (2008) suggested the underlying reasons why larger firms disclose more information. They argue that managers of larger firms are more likely to realize the possible benefits of better disclosure and small companies are more likely to avoid full disclosure which might endanger their competitive position. Hossain et al (2006) demonstrate that the size of a firm does affect the level of voluntary information disclosure. Based on the mixed results, we state our hypothesis in null form:

H<sub>1</sub>: Firm size has no significant impact on the level of IC information disclosure.

Meek et al (1995); Marston and Shrides (1995); and El-Gazzar and Fornaro (2003) suggest that profitable firms are expected to disclose more information about their performance. Haniffa and Cooke (2002) find a positive and significant association between the firm's profitability and the extent of voluntary disclosure. Their results conform to that of Leventis and Weetman (2004) and Marston and Shrides (1995) that profitability is a key determinant of voluntary information disclosure. On these accounts, we hypothesize that:

H<sub>2</sub>: Profitability has a positive significant impact on the level of IC information disclosure.

Bozzolan et al (2003) investigate the annual reports of 30 non financial companies listed in the Italian Stock exchange in 2001. They conclude that industry type influences the amount of IC disclosure in Italian companies. Garcia-Meca et al (2005) reported similar findings for Spanish firms. Williams (2001) identified industry exposure as a significant determinant of the quantity of disclosure. The

literature (Cowen et al, 1987; Patten, 1992) provides with evidence that the operating industry factor has a significant influence on the reporting practice applied by entities. According to Ienciu and Ienciu (2012), it is generally accepted that large entities belonging to a certain industry have the tendency to conduct more detailed and comprehensive reporting. We thus hypothesize that:

H<sub>3</sub>: Industry type has a significant impact on the level of IC information disclosure.

## 4. Methodology

### 4.1. Sample Selection and Data Source

The population of the study is made up of companies listed on the floor of the Nigerian Stock Exchange. There are 12 sectors on the exchange; however the financial and utility services are excluded from the population because of the special regulatory environment in which they operate. A stratified random sampling was employed to select two companies from each existing industry to arrive at a total sample of twenty quoted firms for the period 2005-2009. This sample is considered a good representation of quoted firms in Nigeria since it envelopes all sectors on the exchange except the financial and utility services. The sample selection is in agreement with Emory and Cooper (2003) criterion for a good sample. They argue that the ultimate test of a sample design is how well it represents the characteristics of the population it purports to represent. Data was obtained from 100 annual reports of sample firms for the period under study.

### 4.2. Model Specification

A multiple regression model (ordinary least squares) was employed to investigate the potential relationship that exists amongst the study variables. The model is expressed thus:

$$\text{ICDI} = b_0 + b_1\text{Fsz} + b_2\text{Prof} + b_3\text{Construction} + b_4\text{Consumer Goods} + b_5\text{Healthcare} + b_6\text{Industrial goods} + b_7\text{Agriculture} + b_8\text{Information Technology} + b_9\text{Natural resources} + b_{10}\text{Oil and gas} + b_{11}\text{Services} + b_{12}\text{Conglomerates} + \text{eit}$$

Where: ICDI = Intellectual Capital Disclosure Index

Fsz = Firm Size

Prof = Profitability

Variables from  $b_3$  to  $b_{12}$  are the coefficients for the 10 industry types under study.

eit = Random stochastic term

### 4.3. Measurement of Variables

i) Intellectual Capital Disclosure Index – Content analysis which is the most ideal method to explore voluntary information in annual reports (Neuendorf, 2002) was utilized to develop a checklist of 22 established intellectual capital disclosure items. Along the line of Cooke (1989), an unweighted dichotomous rating system was used to assign ‘1’ if an item is disclosed in the annual report and ‘0’ if it is not disclosed. As such, a firm could score a maximum of 22 points and a minimum of 0.

ii) Firm Size – This is denoted as the logarithmic transformation to base 10 of total assets of study firms. Total assets were transformed to log10 due to their varied values and with an objective of mitigating heteroscedasticity problems.

iii) Profitability is measured as the recorded net profit/ loss of the entity. This variable undergoes a logarithmic transformation as well due to large figure documented.

iv) Industry type is captured as a dummy variable. This denotes the industries wherein a study entity operates. Such industry is accorded ‘1’ while others are assigned ‘0’.

## 5. Results and Conclusion

A normality test was performed to determine that the dependent variable was normally distributed. Violation of the normality assumption invalidates other test statistics like the t-tests and other related statistics (Brown, 1997). Assessment for normality of data can be applied using Kolmogorov- Smirnov test, Shapiro- Wilk test or skewness and Kurtosis.

**Table 1. Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
ICDI	.017	90	.013	.097	90	.069

a. Lilliefors Significance Correction

**Table 2. Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.632 <sup>a</sup>	.340	.269	.16317	2.076

a. Predictors: (Constant), FSZ, PROF, IND

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b. Dependent Variable: ICDI

**Table 3. ANOVA<sup>b</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3.414	13	.263	1.20	.043 <sup>a</sup>
	Residual	16.528	75	.220		
	Total	19.942	89			

a. Predictors: (Constant), FSZ,PROF,IND

b. Dependent Variable: ICDI

**Table 4. Coefficients**

Model	Coefficient	t statistic	Prob
Constant	-9.421	-3.192	.001
Fsz	2.452	4.456	.000
Prof	.0780	.728	.469
Construction	1.997	3.324	.005
Consumer goods	3.164	2.959	.007
Healthcare	1.555	3.067	.003
Industrial goods	1.250	5.815	.000
Agriculture	-.095	-.329	.745
Information tech	3.870	1.996	.045
Natural resources	-1.157	-1.241	.218
Oil and gas	7.540	5.425	.000
Services	3.033	2.852	.009
Conglomerates	2.659	1.544	.032

The coefficient of determination (adjusted) from table 2 reveals that 26.9% of the variation in ICDI is attributed to the explanatory variables used in this study. This is a significant ratio going by the fact that there exist other independent variables that could predict the extent of voluntary disclosures in a firm which might not have been incorporated in the model of this study. The Durbin Watson statistic stood at 2.076. This lends support to the assumption of absence of autocorrelation in the model since it falls within the threshold of '2' (Hair et al, 1987). The F statistic in table 3 confirms the significance of the regression with confidence level of 95%. It shows the overall significance of the regression plane; its P value < 0.05 guarantees

the statistical significance of the model. Table 4 displays the t and p values of the various explanatory variables.

From the results, it is abundantly clear that the industry of operation stands out as a relevant and significant determinant of the extent of intellectual capital disclosures. All the sectors investigated except for the agriculture and natural resources sectors show statistical significant impact on disclosure index. This supports our model specification that the industry type is an important determinant in the extent of intellectual capital disclosure. In other words, there is dependency between the industry a firm operates in and the level of IC disclosure. This result corroborates the findings of Bozzolan et al. (2003) and Bruggen et al. (2001) that the field of operation of a firm influences the level of IC disclosure. Size was also found to be a strong predictor of intellectual capital disclosure (with  $b_{10} = 2.452$ ,  $p < 0.05$ ).

From the investigations of this study, the company size determines the extent to which such firm would report on intellectual capital. This lends support to the study's hypothesis as well as the works of Beaulieu et al. (2002) and Garcia- Meca et al. (2005) that there exists a positive relationship between firm size and IC disclosure level. This study demonstrates that profitability has no significant impact on the level of intellectual capital disclosure. The finding contravenes the work conducted by Ienciu and Ienciu (2012) who in a study of 68 entities listed on the Bucharest Stock exchange document that the level of intellectual capital reporting is influenced by the financial situation of an entity. They however record that the connection between them is not very strong. Based on the finding of this research, we conclude that the profitability level of an entity has no relevance on its intellectual capital reporting level. There might exist a potential relationship between profitability and other voluntary disclosures as found in previous works (El-Gazzar and Fornaro, 2003; Leventis and Weetman, 2004; Haniffa and Cooke, 2002); but this does not hold with intellectual capital in focus.

Size and Industry have been identified as salient determinants of intellectual capital. Large entities would utilize a lot of know-how to remain afloat; this would obviously require a good measure of intellectual capital investments and knowledge assets utilization. Also, such firms would need to maintain their reputation and legitimacy as well as fostering the trustworthiness perception held of them by stakeholders by disclosing IC information reasonably. Another interesting contribution to literature from the investigations of the study is that IC information disclosure is more crucial to some industries than others. Certain industries would remain inoperable without knowledge based assets. These industries would as well want to disclose comprehensive intellectual capital information so as to convincingly prove to stakeholders their level of IC investment which expectedly would trigger improved performance.



The disclosure of IC information is quite crucial to reducing information asymmetry amongst stakeholders and is therefore encouraged. Though there are no operational reporting standards on these form of voluntary disclosures (except for intangible assets), it is recommended that the Financial Reporting Council as well as listed firms develop structures for this type of voluntary information disclosure so as to permit the existence of efficient markets. This study is however limited by the sample size; though representative of the sectors of the Nigeria Stock Exchange, better generalisability could be realized with a larger sample. Also, more determinant factors could be considered for further works such as leverage, equity, and age of sample firms.

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**Appendix**

## Intellectual Capital Disclosure Framework

## A. Human Capital

1. Numbers of Employee
2. Employee Equity/ Equal opportunities
3. Training
4. Staff Health and Safety
5. Employee welfare
6. Compensation Plan/ bonus
7. Career Development
8. Employees Knowhow/ Education level
9. Employee Remuneration
10. Human Resource Policy/Human Resource Department

## B. Structural Capital

11. Intellectual Properties- Patents, copyrights and Trademarks
12. Research and Development
13. New Product Line
14. New Technology
15. Information Technology/ Information Systems, Software Development/ Networking Systems.

## C. Relational Capital

16. Market Share
17. Business Partnering- Franchising, Suppliers, Government, Licensing Agreement, Joint Venture.
18. Supply Chain/Distribution Networks.
19. Promotion Strategies/ Competitive Intelligence.
20. Corporate Image- Social Responsibilities, Environmental Management/ Protection, Statement of Image and Corporate Culture
21. Brands- Range of Products and Services
22. Product Awards