The Impact of Board Mechanisms on Intellectual Capital Disclosures in Nigeria

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Abstract: This study aims to examine whether or not board characteristics have an impact on the quality of intellectual capital disclosures. A measure of the quality of intellectual capital disclosure (ICDQ) based on a content analysis of the text in annual reports of sample companies is incorporated in the model to examine its interaction with various board mechanisms. The results reveal that board independence, audit committee independence, and board gender diversity are non-significant in predicting ICDQ. However, board size, board nationality diversity and firm size were found to be relevant contributors to the variation in ICDQ. Their interaction with ICDQ considerably increases the explanatory power of the model. From the findings, a case is made for the nationality diversification of board members (directors) and the maintenance of manageable board sizes. This study provides first-time evidence of the interaction of board mechanisms and ICDQ in Nigeria.

Keywords: Intellectual Property; Corporate Governance; Annual Reports; Voluntary Disclosure.

JEL Classification: O34; G340

1 Introduction

The concept of Intellectual capital (IC) gained grounds in the 1990s with the rapid emergence of information and communication technologies. It is simply the knowledge, organizational technology, professional skills, and customer relations that offer a competitive advantage in the market. According to Bontis (1998), the concept was first introduced by Kenneth Galbraith in 1969, who believed that intellectual capital was more than pure intellect but 'intellectual action'. It is the move from "having" knowledge to "using" the knowledge.

As the dynamics of the Nigerian economy is making a shift away from its traditional product based economy to a knowledge based orientation and diversification approach, the importance of intellectual capital is beginning to gain momentum. The knowledge based economy is now increasingly important to value creation than ever before. By implication, a business' invisible assets such as skills, learning and knowledge have now posed key strategic issues. In fact, companies, investors and analysts are beginning to demand for more reliable information on expertise, experience, managerial qualities, customer relations, and so forth- all variables of intellectual capital. According to Busacca and Maccarone (2007), the chief aim of financial reporting is to provide users of information with the actual structure of the company's assets particularly its value creation assets. In the knowledge driven economy where intangible assets such as intellectual resources are held more crucial and essential for firm valuation than tangible asset in the

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global market, non-disclosure of such assets will create information asymmetry (Guthrie and Petty, 2000).

Intellectual capital has been considered by many, defined by some, and understood by a select few (Bontis, 1998). Stewart (1997) defined intellectual capital as a set of knowledge, information, intellectual property and expertise which can be used for the purpose of creating wealth. It is the aggregate sum of intangible assets which comprise both human and structural capital (Mouritsen, Larson and Bukh, 2001). The concept of intellectual capital seems to stem from the discussion of goodwill and the difference between book value and purchase value (Lynn, 1998). The generally accepted accounting principles perceive intellectual capital as the value of firm's intangible assets that are not reflected on the balance sheet.

A variety of approaches have been advanced to measure and report intellectual capital. Edvinsson and Sullivan (1996) proposed three components of IC- human capital, structural capital (patents, copyrights, etc) and relational capital (customer relations). Bontis (2001) identified Skandia, as the first company to measure its knowledge assets in 1994. Skandia's IC report consists of human and structural capital involving 112 metrics to measure five areas of focus (financial, customer, process, renewal and development, and human capital) which it called the 'Navigator' model. Another approach to measure IC was Guthrie and Petty's (2000) content analysis which entailed coding information contained in annual reports in line with established framework of intellectual capital indicators. This study would employ a similar approach to Guthrie and Petty's content analysis and examine the extent to which board dynamics impact on these disclosure indices.

Various studies of investors' and analysts' requests for information indicate a substantial difference between the type of information found in companies' annual reports and the type of information demanded by the market (Eccles et al, 2001; Eccles and Mavrinac, 1995). As such, Bukh (2002) argues that companies, investors and analysts request more reliable information, for example, managerial qualities, expertise, experience and integrity, customer relations and personnel competencies- all ingredients of intellectual capital. Professionals and scholars all over the world have manifested their concern regarding this practice of disclosing knowledge assets arguing that the accounting system will lose its relevance should accounting regulations fail to adjust to the increasing need of supplying pertinent information on intellectual capital investment (Johnson and Kaplan, 1987) .Stolowy and Jeny- Cazavan (2001) discovered that most regulations stipulate a general conceptual definition for intellectual capital and then include a list of intangible items.

The Nigerian Statement of Accounting Standard (SAS) number 22 on intangible assets released in 2006 marked the beginning of intellectual capital recognition in Nigeria. The recent compliance with the International Financial Reporting Standard and International Accounting Standards also brings the issue of IC disclosures to the table for further consideration. The International Accounting Standard (IAS 38) specifies that an entity can identify an asset if future benefits are attributable to assets being directed to the entity and if the costs are credibly assessable. The introduction of International Financial Reporting Standard (IFRS 3), a regulation

demanding the identification and valuation of intangible assets in business combinations, may be considered as the opportunity for a practical application of the methods and tools proposed by the intellectual capital community. Such opportunity entails making intangible assets such as knowhow, customer capital, structural capital, etc, visible in the financial statement. IFRS 3 is an opportunity to test the relevance of IC models and reduce the gap between IC Accounting and Financial Accounting (Petty and Guthrie, 2000; Roslender and Fincham, 2001).

Tayib and Salman (2011) demonstrate that as a company discloses its intellectual resource, the better it becomes competitive and also maintains the confidentiality of its investors and creditors. Okwy and Christopher (2010) argue in their study that millions of Naira is lost for non-disclosure of certain intellectual capital indicators. This goes to emphasize the critical nature of intellectual capital disclosures. However sound financial reporting (especially voluntary) can scarcely be realized without sound corporate governance mechanisms in place. Many corporate governance mechanisms in common practice have been applied to minimize information irregularity and asymmetry (Azman and Kamaluddin, 2012). Corporate Governance has been a standing issue in the disclosure of more voluntary information which is necessary in enhancing the company's value and attracting investors. Clemente and Libet (2009) and Akhtaruddin et al (2009) argued that effective corporate governance mechanisms have impacts on efficient intellectual capital management, including the disclosure of information to stakeholders. This would in the view of Kavida and Sivakoumar (2008), get stakeholders informed about the core strengths of the company and then thus promote transparency. This study is then geared at ascertaining the extent to which various corporate governance mechanisms of Nigeria listed firms influence intellectual capital disclosure.

2 Underlying Theory

The Agency theory provides the connection between voluntary disclosures to practices to corporate Governance where such governance mechanism is employed as a control to reduce the agency problem arising from the separation between ownership and management (Welker, 1995). The Agency problem exists when the principal and agent have different interests. The self interest of the management (agent) can compromise the best interest of investors (Fama and Jensen, 1983). As such governance mechanisms in practice have been applied to minimize information irregularity and asymmetry. Jensen and Meckling's (1976) agency theory provide a framework for linking disclosure behavior to corporate governance by considering both as drivers/ mechanisms of accountability. Sound governance mechanisms reduces the possibility that management will try to further their interests by using information irregularities and asymmetry .Such mechanisms could also trigger managers to disclose more information. This study is thus anchored on the agency theory to examine the possible link between intellectual capital disclosures and board mechanisms.

Prior Research and Hypotheses Development

Intellectual Capital has become a key for gaining competitive advantage in a business environment that transcends fixed geographic boundaries (Lev, 2004). The Agency theory adopted in this study argues that the board is an intermediary between management and stakeholders and is poised at reducing agency problems of which information asymmetry and irregularity is dominant. The more voluntary information is disclosed, the easier it is for investors to minimize ambiguity and then take calculated decisions. Intellectual Capital information is essential for stakeholder in order for them to make better decisions (Li et al; 2008). Jensen and Meckling (1976) further demonstrate that in the agency context, the more intellectual capital disclosures is disclosed, less ambiguity is encountered by investors and this indirectly minimizes a firm's cost of capital.

The possible prediction of the extent of IC information by board mechanisms is a topic of discussion fast gaining momentum. Several empirical studies on IC disclosures and governance have either been cross sectional (Guthrie and Petty, 2000; Bozzolan et al, 2003; Goh and Lim, 2004) or longitudinal (Abeysekera and Guthrie, 2005; Oliveras et al; 2008; 2008; Campbell and Rehman, 2010). Bozzolan et al (2003) conducted a competitive analysis between 'traditional' companies and 'high tech' companies whereby the results showed variations in the IC disclosure in annual reports of high profile and low profile industries. They found that high profile industries disclose more information than low profile industries. Cerbioni and Parbonetti (2007) examined the effects of corporate governance on intellectual capital disclosure, analyzing bio- technology companies in Europe. They observed a positive correlation between corporate governance features and intellectual capital disclosure. Nadi (2004) examined the relation between board structure and intellectual capital in the case study of pharmacology companies in Tehran Security Exchange and concluded a significant and positive relation between intellectual capital and board characteristics. Keenan and Aggestan (2001) and Li et al (2008), demonstrate that sound governance structures significantly impact intellectual capital disclosures .Angaye et al (2010) investigates the link between corporate board features and value added intellectual capital. They find no statistical significant associations between the board features and intellectual performance disclosures. This study examines the influence certain board mechanisms have on intellectual capital information disclosure in Nigerian firms. As such, the following mechanisms are investigated.

Board Size

The size of the board of directors has been identified as a factor influences the level of intellectual capital disclosure since information disclosure is a strategic decision usually made by the company's board. Larger boards allow firms to bring critical and diverse resources and experiences onto the board that can make the board's decision making effective directly or indirectly (Pfeffer and Salancik, 1978; Parum, 2005). However, a big board size is difficult to coordinate. A small board on the other hand, is a favorable field to coordination, but, it can suffer from a lack of experience and competence of its members. The issue of a having an optimal size is a problem for the firm. Arcay and Vazquez (2005) argue that the board size has no impact on voluntary disclosures. This study supposes the existence of a neutral

relationship between the size and intellectual capital disclosure. Thus, the following hypothesis:

H_1: Board size has no significant impact on the quality of Intellectual capital disclosures in Nigerian firms.

Board Independence

In line with the agency theory, the presence of non-executive directors in the board as independent individuals reduces the conflict of interests existing between shareholders and directors of the firm (Khodadadi et al (2010). Chen and Jaggi (2002) found a positive relationship between a board with higher proportion of independent directors and comprehensive financial disclosure. This finding is consistent with the agency theory that demonstrates that a higher proportion of independent directors enhance voluntary financial reporting (Barako et al; 2006). Aktaruddin et al (2009) and Obeua (2009) find that firms can expect more voluntary disclosure with the inclusion of a larger number of independent non-executive directors on the board. Likewise, Cheng and Courtenay (2006) find that boards with a larger proportion of independent directors are positively and significantly associated with higher levels of voluntary disclosure. In the light of the above, the following is hypothesized:-

H_2: Board Independence has a positive significant impact on Intellectual capital disclosure quality in Nigerian firms.

Audit Committee Independence

An important role played by audit committees is to ensure the quality of information disclosure and corporate accountability (Azman and Kamaluddin, 2012). Cerbioni and Parbonetti (2007) provide that an audit committee composed of a majority of independent directors can enhance the quality of information disclosure to allow for a more accurate assessment of top management decisions and performance. Karamanou and Vafeas (2005) studied a sample of 275 fortune 500 firms from 1995 to 2000 to determine how corporate boards and audit committees are associated with voluntary disclosure practices. Their findings are consistent with the proposition that effective audit committees are associated with higher disclosure quality. Summarily, independent directors on the audit committee could enhance the amount and quality of voluntary disclosure by enhancing decision control process and thus making control over top management more effective (Menon and Williams, 1994). In this light, the following is hypothesized:

$H_{3:}$ There is a positive significant impact of audit committee independence on the quality of Intellectual Capital disclosure in Nigerian firms.

Board Gender Diversity

The issue of having women on boards of directors is a topic that is recently engendering interest in various quarters with majority of studies showing the positive effects of gender diversity on corporate boards. Companies with high female representation on their board tend to have stronger corporate governance

than those with few or no women on the board of directors (Rosener, 2003) and consider the needs of a wider range of stakeholders than male directors (Konrad and Kramer, 2006). Fodio and Oba (2012) document that the presence of female directors on a board has a significant impact on its environmental information disclosure. This study hypothesizes that:-

H_4: Gender diversity has a significant positive impact on the quality of intellectual capital disclosure in Nigerian firms.

Board Nationality Diversity

Extant literature offers an existing relationship between board demographic diversity and decision making (Zahra and Pearce, 1989; Bilimoria and Wheeler, 2000). A more diverse board may be more creative and innovative. Sanda et al (2005) found that firms with foreign CEOs tend to perform better than those with indigenous CEOs. Oba et al (2012) also demonstrate that foreign directors play a significant role in enhancing the quality of environmental information disclosed in annual reports. This study hypothesizes that:

H_5: Foreign directors have a significant positive impact on the quality of intellectual capital disclosures in Nigerian firms.

Control variable

This study utilizes an explanatory variable (firm size) as moderator of the potential relationship between board mechanisms and intellectual capital disclosures. Williams (2000) argued that specific corporate characteristics may influence the level of intellectual capital disclosure practices. Bozzolan et al (2003) identified size as a significant factor with a tangible effect on reported IC disclosure using Italian data. For large firms which deal with more public scrutiny, visibility, and accessibility, voluntary disclosures can be seen as a source of reduction in information asymmetry and irregularity. This study thus hypothesizes that:

H_6: Firm size has a positive significant effect on extent of intellectual capital disclosures.

Research Design

The firms selected in the sample are the twenty Nigerian companies that made the Forbes Africa top 25 companies (2012) in West Africa. The Forbes award was ranked in terms of market capitalization, revenue and profit of the firms. These companies were characterized by Forbes Africa as successful risk takers and job creators that have sustained excellence. This is expected in line with extant IC literature that these companies must have exhibited a high level of knowledge assets utilization. As such they form the sample. However, the following filters were observed:

1) Banks were not included in the study firms due to the special regulatory environment in which they operate.

2) Firms that were not listed or were delisted during the study period (2006-2009) were excluded from the sample.

A sample of 10 companies made the final sample list. The list is found in Appendix 1. Annual reports of the firms were used as the source of raw data for this study. Annual reports are the chief external reporting vehicle used for communicating IC information (Sujan and Abeysekera, 2007). More so, they offer an opportunity for a comparative analysis of management attributes and policies across reporting periods (Guthrie et al, 2004).

Measurement of Variables

Dependent Variable (Intellectual Capital Disclosure Quality)

Intellectual Capital disclosure quality is measured as a dummy variable. The study uses the content analysis approach to develop an IC disclosure index. The developed IC Disclosure framework is found in Appendix 2. Content analysis has been successfully applied to investigate voluntary reporting in IC. The method provides useful guidelines and content categories to IC in examining disclosure patterns. A dichotomous non weighted approach was employed. As such a value of one was assigned when an attribute appears in the report while a value of zero was used to indicate that the attribute did not appear in the annual report. A company could score a maximum of the 22 tested IC attributes and minimum of zero points. Companies that score over 50% of the total attributes are labeled to have disclosed quality intellectual capital disclosures and are assigned 1; on the other hand, those with less than 50% of the scores are assigned 0.

Independent Variables

1) Board Size – This is measured as the absolute number of board members.
2) Board Independence – This is measured as the absolute value of the number of independent directors in the board.
3) Audit Committee Independence – Audit Committee Independence is captured as the number of independent directors in the audit committee.
4) Board Gender Diversity – The variable is measured as the proportion of women directors in the board to the total number of directors.
5) Board Nationality Diversity – This is captured as the number of foreign directors in the board.

Control Variable

Firm Size is measured as the natural logarithm of the total sales of the study firms.

Data Analysis Technique

A logistic regression is used to test the relationship between the dependent variable and regressors. This method is considered appropriate for this analysis since the dependent variable is a dummy variable (Gujarati and Porter, 2009).

Model Specification

The following logistic regression model is used to test the research propositions of the study:-

Log (P/1-P) = b_0 +b_1BS +b_2BIND +b_3ACI +b_4BGD +b_5BND +b_6FS +eit……. (1)

Where P = Probabilities that companies disclose quality Intellectual Capital Information

1-P = Probabilities that companies do not disclose quality Intellectual Capital Information

BS = Board Size

BIND = Board Independence

ACI = Audit Committee Independence

BGD = Board Gender Diversity

BND = Board Nationality Diversity

FS = Firm Size

4 Results and Discussion

Table 1 Classification Table[a,b]

			Predicted		
			ICDQ		Percentage Correct
	Observed		.00	1.00	
Step 0	ICDQ	.00	32	0	100.0
		1.00	18	0	.0
	Overall Percentage				64.0

a. Constant is included in the model.

b. The cut value is .500

Table 2 Classification Table[a]

			Predicted		
			ICDQ		Percentage Correct
	Observed		.00	1.00	
Step 1	ICDQ	.00	27	5	84.4
		1.00	7	11	61.1
	Overall Percentage				76.0

a. The cut value is .500

Table 3 Variables not in the Equation

			Score	Df	Sig.
Step 0	Variables	BS	4.152	1	.045
		BIND	.444	1	.505
		BGD	.904	1	.342
		BND	4.715	1	.039
		ACI	.000	1	.987
		FS	7.941	1	.005
	Overall Statistics		14.337	6	.026

Table 4 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	31.655[a]	.375	.523

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 5 Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	18.792	6	.005
	Block	18.792	6	.005
	Model	18.792	6	.005

Table 6 Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	5.057	8	.751

Table 7 Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1[a]	BS	-1.386	.600	5.377	1	.021	4.000
	BIND	.317	.319	.988	1	.320	1.373

	BGD	.386	.316	.336	1	.521	1.080
	BND	1.132	.895	5.001	1	.024	6.841
	ACI	-.717	.900	.635	1	.425	.488
	FS	5.546	2.266	5.987	1	.014	.004
	Constant	41.822	16.044	6.795	1	.009	1.455E18

a. Variable(s) entered on step 1: BS, BIND, BGD, BND, ACI, and FS.

The classification table (Table 1) suggests that if nothing is known about the variables and if one should guess that the companies did not disclose quality intellectual capital disclosures, one would be correct 64% of the time. The variables not in the equation in table 3 reveals the magnitude to which explanatory variable improves the model. Board size, board nationality diversity and firm size are significant and if included would add predictive ability to the model. An inclusion of these predictors changes the classification error rate from the original 64%. By adding these variables, one can now predict changes in the regressand with 76% accuracy (Table 2). The model is certainly sound. To test the overall significance, the model chi square derived from the likelihood of observing the actual data is utilized. The model chi square is simply the difference between -2 log likelihood for the null hypothesis model. The -2 log likelihood from the model summary in table 4 is 31.655. In this study, model chi square has 6 degrees of freedom, a value of 18.792 and a probability of $P \leq .005$ (Table 5). Thus indicating that the predictors have a significant and a tangible effect. The Cox and Snell R Square in table 4 indicate that 37.5% of the changes in intellectual capital disclosure quality are explained by the logistic model. The Nagelkerke R^2 ranges from 0 to 1 and is a reliable measure of the relationship (Menard, 2002). Its R^2 is usually higher than the Cox and Snell measure. In this study, it is 0.523, indicating a moderate relationship of 52.35 between the regressors and the regressand.

The Hosmer and Lemeshow goodness of fit statistic assesses the fitness of the model. Where it exceeds 0.05, as is desired for well fitting models, one fails to reject the null hypothesis that there is no difference between the observed and predicted values, indicating that the model's estimates fit the data at an acceptable level. According to Pampel (2000), well fitting models show non significance on the Hosmer and Lemeshow goodness of fit test. The statistic in this study (table 6) has a significance of 0.751 which means that it is not significantly different and therefore the model is a good fit. The Wald statistics in table 7 show that board independence, board gender diversity and audit committee independence do not make a significant contribution to the prediction of quality intellectual capital disclosures. Scholars have previously emphasized that these governance dynamics are significantly associated with higher levels of voluntary disclosure. (Obeua, 2009; Cerbioni and Parbonetti, 2007; Fodio and Oba, 2012). The findings of this study contradict these arguments. With respect to the board size, board nationality diversity and firm size variables; the Wald statistics show significant impact on the dependent variable. However, a significant negative relationship is documented between board size and intellectual capital disclosure quality. A possible explanation could be due to the 'too many cooks syndrome'; being that big boards could be difficult to coordinate. This finding is consistent with the work of

Cerbioni and Parbonetti (2007) who demonstrate that the board size has a negative effect on total intellectual capital disclosure index. When the size of the board is small, monitoring quality will be better (Yermack, 1996) because the agency problem will increase with the size of the board (Conger et al; 1998).
Also the Wald statistics reveal a positive significant impact of the board nationality diversity on the disclosure quality. This is possibly due to the fact that foreign directors bring along diverse creativity, innovativeness and experience to the table. More so Intellectual capital disclosure is still at the embryonic stage in emerging economies; as such, foreign experience with a broad understanding of such voluntary reporting brings a lot to bear. This study shows firm size similarly has a significant influence on the quantity of intellectual capital disclosure. A possible explanation is that big companies are more visible and are expected to meet investors demand for information compared with small companies (Li et al; 2008). Based on this, it can be implied that the greater the firm size, the higher the quality of intellectual capital disclosure. This finding lends support to the works of Bozzolan et al (2003); and Guthrie, Petty and Riceri (2006) who demonstrate that size has a significant effect on IC disclosure. It however contrasts the study of Bontis (2003) that shows insignificance.

5 Conclusion and Recommendations

Intellectual capital (IC) has become a key for gaining advantage in a business terrain that transcends fixed geographic borders. As the global economy shifts to the knowledge age, IC information becomes an essential factor underlying value creation; as such, its disclosure becomes an issue of paramount concern for transparency to stakeholders. This study investigates the influence of governance mechanisms on IC disclosure quality by top Nigerian firms in their annual reports. Board size, board independence, board gender diversity, board nationality diversity, audit committee independence, and a control variable (firm size) were considered. Based on the results, board independence, board gender diversity and audit committee independence show no significance in predicting IC disclosure quality. However, board size, board nationality diversity and firm size were found relevant in predicting IC disclosure quality. These variables have shown to be important contributors and determinants of IC disclosure quality and are recommended for an extended study on IC disclosure. The study thus recommends to firms that desire to have qualitative IC disclosure frameworks to incorporate experienced foreign directors (where local experienced ones are unavailable) and have manageable board sizes. Also, opportunities for future research are still extensive. A larger sample size could be investigated for more reliable results and generalizations, while other governance dynamics such as ownership concentration, institutional investors, number of board meetings and so forth could be incorporated for further investigations.Please read these instructions carefully. Prepare your paper and data exactly according to the instructions. Please present your results clearly in a logical sequence which supports the hypothesis/research target.

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Appendix 1

Sample Companies

1. Lafarge Cement WAPCO
2. Total Nigeria Limited
3. Unilever Nigeria
4. PZ Cuzzons Nigeria Ltd
5. UACN
6. Cadbury
7. Nigeria Breweries
8. Flour Mills Nigeria Plc
9. Guinness Nigeria Plc
10. Nestle Nigeria Plc

Appendix 2

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