

AN ANALYSIS OF THE DETERMINANTS OF VOLUNTARY STRUCTURAL CAPITAL DISCLOSURE BY PUBLIC LISTED NIGERIAN COMPANIES

SALMAN, Ramat Titilayo

Department of Accounting University of Ilorin, Ilorin, Nigeria

Email: titisalman@yahoo.com

YAHAYA, Khadijat Adenola

Department of Accounting University of Ilorin, Ilorin, Nigeria

SANNI, Mubaraq

Department of Accounting, Kwara State University, Molete, Kwara State, Nigeria

Abstract

This paper examines the determinants of voluntary structural capital disclosure of publicly listed Nigerian companies. Annual reports of 2011 of 50 selected companies listed in the Nigerian Stock Exchange were used. Negative Binomial Regression was used to analyse the coefficient associated with variables measuring the managerial ownership. Negative binomial regression shows that coefficients associated with variables measuring the managerial ownership are significant. However, the multivariate analysis reveals that the performance of a company, listing status, interest in the pressure of stakeholders, the industry and competitive pressure are not explanatory factors of the voluntary SCD. The result further reveals that most companies disclosed their structural capital in form of narrative than quantitative. In view of these findings, the study recommends that Nigerian companies should strive to disclose valuable items that will be useful for users of accounting information in making rational decision in quantitative form.

Keywords: Capital Disclosure, Nigeria, Structural, Voluntary

1. INTRODUCTION

In this present era, companies' value creation has changed from operational resources that solely based on tangible assets to intangible

assets of which intellectual capital (IC) is part. Now, companies have realised the potentiality of both human capital efficiency and structural capital efficiency as the

backbone of improving company's performance and remain competitive in global market (Kateb, 2012; Suraj and Bontis, 2012; Salman, Mahamad and Monsor, 2012; Calisir, Gumussoy, Cirit and Denuz, 2011).

Intellectual capital has been identified as a source of competitive advantage by many companies in today's economy (Edvinsson and Malone, 1997; Stewart, 1997; Sveiby, 1997). Edvinsson and Malone (1997) define IC as the total stocks of intangible resources and capabilities of a company which create values and competitive edge. They argued that IC is the composite of three elements (Human capital, structural capital and relational capital).

Human capital is the body of knowledge owned by the organisation that live in the minds of employees (McGregor, Tweed and Pechi, 2004). Organisation of Economic Cooperation Development (1999) believes human capital include knowledge, skills and competencies embodied in individuals and associated with their economy activity. Thus, what a single employee brings into the value adding processes, consisting of professional competence, social competence employee motivation, and leadership ability (Halim, 2010).

Relational capital is delineated as the external constituencies and structures such as links to

customers, suppliers, networks and other stakeholders that belong to an organisation (Ahangar, 2011; O'Regan, O'Donnel and Herman 2001; Edvinsson and Malone, 1997). Although, organisations invest in the human capital and relational capital but these two capitals cannot be owned by the organisations (Nazari, 2010) but belong to the employees (Roos, Roos, Dragonetti and Edvinsson, 1998), nevertheless it is a source of wealth for the organisation (Bontis, 1999). Structural capital (SC) is the process, system, procedure and practice of organisations used by the employees (Edvinsson and Malone, 1997). They argued that SC is the supportive infrastructure for human capital and unlike human capital, it is owned by the company which can be traded, reproduced and shared by, and within, the organisation. This capital is made up of organisational, process and innovation capital. Organisational capital represents institutionalised knowledge and codified experience stored in databases, routines, norms, structures and organisational philosophy. Process capital comprises of techniques, procedures and programs engaged in day-to-day activities to achieve the aim and desire of the organisation, while innovation capital includes intellectual property (patent, trademark and copyright). The ability of accounting and financial reporting data to represent and report information that is useful in assessing

company value and management performance has come under a great deal of scrutiny in recent years. Evidence exists that an increasing number of items that affect valuation are not captured in company's financial statements. This is more pronouncing especially for companies with large, unrecognised investments in intangible assets (IC) (Wolfe, 2009). Researchers suggest that companies should compensate for this deficiency by expanding their disclosure of IC information even if they have to be in a supplementary form attached to the financial statement (Holland, 2009; Reed, Lubatkin and Srinivasan, 2006; Guthrie, 2001, Lev, 2001). Their reason is based on the fact that the extension of (the financial statement) disclosure will better communicate a company's performance and help unlock additional relevant information about company's value.

Nigeria issued its first accounting standard on intellectual capital assets in June, 2006 through former Nigerian Accounting Standard Board (NASB) now Financial Reporting Council of Nigeria (FRCN) by issuing Statement of Accounting Standard (SAS 22) as one of the efforts to increase the level of information on IC (Salman, et al. 2012). Also, FRCN has started to follow the directive of IFRS on disclosure of IC for listed companies starting from 2012. Suraj and Bontis (2012) argue that IFRS conditions only allow a few intellectual capital assets to

be capitalised especially if such information relates only to intangible elements that respond to business combination such as identification and control; as such a few intellectual asset such as Research and Development (R&D) is allowed to be capitalised and disclosed. This situation creates an avenue for supplementary disclosure called invisible balance sheet. Therefore, disclosing structural capital items such as organisational, process and innovation capital is a voluntary act by managers of companies who decide structural capital disclosure as part of the company strategic plan. This therefore, leads to the first research question:

- Why do Nigerian companies provide voluntary information on their structural capital in their annual reports?

Many researchers have conducted investigation on the intellectual capital disclosure (ICD); some of the studies were based on descriptive and exploratory (Guthrie et. al 1999; Guthrie and Petty, 2000; Olsson, 2001; Brennan, 2001; Bontis, 2003; April, 2003; Abeysekera and Guthrie, 2004). Few studies have employed regression models to examine the extent of voluntary ICD (Williams, 2001; Firer and Williams, 2003; Bukh et al. 2005; Abdolmohamadi, 2005).

More importantly, only Kateb's (2012) research work, as best as we know, has tried to use costs proprietary theory to examine the determinants of voluntary SCD. No other ICD studies to the best of our knowledge have used cost proprietary theory to investigate the determinant of voluntary ICD (Verechia, 1983; Darrough and Stoughton, 1990; Gigler, 1994). This theory (cost of proprietary) is more peculiar to disclosure on elements of human capital differentiation such as knowledge and expertise.

In Nigeria, Mahamad and Salman (2011) investigated the intangible disclosure of Nigerian companies and its association with corporate characteristics based on the combination of human capital and structural capital components. No previous research has rigorously studied the determinants of voluntary ICD and structural capital disclosure (SCD) within Nigerian companies. Consequently, there is a need to empirically investigate why managers disclose their intangibles.

There are studies that have examined the relationship between the extent of voluntary ICD and market value such as (Al-Mamum, 2009; Orens et al. 2009; Gerpott et al., 2008; Abdolmahadi, 2005; Lev, 2002). The concept of shareholder value seems to be very limited (Kateb, 2012). The intellectual capital value creation potentiality performance of

company is not strictly meant for shareholders alone but to optimise also the interest of all the stakeholders who provide the company the necessary operational resources for its continuity. Although, the intellectual capital components efficiency affect a variety of stakeholders and the link between social responsibility and the creation of added value, no study has investigated whether the intellectual social disclosure (ISD) can be a process of legitimating which allows a company to manage stakeholders' pressures. This submission leads to the second research question:

- Does voluntary SCD respond to the need of legitimisation that fits into vision of corporate citizenship or provided in order to reduce agency costs of information asymmetry?

To answer these questions, (that is first and the second) this study first assesses the level, nature and structure of the structural capital information by analysing the annual reports of the sampled companies. Secondly, this study tries to identify the determinants of voluntary structural capital disclosure by exploring the relationship between the amount of information disclosed and factors related to the company and its environment. To achieve this, this paper is organised as follows: second part of this paper reviews related literature and

hypotheses; third part covers the methodology employed in this study; and the final part presents the study's results and discussion of the findings.

2. REVIEW OF THE LITERATURE

Different approaches have been used in the literature relating to voluntary disclosure in order to examine the extent and quality of ICD. In this study, two approaches will be examined to deal with structural capital disclosure. These approaches are: shareholders' approach and stakeholders' approach.

Voluntary SCD according to shareholders' Approach:

Argument of Financial Utility

According to the shareholders' approach, which is fundamentally defined by the company's relation with its shareholders that the factors affecting the level of voluntary SCD are justified by agency theory and signalling theory. These theories are based on the premises of asymmetric information stating that managers have more and better information than the stock market (Kateb, 2012). These theories guide the financial information in two different aspects: a contractual aspect, when the information is used to control external and internal contracts, and a predictive aspect, when the information is used by investors to improve their predictions concerning the future earning of the company (Kateb, 2012; Raffournier and Dumontier, 1989).

Separation of ownership/control in a company sometimes leads to conflict of interest between managers and shareholders (Kateb, 2012). Fama and Jensen (1983) aver that ownership structure determines the importance of this conflict. However, in closely held companies, the risk of wealth transfer would be limited due to the small number of shareholders; while, in the widely held companies, leaders are required to reduce information asymmetry and to make their action transparent by disclosing more necessary and important information to decrease conflicts of interest. An examination of the relationship between internal and external governance mechanism employed by Nigerian banking companies was the subject for Adelegan (2005), who found a higher portion of non-executive directors and a greater likelihood of separating the role of company chair and CEO in banks. The proportion of non-executive directors who are former executives is low. These suggest that those banks are more likely to employ non-executives for monitoring.

Kateb (2012) provides evidence that ownership structure, size, debts and the weight of activated goodwill are the determinants factor of voluntary structural capital disclosure. Also, Hossain et al. (1994) found positive relationship between debt and the extent

of voluntary disclosure. However, some studies have found negative relationship between ownership concentrated firm and the extent of voluntary ICD (Oliveras et al. 2008, 2006; Firer and Williams, 2003).

Jensen and Meckling (1976) submit that the agency costs are higher for companies with higher level of debt. They also argue that agency costs increase with company's size which leads to a positive relationship between the size of a company and the extent of voluntary disclosure. The following studies found positive relationship between size of a company and the extent of voluntary ICD (White et al. 2007; Bozzolan et al. 2006; Guthrie et al. 2006; Petty and Cuganesan, 2005); while Williams (2001) found size to be insignificant to voluntary ICD. These findings are inconclusive and inconsistent; therefore, there is a need to further empirically examine the determinants of voluntary structural capital disclosure in other context.

In accordance with signalling theory, the most profitable firms provide the market with more and better accounting information in order to send specific signals to the public (Kateb, 2012; Li et al. 2008; Brown and Deegan, 1999). The theory shows how this asymmetry can be reduced by the party with more information signalling to others (Morris, 1987). When applied to organisational disclosure practices, signalling theory proposes that it would be

generally beneficial for organisations to disclose accounting information and ICD practices so as to create a favourable image in the market. In this theoretical framework, voluntary SCD is regarded as a signalling mechanism allowing managers to reduce capital cost.

Few studies have shown that companies disclose more intellectual capital information to signal their real value and growth potential to the market (Garcia-Mecca et al. 2005; Firer and Williams 2005); while Williams (2001) study found no relationship.

Argument of legitimization

The major challenge to the 'shareholder sovereignty' is the stakeholders' approach, which suggests that managers should take into account their responsibilities to stakeholders-not just shareholders-when making decisions. When applied to company disclosure practices, voluntary SCD is based on two theories. The first is legitimacy theory, in which companies seek to prove that they work within the bounds and norms of the societies in which they operate and try to ensure that their activities are perceived as "legitimate" (Deegan, 2002). The second theory is stakeholder theory which emphasises the role of stakeholders in the determination of the communication strategy (Damak-Ayadi and Pesquex, 2003; Mitchell et al. 1997). Stakeholder

theory is widely used to address problems of information asymmetry in the market (Srinivasan and Hanssens, 2009). This theory believes that managers will voluntarily disclose any information that will be of interest to the stakeholders such as investors, creditors and others (Abeysekera, 2007). Stakeholder theory proposes that it would be generally beneficial for companies to disclose intellectual capital information that shows the companies' performance that is rewarding and good for investors and creditors in decision making.

More importantly, voluntary ICD is expected to minimise any potential for investors' devaluation of the company (or alternatively, to maximise the potential) for firm value enhancement. As such, provides companies with a chance to appear legitimate and avoid unnecessary costs (Ketab, 2012; Li et al. 2010; Beattie and Thomson, 2007; Deegan and Unerman, 2006).

Hypotheses Development

Ownership Structure

In UK, Zourarakis (2009) found a significant negative relationship between ownership structure measured by the number of shareholders holding more than 3% of capital and level of voluntary SCD. In France, Depoers (1999) avers that ownership structure affects the level of disclosure. The author confirms that voluntary disclosure can control and decrease the agency costs. In

Nigeria, Adenikinju and Ayonrinde (2001) investigate whether ownership mix and concentration explain observed variation in disclosure of publicly listed firms. The study finds that Nigerian firms are highly concentrated and there is significant presence of ownership in determining the level of disclosure.

Therefore, we hypothesise that:

H1: There is an association between managerial ownership concentration and the level of voluntary SCD.

Size

The second hypothesis arising from the concept of agency theory indicating that bonding costs are expected to increase with size. According to Jensen and Meckling (1976), control becomes more difficult and expensive in big companies. Studies have confirmed a positive association between company size and the level of voluntary ICD (Al-Mamum, 2009; Zourarakis, 2009; White et al. 2007; Bozzolan et al. 2006, 2003; Guthrie et al. 2006).

Therefore, we hypothesise that:

H2: There is an association between size and the level of voluntary SCD.

Debt

In view of this study theoretical framework, firms provide more information to mitigate agency problems between shareholders and creditors which increase with debt. However, prior studies have provided

evidence that disclosure has an impact on the cost of equity capital (Lambert et al. 2007; Diamond and Verrecchia, 1991). Hence, disclosure may increase the level of equity financing. Kang and Gray (2011) argue that debt is negatively associated with the level of voluntary ICD based on a sample of top 200 emerging companies of their study. Zourarakis (2009) provides no evidence of association between debt and the level of voluntary SCD. Also, Ding and Stolowy (2002) found no association between debt and R&D disclosure. Therefore, we propose that:

H3: There is an association between debt and the level of voluntary SCD

Performance

Abdolmahamadi (2005) and Garcia-Mecca et al. (2005) show that there is a relationship between ICD and performance. Both authors evidenced that companies with higher efficiencies provide more information on intellectual capital than others. Abdolmahamadi (2005) used market value as a measure of company performance for the UK study; while Garcia-Mecca (2005) used return on equity (ROE) as a measure of company performance for Spanish companies. On the other hand, there are studies that provide negative relationship between company profitability (performance) and the level of ICD such as Sonnier et al. (2007); Firer and Williams

(2005). In addition, Skinner (1994) opines that less profitable companies may disclose more information to give details about reasons for negative performance, to evade severe devaluation of share capital and to reassure the market about future growth. Also, Zourarakis (2009) argues that company's performance (measured by ROE and ROA) is not a determinant of voluntary SCD. Hence, we propose that:

H4: There is a relationship between performance and the level of voluntary SCD.

Age

Al-Mamun (2009) argues that young companies are less legitimate than the older companies. Also, Woodcock and Whiting (2009) and Haniffa and Cooke (2002) confirm that young companies will try to reduce scepticism and amplify investors' confidence who judge them as most risk companies. In addition, Li et al. (2008) provides that there is a negative relationship between company's age and the level of ICD; while, White et al. (2007) study found a positive relationship between company's age and the level of ICD. In another study, Woodcock and Whiting (2009) and Bukh et al. (2005) found no relationship between company's age and the level of ICD. Hence, we propose that:

H5: There is an association between company's age and the level of voluntary SCD.

Type of Industry

Al-Twaijry (2009) provides evidence that there is a positive association between sector (type of industry) and the level of ICD. Woodcock and Whiting (2009), Sujan and Abeysekera (2007), Oliveras et al. 2008, 2006) argue that high-technology companies provide more disclosure voluntary of intellectual capital components than other companies. Therefore, we hypothesise that:

H6: High-tech sectors disclose more information on structural capital than others.

Stakeholders' Pressure

Hill and Jones (1992) define stakeholders as "constituents who have a legitimate claim on the firm" (p.133). Clarkson (1995) suggests a concept of stakeholders as risk-bearers: a stakeholder has some form of capital, either financial or human, at risk and, therefore, has something to lose or gain depending on a firm's behaviour. In view of the above, stakeholder's theory advance that to exist, company needs the approval of the stakeholders and must adapt its activities to gain their support. Therefore, voluntary SCD allows the firm to establish a dialogue and respond to pressure of many social actors (Damak-Ayadi, 2004; Roberts, 1992). Thus, we propose to verify that:

H7: There is a positive association between interest in the pressure of stakeholders and the level of voluntary SCD.

Proprietary Costs

Proprietary costs theory states that firms limit voluntary disclosure because of proprietary costs, such as preparation and competitive costs (Clinch and Verrchia, 1997). Lopes and Alencar (2008) and Dye (1985) affirm that disclosure reduces the value of cash flow since it generates indirect cost associated with use of harmful private information by competitors of the company. None of the studies reviewed have examined the relationship between proprietary costs and the level of voluntary SCD. Therefore, we propose that:

H8: There is a negative association between the intensity of competition and the level of voluntary SCD.

In summary, there are inconsistencies in the findings of the previous studies, therefore, research on Structural capital disclosure is inconclusive; hence, needs further investigation particularly in Nigeria.

3. METHODOLOGY

Data source

The annual reports for 2011 financial year of the 50 companies were used as source of data in this study. The annual report is an important medium through which managers commonly signal what is important (Abeysekera and Guthrie, 2005; Firer and Williams, 2005; April et al., 2003; Guthrie and Petty, 2000). It is a communication medium connecting a

company with its stakeholders (Yi and Davey, 2010). The 50 top companies were selected based on price index report given by the Nigerian Stock Exchange (NSE) in their monthly report of July, 2012. All the companies used in this study were fully listed in the Nigerian Stock Exchange and cut across the sectors of the Nigerian economy. These companies comprise of Oil and Gas, Manufacturing and others except banks, insurance companies, credit companies because of their activities and their rules of reporting are different.

Variables and Model

Dependent Variable: Level of Voluntary SCD
Both Modified Intangible Asset Monitor and content analysis were used to capture and codified intellectual capital items disclosed by sample companies. Content Analysis involves codifying qualitative and quantitative information into pre-defined categories based on specific criteria in order to derive patterns in the presentation and reporting of information (Guthrie et al., 2004). Content analysis is a technique that is widely used in intellectual capital disclosure studies. For example: Yi and Davey, 2010; Oliveras, et al., 2008; Biesso and Kumar, 2007; Abeysekera and Guthrie, 2005; April, Bosma and Deglon, 2003; Bozzolan, Favotto and Ricceri, 2003 and Brennan, 2001) have used this method to capture the level of

voluntary structural capital disclosure by companies at different countries and different industry type and size.

Construction of the Structural capital Disclosure Index

A disclosure index is “a qualitative-based instrument designed to measure a series of items which scores for the items as aggregated, gives a surrogate score indicative of the level of disclosure in the specific context for which the index was devised” (Coy, 1995, p. 121). Several previous researchers have constructed and used disclosure indices to examine the voluntary disclosure of intellectual capital in annual reports. For example: Al-Mamum, 2009; Schneider, 2006; Firer and Williams, 2005). The construction of structural capital index was in three phases. The first phase was the listing of voluntary structural capital disclosure (SCD) items according to their drivers/indicator in the annual reports of the sample companies. There were nine items for structural capital were found drawing from previous literature (Abeysekera and Guthrie, 2005; Bozzolan et al., 2003; Guthrie and Petty, 2000). In order to simplify this study framework, similar items were matched into a single measure. For example, copyrights, trademarks and patents were combined under the heading of intellectual property; management philosophy and corporate culture combined under the

heading of management philosophy/corporate culture; information system, information technology and networking under the heading of information system. The SCD items and their indicators

were shown in table 1. To check for the reliability of the content analysis, a Cronbach alpha was used as suggested by Krippendorff (1980)

Table I. Structural capital disclosure items based on the literature reviewed

Item
Patents
Copyrights
Trademarks
Management philosophy
Corporate culture
Management processes
Information Systems
Networking systems
Financial relations

Source: Guthrie et al., (1999); Brennan (2001)

The above structural capital disclosure items were used as a guide. However, two items were included “R&D” and Innovation” because they were found in the annual reports

of the sampled companies. Therefore the final SCD items for this study consists of 11 items, they are presented in table 2

Table 1 Structural Capital Disclosure item based on the Literature Reviewed

Item
Patents
Copyrights
Trademarks
R&D
Innovation
Management philosophy
Corporate culture
Management processes
Information Systems
Networking systems
Financial relations

Source: Author’s Survey (2015)

Voluntary SCD is not mandatory requirements of accounting standard and the legal framework. Thus this study only considered the narrative/text (quantitative and qualitative) information in the annual reports of the sampled companies. Kang and Gray (2011) argue that this form of information contains only voluntarily disclosed items in the annual reports. However, the narratives SCD information examined in this study include management reports, directors' reports, CEO's reports and other supplementary note (if it is part of the annual report), and social responsibility sections. This study excludes financial statements part that is required by IAS 38.

Model Development and independent Variables

The dependent variable was measured by the numbers of words disclosed on structural capital. The variables are treated as counts variables in this study. A Count variable is often treated as though they are continuous and the linear regression model is applied, which can produce inefficient, inconsistent and biased estimates. But there is a variety of model that deal with the characteristics of count data (Long, 1997). Poisson model and binomial negative model, which make use of integrated nature of the data, are more appropriate (Zeghal et al. 2007). Model estimation is:

$$\ln [E (INF_CS)] = \beta_0 + \beta_1 P_DIR + \beta_2 LOG_TA + \beta_3 ENDT + \beta_4 TOBIN_Q + \beta_5 ROE + \beta_6 AGE + \beta_7 COT_AM + \beta_8 PPC + \beta_9 PPD + \beta_{10} HT + \beta_{11} P_CCE + \beta_{12} INC_AT + \beta_{13} GDW_AT + \varepsilon$$

Where:

INF_CS: Number of words or groups of words disclosed on structural capital (SC);

P_DIR: The part of the capital held by the managers;

LOG_TA: The log there bases 10 of the active accountant;

ENDT: Long-term liabilities/Equity capitals;

TOBIN_Q: [Market capitalisation + book value of debts] / Active accountant;

ROE: Net profit/Equity capitals;

AGE: Age of the company taking from its established date till 2009

COT_AM: Dummy taking 1 if company is provides service and 0 if other;

PPC: Number of contractual stakeholders mentioned in the annual reports;

PPD: Number of diffuse stakeholders mentioned in the annual reports;

HT: Dummy taking 1 if company operates in a high-tech sector and 0 if otherwise;

P_CCE: The number of rivals operating in the same sector;

INC_AT: Intangible assets;

GDW_AT: Goodwill/total assets

4. RESULT AND DISCUSSION

The aim of this study is double. Firstly, to explore the level, form and structure of voluntary SCD practice and secondly, to identify voluntary SCD determinants. To do these, the study adopted both descriptive/exploratory and multivariate methods of analysis.

Result of Descriptive Statistics

In spite of the release of SAS 22 and subsequently implementing IFRS by FRCN which aims to improve and standardise the content of financial reporting, we find that all sampled companies proceed to the voluntary disclosure of intellectual capital.

The exploratory analysis revealed different forms of voluntary SCD: narrative, qualitative/descriptive, quantitative, graph, table and picture. Figure 1 presents the forms of voluntary SCD of the sampled companies.

Structural Capital

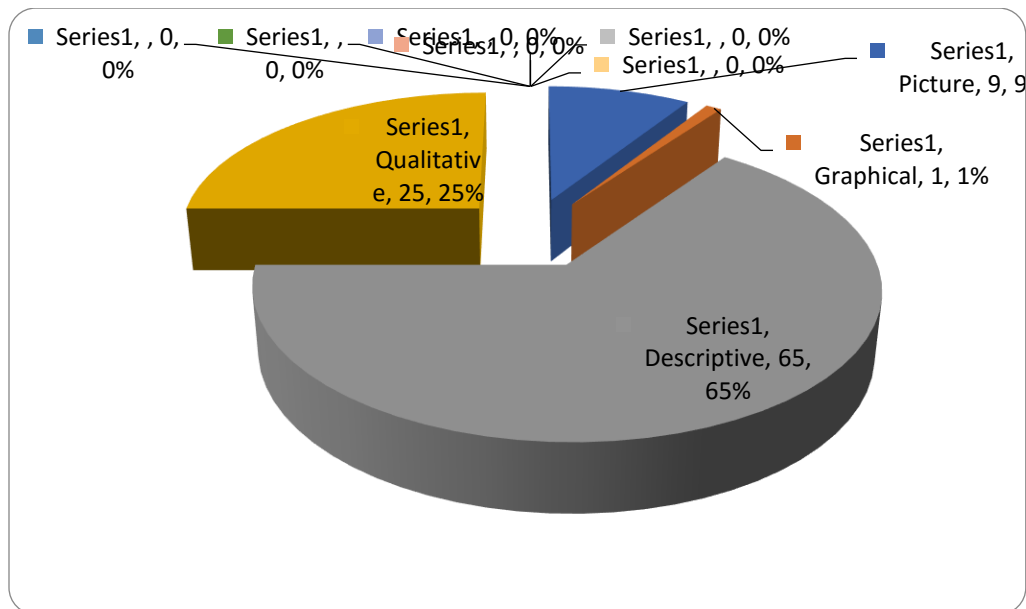


Figure 1: Forms of SCD

As shown in Figure 1, narrative/descriptive form represents the highest value of 65% of

the total disclosure. Quantitative form only represents 25% of the total disclosure, picture has a value of 9%, graph 1%,

and table has 0% of the total disclosure. This result is in line with previous studies such as Oliveras et al. 2008, 2006; Abeyesekera and Guthrie, 2005; Brennan, 2001; Guthrie and Petty, 2000.

Table 1 presents the descriptive statistics of each item of SCD in this study and its frequency.

Table 1: The Structure of SCD

Item	Mean	Variance	Frequency
Patent	1.826	8.730	40.54%
Copyrights	0.162	1.177	2.83%
Trademark	30.761	1.712.55	87.31%
R&D	37.154	426.421	65.10%
Innovation	31.674	951.226	100%
Management Philosophy	46.48	780.487	97%
Corporate Culture	6.854	69.642	100%
Management Process	20.43	491.462	89.35%
Information Systems	34.50	1286.346	75.59%
Networking Systems	21.563	995.903	83.62%
Financial Relations	20.184	67.34	90.10%
Structural Capital	251.588	15588.957	100%

As shown in Table 1, “Innovation” and “Corporate Culture” are disclosed in all the sampled companies’ annual reports.

However, very few companies (2.83%) disclosed “copyrights”.

Figure 2 shows the structure of voluntary SCD

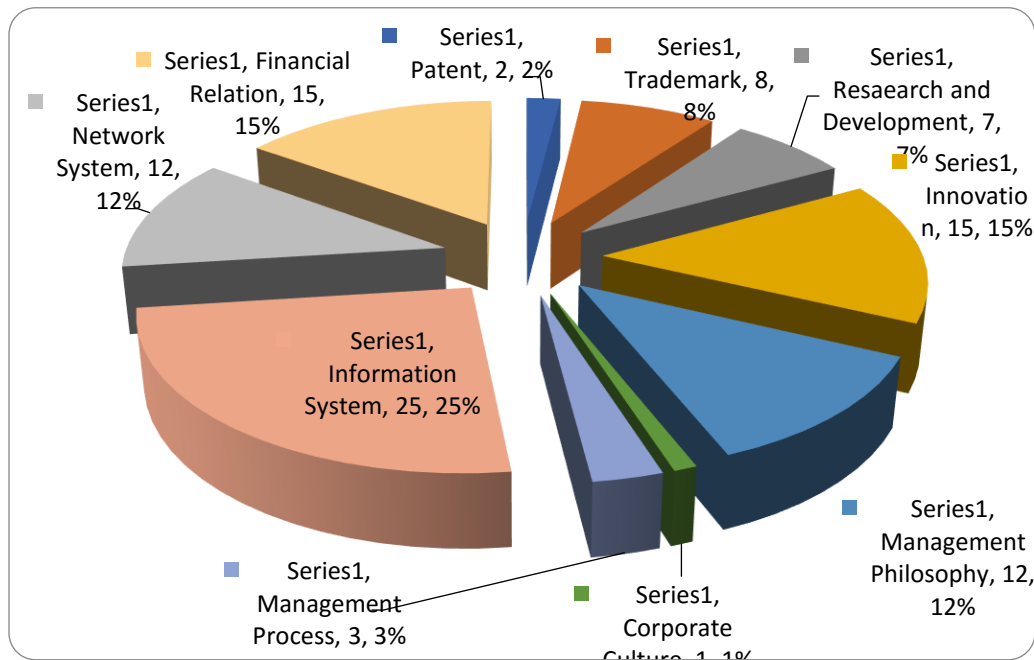


Figure 2 Structure of SCD

Note: Patent 2

Copyright 0

Trademark 8

R&D 7

Innovation 16

Management Philosophy 11

Information System 25

Networking System 12

Management process 3

Corporate Culture 1

Financial Relation 15

Based on the classification of structural capital provided by Edvinsson and Malone (1997), innovation capital is the highest disclosed by companies, followed by process capital and lastly organisational capital. Thus, this study is consistent with Edvinsson

and Malone (1997) studies and classification with having 100% disclosed by all the sampled companies.

Descriptive statistics of quantitative and qualitative independent variables are summarised in table 2 and 3 respectively.

Table 2: Descriptive statistics of quantitative variables

Variable	Minimum	Maximum	Mean	Variance
P_DIR	0	0.542	0.063	0.013
LOG_TA	2.545	5.012	3.387	0.437
ENDT	-0.934	2.743	0.801	0.415
TOBINS_Q	0.976	8.642	1.672	1.144
ROE	-0.143	0.510	0.145	0.010
AGE	1	331	62.736	3263.21
PPC	1	4	3.616	1.127
PPD	0	4	1.719	1.156
P_CCE	1	23	3.725	12.078
INC_AT	0	0.432	0.081	0.008
GDW_AT	0	0.445	0.147	0.014

Table 3: Descriptive Statistics of Qualitative Variables

Variable	Modality	Frequency	Percentage
HT	0	27	54%
	1	23	46%
COT_AM	0	34	68%
	1	16	32%

As shown in table 2, under the means of dependent variables, part of the capital held by managers, debt ratio, Tobin's Q and ROE are 0.063, 0.801, 1672 and 0.145 respectively. The means for age, number of contractual and diffuse stakeholders mentioned in the chairman's message and rivals operating in the same sector are 62.736, 3.616, 1.719, and 3.725 respectively. It can be seen in table 3 that high-tech companies and companies in other sectors represent 46% and 32% of sample respectively.

Result of Multivariate Analysis

Before conducting the multivariate analysis, the study checks for the presence of multicollinearity among the variables under study which is absent (See appendix A).

Firstly, the model is estimated by employing the Poisson regression technique. If an over-dispersion is found in the result, the use of the negative binomial distribution is more appropriate than the Poisson (Kateb, 2012; Long, 1997). The negative binomial regression model is an

extension of the Poisson regression model that allows variance of the process to differ from mean.

Table 4 shows the estimated Poisson regression model and result of over-dispersion tests (Deviation and Pearson Chi-Square).

Table 4: Result of Poisson regression model

	β	Z	Significance
Constant	4.116036	42.03	0.000
P_DIR	-0.8963371	-9.00	0.000
LOG_TA	0.3426395	15.61	0.000
ENDT	-0.3031843	-14.15	0.000
TOBIN_Q	-0.0622432	-4.38	0.000
ROE	0.1161414	1.13	0.271
AGE	0.0010982	6.19	0.000
COT_AM	-0.1922696	-7.18	0.000
PPC	0.0383107	3.74	0.000
PPD	0.0518815	7.42	0.000
HT	0.0713754	2.65	0.000
P_CCE	-0.0164207	-4.54	0.000
INC_AT	0.4016435	3.86	0.000
GDW_AT	1.032942	11.21	0.000
Deviation (sig.)	2575.325(0.000***)		
Pearson KH12(sig.)	2501.220(0.000***)		

*** Significant at 1% level

As shown in Table 4, data were over-dispersed; therefore, the Poisson regression is not appropriate and the use of negative

binomial regression is required. Table 5 presents the estimated negative binomial regression model.

Table 5: Result of negative binomial regression

	β	Z	Significance
Constant	3.805736	5.71	0.000
P_DIR	-1.515703	-2.15	0.011**
LOG_TA	0.3412497	2.34	0.017**
ENDT	-0.3218133	-2.24	0.028**
TOBIN_Q	-0.0769347	-0.88	0.421

ROE	0.2234532	0.35	0.632
AGE	0.0031127	1.05	0.239
COT_AM	-0.2618037	-1.30	0.157
PPC	0.076550	0.92	0.312
PPD	0.0763448	1.23	0.310
HT	0.0099812	0.05	0.853
P_CCE	-0.0191924	-0.81	0.442
INC_AT	0.903656	1.09	0.264
GDW_AT	1.167293	1.78	0.056
KH12(sig.)	20.34(0.05**)		
Cragg and Uhler's R²	0.343		

Negative binomial regression shows that coefficients associated with variable measuring the managerial ownership (P_DIR), size (LOG_TA) and debt (ENDT) are significant. With these results, we accept H1, H2 and H3 (hypotheses fit into the context financial utility's argument). However, the multivariate analysis reveals that the performance of a company (TOBIN-Q and ROE), age (AGE), listing status (COT_AT), interest in the pressure of stakeholders (PPC and PPD), the industry (HT) and competitive pressure (P_CCE) are not explanatory factors of the voluntary SCD. Thus, hypotheses H4, H5, H6, H7 and H8 are rejected. This result is in line with Kateb's (2012) finding.

Discussion of the findings

Effect of independent variables on the volume of voluntary SCD

Managerial ownership concentrated shows a significant negative association with the volume of voluntary SCD. This supports our hypothesis H1 and also in line with previous findings of Kateb, (2012); Li et al. (2008); Oliveras et al. (2008, 2006); Firer and Williams, (2003) in Tunisia, Singapore, Portugal and UK. Based on agency theory, when the functions of management and ownership are combined, the monitoring motivation for disclosure is reduced (O'Sullivan, 2000).

In relation to H2, the finding of this study reveals that there is a positive association between size and the level of voluntary SCD supporting H2. This finding is consistent with prior SCD studies (Keteb, 2012; Zourarakis, 2009 and ICD studies (Oliveras et al. 2008, 2006; White et al. 2007; Guthrie et al. 2006; Petty and Cuganesan, 2005; Firer and Williams, 2003).

In addition to reduce agency costs, the positive association of the size to disclosure found justifications that: Firstly, disclosure has a cost and the larger a company is, the more it is able to afford disclosure cost (Raffournier, 1995). Secondly, larger companies are generally prone to special attention from financial analysts and in order to maintain credibility, they have an incentive to be transparent and report their position as market overvaluation. Thirdly, based on stakeholder and legitimacy theories which announce that large companies are more prone to political pressures than small companies; therefore, greater disclosure allows managers to legitimise themselves and their activities. The validation of H1 and H2 confirm that voluntary SCD may be a mechanism that allows leaders to reduce information asymmetry, agency costs and therefore maximise the company's market value.

Hypothesis 3 is supported by the result of the study showing negative relationship between debt and the level of voluntary SCD. This is consistent with Kateb's (2012) finding in Tunisia, but inconsistent with Zourarakis (2009) finding in UK indicating that debt has no impact on SCD. However, in contractual relationship between managers and shareholders, debt can be considered as a way to reduce agency costs as it promotes the convergence of interests of both contracting parties.

This negative association may also result from managers' retention of such information, because of the high risk of intangible investments. Indeed, this disclosure may cause the dissatisfaction of creditors and increase the financing cost (Roberts, 1992).

The regression results reveal no association between companies' performance and the level of voluntary SCD. This result is in conformity with the finding of Firer and Williams, (2005); Williams' (2001) studies which showed no relationship between company's performance and the level of voluntary intellectual capital (ICD). Similarly, Miller and Whiting (2008) and Brennan (2001) confirmed the absence of relationship between the "hidden value", a similar measure to Tobin's Q, and voluntary ICD. Rejection of H4 leads us to suggest that SCD cannot be considered as signalling mechanism.

As regard the argument of legitimacy theory, the age of company, the listing status and the interest in stakeholders' pressure are not determinants of voluntary SCD. Thus, we reject H5, H6, and H7. Indeed, contrary to social information, voluntary SCD cannot be used as objective neither to establish a social dialogue nor to meet different stakeholders' expectations. Also, H8 is rejected because the result shows a

positive association between the intensity of competition and the level of voluntary SCD. This is in contrary with the proprietary costs theory.

Although the results indicate no association between intangible assets' weight in the balance sheet and the level of voluntary SCD, they confirm a positive relationship between SCD and the weight of goodwill corresponding to intangible elements which are not capable of being individually identified and separately recognised due to the absence of reliable measurement and control criteria. This leads us to suggest that voluntary SCD, especially qualitative and descriptive, is chosen by managers in order to compliment financial reporting and to address the inadequacy in accounting for intangible.

5. CONCLUSION

Based on the findings, this paper concludes that: there is relationship between managerial ownership concentration and the level of voluntary SCD; the size of a company is associated with the level of voluntary SCD; there is an association between debt of a company and its level of voluntary SCD and lastly there is a relationship between company's performance and the level of voluntary SCD. In view of the above conclusion from the findings, the paper recommends that Nigerian companies should strive to disclose information on structural

capital items quantitatively in their financial statement in order to serve as a guide to all users of financial information.

References

- Abdolmohammadi, M. J. (2005). Intellectual capital disclosure and market capitalization. *Intellectual Capital*, 6(3), 397-416.
- Abeysekera, I. & Guthrie, J. (2005). Annual reporting trends of intellectual capital in Sri Lanka. *Critical Perspectives on Accounting*, 16(3), 151-163.
- Abeysekera, I. (2007). Intellectual capital reporting between a developing and developed nation: *Journal of Intellectual Capital*, 8(2), 329-345.
- Abeysekera, I. & Guthrie, J. (2004). Human capital reporting in a developing nation. *The British Accounting Review*, 36, 251-268.
- Ahangar, R. G. (2011). The relationship between intellectual capital and financial performance: An empirical investigation in an Iranian company. *African Journal of Business Management*, 5(1), 88-95.
- Al-Mamun, S. A. (2009) Human Resource Accounting Disclosure of Bangladeshi Companies and Its Association with Corporate Characteristics: *BRAC*

- University Journal*, 6(1), 35-43.
- Al-Twaijry, A. (2009). Intangible assets and future growth: evidence from Japan. *Asian Review of Accounting*, 17(1), 23-39.
- April, K. A., Bosman, P., & Deglon, D. A. (2003). Intellectual capital measurement and reporting: establishing a practice in S.A mining. *Journal of Intellectual Capital*, 4(2), 165-180
- Boesso, G., & Kumar, K. (2007). Drivers of corporate voluntary disclosure. *Accounting, Auditing & Accountability Journal*, 20(2), 269-296.
- Boisot, M. (1998). *Knowledge Assets: Securing Competitive Advantage in the Information Economy*. Oxford University Press.
- Boisot, M. (2002). The creation and sharing of knowledge. In C. W. Choo & N. Bontis, N. (1996). There's a price on your head: managing intellectual capital strategically. *Business Quarterly*, 60(4), 40-47.
- Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Journal of Management Decision*, 36(2), 63-76.
- Bontis, N. (1999). Managing organisational knowledge by diagnosing intellectual capital: framing and advancing the state of the field. *International Journal of Technology Management*, 18(5), 433-462.
- Bontis, N. (2002). Intellectual capital disclosure in Canadian corporations. *Journal of Human Resource Costing & Accounting*, 14, 9-20.
- Bontis, N. (2004). National Intellectual Capital Index: A United Nations Initiative for the Arab region: *Journal of Intellectual Capital*, 5(1), 13-39.
- Bontis, N. (2003). Intellectual capital disclosure in Canadian corporations. *Journal of Human Resource Costing & Accounting*, 7(1), 9-20.
- Bontis, N., & Fitz-enz, J. (2002). Intellectual capital ROI: a causal map of human capital antecedents and consequents. *Journal of Intellectual Capital*, 3(3), 223-247.
- Bontis, N., dragonetti, N. C., Jacobson, K., & Roos, G. (1999). The knowledge Toolbox: A Review of the Tools Available To Measure and Manage Intangible Resources. *European Management Journal*, 17(4), 1-20.
- Bozzolan, S. Favotto, F. & Ricceri, F. (2003). Italian Annual Intellectual Capital Disclosure. *Journal of Intellectual Capital*, 4(4), 543-558.

- Bozzolan, S. Favotto, F. & Ricceri, F. (2006). Intellectual Capital Disclosure (ICD). A comparison of Italy and the UK. *Journal of Human Resources Costing & Accounting*, 10(2), 92-113.
- Brennan, N. (2001). Reporting Intellectual Capital. *Accounting, Auditing & Accountability Journal*, 14(4), 423-436.
- Bukh, P. N. (2003), The relevance of Intellectual disclosure: a paradox? *Accounting, Auditing & Accountability Journal*, 16(1) 49-56.
- Bukh, P., N. & Johanson, U. (2003). Research and Knowledge Interaction: Guidelines for Intellectual Capital Reporting, *Journal of Intellectual Capital*, 4(4), 576-587.
- Calisir, F., Gumussoy, C. A., Bayraktaroglu, A. & Denuz, E. (2010). Intellectual capital in the quoted Turkish ITC sector. *Journal of Intellectual Capital*, 11(4), 537-553.
- Calisir, F., Gumussoy, C. A., Cirit, F., & Bayraktaroglu, A. E. (2011). Intellectual Capital in Development and Investment Banks of Turkey. *Proceedings of the 2011 International Conference on Industrial Engineering and Operations Management*, (1092-1097). Kuala Lumpur, Malaysia.
- Clinch, G., & Verrechia, R. E. (1997). Competitive disadvantage and discretionary disclosure in industries. *Australian Journal of Management*, 22(2), 125-137.
- Damak-Ayadi, S., & Pesqueux, Y. (2003). La theorie des parties prenantes an perspective. Journee de Developement Durable et Entreprise conference, Angers, France.
- Darrough, M., & Stoughton, N. (1990). Financial disclosure policy in an entry gam. *Journal of Accounting and Economics*, 12(1-3), 219-243.
- Deegan, C. (2002). The legitimising effect of social and environmental disclosure? A theoretical foundation. *Accounting, Auditing and Accountability Journal*, 15(3), 282-311.
- Depoers, F. (1999). Contribution a l'analyse des determinants de l'offre volontaire d'informations des societies cotees. Ph.D in Management Sciences, Paris; Paris Dauphine University
- Diamond, D. W., & Verrechia, R. E. (1991). Disclosure, liquidity and the cost of capital. *Journal of Finance*, 46, 1325-1359.
- Ding, Y., & Stolowy, H. (2002). Les facteurs explicatifs de la strategie des groups francais en matiere de communication sur

- les activites de R&D. *Finance Controle Strategie*, 6(1), 39-62.
- Davey, H. & Yi, A. (2010). Intellectual capital disclosure in Chinese (Mainland) companies. *Journal of Intellectual Capital*, 11(3), 326-347.
- Dye, R. (1985). Disclosure of non-proprietary information. *Journal of Accounting Research*, 23(1), 123-145.
- Edvinsson, L. (1997). *Developing Intellectual Capital at Skandia*, Long Range Planning 30 (June), 366-373.
- Edvinsson, L., & Malone, M. (1997). Intellectual Capital: Realising Your Company's true Value by finding its Hidden Brainpower. *Journal of Human Resource Costing Accounting*, 4 (1), 21-33.
- Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and control. *Journal of Law and Economics*, 26(2), 301-325.
- Financial Accounting Standards Board, Statement No 2, Accounting for Research & Development Costs, October, 1974. Retrieved on 22nd October, 2011, from www.fasb.org/home
- Firer, S. & Williams, S. M. (2005). Firm Ownership Structure and Intellectual Capital Disclosure, *South African Journal of Accounting Research*, 19(1), 1-18.
- Firer, S., & Williams, S. M. (2003). Intellectual Capital and Traditional Measures of Corporate Performance. *Journal of Intellectual Capital*, 4(3), 348- 360.
- Garcia-Meca, E. (2005). Bridging the gap between disclosure and use of intellectual capital information. *Journal of Intellectual Capital*, 6(3), 427-440.
- Gerpoth, T., J. Thomas, S., E. & Hoffman, A., P. (2008). Intangible asset disclosure in the telecommunications industry. *Journal of Intellectual Capital*, 9(1), 37-61.
- Gigler, F. (1994). Self enforcing voluntary disclosures. *Journal of Accounting Research*, 32(2), 224-240.
- Guthrie, J. & Petty, R., (2000). Intellectual capital literature review: Measurement, reporting and management. *Journal of intellectual Capital*, 1(2), 155-176.
- Guthrie, J. (2001). The management, measurement and the reporting of intellectual capital. *Journal of Intellectual Capital*, 2 (1), 27-41.

- Guthrie, J. Petty, R. Ferrier, F. & Wells, R. (1999). There is no accounting for intellectual capital in Australia: a review of annual reporting practices and the internal measurement of intangibles. In proceeding of the OECD Symposium on measuring and reporting of intellectual capital, 9-11.
- Guthrie, J., Petty, R., Yongvanich, K., & Ricceri, F. (2004). Using content analysis as a research method to inquire into intellectual capital reporting. *Journal of Intellectual Capital*, 2(3), 103-213
- Halim, S. (2010). Statistical analysis on the intellectual capital statement. *Journal of Intellectual Capital*, 11(1), 61-73.
- Haniffa, R. M., & Cooke, T. E. (2002). Culture, corporate governance and disclosure in Malaysian corporations. *ABACUS*, 38(3), 317-350.
- Holland, J. (2009) Looking behind the veil: Invisible Corporate intangibles, stories, structure and the contextual information content of disclosure. *Qualitative Research in financial market*, 1 (3), 152-187.
- Hossain, M., Perera, M., & Rahman, A. R. (1995). Voluntary disclosure in the annual report of New Zealand companies. *Journal of International Financial Management and Accounting* 6(1), 69-87.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial Behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Kang, H., & Gray, J. (2011). Reporting Intangible Assets: Voluntary Disclosure Practices of Top Emerging Market Companies. *The International Journal of Accounting*, 46(4), 402-423.
- Krippendorff, K. (1980), *Content Analysis: An Introduction to Its Methodology*, Sage, London.
- Lambert, R., Leuz, C., & Verrechia, R. (2007). Accounting Information, Disclosure, and the Cost of Capital. *Journal of Accounting Research*, 45(2), 385-420.
- Lev, B. (2001). *Intangibles: Management, Measurement and Reporting*: The Brookings Institution Press, Washington, DC.
- Li, J., Pike, R., & Haniffa, R. (2008). Intellectual capital disclosure and corporate governance structure in UK Firms. *Accounting and Business Research*, 38(2), 137-159.
- Long, J. S. (1997). Regression Model for Categorical and Limited

- Dependent variables. Thousand Oaks, CA: Sage.
- Lopes, A., B & Alencar, R., C. (2008). Disclosure and Cost of Equity Capital in Emerging Markets: The Brazilian Case. Retrieved on 1st November, 2010 from <http://papers.ssm.com/sol=109900>
- Mahamad, T., & Salman, R. T. (2011). Intangible Disclosure of Nigerian Companies and Its Association with Corporate Characteristics. *Ilorin Journal of Business and Social Sciences*, 15(1), 1-14.
- McGregor, J., Tweed, D., & Pechi, R. (2004). Human capital in the new economy: devils bargain? *Journal of Intellectual Capital*, 5(1), 153-164.
- Mitchell van der Zahu, J. L. W., Singh, I., & Hentro, J. (2007). Is there an association between intellectual capital disclosure under pricing and long-run performance. *Journal of Human Resource Costing and Accounting*, 11(3), 178-213.
- Nazari, J. (2010). An Investigation of the Relationship between Intellectual capital components and Firm's Financial Performance. Retrieved on 12th of February, from <http://www.proquest.umicom.eserv.um.edu.my/pqd.web>
- Nigerian Accounting Standards Board (2006). Statement of Accounting Standard No22, Accounting for Research & Development Costs.
- Olsson, B. (2001). Annual Reporting Practices: Information about Human Resources in Corporate Annual Reports in Major Swedish Companies. *Journal of Human Resource Costing and Accounting*, 6(1), 39-52.
- Orens, R., Aerts, W., & Lybaert, N. (2009). Intellectual capital disclosure cost of finance and firm value. *Management Decision*, 47(10), 1536-1554.
- O'Regan, P., O'Donnel, D., & Herman, M. (2001). Recognition and management of intellectual resource: preliminary evidence from indigenous Irish high-technology firms. *Journal of European industrial Training*, 25(2/3/4), 130-141.
- Oliveras, L., L. Rodrigues, L. & Craig, R. (2006). Firm-specific determinants of intangibles reporting: evidence from the Portuguese Stock Market. *Journal of Human Resources Costing and Accounting*, 10(1), 11-33.
- Olivers, E., Gowthorpe, C.,

- Kasperskaya, Y., & Perramon, J. (2008). Reporting Intellectual Capital in Spain. *Corporate Communication An International Journal*, 13(2), 168-181.
- Petty, R. & Cuganesan, S. (2005). Voluntary Disclosure of Intellectual capital by Hong Kong Countries: Examining Size, Industry and Growth Effects over Time, *Australian Accounting Review*, 15, 40-50.
- Raffournier, B. (1995). The determinants of voluntary disclosure by Swiss listed financial companies. *The European Accounting Review*, 4(2), 261-280.
- Reed, K. K., Lubatkin, M., & Srinivasan, N. (2006). Proposing and Testing an Intellectual Capital-Based View of the Firm. *Journal of Management Studies*, 43(3), 868-893.
- Roos, J., Roos, G., Dragonetti, N. C., & Edvinsson, L. (1998). *Intellectual Capital: Navigating in the New Business Landscape*. New York: New York University Press
- Salman, R. T., Mahamad, T. & Monsor, M. (2012). Relationship between Intellectual Capital Components and Companies' Performance: An empirical investigation of Nigerian Companies. Paper presented in 3rd Global Accounting and Organisational Changes Conference at Sunway Resort, Kuala Lumpur, 14-17th July, 2012.
- Skinner, D. J. (1994). Why firms voluntarily disclose bad news. *Journal of Accounting Research*, 32(1), 38-60.
- Sonnier, B., Carson, K. D., & Carson, P. P. (2007). Accounting for Intellectual Capital: The Relationship between Profitability and Disclosure. *The Journal of Applied Management and Entrepreneurship*, 12(2), 3-14.
- Srinivasan, S. & Hanssens, D., M. (2009). Marketing and Firm Value: Metrics, Methods, Findings, and Future Directions. *Journal of Marketing Research*, XLVI (June), 293- 312.
- Stewart, T. (1997), *Intellectual Capital: The New Wealth of Nations*: Doubleday Dell Publishing Group, New York, NY.
- Stolowy, H., & Jeny-Cazavan, A. (2001). International Accounting Disharmony: the case of intangibles, *Accounting Auditing and Accountability Journal*, 14(4), 477-496.
- Sujan, A., & Abeysekera, I. (2007). Intellectual Capital Reporting Practices of the Top Australian

- Firms. *Australian Accounting Review*, 17(2), 71-83
- Suraj, O. A. & Bontis, N. (2012). Managing Intellectual Capital in Nigerian Telecommunications Companies. *Journal of Intellectual Capital*, 13(2), 262-282.
- Sveiby, K. E. (1997). The Intangible Assets Monitor. *Journal of Human Resource Costing and Accounting*, 2(1), 73-97.
- Verrechia, R. E. (1983). Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179-194.
- White, G, Leg, A. & Tower, G. (2007). Drivers of Voluntary Intellectual Capital Disclosure in listed biotechnology companies. *Journal of Intellectual Capital*, 8(3), 517-537.
- Williams, S. M. (2001). Is Intellectual capital performance and disclosure practices Related? *Journal of Intellectual Capital*, 2(3), 192-203.
- Woodcock, J., & Whiting, R. H. (2009). Intellectual Capital Disclosures by Australian Companies. Paper presented at the Accounting and Finance Association of Australia and New Zealand (AFAANZ) conference, Australia.
- Wolfe, M. S. (2009). Accounting for Intangibles and Managerial Information. Retrieved on 3rd of March, 2011, from <http://www.proquest.umicom.eserv.uum.edu.my/pgd.web>
- Zeghal, D., Mouelli, R., & Louati, H. (2007). An Analysis of the Determinants of research and Development Voluntary Disclosure by Canadian Firms. *The Irish Accounting Review*, 14(2), 61-89.

Appendix A: Distribution of sample companies across sectors

Sectors	No	% in sample
Agric & Agro allied product	3	6%
Construction & building materials	5	10%
Food and Drinks	3	6%
Chemicals, pharmaceutical and health	5	10%
Distribution	3	3%
Electrical and electronic equipment	6	12%
Entertainment and Hotels	3	6%
Energy, Oil and gas	3	6%

Computers and telecommunications	8	16%
Medias	2	4%
Automobile	3	6%
Domestic products	6	12%
Total	50	100

Appendix B: The correlation of the variables

	P_DIR	LOG_TA	ENDT	TOBIN_Q	ROE	AGE	COT_AT	PPC	PPD	HT	P_CCE	INC_AT	GDW_AT
P_DIR													
LOG_TA	-0.270												
ENDT	-0.193	.0455											
TOBIN_Q	0.088	-0.411	-0.267										
ROE	-0.164	-0.001	-0.012	0.310									
AGE	-0.150	0.065	0.027	-0.101	-0.004								
COT_AT	-0.253	0.523	0.189	-0.201	-0.020	0.103							
PPC	-0.045	0.181	0.257	0.005	-0.204	-0.257	0.063						
PPD	-0.223	0.425	0.270	-0.143	0.036	0.041	0.253	0.292					
HT	-0.032	-0.123	0.041	0.154	-0.189	-0.223	-0.001	0.137	0.016				
P_CCE	-0.054	0.042	-0.102	-0.121	-0.157	0.139	-0.081	0.128	-0.033	0.076			
INC_AT	0.005	0.203	-0.167	-0.023	-0.101	0.008	0.245	0.026	-0.004	0.105	0.07		
GDW_AT	0.001	-0.023	0.215	0.193	-0.024	0.070	0.071	-0.022	-0.019	0.412	0.23	0.15	