

VOLUNTARY INTERNET FINANCIAL REPORTING IN QUOTED COMPANIES IN NIGERIA

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Abstract

This study investigated the extent of disclosure and determinants of voluntary internet financial reporting in Nigerian quoted companies. To this end, 133 companies were drawn from the quoted companies over the period 2005 to 2010. In identifying the unique firms' specific characteristics that influenced the firms decisions to report their financial activities on their websites, a content analysis of the web of the sampled companies in 2011/2012 was used to extract the variables of this study and through the ordered regression analysis, we examined how past five average performances of the explanatory variables had helped to explain internet financial reporting in Nigeria. In all, our results show that the sampled Nigerian quoted companies posted above 40% of all kinds of voluntary financial information on their websites but preferred to post more of background information (70%), key nonfinancial statistics (64%) and management discussion analysis (57%). In the case of the determinants, profitability, firm size and auditor types were identified as key determinants of voluntary internet financial reporting in quoted companies in Nigeria. Besides, the interaction of firm size and auditor type, profitability and firm age were found to impact on internet financial reporting in Nigeria. In the light of these findings, it was recommended that voluntary internet financial reporting should be encouraged among firms in Nigeria, with caution, however, on debtor firms, older firms, and concentrated ownership firms which were found to have 'not-too-significant' relationship with internet financial relationships in Nigeria.

Key words: *Internet financial reporting, Nigeria, corporate attributes*

Introduction

Financial reporting is simply the act and means of disseminating accounting and financial information to users for decision purposes. It is expected, therefore, that the information provided in financial statements or reports should reflect the sort of information that will assist users to make informed decisions and unbiased judgments

(Ibadin, 2013). To this extent, one would expect, given the submission of Salawu (2009), that financial reporting should be lucidly, logically and understandably presented.

Thus far, however, a number of studies have focused on 'what is or what is not reported'; but not how or the means through which the information is delivered.

No wonder the increasing literature now explore this interesting area of means of delivering financial reports. While it is clear that one clear traditional means of financial information dissemination of companies, is the manual presentation, through the printed-based annual reports and accounts, one major setback of this means is the significant costs of printing and distribution as well as the associated timing delays (Fisher, Laswad & Oyelere, 1999). Fortunately, however, rapid advances in computer and communication technology, with the dramatic entry of telecommunications in the 2000s, have noticeably changed the landscape of information dissemination in which information is created and exchanged between business parties. The information technology has significantly impacted on accounting practices and accounting communication, revolutionizing the way business is conducted across the globe (Davey & Homkajohn, 2004).

Since 1990s, the Internet has become a key medium for disseminating corporate information to users, especially in the developed world (Hodge & Pronk, 2006) and a number of companies now communicate company information through the World Wide Web. Initially, such information usually emphasized marketing strategies (Lymer, Debreceeny, Gray & Rahman, 1999) but many companies now utilize the advantages of the web for disseminating financial information. This is because internet has now been seen as the potential power to revolutionize financial reporting, with companies being able to include the traditional annual reports together with additional financial and non-financial information in multiple formats (Jones & Xiao, 2004). The internet, with its attributes of low cost, immediacy, global reach, and alternative forms of information presentation, is clearly

important for purposes of transparency and stewardship (Trites, 1999; Financial Accounting Standards Board [FASB], 2000), and, by extension, the smooth functioning of capital markets. These characteristics have made financial reporting on the internet the practice of the corporate sector in developed countries. In fact, internet financial reporting (IFR) has become the rule, rather than the exception, in most western countries (Gowthorpe, 2004).

Nigerian companies are not left out. In Nigeria, prior research revealed that 14.1% of quoted companies in Nigeria publish their financial information online (Salawu, 2009). Similarly, a study done by African Investors Relations (2010) revealed that Nigeria has the 2nd highest internet growth in Africa and Nigerians account for over 16% of all internet users in Africa. Similarly, the report also indicated that 79% of listed companies in Nigeria have websites while 13% of Nigerian listed companies have their latest annual reports online (African Investor Relations, 2010). It is on the basis of this that a study of this sort is conducted to examine the extent of IFR and the key determinants that influence internet Financial Reporting in Nigeria.

Review of Related Literature

The concept of internet financial reporting (IFR)

The rapid evolution of Internet technology has significantly affected accounting practices and accounting communication. Many companies in developed and developing countries, now utilize the Internet to disseminate corporate financial and performance information (Debreceeny, Gray & Barry, 1999). The Internet enables companies to disclose both the traditional annual reports with additional financial and non-financial

information in multiple formats to wider audience (Jones & Xiao, 2004). Such disclosure assumes diverse dimensions espoused by researchers and authors.

Trites (1999) defined IFR as a distribution of corporate financial and performance information using Internet technologies, such as the World Wide Web. Ashbaugh, Johnstone & Warfield (1999) referred to IFR in terms of the provision, either of a comprehensive set of financial statements (including footnotes and auditors' report) in the firms' webs, or a link to their annual report and accounts anywhere on the internet, a link to the Security and Exchange Commission Electronic Data Gathering Analysis and Retrieval system (SECEDGAR). SECEDGAR, allows all companies, foreign and domestic, to file registration statements, periodic reports, and other forms electronically. Anyone can access and download this information for free. In another sphere, Hunter and Smith (2008) defined IFR as the use of a company's website to distribute information about the performance of the company. It is the release of information concerning the financial condition and operational performance of an enterprise usually by way of setting up websites on the internet. Therefore, a financial report counts as an internet financial reports if it is published in full on the website of a company, or on another website available through a link in the website. The use of IFR is effectively a method of marketing a company to shareholders and potential investors (Poon, Li & Tak Yu, 2003).

There is no doubt that computer technology and the internet have modified the flow of information and the disclosure of corporate financial data to the different users. Therefore, it is possible to disseminate information to the shareholders and other heterogeneous decision makers (Ashbaugh et al., 1999). Consequently, the Internet financial

reporting has a more considerable incremental disclosure than the traditional financial reporting (Trabelsi, Labelle & Laurin, 2004). Suffice it to say therefore that a good part of IFR practices are voluntary, allowing companies provide information in excess of mandatory requirements; this is given either via printed annual reports and accounts (Lang & Lundholm, 1993) or at general meetings of shareholders (Frankel, Johnson & Skinner, 1999). The essence of this is to influence the investors' behaviour, thus reducing the existence of information asymmetry between the managers and investors (Healy & Palepu, 1999, 2001).

However, in recent years many companies offer supplementary information on financial information on corporate websites voluntarily in line with Financial Accounting Standards Board (FASB) (2000) in order to boost their business practices. This supplementary information generally reports on favourable aspects of the company to the market. The platform on which such disclosure is made is voluntary as the law does not back any excess information (Lev, 1992). Voluntary disclosures refer to non-mandatory disclosures which include accounting and other information that is considered relevant to various stakeholder groups needs (Meek, Roberts & Gray, 1995). Such disclosures are in excess of what the laws require (Ibadin, 2013).

Prior empirical research on voluntary disclosures suggests that disclosures in excess of mandatory requirement tend to reduce agency costs or contracting costs (Chow & Wong-Boren, 1987), reduce cost of capital (Sengupta, 1998) and enhance the value of the firm (King, Pownall & Waymire, 1990; Frankel et al., 1999). Healy & palepu (2001) argued that voluntary disclosures are aimed at solving two problems: information problem (information asymmetry) and

agency problem. Information problem is an *ex ante* problem in the form of “cost of lemon”. By disclosing more, firms expect to provide signal to market their “true” condition. On the contrary, agency problem is an *ex post* problem. It arises because of the separation of ownership and control that creates the potential conflict of interest between them (shareholders, as principals and managers, as agents).

Theoretical framework

The interplay of agency and signaling theories throws light on the behaviour and nature of the relationships between the dependent variable and explanatory variables. The agency theory has been regarded as an important construct for understanding and analyzing financial reporting incentives. The separation of ownership and control gives rise to information asymmetries and agency conflicts between managers (as agents) and principal where managers have better information on the firm’s current and future performance than the principals. According to Watson, Shrivies and Marston (2002), when managers are incentivized, they tend to reduce the ensuing agency conflicts by increasing the quantum of information and other disclosures in order to convince shareholders that they are acting optimally. This, they do, because they know that shareholders seek to control their behaviour. Usually the shareholders do this through bonding and monitoring activities. In similar reasoning, signaling theory suggests that companies with superior performance use financial information to send signals to the market of their superiority.

In line with signaling theory, firms will use the internet to disseminate “old” accounting

information. Besides, firms adopt the same level of disclosures as other firms within the same industry in order to be seen or perceived by stakeholders as being transparent (Craven & Marston, 1999). In summary, firms may use internet disclosure to keep pace with other firms in the same industry.

Determinants of voluntary disclosure of internet financial reporting (IFR)

The steady increase in the number of firms using websites for financial reporting purposes suggests that IFR is becoming the standard practice for a number of firms. The decision to use corporate websites as supplements to available information may depend on the manner in which the firm expects to benefit from the more complete and timely business reporting as well as reasons that induce them to engage in IFR.

Corporate attributes and voluntary internet financial reporting (IFR)

These are variables that reflect the companies’ characteristics (Ibadin, 2013; Oliveira, et al., 2006). These variables in corporate organizations are said to influence the disclosure of financial reports on the internet. Wallace, Nasser, and Mora, (1994) present some corporate attributes, though not limited to company size, leverage, profitability and size of auditing firm.

Leverage and voluntary internet financial reporting

Leverage refers to how geared an entity is; it reflects the quantum of financing option of the firm. Therefore, a firm with a high debt and little equity is considered to be highly geared or levered. Agency theory explains

why the potential for wealth transfer from fixed claimants to residual claimants increases with leverage, since highly levered companies have the incentives to reinvest sub-optimally. Empirical evidence between leverage and IFR is, however, inconclusive. Ismail (2002) and Lau (1992) found positive relationships with IFR. However, many other researchers found no such relationships (Chow & Wong-Boren, 1987; Ahmed & Nicholls, 1994; Wallace et al., 1994; Raffournier, 1995; Wallace & Naser, 1995; Ahmed, 1996; Inchausti, 1997). While a negative association was found in Oyelere, Laswad, & Fisher (2003) and Xiao, Yang & Chow (2004).

Company size and voluntary internet financial reporting

Agency costs tend to increase with firms size. This arises because of separation of management and control. Consequently, disclosure is seen as a means to reduce monitoring costs and by extension, agency costs. Consequently, IFR provides great economies of scale for distribution of financial information (Lymer et al., 1999), as the cost of voluntary disclosure through the internet is likely to be largely unrelated to firm's size (Pirchegger & Wagenhofer, 1999). Xiao et al. (1996) in their own study explained that larger companies are more likely than smaller ones to use IT (Information Technology) to improve financial reporting to meet the greater demand for information. Ashbaugh et al. (1999) noted that economies of scale suggest that large firms are more likely to post financial reports on websites. This is because larger firms usually have more products and more complex distribution networks which require larger and more complex management information systems

and database for management control purposes.

Industry type and voluntary internet financial reporting

Political cost and signaling theories suggest variations in the level of disclosure as a result of industrial classification. If a company within an industry fails to follow the disclosure practices, including internet disclosures, as others in the same industry, it may be interpreted that the company is hiding bad news (Craven & Marston, 1999). Consequently, industry type has been used in prior studies as a determinant of internet reporting. For example, Lymer (1997), Oyelere et al. (2003) and Xiao et al. (2004) found a significant association between industry type and the extent of Internet reporting. In contrast, Craven and Marston (1999) found no association between the two variables. This may be due to the fact that different industry classifications were used in the research (i.e. a smaller number of categories may give different results to a larger number of categories).

Age of company and voluntary internet financial reporting

Age of company refers to the number of years the company has existed from its inception or its incorporation. Ibadin (2013) argued that it was logical to reason that older, and by extension, more established companies are more likely to voluntarily disclose accounting information, and by extension adopt Internet Financial Reporting (IFR). It is further rationally debated that companies that have had more years of existence would have gathered enough and has more experience and more resources. In addition, such companies would have had more time to establish their customer and

supplier networks, and to contribute towards more communities, set up more opportunities and have more of alliances, research centers and universal institutions to benefit from these ventures. Therefore, these companies could engage in more voluntary disclosure to signal their wherewithal and more advantage (Kang and Gray, 2006).

Ownership structure and voluntary internet financial reporting

Ownership structure refers to the ownership of the companies; either as individual shareholders or the majority shareholders. Abdelsalam, Bryant and Street, (2007), defined ownership structure in terms of: i) proportion of stock held by major shareholders ii) proportion of stock held by directors, and only in the second did they find a negative association to the corporate internet reporting. Ashbaugh et al. (1999) found that only in the retail industry do ownership structure has a significant influence on the IFR. Pervan (2006) found correlation between voluntary IFR and number of shareholders. While Chang, D'anna, Watson and Wee, (2008) found correlation with the variable "more institutional shareholders". Chau and Gray (2002), in a study of Hong Kong Companies, reported a significant relationship between the proportion of outside ownership and level of voluntary disclosure. Xiao et al. (2004) reported that firms that can attract foreign investors are perceived to perform better or to be transparent.

Auditor type and voluntary internet financial reporting

The logic of the hypothesis relating to auditor size is that client firms audited by big auditing firms are likely to provide more detail in their annual report and disclosure.

Kelton and Yang (2008) found a positive association of auditor's companies and internet report disclosure. Debreceeny and Gray (1999) identify a number of audit and auditor implications regarding the dissemination of audited financial statements on the internet. These implications include the association of the audit report with unaudited information and the responsibilities of the auditors to monitor clients' website. Several other researchers found that auditor size is significantly associated with level of voluntary, mandatory and aggregate disclosure (Ahmed & Nicholls, 1994; Patton & Zelenka 1997; and Raffournier, 1995).

Internationalization and voluntary internet financial reporting

The degree of internationalization of a firm is likely to be associated with disclosure because as companies expand operations into foreign locations, their need to raise capital internationally increases accordingly (Cooke, 1991, 1992). Companies will have an incentive to lower capital costs through the voluntary release of information (Choi, 1973). This variable is found to significantly influence voluntary internet financial reporting in a study done by Raffournier (1995). Similarly, a study done by Oyelere et al. (2000) also showed that internationalization which they proxy as foreign listing status and foreign ownership were statistically significantly associated with level of disclosure and adoption of Internet Financial Reporting.

Profitability and voluntary internet financial reporting

Signaling theory suggests that profitable companies have an incentive to disclose more information, to signal that firm's profitability to investors to support management

continuation of their position and levels of compensation (Oyelere et al., 2003). Prior studies have examined the association between profitability and the extent of disclosure with results completely mixed (Street & Gray, 2002). For example, Pirchegger and Wagenhofer (1999) found that profitability affects internet financial reporting of Austrian companies but it does not affect that of German companies. Marston and Polei (2004) and Oyelere et al. (2003) found that profitability is not associated with Internet reporting. Ismail (2002), reported that profitability may increase the likelihood of the firm publishing financial information via the internet when this variable is within a particular range and if it increases beyond this range, the likelihood of firms publishing financial information on the net decreases (Ibadin, 2013).

Methodology

The study utilized the ex post facto research design. This design was chosen for two reasons; first, because of the non-manipulability and non-controllability of the variables, and second, because of the financial periods of 2005 to 2010. Given the objectives, this study focused on the industry sectors and companies that are quoted on the Nigerian Stock Exchange (NSE) and active as at 31st December, 2011. As at this date, there were thirty three (33) industry sectors and two hundred and forty (240) companies quoted and active as at 31st December, 2011 (NSE, Factbook 2011). The sample size for this study was 150 companies. The sample size was derived through Yaro Yamani in Guiford & Fruchter, (1973) statistical formula stated, thus:

$$n = \frac{N}{1 + N(e^2)}$$

Where: n = sample size;

N = Population size (finite population);

e = Level of significance desired.

The choice to use a sample is predicated on reasons of having reasonably accurate statistics within defined costs limits. In all, the participating companies were selected by the use of Random Selection Tool in Microsoft Excel (RSTME). The preference for the specified financial years of six years (2005 through 2010) is predicated on the evolution of a knowledge economy in Nigeria through, amongst others, the intensity of ICT and use of internet facilities in Nigeria, in the last decade. The selection of the last six (6) years is particularly of interest in view of the fact that looking too far into the past would lead to historical bias which this study does not intend to suffer from. Data suffer from historical bias when they lose their properties as a result of long period into the past (Ibadin, 2013).

Data collection

The nature of this study necessitated the use of secondary data. These data were sourced only from the annual financial reports and website of the selected companies from 2005 through 2010. For the purpose of this study and similar to the classifications in Oyelere et al. (2003), the 240 listed companies in Nigeria were classified into two groups: (1) companies with websites and are engaged in IFR and (2) companies not engaging in IFR irrespective of whether they have a website or not. The companies in the first group were classified as Internet Financial Reporting Companies (IFRC), while companies in the second group were

referred to as Non- Internet Financial Reporting Companies (N-IFRC).

Added to the above, in collecting the data, a list of all publicly listed companies was compiled first from the websites of the Nigerian Stock Exchange (NSE). Subsequently, information about whether these companies have websites was determined at the first instance via the hyperlinks at the NSE websites. Where there were no such links to the corporate websites, an internet search was made for the company using the available search engines, such as www.google.com; africanfinancials.com, www.firstglobalselect.com, and www.nigerianstocksonline.com. Also, the companies were contacted by telephone to determine if they had a website and to

ascertain their addresses where the need arose. A similar sequence for identifying corporate websites was used by Craven and Marston (1999) and it is an improvement on the typical method of identifying websites through search engines only (Oyelere et al., 2003).

For companies with corporate websites, we moved on to the next stage of the data collection process by investigating the extent to which they engage in IFR through their websites. In order to evaluate company websites, internet financial reporting score was developed and used to assess Nigerian companies' websites financial reporting. The dependent variable was measured by scoring the extent of firms IFR as follows.

Extent	Score
No web site	0
Web site, no financial information	1
Summarized financial information at web site	2
Financial statements at website	3
Fully disclosed financial statements at website	4

Given the special scoring procedure of IFR discussed above, we took inspiration from the scoring procedures used by Prabowo and Tambotoh (2005) and it is an improvement on the scoring procedures used in most prior studies that used a dichotomous variable (0 and 1) to proxy IFR (Pirchegger & Wagenhofer, 1999; Ashbaugh et al., 1999).

Models specifications

Following the review of literature and the stated research hypotheses (2 to 9), the regression models to evaluate the determinants of IFR in Nigeria using the following variables: company size, profitability, leverage, company age, ownership structure, type of auditor, internationalization, and industry type, were developed. The model 1 to be tested is specified in its functional form, thus:

$$Y_{it} = \alpha_0 + \beta_1 \sum_{t=1}^n X_{it} + \mu_{it} \dots \dots \dots (1)$$

Where Y_{it} (VIFR) is the dependent variable pooling across i cross sectional observations and t time-series observations, X_{it} represents the independent variables pooling i cross-sectional observations and t time-series observations. α_0 is the constant term and μ_{it} is a random error.

Model I: without interaction.

$$\text{VIFR}_t = \alpha_0 + \beta_1 \sum_{t=1}^n \frac{\text{PROF!}}{N_{t-1}} + \beta_2 \sum_{t=1}^n \frac{\text{SIZE!}}{N_{t-1}} + \beta_3 \sum_{t=1}^n \frac{\text{LEV!}}{N_{t-1}} + \beta_4 \sum_{t=1}^n \frac{\text{CAGE!}}{N_{t-1}} + \beta_5 \sum_{t=1}^n \frac{\text{INTERN!}}{N_{t-1}} + \beta_6 \sum_{t=1}^n \frac{\text{INDTY!}}{N_{t-1}} + \beta_7 \sum_{t=1}^n \frac{\text{OWS!}}{N_{t-1}} + \beta_8 \sum_{t=1}^n \frac{\text{TYPEA!}}{N_{t-1}} + \mu! \dots \dots \dots 3$$

Where:

VIFR_t = Voluntary Internet Financial Reporting. The independent variables for the regression model are:

$\beta_1 \sum_{t=1}^n \frac{\text{PROF!}}{N_{t-1}} =$ Summation of the average value of profitability measured as net profit before tax divided by total assets of a company over a specified period of time.

$\beta_2 \sum_{t=1}^n \frac{\text{SIZE!}}{N_{t-1}} =$ Summation of the average value of the company's size measured as total assets of a company over a specified period of time.

$\beta_3 \sum_{t=1}^n \frac{\text{LEV!}}{N_{t-1}} =$ Summation of the average value of the company's leverage measured as the ratio of total debt divided by total assets over a specified period of time.

$\beta_4 \sum_{t=1}^n \frac{\text{CAGE!}}{N_{t-1}} =$ Summation of the average value of the company's age measured as the difference between 2011 and the date of its establishment.

$\beta_5 \sum_{t=1}^n \frac{\text{INTERN!}}{N_{t-1}} =$ summation of the average value of the company's international activities measured as foreign listing or foreign branches of a company over a specified period of time.

$\beta_6 \sum_{t=1}^n \frac{\text{INDTY!}}{N_{t-1}} =$ Summation of the average value of the industry type that is assessed using the Nigeria Stock Exchange classification categories.

$$\beta_7 \sum_{t=1}^n \frac{OWS!}{N_{t-1}} =$$

Summation of the average value of the ownership structure of a company measured by the percentage value of the majority shareholders over a specified period of time.

$$\beta_8 \sum_{t=1}^n \frac{TYPEA!}{N_{t-1}}$$

= Summation of the average value of type of auditor used by a company that is measured as a dummy variable; 1 if the company is audited by KPMG or Price Water houseCoopers or Akintola Williams Deloitte Touche or Ernst and Young and 0 otherwise).

μ_{it} = Error term for a specified period.

N = Number of observation over time period.

α_0 = The constant term.

Apriori Sign: $\alpha_0 > 0$, $\beta_1 > 0$

Model II: with interaction

In testing hypothesis 10, model II was formulated and used to measure the level of interaction between the independent variables used for this study. The exploratory variables used in model II are identical to those of model 1 above. The empirical interaction is expressed as thus:

$$Y = F(X_1 * X_2) \dots \dots \dots (2)$$

Where Y= The dependent variable, F is the function of the independent variables, while $X_1 * X_2$ represent independent variable X_1 rate of interaction with independent variable X_2 .

Therefore, **Model II** is formulated thus:

$$Y_{it} = \beta_0 + \beta_1(X_1 * X_2)_{it} + \mu_{it} \dots \dots \dots (3)$$

Where Y_{it} (VIFR) is the dependent variable pooling across sectional observations and t time series observations, $X_1 * X_2$ are the independent variables interaction with each other, β_0 is the constant term, while μ_{it} is the error term.

Model II specified in its empirical testing:

$$\begin{aligned} \text{VIFR}_{it} = & \beta_0 + \beta_1 \sum_{t=1}^n \frac{PROF * SIZE}{N_{t-1}} + \beta_2 \sum_{t=1}^n \frac{PROF * CAGE}{N_{t-1}} + \beta_3 \sum_{t=1}^n \frac{SIZE * LEV}{N_{t-1}} + \\ & \beta_4 \sum_{t=1}^n \frac{SIZE * TYPEA}{N_{t-1}} + \mu_{it} \dots \dots \dots (4) \end{aligned}$$

Where:

VIFR_{it} = Voluntary Internet Financial Reporting.

While the independent variables for the regression model is:

$$\begin{aligned} & \beta_1 \sum_{t=1}^n \frac{PROF * SIZE}{N_{t-1}} \\ = & \text{Summation of the avearge value obtained as profitability value} \end{aligned}$$

multiplies size value over a specified period of time and this will enable us to measured the interaction between profitability and company's size.

$$\beta_2 \sum_{t=1}^n \frac{PROF * CAGE}{N_{t-1}} = \text{Summation of the average value obtained as profitability}$$

multiplies company's age value over a specified period of time.

$$\beta_3 \sum_{t=1}^n \frac{SIZE * LEV}{N_{t-1}} = \text{Summation of the avearge value obtained as company's size}$$

multiplies leverage over a specified period of time.

$$\beta_4 \sum_{t=1}^n \frac{SIZE * TYPEA}{N_{t-1}} = \text{Summation of the average value obtained as size multiplies}$$

type of auditor value over a specified period of time.

β_0 = Constant term.

μ_{it} = The error term

Apriori Sign: $\alpha_0 > 0$, $\beta_i > 0$

Consequently, we analyze the extent of the information disclosed on the website in addition to that conveyed in the traditional financial reporting sources by excluding firms that do not provide additional disclosure. This could generate a serious selection bias resulting in inefficient and inconsistent regression estimates. Therefore to avoid such potential bias, we adopted the Heckman (1979) procedure. In the first step, we use a logit model to examine the determinants of voluntary IFR among quoted firms in Nigeria and its interactions (model I&II).

The ordered logistic regression analysis was used and based on the qualitative nature of the dependent variable and the predictor variables which were either quantitative or qualitative. The choice of ordered logistic regression method (run by EViews 7.0 software) to relate the explanatory variables to internet financial reporting practices in Nigeria, was based on

the ordered (ranking) nature of the dependent variable in which an observation score zero (0) when a firm has No web site, one(1) when the firm has a Web site with no financial information, two(2) when a firm has a summarized financial information at web site, three(3) when the firm has internet financial statements only and four(4) when the firm has a fully disclosed financial statements in its website.

Analysis and Interpretation

Descriptive statistics

Table 1, below shows the mean (average) for each of the variables, the standard deviation (degree of dispersion), maximum value, minimum value and Jarque-Bera (JB) statistics for the sampled 133 companies. The results in table 1, also provides some insights into the nature of the selected firms that were used in this study.

TABLE 1: Descriptive Statistics for sampled quoted companies

Variables	Mean	Minimum	Maximum	Std Dev	Jarque-Bera	Obs
VIFR	2.3	0.0	4.0	1.7	16.6(0.0)*	133
CAGE	33.9	3.0	77.0	15.7	5.1(0.0)*	133
INDTY	0.4	0.0	1.0	0.5	22.2(0.0)*	133
INTERN	0.8	0.0	1.0	0.4	34.2(0.0)*	133
LEV	3.8	-1.0	130.8	12.3	42421.8(0.0)*	133
OWS	0.5	0.0	11.5	1.0	69300.1(0.0)*	133
PROF	2127.7	-45556.0	75791.3	9014.8	8236.6(0.0)*	133
SIZE(N'M)	61463.2	131.6	1437019.0	171174.8	6628.1(0.0)*	133
TYPEA	0.6	0.0	1.0	0.5	22.5(0.0)*	133

Source: Authors' compilation (2013)

Firstly, the large standard deviation of SIZE (total asset) shows that the sampled companies are not dominated by either large or small companies. Secondly, it was also observed that about 2.3 on the average of financial information were disclosed by the sampled companies in a scale of 0 to 4. This above average value in a country like Nigeria where internet financial reporting is still voluntary is encouraging. The major reason for this might be the fast growing internet technology in Nigeria. The company age variables indicate that the younger's company in our sample was 3 years while the oldest was 77 years. This is not substantially different from Ibadin's (2013) in which the oldest company was found to be 79 years; the mean age of company was 28 years. We also find out that about 40% of the firms selected are grouped under financial industry, about 80% had some international affiliation, about 50% of the selected firms have institutional owners, and about 60% of the firms selected were audited by the Big-4(KPMG, PWC, Akintola Williams Deloitte Touche or Ernst and Young). The results above also show that the

average profitability and leverage ratio for our sampled companies were N21,227.7 and 3.8 respectively. Lastly, the Jarque-Bera (JB) statistics in table 1 shows that most of the variables are normally distributed at 1% levels of significance. This therefore means that there is no outlier in the data that would impair the generalization from this study.

Variance inflation factors

The existence of multi co-linearity problem may result in the wrong signs, or implausible magnitudes, in the estimated model coefficients, and the bias of the standard errors of the coefficients. To test for the existence of this problem, the Variance Inflation Factor (VIF) test was used. The results of this test are presented in Table 2. The VIF for each of the variables was much lesser than the threshold of 10 and the overall VIF mean value was less than 5. This indicates that the explanatory variables in our specified ordered regression model was not substantially correlated with each other and this implies a complete absence of multicollinearity in the explanatory variables.

Table 2: VIF test for multi-co linearity in regression model

Explanatory Variables	VIF
CAGE	1.12
INTERN	1.09
LEV	1.02
OWS	1.04
PROF	1.02
SIZE	1.11
TYPEA	1.16
Mean VIF	1.08

Source: Authors' compilation (2013)

Ordered regression results

We used the ordered logistic, probit and extreme regression analysis to investigate the firms' specific determinants of voluntary internet financial reporting adoption and to

test our formulated hypotheses. The results obtained are presented and discussed as follows;

Model I: without interaction effects

In estimating and analyzing model without interaction, we adopted the three ordered regression models (Logit, Probit and extreme). The difference in these models is based on the type of probability distribution they assume. Logistic ordered regression follows a cumulative logistic probability distribution; ordered Probit assumes cumulative normal distribution while the extreme ordered assumes geometric distribution. The results from these three ordered regression models are presented and discussed as follows;

Table 3: Voluntary internet reporting adoption in model I

	Apriori Sign	VIFR Model (Probit)	VIFR Model (Logistic)	VIFR Model (Extreme)
PROF	+	3.24E-05 (1.8)**	6.37E-05 (1.8)**	4.95E-05 (1.9)*
SIZE	+	2.73E-06 (2.3)*	5.91E-06 (2.36)*	4.73E-06 (2.2)*
LEV	-	-0.004 (-0.5)	-0.005 (-0.43)	-0.005 (-0.79)
CAGE	+	-0.004 (-0.6)	-0.009 (-0.83)	-0.009 (-1.18)
INTERN	+	0.01 (0.05)	0.03 (0.09)	0.117 (0.44)
OWS	+	-0.07 (-0.71)	-0.12 (-0.87)	-0.119 (-1.23)

TYPEA	+	0.43 (1.9)*	0.73 (1.92)*	0.57 (2.15)*
Pseudo R-Squared		0.06	0.07	0.09
LR Statistics (9 df)		23.0(0.0)	26.1(0.0)	30.6(0.0)
Log Likelihood (LL)		-178.1	-165.0	-162.7
Probability distribution		Normal	Logistic	Extreme
N		133	133	133

Note: (1) Parentheses () are Z-statistic (2) * and ** 5% and 10% level of significance respective

In table 3, we observed that all ordered models provided similar results. This therefore means that any of the three ordered regressions can be used to explain firm's decision to adopt voluntary internet financial reporting.

Added to the above, the Pseudo R-squared value from the three ordered regression results shows that at most about 9% percent of the outcome of the dependent variable (adoption of voluntary internet financial reporting) is correctly classified jointly by all the explanatory variables. LR statistic for all three models revealed that they were all statistically significant at 5% levels and valid in explaining the outcome of the dependent variable.

Following the above, it should be noted that all three ordered regression models provided similar results, and inference can be drawn based on the three results. The results obtained are discussed as follows;

Firm size (SIZE) was positively and significantly associated with the probability for firms to adopt voluntary internet financial reporting. This results in the rejection of hypothesis (H₂) which suggests that there is no significant relationship

between firm size and voluntary internet financial reporting in Nigeria. This means that larger firms are strongly and more likely to adopt voluntary internet financial reporting. The statistical significance of firm size at 5% levels indicates that big firms as a determinant is statistically significant in influencing firms' choices of voluntary internet financial reporting. The statistical significant role of firm size in influencing firms' engagement in internet financial reporting confirms the findings of Xiao et al (1996), Ashbaugh et al (1999) that larger firms use more IT to improve financial reporting.

Profitability (PROF) was found to be statistically significant at 5% levels and was positively associated with the probability of quoted firms to adopt voluntary internet financial reporting in Nigeria. This result rejects hypothesis (H₃), which suggests that profitability does not determine company's adoption of voluntary internet financial reporting in Nigeria. The findings conform to apriori expectation as it clearly shows that firms that are making profit (good news) are more likely to voluntarily publish their financial information on their website. This finding is consistent with the signaling

theory and other studies such as Ismail (2002), Pirchegger & Wagenhofer (1999), Oyelere et al. (2003) that found firm profitability to be a key determinant of voluntary Internet Financial Reporting.

Ownership structure (OWS) was inconsistent with apriori expectation and was statistically not significant in influencing firms' decisions to adopt voluntary internet financial reporting in Nigeria. This result shows that we should accept hypothesis H₅, which indicates that there is no significant relationship between firms' ownership structures and voluntary internet financial reporting in Nigeria. The slope coefficients values of this variable from the ordered regression results suggest that firms with ownership concentration are less likely to adopt voluntary internet financial reporting in Nigeria and this make sense in Nigeria since most concentrated ownership or family owned companies are not willing to disclose their financial details to everyone via internet, especially when there are no regulation that compel them to do so.

Firm auditor type (TYPEA) was found to be statistically significant at 5% level and was positively associated with the probability of firms' voluntary choices of internet financial reporting. The results in other words implies that the use of quality audit firm by Nigerian quoted firms, such as the Big- 4 audit firms would increase the likelihood of the firms' voluntary adoption of internet financial reporting. This also implies that external audit firms encourage the adoption of internet reporting among quoted companies in Nigeria. This finding, like similar studies of Debreceeny and Gray (1999), Ahmed and Nicholls (1994), Patton and Zelenka (1997), Inchausti (1997) and Raffournier (1995) found firm auditors type

to be a key determinant of voluntary internet financial reporting.

Leverage (LEV) was negatively but not statistically significant in determining quoted Nigerian firms' decisions to voluntarily adopt Internet Financial Reporting. This result shows that we should accept hypothesis H₈, which indicates that there is no significant relationship between firm's leverage and voluntary internet financial reporting in Nigeria. The negative relationship however conforms to apriori expectation as it clearly shows that firms' that are in debt are less likely to voluntarily publish their financial information on their website. This finding is consistent with the finding of Oyelere et al. (2003) that firms with debt are likely to decrease the likelihood of the firm adoption of voluntary internet financial reporting.

Company age (CAGE) was also found to be negatively and statistically not significant in influencing firms' decisions to adopt internet financial reporting. This means that young quoted companies in Nigeria are less likely to publish their financial records on their website than older firms. This might be attributed to the fact that younger quoted companies in Nigeria are less likely to use technology in their start-up and in disclosing financial information via the internet. This finding does not support the views that older firms are more likely to disclose more financial information in their websites than younger firms (Kang & Gray, 2006). This finding may also imply that firms in Nigeria decreases their preference for web financial reporting as they become older and this can be attributed to the fact that internet reporting costs money, coupled with the fact that there is no regulation that ensures firms' compulsory reports via their webs.

Internationalization (INTERN) was not statistically significant at 5% level. The variable was positively associated with the probability of adopting voluntary internet financial reporting by firms in Nigeria. This means that Nigerian quoted companies with international activities though were positively associated with internet financial reporting but the marginal effects were not statistically significant. These therefore suggest our rejection of hypothesis H₄. This finding is not in line with the work of Oyelere et al. (2000) and Raffournier (1995) that reported that internationalization significantly influence internet financial reporting at 1% level of significant.

Model II: with interaction effects

Following the above, the results below focus on how interaction among these determinants would affect the probability of the sampled quoted firms' decisions to adopt financial internet reporting. In estimating and analyzing how interaction among some determinants will influence the decision to adopt internet financial reporting, we also used the three ordered regression models (Logit, Probit and extreme). The results from these three regression models are presented and discussed as follows:

Table 4: Voluntary internet reporting adoption model (interaction)

	Apriori Sign	VIFR Model (Probit)	VIFR Model (Logistic)	VIFR Model (Extreme)
PROF*SIZE	+	-2.13E-10 (-1.16)	-3.23E-10 (-1.03)	-2.70E-10 (-0.96)*
PROF*CAGE	+	1.63E-06 (2.54)*	2.53E-06 (2.09)*	1.47E-06 (2.69)*
SIZE*LEV	+	-1.60E-07 (-0.30)	-5.36E-07 (-0.59)	-8.57E-07 (-1.26)
SIZE*TYPEA	+	1.57E-05 (1.86)*	2.54E-05 (1.91)*	1.89E-05 (2.21)*
Pseudo R-Squared		0.09	0.07	0.07
LR Statistics (9 df)		30.6(0.0)	26.4(0.0)	24.3(0.0)
Log Likelihood (LL)		-162.7	-164.8	-165.8
Probability distribution		Normal	Logistic	Extreme
N		133	133	133

Note: (1) Parentheses () are the Z-statistics (2) * significant at 5% level

In table 4, we observed that all ordered models provided similar diagnostic results. This therefore means that any of the three ordered regressions can be used to explain the firms' decisions to adopt voluntary internet financial reporting.

Added to the above, the Pseudo R-squared value from the three ordered regression results shows that at most about 9% percent of the outcome of the dependent variable (adoption of voluntary internet financial reporting) is correctly classified jointly by all the independent variables. LR statistic for all three models revealed that they were all statistically significant at 5% level and valid in explaining the outcome of the dependent variable.

Following the above, it should be noted that all three ordered regression models provided similar results, and inference can be drawn based on the three results. The results obtained are discussed as follows;

Profitability and firm size interaction (PROF*SIZE) was negatively and statistically not significant in influencing the probability for firms to adopt voluntary Internet Financial Reporting. This suggests that profitability and firm size are not significantly related with voluntary Internet Financial Reporting in Nigeria. This means larger and profitable firms do not necessarily result in the adoption of voluntary internet financial reporting.

Profitability and firm age interaction (PROF*CAGE) was positively and statistically significant in influencing the probability for firms to adopt voluntary internet financial reporting. This suggests that profitability and firm age are significantly related with voluntary Internet Financial Reporting in Nigeria. These means, older and profitable

firms are more likely to adopt voluntary Internet Financial Reporting.

Firm size and leverage interaction (SIZE*LEV) was negatively and statistically not significant in influencing the probability for firms to adopt voluntary Internet Financial Reporting. This suggests that the big firms with high debt levels are not likely to adopt voluntary Internet Financial Reporting.

Firm size and auditor type interaction (SIZE*TYPEA)

This was positively and statistically significant in influencing the probability for firms to adopt voluntary Internet Financial Reporting. This suggests that the interaction of the big firms and the Big-4 audit firms are likely to result in voluntary internet financial reporting.

Finally, the existence of some significant interaction and their influence on firms' decisions to engage in voluntary financial reporting in Nigeria clearly shows that we should reject hypothesis H_{10} which suggests that there is no significant interaction between firms' specific determinants and voluntary internets financial reporting in Nigeria.

Conclusion, Recommendations and Areas of Future Studies

This study examined the extent and determinants of voluntary internet financial reporting decision of Nigerian quoted companies. The companies were drawn from quoted Nigerian companies over the period of 2005 to 2010. Content analysis of the web of the sampled companies, was used to extract the explanatory variables while the ordered regression analysis was used to examine how past five average performances of the independent variables have helped to explain internet financial reporting. In all, results

showed that the sampled quoted companies in Nigeria posted above 40% of all kinds of voluntary information on their websites; but preferred to post more of background information (70%), key nonfinancial statistics (64%) and management discussion analysis (57%). The less likely voluntary information to be posted on their website were PINF (Projected information) and IA (Information on intangible assets). In the case of the determinants, profitability, firm size and auditor types were identified as key determinants of quoted companies in Nigeria that adopt voluntary internet financial reporting. There was also evidence that most companies that adopt voluntary internet financial reporting are more likely to be influenced by firm size and auditor type, profitability and firm age.

In the light of the findings, it was recommended that the government through the regulatory accounting bodies should formulate policies that would make disclosure of voluntary information in IFR among quoted companies in

Nigeria uniform. Besides, the government should even make adoption of IFR among quoted companies in Nigeria mandatory as it is obtainable in some countries. This may require, however piece-meal approach to it and a bail out that would encourage these companies. It is however advised, in the context of this study that caution should be exercised for highly geared, older firms and high concentration companies. Meanwhile, future research is advised on voluntary disclosure of IFR by firms in the informal sector. Besides, research on the users' perspectives of voluntary disclosure of IFR should be encouraged to expand the IFR horizons. Perhaps, also necessary may be a research on other corporate variables, such as industry type, national differences of company, foreign activities of companies, among others, that impinge on the disclosure of IFR in Nigeria so as to enable stakeholders and researchers have a grasp of factors that are germane to a good understanding of IFR literature.

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