

# The Determinants of Internet Financial Reporting: Empirical Evidence from Nigeria

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## Abstract

This study investigated the major factors influencing internet financial reporting in Nigeria. Secondary data were sourced from the Annual Report and Accounts of the seventy-seven (77) sample firms and annual publications of the Nigerian Stock Exchange. The websites of the sampled companies were browsed for collecting data relating to financial reporting on the internet. The study revealed two major factors as influencing IFR in Nigeria. The firm's size was positively and significantly correlated to the IFR practice. This implies that larger firms utilize IFR more than their counterparts. The results also showed that type of auditor was significant and positive for all the firms. This suggests that companies audited by firms affiliated with the Big Four international auditing firms were more likely to engage in Internet financial reporting.

**Keywords:** Financial Reporting, Internet, Disclosure, Accounting Information

## 1. Introduction

The potential role of the internet, as a new means of communicating information to the general public, can meet stakeholders' demands for greater speed and volume of information, at a time when it is recognized that businesses must find better and more effective ways of communicating (Willis, Tesniere and Jones, 2003). The use of the internet enables information to be disseminated worldwide and thus facilitates the improved availability of financial information in particular, so encouraging investment. Internet financial report (IFR) allows firms to communicate information to unidentifiable consumers, on the contrary to the paper-based annual report which communicate information to selected group. With the aid of internet, financial information will become public good with unrestricted global access by adopting internet as medium to disclose financial information. IFR allows firms to disclose disaggregated and incremental financial data in their websites. Internet financial reporting (IFR) enables companies to disclose both the traditional annual reports with additional financial and non-financial information in multiple formats to wider audience and it has imperatively attracted much research attention in recent years. However, it is not clear whether Nigerian companies are exploiting this resource to the full. Therefore, there is a need to examine the role played by the internet in communicating financial information in Nigeria, in order to see how that role may be enhanced.

Furthermore, one of the major problems confronting companies in Nigeria is the increase in cost associated with printing of hardcopies of annual reports. The number of shareholders has been on the increase and each of them is entitled to a copy of annual financial report. This has increased the expenses of each company which in turn has negative impact on the profits (indicator of firms' performance). Internet information dissemination cost is cheaper than the cost associated with printed based annual report. Munther and Salah (2006) argue that printing and mailing is costlier than e-report, therefore, firms adopting internet financial reporting can save this cost. Internet provides a wide information (non-financial information and qualitative information), non-audited information, social and environmental information, up-to-date information about company new events, press releases, up-to-date information about the firm products and services which is costly to present in hard copy. The broad objective of this study is to examine the determinants of internet financial reporting by the quoted companies in Nigeria. The rest of this paper is organized as follows: Section 2 briefly examines the literature review; Section 3 presents method of analysis; Section 4 centers on the discussion of the results; while Section 5 is devoted to conclusion and recommendations.

## 2. Literature Review

The association of IFR and firms' characteristics are considered one after the other under this section.

## 2.1. Leverage

A firm's capital structure determines its leverage condition. As companies depend more on debt in their capital structure, this will lead toward higher leverage and wider obligations to satisfy the needs of their long-term creditors for timely information. As such, they may provide more timely information via the Internet, as one of the avenues, to satisfy those needs. Companies can reduce agency costs of debt by enhancing their corporate disclosure level. Companies with higher leverage can be expected to disclose more information to reduce agency costs by reassuring debt holders that their interests are protected. Voluntary disclosures help reduce the conflicts of interests between debt holders and shareholders. As debt increases, further initiatives such as Internet financial reporting help mitigate the problems of high debt and ensure the informational needs of debt holders. In discussing the agency theory, Jensen and Meckling (1976) also argued that more highly leveraged firms incur higher monitoring costs. As such, management may adopt various forms of voluntary disclosures, including the IFR, to reduce such high monitoring costs. The finding of Lang and Lundholm (1993); Ferguson et al. (2002) and Xiao et al. (2004) support this argument. Nevertheless, some studies show a negative relationship between disclosure and leverage (Eng and Mak, 2003; Debreceeny et al., 2002; Brennan and Hourigan, 2000).

## 2.2 Firm Size

The size of the company has been argued to have a positive relationship with the internet financial reporting (e.g. Chow and Wong-Boren, 1987; Cooke, 1989 and 1991; Ahmed and Nicholls, 1994, Hossain, Lin and Adams, 1994; Botosan, 1997; Frankel et al., 1999). Specifically, studies on voluntary IFR studies such as Ashbaugh et al. (1999), Debreceeny et al. (2002) and Ettredge et al. (2002) have also chosen firm size as one important factor to explain the IFR practices. The agency theory suggests that large firms exhibit higher agency costs due to the information asymmetry between market participants (Jensen and Meckling, 1976). To reduce these agency costs, larger firms disclose a large flow of corporate information.

Larger companies are more visible and therefore, may be more likely to disclose detailed information. Various reasons have been offered to justify the expected positive relationship of voluntary disclosure practices and firm size. Ashbaugh et al. (1999) note that the economics of scale suggest larger firms are more likely to present financial reports at websites. Apart from that, the political-cost hypothesis predicts that larger companies have a stronger incentive to enhance their corporate reputation and public image, as they are more publicly visible.

In addition, larger firms are motivated to undertake more voluntary disclosure practices including the IFR in order to create or maintain strong demand for their securities (Hossain, Lin and Adams, 1994). All the above theoretical arguments lend support for higher voluntary disclosures by large firms.

## 2.3 Profitability

Firm disclosure aims at increasing firm value and reducing the risk of being undervalued by market. Companies with greater profitability may disclose more information to signal their strength and opportunities. Theoretically, investors generally are thought to perceive the absence of voluntary disclosure as an indication of "bad news" about a firm (Verrecchia, 1983; McKinnon and Dalimunthe, 1993). This provides average-or-better performing firms with an adverse selection incentive to disclose (Lev and Penman, 1990; Lang and Lundholm, 1993; Clarkson, Kao and Richardson, 1994). In respect of web disclosure, Pirchegger and Wagenhofer (1999) find that the relationship between internet reporting and firm profitability was supported for Australian companies. This result is not in line with those found by Ashbaugh et al. (1999) and Ettredge et al. (2002) on US samples, by Xiao et al. (2004) for the Chinese companies and by Oyelere et al. (2003) in New Zealand. However, prior empirical evidence on the relationship between firm performance and financial information disclosure practices was mixed. Based on the above discussions, companies with greater profitability are more likely to adopt IFR than less profitable companies.

## 2.4 Liquidity

There is a positive relationship between the internet financial reporting and the liquidity ratio of companies. According to Abd El Salam (1999), companies with high liquidity ratio will disclose more information in order to distinguish themselves from other companies with less favourable liquidity. Oyelere et al. (2003) found that liquidity is considered one of the primary determinants of internet financial reporting among New Zealand companies, and found a positive relationship between company liquidity and voluntary use of internet reporting. However, agency theory suggests that companies with a low liquidity ratio may provide more information to satisfy the information requirements of shareholders and creditors. Craswell and Taylor (1992) pointed out that while debt holders may

negotiate with companies for release of additional information, shareholders of listed companies depend on public disclosure. Wallace et al. (1994) found that companies with lower liquidity provide more information in their annual report. For the purpose of this study, more liquid firms are more likely to disclose more information on their websites than less liquid firms.

### 2.5 Ownership

Companies with widely held ownership are more likely to adopt Internet financial reporting than companies with closely held ownership. Pirchegger and Wagenhofer (1999), Healy and Palepu (2001), Oyelere et al. (2003) and Kelton and Yang (2008) found that the degree of financial reporting on internet increases with ownership dispersion supporting the agency theory hypothesis. Based on the dispersion perspective, highly concentrated shareholders influences the practice of voluntary disclosures. A high number of substantial shareholders means a more concentrated ownership of a firm, and signals a good governance mechanism. This is due to the pressure by these substantial shareholders (normally, institutional shareholders) on the firms is one way of reducing shareholders' monitoring costs and of alleviating the moral hazard problem (Schipper, 1991)

### 2.6 Age

Literature reveals that firm's listing age positively affects the extent of Internet Financial Reporting. Operating history (company age) has been observed to affect the information disclosure level in prospectuses. According to Owusu-Ansah (1998), a younger company may suffer a greater competitive disadvantage if it discloses certain items such as information on research and development expenditure, capital expenditure and new products. Older companies may be more motivated to disclose such information, as the disclosure is less likely to hurt their competitive position. Accordingly, older companies are more likely to have established reporting systems, which means that full disclosure is less costly for them.

### 2.7 Type of Auditor

Companies audited by a local audit firm with international affiliation to the Big Four are more likely to adopt Internet financial reporting than companies audited by a local audit firms without international affiliation to the Big Four. Conventionally, larger audit firms are identified as being one of the Big Four international audit firms, and smaller audit firms make up the rest (Haniff and Cooke, 2002, Owusu-Ansah, 1998)

Hail (2002) suggested that audit quality is important factor in improving firms' overall reporting practices. Some studies provide evidence of a positive relationship between the type of auditor and the extent of disclosure (Ahmed and Nicholls, 1994; Raffournier, 1995; Xiao et al., 2004; Prabowo and Angkoso, 2006). Nevertheless, other studies found no significant association (Hossain et al., 1994, Abd El Salam, 1999 and Wallace et al. 1994). Therefore, for the purpose of this study, firms engaging one of the big 4 international auditing firms are more likely to disclose more information on their websites than others with local auditors.

### 2.8 Internationality

Companies with relatively more international activities are more likely to adopt Internet financial reporting than companies with relatively less international activities. IFR provides foreign financiers, suppliers, customers and investors with immediate access to financial information at relatively little cost to either the users or the company (Ashbaugh et al., 1999).

The dispersion of ownership across country borders gives rise to geographical and temporal information asymmetry (Portes and Rey, 2000). The IFR can reduce such information asymmetry by its instantaneous dissemination and wide reach. Prior studies of voluntary disclosure show a positive relationship between cross boarder ownership and disclosure (e.g. Meek and Gray, 1989). Raffournier (1995) states that companies are induced to comply with the usual practices of countries in which they operate. He argued that the more international the operations of a firm are, the larger is the inducement. His result finds a significant relationship between internationality and disclosure.

## 3. Research Method

### 3.1 Data

The sample covers 77 firms which were purposively selected for regression analysis based on the following criteria- own websites; continuity in transactions between 2009 and 2010; disclosure of financial information and availability of data. Secondary data were sourced for this study. The data were sourced from the Annual Report and Accounts of

the sample firms and annual publications of the Nigerian Stock Exchange, that is, the factbooks. The websites of the sampled companies were browsed for collecting data relating to financial reporting on the internet. The [www.google.com](http://www.google.com) was the major search engine used in addition to the government site [www.sec.gov.ng](http://www.sec.gov.ng) and [www.nigerianstockexchange.com/quoted-company](http://www.nigerianstockexchange.com/quoted-company).

### 3.2 Measurement of Variables

The dependent variable is disclosure index. A disclosure checklist was compiled on the basis of existing literature by Xiao et al. (2004), Debreceeny et al. (2002) and Pirchegger and Wagenhofer (1999). Therefore if a company discloses an item of information which is included in the index on its internet site, it received a score of one and if the company does not disclose an item, a score of zero is allocated. The disclosure index that will be used in this study will be based on that employed by Marston and Polei (2004), which in turn based on the frameworks of web-based disclosure suggested by Deller et al., (1999); Pirchegger and Wagenhofer (1999); Debreceeny et al., (2001) and Xiao et al., (2004)

The disclosure index for each company was calculated by dividing the actual scores awarded by the maximum possible scores appropriate for the company. Total score of financial content and format information are used for internet financial reporting and disclosure.

Therefore, the disclosure index for each firm was calculated as follows:

$$\text{IFRDI} = \frac{\sum X}{n}$$

where n = number of relative items applicable to company j

X = 1 if the item is disclosed; 0 otherwise

In calculating the index score for a specific company, Marston and Shirives (1996) argued that certain items of disclosure may not be applicable to a specific company. This issue was addressed in the above equation by the actual disclosure score for a company divided by the maximum score possible for that company. That is

$$\text{IFRDI} = \frac{\text{Total Score of the Individual Company}}{\text{Maximum Possible Score Obtainable by Company}} \times 100$$

Independent variables:

Size of the firm: The natural logarithm of total sales.

Profitability: This is the ratio of earnings before interest and tax to the book value of the net assets. It is given as:

$$\text{ROA} = \frac{\text{EBIT}}{\text{NA}}$$

where:

EBIT = Earnings before interest and tax

NA = Net Assets

Liquidity: Current assets/Current Liabilities

Ownership Diffusion: Number of shares owned by outsiders/number of outstanding shares at year end.

Leverage: Total debt/Total Assets

Age: Number of years passed since foundation

Type of auditor: Dummy variable coded 1 = a company audited by local auditor with international affiliation (Big four- PwC, KPMG, AkintolaDellote and E&Y), 0 = a company audited by local auditor without international affiliation (non-big four)

Internationality: Dummy variable coded 1 = a company has at least one foreign subsidiary, 0 = a company did not have a foreign subsidiary (measured by foreign versus local listing)

### 3.3 Data Analysis Technique.

Two different analytical techniques were employed in this study; they include the descriptive statistics and the inferential statistics. Descriptive statistics such as table, percentage and content analysis were used. Ordinary Least Square technique was also employed for model analysis.

### 3.4 Model Specification

This study was based on cross-sectional data and this section built on an empirical framework using the determinants mentioned under the measurement of variables in order to discern the determinants of the internet financial reporting of Nigerian quoted firms in the sample.

The Model used to analyze firms with cross-sectional data is as follows:

$$y_i = \beta X_i + \gamma_i + \lambda_i + U_i \quad (1)$$

with  $i = 1, \dots, N$

Where:

$y_i$  = Internet Financial Reporting Index  $i$  in year  $t$

$X_i$  = vector of explanatory variables

$\beta$  = vector of constants

$\gamma_i$  = firm effect assumed constant for firm  $i$  over  $t$ . (individual effects i.e. firm-specific effect)

$\lambda_i$  = time effect assumed constant for firm  $i$  over  $t$ . (time specific effects (e.g. interest rates, demand shocks), which are common to all firms and can change overtime.

$u_i$  = error term (the time-varying disturbance term is serially uncorrelated with mean zero and variance.

$$IFRDI_i = \omega_0 + \omega_1 LEV_i + \omega_2 SIZE_i + \omega_3 ROA_i + \omega_4 LIQ_i + \omega_5 AGE_i + \omega_6 INTER_i + \omega_7 AUD_i + \omega_8 OWD_i + \eta_i + \lambda_i + U_i \quad (2)$$

Where:

IFRDI = Internet Financial Reporting Disclosure Index

LEV = Leverage

SIZE = Company size

ROA = Profitability

LIQ = Liquidity

AGE = Age of the company

INTER = Internationality

AUD = Type of Auditor

OWD = Ownership Diffusion

$\eta_i$  – individual effects i.e. firm-specific effect

$\lambda_i$  – time specific effects (e.g. interest rates, demand shocks), which are common to all firms and can change overtime.

$U_i$  – the time-varying disturbance term is serially uncorrelated with mean zero and variance.

## 4. Results and Discussion

Table 1 presents a descriptive statistics of all the variables used in the test of the relationship between IFR and firm's specific characteristics from the samples. The average mean of IFRDI score is quite low (0.4604). The mean value of 46.04% indicates that most Nigerian firms have their web sites, but they do not utilize the web sites further for financial information disclosure that users need to make investment decisions. The mean value of firm size which is represented by the logarithm of total sale is 7.3119 with a standard deviation of 0.8635. This shows that there is much variation in the size across the companies in the sample. The mean value of profitability (ROA) is 2.87 which mean that the firms' profitability ratio was low because the minimum value is 0.0008 and the maximum is 126.9. Besides, there are great differences between values of profitability ratio because the standard deviation (14.98) is high. Based on the descriptive analysis as summarised in Table 1, the mean value of the type of auditor 0.6883 (68.8%) with a standard deviation 0.4662. This indicates that larger percentage of firms audited by the big four influenced their clients to disclose their financial reports on the internet.

Table 2 presents correlation analyses between the variables and the empirical specifications. The correlation analyses provide an initial step of identifying whether the empirical specification will suffer from the problem of multicollinearity. The cut-off point of 0.5 is normally used for an indication of high correlation. Spearman's rank correlation analysis was run among variables. Tabachnick et al. (2001) argue that serious multicollinearity problem does not exist if correlation coefficient is less than 0.7. As it can be seen in the table, all the correlation coefficient among independent variables are less than 0.7 and also less than 0.5. In table 4.12, firm size and type of auditor are positively and significantly associated with internet financial reporting at 1% and 1% level respectively. Also, auditor has a significant relationship with return on assets (ROA) at 1% level of significant ( $p=0.014$ ).

Adjusted R square is the relative predictive power of a model and it is a measure between 0 and 1. According to the regression analysis in Table 3, the Adjusted R-Squared are 17.34%, 35.59% and 6.4% for all the firms, financial sector and non-financial sector respectively. Indicating that 12.6 percent that variation in the IFR is explained by explanatory variables. In the literature the adjusted R-Square are always low for cross-sectional data studies. The F-statistics for Model I and II are significant with p-value of 0.0061 and 0.017 respectively. The results of Durbin-Watson indicate absence of serious serial correlation in the residuals, since the results revolve round value 2.

The firm's size (SIZE) was predicted to be positively correlated to the IFR practices. Model I and II were robust to firms' size which is found to be positively significant at 5% and 1% respectively in explaining IFR practices. This finding suggests that large firms are deriving benefits from setting up websites and engaging in IFR. This finding is consistent with other prior studies such as Marston and Leow (1998), Pirchegger and Wagenhofer (1999) and Oyelere, Laswad and Fisher (2003). Prior studies have argued that larger firms tend to adopt more voluntary disclosure practices including IFR due to the proposition of agency theory, need more capital, able to lower incremental cost and political cost theory. Larger and financially better firms need unconventional device to signal their condition and performance. Therefore, they utilize IFR more than their counterparts. The largest companies normally have more and diversified stakeholders; the IFR disclosure is useful to the management cost and benefits for strategy communications.

Although, age (AGE) had positive relationship with IFR in all models, the impacts are not significant. The insignificance of AGE indicates that traditional experience with investor relations does not necessarily induce firms to engage in more advanced means of financial reporting such as IFR. Additionally, the positive insignificant relationship between leverage (LEV) and internet financial reporting concluded in this study is in line with the results of Brennan and Hourigan (2000) and Debrecey et al. (2002), who found that leverage is insignificant to Internet reporting.

The type of auditor (AUD) appeared to be significant and positive in model I and II at 1% level. This result suggests that firms audited by firms affiliated with the Big Four international auditing firms were more likely to engage in Internet financial reporting. In other words the Big Four may play a role in encouraging their clients to have financial reporting disseminated on the internet. This result is consistent with Xiao et al (2004) who found a positive relationship between IFR practices and Big Four auditing firms in China.

The result showed that profitability (ROA) does not significantly explain the practice of IFR by Nigerian Quoted companies. It had negative coefficient under financial and non-financial sector sample firms which are -0.0005 and -0.009 respectively. A possible explanation to the insignificance of this variable (ROA) might be due to the fact that most of the sample financial firms are making a loss or in the process of recovering their previous year losses. Consistent to Xiao et al. (2004), and who used the same measure (ROA) for the profitability, the results are not

significant to the voluntary internet-based disclosure. Probably, different companies have divergent composition of the assets and that can be short or long term. Owner diffusion (OWD) and internalization (INTER) were not significant. One of the reasons is that most public ownerships are minorities that have less power to require more about firms' information. Ownership diffusion appeared not to be associated with internet financial reporting in Nigeria even when the two sectors were compared as no statistically significant differences were found.

In summary, among the factors which are consistently significant in explaining IFR practices in Nigeria are firms' size and type of auditor. The shows that a one unit increase in firm's size will lead to 0.051 increase in internet financial reporting practice for all sampled firms. On the other hand, one unit increase in type of auditor (the BIG FOUR) will lead to IFR usage by 0.1796 for all firms. Ownership structure, age and internalization are the independent variables, which have not any significant association with the web-based disclosure behaviour in Nigeria.

## 5. Conclusion

Internet financial reporting (IFR) though recent, it is a fast-growing phenomenon. There has been tremendous growth in corporate and market activities in transitional and emerging economies in recent times. Many companies worldwide publish their corporate financial information on the internet. The internet may also improve the availability of financial information within firms themselves. For example, many of the processes that occur in distant places can be automated and fed into a firm-wide information system. Both regulatory and professional bodies should jointly provide a template for Internet Financial Report to promote uniformity in financial information disclosure by companies.

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Table 1: Descriptive Statistics for all firms (IFR and Firms' Characteristics)

	IFRDI	SIZE	ROA	OWD	AGE	AUD	INTER	LEV	LIQ
Mean	0.4603	7.3119	2.8688	6.2752	37.3116	0.6883	0.9090	1.3277	2.0701
Median	0.4736	7.1166	0.1926	2.6600	39.0000	1.0000	1.0000	1.1817	1.3205
Maxmum	0.8421	9.5800	126.900	56.1211	116.000	1.0000	1.0000	9.6920	10.305
Minimum	0.1316	5.8010	0.0008	0.1080	4.0000	0.0000	0.0000	0.0017	0.1164
Std. Dev	0.1964	0.8635	14.9864	10.1447	20.8914	0.4662	0.2896	1.0806	1.9149
Skewness	-0.0875	0.4254	7.6195	3.4003	0.96969	-0.8131	-2.8460	6.1722	2.3262
Kurtosis	2.1174	2.3881	62.7521	15.1693	4.5341	1.6611	9.1000	48.110	8.7098
Observation	77	77	77	77	77	77	77	77	77

Source: Author's Computation 2012.

Table 2: Correlation Analysis for all firms (IFR and Firms' Characteristics)

	IFRDI	SIZE	ROA	OWD	AGE	AUD	INTER	LEV	LIQ
IFR	1								
SIZE	0.2678 (0.0185)	1							
ROA	0.1398 (0.2253)	0.2340 (0.0405)	1						
OWD	0.0434 (0.7078)	0.1229 (0.2870)	0.0989 (0.3919)	1					
AGE	0.0639 (0.5807)	0.0024 (0.9832)	0.1241 (0.2822)	-0.0427 (0.7121)	1				
AUD	0.4252 (0.0001)	0.1552 (0.1778)	0.2775 (0.0145)	0.1653 (0.1509)	0.2083 (0.0691)	1			
INTER	0.1017 (0.3784)	0.1362 (0.2376)	0.1159 (0.3157)	-0.0986 (0.3937)	-0.0925 (0.4234)	0.0798 (0.4903)	1		
LEV	0.2162 (0.0590)	0.0452 (0.6963)	0.0821 (0.4777)	-0.0422 (0.7158)	-0.0010 (0.9929)	0.1186 (0.3043)	0.0406 (0.7256)	1	
LIQ	0.0418 (0.7183)	-0.0004 (0.9969)	-0.2628 (0.0209)	-0.0577 (0.6181)	-0.1849 (0.10)	-0.2699 (0.0176)	0.0244 (0.8332)	-0.0521 (0.6528)	1

Figures in parentheses are p-values (the significant levels)

Source: Author's Computation 2012

Table 3: Regression on the Relationship between IFR and Firms' Specific Characteristics

	Model I ALL FIRMS
Intercept	-0.0862 (-0.4328)
SIZE	0.0508 (2.0281)**
ROA	0.0001 (0.0818)
OWD	0.0002 (0.1077)
AGE	0.0005 (0.4452)
AUD	0.1796 (3.6876)*
INTER	-0.0001 (-0.0016)
LEV	0.0062 (0.28214)
LIQ	0.0119 (0.9684)
R-Squared	0.2604
Adjusted R-Squared	0.1734
F-statistic	2.9932 P(0.0061)
Durbin-Watson	2
No of Observation	77

Source: Author's Computation 2012

Numbers in parentheses appearing below coefficients are t-values. \*, \*\* and \*\*\* are 1%, 5% and 10% respectively. The values in parentheses are t-statistics.

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