



Assessment of the network communication: Perspective of Indonesian

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Abstract

This research analyses all the Indonesian companies on the Jakarta Stock Exchange in terms of its ability to communicate via the internet. Analysis is conducted to understand the level of web communication and predictor variables to explain website presence or absence. The results show that 63.8% of such firms have websites. Using logistical regression, statistical differences are found with size and age of firms. Larger and older firms are far more likely to have websites. Indonesian firms are still recovering from the Asian Currency crisis in the late 1990s, the findings in this study show that internet communication to external stakeholders of financial reporting data is still not at an optimal level especially in regards to foreign investors that are more likely to use web technology.

Keywords: web communication, listed companies, Jakarta Stock Exchange.

INTRODUCTION

In recent years, internet usage has significantly impacted on companies' corporate reporting practices (Khadaroo, 2005). The internet provides companies with enormous opportunities to enhance the breadth and quality of corporate communication with shareholders and other stakeholder groups (Marston and Polei, 2004; Pirchegger and Wagenhofer, 1999).

Prior research on Corporate Internet Reporting (CIR) have mainly focused on the developed economies (Craven and Marston, 1999; Marston, 2003; Oyelere et al., 2003), with only a few studies in developing countries (Davey and Homkajohn, 2004; Khadaroo, 2005). To date there are no similar studies on any of the Indonesian stock exchange. This paper therefore provides an important extension of prior Corporate Internet Reporting (CIR) research to a developing country stock exchange, namely the Indonesian stock exchange.

The objective of this research paper is to provide insights on web-based usage and communication of financial reporting data by Indonesian firms. Past studies have shown a fundamental difference in web-style communication between the 'developed countries' in contrast to the 'emerging economies'. This study will explore the extent of internet communication using 2006 data from the entire population of the Indonesian listed firms on the Jakarta Stock Exchange (JSX). The results will help clarify the ability of stakeholders to use contemporary

communication techniques to acquire timely information about the largest economic firms in Indonesia. Therefore, this study is designed to answer the following research question:

To what extent do the Indonesian companies make use of internet?

To help us better understand the aim of the study the four related research sub-questions are advanced. These are:

1. Are there any significant relationships between firm size and voluntary use of Corporate Internet Reporting?
2. Are there any significant relationships between leverage and voluntary use of Corporate Internet Reporting?
3. Are there any significant relationships between profitability and voluntary use of Corporate Internet Reporting?
4. Are there any significant relationships between listing age and voluntary use of Corporate Internet Reporting?

The study is organised as follows. Section 2 provides the literature review for accounting and information systems web studies and related hypotheses development. Section 3 outlines the research approach and Section 4 highlights the key descriptive and statistical findings of web usage by Indonesian firms. The study implications

and conclusion are provided in the final section.

Literature review and hypotheses development

A number of studies have examined Corporate Internet Reporting practices in various countries. Very few studies have examined web usage in developing economies.

Ashbaugh et al. (1999), document one of the early studies in the area of Corporate Internet Reporting. They provide preliminary evidence that companies establish internet as an avenue for disseminating information to shareholders.

Similarly, in 1999 an extensive set of studies documented in the European Accounting Review reviews Corporate Internet Reporting practices in European Countries (Craven and Marston, 1999; Gowthorpe, 1999; Hedlin, 1999; Lymer, 1999; Pirchegger and Wagenhofer, 1999). For instance, Craven and Marston (1999) examined level of financial information disclosure on the internet by large UK companies. The result of the study indicates that company size was the main predictor of the financial information disclosure on the internet, whereas industry type was not significant. Similarly, Pirchegger and Wagenhofer (1999) provide empirical evidence that size is significantly associated with internet financial disclosure for Austrian companies.

Debreceeny et al. (2002) examined internet financial reporting practices of 660 companies in 22 countries listed in DowJones Global Index. South Africa is the only African country included in the survey, and more importantly developing countries (Developing countries are defined as those countries that are not categorised as High-Income countries by The World Bank – for further details see <http://web.worldbank.org/>) constitute 27% of the sample countries. In evaluating internet reporting practices they examined two dimensions of internet financial reporting: presentation and content. Results of their study suggest that size, listing status and technology were firm specific determinants of internet financial reporting, while national environment was the most significant predictor of internet financial reporting presentation.

Ettredge et al. (2002) found that company size and information asymmetry proxy are significantly associated with dissemination of both mandatory information on the websites. Voluntary information disclosures on the corporate web sites were not only associated with size and information asymmetry proxies as with mandatory disclosures, but are also influenced by a company's capital need and disclosure reputation.

Drawing on the prior voluntary disclosure research, Oyelere et al. (2003) investigated determinants of internet financial reporting by New Zealand companies. Results of the study indicate that size, liquidity, industry type and shareholder dispersion influence voluntary utilization of internet for financial reporting.

Marston (2003) examined financial reporting on the in-

ternet by Japanese companies. Her results revealed that of the 91% of companies had a web site and of those with web sites 79% had English version in their home pages. Clearly this demonstrates the importance of communication with foreign stockholders. In addition, findings of her study indicate that size was significantly associated with the establishment of a web site, but interestingly it did not appear to influence the level of financial disclosure on the internet.

Marston and Polei (2004) provide evidence of disclosure of financial and investor related information on the internet by German companies. They investigated disclosure between two periods – year 2000 and 2003. Of the five firm specific factors examined, only size was the only statistically predictor variable over the period studied, and foreign listing was significant only in year 2003.

Within the context of developing countries with particular reference to Asia, Davey and Homkajohn (2004) and Xiao et al. (2004) examine internet reporting practices of Thailand and Chinese companies respectively. Davey and Homkajohn (2004) investigated extent and quality of internet financial reporting of top 40 Thai listed companies. Findings of their study revealed wide variations in extent and quality of financial information disclosure on the internet by companies. They noted need for better utilization of internet by Thai companies for financial reporting.

Xiao et al. (2004) studied factors influencing voluntary adoption of internet financial reporting by Chinese companies. Overall, their results indicate that company size is associated with the extent of mandatory and voluntary internet corporate disclosure. Further analysis suggests that Big-5 auditor and the fact that firm is information technology industry helps predict presentation format of financial information, whereas the presence of foreign ownership determines whether Chinese companies have English web site.

Firm size

Research findings of a number of empirical studies indicate that firm size is significantly associated with voluntary disclosure (Ahmed and Courtis, 1999; Barako et al., 2006). Marston (2003) argues that larger companies are likely to attract attention of regulators, and are therefore, motivated to disclose voluntarily to reduce political costs arising from their visibility in the society. Large firms are associated with greater agency conflicts and information asymmetry as result of their complex organizational structure (Marston and Polei, 2004). Thus, voluntary information disclosure through the internet is an appropriate avenue for reducing agency conflicts among the managers, shareholders and debt-holders. Thus based on the foregoing, the following hypothesis is tested:

H1: There is a positive association between firm size and voluntary use of Corporate Internet Reporting.

Leverage

It is argued that the presence of debt holders in a firm's capital structure exacerbates agency conflicts (Jensen and Meckling, 1976). Thus, highly indebted companies are motivated to voluntarily disclose more information to accommodate the interests of this class of stakeholders as mechanism to ameliorate agency conflicts. Empirical results of the relationship between leverage and disclosure is mixed. Bradbury (1992) and Naser (1998) provide empirical evidence of positive association between leverage and disclosure. Other studies such as, Wallace et al. (1994), Raffournier (1995) and Inchausti (1997) found no significant association between leverage and disclosure. Based on the above discussion, the following hypothesis is examined:

H2: There is positive relationship between leverage and voluntary use of Corporate Internet Reporting.

Profit/RoA

Several prior studies indicate that profitability is associated with disclosure (Owusu-Ansah, 1998, Wallace and Naser, 1995). Signaling theory suggests that management of profitable companies may voluntarily disclose more information as a mechanism to enhance firm value by influencing share prices through the release of good news. According to Singhvi and Desai (1971) managers of profitable companies voluntarily disclose more information as a basis to justify their positions and compensation. Thus it is likely that a more profitable company will disclose more information than a poorly performing one. Hence, given the enormous opportunity provided by internet, profitable companies are more likely to have a website to reach wider audience, such as shareholders, investors and debt holders. The second hypothesis is:

H3: There is positive association between profitability and voluntary use of Corporate Internet Reporting.

Age of firm

Age is defined as the number of years the company has been in business since inception. It may be that the use of internet for corporate reporting purposes is influence by the number of years a company has been in operation. It is expected that the bigger the age of a company, the higher likelihood of a firm using internet as tool for information dissemination. The older companies have a well established information disclosure practices, and thus likely to embrace internet as a mechanism to provide huge amount of financial and non-financial information to stakeholders. The length of time a company has been in business also suggests experience and familiarity of a company with information that is pertinent to shareholders and investors, and thus, the motivation to exploit

immense advantages associated with the internet. Thus, based on the foregoing, the following hypothesis is examined:

H4: There is a positive relationship between listing age and voluntary use of Corporate Internet Reporting.

Research approach

A quantitative approach is utilised based on the positivist research paradigm to explain business phenomena. The entire population of 343 Indonesian firms on the Jakarta Stock Exchange in 2006 are used (Three key data sources are used to acquire the data. First, each company website name is extensively sought using multiple internet search techniques. Second, the Jakarta Stock Exchange, JSX Monthly Statistics - August 2006. Volume 15 No. 18. Retrieved: 18 September 2006 is used to gather company characteristics. Third, additional company data is garnered from the http://www.jsx.co.id/_images/press/PRESSEN298.pdf and the Jakarta Stock Exchange, Company Report - November 2005. Retrieved: 21 September 2006, from <http://www.jsx.co.id/issuers.asp?cmd=listed>.) as the data set. The key variable is the presence or absence of an external website for stakeholder usage. The data set falls to 297 firms due to inability to collect some company's ownership and governance structures. The final data set remains a very large and comprehensive sample.

The four independent (Consistent with the past literature, four additional control variables are also analysed. These control variables are: ownership concentration, percentage of independent directors on the board, the level of independence of the audit committee and industry) predictor variables are measured as follows. First, size is calculated as the natural logarithm of the total assets of firm *i* at financial statement date 30 June 2006. Second, leverage is calculated as the ratio of total liabilities to total assets of firm *i* at financial statement date 30 June 2006. Third, profit performance is measured using the *ROA* ratio of net income to total assets of firm *i* at financial statement date 30 June 2006. Fourth, the age variable is computed as the number of years since firm *i* is founded to year 2006.

The primary focus is to explain the existence of an Indonesian firm website. This is measured as a dichotomous yes/no variable, therefore logistical regression is the primary statistical technique utilised. T-tests are also employed.

RESULTS

Of the 343 Indonesian companies examined, 219 (63.8%) Indonesian firms have a website and 124 have no such a communication outlet. In regards to the predictor variables, on average, the level of leverage is 59.4%, profit is a low 3.7% and the companies are just

Table 1. Descriptive statistics – independent and control variables.

Variable Description	N	Mean	Median	Std Dev
Independent Variables:				
Leverage	343	59.47	55.56	41.92
ROA	343	3.73	2.00	8.39
LogAssets	343	6.645	6.472	1.764
Age Founded	342	31.83	26	25.49
Control Variables:				
Top-1%	297	48.07	49.67	20.46
%IndDirectors	297	41.00	40.00	15.00
%IndAudCom	297	26.00	33.00	18.00

Legend: The fourth control variable is industry grouping with 170 manufacturing firms (49.6%) and 173 non-manufacturing firms (50.4%).

Table 2. Independent T-test- Presence of website.

Variable Description	No Websites		With Websites		t-value	Sig
	N	Mean	N	Mean		
Independent Variables						
Leverage	124	60.10	219	59.11	0.181	0.856
ROA	124	2.42	219	4.48	-2.197	0.029
Log Assets	124	5.81	219	7.12	-7.535	0.000
Age from Founded	123	30.52	219	32.57	-0.712	0.477
Control Variables						
Top-1%	99	48.04	198	48.09	-0.019	0.985
%IndDirectors	99	40.00	198	42.00	-1.023	0.307
%IndAudCom	99	25.00	198	26.00	-0.625	0.532

Table 3. Pearson and spearman correlation matrix

	Website	Industry	LogAssets	Leverage	ROA	Profit (Loss)	Age Founded	Top-1%	%IndDir	%IndAudCom
Website		0.067	0.358*	-0.011	0.118**	0.095	0.039	0.001	0.055	0.034
Industry	0.067		0.043	-0.038	-0.084	0.127**	-0.035	-0.038	0.035	0.117**
Log Assets	0.383*	0.003		0.145*	0.211*	0.258*	0.308*	0.071	-0.008	0.040
Leverage	0.059	0.052	0.264*		-0.061	-0.065	0.104	-0.040	-0.045	-0.030
ROA	0.147*	-0.038	0.247*	-0.100		0.570*	0.119**	0.151*	0.074	-0.001
Age Founded	0.112**	-0.107**	0.305*	0.131**	0.219*	0.182*		0.026	-0.004	0.043
Top-1%	-0.006	-0.027	0.034	-0.035	0.124**	0.028	0.013		-0.098	-0.065
%IndDir	0.061	0.023	0.014	-0.080	0.004	-0.063	0.014	-0.053		0.149**
%IndAudCom	0.034	0.121**	0.049	-0.084	0.012	0.044	0.016	-0.068	0.145**	

* Correlation is significant at the 0.001 level (2-tailed)

** Correlation is significant at the 0.005 level (2-tailed)

less than 32 years from founding date. In addition, the companies' shareholdings are highly concentrated with virtually half held by one shareholder. Governance characteristics appear to be somewhat weak with only 41% independent directors and percentage of (49.6%) versus non-manufacturing firms (50.4%). See Table 1 for more

details.

Univariate statistical analysis is conducted to better understanding why some Indonesian firms have a website whilst others do not. Table 2 reveals the results of an independent t-test comparing these two groups. The results in Table 2 highlight some differences between the

Table 4. Results of logistic regression – Presence of website

	Sig.
(Constant)	0.001
Independent variables:	
LogAssets	0.000
Leverage	0.876
ROA	0.614
Age from Founded	0.039
Control variables:	
Top-1%	0.787
%IndDirectors	0.393
%IndAudCom	0.878
Industry Grouping-3	0.161
Model Summary	
Overall Percentage	69.36
Nagelkerke R-Square	0.210
Sample Size	297

two groups. Indonesian firms with websites sample is almost exactly split in half with manufacturing independent members on audit committees 26%. They have statistically higher profit levels (p-value 0.029) and are larger (p-value 0.000). These statistical findings suggest that the higher the companies' profitability and the larger the companies' size the more likely the companies provide an external website for stakeholder usage. Table 3 correlation matrix provides similar evidence with the highest correlation of website presence with the size Logasset variable. This table also shows relatively low correlations between the independent variables lessening concerns about multicollinearity for the logistical regression analysis.

The logistical regression is carried out to examine to what extent the four independent predictor variables explain the presence or absence of an Indonesian firm website for stakeholder usage. The results are highlighted in Table 4.

Table 4 shows that size (p-value 0.000) and age of firms (p-value 0.039) are the significant predictors. Unlike the T-tests in Table 2, the profit variable is no longer significant. The logistical regression model provides 21% predictive power using the Nagelkerke r-squared approximation.

The statistical findings indicate that firm size and the existence of an Indonesian firm website are positively associated with a significant p-value of 0.000. This statistical finding suggests that the size of a company significantly explains the existence of an Indonesian firm website. The larger a company the higher the probability that a company will voluntarily utilize Corporate Internet Reporting by providing an external website for stakeholder usage. Leverage as a predictor variable is positively associated with the existence of an Indonesian

firm website with an insignificant p-value. This finding suggests that the level of financial leverage of a firm does not explain whether or not an Indonesian firm make a use of internet to voluntarily develop an external website for stakeholder usage. Profitability as a predictor variable is positively associated with the existence of an Indonesian firm website with an insignificant p-value. This statistical finding indicates that the ability of a company to produce profit does not significantly explain the voluntary use of Corporate Internet Reporting. Listing age predictor variable has a positive association with the existence of an Indonesian firm website with a p-value of 0.039. This statistical finding suggests that age of firm is a significant predictor of voluntary use of Corporate Internet Reporting. The longer a company has been around the more the likelihood of it using internet to voluntarily develop an external website for stakeholder usage.

A stepwise regression reveals the same findings as does sensitivity analysis using four industry groups instead of two. Additional analysis (not shown for brevity) partitioned the data between small versus large firms using a cut-off according to the median of total assets (Rp47.000.000.000). This shows no predictor variables for the small firms but larger firms are again differentiated by size (p-value 0.015) and age of company (p-value 0.006).

Implications and Conclusion

This study examined the determinants of web presence or absence of Indonesian listed companies. Analysis is conducted on 343 of the Indonesian listed companies. Results of the descriptive statistics indicate that 63.8% of the Indonesian listed companies have websites. Logistic regression analysis suggests that Hypotheses 1 and 4 are statistically supported. Size and age of companies are positively associated with utilisation of web as a tool for corporate communication. The larger and older firms are more likely to have websites. However, the other two predictor variables, leverage and profitability, are insignificant predictor variables of web presence or absence. The level of financial leverage and profitability of a company are not significant factors in predicting web presence or absence of Indonesian listed companies. Interestingly, governance variables, namely, ownership concentration and board composition are not associated with web presence.

Finally, the findings have important policy implications for both large and small companies. While larger and older firms have website, all companies can benefit from utilisation of internet as an avenue for communication with stakeholders. In particular, in emerging economies where data access is limited, internet provides companies with the opportunity for disclosing huge and timely data. In addition, management of Indonesian companies should therefore embrace internet as a tool for not only communicating with stakeholders, but as a means of

business growth through proper utilisation of the competitive edge that Information and Communications Technology (ICT) provide to business (Darley, 2001). Smaller companies may overcome this barrier by forming strategic alliances to share costs. This will reduce total costs and enable communal access to internet within organisations (Darley, 2001). Inclusion of independent directors is associated with improved communication (Chen and Jaggi), thus Indonesian companies may benefit from co-opting more truly independent non-executive directors on corporate boards. More important, the efficacy of propagating web utilisation not only for communicating with stakeholders, but also as a business is more of top-decision making that is board driven, calls for a comprehensive board reforms to address emerging challenges and opportunities presented by ICT.

REFERENCES

- Ahmed K, JK Courtis. (1999). Association between corporate characteristics and disclosure levels in annual reports: A Meta-Analysis. *Br. Account. Rev.* 31: 35-61.
- Asbaugh H, KM Johnstone, TD Warfield (1999). Corporate Reporting on the Int. Account. Horiz. 13(3): 241 - 57.
- Barako DG, P Hancock, HY Izan (2006). Factors Influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance: An Int. Rev.* 14(2): 107 - 25.
- Bradbury ME (1992). Voluntary disclosure of financial segment data: New Zealand evidence. *Accounting and Finance*, 32(1): 15-26.
- Chen, CJP, Jaggi B (2000). Association between independent non executive directors, family control and financial disclosures in Hong Kong. *J. Account. and Public Policy.* 19(4-5): 285-310.
- Craven BM, CL Marston (1999). Financial reporting on the internet by leading UK companies. *The Eur. Account. Rev.* 8(2): 321-33.
- Darley WK (2000). The Internet and emerging e-commerce: Challenges and implications for management in Sub-Saharan Africa. *J. Global Information Technol. Mgt.* 4(4): 4 -18
- Davey H, K Homkajohn (2004). Corporate Internet Reporting. *Problems and Perspectives in Management*, 2: 211 - 27.
- Debreceny R, Gray GL, Rahman A (2002). The determinants of internet financial reporting. *J. Account. and Public Policy.* 21: 371 - 394.
- Ettredge M, VJ Richardson, S Scholz (2002). Dissemination of information for investors at corporate web sites. *J. Account. Public Policy*, 21: 357 - 69.
- Gowthorpe C (1999). External reporting of accounting and financial information via Internet in Spain. *The Eur. Account Rev.* 8(2): 365-71.
- Hedlin, P (1999). The Internet as a vehicle for investor relations: The Swedish case. *The European Accounting Review*, 8(2): 373 - 81.
- Inchausti BG (1997). The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *The Eur. Account. Rev.* 6(1): 45-68.
- Jensen MC, WH Meckling (1976). The theory of the firm: Managerial behavior, agency costs and ownership structure. *J. Financ. Econ.* 3: 305-60.
- Khadaroo MI (2005). Business reporting on the internet in Malaysia and Singapore. *Corporate Communication*, 10(1): 58 - 68.
- Lymer, A. L. 1999. The internet and the future of corporate reporting in Europe. *The European Accounting Review*, 8(2): 289-301.
- Marston C, A Polei (2004). Corporate reporting on the internet by German companies. *Int. J. Account. Info. Syst.* 5: 285 - 311.
- Marston CL (2003). Financial reporting on the internet by leading Japanese companies. *Corp. Commun.* 8(1): 23-27.
- Naser K (1998). Comprehensiveness of disclosure of non-financial C companies listed on Amman Financial Market. *Int. J. Comm. Manage.* 8(1): 88-119.
- Owusu-Ansah S (1998). The impact of corporate attributes on the extent of mandatory disclosure and reporting by listed companies in Zimbabwe. *The Int. J. Account.* 33(5): 605-31.
- Oyelere P, F Laswad, R Fischer (2003). Determinants of internet financial reporting by New Zealand companies. *Journal of Int. Financ. Manage. Account.* 14(1): 26 - 63.
- Pirchegger B, A Wagenhofer (1999). Financial Information on the internet: A survey of the homepages of the Austrian companies. *Eur. Account. Rev.* 8(2): 383 - 95.
- Raffournier B (1995). The determinants of voluntary financial disclosure by Swiss listed companies. *The Eur. Account. Rev.* 4(2): 261-80.
- Singhvi SS, Desai HB (1971). An empirical analysis of the quality of corporate financial disclosure. *Accounting Review.* 46: 129 - 138
- Wallace RSO, K Naser (1995). Firm-specific determinants of comprehensiveness of mandatory disclosure in the corporate annual reports of firms on the stock exchange of Hong Kong. *J. Account. Public Policy*, 14(4): 311-68.
- Wallace RSO, Naser K, Mora A (1994). The relationship between the comprehensiveness of corporate annual reports and firm specific characteristics in Spain. *Accounting and Business Research.* 25(97): 41-53.
- Xiao JS, H Yang, CW Chow (2004). The determinants and characteristics of voluntary internet-based disclosures by listed Chinese companies. *J. Account. Public Policy*, 23: 191 - 225.