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Corporate Internet Reporting and Firm Performance: Evidence from Malaysia

Chai J Sia[1], Rayenda Brahmana[1], Gesti Memarista[2]

ABSTRACT Anecdotal evidence showed that the portion of internet users to the population in Malaysia is relatively higher among developing economies. However, there are not many Malaysian listed companies that use the internet as a platform for financial information disclosure. Perhaps, the managers do not believe that there is positive association between internet reporting and firm performance. Therefore, this study aims to examine the impact of corporate internet reporting (CIR) on firm performance for a sample of 583 non-financial listed companies in Malaysia over the year of 2013. We use content analysis to retrieve the internet reporting items and test its validity and reliability before running the regression model. The findings showed that CIR has a significant effect on firm value. This means that more related information that is regularly disclosed on the company's websites can contribute more value to the firms. Meanwhile, company size does not significantly influence firm value. The firm's leverage is negative and statistically significant, and the growth brings a positive significant effect to the firm's value. In addition, in this study, the results support the resource-based view theory and the signaling theory between corporate internet reporting and firm value. The findings of the research suggest that companies should disclose more information through the internet in order to ensure the accessibility of financial information for stakeholders, and this will present a better image and reputation of the company's best practices in financial performance. CIR will help them to have meaningful investment decisions and persuade them to invest in the company.

KEY WORDS: Corporate internet reporting (CIR), firm performance, size, leverage, growth

JEL Classification: G14; G39; M40

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Introduction

Firms' stakeholders need fast and reliable financial information to satisfy their requirements for timely decision making. Hence, information technology provided by the internet can meet that expectation through internet reporting. According to Willis, Tesnie're, and Jones (2003), internet reporting can be used as a new information communication tool to provide information quicker and timelier in better and more effective ways. By using internet financial reporting, the information will be disseminated worldwide and facilitate broader stakeholders.

This is in line with the growth of internet users around the world. The number of worldwide internet consumers have increased more than seven-fold in ten years from 394 million in 2000 to 2,923 million users in 2014 (Statista, 2014). This implies that there

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is a growth in the population of corporate internet reporting (hereafter CIR) users. Therefore, internet reporting is essential in the current information technology era (Adhikari & Tondkar, 1992; Jones & Xiao, 2003; Khan & Ismail, 2011).

The demands of voluntary disclosure via internet reporting increase the curiosity among investors at the present time (Aly, Simon, & Hussainey, 2010). As shown by Shehata's (2014) study, more available information would help investors' decision making reach the optimum level. Even though internet reporting provides fast information, it does not definitely mean better earnings results (i.e., Bakos, 1991; Brynjolfsson & Hitt, 1996). Bharadwaj, Bharadwaj, and Konsynki (1999) also documented that businesses are curious about the impact of internet reporting on their company's performance. Note that establishing CIR about both the costs of instituting a system and revealing the current and latest performance of the company. Hence, the company will consider what will be the benefits for the company after investing in that technology (Chao, Hsu, & Yeh, 2010).

Firms will reduce information asymmetry when there is more disclosure information through the internet (Diamond & Verrecchia, 1991). This information can lead to better performance because it improves the company's image, reputation, and trustworthiness. This is well explained by the resource-based view theory, whereby information is important for a company. This resource is allocated heterogeneously (unequally) within an industry, meaning that each firm has similar information, yet each firm disseminates information differently in the internet.

Peteraf (1993) and Daft (1983) stated that the resource-based view theory defines resources as the firm's assets, capabilities, organizational processes, attributes, information, and knowledge about the components controlled by the firm that enable it to conceive and implement strategies that enhance its efficiency and effectiveness. Prior research has tested how different types of resources may have different impacts on firm performance. For example, Williamson (1975) focuses on more physical capital resources and Tomer (1987) focuses more on organizational resources. Meanwhile, Becker (1967) and Porter (1985) focus more on financial statements and information.

The case incorporates the resources and capabilities of the firm's fundamental features into its long-term strategy. It primarily includes the internal resources and capabilities that give the basic direction of the strategy of the firm, and second, it establishes resources as the primary source of profits for the firm (Grant, 1991). The ability of a firm to generate profit margins exceeding its costs of capital depends upon the attractiveness of the industry in which it is located and its establishment of a competitive advantage over its rivals. In this research study, the information available on the internet can add great resource contributions to the organization for cheaper costs of capital since it has lower information asymmetry.

Additionally, information on the internet can give signals to stakeholders regarding the performance of the firm. According to Hanafi, Kasim, Ibrahim, and Hancock (2009), the voluntary disclosure will give a signal to investors as the reaction to the asymmetric information in the market. Thus, asymmetries will be reduced if there is a part with more information signals to others. Spence (1973) stated that signaling theory can also help to explain voluntary disclosures. Craven and Marston (1999) stated that the use of the internet itself might be a signal of the high quality of the company. It shows that the company is up-to-date and modern when using the latest technology rather than conservative and old-fashioned methods. The company tends to adopt the same level of disclosure through the internet (Craven & Marston, 1999).

This phenomenon indicates that the CIR will affect firm performance. Through the CIR, the firm has a modern indicator to measure the performance through the concept of creating firm value (Beaver, 1968). The good company will disclose more information to enable the stockholders to be able to differentiate between the good firm and the bad ones. According to Lai, Lin, Li, and Wu (2010), internet reporting will minimize the shareholder shocks due to negative news, which will be reflected in the company's stock price. Consequently, shareholders find it easier to assess the company's performance from the firm value. Chao et al. (2010) and Lazarides, Drimpetas, Argyropoulou, and Motwani (2009) stated that CIR with an accurate and more timely disclosure mechanism will facilitate deterrence, detect manipulation and fraud, improve the stock market's efficiency, reduce the un-

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derpricing of IPOs, lead to a higher firm value, and improve organizational performance.

Since there was a growth in use of internet reporting, there is no more ignorance in society about the current situations of firms (Heye, 2009). Therefore, administrators of the firm's website possess the authority to cover or to hide the real facts from disclosure (Heye, 2009). Even major news corporation are no longer able to cover it, and internet reporting manages to generate more credible and accurate information about a firm's value than the mass media.

There are many global papers that have studied the extent of CIR in the last decade (Craven & Marston, 1999 for the UK context; Bharadwaj et al, 1999 for the US context; Chao et al, 2010 for the Taiwanese context; Aly et al, 2010 for the Egyptian context; and Khan & Ismail, 2011 for certain industries in Malaysia). It shows that many countries have started focusing on the employment of CIR. However, within Malaysia, there are only a few findings that use the firm's value as the dependent variable and study whether it is positively or negatively influenced by CIR. Therefore, this research aims to examine the relationship between CIR and firm value.

Web-based reporting overcomes the major weaknesses of paper-based reporting, such as more readers, greater efficiency, and easier access. However, according to Hussey and Sowinska (1999), one of its drawbacks would be the probability of lower effectiveness in the methods of implementation and compliance and the value of the whole reporting. Hussey and Sowinska (1999) also stated that the security and the integrity of internet reporting may be compromised either intentionally or unintentionally, and thus the companies have the responsibility to ensure the security and the integrity of information in the internet. There is unauthorized-access risk when internet reporting is not properly managed and leads to others to insert errors into data files that can cause security problems. For instance, the hacker might spoil the data with the aim to disrupt business operations (Hansen, 2001). Thus, the quality of the internet disclosure information is one of the issues that needed to be emphasized in this study.

Apart from unauthorized-access risk, there are also equipment failure risks (Hansen, 2001). The research explained that "transmissions between senders and receivers can be disrupted, destroyed, or corrupted by equipment failures in the communication system" (p. 1159). Moreover, equipment failure will cause the stored programs and databases to be lost on the network server (Hansen, 2001). The information may be transmitted inefficiently and ineffectively when there are poor or interrupted network connections.

In summation, this study investigates the role of CIR on firm performance. Furthermore, we use the indexation approach of Aly et al. (2010) to measure the CIR. In addition, we have extended the estimation model to a new empirical context in terms of some measures and some definitions. We also follow previous research by controlling the firm's characteristics to ensure the model's robustness.

This research's contributions are threefold. First, this study adds to the management information literature through the understanding of this research area of Malaysia, which is less developed country. Second, we also document the empirical findings of internet disclosure's impacts on the firm performance of Malaysian listed companies. Third, we provide the items of internet reporting that can be the benchmarks for the developing countries' context. Additionally, unlike prior research in this area, we take all listed companies in Malaysia as our sample. This means that we do not perform industrial-based research. Instead, we conduct it for the whole of publicly listed companies.

The rest of this research is organized as follows. Section 2 provides the theoretical background and the literature review. Section 3 describes the research methodology used in testing the estimation models. Section 4 reports the research's empirical findings. Lastly, section 5 concludes the research.

Literature review

Corporate internet reporting (CIR) refers to the financial disclosure through the internet of historical and financial data and the exposition of the current situation and future plans. It provides the financial information to the principals and stakeholders in regards to the investment decision-making and market efficiency (Check, Mohamad, Yunus, & Norwami, 2013). Aly et al. (2010) state that CIR provides the financial performance and the company's branding and market position.

This CIR has been through three phases of implementation. First, the rise of information systems al-

lows firms to use the internet as the platform to disclose their existing written financial reports. Then, companies will change their information dissemination strategy from printed reports to the internet. The last phase is when companies prepare their financial information and disclose it wide and fast beyond the standard information given in a printed report. Having more information disclosed may lead to the increase of awareness about their companies to the stakeholders.

In general, the users of CIR could be divided into two groups, such as internal users and external users. The internal users consist of the workforces and shareholders. The workforces are concerned about the company's future prospects since it directly affects their income, whereas shareholders refer to the reporting for their decision making. Meanwhile, the external users are banks and creditors. The CIR is important for them as it is the fastest source in establishing credit ratings or solvency analysis. On the other hand, competitors also refer to the reports to better understand the positions of their rivals and learn how to improve their operational skills and methods.

Hence, this shows the importance of CIR since systematic and informative corporate disclosures can improve the understanding of firm performance. Firms are encouraged to keep information updated and to govern the security of information where it disclosed through the networks so that the company's objective will be achieved.

Several researchers in the era of the introduction of internet, such Bakos (1991) and Brynjolfsson and Hitt (1996), show that internet has also lowered entry barriers, maintained monopoly power, and intensified market competition, thereby creating losses for firms. It was confirmed by Li and McConomy (1999) who showed that the firms might be unwilling to follow new standards of accounting disclosure. This is because the firms aimed to protect their business value, maintain their credibility, and minimize litigation risk.

However, research after the internet boom, such Krishnan and Sriram (2000) and Marston and Polei (2004), argue that internet reporting gives better performance for companies. As shown by Hunter and Smith (2009), listed stocks on developing market stock exchanges were performing well after conducting online financial disclosures. It showed that using internet reporting has a positive relationship with stock market prices. In the study of Brown, Gatian, and Hicks (1995), they showed that the use of information technology is positively related with the financial performance in the company. The stock market reacted to the firms' announcements. It showed that when the companies were investing in *Strategic Information Systems* (SISs), the firms would tend to have increased production and profits. Those conditions will be better than in their respective industries. According to Krishnan and Sriram's (2000) study, it stated that the performance of firms is improved when there is an increase in information technology investments. Meanwhile, Barua, Knebel, and Mukhopadhyay (1995) also agreed that information technology contributed positively to firm performance.

Hence, this research hypothesizes the following: *There is a positive relationship between corporate internet reporting and firm performance.*

Methodology

Baseline Model

This study uses the regression to analyze the relation between firm value and the other three independent variables, which are size, leverage, and growth. Thus, the function of the equation model is formulated as follows:

$$Q = f\,(Size, Leverage, Growth)$$

The estimation model is as follows:

$$Q_i = \beta_0 + \beta_1 SIZE_i + \beta_2 LEVERAGE_i + \beta_3 GROWTH_i + \varepsilon_i \quad (1)$$

where Q is the company's performance that measured by Tobin's q, Size is the company's size, Leverage is the company's total debt divided by total assets, and Growth is capital expenditures divided by total sales.

Estimation Model

Furthermore, in this estimation model, the CIR is added into the equation to investigate the effect of CIR on the firm's value. Therefore, the function of the second equation model is formulated as follows:

$$Q = f\,(Size, Leverage, Growth, Internet\_Reporting)$$

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Table 1. Operational Variables

Variables	Types	Variable Definition	Type of Scale	Hypothesis Direction
Firm performance	Dependent	$\frac{\text{MVE} + \text{PS} + \text{DEBT}}{\text{TA}}$	Ratio	-
CIR	Independent	$\text{Ij} = \frac{\sum_{i=1}^{nj} \text{Xij}}{\text{njj}}$	Ratio	positive
Size	Independent	Log (total assets)	Ratio	positive
Leverage	Independent	$\frac{\text{Book value of debt}}{\text{Total assets}}$	Ratio	positive
Growth	Independent	$\frac{\text{Relative capital expenditure}}{\text{Sales}}$	Ratio	positive

The estimation model is:

$$Q_i = \beta_0 + \beta_1 SIZE_i + \beta_2 LEVERAGE_i + \beta_3 GROWTH_i + \\ + \beta_3 CIR_i + \varepsilon_i \quad (2)$$

This model is formed under a cross sectional regression. However, it has to pass the classical assumptions, such as normality, autocorrelation, heteroscedasticity, and multicollinearity.

Firm performance

The study of Bharadwaj et al. (1999) used the Tobin's Q that is adapted from the Chung and Pruitt (1994) for measuring firm performance. According to Chung and Pruit (1994) and Wolfe and Sauaia (2003), Tobin's Q is the statistic can proxy from firm value. It is also a standardized performance measure (Chung & Pruit, 1994). Moreover, Fauzi and Locke (2012) mentioned that "Tobin's Q value from zero to one is considered as a low performance, and it may indicate that the stock is undervalued" (p. 55). The formula of Tobin's Q based on Bharadwaj et al.'s (1999) paper is shown as follows:

$$\text{Tobin's Q} = \frac{\text{MVE} + \text{PS} + \text{DEBT}}{\text{TA}} \quad (3)$$

MVE (market value of equity) shows the closing price of a stock at the end of a period multiplied by the number of outstanding common stocks. PS shows the liquidating value of the company's outstanding preferred stocks. DEBT shows the difference between current liabilities and current assets, plus the book value of inventories and long term debt (LTD). TA shows the book value of total assets.

The construction of internet financial reporting index

This research uses the content analysis approach to measure the CIR. It follows the study from Aly et al. (2010) in calculating the disclosure information for each non-financial Malaysian listed company. We use the same method from Aly et al. (2010) because it is comprehensible and provides an evaluation result that is consistent with previous studies. The index consists of 36 items: 12 items of the disclosure format, and 24 of the content items. The disclosure index calculation for every company is done by dividing the actual scores with the maximum possible scores that are appropriate for the company.

$$\text{I}_j = \frac{\sum_{i=1}^{nj} Xij}{njj} \quad (4)$$

where njj $= n_j$ is number of relative items applicable to company j. $X_{ij} = 1$ if the item is disclosed and 0 if the item is not disclosed.

Table 2. Descriptive Statistics of All Variables

Variables	N	Min	Mean	Max	Median	Sd	Skewness	Kurtosis
Firm value	583	.000	.199	.690	.183	.159	.550	-.456
Size	583	.000	.380	.640	.389	.119	-.340	.201
CIR	583	4.35	5.633	7.680	5.575	.598	.640	.306
Leverage	583	-.380	.155	.630	.139	.149	.388	1.358
Growth	583	-6.910	-3.441	.570	-3.381	1.405	-.194	.000

Findings

Descriptive results

Table 2 shows the descriptive statistics for all variables in this study, such as the firm's value, size, CIR, leverage, and growth. This research sample covers 583 non-financial listed firms at Bursa Malaysia in the year 2013. All variables are presented in their ratio form. The average of the dependent variable, firm value, is 0.199 and its median is 0.183. The mean (median) of the independent variables of size, CIR, leverage, and growth are 0.380 (0.389), 5.633 (5.575), 0.155 (0.139), and -3.441 (-3.381), respectively.

The descriptive statistics display that both the skewness and kurtosis indicate that all variables in this study are normally distributed. According to Haniffa and Hudaib's (2006) study, the data are statistically considered to be normally distributed when the skewness value is within ±1.96 and the kurtosis value is within ±3. Based on Table 2, the skewness and the kurtosis of all variables are between ±1.96 and ±3 respectively, and thus all variables are normally distributed.

Table 3 reports the baseline model results of firm value and the control variables. Its results display that size is positive statistically significant associated with firm value at the 1% level. This implies that if a firm's size increases, it would add more value to the firm. For example, the firm value would increase by 19% if the firm's size grew by 1%. Moreover, the leverage has a negative statistically significant relationship with firm value at the 1% level. It indicates that when the liability increases, more firm values would be reduced. For instance, the firm's value would decrease by 18.4% if the leverage increased by 1%. In addition, growth presents a positive statistically significant association with firm value at the 5% level. This denotes that the firms that have higher growth rates would tend to contribute more value to its firm. It could be explained that the 1.4% increase of a firm's value would be the result of an increase in the growth rate by 1%.

Referring to Table 3, it shows that the R-Squared is 15.3% with the adjusted R-Squared of 14.6%. This means that the independent variables explain 15.3% of the control variable. According to Gujarati and Porter (2009), an R-Squared in a cross-sectional study is good if it is within 10% to 90%. Thus, this result has a good R-Squared. The F-value is 8.068 and is significant at the 1% level. This also indicates the model is robust enough and has a good fit.

Table 4 reports the CIR model's results that show the effect of CIR on firm value. Again, this second model's result produces a positive relationship between firm size and firm value, which has the coefficient value of 0.083. However, its result is statistically insignificant. Next, the CIR has a positive statistically significant relationship with firm value at the 1% level. It implies that if the companies disclose more information of their reporting through the internet, the values of their firms would be increased. For instance, a CIR increase of 1% would cause the firm's value to increase by 8.7%. Other than that, the leverage shows a negative statistically significant relationship with firm value at the 1% level. This represents that a 1% increase in the debt of firms would cause the firm value to decrease by 23.3%. In contrast, there is a positive statistically significant relationship between firm growth and firm value in this CIR model at the 10% level. This denotes that the

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Table 3. Baseline Model Results

In this study, the baseline model and corporate internet reporting model are run separately. The regression is performed using the GLS regression to analyze the association between firm value and the control variables. The stated figures are the coefficient values with the standard error in parentheses. The dependent variable is the firm value (Q). The control variables are the Size (Siz), Leverage (Lev), and Growth (Growth).

The baseline model is as follows: $Q_i = \beta_0 + \beta_1 Siz_i + \beta_2 Lev_i + \beta_3 Growth_i + \varepsilon_i$

Constant	0.215***
	(0.032)
Size	0.190***
	(0.055)
Leverage	-0.184***
	(0.047)
Growth	0.014**
	(0.005)
R-Squared	0.153
Adjusted R-Squared	0.146
F Test	8.068***

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4. Corporate internet reporting (CIR) Model Results

At this phase, the CIR model is run again with the dependent variable as Tobin's Q (Q), the main independent variable is CIR (IR), and the control variables are Size (Siz), Leverage (Lev), and Growth (Growth).

CIR model is as follows: $Q_i = \beta_0 + \beta_1 Siz_i + \beta_2 Lev_i + \beta_3 Growth_i + \beta_4 IR_i + \varepsilon_i$

Constant	0.240***
	(0.066)
Size	0.083
	(0.054)
CIR	0.087***
	(0.011)
Leverage	-0.233***
	(0.045)
Growth	0.008*
	(0.005)
R-Squared	0.143
Adjusted R-Squared	0.136
F Test	19.257***

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Hypotheses Results

Hypothesis	Results	Significance level	Supported by
H1: There is a positive relationship between corporate internet reporting (CIR) and firm value.	Accepted	1%	Brown et al. (1995), Krishnan and Sriram (2000), and Hunter and Smith (2009).
H2: There is a positive relationship between size and firm value.	Rejected	-	Errunza and Senbet (1984) and Naceur and Goaied (2002).
H3: There is a positive relationship between leverage and firm value.	Rejected	1%	Miller and Rock (1985), Brush, et al. (2000), and Denis, et al. (2002).
H4: There is a positive relationship between growth and firm value	Accepted	10%	Brush et al. (2000), Fauver, et al. (2004), and Cho and Pucik's (2005).

firms that expand or develop by 1% would increase their firm's value by 8%.

It shows that the R-Squared is 14.3% with the adjusted R-Squared of 13.6%. This means that the independent variables (size, CIR, leverage, and growth) explain the dependent variable (firm value) at the level of 14.3%. Note that a good R-Squared in a cross-sectional study is if it is within 10% to 90% (Gujarati & Porter, 2009). The F-value is 19.257 and is significant at the 1% level. This also indicates that the model is robust enough and has a good fit.

This research finds that CIR has a positive and significant relationship with firm value at the 1% significance level. This outcome is the same as the findings from Hunter and Smith (2009) in which the increase in practicing internet reporting would improve the firm's performance. In addition, it also agrees with the research findings of Brown et al. (1995) in which the productivity of firms would be improved when strategic information systems are implemented. Moreover, it has a similar assumption with the findings of Krishnan and Sriram (2000) in which the high tendency of using information technology in investments can lead to a competitive advantage and thus improve the firm's performance.

Conclusion

This study investigates the relationship between firm performance and corporate internet reporting (CIR). The scope of this research is non-financial Malaysian public listed companies in the year 2013. Furthermore, this study contains a number of control variables that consist of firm size, leverage, and growth for developing a better estimation model. In addition, the general theoretical literature on this topic and specifically in the context of Malaysia is scant.

The estimation model refers to previous literatures such as Kelton and Yang (2008) and Aly et al. (2010). Moreover, this estimation model has to pass through the normality, multicollinearity, autocorrelation, and heteroscedasticity test before the linear regression model. The standard error is controlled by the model since it violates the heteroscedasticity assumption. In short, this study has ensured that the model is robust enough to answer the research questions.

The outcomes of this study found that CIR has a significant effect on firm value at the 1% level. This research finding is consistent with prior studies, such as Brown et al. (1995), Krishnan and Sriram (2000), and Hunter and Smith (2009). This implies that the outcome of the first research question is that there is a significant association between CIR and firm value. Furthermore, for the second research question, the answer is that there is a positive but insignificant association between firm size and firm value. This result is similar to the findings from Errunza and Senbet (1984) and Naceur and Goaied (2002). It may depend on the specific type of corporate disclosure. Ho and

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Wong (2001) stated that CIR may be complementary or substitutive disclosures. No matter the size of the company, the disclosure should not rely solely on the market mechanism (Hermalin & Weisbach, 2012). The manager also should take all the necessary measures to ensure all information in the disclosure items is adequately disclosed in order to avoid penalties.

Moreover, the answer for third research question is that leverage has a negative statistically significant effect on firm value at the 1% level. This can be supported by the findings from Miller and Rock (1985), Brush, Bromiley, and Hendrickx (2000), and Denis, Denis, and Yost (2002). For the last research question, growth has a positive statistically significant effect on firm value. This result is consistent with the outcomes of the previous studies of Cho and Pucik (2005), Fauver, Houston, and Naranjo (2004) and Brush et al. (2000). In short, this study reveals that CIR significantly affects firm value. It means that more related information that is regularly disclosed on companies' websites can contribute more value to the firms.

This study contributes to the resource base view theory in two ways. First, it confirms Porter (1985) that information is a part of the resources that are needed by a firm to enhance their company's performance. Available information represents the good image and reputation of a company. It also enables fast decision making for related parties. Hence, it boosts the firm's performance through the channel of a better collection period, higher demand, or even lower capital costs. This is in line with prior studies, such as Mata, Fuerst, and Barney (1995), Bharadwaj et al. (1999), Barney and Ray (2015), and Mithas and Rust (2016).

In addition, this research also contributes to signaling theory. It further explores the principle that signaling theory is associated with the relation between the CIR and firm value. This theory indicates that the information effect that can be given by company as a signal to the investors (Craven & Marston, 1999; Myers, 1984). In this study, it uses voluntary disclosures as a mean of signaling. Therefore, if a firm can disclose additional information above the mandatory requirement, it tends to signal good business performance (Craven & Marston, 1999). Hence, this study is to give extra proof that the signaling theory can increase firm value.

This study contributes useful findings on the impact of CIR towards firm value. This is because those regulators can rely on it to establish suitable policies to improve the quality of internet disclosures. It is crucial to raise awareness of the limitations of mandatory disclosures among policy makers so that they can increase the level of mandatory disclosures to meet the investors' needs in decision making.

Conversely, this research also investigates the other factors that could influence firm value. In this study, firm size, profitability, leverage, growth, and ownership structure are examined to assess their impacts on the development of firm value. Thus, regulators could refer to the findings of this study to enforce and implement appropriate rules and regulations to ensure that the value of the firm is protected.

For future work, we suggest several developments, as follows. First, future study can explore the differences in the information in format items and content items for a disclosure index that can impact the firm's performance. Thus, the CIR index can be measured using a questionnaire addressed to the manager(s) of the firm to assess the details about the disclosure methods and the different types of information, such as financial and non-financial. Second, future study may elaborate on the rationale behind internet reporting such as earnings management, managerial entrenchment, and other agency cost issues. Future study may also relate the internet reporting as the media for the director to establish their "curriculum vitae" and relate it to their compensation. Furthermore, further research can use financial listed firms for the sample since they have special financial policies and characteristics that are different from non-financial firms.

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Appendix

Disclosure items

FORMAT

1. Annual report in multiple file formats
2. Financial data in processable format
3. Hyperlinked table of contents
4. Drop-down navigational menu
5. Hyperlinks inside the annual report
6. Hyperlinks to data on a third-party's website
7. Audio files
8. Video files
9. Email alerts
10. Direct e-mail to investor relations
11. Dynamic graphic images
12. Internal search engines

CONTENT

13. Current year's annual report
14. Last year's annual report
15. Recent quarterly report
16. Other filings
17. Link to EDGAR or 10-K Wizard
18. Charters for the audit committee
19. Code of conduct and ethics for directors, officers and employees
20. Members of the Board of Directors
21. Recent monthly financial data
22. Performance overview (e.g., highlights, fact-sheet, and 'FAQ')
23. Earnings estimates
24. Calendar of events of interests to investors
25. Recent financial news releases
26. Listing of analysts following the firm
27. Analyst ratings
28. Text of speeches and presentations
29. Same-day stock prices
30. Historical stock prices
31. Information about the firm's stock transfer agent
32. The advantages of holding the firm's stock
33. Information regarding a dividend reinvestment plans
34. Dividend history
35. Corporate governance principles/guidelines
36. Charters for other committees

Source: Kelton, A. S. and Yang, Y. (2008, p. 71)

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