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Stakeholders and web-based environmental disclosure

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Abstract

Based on stakeholder theory, this study investigates the impact of various types of stakeholder pressure on web-based environmental disclosure (WED) in Southeast Asia mining industry. Some previous studies have focused on investigating the influence of various company characteristics on WED. Previous literature has shown that there has been no research investigating the influence of employees, competitors, and creditors on WED. This study uses all mining companies registered in the capital markets of Southeast Asian countries. The results of the study show that employees and competitors have a positive and significant influence on WED. Meanwhile, creditors show insignificant influence.

Keywords: Employees, Competitors, Creditors, Stakeholder theory, Web-based Environmental Disclosure

INTRODUCTION

Information disclosure on Environmental, Social, and Governance (ESG) has become a concern for many companies in recent years (Alda, 2020; Matallín-Sáez et al., 2019). This is done to demonstrate their sustainable development capabilities. ESG and corporate social responsibility (CSR) can play an important role in improving information efficiency for the capital market by disclosing company-level privileged information (Gong et al., 2019).

Specifically, environmental transparency for organizations has become well-known on the international scene as a response to societal demands related to the consumption of natural resources and the environmental impact of business activities and their impact on climate, biodiversity, and human health (Da Rosa et al., 2015). Corporate environmental information is increasingly desired by corporate stakeholders (Cho et al., 2010). In addition, environmental performance is increasingly becoming an important issue for investors, potential investors and other stakeholders (Villiers & Van Staden, 2011).

There are many sources of environmental information, but the most accessible is self-disclosed information. The company discloses environmental information in their annual report and on their website, including sustainability and social reports. These disclosures are mostly done at the discretion of the manager, i.e. managers can choose how prominent they provide disclosures (none, minimal, or larger volume) and where they disclose information (annual report or website) (Villiers & Van Staden, 2011).

Environmental disclosure can be disclosed through annual reports, environmental reports, social reports, sustainability reports and corporate social responsibility (CSR) reports, as well as on the company's website (Deswanto & Siregar, 2018; Kiliç, 2016; Raimo et al., 2022; Veronica Siregar & Bachtiar, 2010; Villiers & Van Staden, 2011). In recent years, technological advances have resulted in a new practice of online environmental disclosure (Khalil & O'Sullivan, 2017), known as web-based environmental disclosure. Online disclosure can reach more stakeholders (Lodhia, 2012) with less time and cost.

RQ. What type of stakeholders significantly influence web-based environmental disclosure in mining industry?

Some previous studies have focused on investigating the influence of various company characteristics on WED. Previous literature has shown that there has been no research investigating

the influence of employees, competitors, and creditors on WED. This paper presents two important contributions. First, this study investigates the practice of WED with a limited number of similar papers that have been published previously. The website can be an extension of the company's hand to convey the company's responsibilities, including environmental responsibility. Companies can also use websites as a response to various types of stakeholder pressure because they are easily accessible to the wider community. Second, this study enriches the literature by presenting results that support stakeholder theory.

The next part of this paper is arranged as follows. Part 2 provides a review of the literature and theoretical background used to test the hypothesis based on stakeholder theory. Part 3 presents the methods used. Part 4 discusses data analysis and results. Then part 5 gives a conclusion.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Literature Review and Hypothesis Development

Companies can manage public perceptions of the environmental impact of their economic activities and in response to stakeholder pressure through environmental disclosure (Cormier & Magnan, 1999). Stakeholder pressure for more responsible business behavior encourages companies to become more environmentally friendly (Jose & Lee, 2007) as a way to maintain the company's reputation and existence (Bandeira Pinheiro et al., 2021; Diantimala & Amril, 2018; Heikkurinen, 2018).

This study is in line with various social and environmental studies that have used stakeholder theory as a theoretical foundation (See (Clarkson, 1995; Freeman, 1984; Murguía & Böhling, 2013; Roberts, 1992; Rouf & Siddique, 2023; Sayadi & Setiawan, 2024). Stakeholder theory states that companies need to maintain their relationships with various stakeholders (Clarkson, 1995; Mitchell et al., 1997). Companies need to maintain relationships with stakeholders because companies that survive are those who manage relationships with stakeholders (Freeman, 1984).

Employee

Stakeholder theory states that employee information demands greatly affect how much environmental information is disclosed (Guo & Pan, 2022). Employees are important internal stakeholders, which can influence the company's information disclosure behaviour (Shen et al., 2020). Employees realize that their careers depend on the survival of the company. Companies that can survive are not only focused on their financial performance, but also on environmental issues. Employees are aware that companies with poor environmental performance will have an impact on their rights and interests (Huang & Kung, 2010). It can be concluded that the larger the number of employees, the greater their influence on environmental policies (Huang & Kung, 2010). Employee pressure depends on the number of employees in an organization (Bedi & Singh, 2024). Previous research has shown that employees have a positive and significant influence on corporate environmental disclosure (Guo & Pan, 2022; Shen et al., 2020). Therefore, it is interesting to analyze the influence of employees on environmental disclosure through websites.

H1. Employees have a positive influence on web-based environmental disclosure.

Competitor

One of the things that companies must pay attention to when running a business is the presence of competitors. Competitors can put pressure on other similar companies. For the purpose of maintaining excellence, companies need to pursue proactive strategies, including policies to disclose more environmental information (Huang & Kung, 2010). Environmental disclosure can be a company's advantage in industrial competition, in addition to their commitment to corporate sustainability (Shen et al., 2020). Previous research has shown that competitors have a positive and significant influence on corporate environmental disclosure (Huang & Kung, 2010). Therefore, it is interesting to analyze the influence of competitors on environmental disclosure through websites.

H2. Competitors have a positive influence on web-based environmental disclosure.

Creditor

Creditors are one of the external stakeholders that can influence the company's operations (Bedi & Singh, 2024). Creditors are one of the crucial fund providers for the company. When lending funds to a company, creditors not only observe the company's financial performance, but also pay attention to the company's attitude towards the environment. From the creditor's perspective, environmental violations will result in higher fines (Guo & Pan, 2022). In addition, creditors of companies with higher financial leverage become more influential, and managers will increase their response to their requests for environmental information (Huang & Kung, 2010). Creditors are pressuring companies to prioritize their interest payments and avoid any kind of activities that will increase the company's financial burden (Bedi & Singh, 2024). As a result, when a company relies on outside investments, it must consider its environmental performance to win the hearts of its creditors (Guo & Pan, 2022). In addition, when a company relies on external funds, creditor supervision requires the company to disclose more information (Shen et al., 2020). Previous research has shown that creditors have a positive and significant influence on corporate environmental disclosure (Guo & Pan, 2022; Qu et al., 2013). Therefore, it is interesting to analyze the influence of creditors on environmental disclosure through websites.

H3. Creditors have a positive influence on web-based environmental disclosure.

METHODS

The population of this study consists of mining companies listed in the capital markets of each country. Environmental disclosure data was taken from the company's website in early 2023. This short period is consistent with previous research given the dynamic nature of the internet (Basuony et al., 2022). The required financial data as independent variables and control variables are obtained from the 2022 annual report. The final sample of this study consisted of 82 mining companies in Southeast Asia. Web-based environmental disclosure is measured using indicators from Al Arussi et al. (2009) (see appendix 1). In addition, the complete measurement of variables is presented in table 1.

Table 1. Variable measurement

Symbol	Full name	Measurement
Dependent variable		
WED	Web-based environmental disclosure	Total disclosed environmental indicator
Independent variable		
EMPLY	Employees	Total of employees
COMP	Competitors	Net sales divided by total industry sales
CRDTR	Creditor	Total debt/total equity
Control variable		
FSIZE	Firm size	Total assets of the company
ROA	Return on assets	Profit after tax, divided by total assets
FAGE	Firm age	The company's lifespan since its establishment
CE	Country effect	Dummies for each of the 5 countries.

Empirical model

The equation below is used to test the hypothesis that has been formulated in the previous section.

$$WED = \beta_0 + \beta_1 EMPLY + \beta_2 COMP + \beta_3 CRDTR + \beta_4 FSIZE + \beta_5 ROA + \beta_6 FAGE + CE + \varepsilon$$

where WED is the web-based environmental disclosure; EMPLY is number of employees; COMP is competitors; CRDTR is creditor; FSIZE is the total assets of the company; ROA is the return on assets; FAGE is firm age; CE is country effect; β_0 is the constant; β_1 to β_6 are the regression coefficients, and ε describes the error.

RESULT AND DISCUSSION

In this section, we present table 2 which contains Means, standard deviations, and correlations. The WED dependent variable showed an average value of 10.622 and a standard deviation of 5.868. The independent variables of EMPLY, COMP, and CRDTR showed an average value of 2393,366, 0.230, and 1,331. In addition, the control variables of FSIZE, ROA, and FAGE showed an average value of 26.5, 620.584, and 22.293. In the correlation analysis section, WED was positively correlated with EMPLY (ϱ = 0.199) and COMP (ϱ = 0.135). while WED is negatively correlated with CRDTR (ϱ = -0.010). All variables showed that there was no multicollinearity problem because the correlation coefficient was less than 0.7. Pallant (2020) stated that the multicollinearity problem occurs if the correlation coefficient is above 0.7.

Table 2. Means, standard deviations, and correlations

Variable	Mean	S.D	WED	EMPLY	COMP	CRDTR	FSIZE	ROA	FAGE
WED	10,622	5,868	1						
EMPLY	2393,366	6344,077	0,199	1					
COMP	0,230	0,761	0,135	0,858	1				
CRDTR	1,331	3,133	-0,010	0,027	-0,020	1			
FSIZE	26,500	111,000	0,084	0,921	0,961	-0,002	1		
ROA	620,584	1880,514	0,305	-0,068	0,018	-0,030	-0,043	1	
FAGE	22,293	18,363	0,083	0,027	0,037	-0,044	0,038	-0,174	1

Table 3. Regression model results

Variables	Coefficient	Standard error	p-value	Sign.
EMPLY	0,001	0,001	0,000	***
COMP	5,575	2,889	0,058	*
CRDTR	0,017	0,181	0,925	
FSIZE	-0,001	0,001	0,004	***
ROA	0,001	0,001	0,009	***
FAGE	0,061	0,041	0,147	
N	82			
Adj R-squared	0,300			
Country effect	Yes			

Notes: *** = significant at the 1% level; ** = significant at the 5% level; * = significant at the 10% level

DISCUSSION

The results of the regression analysis are shown in table 3. The results show that EMPLY has a positive and significant influence on WED (p = 0.000). These findings support H1 and are in line with the results of Guo & Pan (2022) and Shen et al. (2020). Employees are important internal stakeholders, which can influence the company's information disclosure behavior (Shen et al., 2020). It can be concluded that the larger the number of employees, the greater their influence on environmental policies (Huang & Kung, 2010). Employee pressure depends on the number of employees in an organization (Bedi & Singh, 2024).

The results also showed that COMP had a positive and significant influence on WED (p = 0.058). These findings support H2 and are in line with the results of Huang & Kung (2010). For the purpose of maintaining excellence, companies need to pursue proactive strategies, including policies to disclose more environmental information (Huang & Kung, 2010). Environmental disclosure can

be a company's advantage in industrial competition, in addition to their commitment to corporate sustainability (Shen et al., 2020).

Meanwhile, the results of the study showed that CRDTR had a positive influence on WED but not significantly. This finding rejects H3 and is in line with Wicaksono & Setiawan (2022). These results show that environmental disclosure is not the main focus of creditors. Creditors tend to expect companies to disclose sustainability disclosures rather than specific disclosures. In addition to presenting the relationship between independent and dependent variables, table 3 also presents the relationship of control variables with WED. The results show that ROA and FAGE have a positive influence on WED. Meanwhile, FSIZE shows a negative influence.

In addition to conducting regression analysis on the main model, we also conducted additional tests by grouping samples based on several categories. Some of these categories include types of countries, environmental score, and board system. The results of the analysis show that employees have a positive and significant influence on WED in developing countries, high environmental score, and one-tier board system. The results of the analysis also show that competitors have a positive and significant influence on WED in developing countries. Meanwhile, creditors have no influence on WED in all categories.

Table 4. Additional test by categories

	Panel A		**Panel B**		**Panel C**	
	Types of countries		**Environmental score**		**Board system**	
Variable	**Developed**	**Developing**	**High**	**Low**	**1 tier**	**2 tier**
EMPLY	-0,001	0,001	0,002	0,001	0,002	0,001
	0,774	0,034	0,032	0,105	0,052	0,104
		**	**		**	
COMP	-0,001	10,433	10,292	8,295	9,192	12,039
	0,774	0,008	0,116	0,169	0,174	0,128
		***				
CRDTR	1,599	-0,006	-0,180	0,011	0,228	-0,018
	0,321	0,987	0,847	0,975	0,802	0,961
FSIZE	0,001	-0,001	-0,001	-0,001	-0,001	-0,001
	0,682	0,010	0,060	0,574	0,094	0,371
		**	*		*	
ROA	10,315	0,001	-1,283	0,001	1,551	0,001
	0,330	0,026	0,837	0,043	0,798	0,066
		**		**		*
FAGE	-0,001	0,035	0,044	0,161	0,039	0,188
	0,999	0,313	0,268	0,031	0,338	0,038
				**		**
Adj R-squared	-0,602	0,224	0,077	0,328	0,042	0,351

Notes: *** = significant at the 1% level; ** = significant at the 5% level; * = significant at the 10% level

CONCLUSION

Based on stakeholder theory, this study investigates the impact of various types of stakeholder pressure on web-based environmental disclosure (WED) in Southeast Asia mining industry. Some previous studies have focused on investigating the influence of various company characteristics on WED. Previous literature has shown that there has been no research investigating the influence of employees, competitors, and creditors on WED. The results of the study show that employees and competitors have a positive and significant influence on WED. Meanwhile, creditors show insignificant influence.

This paper presents two important contributions. First, this study investigates the practice of WED with a limited number of similar papers that have been published previously. The website can be an extension of the company's hand to convey the company's responsibilities, including

environmental responsibility. Companies can also use websites as a response to various types of stakeholder pressure because they are easily accessible to the wider community. Second, this study enriches the literature by presenting results that support stakeholder theory.

This study has some limitations and suggestions for future research. First, the limitation lies in the R2 value which is considered small in table 3. This shows that there is an opportunity for future researchers to expand the research model. Second, this study only uses one year of data (cross section). Further research can use panel data with several years of observation.

REFERENCES

Al Arussi, A. S., Selamat, M. H., & Mohd Hanefah, M. (2009). Determinants of financial and environmental disclosures through the internet by Malaysian companies. *Asian Review of Accounting*, *17*(1), 59–76. https://doi.org/10.1108/13217340910956513

Alda, M. (2020). ESG fund scores in UK SRI and conventional pension funds: Are the ESG concerns of the SRI niche affecting the conventional mainstream? *Finance Research Letters*, *36*(April 2019), 101313. https://doi.org/10.1016/j.frl.2019.101313

Bandeira Pinheiro, A., da Silva Filho, J. C. L., & Moreira, M. Z. (2021). Institutional drivers for corporate social responsibility in the utilities sector. *Revista de Gestao*, *28*(3), 186–204. https://doi.org/10.1108/REGE-08-2019-0088

Bedi, A., & Singh, B. (2024). Unraveling the impact of stakeholder pressure on carbon disclosure in an emerging economy. *Social Responsibility Journal*, *20*(4), 703–718. https://doi.org/10.1108/SRJ-04-2023-0198

Cho, C. H., Roberts, R. W., & Patten, D. M. (2010). The language of US corporate environmental disclosure. *Accounting, Organizations and Society*, *35*(4), 431–443. https://doi.org/10.1016/j.aos.2009.10.002

Clarkson, M. E. (1995). A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. *Academy of Management Review*, *20*(1), 92–117. https://doi.org/10.5465/amr.1995.9503271994

Cormier, D., & Magnan, M. (1999). Corporate Environmental Disclosure Strategies: Determinants, Costs and Benefits. *Journal of Accounting, Auditing & Finance*, *14*(4), 429–451. https://doi.org/10.1177/0148558X9901400403

Da Rosa, F. S., Guesser, T., Hein, N., Pfitscher, E. D., & Lunkes, R. J. (2015). Environmental impact management of Brazilian companies: Analyzing factors that influence disclosure of waste, emissions, effluents, and other impacts. *Journal of Cleaner Production*, *96*, 148–160. https://doi.org/10.1016/j.jclepro.2013.10.035

Deswanto, R. B., & Siregar, S. V. (2018). The associations between environmental disclosures with financial performance, environmental performance, and firm value. *Social Responsibility Journal*, *14*(1), 180–193. https://doi.org/10.1108/SRJ-01-2017-0005

Diantimala, Y., & Amril, T. A. (2018). The Effect of Ownership Structure, Financial and Environmental Performances on Environmental Disclosure. *Accounting Analysis Journal*, *7*(1), 70–77. https://doi.org/10.15294/aaj.v5i3.20019

Freeman, R. (1984). Strategic Management: A Stakeholder Approach. *Pitman, Boston.*

Gong, Y., Ho, K. C., Lo, C. C., Karathanasopoulos, A., & Jiang, I. M. (2019). Forecasting price delay and future stock returns: The role of corporate social responsibility. *Journal of Forecasting*, *38*(4), 354–373. https://doi.org/10.1002/for.2600

Guo, C., & Pan, W. (2022). Research on Voluntary Carbon Information Disclosure Mechanism of Enterprises from the Perspective of Stakeholders—A Case Study on the Automobile

Manufacturing Industry. *International Journal of Environmental Research and Public Health*, *19*(24). https://doi.org/10.3390/ijerph192417053

Heikkurinen, P. (2018). Strategic corporate responsibility: a theory review and synthesis. *Journal of Global Responsibility*, *9*(4), 388–414. https://doi.org/10.1108/JGR-06-2018-0020

Huang, C.-L., & Kung, F.-H. (2010). Drivers of Environmental Disclosure and Stakeholder Expectation: Evidence from Taiwan. *Journal of Business Ethics*, *96*(3), 435–451. https://doi.org/10.1007/s10551-010-0476-3

Jose, A., & Lee, S. M. (2007). Environmental reporting of global corporations: A content analysis based on Website disclosures. *Journal of Business Ethics*, *72*(4), 307–321. https://doi.org/10.1007/s10551-006-9172-8

Khalil, S., & O'sullivan, P. (2017). Corporate social responsibility: Internet social and environmental reporting by banks. *Meditari Accountancy Research*, *25*(3), 414–446. https://doi.org/10.1108/MEDAR-10-2016-0082

Kiliç, M. (2016). Online corporate social responsibility (CSR) disclosure in the banking industry: Evidence from Turkey. *International Journal of Bank Marketing*, *34*(4), 550–569. https://doi.org/10.1108/IJBM-04-2015-0060

Lodhia, S. (2012). Web based social and environmental communication in the Australian minerals industry: An application of media richness framework. *Journal of Cleaner Production*, *25*, 73–85. https://doi.org/10.1016/j.jclepro.2011.11.040

Matallín-Sáez, J. C., Soler-Domínguez, A., Tortosa-Ausina, E., & de Mingo-López, D. V. (2019). Ethical strategy focus and mutual fund management: Performance and persistence. *Journal of Cleaner Production*, *213*, 618–633. https://doi.org/10.1016/j.jclepro.2018.12.130

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review*, *22*(4), 853–886. https://doi.org/10.5465/AMR.1997.9711022105

Murguía, D. I., & Böhling, K. (2013). Sustainability reporting on large-scale mining conflicts: The case of Bajo de la Alumbrera, Argentina. *Journal of Cleaner Production*, *41*, 202–209. https://doi.org/10.1016/j.jclepro.2012.10.012

Pallant, J. (2020). *SPSS Survival Manual*. Routledge. https://doi.org/10.4324/9781003117452

Qu, W., Leung, P., & Cooper, B. (2013). A study of voluntary disclosure of listed Chinese firms - a stakeholder perspective. *Managerial Auditing Journal*, *28*(3), 261–294. https://doi.org/10.1108/02686901311304376

Raimo, N., de Nuccio, E., & Vitolla, F. (2022). Corporate governance and environmental disclosure through integrated reporting. *Measuring Business Excellence*, *26*(4), 451–470. https://doi.org/10.1108/MBE-05-2021-0066

Roberts, R. W. (1992). Determinants of corporate social responsibility disclosure: An application of stakeholder theory. *Accounting, Organizations and Society*, *17*(6), 595–612. https://doi.org/10.1016/0361-3682(92)90015-K

Rouf, M. A., & Siddique, M. N.-E.-A. (2023). Theories applied in corporate voluntary disclosure: a literature review. *Journal of Entrepreneurship and Public Policy*, *12*(1), 49–68. https://doi.org/10.1108/JEPP-01-2022-0007

Sayadi, M. H., & Setiawan, D. (2024). Influence of ownership structure and international operations on web-based environmental disclosure in the Asian mining industry. *Sustainable Futures*, *8*(October 2023). https://doi.org/10.1016/j.sftr.2024.100275

Shen, H., Zheng, S., Adams, J., & Jaggi, B. (2020). The effect stakeholders have on voluntary carbon disclosure within Chinese business organizations. *Carbon Management*, *11*(5), 455–472. https://doi.org/10.1080/17583004.2020.1805555

Veronica Siregar, S., & Bachtiar, Y. (2010). Corporate social reporting: empirical evidence from Indonesia Stock Exchange. *International Journal of Islamic and Middle Eastern Finance and Management*, *3*(3), 241–252. https://doi.org/10.1108/17538391011072435

Villiers, C. de, & Van Staden, C. J. (2011). Where firms choose to disclose voluntary environmental information. *Journal of Accounting and Public Policy*, *30*(6), 504–525. https://doi.org/10.1016/j.jaccpubpol.2011.03.005

Wicaksono, A. P., & Setiawan, D. (2022). Water disclosure in the agriculture industry: Does stakeholder influence matter? *Journal of Cleaner Production*, *337*, 130605. https://doi.org/10.1016/j.jclepro.2022.130605

Appendix 1. Web-based environmental disclosure index (WEDI)

No	Items	Score
1	General environmental consideration and statements (GECS)	1
2	Environmental-product and process related (EP & P)	1
3	Environmental policy statement (EPS)	1
4	Environmental activities (EACTV)	1
5	Environmental manager/committee (EMAN)	1
6	Water treatment system (WTS)	1
7	Awards (AWAD)	1
8	Environmental law (ELAW)	1
9	Sustainability (SUST)	1
10	Waste and recycling (W & R)	1
11	Environmental aesthetics - facilities, art, restoration (EAEST)	1
12	Pollution (POLU)	1
13	Rehabilitation (REHB)	1
14	Employee awareness of environmental policy (EMPW)	1
15	Land reclamation and forestation programmes (LNDR)	1
16	Environmental education programs (EEPRG)	1
17	Environmental financially related data (EFIN)	1
18	Support for public or private action designed to protect the environment (SPACT)	1
19	Departments or offices for pollution control (DEPUL)	1
20	Efforts to reduce energy consumption (EFRTREN)	1
21	Recycling and associated energy saving (R & EN)	1
22	Utilization of waste materials (UTIW)	1
23	Impact studies (IMSTU)	1
24	Environmental audit (EAU)	1
25	Energy efficiency (ENEFF)	1
26	Research and development (R & D)	1
27	Energy conversion (ENCON)	1
28	Increasing of product efficiency (IPE)	1
29	Research energy conservation (RENCON)	1
30	International environmental program (IEPR)	1
31	Environmental litigation (ELITIG)	1
32	Financing for pollution control equipment or facilities (FINPOL)	1
33	Past and current operating cost of polution control equipment and facilities (P & COC)	1
34	Past and current expenditure for pollution control equipment and facilities (P & CEX)	1
35	Future and current expenditure for pollution control equipment and facilities (F & CEX)	1
36	Future and current operating cost of pollution control equipment and facilities (F & COC)	1

Source: Al Arussi et al. (2009)