Environmental performance and financial report integrity: challenges for the mining sector in Indonesia

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Abstract. This study investigates the influence of environmental performance on the financial report integrity. The statistics used were primary data from interviews with senior members of the mining sector regarding environmental issues, as well as secondary data using Financial Report 2016. The samples were listed mining companies with semester data. Questionnaires were used to measure their perceptions of the challenges concerning climate change faced by the mining sector. The results of this research show that regulatory interventions will be critical to environmental issues. This study employed KLD as a proxy for environmental performance, correlated with other variables regarding the integrity of disclosure. The outcome indicates that environmental issues will increase the integrity of financial reports.
Keywords: environmental issues, integrity financial report, KLD, mining firms

1. Introduction

This study investigates the implications of environmental risks on the financial report integrity. The conceptual framework is based on the view that environmental practices influence the quality of disclosure by determining their exposures to legal, reputational, and regulatory risks. Firms that engage in environmental misconducts can incur costly penalties and evoke strong negative reactions from stakeholders, each of which affects their default risks and consequently impairs the integrity of financial reports. For instance, the oil spill of Deep water Horizon in the Gulf of Mexico illustrates the tremendous adverse impacts an environmental incident can have on the quality of financial report using the corporate credit rating as the proxy for financial report integrity.

The differences with prior studies are, firstly, that this study uses an argument that financial report users want to protect themselves against environmental performance. Secondly, concerning the environmental issues, this paper shows that losses require a better understanding of how different corporate environmental activities relate to financial risks, as well as its influence on any decision. This study aims to provide a better insight into the impacts and consequences upon the firms if they neglect the environmental issues.

Based on Figure 1, this study put concerns on the right side; it investigates the benefits for firms pertaining to environmental issues on the market. Moreover, the market in this study correlates with the integrity of financial reports which intends to detect the equity statement by external users.

In examining the hypothesized relation, the analysis of this study took advantage of the expanding coverage and popularity of independent rating agencies that specialize in the impact of the corporate environmental performance [4], [6].
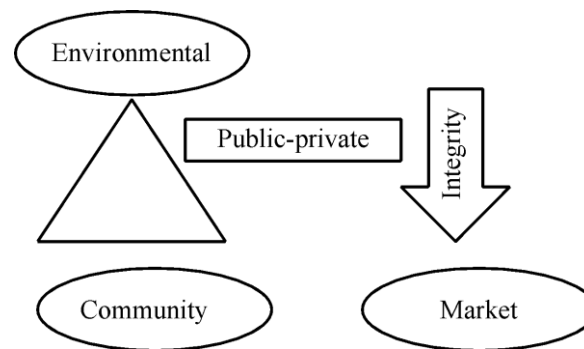
Figure 1. KLD state of the art.

This research begin from researched by [3], they suggested to integrate environmental disclosure and social disclosure in an annual report. Some prior empirical study show that environmental and social disclosure influence on earnings quality [9], [10], but all of them use manufacture companies. This paper only use mining companies to test the benefit of environmental and sosial disclosure for firms. Why? Because in Indonesia, both of the disclosure is mandatory since 2007. This research can increase the generalization of the influence of environmental and social disclosure on financial report quality from external side, while others [9], [10] test from internal side.

2. Research Method

2.1. Research Design

The type of this research design is causality. The variables were environmental performance and financial report integrity. The definition of environmental management performance was based on the instrument from Kinder, Lydenberg, and Domini Research & Analytics (KLD) [3]. KLD is an independent investment research company that specializes in the assessment of corporate environmental management, social performances, governance standards, and product qualities. Table 1 shown indicators of KLD, both KLD environmental strengths and KLD environmental concerns [3].

Table 1. Description of KLD environmental ratings.

KLD environmetal strengths
1. **Beneficial products and services**. The company derives substantial revenues from innovative remediation products, environmental services, or products that promote the efficient use of energy, or it has developed innovative products with environmental benefits.
2. **Pollution prevention**. The company has notably strong pollution prevention programs including both emissions reductions and toxic-use reduction programs.
3. **Recycling**. The company either is a substantial user of recycled materials as raw materials in its manufacturing processes,or a major factor in the recycling industry.
4. **Clean energy** (previously called Alternative fuels). The company has taken significant measures to reduce its impact on climate change and air pollution through use of renewable energy and clean fuels or through energy efficiency. The company has demonstrated a commitment to promoting climate-friendly policies and practices outside its own operations.
5. **Communications**. The company is a signatory to the CERES Principles, publishes a notably substantive environmental report, or has notably effective internal communications systems in place for environmental best practices.
6. **Property, plant, and equipment**. The company maintains its property, plant, and equipment with above-average environmental performance for its industry.
7. **Other strength**. The company has demonstrated a superior commitment to management systems, voluntary programs, or other environmentally proactive activities.

KLD environmental concerns

1. **Hazardous waste.** The company's liabilities for hazardous waste sites exceed $50 million, or the company has recently paid substantial fines or civil penalties for waste management violations.
2. **Regulatory problems**. The company has recently paid substantial fines or civil penalties for violations of air, water, or other environmental regulations, or it has a pattern of regulatory controversies under the Clean Air Act, Clean Water Act, or other major environmental regulations.
3. **Ozone-depleting chemicals**. The company is among the top manufacturers of ozone-depleting chemicals such as HCFCs, methyl chloroform, methylene chloride, or bromines.
4. **Substantial emissions**. The company's legal emissions of toxic chemicals (as defined by and reported to the EPA) from individual plants into the air and water are among the highest of the companies followed by KLD.
5. **Agricultural chemicals**. The company is a substantial producer of agricultural chemicals, i.e., pesticides or chemical fertilizers.
6. **Climate change**. The company derives substantial revenues from the sale of coal or oil and its derivative fuel products, or the company derives substantial revenues indirectly from the combustion of coal or oil and its derivative fuel products.
7. **Other concern**. The company has been involved in an environmental controversy that is not covered by other KLD ratings.

The closed-type questionnaire was used in this study. Respondents were required to answer a list of questions using the Likert scale of 1–5. The other independent variable is corporate environmental responsibility with indicators as shown in Table 2.

Table 2. Corporate Environmental Responsibility (CER) indicators.

No.	CER	Indicators
1	Climate Change	a. Clean energies
		b. Climate change
2	Product Services	a. Beneficial product services
		b. Ozone-depleting chemicals
		c. Mining chemicals
3	Operation Management	a. Pollution prevention
		b. Recycling
		c. Management system
		d. Hazardous waste
		e. Regulatory problems
		f. Substantial emissions
4	Others	a. Audit reports
		b. Environmental internal control

Source: KLD

2.2. Mathematical Equation

The corporate rating was measured using the following equation:

$$Rating = \alpha_{it} + + \beta_1 CERit + \beta_2 SIZE_{it} + \beta_3 CI_{it} + \beta_4 INT_{it} + \beta_5 ROA_{it} + \beta_6 LOSS_{it.} + \varepsilon_{it} \qquad (1a)$$

$$Rating = \alpha_{it} + \beta_1 ENVStrengths_{it} + \beta_2 ENVConcerns_{it} + \beta_3 CERit + \beta_4 SIZE_{it} + \beta_5 CI_{it} + \beta_6 INT_{it} +$$
$$\beta_7 ROA_{it} + \beta_8 LOSS + \varepsilon_{it.} \qquad (1b)$$

where:

ENVStrenghts	=	Environmental strengths
ENVConcerns	=	Environmental concern
CER	=	Corporate environmental responsibility
Size	=	Log Total Assets
CI	=	Capital Intensity Ratio is fixed assets divided by number of workers [2]
INT	=	Interest Coverage is earnings before interest and tax divided by interest Expense [5]
ROA	=	Return on Asset is measured by net income divided by total assets
LOSS	=	Nominal scale; 1 if firms profit and 0 otherwise

For integrity financial reporting, this paper use credit rating as measurement in line with [7] (see Table 3).

Table 3. Rating measurements.

Symbol	Description
idAAA	The obligors' capacity to meet its long-term obligation is excellent.
idAA	An obligor has a decent capacity to meet its long-term financial commitments, relative to that of other Indonesian obligors.
idA	The obligor has a strong capacity to fulfill the commitments but is more susceptible to economic conditions.
idBBB	The obligor has an adequate capacity to meet its long-term obligation.
idBB	The obligor has a weak capacity to meet its long-term financial commitments, relative to that of other Indonesian obligors.
idB	The obligor has a weak capacity to fulfill the commitments and is more susceptible to economic conditions.
idCCC	The obligor is currently vulnerable, depending on favorable conditions.
idD	The obligor **has failed** to pay one or more of its financial obligations.

2.3. Data Collection
Primary data were collected from the manager of each listed mining company to construct aggregate measures of the corporate environmental strengths and concerns. Subsequently, the regression of the cost of debt and credit ratings was performed as the measurement of integrity of financial statements. The number of samples was 82 corporate semester dataset from 41 firms of the observation year of 2016. Data were also gathered from [7], the Indonesia credit rating agency.

2.4. Data Analysis
Tobit regression model was used in the data analysis because the dependent variable (RATING) is measured by limited numbers as 1=idAAA, 2=idAA, 3=idA, 4=idBBB, 5=idBB, 6=idB, 7=idCCC, and 8=idD. Regression is conducted twice, first without environmental variables including strengths and concerns, and second, with both variables.

3. Results and Discussion
Table 4 below shows the detailed results, summarizing the effect of environmental management performance on credit ratings. The results presented herein are consistent with the prediction that the corporate environmental management has implications on the integrity of financial reports. The higher environmental concern and strengths firms, the higher credit rating which is indicate stronger credit profile and lower risk of debt. The results were economically meaningful and statistically significant in

depicting the relations between environmental performance measures and both representatives of financial report integrity, and corporate credit ratings. The corporate activities underlying the documented relations are mainly attributable to regulatory and climate change issues. They serve as efforts to reduce environmental risk exposure and enhance cash flows by supplying innovative products and services with environmental benefits. The findings of this study extend earlier research by showing that the credit market does not only respond to the potential misreporting of existing environmental liabilities but also to costs of corporate environmental management in anticipating associated losses.

Table 4. Results of credit rating regressions.

Variables	Coefficients (1a equation)	Coefficients (1b equation)
ENVStrengths		0.1622*
		(1.93)
ENVConcerns		0.1925**
		(2.18)
CER	-0.0169 ***	-0.0165***
	(-3.93)	(-3.90)
Size	0.5708***	0.6164***
	(4.68)	(5.99)
Capital Intensity	0.0067***	0.0069***
	(3.21)	(3.19)
Interest Coverage	0.0321**	0.0323**
	(2.29)	(2.31)
ROA	0.0739***	0.0746***
	(3.88)	(4.23)
Loss	-0.9782***	-0.9814***
	(-4.14)	(-4.02)
Pseudo R²	0.33	0.34
Observations	82	82

This regression models to test the influence of environmental variables and corporate environmental responsibility with integrity financial report. T-statistics (in parentheses) are compared with t-tables to get the significance results. *, **, and ***denote statistical significance at the 10%. 5%, and 1% levels, respectively.

This study presents evidence that a proactive corporate environmental engagement is associated with a lower credit risk. However, since this relation is primarily reflected in bond prices, it may indicate that credit rating agencies have not yet fully accounted for this effect. The results are consistent with the view that regulatory implications of climate change have sensitized lenders to the downside risk of poor environmental practices. Furthermore, the results show that an assessment of past and ongoing corporate environmental activities enhances the accuracy in the pricing of corporate bond issues, by enabling bond investors to evaluate the risk of environmental-performance-related losses. These findings contribute to a better understanding of how corporate environmental activities affect the integrity of financial reporting, which is in this research is surrogated by credit rating. Nowadays, environmental performance has been considerably increasing over time. Firms' credibility and going concern can be reached when current needs are met with future generation's needs. The awareness of green notion leads to the development of environmental accounting [1].

Accordingly, this paper show that environmental management accounting (EMA) give many benefits to business not only for global warming issues but also for increasing firm's credibility. These benefits will improve firm's reputation from environmentally-friendly products into the market and performing firm's activities, including exploration and exploitation, with less harmful effects on surrounded environment. Some Indonesia mining companies revealed that they have employed EMA to improve firms' value and also shareholder value. Unfortunately, some companies still perceive that implementation of EMA is cost burden. This paper also confirms the benefit of EMA implementation

around the world. For instance, [2] show the benefits of EMA implementation as to eco-efficiency in some companies in Japan, and the impact on firm's value. Some companies around the world not only mining industries but also including many kind of industries, such as pharmaceutical, chemistry and automotive, implement EMA voluntary and then find their value increase. In Lithuania, the result of evaluation on EMA program revealed that EMA assisted companies in reduce their operating costs, lower product's price, higher revenue, higher profit and higher market value.

4.   Conclusion

This paper reports extensive evidence that the environmental management of public corporations has credit risk implications on bond investors. The underlying fundamental hypothesis is that environmental practices affect the solvency of borrowing firms, by determining their exposure to potentially costly legal, reputational, and regulatory risks. Aggregate measures were constructed for the environmental strengths and concerns of firms. Their relations with the yield spread of newly issued bonds, bond ratings, and long-term issuer ratings were then examined. The analysis shows that companies with environmental concerns have higher credit ratings assigned to them. The corporate activities that underlie this relation are mainly related to regulatory and climate change issues. Particularly, higher bond rating are associated with the supply of innovative products and services with environmental benefits, as well as the firm's efforts to reduce their impacts on climate change and air pollution through the use of clean energy, energy efficiency, or their commitments to climate-friendly policies and practices. However, our results indicate that environmental management practices have become increasingly relevant to bond investors over the recent decade. This outcome is robust to control many credit risk determinants, various model specifications, and industry membership.

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