The effect of Environmental Management Systems and Internationalization on Financial Performance: Evidence from Indonesian Companies

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ABSTRACT

This paper presents one of the first studies on the relationship between corporate environmental performance, internationalization and financial performance in Indonesia. The environmental management systems is measured by ISO 14001 certification, while internationalization is measured by level of export and the financial performance is measured by percentage of export return on assets (ROA). Three control variables are also included in this analysis, namely: firm size, industry sectors, and stock listing. The sample were taken from 252 companies in government rating, 266 in Indonesian National Database of ISO 14001 certification, and 1000 Major Non-financial Indonesian companies, resulted in 87 usable companies. We found that while financial performance is not significantly associated with environmental management systems, company size, stock exchange listing and ISO 14001 are.

Keywords: environmental performance, financial performance, return on assets, ISO 14001 certification.

INTRODUCTION

Is going green *good* for profits? The question of whether or not going green is associated with financial performance has been a long-standing debate among the researchers as well as business society. Some may argue that going green, such as implementing sound environmental management systems, costs more as design and systems should be changed to the more environmentally friendly. However, others believe that the capital market and product/service market do appreciate green companies and green products/services, and therefore environmental management systems which can strongly affect environmental performance in place should have positive impacts on financial performance.

Previous studies on relationship between the two have been conflicting. Some studies showed significant positive relationship, while others found it insignificant. So far, there has not been a study showing significant negative relationship between the environmental performance and financial performance.

Most of these studies come from developed economies such as USA and Europe, where environmental awareness is considered high. However, there have been few studies on environmental performance or management systems within developing countries. This may due to the lack of established measures on environmental performance or management systems, and/or the low accuracy and reliability of the measurement itself.

In Indonesia, the first nationally wide corporate environmental performance evaluation conducted is the PROPER program by Badan Pengelola Dampak Lingkungan (Bapedal). Despite some scepticisms over the monitoring and governance of the program, this government agency claimed itself as committed to provide an accurate and reliable evaluation on the program conducted. To prove this, Bapedal publicly announced the evaluation results in the form of environmental ratings through mass media. The five colour-code rating is used to describe each company from best to worst: gold, green, blue, red and black. However, due to limited number of listed firms included in this program in its initial implementation, it may take a while until the data can be used for research purposes. Therefore, this study uses environmental management systems ISO 14001 to proxy for environmental performance.

This study is aimed to discover the relationship between corporate environmental management systems, internationalization and financial performance in Indonesia. The listing on ISO 14001 certification were used to measure the environmental management systems and level of export to measure internationalization, both as the independent variable, whereas ROI was chosen as the dependent variable. Some control variables are also included, namely: total assets, industry sector, and stock exchange listing were used as control variables.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The earliest study on the relationship between environmental or social performance and financial or economic performance was probably the one by Ullmann (1985). He presented a descriptive analysis of prior social-responsibility studies that, in aggregate, report mixed empirical results of pair-wise associations between environmental performance and economic performance and between environmental performance and environmental disclosure, and between environmental disclosure and economic performance.

The most recent study on this issue was done by Al-Tuwaijri et al. (2004). The authors integrated the three variables and found out that "good" environmental performance is significantly associated with "good" economic performance, and also with more extensive quantifiable environmental disclosures of specific pollution measures and occurrences.

In between the two studies, a number of studies have also been conducted to answer the question of whether or not environmental performance and/or environmental disclosures is related to financial performance. The results have been mixed on the question whether the two variables are associated. Among those whose findings showing positive relationship are studies by Bragdon et al. (1972), Spicer (1978), Narver (1971), and Porter et al. (1995). Later researchers found the relationship between environmental performance and financial performance is insignificant (Rockness et al., 1986; and Freedman et al., 1992). A negative relationship between environmental performance and financial performance is probably consistent with traditional economic thought that depicts

this relation as a trade-off between firm's profitability and acting on its social responsibility (Friedman, 1992). However, so far studies on negative relationship between environmental performance and financial performance have not been found.

Most empirical studies on this issue come from developed countries, where environmental awareness among the stakeholders is considered high and the environmental performance measurement has been established for more than a decade. Companies are believed to be left behind if they can not compete with others within societal constraint characterized by ever-increasing environmental accountability.

On the other hand, there is very limited number of studies on environmental performance in developing countries. Even in more developed Asian countries, such as Hong Kong and Singapore, reports on environmental performance are still very little as compared to that of the USA or Europe (Ho et al., 2001). A study in Singapore suggested some other reasons such as lack of government pressures and lack of perceived benefits as well as perception that organization does not have any environmental impact (Perry et al., 1998). Another study in Malaysia mentioned some factors such as: high environmental costs and lack of stakeholders' appreciation (Thompson et al., 2004). Some other possible explanations are the low level of environmental awareness among the

stakeholders and inexistence of environmental performance measures. Even if they exist, other issues on the accuracy and reliability of the measures may arise.

Most of these studies used financial performance as the dependent variable and environmental performance as the independent variable, while including some control variables for the financial performance. However, a study by Freedman et al. (1992) used environmental performance as dependent variable and financial performance as independent variables.

In relation to environmental performance, there are also a number of studies relating this to other factors such as environmental disclosures (Ingram et al., 1980), environmental reputation (Hughes, 2001 and Toms, 2002), and environmental management (Schaltegger, 2002).

Measuring Environmental Management System as the proxy for Environmenal Performance

There are a number of different ways to measure environmental performance used in the literature. The most common measure is the one issued by US-EPA (Environmental Protection Agency) that measures the level of pollution compliance to environmental regulation (Verma et al, 2001). Salama et.al (2004) and Toms (2002) employed corporate reputation index of Britain's MAC published in Management Today as a proxy to measure corporate environmental

performance. Yet, other researchers used different measures. For example, Ingram et al. (1980) and Freedman et al. (1992) used the pollution index by Council on Economic Priorities in the USA, Hughes et al. (2001) used environmental disclosure, and Gupta et al. (2000) used environmental rating provided by a reputable environmental NGO. Schaltegger et al. (2001), on the other hand, suggested that research and business practice should focus more on eco-efficiency as the measure of environmental performance. Eco-efficiency is a ratio of value added and environmental impact added (Scaltegger at al. 2000).

Whatever measure is used to proxy environmental performance, a researcher should be assured that it is valid. According to Verma et al. (2001) measures of corporate environmental performance need to be objective, accurate and reliable in order to meet the objectives of the stakeholders interested in this information. Another important issue for a researcher is the availability of the measures, this is particularly essential for those conducting the study of emerging markets, because such measures often are not available.

The measurement of corporate environmental performance in Indonesia has been initiated in 1995, when the government of Indonesia, through its Bapedal (Badan Pengendalian Dampak Lingkungan), introduced a program, called PROPER. In this evaluation each company's operating facility is assessed and measured in their compliance to environmental standards. The results are given in five-colour-code ratings; from best to worst: gold, green, blue, red and black (Wheeler, 1996).

The first result was announced to the public through the mass media in 1996 (Bapedal, 1996). However, the program was postponed following the economic crisis in 1997 and just restarted in 2000 with the result announced in 2003. There were only 87 companies evaluated in the first evaluation in 1995 (announced in 1997), increased up to 252 in 2003. The Bapedal is planning to increase the number of companies to 500 in 2004 evaluation.

It is widely known that Indonesia is among the countries that lack transparency, monitoring and governance, especially those activities of programs conducted by the government agencies. Not surprisingly, the corporate environmental rating (PROPER) issued by the government has brought about the questions of independence and reliability. Voices from environmental NGOs and companies being rated *black* (the worst performer) by PROPER created suspicion on the evaluation conducted (Media Indonesia, November 5 ,2002; and Republika, 28 December 2004). It would be beneficial to compare this government rating with an international standard of environmental certification, ISO 14001 to find out whether or not they are consistent with each other.

Measuring Financial Performance

There are three categories of firm performance measurement (Pradhono et al.. 2004 from Helfert): (1) Earnings Measures (earning per share (EPS), return on assets (ROA), return on net assets (RONA), return on capital employment

(ROCE) and return on equity (ROE), (2) Cash flow Measures (free cash flow, cash flow return on gross investment (ROGI), cash flow return on investment (CFROI), total shareholder return (TSR) and total business return (TBR), (3) Value Measures (economic value added (EVA), market value added (MVA), cash value added (CVA) and shareholder value (SHV).

Previous studies on environmental performance or reporting have used different measures of financial or economic performance. For example, Bragdon and Marlin (1972) used accounting based measures (earning per share and return on equity), while Spicer (1978) used both accounting-based and market-based measures (profitability and the price-earning ratio). In this study, however, it is not possible to use market-based financial performance measures as our data consists of listed and unlisted companies.

Freedman et al (1992) argue that the financial performance of a firm is ultimately reflected in corporate profits. Rate of return on equity and rate of return on assets are the two commonly used measures of long-term profitability. In order to examine the impact of environmental performance on financial performance, this study used return on assets (ROA).

Despite some weakness of accounting ratios such as ROI being influenced by the selection of accounting methods, this ratio provides information which enables

researchers to conduct analysis on the association between environmental performance and financial performance. One advantage of using ROI as compared to Net Profit is that Net profit measures profitability in absolute term and neglects the firm size.

Relationship between Environmental Management Systems and Financial Performance

As mentioned above, there has been a number of research conducted on the relationship between environmental management systems, degree of internationalization and financial performance, using different measures of dependent, independent and control variables. The shift between environmental management and financial performance as the dependent and independent variables is also acceptable as long as it is supported with reasonable arguments.

The Control variables commonly used in the previous studies are including: firm size, industry sector, firm risk, degree of internationalisation (proxied by level of export or international expatriate), and ownership (Elsayed et al., 2004; Al-Tuwaijri et al., 2004; Adams et al., 1998.

In this study, however, the dependent variable is the environmental ratings provided by Bapedal in PROPER program, and the independent variable is firm

return on assets (ROA). A series of control variables included in this study are: total assets, industry sector, percentage of export, ISO 14001 certification and stock exchange listing. These variables are used in order to control for the potential influences of financial performance on environmental performance. The use of first three variables are consistent with previous literature, while the use of stock exchange listing is based on the argument that listed companies are concerned more about their environmental reputation. In addition, ISO 14001 certification was used to test whether or not the government environmental rating is consistent with the international standard of environmental certification.

Based on the literature section above, the hypothesis posed in this study is:

H1 : The existence of environmental management certification is positively associated with financial performance

H2 : The level of export is positively associated with financial performance

RESEARCH METHODOLOGY

Dependent, Independent, and Control Variables

The independent variable of this study is environmental management systems and internationalization, while the dependent variable is financial performance. In order to control for potential influence of environmental management systems to financial performance these variables are also included in the analysis: total assets, industry sector, and stock exchange listing. The rationale of using those

control variables is as explained in the previous section. Dummy variables are used for the values of industry sector (1-7) and Stock Exchange Listing (0 if unlisted, and 1 if listed). The other variables used the real values from the data sources.

Population and Sample

The population of this study were taken from these sources:

a. 1000 Major Non-Financial Companies in Indonesia year 2000 by CISI Raya Utama, Jakarta.
b. 266 companies listed in ISO 14001 National Database (as of year 2000) from the official website of Kementerian Lingkungan Hidup Indonesia.

Each data source consists of listed and unlisted companies.

After matching those data sources into a common list, 87 companies were obtained as usable data as shown in Table 1. This consists of 23 listed companies and 64 unlisted companies.

RESULTS AND ANALYSIS

The test using regression analysis resulted the following findings:

Table 1 about here

The Goodness of Fit test showed the value of adjusted R^2 = 0.21 which means that the value of the dependent variable can be explained by 21% of the independent variables. This value can be considered sufficient because environmental performance is influenced by many factors besides financial performance and other factors mentioned in this study as the control variables.

The F test, as shown in Table 3, indicates that simultaneously the independent variable and the control variables altogether are very significantly associated with the dependent variable.

Table 2 about here

Table 4 indicates the significance of the relationship between the dependent variable and each of independent and control variables.

Tabel 3 about here

As we can see from this table, financial performance, measured by return on assets is not significantly associated with environmental performance. However, some control variables namely: company size (measured by total assets), ISO 14001, and stock exchange listing are significantly associated with environmental performance. Neither the percentage of export nor industry sector is shown to have significant effect on the financial performance.

It is not surprising to see that in a developing country, such as Indonesia, environmental management systems is not associated with financial performance. More environmentally products or services that usually bring higher price are not in favour of most Indonesian consumers and therefore it is not likely to have effect on better financial performance. Even in the more developed countries, previous studies showed mixed results on this relationship, which could also mean that even in those markets, many people are still in the preference of price over the environment. As the Indonesian exporters do not get incentive for being "greener", this could also explain why the level of export does not have significant effect on environmental performance.

The influence of company size to environmental is quite predictable as it is argued that big companies can afford to invest in more environmentally friendly technology and management. Likewise, the stock exchange listing is predicted to have significant effect on corporate environmental performance, because listed companies would be concerned more about their environmental reputation as compared to unlisted companies. It is interesting to see, that despite considerably massive scepticisms over the government rating, due to low monitoring and governance in Indonesia, there is a high consistency between this rating and ISO 14001. Although some people may argue that environmental rating measure environmental outputs (e.g. pollution), while ISO 14001 measures environmental

management systems, it makes sense to say that good environmental management systems should result in good environmental performance.

CONCLUSION, LIMITATION AND FUTURE RESEARCH DIRECTION

Based on the description in the previous sections, it can be concluded that environmental performance is not significantly associated with financial performance in Indonesia. However, it is significantly associated with company size, stock exchange listing and ISO 14001, which also indicates the consistency between the government rating and international standards of environmental management certification.

Limitations of this study is inevitable. As the data consisted of listed and unlisted companies, this may raise a question regarding the accuracy of that of unlisted companies. However, there is one advantage of using unlisted companies as it covers both types of companies and therefore reduce bias of selecting the data.

Future research can be addressed to discover what types of reporting strategies (i.e. voluntary disclosures, income smoothing, etc.) used by Indonesian companies to avoid political cost and maintain legitimacy of their activities in relation to environmental issues. This is relevant with the increasingly environmental awareness amongst the stakeholders in Indonesia that would eventually bring about political pressures to the companies.

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TABLES

Table 1. Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.515[a]	.265	.209	.708	1.935

a. Predictors: (Constant), percentage of export, Total Assets, SX Listing, Return on Assets, ISO14001, industry sector

b. Dependent Variable: Environmnetal Rating

Table 2. F test (ANOVA)

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.269	6	2.378	4.750	.000[a]
	Residual	39.556	79	.501		
	Total	53.826	85			

a. Predictors: (Constant), percentage of export, Total Assets, SX Listing, Return on Assets, ISO14001, industry sector

b. Dependent Variable: Environmnetal Rating

Table 3. Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.719	.271		6.332	.000		
	Return on Assets	.025	.178	.014	.140	.889	.955	1.047
	Total Assets	3.239E-05	.000	.198	1.999	.049	.950	1.053
	industry sector	.075	.051	.166	1.487	.141	.742	1.347
	SX Listing	.595	.179	.328	3.316	.001	.951	1.052
	ISO14001	.457	.174	.262	2.619	.011	.930	1.076
	percentage of export	.001	.003	.047	.430	.668	.765	1.307

a. Dependent Variable: Environmnetal Rating