

THE EFFECT OF ENVIRONMENTAL INVESTMENT AND FIRM ENVIRONMENTAL PERFORMANCE ON FIRM VALUE: AN EMPIRICAL STUDY IN INDONESIA

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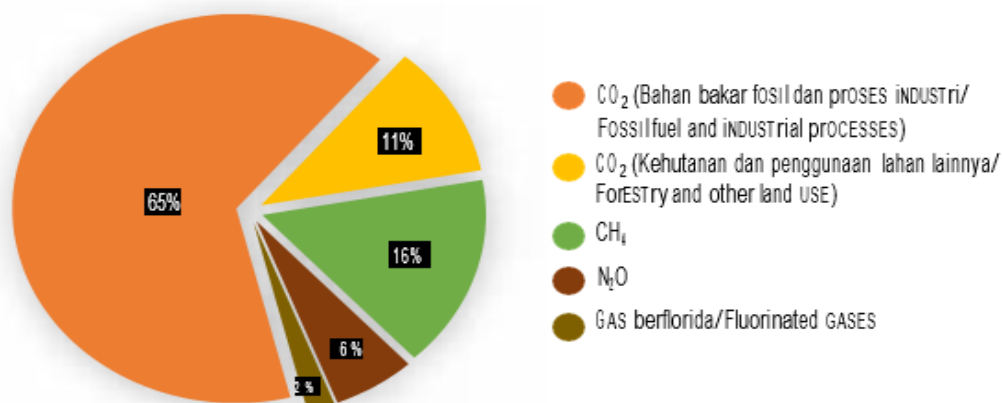
ABSTRACT

This study examines the effect of environmental investment and firm environmental performance on firm value. The method used is a quantitative method with secondary data. This study used panel data from firms' financial statements sensitive to environmental issues. The sample was companies sensitive to environmental issues, such as mining, plantation, and manufacturing companies listed on the Indonesia Stock Exchange (IDX) during 2014-2017. The results of this study indicate that investment in the environmental sector and firm environmental performance have a positive but not significant effect on firm value. This result shows that the investment in environmental conservation conducted by companies was effective for improving the firm value but not significant; this is because the investment in the environmental sector companies spend in Indonesia is still minimal. The results of this study also show that environmental performance has a positive but insignificant effect; this is because, based on existing data, not many companies in Indonesia have received gold and green ratings. The implications of this study are (a) the company's efforts in preserving the environment because their business activities are not only beneficial for the surrounding society, but this will improve the firm's environmental performance and sustainability, and (b) investment in the environmental sector is essential for companies to achieve good environmental performance, and (c) for accounting standard setters (IAI) and the Government, more binding rules are needed for companies to disclose the costs of environmental conservation.

Keywords: Environmental Investment, Firm Environmental Performance, PROPER, Firm Value

INTRODUCTION

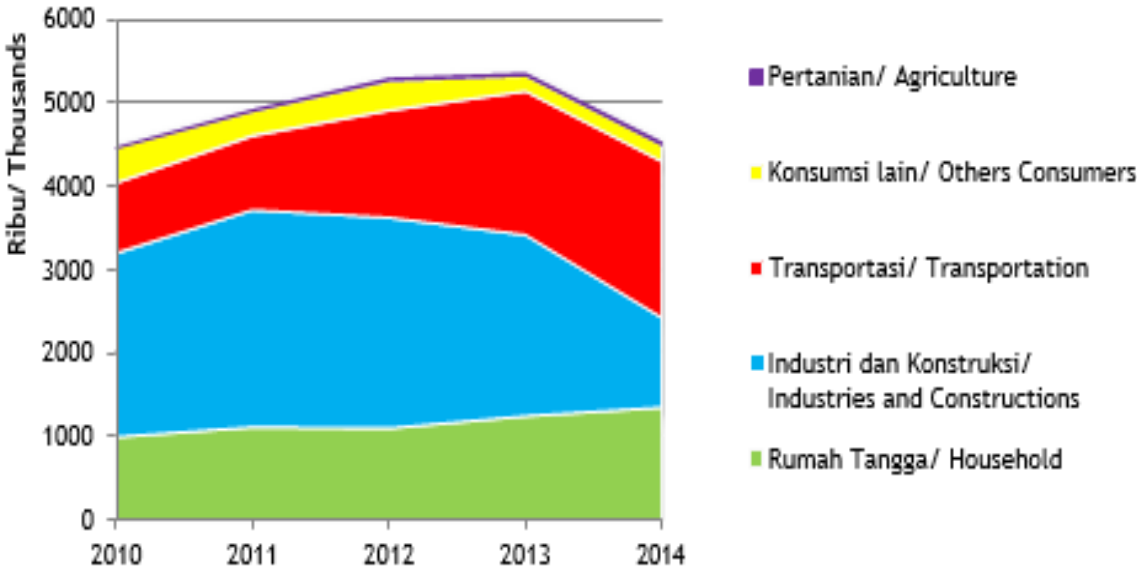
The industry is one of the main factors that participate in natural damage because the raw materials used contain various chemicals, and the emissions released by the industry have the potential to pollute the air. Based on data released by the Central Bureau of the Statistics Republic of Indonesia, industrial activity is one of the sectors that produced the highest greenhouse gas emissions in 2010.



Source: IPCC 2014

Figure 1. Emissions of Greenhouse Gases from Human Activity, 2010

Figure 1 shows global emissions in 2010. The most prominent position to contribute to the natural damage is greenhouse gas emissions from fossil fuels and industrial processes. Figure 1 shows that the use of fossil fuels and industrial processes has 65% of greenhouse gas emissions from human activity. The second is Greenhouse gas emissions from forestry, and other land uses amounted to 11%. Other greenhouse gas emissions are CH₄ gas by 16%, N₂O by 6%, and fluoride gases by 2%. Based on this data, it is known that industrial activities have a significant enough potential for environmental damage. Apart from generating environmental impacts from business activities, the industry is also a significant sector in consuming natural resources. This is explained in the following figure:



Source: Energy Balance of Indonesia, 2010-2014, BPS

Figure 2. Final Consumption Energy by Sector (terajoule), 2010 - 2014

Motivation to make the company's business cycle sustainable encourages companies to increase corporate awareness to protect the environment. Based on the description above, the company must make efforts to reduce environmental impacts; this makes the company strive to build an excellent image to the community to gain legitimacy from the community. One of the efforts made by the company to gain legitimacy from the community is by showing that the company cares about the sustainability of the environment in which the company operates. Therefore, the company is motivated to invest several funds to preserve the environment to support its business sustainability. The reason behind the company preserving the environment around their business area is the awareness that the available natural resources are limited, so the company running its business must manage natural resources effectively and efficiently so that the business run by the company can be sustainable (Anggraeni, 2015).

Several studies have been conducted to examine the relationship or influence of investment in environmental conservation and firm environmental performance to firm value. Kuo et al. (2010) stated that increasing investment in environmental conservation could significantly increase net income and economic benefits. Nakamura (2011) found that investments in environmental conservation that can significantly increase firm value are long-term investments. Meanwhile, short-term investments cannot significantly increase the firm value. Yadav et al. (2015) found that companies that received environmental performance with a green rating repeatedly had significantly higher standard cumulative abnormal returns (SCARs). Sarumpaet et al. (2017) found that companies with good environmental performance have higher stock prices and vice versa. Ainy and Barokah (2019) found that the Malaysian and Indonesian markets did not respond to information related to

environmental responsibility; this may be due to the low awareness of the Indonesian and Malaysian toward environmental sustainability. This study was conducted to confirm the results of previous studies about the effect of environmental investments and firm environmental performance on firm value. We explore whether investments made by companies and firm environmental performance are effective in generating a good firm value, especially in companies that are sensitive to environmental issues, such as manufacturing, mining, and plantation companies.

The results indicate that environmental investment and firm environmental performance have a positive but insignificant effect on firm value. The results contribute that companies need to preserve the environment to increase the company's sustainability. Then, companies need to consider investing in the environmental sector to achieve good environmental performance. Furthermore, this study also contributes to the government drafting binding rules for companies to disclose environmental conservation costs.

Environmental Investment and Firm Value

Tambun (2007) states that each production process has the potential to produce two types of output, namely product output (PO) and non-product output (NPO). Waste (waste & emissions) is part of the NPO whose amount continues to be minimized as much as possible because waste is part of production output that has absorbed various types of costs (direct or indirect) in a production process but does not provide benefits for the company, one way to reducing NPO or waste is to make an environmental investment.

Based on the description above, the hypotheses that can be used are:

H1: Environmental investment has a positive and significant effect on firm value.

Firm Environmental Performance and Firm Value

In Indonesia, a company's environmental performance is awarded based on an assessment from the Ministry of Environment and Forestry of the Republic of Indonesia. This assessment is known as the Company Performance Rating Program in Environmental Management (PROPER). PROPER is the Public Disclosure Program for Environmental Compliance. This program is complimentary and in synergy with other compliance instruments. Thus, efforts to improve environmental quality can be carried out more efficiently and effectively. PROPER is also one of the policy tools developed by the Ministry of Environment of the Republic of Indonesia to encourage compliance of business and people activity with various laws and regulations in the environmental sector through information instruments by actively involving the community. Therefore, PROPER is closely related to the dissemination of information on the compliance performance of each company to all stakeholders on a national scale. The Ministry of Environment and Forestry of the Republic of Indonesia starts the firm environmental performance by giving a PROPER rating.

Therefore, the PROPER policy is closely related to the provision of environmental information by the person in charge of the business to the community so that the public can actively respond to information on the level of PROPER compliance of a company by providing specific responses (good or bad), based on PROPER information held by the company. Yadav et al. (2015) found that companies that received environmental performance with a green rating repeatedly had significantly higher standard cumulative abnormal returns (SCARs). Sarumpaet et al. (2017) found that companies with good environmental performance have higher stock prices and vice versa. Based on the description above, the hypotheses that can be used are:

H2: Firm environmental performance has a positive and significant effect on firm value.

RESEARCH METHOD

This study used a quantitative method with panel data sourced from the financial statements of companies that are sensitive to environmental issues, such as mining, plantation, and manufacturing companies. The dependent variable in this study is the substantial value proxied by Tobin's Q. The independent variables in this study are investment environment and firm environmental performance.

Environmental investment is measured by the amount of investment in environmental conservation. The environmental performance variable is based on the PROPER rating owned by the company.

Variable	Symbol	Measurement
Environmental Investment	<u>Environmental_inv</u>	$\frac{\text{The amount of fund issued by the company to support environmental conservation program}}{\text{Total asset}}$
Firm Environmental Performance	PROPER	PROPER Rating
Firm Value	<i>Tobin's q</i>	$\frac{\text{Tobin's q = Market value of shares + Total debt}}{\text{Book value of total assets of the firm}}$

Table 1. Operational Variable

The research model is as follows:

$$\text{Tobin's } Q_{it} = \alpha + \beta_1 \text{ Environmental_inv}_{it} + \beta_2 \text{ PROPER}_{it} + \varepsilon$$

Whereby:

- Tobin's Q = Firm Value
 Environmental_inv = Environmental Investment
 PROPER = Firm Environmental Performance

ANALYSIS

Descriptive statistical analysis provides an overview of variable data from the average value, standard deviation, variant, maximum, minimum, sum, range, kurtosis, and skewness (slope distribution). This study's descriptive data analysis was seen from the minimum, maximum, and average values. The variables in this study are an environmental investment and firm environmental performance. The results of descriptive statistical analysis can be seen in table 2:

	FIRM VALUE	PROPER	ENVIRONMENT INV
Mean	2.405652	3.281739	0.005190
Maximum	23.29000	5.000000	0.090500
Minimum	0.540000	2.600000	4.00E-05
Std. Dev.	4.012691	0.519587	0.010544
Skewness	3.726803	1.916425	6.028965
Kurtosis	16.74665	6.080035	47.95560
<u>Jarque-Bera</u>	937.3516	92.67984	8304.531
Probability	0.000000	0.000000	0.000000
Sum	221.3200	301.9200	0.477480
Sum Sq. Dev.	1465.254	24.56732	0.010116
Observations	92	92	92

Table 2. Descriptive Statistics of Variables Studied

The table above shows an overview of the research variables used. The firm value variable has the lowest value of 0.54 and the highest value of 23.29. Meanwhile, the average value of the firm value variable is 2.405. This shows that the value of the manufacturing, plantation, and mining companies studied in this study has a reasonably good company value. This is reflected in the company's average value of 2.405 or greater than 1. The firm environmental performance variable in this study is proxied by the PROPER rating from The Ministry of Environment and Forestry of the Republic of Indonesia. The lowest value for the firm environmental performance variable is 2.600, and the highest value of 5.000. The table also obtained an average value of 3,281. Based on the results of the descriptive analysis above, the average company has a rating of 3,281, indicating a green rating.

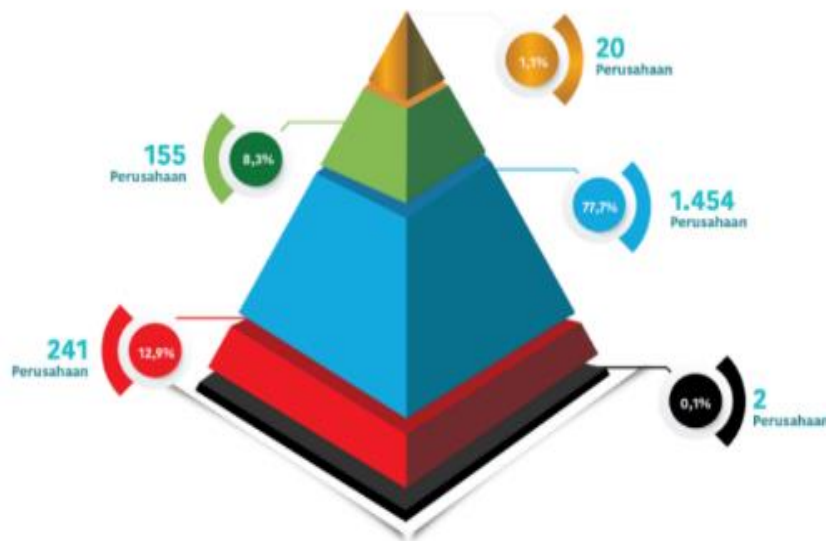
The environmental investment variable measured by the ratio between the funds spent by the company to preserve the environment and the total assets owned by the company has the lowest value of 0.000 and the highest value of 0.090. The table also obtained an average value of 0.005. Based on the results of the descriptive analysis above, the average company investing in the environment is 0.0051 or 0.51% of the total assets, which means that for every Rp. 1,000 total assets, Rp. 5.2 is invested by the company to preserve the environment. This shows that the allocation of environmental investment companies in Indonesia is minimal. Based on the data above, companies need to increase allocations in the environmental sector, especially for companies that have business activities that have the potential to damage the environment, such as the manufacturing, plantation, and mining sectors. This is done to preserve the environment. The results of testing the effect of environmental investment and firm environmental performance on firm value are described in the following table:

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.216773	1.431368	0.151445	0.8801
PROPER	0.661875	0.432678	1.529717	0.1308
ENVIRONMENT_INV	3.233009	14.90670	0.216883	0.8290
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.942184	Mean dependent var	2.405652	
Adjusted R-squared	0.921474	S.D. dependent var	4.012691	
S.E. of regression	1.124455	Akaike info criterion	3.298856	
Sum squared resid	84.71471	Schwarz criterion	3.984125	
Log likelihood	-126.7474	Hannan-Quinn criter.	3.575436	
F-statistic	45.49394	Durbin-Watson stat	2.174965	
Prob(F-statistic)	0.000000			

Table 3 The Effect of Environmental Investment and Firm Environmental Performance on Firm Value

Based on the table test, it is known that the environmental investment variable has a positive but insignificant effect on firm value, as indicated by the coefficient value of 3.233 and the Prob value of 0.829 or more than 0.05. This shows that environmental investment can increase firm value but is not strong enough. So, H1, which states that environmental investment has a positive and significant effect on firm value, is not supported. This may be because the company has a low investment in the environmental sector. This means that the company's concern for environmental preservation is still low and needs improvement. These results also show that the firm environmental performance variable has a positive but insignificant effect on firm value, as indicated by the coefficient value of 0.661 and the Prob value of 0.130 or more than 0.05. This shows that firm environmental investment can increase firm value but is not strong enough. So H2 states that firm environmental performance has a positive and significant effect on firm value is not supported.

This may be because the PROPER rating for companies in Indonesia is still not maximal. This is shown in the image below:



Source: Ministry of Environment of the Republic of Indonesia

Figure 3 PROPER Transformation in Indonesia for 21 Years, 1997 – 2017

Based on the picture above, it is known that for 21 years (1997–2017), only 20 or 1.1% of companies received the Gold PROPER rating. Companies that get a Green PROPER rating are only 155 companies or 8.3%. As many as 1,454 or 77.7% of companies in Indonesia received a Blue PROPER rating. As many as 214 or 12.9% of companies in Indonesia received a Red PROPER rating, and two companies or 0.1% of companies in Indonesia received a Black PROPER rating. This data shows that for 21 years, the environmental performance of companies in Indonesia is still not optimal, as indicated by the number of companies in Indonesia that still get a Blue PROPER rating, where Blue PROPER means that the company has just made environmental management efforts, following the provisions of the applicable laws and regulations. In addition, there are still very few companies that get a Green or Gold rating.

CONCLUSION

The test results in this study indicate that the environmental investment and firm environmental performance variables have a positive but statistically not significant on firm value. This shows that the funds spent by companies to protect the environment can improve firm value but are not significant enough. So, companies must be more severe in investing in the environmental sector to achieve business sustainability. This research has several implications, including the following: (a) The company's efforts in preserving the environment as a result of their business activities are not only beneficial for the surrounding society, but this will improve the firm's environmental performance and sustainability. (b) Investment in the environmental sector is essential for companies to achieve good environmental performance, so companies must create strategies that concern environmental management and (c) For accounting standard setters (IAI) and the Government, more binding rules are needed for companies to disclose the costs of environmental conservation that are transparent and integrated into the sustainability report.

This study has limitations, including (a) this study only uses secondary data sourced from financial reports published by the company. This study did not use other sources such as press releases, interviews, or observations. So, further researchers are expected to use other data sources besides the

financial reports published by the company. (b) This research was only conducted on companies sensitive to environmental issues, such as mining, plantation, and manufacturing companies. So, further researchers should conduct research for all types of companies because, based on Law Number 25 of 2007 concerning Investment, all companies must carry out social and environmental responsibilities to see better results.

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