HOW DOES ECO–EFFICIENCY IMPROVE FIRM FINANCIAL PERFORMANCE? AN EMPIRICAL EVIDENCE FROM INDONESIAN SOEs

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Article Received: 2020-11-5 *Article Accepted: 2021-03-22*

Abstract

The efforts to preserve environmental sustainability need to be noticed by industrial sector since natural resources are limited, therefore it is important for companies to manage natural resources more effectively and efficiently (eco-efficiency) in the company's business processes, in order to maintain their business life cycle. This study aims to examine the relationship between eco-efficiency with environmental performance and firm financial performance. This study consisted of 18 state-owned enterprises listed on the Indonesia Stock Exchange in 2015-2019. SOEs was chosen because it is considered as a company that represents the government/regulator. The results show that eco-efficiency has a positive and significant relationship to environmental performance and firm financial performance. This means that increased eco-efficiency is effective for improving environmental performance and firm financial performance. In addition, the company's environmental performance also has a positive and significant relationship with the firm financial performance.

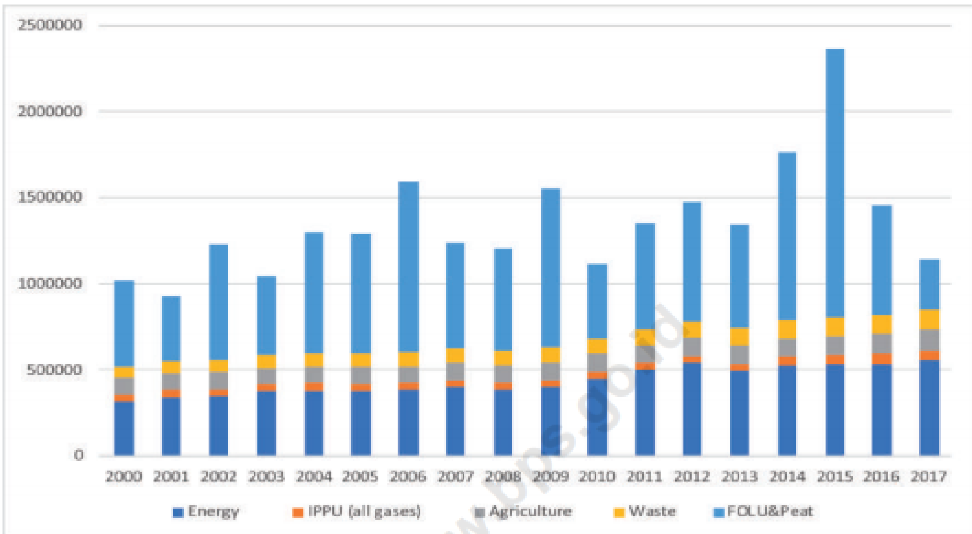
Keyword: Eco-efficiency, firm environmental performance, firm financial performance

JEL Code: L25

1. INTRODUCTION

Environmental issues have become a global issue since the Earth Summit was held in Rio de Janeiro in 1992. Environmental conservation efforts are the concern of all sectors, including the business sector, since the business sector is one of the sectors that contributes to environmental damage. The Central Bureau of Statistics (BPS) of the Republic of Indonesia shows that the 2000-2017 Indonesia Greenhouse Gas Emissions (GHG) data increases relatively every year, even if there is a decrease, the value is not too significant. GHG emissions are generated from nature and various development activities mainly from activities in the fields of forestry, peatlands, waste, agriculture, transportation, industry, and energy. The results of the calculation of the national GHG inventory contained in the Greenhouse Gas Inventory Report and Monitoring, the 2018 Verification Report by the Ministry of Environment and Forestry shows the level of GHG emissions in 2017 to be 1,150,772 Gg CO_2 e or an increase of 124,879 Gg CO_2 e compared to emission levels year 2000.

Figure 2.6. National GHG Emission Profile for 2000-2017



Source: Greenhouse Gas Inventory and Monitoring Report, MoEF, 2018

Values of emissions in 2017 each category/sector, are as follows:

1. Energy, amounting to 558,890 Gg CO_2 e
2. Industrial Process and Product Usage, amounting to 55,395 Gg CO_2 e
3. Agriculture, amounting to 121,686 Gg CO_2 e 4. Forestry and Peat Fire, amounting to 294,611 Gg CO_2 e.

4. Waste, amounting to 120,191 Gg CO_2 e

The increasing attention of companies to environmental problems is also motivated by the awareness that natural resources are limited, so it is important for companies to manage natural resources more effectively and efficiently (eco-efficiency) in the company's business processes, in order to maintain their business life cycle (Anggaraeni, 2015).

Companies that have good environmental performance are good news for the community. Companies that get a positive response from the public tend to have good financial performance, because this can increase profits. Research conducted by Haninun et al (2018) shows the results of environmental performance have a positive and significant effect on the firm financial performance. Meanwhile, Sarumpaet (2005) found the results of a study which stated that financial performance was not significantly related to environmental performance.

When the company is able to make efficiency in the ecological sector, it will have good environmental and financial performance. Research conducted by Lundgren and Zhou (2017) found that energy efficiency and environmental performance are integrated. Meutia et al. (2019) found that eco-efficiency has a positive and significant effect on the firm financial performance. Kamande and Lokina (2013) found that there is a potential advantage in profitability by increasing eco-efficiency in resource use. However, Sutrisno and Wendy (2019) found that eco-efficiency has a negative and insignificant effect on firm performance. Hazudin et al (2015) found that ISO 14001 certificate had no effect on improving financial performance. This study was conducted to confirm the results of previous studies related to the relationship between eco-efficiency on environmental performance and firm financial performance.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2. 1 Theory

The theory used in this research is the theory of legitimacy. Organizations seek to establish conformity between social values related to organizational activities and acceptable behavior norms in the larger social system of which the organization is a part (Dowling and Preffer, 1975). A special feature of legitimacy theory is the social contract between organizations and society (Campbell et al., 2003). If a company wants to get recognition from the society, it must have a good reputation in the society.

2.2 Hypothesis Development

Eco-efficiency is the saving/efficiency in the ecological sector made by the company as an effort to reduce environmental impact and to maintain the company's business life cycle. According to Hansen and Mowen (2007), eco-efficiency means that organizations can produce goods and services that are more profitable while at the same time reducing their environmental impact, resource consumption, and costs. This definition shows that, when a company applies the eco-efficiency concept, the company is able to improve its environmental performance and financial performance. This is due to the implementation of the eco-efficiency concept besides being able to preserve the environment, it is also able to reduce costs that can increase firm profitability. Lundgren and Zhou (2017) found that energy efficiency and environmental performance are integrated. Meutia et al. (2019) found that eco-efficiency has a positive and significant effect on the firm financial performance. Kamande and Lokina (2013) found the results of a study which stated that there is a potential advantage in firm profitability by increasing eco-efficiency in resource use. In this study, the instrument used to measure the eco-efficiency is ISO 14001 certificate. Based on this explanation, the hypotheses in this study are as follows:

H_1: Eco-efficiency has a positive and significant relationship with firm environmental performance.

H_2: Eco-efficiency has a positive and significant relationship with the firm financial performance.

Based on the theory of legitimacy, a company will get recognition from the society if the company is considered to have a good reputation in the society. The better the environmental performance of the company, the better the society response to the company. According to Haninun et al (2018) environmental performance is an outcome that can be measured by an environmental management system that refers to environmental policies, environmental goals and environmental targets. In Indonesia, one of the instruments that can be used to measure environmental performance is by using a rating given by the Ministry of Environment and Forestry called PROPER. The Ministry of Environment and Forestry of the Republic of Indonesia starts the firm environmental performance by giving a PROPER rating, with the following ratings:

1. Gold is for business and/or activities that have consistently demonstrated environmental excellence in the production or service process, conducting ethical business and being responsible to society.
2. Green is for businesses and/or activities that have carried out environmental management more than required in the regulations (beyond compliance) through the implementation of an environmental management system, efficient use of resources and undertaking good social responsibility efforts.
3. Blue is for a business and / or activity that has made the required environmental management efforts in accordance with the provisions or laws in force.
4. Red is an environmental management effort that has not been carried out in accordance with the requirements as regulated in regulations.
5. Black is for businesses and / or activities that deliberately commit acts or neglect resulting in environmental pollution or damage as well as violations of applicable laws and regulations or do not carry out administrative sanctions.

Haninun et al (2018) show results which state that environmental performance has a positive and significant effect on company financial performance. Based on this explanation, the hypotheses are as follows:

H_3: Firm environmental performance can mediate the relationship between eco-efficiency and firm financial performance.

The model used to describe this research is as follows:

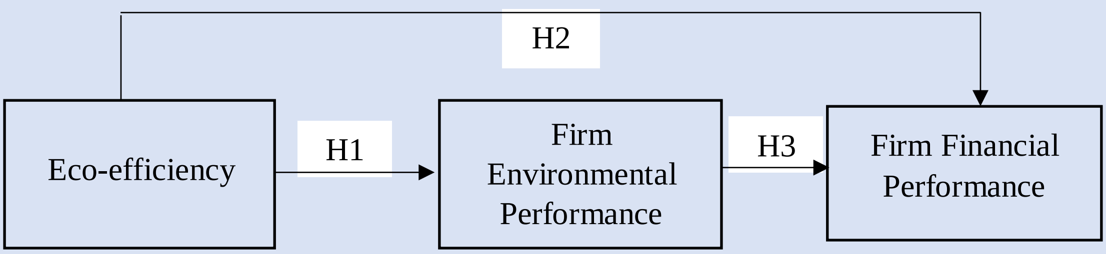


Figure 1 Research Model

3. RESEARCH METHOD

The population in this study are companies listed on the Indonesia Stock Exchange (BEI) 2015-2019. The sample used in this research is state-owned enterprises listed on the Indonesia Stock Exchange (BEI) during 2015-2019. State-owned enterprises were chosen as the research sample because SOEs was considered a representative of the government or regulator, so that when SOEs were consistent in implementing the eco-efficiency concept, other private companies would follow. The number of companies studied in this study are 18 companies with a total of 5 years, so that the number of observations in this study are 90 observations.

The independent variable in this study is eco-efficiency which is proxied by environmental management certificate ISO 14001. The dependent variable in this study is environmental performance and firm financial performance. Firm environmental performance variable is proxied by PROPER rating obtained by the company from the Ministry of Environment and Forestry. Meanwhile, the firm financial performance variable is proxied by Return on Assets (ROA).

4. RESULT AND DISCUSSION

This study examines the implementation of eco-efficiency to the firm environmental performance and the firm financial performance of 18 state-owned companies in Indonesia that are listed on the Indonesia Stock Exchange during 2015-2019. Descriptive statistical descriptions of the research variables are described in the following table:

Table 1 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ECO	90	.00	1.00	.7222	.45041
PROPER	90	.00	5.00	1.5094	1.79178
ROA	90	-.06	.28	.0442	.05394
Valid N (listwise)	90				

The table above shows that the eco-efficiency variable has a minimum value of 0, a maximum value of 1 and an average value of 0.7222. The eco-efficiency variable is a dummy variable of ownership of an ISO 14001 environmental management certificate. Companies that have an ISO 14001 certificate will be given a value of 1 and companies that do not have an ISO 14001 certificate will be given a value of 0. Based on the descriptive statistical table above, it is known that 72% SOEs in Indonesia have an ISO 14001 environmental management certificate. This shows that 72% of the SOEs studied have applied the concept of eco-efficiency. The firm environmental performance variable that is proxied by the PROPER rating shows a maximum value of 5, the lowest value of 0 and an average value of 1.5. This shows that SOEs in Indonesia still have to improve the firm environmental performance because the average value of environmental performance during the study year is only 1.5. The firm financial performance variable which is proxied by return on assets (ROA) has a minimum value of -0.06, a maximum value of 0.28 and an average value of 0.0442.

The results of hypothesis testing in this study are shown in the following table:

Table 2 The relationship between Eco-efficiency and Firm Environmental Performance.

		PROPER	ECO
PROPER	Correlation Coefficient	1.000	.518**
	Sig. (1-tailed)	.	.000
	N	90	90

**. Correlation is significant at the 0.01 level (1-tailed).

Based on the above test results, the results show that the application of eco-efficiency has a positive and significant relationship with firm environmental performance, indicated by the Correlation Coefficient value of 0.518 or 51% and Sig. (1-tailed) 0.000 or below 0.01. This shows that Hypothesis 1 (H1) which states that eco-efficiency has a positive and significant relationship to the firm environmental performance is **supported**. The better the efficiency carried out by the company in the ecological field, the better the firm environmental performance. This is because one of the components to measure the firm environmental performance is the firm's ability to carry out environmental management and utilization of resources efficiently and to make good social responsibility efforts. These results are in line with research conducted by Lundgren and Zhou (2017) which stated that energy efficiency and environmental performance are integrated. Based on the results of this study, it is important for companies to carry out eco-efficiency in carrying out their business processes, because a good implementation of eco-efficiency will encourage companies to obtain good environmental performance and this will make the companies have a good reputation in society.

Table 3 The relationship between Eco-efficiency, Firm Environmental Performance and Firm Financial Performance

		ROA	PROPER	ECO
ROA	Correlation Coefficient	1.000	.311**	.448**
	Sig. (1-tailed)	.	.001	.000
	N	90	90	90

**. Correlation is significant at the 0.01 level (1-tailed)

Based on the above test results, the results show that the implementation of eco-efficiency has a positive and significant relationship with the firm financial performance, indicated by the Correlation Coefficient value of 0.448 or 44% and Sig. (1-tailed) 0.000 or below 0.01. This shows that Hypothesis 2 (H2) which states that eco-efficiency has a positive and significant relationship with the firm financial performance is **supported**. By implementing the eco-efficiency concept, the company will reduce the costs that must be incurred and so the company will achieve good financial performance. This result is in line with the research of Kamande and Lokina (2013) which states that there is a potential advantage in firm profitability by increasing eco-efficiency in resource use. Meutia et al. (2019) also found results which stated that eco-efficiency has a positive and significant effect on the firm financial performance.

The test results above also show that the firm environmental performance has a positive and significant relationship with the firm financial performance, indicated by the Correlation Coefficient value of 0.311 or 31% and Sig. (1-tailed) 0.001 or below 0.01. This shows that Hypothesis 3 (H3) which states that the firm environmental performance has a positive and significant relationship with the firm financial performance is **supported**. When a company has a good environmental performance, with a high rating from the Ministry of Environment and Forestry of the Republic of Indonesia, the company will have a good reputation in the society. These results are in line with the results of Haninun et al

(2018) which showed that environmental performance has a positive and significant effect on firm financial performance.

5. CONCLUSIONS

Based on the results of the research described above, it is concluded that eco-efficiency practices are important to be implemented and must be continuously improved by companies in carrying out their business processes, because good eco-efficiency implementation will encourage companies to obtain good environmental performance. The implementation of eco-efficiency can also reduce costs that should be incurred by companies, therefore this encourages the achievement of profitability and good financial performance. In addition, by implementing eco-efficiency, the company will get a good reputation in society.

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