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EMPIRICAL TEST OF THE EFFECT OF COMPANIES WITH ISO 14001 TOWARDS FINANCIAL PERFORMANCE WITH ENVIRONMENTAL PERFORMANCE AS AN INTERVENING VARIABLE (STUDY OF COMPANIES LISTED IN IDX PERIOD 2012-2014)

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Abstract: *This study aims to analyze and to test the effect of Companies with ISO14001 towards financial performance with environmental performance as an intervening variable. Sample used in this test are Manufacturing Companies Listed in Indonesia Stock Exchange Period 2012-2014, by using Purposive sampling technique. The statistical tools that are used to test the hypothesis are multiple regression analysis and path analysis. The results of the test indicate that companies with ISO14001 are proven to have a positive and significant effect towards environmental performance by 19%, Companies with ISO14001 have negative effects towards financial performance by 14,9%, environmental performance has the positive effect towards financial performance by 15.3%, and companies with ISO14001 has the effect towards environmental performance indirectly by 2.907%. The results of this test can provide advice to stakeholder in decision making related to investing, particularly on the ISO14001 companies that are predicted to have a good financial performance which is reflected from its market price.*

Keywords: *ISO14001, Financial Performance, Environmental Performance.*

INTRODUCTION

In the last few years, environmental issues have increasingly become a concern to many people. Issues related to the actual environment have emerged, especially since the United Nations Conference on the Environment in Stockholm, Sweden, on June 15, 1972. Along with the growth of population and the development of various industries, the environmental issues have become a serious problem faced by humans. The industrialized world is often blamed as one of the causes of environmental pollution. This resulted in the company is required to pay more attention to activities that minimize pollution and manage of resources more effectively and more efficiently (Schaltegger and Synnestvedt, 2002), and motivate the company to build the image of the company as a company that cares about the environment for public view (Ahmad and Solomon, 2002).

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International Organization for Standardization has developed an international environmental specification that is through the Environmental Management System (EMS) ISO 14001 that has been used by various industries in the world. EMS ISO 14001 consists of five main elements, which are:

1. environmental policy;
2. environmental planning;
3. implementation and operation;
4. acts of inspection and improvement; and
5. management review (National Standardization Agency, 2011).

According to Hadiwiardjo (1997) in Rakhmawati FZ (2002) there are various of benefits for companies that are implementing ISO 14001, that are: environmental protection, better environmental management, the same base of competition, compliance with laws and regulations, the implementation of effectiveness management system, cost reduction, better community relations, as well as better customer trust and satisfaction.

The application of Environmental Management System ISO 14001 can also be considered as part of the company's strategic plan that shows their legitimacy on environmental performance and competitiveness at the international level (Bansal and Hunter, 2003). By adopting EMS ISO 14001 will enable the company to achieve good control processes, save costs, and increase profits (Nishitani 2009 in Memed Sueb and Maria, 2012)

The results from previous studies on the relation between environmental performance and financial performance are still being debated. Some studies indicate that the environmental performance has the effect towards the financial performance (Marpaung, 2013; Mazda Eko Sri Tjahjono, 2013; Siregar, 2012; Utami, 2007) some studies shows that environmental performance has a positive effect on financial performance, but some shows a negative effect, while some research even shows no effect (Rakhiemah and Agustia 2009; Hand, 2010; Sarumpaet, 2005). Therefore, studies that analyze the effect of environmental performance towards financial performance still need to be done in order to generalize the results.

While the results from the study conducted by Memed Sueb and Maria (2012) indicate that there is a positive relationship between the company and ISO 14001 EMS on its financial performance. Furthermore, the results from the study conducted by Sarumpaet (2005) shows that there is a relation between the ISO14001 and environmental performance.

Based on the results of previous studies, researchers predict that the relation between the company and ISO 14001 can improve financial performance through

an improved environmental performance, or in other words, companies that implement ISO14001 will have a good environmental performance, which eventually will affect the company's financial performance (due to good corporate image will increase the company's stock price in the stock market).

STATEMENT OF PURPOSE

Based on the background of the study above, the purposes of the study are:

1. To empirically test and analyze the influence of companies with ISO14001 towards financial performance.
2. To empirically test and analyze the influence of companies with ISO14001 towards financial performance with environmental performance as an intervening variable.

BENEFIT OF THE STUDY

The results of this study are expected to provide a suggestion for stakeholders in decisions making related to investment, especially in companies with ISO14001 which are predicted to have a good financial performance as shown from the market price.

RELATED LITERATURE

Environmental Accounting

Environmental accounting can be defined as the prevention, reduction, or avoidance of impacts on the environment, moving from a couple of occasions, starting from the restoration of the incidents that lead to disaster on such activities (Ikhsan, 2008). While the AICPA (2004) in Yoshi Aniela (2011) defines environmental accounting as

> "The identification, measuremen,and allocation of environmental costs, the integration of these environmental costs into business decisions, and the subsequent communication of the information to a company's stakeholders".

Environmental management accounting, in its principle, more emphasize on environmental costs which include the costs of environmental prevention, environmental detection costs, internal failure costs and external failure costs (Hansen *et. al.*, 2007). The purpose of the environmental management accounting is to reduce environmental impacts and risks from operating activities of the company, obtaining data of material flow so that it can perform material utilization efficiency, and eventually improve the company's performance.

Environmental Management System

Environmental Management System (EMS) ISO 14001 is an international standard that was developed by the International Organization for Standardization and has been used by various industries in the world. EMS ISO 14001 consists of five elements:

1. environmental policy;
2. environmental planning;
3. implementation and operation;
4. acts of inspection and improvement;
5. management review (National Standardization Agent, 2011).

Furthermore, the purpose of the implementation of EMS ISO 14001 as an international standard is to support environmental protection and prevention of pollution in balance with socio-economic needs. Economic benefits that can be obtained from the EMS ISO 14001 are improving environmental performance, producing a framework in an effort to prevent pollution, improve efficiency and potential cost savings, and enhance the company image (Memed Sueb and Maria, 2012).

Environmental Performance

Wibisono (2011) described that the Environmental performance as the company's performance in creating a good environment or also called green. Environmental performance by Ali (2004) is a mechanism for companies to voluntarily integrate environmental concerns into its operations and interactions with stakeholders, which exceeds the responsibilities of organizations in the field of law.

Environmental performance assessment can refer to the Company's Work Rating Program in Environmental Management, also known as proper conducted by the Ministry of Environment since 2002.

Proper performance rating system includes rating a company in five colors, which to be scored in a row with the highest value of 5 for gold, 4 for green, 3 for blue, 2 for red, and the lowest value is 1 for black. Proper performance rating system is classified as follows:

Proper Performance Rate

Level of Complience	*Rates*	*Performance*	*Expected Publication Effect*	
Beyond Compliance	5	Gold	Intensive reputation	Stakeholder Credit
	4	Green		
Compliance	3	Blue		
Not yet Compliance	2	Red	Disincentive Reputation	Stakeholder Stress
	1	Black		

(http://proper.menlh.go.id)

Business or activities performance are ranked by:

1. Gold is for business and/or activities that have consistently demonstrated environmental excellence in production or services process, implementing ethical business and responsible to society.
2. Green is for business and/or activities that have environmental management more than required under the rules (beyond compliance) through the implementation of environmental management systems, efficient utilization of resources and making a good effort of responsibility.
3. Blue is for business and/or activities that have made the effort of required environmental management in accordance with the provisions or regulations.
4. Red is an environmental management efforts that has not yet appropriate with the requirement which are under the laws and regulations.
5. Black is for business and/or activities that deliberately doing negligence that results in pollution or environmental damage and violates towards laws and regulations that apply or not imposing administrative fine.

Many past researchers found that the company improves its environmental performance in order to obtain a positive image from the community. But Anderson and Frankle in Wahjoedi (2005) argued that the impact of the company's profit will affect the rise and fall of stock prices in the market for a company that has a high environmental performance.

Financial Performance

Financial performance is the description of the achievement of the company's success that can be described as the results achieved from various activities that have been carried out. Financial performance is an analysis which is conducted to see how far a company has conducted using the rules of financial performance. (Fahmi, 2012).

The financial statements are the source of information used to measure how far is the company's performance. Such information may include both quantitative and qualitative (Mazda Eko Tjahjono, 2013).

According to Rakhiemah and Agustia (2009), financial performance is the performances of companies that are relative in the same industry that is characterized by the annual return of the concerned industry. The company's financial performance is measured by calculating the company's annual return and then compare with the annual return of manufacturing industry. The company's annual return is measured by dividing the median price of shares of

the company for the year after deducting with the dividend with the share price at the beginning of the year and then deducted by the return median from manufacturing industry. According to Al-Tuwajiri, *et. al.* (2004) financial performance is stated in a scale:

$$\frac{(P_1 - P_0) + \text{Div}}{P_0} - M_{eRI}$$

Where :

P_1 : Price of shares at the end of the year

P_0 : Price of shares at the beginning of the year

Div : Dividend

M_{eRI} : Industry Return Median

Industry return is measured from the index derived from the financial statements of companies in the Indonesia Stock Exchange.

Theoretical Framework and Hypothesis Development

According to Memed Sueb and Maria Nety Indramayu Keraf (2012), the economic benefits that can be obtained from the EMS ISO 14001 are, able to improve overall environmental performance, able to produce a framework in an effort to prevent pollution, able to improve efficiency and potential cost savings, and able to improve the company's image. Further researcher Sarumpaet Susi (2005) showed that environmental performance has no significant effect on the financial performance in Indonesia. But, will significantly effects the company size, stock exchange listing, and ISO 14001, which means it will indicate the consistency between the rating of the government with the international environmental management standard certification, or in other words, there is a relation between the international standards of environmental management with environmental performance.

Memed Sueb and Maria Nety Indramayu Keraf (2012) study, which analyze the affect between implementing EMS ISO14001 on financial performance shows the implementation of an environmental management system positively associate with the financial performance of the companies that have obtained the certificate of ISO 14001 and is listed on the Indonesia Stock Exchange. Study on companies with ISO 14001 on the financial performance is still very rare, most studies only analyze the relation of environmental performance with financial performance, while companies that implement ISO14001 can improve its environmental performance, so as to improve the image of the company and will eventually improve the company's financial performance.

Based on the above description, hypothesis for this study are:

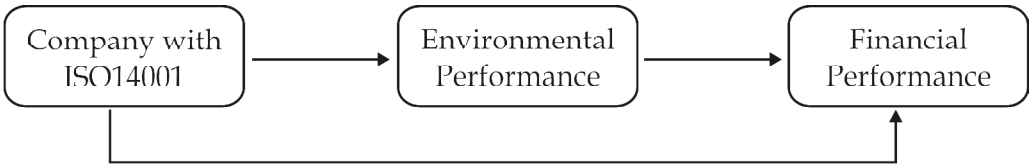
H1: Company with ISO14001 has a positive effect towards company's environmental performance.

H2: Company with ISO14001 has a positive effect towards company's financial performance.

H3: Environmental performance has a positive effect towards company's financial performance.

H4: Company with ISO14001 through environmental performance has a positive effect towards company's financial performance.

With the study model:



DATA AND RESEARCH DESIGN

Population and Sample

The populations in this study are companies listed on the Indonesia Stock Exchange. Sampling method that is used in this study is a non-probability sampling with purposive sampling method. According to Sugiyono (2001), non-probability sampling is a technique that does not give opportunity for each element or member of the population to be selected into the sample.

Sample collecting technique is selected by purposive sampling method, where the selection of the sample of the companies is based on certain criteria. Those criteria are as follows:

1. The samples are manufacturing companies listed in Indonesia Stock Exchange and have published the financial statements in the year 2012-2014.
2. Manufacturing companies that have taken part in the Performance Rating Program in Environmental Management from 2013 to 2015.

Financial performance for the year 2012 can be seen from 2013, this apply for the year 2013, which can be seen from 2014.

Based on the above criteria, there are total of 48 companies that can be analyzed, or there are 144 samples for three years. There is also data that meets the criteria:

Data Type and Source

Data of the study is secondary data, which is data from manufacturing companies that have been listed on the Stock Exchange in 2012-2014. The data about the environmental performance can be obtained from the Ministry of Environment (MOE) database. While the share price is obtained from IDX-Statistics at the Stock Exchange in 2012-2014 are then processed according to the needs of study.

Research Method

Kerlinger in Jogiyanto (2004) described that scientific research method as a systematic investigation, controlled and empiric towards a set of hypotheses built from a structure of theory. The study method is a scientific way to get data with a specific purpose and certain usefulness (Sugiyono 2008). Scientific Method is based on the characteristics of scientific, rational, empirical, and systematic.

The study method that is used is causal method, which analyzes cause and effect. Based on the data obtained, this study is a quantitative study, because it refers to studies in numbers.

Operational Variables

Operational variables for this study can be described as follow:

Table 3.2
Operational Variables

Variable	*Indicator*	*Scale*	*Information*
ISO 14001 Certification	*Dummy* Variable D = 1 : Companies that have implemented EMS ISO14001 D = 0 : Companies that have not implemented EMS ISO14001	Nominal	Annual report
Environmental performance	Proper ranking Gold = Excellent = 5 Green = Very Good = 4 Blue = Good = 3 Red = Bad = 2 Black = Very bad = 1	Interval	Annual report/ MENLH database
Financial performance	Stated as: $\frac{(P_1 - P_0) + \text{Div}}{P_0} - M_{eRI}$ Where: P_1 : Price of shares at the end of the year P_0 : Price of shares at the beginning of the year Div : Dividend MeRI : Industry Return Median	Ratio	Price of shares from IDX database and annual report

DATA ANALYSIS TECHNIQUE

Classic Assumption Test

1. Normality test

Normality test used in this study is the Kolmogorov-Smirnov Test. To test the normality of disturbance error (disturbance variables) using the approach chart SPSS program, which is called the normal probability plots, that detects normality by observing the spread of the data (points) on the diagonal axis of the graph. The fundamentals for decision-making are (Singgih Santoso, 2000):

(a) If the data is spread around the diagonal line and follows the direction of the diagonal line, that mean the regression model meets the assumption of normality.

(b) If the data is spread far from the diagonal line and does not follow the directions or diagonal line, that means the regression model does not meet the assumptions of normality.

2. Multicollinearity test

Multicollinearity is a situation that shows the correlation between the independent variables in the regression model, which can lead to uncertain estimation. Multicollinearity symptoms can be detected using the variance inflating factor (VIF) and the value of tolerance (TOL). Hair *et. al.* (1998) mentioned the rule of thumb is that if VIF $\leq$ 10, there is no multicollinearity between independent variables. But, if VIF > 10, then there is multicollinearity.

TOL value ranges between 0 and 1. If the value of TOL = 1 then there is a high and perfect collinearity between independent variables. There will always be symptom of multicollinearity in fixed models of study, but the problem lies in whether there are sufficient levels of multicolinearity that is harmful or not to other study models.

3. Heteroscedasticity test

Heteroscedasticity is a confounding variable (*e*) that has different variants in any observation to another observation. Though, its populations are expected to have constant variable. To detect the symptoms Heteroscedasticity, the help of SPSS 11.5 statistical program that provides the program menu scatter plot can be used. By entering SRESID variable on the Y axis and ZPRED on the X axis. If the points spread in the scatter plot, on the above and below 0 (zero) then this indicates that there is no Heteroscedasticity.

4. Autocorrelation

Autocorrelation test is intended to test whether there is a correlation between residual that has a high correlation. If there is no correlation between residual, that means the residuals are random. The statistical test used to detect autocorrelation is the Durbin Watson test.

Hypothesis Test

Multiple regression analysis (*t* test and *F*), and path analysis are used to test the hypothesis. Statistical tool used to test the hypothesis is SPSS. The regression equation of this hypothesis is as follows:

$$FP = \alpha + \beta_1 \text{ ISO} + \beta_2 \text{ (ISO*EP)} + \varepsilon$$

Where:

FP : Financial Performance

ISO : ISO14001

EP : Environmental Performance

α : Constanta

β : regression coefficients

ε : Error Term

RESULT

Classic Assumption Test

1.1 Normality Test

Normality test is needed to see if the residual value is normally distributed or not. Based on Table 4.1, the results sig (2-tailed) of Kolmogorov Smirnov Z valued 0.087 < 0.05, that means that the data are normally distributed.

1.2 Multicollinearity Test

Some of the criteria for detecting multicollinearity in the model are as follows:

1. If the value of Variance Inflation Factor (VIF) no more than 10 and the value of tolerance no less than 0.1, then that means the model is free from multicollinearity. The higher the VIF, the lower the tolerance.
2. If the correlation coefficient between each independent variable is less than 0.70, then the model is free from multicollinearity. If it is more than 0.70, it is assumed that it has a strong correlation (interaction relationship) among independent variables which cause multicollinearity.

Table 4.1
Normality Test

		Unstandardized Residual
N	144	
Normal Parameters(a,b)	Mean	,0000000
	Std. Deviation	86,44428863
Most Extreme Differences	Absolute	,324
	Positive	,204
	Negative	–,324
Kolmogorov-Smirnov	Z	3,887
Asymp. Sig. (2-tailed)		,087

a Test distribution is Normal.
b Calculated from data.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	-1271,683	39,275		-32,379	,000	-1349,326	-1194,040					
	kin_lingkungan	22,800	12,572	,153	1,814	,072	-2,054	47,654	,124	,151	,150	,964	1,038
	iso14001	-26,721	15,111	-,149	-1,768	,079	-56,593	3,152	-,120	-,147	-,146	,964	1,038

a. Dependent Variable: kin_keuanga

Table 4.2
Multicollinearity Test

Based on Table 4.2, for both variables, they obtained Tolerance value of 0.964 > 0.1 and VIF of 1,038 < 10, it can be concluded that the data is free from multicollinearity.

1.3 Heteroscedasticity test

Heteroscedasticity detection can be done by a scatter plot method by plotting ZPRED value (predicted value) with SRESID (residual value). Good models are obtained if there is no specific pattern on the chart, for instance, like cumulating in the middle, narrowed and then widened or et cetera widened then narrowed. In this case the method used is Glejser test (Gujarati, 2003). Based on Table 2, the value of sig (2-tailed) both for variables and ISO 14001 environmental performance each worth 0.072 and 0.079 > 0.05, it can be concluded that the two variables are homoscedasticity.

1.4 Autocorrelation Test

Autocorrelation test in a model aims to determine whether there is a correlation between confounding variables (e_i) for a certain period with the confounding variables (e_t-1) from the previous period. Autocorrelation occurred in the sample

with time series data with n-sample is a period of time. Some statistical test that is often used is the Durbin-Watson test. Based on the Durbin Watson test results, obtained a result of 0.107 where the value is between –2 to +2, it can be concluded that this data free of autocorrelation.

Hypothesis Test

Testing ISO 14001 (*X*) towards the Environmental Performance (*Y*) and Financial Performance (*Z*), shown in table 4.3-4.4 below.

The effect of Company with ISO14001 towards Environmental Performance

The first Hypothesis of the study shows that:

H1: Company with ISO14001 has a positive effect towards company's environmental performance.

Based on test results of path analysis with 5% alpha shown in Table 4.3 above, it can be concluded that companies with ISO 14001 proved to have a positive and significant effect towards the environmental performance with significant value of 0.022 > 0.05, thus it can be said that companies that implement ISO 14001 can improve their environmental performance or in other words the first hypothesis is accepted. The effect is shown by the beta value of 0.190, meaning that companies with ISO 14001 affect its financial performance by 19%, while the rest are influenced by other factors. The results of this study support Sarumpaet (2005) study.

The effect of company with ISO14001 through environmental performance towards financial performance.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	3,034	,062		48,708	,000	2,911	3,158
	iso14001	,229	,099	,190	2,309	,022	,033	,424

a. Dependent Variable: kin_lingkungan

Table 4.3
Statistic T Test (Hypothesis I)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	271,683	39,275		-32,379	,000	-1349,326	-1194,040					
	kin_lingkungan	22,800	12,572	,153	1,814	,072	-2,054	47,654	,124	,151	,150	,964	1,038
	iso14001	-26,721	15,111	-,149	-1,768	,079	-56,593	3,152	-,120	-,147	-,146	,964	1,038

a. Dependent Variable: kin_keuanga

Table 4.4 Statistic T Test (Hypothesis 2,3 and 4)

The second, third and fourth hypothesis in this study show that:

H2: Company with ISO14001 has a positive effect towards company's financial performance.

H3: Environmental performance has a positive effect towards company's financial performance.

H4: Company with ISO14001 through environmental performance has a positive effect towards company's financial performance.

Based on test results of path analysis with an alpha of 10% shown in table 4.4 above, it can be concluded that companies with ISO 14001 proved to have a significant negative effect on the environmental performance with significant value of 0.079 < 0.10, thus it can be said that companies that implement ISO 14001 may affect its financial performance, or in other words the second hypothesis is accepted. The effect is shown by the beta value of –0.149, which means that companies with ISO 14001 affect its financial performance by 14.9%, while the rest are influenced by other factors. The results of this research can strengthen the results of study conducted by Memed Sueb and Maria (2012), that analyze the implementation of ISO 14001 towards company's financial performance.

Furthermore, based on the test results of path analysis with an alpha of 10% shown in table 4.4 above, it can be concluded that the environmental performance proved to have a positive and significant effect on the financial performance with significant value of 0.072 < 0.10, thus it can be said that companies that have a good environmental performance can improve the company's financial performance or in other words, the third hypothesis is accepted. The effect is also shown by the beta value of 0.153, meaning that the company's environmental performance affects the financial performance by 15.3%, while the rest are influenced by other factors. The results support the study conducted by Marpaung, 2013; Mazda Eko Sri Tjahjono, 2013; Siregar, 2012; Utami, 2007.

The results of path analysis showed that ISO 14001 has a direct effect towards financial performance and may also indirectly effects, which is through environmental performance (as an intervening variable). The value of indirect effect can be calculated by multiplying the indirect coefficient, which is (0.190) × (0.153) = 0.02907. In other words, the fourth hypothesis can be accepted with the effect of 2.907%. Therefore, the indirect coefficient relation (2,907%) is greater than the direct correlation coefficients (–14.9%), it can be said that the relation is indirect. This is consistent with the predictions of the authors that predict that companies with ISO 14001 will have a good financial performance in the stock market if the companies have a good environmental performance as well.

CONCLUSION, IMPLICATION, AND RECOMMENDATIONS

Conclusion

Based on the test results, the conclusions of the study are:

(a) Company with ISO14001 has the effect on environmental performance, this is caused by EMS ISO214001 application can protect and develop environmental performance now and then.

(b) Company with ISO14001 has the effect on financial performance, this is caused by some benefits of ISO14001 are to reduce cost, obeying the law, managing reputation, increasing the competitive benefits and others that are efforts to increase the reputation of the company, and eventually increasing the financial performance in the stock market.

(c) Environmental performance has the effect on financial performance. This is showed by investors tend to invest in a company that has a good environmental performance.

(d) Company with ISO14001indirectly has the effect on financial performance. This matches with the prediction that companies that use ISO14001 and have a good environmental performance will also have a good financial performance in the stock market as well.

Implications

The results of this study are expected to provide advice for investors who want to invest in the capital market through fundamental analysis to select stocks of certain companies.

Recommendations

Recommendation for the next researcher

(a) Widen the scope of the study, not just from manufacturing companies and from 2012-2014.

(b) Predict the implementation of ISO14001 by using numbers of questions for each company that is being analyzed.

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