# Environmental Accounting, Social Accounting, and Governance: A Longitudinal Study of Environmental Management Accounting in Emerging Country

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Abstract: This study was conducted to investigate the long journey environmental accounting, social accounting and corporate governance in Indonesia. The period of observation was 2004-2015, for all companies listed on Indonesian Stock Exchange. Final data in this study were 1588. This study showed a surprising result that was only 1.7% of companies already have accounted "environment" in their financial statements that finally the number of environmental costs was also low. The scores of disclosure environmental and social disclosures did not show attractive numbers either, which were respectively 7.8% and 10.2%. The combination of environmental disclosure, social, and governance scores showed 21.5% of which was the best figure of all aspects of measurement.

## 1 INTRODUCTION

This issue is particularly relevant in developing countries because in general the regulations related to the environment are still weak, aside from the lack of literacy of the community related to the environment. It is encouraged by strong curiousity after paying attention to environmental damages occurring in the entire area of Indonesia. Information about environmental damages demonstrate that (at least) the rate of deforestation reaches 1.8 million hectares/year that causes 21% of 133 million hectares of forest in Indonesia are disappearing and the coral reefs are damaged as much as 30% of 2.5 million hectares (https://alamendah. org/2014/08/01/). The Ministry of Environment and Forestry of Republic of Indonesia reports the quality index of environment in Indonesia. Globally, Environmental Quality Index (EQI) developed by Virginia Commenwealth University (VCU) measures the quality index of environment in six categories, which are the quality tendency or environmental condition of media of water, air, and land, load of toxic pollutants, bird breeding (biodiversity), and population growth. However, Indonesia only adopts two of six that are introduced by VCU and added by the size of the forest cover as the third measurement. Therefore, recently, the measurement of quality index of environment in Indonesia uses three indicators, which are Air Quality Index (AQI), Water Quality Index (WQI), and Forest Cover Quality Index (FCQI). On average, it seems any decrease of environment quality index in Indonesia in all indicators of measurements. This study aims to give an empirical evidence to entire community in Indonesia, that without good treatment, quality of environment in Indonesia will be worse. Environment quality index in 2014 was 63.42 (out of 100), decreasing from 65.76 in 2011. From the side of academicians' awareness, this study is willing to give practical contribution through theoretical and empirical approaches. The result of this study shows that as much as 1.7% from the companies that have "environment" account in their financial report that eventually its environment cost is low. Score of environmental and social disclosures do not show interesting number, each of them is 7.8% and 10.2%. Disclosure of environment, social, and governance shows 21.5% which is the best number from all variables.



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# 2 LITERATURE REVIEW

## 2.1 Theoretical Framework

Grand theory used in this study is legitimacy theory. Legitimacy theory explains that organization must fulfill values in the environment where the company operates and its emphasis on the value system in the community (Lindblom, 1994; Suchman, 1995; Deegan, Rankin and Tobin, 2002). Legitimacy theory predicts that a company is able to survive if the company is in line with the value system in certain community where it operates. Social and environmental issues have been explained in the study done by Patten (1992). In his study, Patten has introduced legitimacy theory in the book written by Preston and Post entitled *Private Management and Public Policy* in 1975. According to the book, it is mentioned that social disclosure can be seen as a way to respond the change of public perception related to corporation activity. In the latest study, Arvidsson (2010), Kamal and Deegan (2013) explain that legitimacy theory is a relevant theory in explaining the practice of governance as the form of preserving/maintaining legitimacy and/or fulfilling community expectation. The CSR practice is aimed to avoid negative effect of company when the company receives criticism from media. Legitimacy theory is based on the idea that in order to keep operating successfully, company has to take an action in the limits of what can be received by community (Wilmshurst and Frost (2000).

## 2.2 Hypothesis Development

### 2.2.1 Environmental Accounting Relates Positively to Corporate Financial Performance

Bebbington (1997) has started the development of environmental accounting (EA) issue, by reviewing three fields; related to the ability of EA to get involved in corporate practice, as the strength that enables the company to have advantage, and to expand EA in the context of sustainable development. Guthrie and Abeysekera (2006) stated that environmental accounting is an interesting issue recently, and the company reporting environmental accounting shows good financial performance as well. Performance reporting by combining environmental and social reportings can give more usefulness of information. Indeed, (for example) institutional investors very care to information related with social and environmental actions of company (Aguilera, Williams, Conley and Rupp, 2006).

Potential of accounting communication in its relation to social and environmental issues has much been studied by researchers in developing countries. Kuasirikun (2005) conducted evaluation of perception among Thai accounting professionals recently toward their attitude to social and environmental accounting issues. Their study expects that the change of accounting in the future possibly will involve the change in the characteristics of Thai accounting profession itself. However, the regulatory requirements and voluntary basis, CSR in Australia is better developed than Thailand (Wisuttisak and Wisuttisak, 2016). Lindrianasari (2007) explained that environmental accounting is meant to report each cost of environmental conservation activity done by company or organization. The importance of accounting understanding in the accounting profession environment is sharpened by the result of the study done by Konar and Cohen (2001) pointing that poor numbers of environmental performance on financial report negatively correlate to the value of corporate intangible assets. Regnier, and Tovey (2007), Lindrianasari (2007), Haninun *et al.* (2018) found positive correlation between environmental and financial performance, even though its benefit can only be obtained in relatively long term on other costs. Study conducted by Kumar (2017) on Garments sectors in Banglades and Lindrianasari *et al.* (2018) showed that corporate social responsibility and accounting performance has a positive relationship. However, a study conducted by Malarvizhi and Matta (2016) showed there is no significant relationship between environmental disclosure and company performance. The average of "intangible liability" for companies in sample of study from Konar and Cohan (2001) shows as much as $380,000,000 or around 9% of real substitution assets. Their study concluded that toxic chemical has a negative effect on corporate performance.

Ha1: Environmental Accounting positively relates to corporate financial performance

### 2.2.2 Disclosure of Environmental and Social Accounting Positively Relates to Corporate Financial Performance

The study by Kuasirikun (2005) is motivated and formed by the concern to realize the potential of accounting communication in its relation to environmental and social issues in Thailand. Deegan (2002) and Deegan *et al.* (2002) explained that the study of environmental and social accounting is useful for maintaining or creating organizational legitimacy. Wiliam (1999) studied on disclosure of accounting and social, and succeeded to give empirical evidence on the importance of voluntary information disclosure related to environmental and social accounting given by organization in annual report. Mobus (2005) and Wiliam (1999) argued that legal sanctions and social-political system and economic of a country very affect the pattern of organization perception in the needs to conduct environmental and social accounting disclosure voluntarily, so that it is able to fulfill community expectation. This openness is also aimed to avoid the policy leading to organization private interest. Study of Mobus (2005) on industrial company of oil refining in USA, found negative correlation between legal sanctions related to mandatory disclosure of environment to regulation violations. This finding shows that the heavier legal sanctions charged toward environment, the fewer violations occur.

The adoption of environmental accounting that is viewed from the size of cost allocation related to environmental conservation generally is proven to give positive effect on corporate performance. Regnier, and Tovey (2007) found positive correlation between environmental and financial performance in the level of company. However, this performance seems to be bias in the process of corporate investment evaluating process that is caused by systematic difference between investment opportunity in the field of environment and other investments. However, investment in the field of social and environment has been proven to have competitive advantage (Wagner, 2007) and to be able to provide the needs of accounting information for manager, especially in relation to company's activities that affect environment generally, as well as environmental impact on corporation (Burritt, 2004). This interrelation makes social and environmental issues need serious and special attention.

Ha2: Disclosure of environmental accounting positively relates to corporate financial performance

Ha3: Disclosure of social accounting positively relates to corporate financial performance

### 2.2.3 Disclosure of Environmental, Social, and Governance Positively Relates to Corporate Financial Performance

Issue of Environmental, Social, and Governance (ESG) is a new issue in the area of accounting study (Kamal and Deegan, 2013). It seems that this issue newly appears in the last 10 years. The researchers are starting to focus on this issue because social and environmental accounting are contemporary issue at this time (Bassen and Kovács, 2008), and the numbers of corporate scandals, social commitment, and ethics in community are increasing, that eventually press company to communicate corporate information related to CSR and governance (Arvidsson, 2010). Testing of corporate social reporting as the form of new governance regulation is known as "democratic experimentalism" done by Hess (2008), by using social reporting regulation to the approach of new governance. One governance element is the pattern of corporate share ownership. Aguilera *et al.* (2006) stated that CSR practice relates to corporate moral. The ownership of institutional share (Aguilera *et al.,* 2006), ownership of governmental share (Said, Zainuddin, Haron, 2009), ownership of foreign share (Haniffa and Cooke, 2005) are found the pressure of its own on the practice of CSR in the company. On the other side, there is contradictive result on the area of Board of Directors. Study conducted by Khan (2010) shows that there is no significant relationship between representations of women on boards in CSR reporting. Meanwhile, Post, Rahman and Rubow (2011) found that members of corporate directors affect the implementation of environmental governance structure and process. Empirical evidence in the last two paragraphs shows that ESG is a unit that cannot be separated, so it is clear that ESG index becomes important measurement for company. Bassen and Kovács (2008) argued that factors of environment, social, and governance become more significant for comprehensive corporate evaluation. The concept of ESG proposed by Bassen and Kovács (2008) refers to financial material information on corporate challenge and performance in this problem. Meanwhile, Kamal and Deegan (2013) stated that the disclosure of governance, social, and environmental practice related to the context of developing country, is very awaited by international community.

H4: Disclosure of ESG positively relates to corporate financial performance

## 3 RESEARCH METHOD

This study uses all companies listed in Indonesia Stock Exchange as its sample of study. Observation period that will be done in this study is the year 2004-2015 (12 years). The final data of this study are 1588 years of companies, collected from annual report. Data are obtained from Bloomberg database. This study conducts investigation on the presence or the absence of environmental fund allocation and environmental disclosure, social disclosure, social disclosure, as well as environmental disclosure, social and corporate governance, and its relation to its three dependent variables, which are revenue, net income, and total assets, the data for dependent variables use nominal as obtained from Bloomberg database. Data analysis uses correlation testing because the data for independent variables are only dummy which 1 is for the presence of disclosure and 0 is for none.

# 4 FINDINGS AND DISCUSSION

Model summary testing (Table 1) evaluate model wether it is fit or not to used in this study. The testing result of the model generally indicates that the model used is fit, so it is reasonable to be analyzed further. On Table 1 it shows adjusted R Square as much as 0.179 meaning that all variables in the model have linkages as much as 17.9%. This value is enough to give the meaning of the importance of relationship one to another in one group significance value of 0.000 with F=87.536.

Table 1: Model Summary

| Model | R | R Square | Adj. R Square | Std. error of the Estimate |
|---|---|---|---|---|
| 1 | .426a | 0.181 | 0.179 | 15464446.83 |

a. Predictors: (Constant), Envi_Cost, Envi_Disc_Score, Soc_Disc_Score, ESG_Disc_Score

| Model | | Sum of Square | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| | Regression | 83736897277254600 | 4 | 2.09342 | 87.536 | 0.000 |
| 1 | Residual | 378573050323082000 | 1584 | 2.39149 | | |
| | Total | 462309947600337000 | 1584 | | | |

The result of the first hypothesis correlational testing in this study states that environmental accounting positively relates to corporate financial performance, it can be seen on Table 2. On the table, it demonstrates the relation value of environmental cost (Envi_Cost) on revenue, total assets (Tot_Aset) and net income (Net_Income) consecutively is as much as 0.044*, -0.011, dan 0.069**. Meanwhile, relation significances of each variable are 0.041, 0.327, and 0.003. The value indicates that the relationship of environmental cost and two out of three of financial performances (which are revenue and net income) used in this study testing is significant and in accordance with what is predicted by the theory. Legitimacy predicts that company will respond as expected by community surrounding where the company is located, is sufficiently confirmed.

Table 2: Statistical test

| | | Revenue | Tot_ Aset | Net_ Income |
|---|---|---|---|---|
| Envi_Cost | Pearson Correlation | .044* | -0.011 | .069** |
| | Sig. | .041 | .227 | .003 |
| Envi_Disc_ Score | Pearson Correlation | .356** | .111** | .289** |
| | Sig. | .000 | .000 | .000 |
| Soc_Disc_ Score | Pearson Correlation | .347** | .141** | .298** |
| | Sig. | .000 | .000 | .000 |
| ESG_Disc_ Score | Pearson Correlation | .361** | .245** | .342** |
| | Sig. | 0.000 | .000 | .000 |

N = 1588

* Correlation is significant at the 0.05 level (1-tailed).

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

Source: Data Processed

The result of this study shows that companies have their concern on environment (viewed from environmental cost allocation) relating to revenue and net income produced from the main activity of the company, and vice versa. However, the result of this study found that the total assets negatively relates to environmental cost, and vice versa. This finding indicates that companies having lower asset value tend to allocate environmental fund and to have environmental costs account. Considering the testing result that has been explained above, this study then concluded that the first hypothesis is supported. This result is in line with the previous study done by Regnier, and Tovey (2007) and Konar and Cohan (2001) that found positive relationship between environment and financial performance. The result of this study is also relevant with the result of study from Guthrie and Abeysekera (2006) finding that companies reporting environmental accounting will have better financial performance. However, the advantage of costs that is sacrificed for this environment can be obtained in relatively long term if it is compared to other costs.

The testing result of the second hypothesis shows the result that is very relevant to what it is predicted previously. From all correlational testings, we found the value of variable relationship that is in line with the theory. Consecutively, the value of person correlation between environmental accounting disclosure and revenue, total assets, and net income is 0.356**, 0.111** and 0.289**. The support of relationship significance is also shown by significance of each relationship that entirely is 0.000. The result of this study shows that companies conducting higher environmental disclosure have relation with revenue, total assets, and net income they have, and vice versa. This study concluded that the second hypothesis of this study stating that environmental accounting disclosure positively relates to corporate financial performance can be supported. This study is in line with the study that had been done by previous reseachers (Wagner, 2007; Regnier, and Tovey, 2007; Wiliam, 1999). Table 2 demonstrates the relationship value of social disclosure (Soc_Disc_Scores) on revenue, total asset (Tot_Aset) and net income (Net_Income) that are consecutively as much as 0.356**, -0.111**, and 0.419**. Meanwhile, the significance relationship for each variable consecutively is similar, which is 0.000. Statistic testing shows that the relationship of social disclosure toward the entire financial performances is significant. From the result we conclude that the third hypothesis stating that social accounting disclosure positively relates to corporate financial performance of this study can be supported. This result is in line with the study by Wagner (2007) that found the presence of competitive advantage that will be owned by company through investment in social and environmental field.

The fourth hypothesis of this study states that environmental, social, and governance disclosures positively relate to corporate financial performance. Its statistic testing can be seen on Table 2. On the table, it demonstrates the relation values of environmental, social, and governance disclosures (ESG_Disc_Scores) on revenue, total asset (Tot_Aset) and net income (Net_Income) consecutively are as much as 0.361**, 0.245**, and 0.342** with relation significance of all variables at 0.000. The result of the study indicates that ESG disclosure has positive and significant relationship on corporate financial performances used in this study, which are revenue, total asset, and net income. So, the fourth hypothesis of this study can be supported and in line with the previous study by Bassen and Kovács (2008). This result is very interesting because from all elements measured (environmental cost, environmental disclosure, social disclosure, and ESG disclosure), ESG disclosure shows the result that its relationship with financial performance is on overage bigger. Nevertheless, this research shows the surprising result that is only 1.7% of companies already have account "environment" in their financial statements that finally the numbers environmental costs are also low.

# 5 CONCLUSIONS

Overall, this study did not show the expected results, as we found low awareness of the company's activities and the allocation of funds for the social and environmental. This finding has been predicted by previous researchers (Mobus, 2005) stating that the weaker the rule of law, the lower the environmental performance of the country. However, the test results indicate that the environmental costs, the disclosure of environmental, social disclosure and disclosure of environmental, social and governance have a positive and significant impact on revenue, total assets and net income. Only the environmental costs that are not positive and are not significant in total assets. For the next research, researchers can use the resources of another database for testing on this issue in Indonesia and other countries (single country or comparison), to make a further dan better contribution of this issue.


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