

Earnings Management by Firms with Poor Environmental Performance Ratings: An empirical Investigation in Indonesia¹

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ABSTRACT

Watts and Zimmerman (1978) mentioned that one alternative to reduce a firms' political cost is by choosing the accounting procedures that will minimize reported earnings. As an empirical investigation, this study aims to find out whether or not firms with poor environmental performance ratings manage earnings downwards to reduce political costs. The Ministry of Environment publishes such ratings each year through a program called PROPER (Program for Pollution Control Evaluation and Rating).

Using a sample of listed firms from 2002 through 2009, earnings management is measured using *discretionary accruals* of Modified Jones's Model (Dechow, et al., 1995). Discretionary accrual estimates were then regressed against the receipt of negative ratings while controlling for firm size, auditor choice, and firm sensitivity to the environment (industry sector). Poor rated firms, those received black and red ratings, are coded 1, whereas those receiving blue, green and gold ratings were coded 0. Firms whose activities are most sensitive to the environment, such as mining and forestry, were coded 3, those less sensitive industries, such as manufacturing and automotive were coded 2, and least sensitive firms, such as property and other services, were coded 0.

The result of the study is consistent with the predictions based on political cost hypothesis. This study was able to indentify a clear link between environmental performance and earnings management. The result also shows that firms did not manage earnings in the year PROPER ratings were announced to the public, rather they did this in the previous year, that is during the investigation and administration of PROPER program. I assume that rated firms were aware of their environmental performance even before the results were published and used accounting procedures to minimize reported earnings to anticipate and avoid political costs.

Keywords: *environmental performance rating, discretionary accruals, earningsmanagement, political cost.*

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1. Introduction

This study examines the relationships between earnings management and poor environmental performance ratings. With the growing public awareness in environmental issues that has been taking place globally, there is increasing pressure on corporations to clean up their operations and be transparent about the impact of their operations on the environment. In examining firms' responses to such demands, this study focuses on the earnings management behaviour as the firms response to the poor environmental ratings to reduce political costs. This paper argues that firms perceived as poor environmental performers will manage earnings downwards to reduce pressure to internalise environmental protection costs.

Previous studies of firms' incentives to manage earnings have been extensive, despite the difficulty of determining the best model to detect and measure them (Dechow et al. 2012; Li et al. 2011; e.g. Richardson 1997; Jones 1991; Dechow et al. 1996; Tendeloo and Vanstraelen 2005; Hall and Stammerjohan 1997). For environmental related issues, a number of studies provide evidence of firms' engagement in earnings management in response to potential political costs under relatively strict environmental regulatory regimes (Francoeur 2010; Yip et al. 2008; Patten and Trompeter 2003; Elbannan 2003; e.g. Cahan et al. 1997; Hall and Stammerjohan 1997; Han and Wang 1998). This paper contributes to the existing literature on earnings management by investigating whether firms' strategies to manage earnings are associated with poor environmental performance.

Indonesia, with its Program for Pollution Control Evaluation and Ratings (hereafter referred as PROPER), was the first nation in Asia to issue corporate environmental performance ratings². This initiative has been followed by other developing countries in the region, including India, China, Thailand and the Philippines. (Blackman et al. 2004).

Due to limited economic resources, PROPER focuses on firms that have greater impacts on the Indonesian environment. These are mostly firms that are large and belong to environmentally sensitive industries, such as mining, manufacturing, chemicals and pulp and paper. The number of companies included in the program has grown substantially, with 85 in 2002 up to 690 in 2010 and the Ministry is targeting to include 1,000 companies in 2011/2012. However, most of rated companies are not listed on the Indonesian Stock Exchange (ISX). And the proportions of listed companies among those rated by PROPER have been decreasing overtime (see Table 1). As shown in the table, the ratings were announced to the public one year after the administration and evaluation process.

(INSERT TABLE 1 HERE)

This study is intended to find out whether or not firms with poor PROPER ratings will manage earnings downwards to anticipate political cost arising from the pressures given to firms to clean up their operations. Hence, the research question of this study can be stated below:

² The PROPER program is conducted annually by the Indonesian Ministry of Environment to evaluate the environmental performance of major industrial water polluters. PROPER uses five colour ratings to grade the environmental performance of different facilities and releases the results to the public. The program was introduced in 1995 as a pilot project but was postponed during the Asian Crisis (1997-2001). It was revived in 2002 to be conducted annually and to include a larger number of companies each year. Unfortunately, the Ministry was not able to administer PROPER on a regular basis and it was delayed in certain years.

Do firms with poor environmental performance ratings manage their earnings downward to avoid political actions?

Using the political costs framework, it is argued that firms perceived as poor environmental performers will manage earnings downward to avoid political pressures (Patten and Trompeter 2003; Mitra and Crumbley 2003; Han and Wang 1998; Hall and Stammerjohan 1997; Cahan et al. 1997; Johnston and Rock 2005).

2. Theoretical Framework and Hypothesis Development

Firm incentives to manage earnings have been widely examined and reported in the literature (Li et al. 2011; Dechow et al. 2012; e.g. Richardson 1997; Tendeloo and Vanstraelen 2005; Jones 1991; Dechow et al. 1996; Hall and Stammerjohan 1997). Healy and Wahlen (1999) classified three different incentives for firms to manage earnings—capital market incentives, contracting incentives and regulatory incentives. In the context of political visibility in environmental issues, it is argued that firms perceived to have poor environmental performance will manage earnings downwards to avoid political costs from forthcoming environmental regulations.

Several studies have confirmed that companies manipulate discretionary accruals in periods of heightened political scrutiny (Jones 1991; Cahan *et al.* 1992; Hall *et al.* 1997; Han & Wang 1998). These include anti-trust, monopoly, capital requirements and import relief issues. These studies provide evidence of firms' engagement in earnings management in response to potential political costs.

In the environmental context, a number of empirical studies have been carried out to test the hypothesis that firms facing political costs from environmental regulatory sanctions use negative discretionary accruals in the period of heightened political sensitivity (Elbannan 2003; Cahan et al. 1997; Mitra and Crumbley 2003; Patten and Trompeter 2003; Hall and Stammerjohan 1997; Han and Wang 1998; Johnston and Rock 2005).

The potential for the political costs of environmental issues to affect corporate wealth has become more and more evident given growing environmental concerns and movements. Such political costs may include the imposition on companies of taxes, penalties and stricter regulations because of environmental accidents or other corporate activities that have caused significant environmental impacts. Prior studies have used two of the most popular environmental accidents to proxy for political costs—the *Exxon-Valdez* oil spill (Walden 1993; Campbell et al. 2003; Patten 1992) and Union Carbide’s chemical leaks (Blacconiere and Patten 1994; Patten and Trompeter 2003).

Beside environmental accidents, there are other proxies for political pressures in the literature. These include: (1) the Superfund (Johnson 1995; Leary 2003; Chen 1997; Mitchell 1994; Cahan et al. 1997; Freedman and Stagliano 2002; Barth et al. 1997), (2) company status as a potentially responsible party (Bae 1998; Elbannan 2003; Hutchison 1997; Mitchell 1994; Freedman and Stagliano 2002; Johnston and Rock 2005), (3) firms subject to successful environmental prosecutions (Deegan and Rankin 1996; Cahan 1992) and (4) the litigation of damage awards (Hall and Stammerjohan 1997).

Patten (1992, 2002) argues that if corporate management believes environmental disclosure is an effective tool for reducing the likelihood of regulatory actions, it appears that companies with

higher levels of such disclosure preceding an environment-related increased political cost have less incentive to manage their earning figures downwards. Patten's study of 40 US chemical firms under political scrutiny following an accident in Bhopal, India is consistent with this argument. Companies with higher levels of pre-event environmental disclosure tend to have fewer negative discretionary accruals.

Similarly, Hall *et al.* (1997) found that oil firms facing potentially large damage awards choose income decreasing non-working capital accruals relative to other firms. Cahan *et al.* (1997) also found evidence that chemical firms took income decreasing accruals in 1979 at the height of the Superfund debate. Han and Wang (1998) analysed oil firms in a period of rapid oil price increases during the 1990 Persian Gulf crisis. They found that the oil firms expecting profit from the crisis used accruals to reduce their reported earnings during the crisis. They argued that the benefit of disclosing good news (i.e., earnings increases) early may have been outweighed by the political costs associated with the timely release of information.

Han and Wang (1998) investigated whether oil companies managed earnings during the 1990 Persian Gulf crisis. Oil firm accruals were analysed in a period of rapid gasoline price increases during the 1990 Persian Gulf crisis. The results show that oil firms that expected to profit from the crisis used accruals to reduce their reported quarterly earnings during the Gulf crisis.

The results of more recent investigations also appear to be consistent with these findings. For example, Francoeur *et al.* (2010) found a positive association between firm's Corporate Social Performance ratings and the earnings management activities. Patten and Trompeter (2003) evaluated whether damage awards in the oil industry are related to earnings management. Their findings indicate that managers of oil firms facing potentially large damage awards choose

income decreasing non-working capital accruals relative to managers of other oil firms. Further, the results indicate that the management of these firms make accounting choices that result in lower non-working capital accruals during the litigation period than in other years. These negative non-working capital accruals appear to result from the underestimation of new reserves.

Elbanan (2003) suggests that polluting firms manage their earnings in the year a material environmental remedial expense (ERE) is recognised. These firms take income-decreasing accruals in the year -1 and income increasing accruals in the years 0 and +1. Another study by Patten and Trompeter (2003) reveals that 40 US chemical firms under regulatory threat following the Bhopal chemical leak in India in December 1984 exhibited significant negative discretionary accruals. So far, only one study reveals a different result. Mitra and Crumbley (2003) did not find evidence that oil and gas firms engage in earnings management to reduce political costs in periods of high political scrutiny. This study replicates the work by Patten and Trompeter (2003) and uses a sample of oil firms facing political costs following the *Exxon-Valdez* oil spill in March 1989.

Most studies above indicate that, to reduce political costs, firms manage earnings downwards when faced with environmental scrutiny. Therefore, this study predicts that firms perceived as poor environmental performers will manage earnings downwards to demonstrate their financial incapacity to implement better environmental management and to improve their environmental performance. Accordingly, this paper hypothesizes that:

Ha : Firms with poor environmental performance ratings will manage earnings downwards.

3. Research Method

3.1. Data Collection Method

The financial information of this study mainly relied on data provided by OSIRIS, an electronic and comprehensive database of listed companies, banks and insurance companies around the world. Environmental ratings (PROPER) were obtained from the website of the Indonesian Ministry of Environment when such ratings were released. Table 1 shows the composition of rated companies and its proportion of listed companies.

3.2. Sample Identification

The sampling method for this study is mainly based on data availability; however, to ensure that the sample was free from bias due to missing data, a series of t-tests was run to examine the differences between the sample and the population. This step is particularly important because the sampling method was based on data availability. Two principal variables were used to test for sample bias—firm size, as represented by total assets; and firm age, which is the company age since its establishment. Due to differences in capital structures, firms from this sector (i.e. banking, securities, insurance and credit agency) were excluded from the analysis.

As noted earlier, PROPER ratings were announced one year after its administration and this study is intended to test the earnings management related to the ratings for both periods (administration of PROPER and announcement of the ratings). Using data availability for sampling method, the final sample consists of 577 and 1143 observations for model using

current ratings and model using next year rating, respectively. The t-test for both sample groups indicate no biases with their populations.

3.3. Research Model

I use the following regression model to test the hypothesis:

$$\mathbf{dacc}_{ti} = \beta_0 + \beta_1 \mathbf{poor}_{ti} + \beta_2 \mathbf{asst}_{ti} + \beta_3 \mathbf{bign}_{ti} + \beta_4 \mathbf{insend}_{ti} + \varepsilon$$

where

dacc : discretionary accruals

poor : environmental performance ratings, 1, if the firm rated poor, 0 otherwise

lnasst : natural logarithm of size

bign : choice of auditor, 1, if the firm uses non-big N auditors, 0 otherwise

insen : sensitivity of industry sector of the company to the environment, 1 to 3 from the least to the most sensitive.

i : firm i

t : year t

ε : error terms

Dependent Variable: Discretionary Accruals

Discretionary accruals in this study are calculated by following Modified Jones's Model (1991). This involves taking total accruals less an estimate of the non-discretionary portion of accruals. Total accruals is calculated as net income less cash flow from operation activities. The non-discretionary portion is estimated by regressing total accruals on the change in net sales and the fixed asset balance (each is scaled by the total assets). The discretionary portion is the error terms of the coefficients and is calculated for individual firms.

This is written as:

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{(1)}{A_{it-1}} + \frac{\beta_1 dREV_{it} - dREC_{it}}{A_{it-1}} + \frac{\beta_2 PPE_{it}}{A_{it-1}} + \varepsilon_{it}$$

where

- TA : total accruals , calculated as net income less cashfrom from operation
dREV - dREC : changes in sales less changes in receivable
PPE : plant, property and equipment
A : total assets of firm i in year t
i : company i
t : year t
 ε : error term.

Independent Variable: Poor Ratings

To operationalize the variable for poor environmental performance (*poor*), I used the PROPER ratings published by The Ministry of Environment. According to the regression model for this study, it is proposed that only poorly rated companies will have an incentive to manage earnings downwards to avoid the political costs related to environmental clean-ups.

PROPER results are released to the public using five colour-coded instruments. The colours of black, red, blue, green and gold represent environmental ratings from worst to best. According to the environmental ratings criteria³, in this study, companies rated red and black were considered poor performers. Thus, *poor* is given score of '1' and '0' otherwise. Since the ratings were

³ Gold and Green ratings are given to facilities whose compliance is beyond the environmental regulations/ standards. Blue is given to those complying with the existing regulations. Red is given to those making insufficient environmental impact management efforts. Black is given to those with no environmental impact management efforts or whose activities cause serious environmental degradation.

announced one year after it's administration, I use next year's ratings in the main analysis. I predict that firms had been aware of their environmental performance even before the ratings were made public. However, I also run the analysis using the current's year ratings. The result is presented in Additional Tests.

PROPER gives ratings to companies' facilities rather than the firm as a whole. This means that companies with more than one facilities may receive more than one ratings from the ministry. Due to this fact, I also run additional tests to see whether firms manage earnings when received both types (mixed) of ratings in the same period. To differentiate the model, I labeled the variables of mixed ratings as *mixed*. The tests were made for both current and next year ratings.

Control Variables

Auditor

Auditing reduces asymmetries between managers and shareholders by allowing outsiders to verify the validity of financial statements. As such, it is a valuable method of monitoring used by firms to reduce agency costs (Watts and Zimmerman 1983). DeAngelo (1981) defines a quality audit as the joint probability of detecting and reporting financial statement errors. A high quality audit is more likely to detect and report errors and irregularities. Thus, it is an effective barrier to earnings manipulations.

DeAngelo (1981) also suggests that large audit firms have incentives to detect and reveal management misreporting. In support of this suggestion, Jimbalvao (1996) reported that auditor-client disagreements resulting from incentives to manage earnings are more likely to occur when

firms have Big Six auditors. Lenard and Yu (2012) and Becker *et al.* (1998) found that firms with non-Big Six auditors report significantly greater discretionary accruals and have larger variations in discretionary accruals than firms with Big Six auditors.

In this study, I use ‘Big N auditor’ to represent audit quality as a control variable for firm incentives to engage in earnings management. ‘N’ represents a number of top international audit firms being affiliated with Indonesian auditors. Following international circumstances, the number of Big N auditors reduced from five to four during the period of this study—2002 to 2009.

Firm Size

The relationship between firm size and earnings management is debatable. Size is known as a good proxy for political visibility. Therefore, large firms are more likely to engage in earnings management due to their higher exposure to political costs (Richardson 1997; Watts and Zimmerman 1978). Furthermore, large firms typically have more complex activities, which provides more opportunities to manage earnings. Therefore, larger firms have higher incentives to manage earnings.

By contrast, larger firms are also sensitive to critical monitoring and, thus, are less likely to manage earnings (Albrecht and Richardson 1990; Lee and Choi 2002). Small firms are able to retain private information more successfully than larger companies, suggesting a reverse size effect (Lee & Choi 2002). Therefore, the effect of size on earnings management is also expected to be in one of two directions. I use the natural logarithm of a firm’s total assets to measure firm size.

Industry Type

The industry classification used in this study originally comes from the Indonesian Capital Market Directory, or ICMD (Institute for Economic and Financial Research 2006). It classifies industry into 12 sectors. There are 20 sub-sectors for the *manufacturing* sector and five sub-sectors in another sector called *banking, credit agencies other than bank, securities, insurance and real estate*. The industry groups in this study were reclassified further to reveal the sensitivity of the industry to the environment into three industry categories: (1) least sensitive, (2) moderately sensitive and (3) most sensitive. The first group consisted of *IT, Communication, Media & Transportation*, and *Wholesale and Retail*. Included in the second group are *Manufacturing-Consumer Goods, Manufacturing–Miscellaneous* and *Construction, Real Estate & Hotels*. The third group includes *Basic Industry & Chemicals* and *Resources Based Industry*. The establishment of such a ranking means that the variable ‘industry’ in this study is not a category (nominal) variable; it is an ordinal measure of the level of a firm’s environmental visibility. Most studies have used an industry dummy variable in the analysis (Patten 2002; Blacconiere and Patten 1994; Milne and Patten 2002; Patten and Trompeter 2003; Walden and Schwartz 1997). The classificatory approach used in this study is new.

4. Results

4.1 . Summary Statistic

(INSERT TABLE 2 ABOUT HERE)

Table 2 presents the summary statistic of the data used in this study. Having a final sample of 577 observations the panel data was taken from all listed and rated companies from 2002 through 2009 (unbalanced) based on availability. It can be seen from the table that only about 2 percent of the sample are rated poor (black and red), whereas the rest 98 percent were either received good ratings or not included in the PROPER. It is worth noting that I classified firms without ratings (i.e., those not participated in PROPER program) together with those receiving good ratings, because both groups of firms are not faced by political costs from environmental context, and thus, do not have incentives to manage earnings downwards.

4.2. Classical Assumptions

Normality

The Saphiro-Wilk test and histograms of the data distribution show that the response variables are not normally distributed ($\text{sig} < 0.05$). Tests on Kernell Density, pnorm and qnorm (Chen et al. 2003) confirm the presence of outliers in the sample. Linktest and Ovttest (Chen et al. 2003) were run for model specification biases. They indicated a specification error in the model, which means that some important variables have been omitted from the model. However, considering the sample size is relatively large, I can still expect to have good estimates despite of the normality problem (Gujarati, 2004).

Heteroscedasticity

Regression analysis assumes homoscedasticity, or equal variance of u_i (e.g. Gujarati 2003; Long and Ervin 2000). When heteroscedasticity is mild, OLS standard errors behave quite well (Long and Ervin 2000). However, when heteroscedasticity is severe, ignoring it may bias standard

errors and p values. To test for heteroscedasticity, this study uses the Breusch-Pagan test (Chen et al. 2003; Gujarati 2004; Wooldridge 2006). The test shows that the data suffers from heteroscedasticity, as the probability of chi square is significant ($p = 0.0169$). Heteroscedasticity cannot be ignored because ‘if we persist in using the usual testing procedures despite heteroscedasticity, whatever conclusions we draw or inferences we make may be very misleading’ (Gujarati 2003; Chen 1997). We can use the classic correction for heteroscedasticity, HC0 estimator proposed by Huber (1967) and White (1980). While this option works well with a large sample, MacKinnon and White (1985) discuss three improvements—HC1, HC2 and HC3. Following Long and Ervin (2000), I used the robust option (HC3). This is able to correct for heteroscedasticity in a small sample.

Multicollinearity

To test for the degree of multicollinearity, the variance inflation factor (VIF) and condition index tests were run (see, for example, Jaccard et al. 1990 ; Chen et al. 2003; Gujarati 2003). The VIF results indicate no collinearity among the explanatory variables; no variable has a VIF value greater than 1.05. This is consistent with the findings of the Condition Index (CI) of less 21. According to the rule of thumb (Gujarati 2004), a condition index exceeding 30 indicates strong multicollinearity.

4.3. Regression Results

To test the hypothesis I run the model by regressing discretionary accruals against poor ratings of the previous year, that is the year before they were published. I assume that rated firms would

have expected the poor ratings as they were aware of their own environmental performance. To reduce political costs and anticipated pressures from the public, they have the incentive to manage earnings downward to show financial incapability of cleaning up the facilities. To control for heteroscedasticity, I used the robust analysis (HC3) available in Stata.

(INSERT TABLE 3 ABOUT HERE)

Table 3 shows that the values of R^2 is very small (0.87%) which confirms the Linktest and Ovttest mentioned above, that many variables have been omitted from the model. The F ratio is very significant ($p = 0.0274$). The intercepts (CONSTANT) are not significant in the observations, which probably is due to the unstable specification of the model.

The table also shows a significant relationship between poor environmental ratings and discretionary accruals ($p = 0.0570$ for two tailed test or 0.0285 for one tailed test). This result shows that sample firms used income decreasing accruals to anticipate negative ratings they expected to receive in the following year.

Large audit firms, however, are found to be significantly associated with income increasing accruals at p value of 0.0920 for two tailed test or 0.0460 at one tailed test. There are two possible reasons for this result to occur: First, large audit firms may be more capable in helping their clients manage reported earnings while still complying to accounting standards as compare to

small audit firms. Second, in testing the effect of audit firm to discretionary accruals, the values should have been transformed in absolute terms (see for example, Becker *et al.*, 1998) ().

Firm size and industry sensitivity were not found to be significantly associated with discretionary accruals, with the p value of 0.30900 and 0.09200, respectively. This may be due to the fact that most rated companies are large and belong to sensitive industries, because PROPER program focuses on firms that have larger impact to the environment. While variations in environmental performance ratings and discretionary accruals are high (from the best to the worst), in terms of size and industry sensitivity such variations are relatively low.

4.4. Additional Tests

The Ministry of Environment publishes the PROPER ratings one year after its evaluation and administration. For this reason, I run an additional test by regressing discretionary accruals against the current year's environmental ratings (i.e., the year in which ratings were made public). The result indicates F value was not significant ($p= 0.1236$) as shown in Table 4.

(INSERT TABLE 4 ABOUT HERE)

As noted in the Introduction, a rated firm may have more than one facilities and received more than one ratings respectively and it is possible that one firm receive poor and good ratings in the same period (e.g., a firm recieved 2 reds and 3 blues for 5 facilities). This paper refers such ratings as mixed. To test whether or not firms with mixed ratings will also manage earnings, I

also run two additional tests; one for next year's ratings and the other using the current year's ratings. As shown in Table 5 and 6, both tests show insignificant results, which imply that mixed rated firms are not motivated to manage earnings downwards, most probably because they are able to reduce political cost by compensating good ratings for the poor ones.

(INSERT TABLE 5 ABOUT HERE)

(INSERT TABLE 6 ABOUT HERE)

5. Conclusion, Implication and Limitation

The results show that, consistent with the hypothesis of this study, firms receiving poor environmental ratings used negative discretionary accruals to avoid the political costs of cleaning up their operations due to poor environmental performance. Such earnings management behavior occurred in the year of PROPER administration and evaluation, that is one year before the ratings were published. It is also revealed that firms receiving mixed (poor and good) ratings at the same period are not engaged in such income decreasing behavior through discretionary accruals.

Further, in contrast to the previous literature that large audit firms have incentive to detect and reveal earnings management (DeAngelo, 1981; Jambalvaio, 1996), this study indicate that such earnings management behavior was positively associated with the choice of auditor. Previous

studies hypothesize that big audit firm may help reduce the opportunity behavior of managing discretionary accruals in both negative and positive directions.

Other explanatory variables, firm size and industry sensitivity were not found to be significantly associated with the estimates of discretionary accruals. I assume this is due to the limitations of which the data suffered from normality and heteroskedasticity issues. Further study may consider such limitations by using more sophisticated statistical methods or improve data selection method.

This study has implications for how environmentally poor performing companies respond to political costs, which is reflected in the way they manage reported earnings. The evidence that companies manage earnings downward before receiving poor environmental ratings may be useful to investors, market analysts, and in particular, the capital market regulators. By understanding that firms use income-decreasing accruals to avoid political costs arising from their poor environmental performance, they may anticipate similar behaviors during the introduction or implementation of new government initiatives or policies.

This study also provides a significant contribution to the literature. It improves our understanding of corporate reporting behaviors related to environmental performance by providing significant empirical findings of the relationship between environmental performance and earnings management.

References

- Albrecht, W. D., and F. M. Richardson. 1990. Income Smoothing by Economy Sector. *Journal of Business Finance & Accounting* Winter:713-730.
- Bae, B.-R. 1998. Accounting Choices for Reporting Environmental Liabilities: Their Relation with Firm Characteristics and Earnings Response Coefficients. 9910984, Temple University, United States -- Pennsylvania.
- Barth, M. E., M. F. McNichols, and G. P. Wilson. 1997. Factors Influencing Firms' Disclosures about Environmental Liabilities. *Review of Accounting Studies* 2 (1):35-64.
- Becker, C. L., M. L. DeFond, J. Jiambalvo, and K. R. Subramanyam. 1998. The effect of audit quality on earnings management. *Contemporary Accounting Research* 15:1-24.
- Blacconiere, W. G., and D. M. Patten. 1994. Environmental Disclosures, Regulatory Costs, and Changes in Firm Value. *Journal of Accounting and Economics* 18 (357-377).
- Blackman, A., S. Afsah, and D. Ratunanda. 2004. How Do Public Disclosure Pollution Control Programs Work? Evidence from Indonesia. *Human Ecology Review* 11 (3):235-246.
- Cahan, S., B. Chavis, and R. Elmendorf. 1997. Earnings Management of Chemical Firms in Response to Political Costs From Environmental Legislation. *Journal of Accounting, Auditing, and Finance* 12 (1):37-66.
- Cahan, S. F. 1992. The Effect of Antitrust Investigations on Discretionary Accruals: A Refined Test of the Political-Cost Hypothesis. *The Accounting Review* 67 (1.):77-95.
- Campbell, D., B. Craven, and P. Shrivies. 2003. Voluntary social reporting in three FTSE sectors: a comment on perception and legitimacy. *Accounting, Auditing & Accountability Journal* 16 (4):558-581.
- Chen, C.-Y. 1997. Environmental liability disclosures and the valuation of loss contingencies. 9803149, University of California, Berkeley, United States -- California.
- Chen, X., P. Ender, M. Mitchell, and C. Wells. 2006. *Regression with SPSS* 2003 [cited 12-11-2007 2006]. Available from <http://www.ats.ucla.edu/stat/spss/webbooks/reg/default.htm>.
- DeAngelo, L. E. 1981. Auditor size and audit quality. *Journal of Accounting and Economics* 3 (3):183-199.
- Dechow, P., R. G. Sloan, and A. P. Sweeney. 1996. Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research* 13 (1):1-36.

- Dechow, P. M., A. P. Hutton, J. H. Kim, and R. G. Sloan. 2012. Detecting Earnings Management: A New Approach. *Journal of Accounting Research* 50 (2):275-334.
- Deegan, C., and M. Rankin. 1996. Do Australian Companies Report Environmental News Objectively? An Analysis of Environmental Disclosures by Firms Prosecuted Successfully by the Environmental Protection Authority. *Accounting, Auditing & Accountability Journal* 9 (2):50.
- Elbannan, M. A. 2003. An empirical model of the relationship between the environmental remediation expense recognition and accounting accruals and the effect on the earnings response coefficient. 3120911, Southern Illinois University at Carbondale, United States - Illinois.
- Francoeur, C., Rim Makni Gargouri, Ridha Mohamed Shabou 2010. The Relationship between Corporate Social Performance and Earnings Management. *Canadian Journal of Administrative Sciences* 27 (4):320-334.
- Freedman, M., and A. J. Stagliano. 2002. Environmental disclosure by companies involved in initial public offerings. *Accounting, Auditing & Accountability Journal* 15 (1):94-105.
- Gujarati, D. N. 2003. *Basic econometrics*. 4th ed. Boston: McGraw Hill.
- . 2004. *Basic econometrics*. 4th ed. Boston: McGraw Hill.
- Hall, S. C., and W. W. Stammerjohan. 1997. Damage Awards and Earnings Management in the Oil Industry. *The Accounting Review* 72 (1).
- Han, J. C. Y., and S.-w. Wang. 1998. Political costs and earnings management of oil companies during the 1990 Persian Gulf Crisis. *The Accounting Review* 73 (1):103, 115 pgs.
- Healy, P., and J. Wahlen. 1999. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13 (4):365-383.
- Huber, P. J. 1967. The behavior of maximum likelihood estimates under non-standard conditions. Paper read at Fifth Berkeley Symposium on Mathematical Statistics and Probability
- Hutchison, P. D. 1997. An examination of the information content of a specific environmental disclosure, Potentially Responsible Party status, in publicly held corporations. 9725948, Texas Tech University, United States -- Texas.
- Institute for Economic and Financial Research. 2006. Indonesian capital market directory. Jakarta: Institute for Economic and Financial Research

- Jiambalvo, J. 1996. Discussion of causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research* 13 (37-48).
- Johnson, S. D. 1995. An analysis of the relationship between corporate environmental and economic performance at the level of the firm. 9533173, University of California, Irvine, United States -- California.
- Johnston, D., and S. Rock. 2005. Earnings Management to Minimize Superfund Cleanup and Transaction Costs *Contemporary Accounting Research* 22 (3).
- Jones, J. J. 1991. Earnings Management During Import Relief Investigations. *Journal of Accounting Research* 29 (2):193-228.
- Leary, C. A. 2003. An examination of environmental disclosures in 10K reports and GAAP compliance. 3078467, Virginia Commonwealth University, United States -- Virginia.
- Lee, B. B., and B. Choi. 2002. Company Size, Auditor Type, and Earnings Management. *Journal of Forensic Accounting* 3:27-50.
- Lenard, M. J., and B. Yu. 2012. Do Earnings Management and Audit Quality Influence Over-Investment by Chinese Companies. *International Journal of Economics and Finance* 4 (2).
- Li, Y., J. Niu, R. Zhang, and J. A. Largay. 2011. Earnings Management and the Accrual Anomaly: Evidence from China. *Journal of International Financial Management & Accounting* 22 (3):205-245.
- Long, J. S., and L. H. Ervin. 2000. Using heteroscedasticity consistent standard errors in the linear regression model. *The American Statistician* 54 (3):217.
- MacKinnon, J. G., and H. White. 1985. Some heteroskedasticity consistent covariance matrix estimators with improved finite sample properties. *Journal of Econometrics* 29,:53-57.
- Milne, M. J. J., and D. M. Patten. 2002. Securing organizational legitimacy: An experimental decision case examining the impact of environmental disclosures. *Accounting, Auditing & Accountability Journal* 15 (3):372-405.
- Mitchell, N. C. 1994. The relationship of certain environmental performance indicators and financial statements. 9503027, Cleveland State University, United States -- Ohio.
- Mitra, S., and D. L. Crumbley. 2003. Earnings Management and Political Sensitivity Environments: Another Test. *Petroleum Accounting and Financial Management Journal* 22 (3):1.

- Patten, D. M. 1992. Intra-industry environmental disclosures in response to the Alaskan oil spill: a note on legitimacy theory. *Accounting, Organizations and Society* 17 (5):471-475.
- . 2002. The Relation between Environmental Performance and Environmental Disclosure: A Research Note. *Accounting, Organizations and Society* 27:763-773.
- Patten, D. M., and G. Trompeter. 2003. Corporate responses to political costs: an examination of the relation between environmental disclosure and earnings management. *Journal of Accounting and Public Policy* 22 (1):83-94.
- Richardson, V. J. 1997. An empirical investigation of the relationship between information asymmetry and earnings management. 9812751, University of Illinois at Urbana-Champaign, United States -- Illinois.
- Tendeloo, B. V., and A. Vanstraelen. 2005. Earnings Management under German GAAP versus IFRS. *European Accounting Review* 14 (1):155–180.
- Walden, D., and B. N. Schwartz. 1997. Environmental disclosures and public policy pressure. *Journal of Accounting and Public Policy* 16 (2):125-154.
- Walden, W. D. 1993. An empirical investigation of environmental disclosures analyzing reactions to public policy and regulatory effects. 9426356, Virginia Commonwealth University, United States -- Virginia.
- Watts, R. L., and J. L. Zimmerman. 1978. Towards Positive Theory of the Determination of accounting Standards. *The Accounting Review* 53 (1):112-134.
- Watts, R. L., and J. L. Zimmerman. 1983. Agency Problems, Auditing, and the Theory of the Firm: Some Evidence *Journal of Law and Economics* 26 (3):613-633.
- White, H. 1980. A heteroskedastic-consistent covariance matrix estimator and a direct test of heteroskedasticity. *Econometrica* 48:817-838.
- Wooldridge, J. M. 2006. *Introductory econometrics : a modern approach* edited by 3rd: Mason, OH : Thomson/South-Western
- Yip, E., C. V. Staden, and S. Cahan. 2008. Corporate Social Responsibility Reporting and Earnings Management: The Role of Political Costs. *Australasian Accounting Business and Finance* 5 (3):17-34.

Appendix

Table 1. Proper Implementation (2002-2010)

PROPER	Evaluation Period	Result Announced	No. of rated companies	No. of listed companies rated	Percentage of listed firms rated
PROPER 2002-2003	2002	Mid 2003	85	15	18%
PROPER 2003-2004	2003	Mid 2004	270	26	10%
PROPER 2004-2005	2004	Mid 2005	466	30	6%
PROPER 2006-2007	2006-2007	Mid 2008	516	47	9%
PROPER 2008-2009	2008	End of 2009	627	53	8%
PROPER 2009-2010	2009	End of 2010	690	52	8%

Source: modified from KLH-RI

Table 2. Summary Statistic

	Obs	Mean	Std. Dev.	Min	Max
dacc	577	0.0008	0.1280	-1.2280	1.6551
poor	577	0.0198	0.1394	0.0000	1.0000
lnasst	577	19.8020	2.6135	10.1419	25.4846
indsen	577	1.7320	0.7885	1.0000	3.0000
bign	577	0.5360	0.4992	0.0000	1.0000

Notes: n = 577; R² = 0.0087 F = 2.75 (p= 0.0274)

dacc: discretionary accrual, poor: poor rating , lnasst: natural log of firm's total assets, indsen: industry sensitivity, bign: auditor choice.

Table 3. Regression Results using poor rating as predictor variable (next year's ratings)

dacc	Coef.	Std. Err.	t	P>t	[95%	Interval
poor	-0.04214	0.02206	-1.91000	0.05700	-0.0855	0.00118
lnasst	-0.00024	0.00190	-0.12000	0.90100	-0.0040	0.00350
indsen	-0.00812	0.00798	-1.02000	0.30900	-0.0238	0.00756
bign	0.01671	0.00989	1.69000	0.09200	-0.0027	0.03614
constant	0.01359	0.03369	0.40000	0.68700	-0.0526	0.07976

Notes: n = 577; R² = 0.0087 F = 2.75 (p= 0.0274)

dacc: discretionary accrual, poor: poor rating , lnasst: natural log of firm's total assets, indsen: industry sensitivity, bign: auditor choice.

Table 4. Regression Results using poor rating as predictor variable (current's ratings)

dacc	Coef.	Std. Err.	t	P>t	[95%	Interval
poor	0.0015	0.0206	0.0700	0.9430	-0.0390	0.0420
lnasst	0.0040	0.0015	2.6900	0.0070	0.0011	0.0070
indsen	0.0018	0.0070	0.2500	0.8010	-0.0121	0.0156
bign	0.0011	0.0104	0.1100	0.9140	-0.0193	0.0215
constant	-0.0839	0.0326	-2.5700	0.0100	-0.1479	-0.0199

Notes: n = 1,143; $R^2 = 0.0044$ F = 1.81 (p= 0.1236);

dacc: discretionary accrual, poor: poor rating , lnasst: natural log of firm's total assets, indsen: industry sensitivity, bign: auditor choice

Table 5. Regression Results using mixed rating as the predictor variable (next year's ratings)

dacc	Coef.	Std. Err.	T	P>t	[95%	Interval
mixed	-0.0085	0.0132	-0.6400	0.5220	-0.0343	0.01744
lnasst	0.0000	0.0019	0.0000	0.9990	-0.0037	0.00367
indsen	-0.0088	0.0081	-1.0800	0.2790	-0.0247	0.00713
bign	0.0164	0.0099	1.6600	0.0980	-0.0030	0.03588
constant	0.0095	0.0334	0.2800	0.7760	-0.0561	0.07505

Notes: n = 577; $R^2 = 0.0064$ F = 1.66 (p= 0.1578);

dacc: discretionary accrual, poor: poor rating , lnasst: natural log of firm's total assets, indsen: industry sensitivity, bign: auditor choice.

Table 6. Regression Results using mixed rating as the predictor variable (current ratings)

dacc	Coef.	Std. Err.	T	P>t	[95%	Interval
mixed	0.0015	0.0206	0.0700	0.9430	-0.0390	0.0420
lnasst	0.0040	0.0015	2.6900	0.0070	0.0011	0.0070
indsen	0.0018	0.0070	0.2500	0.8010	-0.0121	0.0156
bign	0.0011	0.0104	0.1100	0.9140	-0.0193	0.0215
constant	-0.0839	0.0326	-2.5700	0.0100	-0.1479	-0.0199

Notes: n = 1,143; $R^2 = 0.0044$; F = 1.85 (p= 0.1175)

dacc: discretionary accrual, poor: poor rating , lnasst: natural log of firm's total assets, indsen: industry sensitivity, bign: auditor choice.