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A Study of Earnings Management in Indonesia Public Firms

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Abstract

Indonesia is the biggest economy in the southeast Asia. This paper investigates the earnings management behavior of Indonesian public firms. The earnings management activities have been divided into three parts. Namely, accrual earnings management, real earnings management and fraud detection. Our findings indicate that earnings management activities are common for Indonesian firms. Firm size and asset growth have significant relationship associated, with various directions, with both accrual earnings management and real management activities for Indonesian firms. We also find that firm size, asset growth, ROE, and debt ratio consistently have significant relationship to real earnings management. In predicting the possibility of Indonesian firm to commit financial fraud, we find that manipulating gross margin, sales growth, depreciations and expenses related to sales and general administration is common seen from fraudulent firms in Indonesia.

Keywords: Accrual Earnings Management, Real Earnings Management, Linear Regression, Logistic Regression

1. Introduction

One of the most important components in the financial statement is earnings information. It can help the owner or other parties in estimating the company's earnings power in the future. According to Statement of Financial Statement of Financial Accounting Concept No. 1, all the information in the financial statement must be understood by users so that the information can help them to make a good decision. According to researches (for example, Chang, 2001; Frankel, Johnson and Nelson, 2002; Lee, Hsu, and Chen, 2003; Lin, 2006; Young and Wu, 2003; Yu, Du, and Sun, 2006), they identify earnings management by utilizing some relevant variables which our study will adding more variables to get different perspectives.

The earnings management on real activities use abnormal cash flow operation. The result shows that there is a critical relationship between review quality (measured by accounting firm size, auditor specialization, and auditor tenure) with real earnings management. In the meantime, it is hard for traditional auditing technologies to recognize the earnings management practices in the enormous and complex financial data (Calderon & Cheh, 2002). Accordingly, to build up a prescient model for the degree of earnings management is useful for auditors to know the level of manipulations in financial reports.

In the research of earnings management for Indonesia, Tarjo and Herawati (2015) use Beneish m-score and data mining to recognize financial fraud. Santoso and Wibowo (2018) use linear discriminant and support vector machine to predict financial distress. Ramadhan, Dhini, Surjandari and Wayasti (2017) use artificial neural network for predicting company financial performance. Rizki, Surjandari and Wayasti (2017) use artificial neural network and support vector machine to detect financial fraud.

Earnings information is important for the stakeholders to make relevant and good decision. The information will help users to know the real company financial condition. Today, the problem is how the users get the accuracy financial statement information. The company can manipulate the financial statements to get a better result and add additional value to the company. In this study, we will focus to explain earnings management and how the company arrange their financial reports for Indonesia public firms. According to International Financial Reporting Standard (IFRS), a company is allowed to choose different methods to arrange financial statement. This opportunity will motivate company to manipulate earnings especially when the firm gets into financial trouble.

2. Literature Review

2.1 Determinants of Financial Statement Fraud

Rezaee (2002) defines financial statements fraud as the intentional, deliberate, inappropriate and false misconceptions or omissions of material facts or accountable data that are incorrect and, considering all information provided, would lead the reader to alter or modify his judgment or decision. A fraudulent statement contains behavior committed by a manager of a corporation or public organization for the purpose of covering the real economic situation by creating or enhancing financial reports in order to gain personal advantages. The fraudulent statement can be analogous to the window dressing, economic shenanigans, book cooking, illegal handling of earnings, earnings smoothing (Priantara, 2013).

As indicated by Institute of Indonesia Chartered Accountants (IAI), fiscal summary misrepresentations are:

1. Misstatements emerging from extortion in monetary announcing, in particular misquote or conscious oversight or sums exposures in fiscal reports or misdirect stakeholders of financial statements.
2. Misstatements emerging from advised treatment of resources (frequently alluded to as abuse or misappropriation) identifying with the burglary of a substance's resources bringing about financial statements not being introduced as per Generally Accepted Accounting Principles (GAAP) in Indonesia.

Nguyen (2008) expressed that misrepresentations in financial reports includes the accompanying plan:

1. Forgery, change, or control of material monetary records, supporting archives or deals;
2. Intentional carelessness or distortion of occasions, exchanges, accounts, or other significant data from the financial summaries arranged;
3. Deliberate mistakes in the utilization of accounting standards, approaches, and methods used to quantify, perceive, report and reveal financial occasions and deals;
4. Intentional carelessness on revelation or introduction of lacking exposure dependent on accounting standards and related financial arrangements and qualities.

2.2 Defining Earnings Management

Healy & Whalen (1999) define "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers". Schipper (1989) characterizes "Profit the executives as the deliberate intercession in the outside monetary detailing measure with the aim of private additions". Scott (2006) defines "Earnings management is the choice by a manager of accounting policies so as to achieve specific objective". It should be mentioned that choice of accounting policies is interpreted quite broadly.

2.3 Real Earnings Management

Roychowdhury (2006) characterizes real earnings management as "the board activities that stray from typical strategic approaches, embraced with the essential target of meeting certain profit edges". By performing real earnings management strategies, directors know that they need to forfeit their future incomes to accomplish momentary benchmarks (Hewitt et al, 2014). Real earnings management is harder to identify on the grounds that it includes administrators' choice with respect to contributing and working techniques to influence incomes (Kothari et al, 2012). In this case, Kothari et al (2012) argue that real earnings management is costlier than gathering income from the board, after CEO will in general endeavor to participate in smoothing earnings.

This study bases on earlier investigations to build up the intermediaries for real earnings management. as in Roychowdhury (2006). We utilize (1) abnormal cash flow from operations (CFO); (2) abnormal discretionary expense; and (3) abnormal production costs to examine the degree of real activities manipulations. Resulting researches, for example, Zang (2006) and Gunny (2005), give proof of the build legitimacy of these intermediaries. This investigation utilizes three manipulation method and their effect on the over three factors:

1. **Abnormal Cash Flow from Operations (*AbCFO*)**
   Acceleration of the timing of sales through increased price discount or more lenient credit terms. Such discounts and lenient credit terms will temporarily increase sales volumes, but these are likely to disappear once the firm reverts to old prices. The additional sales will boost current period earnings, assuming the margins are positive. However, both price discount and more lenient credit terms will result in lower cash flows in the current period.

2. **Abnormal Production Cost (*AbProd*)**
   Reporting of lower cost of goods sold through increased production. Managers can increase production more than necessary in order to increase earnings. When managers produce more units, they can spread the fixed costs per unit. As long as the reduction in fixed costs per unit is not offset by any increase in marginal cost per unit, total cost per unit declines. This will decrease reported cost of goods sold (COGS) and the firm can report higher operating margins.

3. **Abnormal Discretionary Expense (*AbDisExp*)**
   Reduces in discretionary costs that consolidate publicizing cost, imaginative work, and SG&A costs. Diminishing such costs will help current period pay. It could similarly provoke higher current period salaries (at the peril of lower future earnings) if the firm regularly paid for such expenses in genuine cash.

Utilizing an aforementioned variable, Graham, Harvey, and Rajgopal (2005) find that directors have more grounded ability to oversee profit through real earnings management than accrual earnings management. This situation has two reasons. (1) real earnings management is more averse to be investigated by evaluators and controllers, and accordingly has a high likelihood of not being recognized. (2) accrual earnings management is obliged by the accounting adaptability inside the firm. For instance, because of the switching idea of accumulations, firms' forceful evaluations and decisions utilized in the past periods keep them from making comparable assessments and decisions in the resulting time frames.

2.4 Accrual Earnings Management

Accrual earnings management generally includes choice of accounting standards and the attentiveness of CEO (Kothari et al, 2012). Accrual earnings management can somehow be identified through accounting examination since accrual decision is regularly guided by accounting standard, for example, Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standard (IFRS) (Kothari et al. 2012).

There are two fundamental kinds of accruals: current and non-current accrual. Current accrual happens as decisions include current resources and current liabilities (Palepu et al. 2003). Illustration of current accrual are assessments by estimating inventories, receivables or payables. The main non-current accruals are devaluation and amortization charges. The majority of the investigations in accrual earnings management looks for the proof of income through current accruals. For example, Sloan (1996), Spohr (2004), Dechow and Dichev (2002). However, Loftus and Sin (1997) contend that non-current accrual are fundamental while investigating the connection between stock returns and net gain. Richardson et al. (2001) likewise share similar view about the significant part of non-current accrual to gauge nature of profit.

Tarjo and Herawati (2015) utilize Beneish m-score to recognize financial fraud. The outcome shows that Beneish (1999) m-score model is proficient to recognize financial fraud. Anh, Linh, and Yoon (2018) also inspect earnings management recognition utilizing Beneish M-score benchmark model. The outcomes show that 40% of non-financial Vietnamese firms engage in earnings management. This examination proposes that the M-score model is a helpful procedure to use to distinguish the earnings manipulation practices of organizations in Vietnam.

3. Methodology

3.1 Data

The data from year 2011 to 2018 of Indonesian fraudulent and non-fraudulent companies are collected from the Financial Services Authority of Indonesia. There are 47 recorded companies that got sanctions from Financial Services Authority of Indonesia over the period 2011 to 2018. There are 30 fraudulent companies which have complete financial information. Our final data covers 188 public companies include 30 fraud companies and 158 non-fraud companies over the period 2011 to 2018.

Table 1 demonstrates that accounting manipulations are common in Indonesia. Three industries have higher fraudulent ratio than average, which includes Basic Industry and Chemical, Miscellaneous Industry, and Trade, Service, and Investment industry.

Industry	-1 Total Fraudulent Companies	-2 Fraudulent Companies with Complete Data	-3 Non-Fraudulent Companies	-4 Ratio (1) / (3)
Agriculture	2	2	10	0.2
Mining	7	6	25	0.28
Basic Industry and Chemical	8	4	18	0.44
Miscellaneous Industry	4	2	10	0.4
Consumer Goods	4	2	15	0.29
Property, Real Estate, and Building Construction	8	7	38	0.21
Infrastructure, Utilities, and Transportation	3	1	10	0.3
Trade, Service and Investment	11	6	33	0.33
Total	**47**	**30**	**158**	**0.3**

Table 1 Sample Selection Procedure for Fraud and Non-Fraud Companies

3.2 Variables

Regarding the choice of independent variables, we follow Namazi and Maharluie (2015), Liu (2018) and Ezazi, et al. (2013). In this study we also utilize the M-Score model to identify whether an Indonesian company manipulates its earnings. Table 2 shows 16 independent variables. All the variables are extracted from financial statements, for example, balance sheet, statement of cash flow, and income statement. The dependent variable in this research is earnings management. The measurements for earnings management are accrual earnings management and real earnings management. These variables will be calculated later.

No	Name	Formula
1	*Firm Size*	Log of Total Assets
2	*Assets Growth*	(Total Asset$_t$ - Total Asset$_{t-1}$) / (Total Asset$_{t-1}$)
3	*Sales Growth*	(Sales$_t$ - Sales$_{t-1}$) / (Sales$_{t-1}$)
4	*Return on Equity*	(Net Income$_t$) / (Total Equity$_t$)
5	*Net Earnings*	(Net Income$_t$ - Net Income$_{t-1}$) / (Net Income$_{t-1}$)
6	*Debt Ratio*	(Total Debt$_t$ / Total Asset$_t$)
7	*Non-Current Assets (NCA)*	(NCA$_t$ – NCA$_{t-1}$) / (NCA$_{t-1}$)
8	*Cash Flow Operational (CFO)*	(CFO$_t$ – CFO$_{t-1}$) / (CFO$_{t-1}$)
9	*Days' Sales in Receivables Index (DSRI)*	(Accounts Receivables$_t$ / Sales$_t$) / (Accounts Receivables$_{t-1}$ / Sales$_{t-1}$)
10	*Gross Margin Index (GMI)*	((Sales$_{t-1}$ – Cost of Sales$_{t-1}$) / Sales$_{t-1}$) / ((Sales$_t$ – Cost of Sales$_t$) / Sales$_t$)
11	*Assets Quality Index (AQI)*	(1-(Current Assets$_t$ + PPE$_t$) / Total Assets$_t$) / (1-(Current Assets$_{t-1}$ +PPE$_{t-1}$) / Total Assets$_{t-1}$)
12	*Sales Growth Index (SGI)*	(Sales$_t$ - Sales$_{t-1}$) / (Sales$_{t-1}$)
13	*Depreciation Index (DEPI)*	(DE$_{t-1}$ / (DE$_{t-1}$ + PPE$_{t-1}$)) / (DE$_t$ / (DE$_t$ +PPE$_t$))
14	*Sales, General & Administrative expense Index (SGAI)*	(SGA$_t$ / Sales$_t$) / (SGA$_{t-1}$ / Sales$_{t-1}$)
15	*Total Accruals to Total Assets Index (TATA)*	((WC$_t$ – WC$_{t-1}$) – (Cash$_t$ – Cash$_{t-1}$) + (ITP$_t$ –ITP$_{t-1}$) + (Current Portion of LTD$_t$ – Current Portion of LTD$_{t-1}$) – DE$_t$) / (Total Assets$_t$)
16	*Leverage Index (LVGI)*	((LTD$_t$ + Current Liabilities$_t$) / (Total Assets$_t$) / ((LTD$_{t-1}$) / Total Assets$_{t-1}$)

Table 2 Independent Variables (Financial Ratios)

3.3 Accrual Earnings Management

To find discretionary accruals, the total accruals are firstly determined by taking out non-discretionary accruals to concoct discretionary accruals. We choose the cash flow statement to calculate total accruals based on Hribar and Collins (2002).

Equation (1) shows that using cash flow statement to calculate total accruals of company *i* in the *t* period, $TACC_{it.}$ $EXBI_{it}$ is the income from continuing operation of the company *i* in the *t* period and CFO_{it} is the operating cash flow of company *i* in the *t* period.

$$TACC_{it} = EXBI_{it} - CFO_{it} \quad (1)$$

After the total accruals are determined, we further apply modified Jones Model (Dechow and Sloan, 1995) to estimate non-discretionary accruals. Equation (3) shows the calculation. NDA_{it} is the non-discretionary accruals of company *i* in the *t* period, TA_{it-1} is total asset of company *i* in the *t-1* period, ΔREV_{it} is the income of company *i* in the *t* period deducting that in the *t-1* period, ΔREC_{it} is the account receivable (net amount) in the *t* period deducting that in the *t-1* period and PPE_{it} is the total amount of company's property, building and equipment in the *t* period.
First, we estimate parameters, α_0, α_1, and α_2 from equation (2). The we plug in the data into equation (3) to get NDA_{it}.

$$\frac{TACC_{it}}{TA_{it}} = \alpha_{0it}\left(\frac{1}{TA_{it-1}}\right) + \alpha_{1it}\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{TA_{it-1}}\right) + \alpha_{2it}\left(\frac{PPE_{it}}{TA_{t-1}}\right) + \varepsilon_{it} \quad (2)$$

$$NDA_{it} = \alpha_{0it}\left(\frac{1}{TA_{it-1}}\right) + \alpha_{1it}\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{TA_{it-1}}\right) + \alpha_{2it}\left(\frac{PPE_{it}}{TA_{t-1}}\right) \quad (3)$$

After the total accruals and non-discretionary accruals are determined, and the non-discretionary accruals are subtracted from the total accruals, earnings management's proxy variable discretionary accruals are acquired as shown in Equation (4), in which DA_{it} is the discretionary accruals of company *i* in the *t* period (Marquardt and Wiedman, 2004).

$$DA_{it} = \frac{TACC_{it}}{TA_{it}} - NDA_{it} \quad (4)$$

3.4 Real Earnings Management

Roychowdhury (2006) propose three variables to reflect manipulating sales, production costs, and discretionary expenditures. In the setting, we first make the average levels of income from sales, production costs, and discretionary expenditures using the model by Roychowdhury (2006). The model is presented as equation (5).

$$\frac{CFO_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Asset_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + \beta 3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \in_{it} \quad (5)$$

Abnormal CFO_{it} is actual CFO_{it} minus the normal level of CFO_{it} calculated using the estimated coefficient from Equation (5).

Production costs are defined as the of cost of goods sold, $COGS_{it}$, and change in inventory during the year. We model $COGS_{it}$ as a linear function of contemporaneous sales:

$$\frac{COGS_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Asset_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + \in_{it} \quad (6)$$

Next, we model inventory growth by the following:

$$\frac{COGS_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Asset_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \in_{it} \quad (7)$$

Using Equation (6) and (7), the normal level of production costs, $Prod_{it}$, is estimated as:

$$\frac{Prod_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Asset_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{it}}{Assets_{i,t-1}} + k_3\frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} \in_{it} \quad (8)$$

We model the normal level of discretionary expenses, $DisExp_{it}$, as:

$$\frac{DisExp_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Asset_{i,t-1}} + k_2\frac{Sales_{it}}{Assets_{i,t-1}} + \in_{it} \quad (9)$$

Showing discretionary expenses as a component of current sales makes an important issue if firms oversee sales upward to increase profit in a specific year, which is coming about in lower residuals from running a regression as inferred in Equation (9). To address this issue, we model discretionary expenses as an element of sloppy sales and estimate the accompanying model to infer 'normal' levels of discretionary expenses:

$$\frac{DisExp_{it}}{Assets_{i,t-1}} = k_{1t}\frac{1}{Asset_{i,t-1}} + k_2\frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \in_{it} \quad (10)$$

In the above equations CFO_{it} is cash flow from operations in period t; Prod addresses the production costs in period t, characterized as the sum of COGS and the adjustment in inventories; and $DisExp_{it}$ addresses the discretionary expenditures in period t, characterized as the amount of publicizing costs, R&D (Research and Development)

expenses, and SG&A (Sales, General and Administration) expenses. We do not use the R&D expenses from the estimation of the discretionary expenses due to the availability of the data.

The abnormal CFO (*AbCFO*), abnormal production (*AbProd*), and abnormal discretionary expenses (*AbDiscExp*) are processed as the contrast between the actual values and the normal levels predicted from Equations (5), (8), and (10). We utilize these three variables as measurement for real earnings management.

4. Empirical Results

4.1 Descriptive Statistics Analysis

Table 3 shows the descriptive statistics. The total observation consists of 1504 data points. The maximum amount of the variables is the operational cash flow variable and the minimum amount of the variables is the net earnings variable. The highest amount of the standard deviation belongs to the operational cash flow variable, and the smallest amount belongs to the debt ratio variable. Then the highest amount of mean belongs to the firm size variable, and the lowest amount belongs to the net earnings variable.

4.2 Regression Analysis

We demonstrate our major findings from these regressions.

Variable	Observation	Mean	Maximum	Minimum	Standard Deviation
DSRI	1504	1.125	7.896	0.024	0.639
GMI	1504	1.024	7.178	-4.108	0.431
AQI	1504	1.108	7.803	-3.834	0.721
SGI	1504	0.135	4.566	-0.009	0.344
DEPI	1504	1.093	6.531	0.0	0.588
SGAI	1504	1.060	7.136	-6.979	0.499
TATA	1504	-0.015	8.630	-1.323	0.251
LVGI	1504	1.272	57.485	0.0	2.729
Firm Size	1504	22.132	26.553	16.133	22.132
Asset Growth	1504	0.162	8.995	-0.977	0.381
Sale Growth	1504	0.135	4.566	-0.959	0.344
ROE	1504	0.090	13.655	-7.703	0.616
Net Earning	1504	-1.627	576.557	-1841.95	53.042
Debt Ratio	1504	0.317	2.590	0.0	0.224
Non-Current Asset	1504	0.187	8.382	-0.995	0.473
Operational Cash Flow	1504	2.684	2057.21	-91.354	61.667

Table 3 Descriptive Statistics of Research Variables

Model 1 Discretionary Accruals Linear Regression:

DA = -0.43 + 0.01 Firm Size + 0.06 Asset Growth - 0.02 Sale Growth + 0.00 ROE - 0.00 Net Earning + 0.02 Debt Ratio - 0.00 Non-Current Asset + 0.00 Operational Cash Flow

The linear regression result shows that Firm Size, Asset Growth, ROE, Debt Ratio and Operational Cash Flow have positive relationship with Accrual Earnings Management as measured by Discretional Accrual (*DA*). Then Debt Ratio, Sale Growth, and Non-Current Asset have negative relationship with Accrual Earnings Management as measured by Discretional Accrual (*DA*).

Model 2 Abnormal Cash Flow from Operation Linear Regression:

AbCFO = -0.14 + 0.01 Firm Size - 0.07 Asset Growth - 0.06 Sale Growth + 0.02 ROE + 8.66 Net Earning - 0.14 Debt Ratio + 0.03 Non-Current Asset - 7.91 Operational Cash Flow

The linear regression result shows that Firm Size, ROE, Net Earning, and Non-Current Asset have positive relationship with Real Earnings Management as measured by Abnormal Cash Flow from Operation (*AbCFO*). Then Asset Growth, Sale Growth, Debt Ratio, and Operational Cash Flow have negative relationship with Real Earnings Management as measured by Abnormal Cash Flow from Operation (*AbCFO*).

Model 3 Abnormal Production Linear Regression:

AbProd = 0.13 - 0.01 Firm Size - 0.37 Asset Growth + 0.16 Sale Growth - 0.05 ROE + 0.00 Net Earning + 0.18 Debt Ratio + 0.01 Non-Current Asset - 7.12 Operational Cash Flow

The linear regression result shows that Sale Growth, Net Earning, Debt Ratio, and Non-Current Asset have positive relationship with Real Earnings Management as measured by Abnormal Production (*AbProd*). Then Firm Size, Asset Growth, ROE, and Operational Cash Flow have negative relationship with Real Earnings Management as measured by Abnormal Production (*AbProd*).

Model 4 Abnormal Discretionary Expense Linear Regression:

AbDisExp = -3.82 + 0.17 Firm Size + 0.37 Asset Growth - 0.05 Sale Growth + 0.05 ROE - 0.008 Net Earning - 0.12 Debt Ratio - 0.05 Non-Current Asset + 0.00 Operational Cash Flow

The linear regression result shows that Firm Size, Asset Growth, ROE, Net Earning, and Operational Cash Flow have positive relationship with Real Earnings Management as measured by Abnormal Discretionary Expense (*AbDisExp*). Then Sale Growth, Debt Ratio, and Non-Current Asset have negative relationship with Real Earnings Management as measured by Abnormal Discretionary Expense (*AbDisExp*).

Model 5 Logistic Regression:

FRAUD = -2.14 + 0.10 DSRI + 0.15 GMI + 0.09 AQI + 0.06 SGI + 0.07 DEPI + 0.00 SGAI - 0.21 TATA - 0.00 LVGI

The logistic regression result shows that Days' Sales in Receivable Index (*DSRI*), Gross Margin Index (*GMI*), Asset Quality Index (*AQI*), Sales Growth Index (*SGI*), Depreciation Index (*DEPI*), and Sales, General & Administrative expense Index (*SGAI*) have positive relationship with Earnings Management as measured by dummy variable as fraud company or non-fraud company. Then Total Accruals to Total Assets Index (*TATA*) and Leverage Index (*LVGI*) have negative relationship with Earnings Management as measured by dummy variable as fraud company or non-fraud company.

Variable	Model 1 *DA*	Model 2 *AbCFO*	Model 3 *AbPro*	Model 4 *AbDisExp*	Model 5 *Fraud*
Constant	-0.434*****	-0.140	0.138	-3.822	-2.144
Firm Size	0.013*****	0.011*****	-0.013*****	0.170*****	
Asset Growth	0.064*****	-0.071*****	-0.371*****	0.370*****	
Sale Growth	-0.023**	-0.060*****	0.160*****	-0.058	
ROE	0.006	0.020*****	0.054*****	0.055**	
Net Earning	0.000****	8.661	0.000*****	-0.008*	
Debt Ratio	0.028*	-0.144*****	0.185*****	-0.125*	
Non-Current Asset	-0.009	0.033***	0.017	-0.057	
Operational Cash Flow	0.000*	-7.913	-7.126	0.000	
DSRI					0.107
GMI					0.156**
AQI					0.093
SGI					0.067*
DEPI					0.071*
SGAI					0.008*****
LVGI					-0.212
TATA					-0.006

Table 4 Regression Results

* for $p < 0.1$, ** for $p < 0.05$, *** for $p < 0.01$, **** for $p < 0.005$, ***** for $p < 0.001$

Table 4 shows the regression results for all models in terms of coefficients and significances. The names under each model are for abnormal discretionary accruals, abnormal CFO, abnormal production, abnormal discretionary expenses and fraudulent firms. Model 5 uses logistic regression to detect earnings management measured by fraud or non-fraud company. The result of this research shows that *GMI* (Gross Margin Index), SGI (Sales Growth Index), *DEPI* (Depreciation Index), and *SGAI* (Sales and General Administration Expense Index) have significant influence to detect earnings management. Then *GMI*, *SGI*, *DEPI*, and *SGAI* can be used to detect earnings management. But *DSRI* (Sales Index), *AQI* (Asset Quality Index), *TATA* (Total Accruals to Total Assets Index), and *LVGI* (Leverage Index) statistically have no significant effect on the detection earnings management. Then *DSRI*, *AQI*, *TATA*, and *LVGI* are not able to detect earnings management.

While Tarjo and Herawati (2015) also use the M-score model to detect financial fraud and the logistic regression results show that *GMI*, *DEPI*, SGAI, and *TATA* have significant influence to detect financial fraud. This result shows that *GMI*, *DEPI*, *SGAI*, and *TATA* can be used to detect financial fraud. While *DSRI*, *AQI*, and *LVGI*

statistically have no significant influence to detect financial fraud. Then *DSRI*, *AQI*, and *LVGI* are not able to detect financial fraud. Our result and the result of Tarjo and Herawati (2015) are pretty consistent with most research findings that sales, depreciation and expenses are the most commonly used in manipulating earnings to scam investors. But for Indonesian firms, the sales growth is another item to use as a way to cheat investors. The *p*-value comparison of this study to Tarjo and Herawati (2015) described in table 5.

Variable	Model 5	Tarjo and Herawati (2015)
DSRI	0.230	0.163
GMI	0.013**	0.042**
AQI	0.194	0.112
SGI	0.068*	0.163
DEPI	0.099*	0.071*
SGAI	0.004****	0.021**
LVGI	0.597	0.190
TATA	0.771	0.075*

Table 5 The Comparison of *P*-Value

* for $p < 0.1$, ** for $p < 0.05$, *** for $p < 0.01$, **** for $p < 0.005$, ***** for $p < 0.001$

5. Conclusions

We use the same variables to measure the accrual and real management activities for Indonesian public companies. From analyzing Indonesia data, there are clear evidence that manipulating earnings and committing financial fraud do exist for Indonesian public firms. From results of model one to four, clearly, firm size and asset growth have significant impacts, with various directions, on both accrual earnings management and real management activities for Indonesian firms. This this means that firm size and asset growth can be used to detect accrual and real earnings management activities. We also find that firm size, asset growth, ROE, and debt ratio consistently have significant relationship to real earnings management. It tells us that firm size, asset growth, ROE, and debt ratio can be used as metrics to uncover real earnings management activities for Indonesian listed companies.

There are more significant variables in relation to real earnings management than accrual earnings management. The reason is quite obvious since accrual earnings management is quite antique and easier to be spot by investors and regulators. That is why we could see that there are more significant tools for Indonesian firms to conduct more real earnings management than accrual earnings management. To predict the possibility of Indonesian firm to commit financial fraud, we find that manipulating gross margin, sales growth, depreciations and expenses related to sales and general administration is common seen from fraudulent firms in Indonesia.

Of course, our analysis is based on linear model. There is a limitation for linear model can do. For future research, non-linear may be able to use to further investigate Indonesian public firm's earnings management behavior.

Works Citation

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Beneish, M. D. (1999). The detection of earnings manipulation. *Financial Analyst Journal.* 55(5). 24-36.

Beneish, M. D., Lee, M.C.C., & Nichols, D.C. (2013). Earnings manipulation and expected returns. *Financial Analyst Journal*. 69(2). 57-82.

Chen, F., Chi, D., & Wang, Y. (2015). Detecting biotechnology industry's earnings management using Bayesian network, principle component analysis, back propagation neural network, and decision tree. *Economic Modelling*. 461-10.

Dechow, P. M., & Dichev, I. D. (2002). The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review*, *77*(s-1), 35–59.

Dechow, P.M., Sloan, R.G., & Sweeny, A.P. (1995). Detecting earnings management. *The AccountingReview*. 70(2). 193-225.

Ezazi, E. M., Ghotbi, F. S., & Ghotbi, S. F. (2013). Predicting earning management using RBF, ICA, and SVM in firms listed in Tehran security exchange. *Asian Journal of Management Research*. 4(1). 208-220.

Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economic*. 40. 3-73.

Gunny, K. 2005. What are the consequences of real earnings management?. Working paper, University of California, Berkeley, CA.

Hewitt, M., Hodge, F., & Pratt, J. (2014). *How the discover of accruals-based versus real earnings management affects investment decisions: The important of trust.* Working paper.

Hoglund, H. (2012). Detecting earnings management with neural network. *Expert System with Applications*. 39(10). 9564-9570.

Hribar, P., & Collins, D. W. (2002). Errors in estimating accruals: implications for empirical research. *Journal Account Res*. 40(1). 105-134.

Kothari, S. P., Mizik. N., *Roychowdhury*, S. (2012). *Managing for the moment: The role of real activity versus accruals earnings management in SEO valuation.* Working paper.

Loftus, J. A., & Sin, S. (1997). The role of current and non-current accruals in the relation between stock returns and earnings. *Accounting and Finance.* 47(2). 147-161.

Marquardt, C. A., & Wiedman, C. I. (2004). The effect of earnings management on the value relevance of accounting information. *Journal of Business Finance and Accoutning.* 31(3/4). 297-332.

Namazi, M., & Maharluie, M. S. (2015). Detecting earnings management via statistical and neural network techniques. *International Journal of Economics and Management Engineering*. 9(7). 2520-2528.

Nguyen, Khanh. (2008). *Financial statement fraud: Motives, methods, cases and detection.* Boca Raton, Florida, USA.

Palepu, K. G., Healy, P. M., & Bernard, V. L. (2003). *Business Analysis and Valuation Using Financial Statements: Text and Cases.* 3rd ed. South-Western.

Priantara, Diaz. (2013). *Fraud auditing and investigation*. Mitra Wacana Media Publisher Jakarta, Indonesia.

Richardson, S. A., Sloan, R. G., Soliman, M. T., & Tuma, I. (2005). Accrual reliability, earnings persistence, and stock prices. *Journal of Accounting and Economics.* 39(3). 437-485.

Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Research.* 42(33). 335-370.

Rezaee, Zabihollah. (2002). *Financial statement fraud: prevention and detection.* John Wiley & Sons, Inc. New York.

Schipper, K. (1989). Earning Management. *Accounting Horizon.* 3. 91-106.

Sloan, R. G. (1996). Do Stock Price Fully Reflect Information in Accruals and Cash Flows about Future Earnings? *The Accounting Review*. 71(3). 289-315.

Spohr, J. (2004). Earnings Management and IPO-Evidence from Finland. *Liiketaloudellinen aikakauskirja*2. 157-172.

Tarjo & Herawati, N. (2015). Application of beneish m-score models and data mining to detect financial fraud. *Procedia-Social and Behavioral Sciences*. 211. 924-930.

Zang, A. Z. 2006. *Evidence on the tradeoff between real manipulation and accrual manipulation.* Working paper. Duke University.