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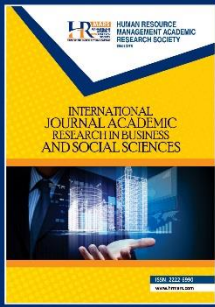
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## Comparative Analysis of Real Earnings Management and Accrual-based Earnings Management before and after Convergence of IFRSs in Indonesia

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### Abstract

This study aims to test and analyze real earnings management through cash flow from operations, production costs and discretionary expenses as well as accrual-based earnings management in the period before and after convergence of IFRSs. In this study using the financial statements of 83 manufacturing companies in Indonesia Stock Exchange. In the period before convergence of IFRSs used the financial statements of 2009, 2010 & 2011 and in the period after convergence of IFRSs used the financial statements of 2014, 2015 & 2016. The results show evidence of a decline in real earnings management through cash flow from operations, production costs and discretionary expenses as well as accrual-based earnings management after convergence of IFRSs. Another result shows that decline of total real earnings management is greater than decline of accrual-based earnings management after convergence of IFRSs.

**Keywords:** IFRSs, Real Earnings Management, Accrual-Based Earnings Management.

### Introduction

Earnings management can occur through two changes or deviations. Earnings management that occurs through changes in the accrual process is called Accrual-based Earnings Management (AEM). In AEM, changes to the accrual process are performed by an opportunistic manager with various estimates and assessments of managers, including in the process when preparing financial statements and can be made after the end of the fiscal year.

Other earnings management, can occur through the deviation of normal business activities or real activities called Real Earnings Management (REM). In REM, managers make earnings management by changing the time or structure of operations, investments and financial decisions. REM can affect future cash flow, leading to budget cuts for research, development and marketing, increased price discounts and reduction in capital investment (Enomoto et al., 2015)

Ewert and Wagenhofer (2005) argue that tightening accounting standards will improve the quality of earnings, but also have other consequences such as raising REM. Cohen et al. (2008) provides evidence that the discharge of Sarbanes-Oxley (SOX) law in the United States has led to firm managers shifting significantly from doing AEM to REM. In countries with strong protection regulations against investors it also tends to get company managers to do REM in reaching their target (Enomoto et al., 2015).

Any change in the application of accounting standards, regulations or legislation issued by regulatory bodies or auditors with the aim of protecting investors tends to make corporate managers doing REM or switch from doing AEM to REM. This is because REM is relatively more difficult to detect by the auditor or regulator (Cohen et al., 2008) and more easily disguised as a normal business activity (Enomoto et al., 2015).

The issue of globalization has become an unavoidable phenomenon in the business world. Stockholders and stakeholders in the international market seek to simplify and synchronize the language of transacting and investing globally. Global financial reporting standards and accounting standards, must be standards that are acceptable and understandable to the global community. International Financial Reporting Standards (IFRS) formulated by International Accounting Standard Board (IASB) is a standard financial reporting that is expected to be the answer to the problem.

Worldwide, IFRSs have been adopted by many countries including EU, African, Asian, Latin American and Australian countries. Since 2008, it is estimated that around eighty countries require companies listed in the stock exchange to implement IFRSs in presenting their financial statements. Indonesia also gradually became one of the countries that adopted IFRSs. In Indonesia, IFRSs began to be adopted gradually starting from 2008. IAI (Ikatan Akuntan Indonesia) determine that Indonesia adopts full IFRSs from 1 January 2012.

## Literature Review

### Accrual-based Earnings Management (AEM)

One of the earning management techniques commonly used by corporate managers is accruals. Accrual represents the difference between the net cash inflow from a firm's operating results and the profit reported in the income statement and may be non-discretionary accruals or discretionary accruals. The financial statements are prepared on the accrual basis so that the financial statement figures will contain the accruals, both discretionary and non-discretionary (Rahman and Hutagaol, 2008; Darwish, 2016).

An opportunistic manager can manage earnings by changing the accrual process because various estimations and assessments of managers are included in the process when preparing financial statements. Thus, managers can do AEM after the end of the fiscal year. However, AEM is more easily visible by auditors and regulators oversight and may cause problems in future periods (Enomoto et al., 2015).

To measure the AEM used modified Jones model (Dechow et al., 1995) which is also implemented by Roychowdhury (2006), Cohen et al. (2008) and Braam et al. (2015) that is :

$$\frac{Accrual_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \beta_2 \left( \frac{PPE_{t-1}}{A_{t-1}} \right) + \varepsilon_t$$

Where  $Accrual_t = IBEI - CFO$  in period  $t$ ,  $IBEI = \text{Income Before Extraordinary Items}$ ,  $CFO = \text{Cash Flow from Operations}$ ,  $A_{t-1}$  = total assets in period  $t-1$ ,  $S_t$  = sales during period  $t$ ,  $\Delta S_t = S_t - S_{t-1}$  dan  $PPE_{t-1} = \text{Property, Plant and Equipment}$  in period  $t-1$ .

### Real Earnings Management (REM)

Roychowdhury (2006) defines REM as a manipulation of real activity that originates from normal operational practices, driven by the manager's desire to mislead stakeholders to trust certain financial reporting objectives that have been met in normal operations. Further, Roychowdhury (2006) explains that REM can be done by corporate managers in 3 (three) ways: (1) sales manipulation, (2) decrease of discretionary expenses and (3) overproduction.

Sales manipulation is an attempt by the company's manager to temporarily increase sales in a given period by offering excessive product price discounts or providing more lenient credit terms. This strategy can increase the sales volume and profit of the current period. Company managers may also derive discretionary expenses such as research and development expenses, advertising expenses and sales, general and administrative expenses especially in periods where such expenditures do not directly lead to revenue and profits. This strategy can improve the profit and cash flows of the current period but with the risk of reducing future cash flows. To increase profits, company managers can produce more than necessary with the assumption that higher production levels will cause fixed costs per unit of product to be lower. This strategy can reduce cost of goods sold and improve operating profit.

To measure REM can use a model implemented by Roychowdhury (2006), Cohen et al. (2008), Braam et al. (2015) and Cupertino et al. (2015). The model used in measuring REM is divided into three model approaches, namely through cash flow from operations, production costs and discretionary expenses. The model used to measure REM through Cash Flow from Operations (REM-CFO) is as follows :

$$\frac{CFO_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{S_t}{A_{t-1}} \right) + \beta_2 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \varepsilon_t$$

While REM through Production Costs (REM-PROD) using the model as follows:

$$\frac{PROD_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta_1 \left( \frac{S_t}{A_{t-1}} \right) + \beta_2 \left( \frac{\Delta S_t}{A_{t-1}} \right) + \beta_3 \left( \frac{\Delta S_{t-1}}{A_{t-1}} \right) + \varepsilon_t$$

$$PROD_t = COGS_t + \Delta INV_t$$

And REM through Discretionary Expenses (REM-DISEXP) used the following model:

$$\frac{DISEXP_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left( \frac{1}{A_{t-1}} \right) + \beta \left( \frac{S_t}{A_{t-1}} \right) + \varepsilon_t$$

Where  $CFO_t$  = cash flow from operations in period  $t$ ,  $PROD_t$  = production costs in period  $t$ ,  $COGS_t$  = cost of goods sold in period  $t$ ,  $\Delta INV_t$  = inventory change in period  $t = INV_t - INV_{t-1}$ ,  $A_{t-1}$  =

total assets at period t-1,  $S_t$  = sales during period t,  $\Delta S_t = S_t - S_{t-1}$  dan  $DISEXP_t$  = discretionary expenses in period t.

### Hypothesis

The hypotheses to be tested in this study are as follows:

- Ha1. REM-CFO decreases after convergence of IFRSs.
- Ha2. REM-PROD decreases after convergence of IFRSs.
- Ha3. REM-DISEXP decreases after convergence of IFRSs.
- Ha4. AEM decreases after convergence of IFRSs.
- Ha5. Decline of total REM is greater than decline of AEM after convergence of IFRSs.

### Research Methodology

This research is a quantitative research using survey method that is comparative. By using the formula of Isaac and Michael (Sugiyono, 2014) at a 5% error rate, it is determined that samples used in this study is 83 companies from 103 total population of listed manufacturing companies in the Indonesia Stock Exchange. Data sources are secondary data in the form of financial statements ending Dec 31. In the period before convergence of IFRSs used the financial statements of 2009, 2010 & 2011 and in the period after convergence of IFRSs used the financial statements of 2014, 2015 & 2016. The financial statements are obtained from the Indonesia Stock Exchange downloaded through the website [www.idx.co.id](http://www.idx.co.id).

### Method of Analysis and Design of Hypothesis Testing

In this research, to test all hypothesis done by paired-sample t-test which is part of hypothesis test two samples. Calculation of t value can be done by using t-Test: Paired Two Sample for Means from Data Analysis Tools in Microsoft Excel software.

In testing the hypothesis used t distribution. Using the t distribution due to the standard deviation of the population is unknown. The statistical statements of the null hypothesis ( $H_0$ ) and the alternative hypothesis ( $H_a$ ) in the two-sample hypothesis test for one-sided test in this study are as follows:

$$H_0 : \mu_{\text{before}} \leq \mu_{\text{after}}$$

$$H_a : \mu_{\text{before}} > \mu_{\text{after}}$$

The null hypothesis states that the  $\mu$  population before convergence of IFRSs is smaller or equal to  $\mu$  population after convergence of IFRSs. In contrast, the alternative hypothesis shows that  $\mu$  population before convergence of IFRSs is greater than  $\mu$  population after convergence of IFRSs.

In this research, there are 83 samples of manufacturing companies in Indonesia Stock Exchange which are paired samples, so the degree of freedom (df) is 82. With a significance level of 0.1 for one-sided test, the critical t value is 1.292. Then the decision to test the hypothesis for one-sided test in this study that the null hypothesis ( $H_0$ ) rejected if the value of t stat greater than the value of t critical or t stat greater than 1.292.

## Results and Discussions

Table 1 shows the description of the research data in the form of minimum, maximum, mean and standard deviation values of REM-CFO, REM-PROD, REM-DISEXP and AEM in the period before and after convergence of IFRSs. While in table 2 is a descriptive statistics data model. Table 2 shows that standard deviation of model data before and after convergence of IFRSs is almost the same.

Table 1. Descriptive Statistics of Actual Data

	Minimum	Maximum	Mean	Standard Deviation
<b>Before Convergence of IFRSs</b>				
CFO/ $A_{t-1}$ (REM-CFO)	-0.230	0.591	0.092	0.126
PROD/ $A_{t-1}$ (REM-PROD)	-5.367	-0.031	-1.227	0.863
DISEXP/ $A_{t-1}$ (REM-DISEXP)	-0.940	-0.019	-0.164	0.164
Accrual/ $A_{t-1}$ (AEM)	-0.396	0.940	0.007	0.144
<b>After Convergence of IFRSs</b>				
CFO/ $A_{t-1}$ (REM-CFO)	-0.207	0.594	0.086	0.108
PROD/ $A_{t-1}$ (REM-PROD)	-7.765	-0.112	-0.887	0.905
DISEXP/ $A_{t-1}$ (REM-DISEXP)	-0.782	-0.011	-0.129	0.136
Accrual/ $A_{t-1}$ (AEM)	-0.204	0.196	-0.039	0.067

Table 2. Descriptive Statistics of Model Data

	Minimum	Maximum	Mean	Standard Deviation
<b>Before Convergence of IFRSs</b>				
CFO/ $A_{t-1}$ (REM-CFO)	0.010	0.188	0.092	0.027
PROD/ $A_{t-1}$ (REM-PROD)	-4.796	0.223	-1.227	0.820
DISEXP/ $A_{t-1}$ (REM-DISEXP)	-0.299	-0.132	-0.164	0.033
Accrual/ $A_{t-1}$ (AEM)	-0.078	0.142	0.007	0.046
<b>After Convergence of IFRSs</b>				
CFO/ $A_{t-1}$ (REM-CFO)	-0.007	0.211	0.086	0.028
PROD/ $A_{t-1}$ (REM-PROD)	-7.465	0.022	-0.887	0.874
DISEXP/ $A_{t-1}$ (REM-DISEXP)	-0.325	-0.101	-0.129	0.029
Accrual/ $A_{t-1}$ (AEM)	-0.106	0.018	-0.039	0.034

Using the financial statement data from 83 manufacturing companies in Indonesia Stock Exchange, it can be measured and determined by REM and AEM model. The obtained model is assumed as a normal model representing the condition of all population from listed manufacturing companies. The normal model will be used to determine the abnormal value by comparing it with the actual value of each listed issuer according to the period. The coefficients of the models can be seen in table 3 and table 4.

Table 3. Model Coefficient Before Convergence of IFRSs

	$CFO_t/A_{t-1}$ (REM-CFO)	$PROD_t/A_{t-1}$ (REM- PROD)	$DISEXP_t/A_{t-1}$ (REM-DISEXP)	$Accrual_t/A_{t-1}$ 1 (AEM)
<i>Intercept</i>	0.069	0.228	-0.126	0.066
$1/A_{t-1}$	-7137.4	-1063.6	-11500.4	8279.3
$S_t/A_{t-1}$	0.023	-0.864	-0.010	
$\Delta S_t/A_{t-1}$	0.006	-0.221		-0.048
$\Delta S_{t-1}/A_{t-1}$		-0.230		
$PPE_t/A_{t-1}$				-0.170
Adjusted $R^2$	0.01	0.90	0.02	0.07

Table 4. Model Coefficient After Convergence of IFRSs

	$CFO_t/A_{t-1}$ (REM-CFO)	$PROD_t/A_{t-1}$ (REM- PROD)	$DISEXP_t/A_{t-1}$ (REM-DISEXP)	$Accrual_t/A_{t-1}$ 1 (AEM)
<i>Intercept</i>	0.100	0.078	-0.094	0.038
$1/A_{t-1}$	-11814.7	6480.2	-9662.9	-7129.5
$S_t/A_{t-1}$	-0.004	-0.853	-0.021	
$\Delta S_t/A_{t-1}$	0.082	0.005		-0.004
$\Delta S_{t-1}/A_{t-1}$		0.243		
$PPE_t/A_{t-1}$				-0.168
Adjusted $R^2$	0.03	0.93	0.02	0.23

The mean values of REM-CFO, REM-PROD, REM-DISEXP, AEM and Total MLR before and after convergence of IFRSs are shown by table 5. The result of this research is evidence of decreasing REM-CFO, REM-PROD, REM-DISEXP and AEM after convergence of IFRSs at manufacturing companies in Indonesia Stock Exchange. Another result, that decline of Total REM is greater than decline of AEM after convergence of IFRSs. The result of paired-sample t-test and hypothesis test result can be seen in table 6.

Table 5. Mean Before and After Convergence of IFRSs

	Before Convergence		After Convergence	
	Mean	Variance	Mean	Variance
REM-CFO	0.083	0.008	0.070	0.006
REM-PROD	0.192	0.036	0.158	0.031
REM-DISEXP	0.113	0.013	0.089	0.010
AEM	0.077	0.013	0.043	0.001
Total REM	0.124	0.010	0.063	0.010

Table 6. Results paired-sample t-test and hypothesis test

hypothesis	t stat	level of significance	Decision
Ha1	1.374	0.087	null hypothesis (H01) rejected
Ha2	2.685	0.004	null hypothesis (H02) rejected
Ha3	4.506	0.00001	null hypothesis (H03) rejected
Ha4	2.673	0.005	null hypothesis (H04) rejected
Ha5	4.398	0.00002	null hypothesis (H05) rejected

The results are in accordance with the results of research by Widyawati and Anggraita (2013), Kurniawati and Rahmawati (2014) and Sanjaya and Ulupui (2016) stating that AEM decreased after convergence of IFRSs in Indonesia. Research on the Brazil Stock Exchange by Pelucio-G et al. (2014) states that AEM declines after the application of IFRSs. The results of Zéghal et al. (2011) on the French Stock Exchange stated that AEM also declined after the adoption of IFRSs. Brad et al. (2014) on the Romanian Stock Exchange also gave the same result that AEM declined after the adoption of IFRSs.

But there are also other studies that give different results. Among them are Ewert and Wagenhofer (2005) which states that the REM level increases after tightening of accounting standard. The Baiga and Khan (2016) research on the Pakistan Stock Exchange shows that there is no significant influence on AEM after the implementation of IFRSs. Another study by Doukakis (2016) in 22 European countries stated that there was no significant effect on REM and AEM after the adoption of IFRSs.

### Conclusion and Recommendation

The results of this study indicate evidence of decline in REM-CFO, REM-PROD, REM-DISEXP and AEM at manufacturing companies in Indonesia Stock Exchange. Another result indicates that decline of total REM is greater than decline of AEM after the convergence of IFRSs.

In accordance with the results of this study has been up to now convergence of IFRSs in Indonesia is still quite effective to protect investors from bad terms both in REM and AEM. This is a good thing for investors or potential investors. Regulatory bodies need to conduct periodic



evaluations and together with academic researchers to produce rules or regulations that can protect investors from the impact of earnings management practices.

### Limitation

Limitation in this study is the financial statements used in the period before convergence of IFRSs can not be under the year 2009 because of the absence of data on the Indonesia Stock Exchange site. In further research it is necessary to add test of the influence of certain variables such as independent board, audit committee and investor protection to real earnings management and accrual-based earnings management.

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