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Substitution between accrual and real earnings management: The role of independent commissioners and audit committee

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Abstract

The aim of the research is to investigate a substitution between accrual-based earnings management and real activities manipulation based upon the independence of the board of commissioners and the audit committee (number of audit committee members and number of audit committee meetings). This study involved a sample of manufacturing firms in the period of 2009-2014 with 664 observations. The hypothesis testing using multiple regression tests was carried out to obtain some evidence that the independence of the board of directors has no significant effect on accrual-based earnings management but a significant negative effect on real activities manipulation, to the extent of gaining stronger impacts after 2012. The number of audit committee members has a significant positive effect on accrual-based earnings management and a significant negative effect on real activities manipulation through abnormal production costs without any differences between pre and post 2012. The number of audit committee meetings has a significant effect on accrual-based earnings management but does not significantly influence real activities manipulation. In addition, substitution from accrual-based earnings management to real activities manipulation occurred due to the existence of independence of the board of commissioners that comes with a stronger impact on the real activities manipulation after 2012. Furthermore, there was a substitution from accrual-based earnings management to real activities manipulation based on the number of audit committee members without any different effects before and after 2012.

Abstrak

Tujuan dari penelitian ini adalah menguji tentang substitusi antara manajemen laba akrual dan manipulasi aktivitas riil berdasarkan independensi dewan komisaris dan komite audit (jumlah anggota komite audit dan jumlah rapat komite audit). Penelitian ini menggunakan sampel perusahaan manufaktur tahun 2009-2014 sebanyak 664 observasi dan hipotesis diuji dengan menggunakan uji regresi berganda. Hasil penelitian ini menunjukkan bahwa independensi dewan komisaris tidak berpengaruh signifikan terhadap manajemen laba akrual tapi berpengaruh negatif signifikan terhadap manipulasi aktivitas riil dan pengaruhnya lebih kuat setelah tahun 2012. Jumlah anggota komite audit berpengaruh positif signifikan terhadap manajemen laba akrual dan berpengaruh negatif signifikan terhadap manipulasi aktivitas riil melalui kos produksi abnormal tapi tidak ada perbedaan antara sebelum dan sesudah tahun 2012. Jumlah rapat komite audit berpengaruh signifikan terhadap manajemen laba akrual tapi tidak berpengaruh signifikan terhadap manipulasi aktivitas riil. Terjadi substitusi dari manajemen laba akrual ke manipulasi aktivitas riil berdasarkan independensi dewan komisaris dan pengaruhnya lebih kuat terhadap manipulasi aktivitas riil setelah tahun 2012. Selain itu, terjadi substitusi dari manajemen laba akrual ke manipulasi aktivitas riil berdasarkan jumlah anggota komite audit tapi tidak membedakan antara sebelum dan sesudah tahun 2012.

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1. Introduction

This study has a purpose of examining a substitution from accrual-based earnings management to real earnings management (real activities manipulation) following an establishment of the independence of the board of commissioners and the audit committee. This study is related to a phenomenon of a regulatory changes issued by the Capital Market Supervisory and Financial Institution Agency (Bapepam-LK) in 2012. The capital market regulations in this study discuss about establishment and work implementation guidelines of audit committees issued by Bapepam-LK in the Decree of the Chairman of Bapepam-LK Number: Kep-643/BL/2012 with attachment to regulation number IX.1.5. This decree improved and replaced the former decree of the Bapepam-LK Chairman number: Kep-29/PM/2004. The improvement of regulation number IX.1.5 had a goal of increasing independence as well as improving the fulfillment of duties, responsibilities, and authority of the audit committee (Bapepam-LK, 2012).

Regulation number IX.1.5 issued by Bapepam-LK was enacted after the issuance of the Sarbanes-Oxley Act (SOX) by US Congress in 2002 in order to regain public confidence in public companies. The establishment of a board of commissioners and audit committee would likely reduce any opportunities of earnings management because their powerful observations reduce any financial reporting practices which are disruptive to any reporting policies (Ghosh, Marra, & Moon, 2010; Abata & Migiro, 2016; Saona, Muro, & Alvarado, 2020).

Prior studies revealed that financial capabilities and governance expertise of audit committee members have a negative relationship with earnings management (Bédard Chtourou, & Courteau, 2004; Ghosh et al., 2010; Saona et al., 2020). The higher the financial capability and governance skills of the audit committee members, the lower the earnings management is. Thus, the accounting cases harming investors get decreased. Examples of accounting cases in Indonesia were PT Lippo Tbk and PT Kimia Farma Tbk which were discovered to conduct manipulation (Boediono, 2005). Several prior studies in Indonesia indicated that the composition of the board of commissioners and audit committee influenced earnings management. Utami & Rahmawati (2008) stated that the composition of the board of commissioners has a significant effect on earnings management. Moreover, Wardhani & Joseph (2010) revealed that the accounting and financial background of the audit committee are negatively related to earnings management.

Following the issuance of regulation number IX.1.5 by Bapepam-LK, a lot of prior studies investigated the relationship between the independence of the board of commissioners & audit committee and the earnings management. Prior studies merely took investigation on the effect of the independence of the board of commissioners and audit committee (number of audit committee members and number of audit committee meetings) on earnings management types (accrual-based earnings management and real activities manipulation). However, according to Zang (2012), investigating earnings management must include both types of earnings management techniques as they cannot be put under separate investigation to avoid misleading conclusions. Even further according to Field, Lys, & Vincent (2001), it was not recommended to analyze only one accounting issue since people ideally look into a comprehensive theory of accounting that comprises all earnings management techniques. Therefore, this study would examine the substitution between accrual earnings management and real activities manipulation based upon independence of the board of commissioners and the audit committee.

2. Hypotheses Development

According to Scott (2015), earnings management can be either selected accounting policies or real actions of managers influencing earnings with certain purposes. Earnings management has its two facets: good and bad. As stated by Scott (2015), both

good and bad facets depend on each purpose of earnings management. The good facet of earnings management could be used as a tool for delivering information from internal users of company to investors. Meanwhile earnings management turns bad when managers do not comply with GAAP (Generally Accepted Accounting Principles) which results in enormous earning power. Ronen & Yaari (2008) stated that poor earnings management is an act of distortion away from the truth. If the reported earnings mismatch the actual one, the companies likely perform poor earnings management. Accrual-based earnings management is identified through the existence of discretionary accruals. As reported by Zang (2012), accrual earnings management would modify either accounting choices or estimation of transactions in the financial statement.

Real earnings management (real activities manipulation) is a certain direction by changing time, operational structure, investment, and funding transaction which result in suboptimal business (Zang, 2012). Meanwhile real activities manipulation is management actions that manipulate common business practices with primary intention of gaining profit targets (Roychowdhury, 2006; Cohen & Zarowin, 2010).

The decree of Bapepam-LK in 2012 involves an additional requirement of becoming independent commissioner, in which they have to be individuals who are not currently in tenure or those who have no authority and responsibility to plan, lead, control, or supervise activities of the issuer or public company within the last six months. According to Ghosh et al. (2010). They highlighted some conditions in which independent commissioners should monitor the process of financial reporting and the definition of independence should particularly refers to conditions post SOX, such condition likely results in the relationship between the composition of independent commissioners and earnings management which is more significant in the period of post SOX. Ghosh et al. (2010) stated that audit committees consist of independent commissioners since non-independent commissioners are likely more motivated to confront managerial reporting policies. If an independent audit committee post SOX is more effective in reducing earnings management, then overall earnings management post SOX would decrease. The negative relationship between earnings accrual management and the independence of the audit committee is expectedly more significant post SOX.

Prior studies revealed that the independence of the board of commissioners has a negative effect on earnings management (Boediono, 2005; Utami & Rahmawati, 2008; Roodposhti & Chasmi, 2010; Liu, Harris, & Omar, 2013; Prastiti & Meiranto, 2013; Saona et al., 2020). Besides, previous studies investigating the relationship between board monitoring and accrual earnings management found that managers performing abnormal accruals that increase earnings to avoid reporting losses and decreasing profits is negatively related to the proportion of outsiders on the board (Peasnell et al., 2005). Moreover Talbi et al. (2015) and Rajeevan & Ajward (2020) showed that the independence of the board of commissioners negatively affected the real activities manipulation. Therefore, based on the above illustration, the formulated hypothesis is:

H_{1a}: independence of the board of commissioners negatively affects accrual-based earnings management and real activities manipulation.

As stated by Graham et al. (2005), the executives are more reluctant to comply with GAAP accounting policies of accrual-based management in order to achieve profit targets, even though earnings management is likely more affordable than increasing economic value. An inclination to substitute accrual-based earnings management with real activities manipulation is likely affected by an existing stigma related to accounting fraud cases such as Enron and post SOX. Cohen, Dey, & Lys (2008) gave an evidence that companies more frequently prefer

real activities manipulation to accrual-based earnings management in order to achieve earnings benchmarks post SOX.

Kothari, Mizik, & Roychowdhury (2016) stated that real activities manipulation was more consistent and more predictable than accrual-based earnings management due to poor market performance post SEO (Seasoned Equity Offering). This finding was supported by a research from Butar (2014) that the influence of the board of commissioners on absolute abnormal accruals was more significant after the issuance of the 2004 Bapepam-LK decree than it was before. It indicated that the Bapepam-LK decree was effective in improving the function of the board of commissioners from the standpoint of earnings management perspective, particularly as a signaling mechanism. Thus, based on such assumption, the issuance of the 2012 Bapepam-LK Decree Kep-643/BL/2012 lead to companies' inclination to real activities manipulation than accrual-based earnings management; and stronger effect of the independence of the board of commissioners. Therefore, based on the above illustration, the formulated hypothesis as follow:

H_{1b}: the effect of the independence of the board of commissioners on the real activities manipulation is more significant than the effect of the independence of the board of commissioners on accrual-based earnings management after capital market regulations in 2012.

The work implementation guidelines of audit committee are regulated in the Decree of the Chairman of Bapepam-LK Number: Kep-643/BL/2012. What makes it different from former decree is the requirement of independent audit committee in fulfilling duties and responsibilities and audit committee meetings at least once every three months. Ghosh et al. (2010) found a relationship between audit committee size and accrual-based earnings management which became weaker post SOX. It suggested the lower the size of audit committee, the more efficient the monitoring activity of financial reporting process is. It further reduces a risk of earnings management. Likewise, the number of audit committee meetings works in the same way. Audit committees who attend meeting with company management and external auditors become an important factor in accounting judgment. Besides, management and auditors likely look out the results of the discussion which eventually reduces any risks of earnings management. It is aligned with research findings from González & García-Meca (2014) and Albersmann & Hohenfels (2017).

Aside from accrual-based earnings management, most companies prefer real activities manipulation. Pratiwi & Meiranto (2013) found that the number of the audit committee members significantly affects real activities manipulation. Thus, following the issuance of Bapepam-LK Decree Kep-643/BL/2012, companies likely prefer real activities manipulation to accrual-based earnings management and the influence of audit committee becomes stronger. Therefore, based on the above illustration, the hypothesis is formulated as follow:

H_{2a}: the number of audit committee members has a negative effect on accrual-based earnings management and real activities manipulation.

H_{2b}: the number of audit committee meetings has a negative effect on accrual-based earnings management and real activities manipulation

H_{2c}: the effect of audit committee members on real activities manipulation is more significant than the effect of audit committee members on accrual-based earnings management after capital market regulations in 2012.

H_{2d}: the effect of audit committee meetings on real activities manipulation is more significant than the effect of audit committee size on accrual-based earnings management after capital market regulations in 2012.

3. Methods, Data and Analysis

This study employed purposive sampling to obtain representative sample based on predetermined criteria. The population in this study was manufacturing firms listed on the Indonesia Stock Exchange (IDX) in 2009-2014. The predetermined criteria of sample selection in this study are as follow: (1) manufacturing firms listed on the Indonesia Stock Exchange (IDX) in the period of 2009-2014 respectively. (2) Manufacturing firms reporting complete data during 2007-2014. Data from 2007 to 2008 are used to measure accrual-based earnings management whereas total assets data t-1 and sales data t-1 and t-2 are used to measure real activities manipulation.

Manufacturing firms are exclusively used as sampling to prevent issues dealing with different characteristics between manufacturing and non-manufacturing firms. The period of 2009-2014 was selected to see the impact of regulatory changes in 2012 by the Capital Market Supervisory and Financial Institution Agency (Bapepam-LK) by comparing the relationships between real activities manipulation and accrual-based earnings management before and after the 2012 regulation capital market.

This study highlighted discretionary accruals as a measure of earnings management. The discretionary accruals were obtained from total accrual measurement. Consistent with prior studies on earnings management (Jones, 1991), total accruals (TAC) was estimated accordance with the following formula:

$$TAC_t = NI_t - CFO_t \quad (1)$$

Where: TAC_t= total accrual in year t; NI_t= net income in year t; CFO_t= operating cash flow of company i in year

The value of discretionary accrual (DAC) was estimated using the following formula:

$$TAC_t/A_{t-1} = \alpha_1 [1/A_{t-1}] + \alpha_2 [\text{“}REV_t - \text{“}REC_t/A_{t-1}] + \alpha_3 [PPE_t/A_{t-1}] \quad (2)$$

Where: TAC_t = total accrual in year t; DAC_t= discretionary accrual in year t; A_{t-1}= total company assets in year t-1; ΔREV_t= Sales revenue in year t minus company sales revenue year t-1; ΔREC_t= accounts receivables in year t minus accounts receivables in year t-1; PPE_t= property, plant, and equipment in year t; α_1, α_2, and α_3= regression coefficient of OLS regression equation; ε_t= error term t.

DAC is obtained from the estimated model's residual value of regression equation 2.

Real activities manipulation was computed using similar approach formerly used by Roychowdhury (2006) in the following way.

Abnormal *CFO*

$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_t/A_{t-1}) + \alpha_3(\Delta S_t/A_{t-1}) + \varepsilon_t \quad (3)$$

Where: CFO_t= company's operating cash flow in year t; A_{t-1}= total assets of company year t-1; S_t= company's total sales in year t; ΔS_t= company's total sales in year t minus the company's total sales in year t-1

Abnormal operating cash flow (ABN_CFO) was a residual value of the estimated model of regression equation 3 for each industry-year. The residual value was multiplied by -1, meaning that the higher the residual value, the lower the operating cash flow.

Abnormal discretionary expenses

$$DISEXP_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_{t-1}/A_{t-1}) + \varepsilon_t \quad (4)$$

Where: $DISEXP_t$= discretionary expenses refer to as research and development costs added with advertising costs plus sales, administrative and general costs; A_{t-1}= total assets of company year t-1; S_{t-1}= total sales of company in year t-1

The research and development costs were obtained from the income statement in the notes to

the financial statements. The costs were integrated into operating expenses and was detailed in the notes to the financial statements. Abnormal discretionary costs (*ABN_DISEXP*) was residual values of the estimated model of regression equation 4 for each industry-year. The residual value was multiplied by -1, meaning that the higher the residual value, the higher the discretionary expenses subtracted by company to increase the reported earnings.

Abnormal production costs

$$PROD_t/A_{t-1} = \alpha_0 + \alpha_1(1/A_{t-1}) + \alpha_2(S_t/A_{t-1}) + \alpha_3(\Delta S_t/A_{t-1}) + \alpha_3(\Delta S_{t-1}/A_{t-1}) + \varepsilon_t \quad (5)$$

Where: $PROD_t$= production cost, i.e. the cost of goods sold plus changes in inventory; A_{t-1} =total assets of company year t-1; S_t= total sales of company in year; ΔS_t= total sales of company in year t minus total sales of company in year t-1; ΔS_{t-1}= total sales of company in year t-1 minus the total sales of company in year t-2.

Abnormal production cost (*ABN_PROD*) was the residual value of the estimated model of regression equation 5 for each industry-year. The higher the residual value, the greater amount of inventory overproduction and the greater the increase in reported earnings through reduction in cost of goods sold. This study was consistent with Roychowdhury (2006) who detected real activities manipulation among companies with the following equation:

$$Y_t = \beta_0 + \beta_1 Suspect\_NI_t + \beta_2 NI_t + \varepsilon_t \quad (6)$$

Where: Y_t= proxies for real activity management (each cash flow of abnormal operating activities, abnormal production costs, and abnormal discretionary costs); $Suspect\_Ni_t$= indicator variable with a value of 1 for the suspect firm (a firm with profit/total assets in the previous year is 0-0.005, alleged to carry out real activity management due to poor performance and is given a value of 0 for the others (non-suspect firms/ rest of the sample); *NI* (Net Income) = earnings before extraordinary items divided by total assets.

Independent commissioners are members of the board of commissioners as an external party of the issuer or public company (Bapepam-LK, 2012). To measure the independence of the board of commissioners (*KI*), this study utilized a formula of number of independent commissioners/number of the board of commissioners' members.

Audit committee is established as well as responsible to assist the board of commissioners in fulfilling duties and responsibilities of the board of commissioners (Bapepam-LK, 2012). The difference between the 2004 and 2012 Bapepam-LK regulations is that the former give an emphasis to number of audit committee meetings which should be at least once every three months. Besides considering audit committee meeting (RKA) as a proxy of the audit committee through number of audit committee meetings, this study also considers number of audit committee members (*KA*) as a proxy for the audit committee.

This study involved three control variables i.e. leverage, firm size, and profitability. Leverage was measured by debt to total asset ratio (*DAR*), i.e., amount of debt/total assets at the beginning of the year. The firm size was related to political cost hypothesis. The firm size was measured through formula: natural logarithms (total assets at the beginning of the year). This profitability was related to bonus plan hypothesis. This profitability was measured with return on assets (*ROA*), i.e., net profit/total assets at the beginning of the year.

The hypothesis was tested in the following steps:

Hypothesis testing H_{1b}, H_{2c}, and H_{2d} used multiple regression tests in two periods: 2009-2012 and 2013-2014.

Accrual-based earnings management:

Year 2009-2012: $$Y_t = \alpha_0 + \alpha_1 KI + \alpha_2 KA + \alpha_3 RKA + \alpha_4 LEV + \alpha_5 SIZE + \alpha_6 ROA + \varepsilon_t \quad (7a)$$

Year 2013-2014: $Y_t = \beta_0 + \beta_1 KI + \beta_2 KA + \beta_3 RKA + \beta_4 LEV + \beta_5 SIZE + \beta_6 ROA + \varepsilon_t$ (7b)

Real activity manipulation:

Year 2009-2012: $Y_t = \alpha_0 + \alpha_1 Suspect\_NI_t + \alpha_2 KI + \alpha_3 KA + \alpha_4 RKA + \alpha_5 LEV + \alpha_6 SIZE + \alpha_7 ROA + \varepsilon_t$ (8a)

Year 2013-2014: $Y_t = \beta_0 + \beta_1 Suspect\_NI_t + \beta_2 KI + \beta_2 KA + \beta_4 RKA + \beta_5 LEV + \beta_6 SIZE + \beta_7 ROA + \varepsilon_t$ (8b)

Where: Y_t= absolute earnings management, i.e., accrual earnings management (discretionary accrual) and real activity manipulation (cash flow abnormal operating activities, abnormal discretionary costs, and abnormal production costs); *Suspect* $\_NI_t$= indicator variable with a value of 1 for the suspect firm (companies with earnings / total assets valued at 0-0.005, alleged to make an attempt of real activity manipulation due to poor performance) and assigned of 0 value for the other (non-suspect firms / rest of the sample; *KI*= independence of the board of commissioners (proportion of the number of independent commissioners to the number of commissioners); *KA*= number of audit committee members; *RKA*=number of audit committee meetings; *LEV* = leverage; *SIZE* = ln (total assets at beginning of year); *ROA* = return on assets

Testing hypothesis H_{1a}, H_{2a}, and H_{2b} through multiple regression tests with the following regression equations:

Accrual-based earnings management:

$Y_t = \beta_0 + \beta_1 KI + \beta_2 KA + \beta_3 RKA + \beta_4 PER + \beta_5 LEV + \beta_6 SIZE + \beta_7 ROA + \beta_8 PER*KI + \beta_9 PER*KA + \beta_{10} PER*RKA + \varepsilon_t$ (9a)

Real activities manipulation:

$Y_t = \beta_0 + \beta_1 Suspect\_NI_t + \beta_2 KI + \beta_3 KA + \beta_4 RKA + \beta_5 PER + \beta_6 LEV + \beta_7 SIZE + \beta_8 ROA + \beta_9 PER*KI + \beta_{10} PER*KA + \beta_{11} PER*RKA + \varepsilon_t$ (9b)

Where: Y_t= absolute earnings management, i.e. accrual-based earnings management (discretionary accrual) and real activities manipulation (cash flow abnormal operating activities, abnormal discretionary costs, and abnormal production costs); *Suspect* $\_Ni_t$= indicator variable with a value of 1 for the suspect firm (companies with earnings/total assets valued at 0-0.005, alleged to make an attempt of real activity manipulation due to poor performance) and assigned of 0 value for the rest (non-suspect firms/rest of the sample); *KI*= independence of the board of commissioners (proportion of the number of independent commissioners to the number of commissioners); *KA*= number of audit committee members; *RKA*= number of audit committee meetings; *LEV* = leverage; *SIZE* = ln (total assets at beginning of the year); *ROA*=return on asset; *PER*= dummy variable, with a value of 1 for the observation period 2013-2014 and a value of 0 for the observation period 2009-2012.

The independence of the board of commissioners (*KI*), the number of members of the audit committee (*KA*), and the meeting of audit committee (*RKA*) in both periods were assumed to have negative relationship with earnings management. Thus, if the coefficients of β_7, β_8, and β_9 in the regression equation 8a and the coefficients of β_8, β_9, and β_{10} in the 8b regression equation were negative and significant, it was likely that the regression coefficient for the period of 2009-2012 was more negative than the 2013-2014 period. Consequently, the negative influence of the independence of the board of commissioners, the number of audit committee members, and the number of audit committee meetings during 2009-2012 was stronger than the latter (2013-2014).

4. Results

This study employed a sample of manufacturing firms indexed on the Indonesia Stock Exchange (IDX) for the period 2009-2014. there were 150 manufacturing firms indexed on the Indonesia

Stock Exchange (IDX) in 2009-2014. Table 1 describes number of samples used in this study.

Table 1. Number of selected manufacturing firms for the sampling study

Information	Total
Manufacturing firms listed on the Indonesia Stock Exchange in 2009-2014	150
Manufacturing firms that were not listed consecutively in 2009-2014	(29)
Manufacturing firms without complete data for 2007-2014	(4)
The number of selected samples	**117**
Number of observations (117x6)	**702**
Outlier data	**(38)**
The number of final observations	**664**

The selected sample was 117 out of 150 companies listed on the IDX, thus the number of observations was 702 company-years. However, 38 outlier data existed in the selected samples which required further action. After deducted by outlier data, the number of observations became 664. Outliers were removed on basis of z value. If the z value was larger than +3 and less than -3, the outliers data required removal.

The manufacturing firms were categorized into three types of industry, i.e, basic and chemical industries, various industries, and consumer goods industries. The number of companies classified into each category was elaborated in detail in the following Table 2. Table 3 illustrated descriptive statistics for each variable in this study.

Table 2. Number of manufacturing firms per industry

Industry	Number
Basic and chemical industry	53
Various industries	35
Consumer goods industry	29
Total	117

The accrual-based earnings management was represented by the value of discretionary accruals (*DAC*). Table 3 showed mean of DAC was 0.0033. Real activities manipulation was represented by the value of abnormal cash flow through operating activities (*ABN_CFO*), abnormal discretionary expenses (*ABN_DISEXP*), and abnormal production costs (*ABN_PROD*). The mean *ABN_CFO, ABN_DISEXP*, and *ABN_PROD* were 0.001, -0.001, and -0.002 respectively. The independence of the board of commissioners was estimated from the proportion of the number of independent commissioners to the number of members of the board of commissioners. The mean independence of the board of commissioners (*KI*) was 0.391. The audit committee was estimated from the number of audit committee members (*KA*) and the number of audit committee meetings (*RKA*). The mean of number of audit committee members (*KA*) was 3.070 and the mean of number of audit committee meetings (*RKA*) was 6.500. This study involved three control variables, i.e., leverage, size, and return on asset (*ROA*). The mean of leverage, size, and return on asset (*ROA*) were 0.556, 27.999, and 0.072 consecutively.

Table 3. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DAC	664	-0.410	0.930	0.003	0.108
ABN_CFO	664	-0.620	0.460	0.001	0.125
ABN_DISEXP	664	-0.440	0.450	-0.001	0.113
ABN_PROD	664	-1.030	0.970	-0.002	0.179
KI	664	0.200	1.000	0.391	0.111
KA	664	1	5	3.070	0.380
RKA	664	1	96	6.500	7.995
LEVERAGE	664	0.035	1.920	0.556	0.297
SIZE	664	23.083	33.095	27.999	1.592
ROA	664	-0.634	1.016	0.072	0.128
Valid N (listwise)	664				

A multiple regression test was conducted for hypothesis testing. In the following Table 4, the test results illustrated the influence of independent commissioners, the number of audit committee members, and the number of audit committee meetings on accrual earnings management (represented by DAC/discretionary accruals).

Model 2 in Table 4 shows similar outcome as model 1. The number of members of the audit committee (*KA*) has a significant effect on *DAC* with a regression coefficient of 0.027 and sig. <0.05 as well as the number of audit committee meetings (*RKA*) that significantly affects *DAC* with a regression coefficient of -0.001 and sig. <0.10. The control variables of *LEV* and *ROA* also have a significant effect on *DAC* with a regression coefficient of 0.067 and 0.256 which were significant at the level of 0.01.

To identify whether these relationships become stronger after 2012, a variable of *PER* was added to be further examined alongside with other independent variables. However, model 3 in Table 4 indicated that *PER*KI, PER*KA*, and *PER*RKA* did not show significant results.

Models 2 and 3 for *ABN_CFO* in Table 5 revealed similar outcome as model 1. All independent variables (*SUSPECT_NI$_t$, KI, KA*, and *RKA*) had no significant effect on *ABN_CFO*. However, all control variables of *LEV* and *ROA* had significant effect on *ABN_CFO*.

Model 3 for *ABN_DISEXP* in Table 5 also illustrated that *KI, KA*, and *RKA* had no significant effect on *ABN_DISEXP*. However, *SUSPECT_NIt, SIZE,* and *ROA* had a significant effect on ABN_DISEXP with regression coefficients of 0.040 (significant at level of 0.1), 0.005 (significant at level of 0.1), and -0.217 (significant at level of 0.01) consecutively.

Model 3 for *ABN_PROD* in Table 5 revealed that *KI, LEV, SIZE, ROA*, and *PER*KI* significantly influenced *ABN_PROD* with regression coefficients of 0.219 (significant at the level of 0.01), 0.065 (significant at the level of 0.01), 0.009 (significant at the

Table 4. Multiple regression test (accrual-based earnings management)

Model 1: $DAC = \beta_0 + \beta_1 KI + \beta_2 KA + \beta_3 RKA + \beta_4 PER + \varepsilon_t$

Model 2: $DAC = \beta_0 + \beta_1 KI + \beta_2 KA + \beta_3 RKA + \beta_4 PER + \beta_5 LEV + \beta_6 SIZE + \beta_7 ROA + \varepsilon_t$

Model 3: $DAC = \beta_0 + \beta_1 KI + \beta_2 KA + \beta_3 RKA + \beta_4 PER + \beta_5 LEV + \beta_6 SIZE + \beta_7 ROA + \beta_8 PER*KI + \beta_9 PER*KA + \beta_{10} PER*RKA + \varepsilon_t$

	Model 1	Model 2	Model 3
Constant	-0.115***	-0.079	-0.059
KI	0.001	-0.005	-0.011
KA	0.041***	0.027**	0.022**
RKA	-0.001*	-0.001*	-0.001
PER	-0.001	0.001	-0.053
LEV		0.067***	0.067***
SIZE		-0.002	-0.002
ROA		0.256***	0.258***
*PER*KI*			0.018
*PER*KA*			0.014
*PER*RKA*			0.000
Adjusted R²	0.017	0.106	0.103
F value	3.642***	12.252***	8.634***

Notes: *Significant at the level of 0.10; **Significant at the level of 0.05; ***Significant at the level of 0.01; *KI*= number of independent commissioners/number of members of the board of commissioners; *KA*= number of audit committee members; *RKA*= number of audit committee meetings; *LEV*= leverage (total debt/total assets at the beginning of the year); *SIZE*= ln (total assets at the beginning of the year); *ROA* = return on assets (net income/number of assets at the beginning of the year); *PER*= dummy variable, with a value of 1 for the observation period 2013-2014 and a value of 0 for the observation period 2009-2012.

level of 0.05), -0.578 (significant at the level of 0.01), and -0.257 (significant at the level of 0.05). On the other hand, *KA* and *RKA* had no significant effect on *ABN_PROD*.

5. Discussion

The results of testing hypotheses 1a for accrual-based earnings management and real activities manipulation indicated that the independence of the board of commissioners had no significant effect on accrual-based earnings management as well as real activities manipulation even though the regression coefficient indicated their negative relationships.

The results of testing hypotheses 1a for accrual-based earnings management and real activities manipulation showed that the independence of the board of commissioners had no significant effect on accrual-based earnings management and real activities manipulation. Therefore, hypothesis 1a was not supported by the research finding. It suggests that the finding of this study was not aligned with other research findings by Boediono (2005), Utami & Rahmawati (2008), Roodposhti & Chasmi (2010), Liu et al. (2013), Prastiti & Meiranto (2013), Saona et al. (2020), dan Rajeevan & Ajward (2020). As the outcome of models 1 and 2 indicated non-significant relationships, model 3 described non-significant outcome as well.

Hypothesis 1a was not supported by research evidence because according to data from manufacturing firms listed on the IDX, all firms had independent commissioners and fulfilled their obliga-

Table 5. Regression test (real activities manipulation)

Model 1: $Y_t = \beta_0 + \beta_1 Suspect\_NI_t + \beta_2 KI + \beta_3 KA + \beta_4 RKA + \beta_5 PER + \varepsilon_t$

Model 2: $Y_t = \beta_0 + \beta_1 Suspect\_NI_t + \beta_2 KI + \beta_3 KA + \beta_4 RKA + \beta_5 PER + \beta_6 LEV + \beta_7 SIZE + \beta_8 ROA + \varepsilon_t$

Model 3: $Y_t = \beta_0 + \beta_1 Suspect\_NI_t + \beta_2 KI + \beta_3 KA + \beta_4 RKA + \beta_5 PER + \beta_6 LEV + \beta_7 SIZE + \beta_8 ROA + \beta_9 PER*KI + \beta_{10} PER*KA + \beta_{11} PER*RKA + \varepsilon_t$

	ABN_CFO			*ABN_DISEXP*			*ABN_PROD*		
	Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Constant	0.056	-0.186**	-0.185**	0.077**	-0.079	-0.105	0.174***	-0.190	-0.229*
Suspect_NI$_t$	0.037	0.004	0.004	0.057***	0.040**	0.040*	0.032	-0.012	-0.011
KI	0.003	0.020	0.003	-0.052	-0.046	-0.055	0.112*	0.132**	0.219***
KA	-0.018	0.016	0.017	-0.021*	-0.010	-0.002	-0.074***	-0.034*	-0.030
RKA	0.000	-0.001	-0.001	0.001	0.001	0.001	0.001	0.000	0.000
PER	-0.002	-0.016*	-0.028	0.001	-0.007	0.050	-0.003	-0.022	0.119
LEV		0.081***	0.080***		-0.006	-0.006		0.060***	0.065***
SIZE		0.005	0.005		0.005*	0.005*		0.009**	0.009**
ROA		-0.432***	-0.434***		-0.213***	-0.217***		-0.582***	-0.578***
*PER*KI*			0.047			0.025			-0.257**
*PER*KA*			-0.003			-0.022			0.012
*PER*RKA*			0.000			0.000			0.000
Adjusted R^2	0.001	0.250	0.247	0.014	0.061	0.058	0.022	0.203	0.206
F value	0.996	28.639***	20.785***	2.848**	6.390***	6.390***	3.972***	22.173***	16.618***

Notes: * Significant at the level of 0.10; ** Significant at the level of 0.05; *** Significant at the level of 0.01; *Yt* = real activity manipulation (*ABN_CFO, ABN_DISEXP, ABN_PROD*); *Suspect _NI$_t$* = indicator variable with a value of 1 for the suspect firm (companies with earnings/total assets estimated at 0-0.005, alleged to carry out real activity manipulation due to poor performance) and assigned a value of 0 for the other (non-suspect firms/ rest of the sample); *KI*= number of independent commissioners/number of members of the board of commissioners; *KA*= number of audit committee members; *RKA* = number of audit committee meetings; LEV = leverage (total debt / total assets at the beginning of the year); *SIZE*= ln (total assets at the beginning of the year); *ROA*= return on assets (net income/number of assets at the beginning of the year); *PER*= dummy variable, with a value of 1 for the observation period 2013-2014 and a value of 0 for the observation period 2009-2012.

tions to abide by the Bapepam-LK decrees in 2004 and 2012 with an average of 0.391 (Table 3). Nonetheless the increase in independent commissioners through the recruitment of independent commissioner members likely result in integration between the members of the board of commissioners, both independent and non-independent (Levrau & Berghe, 2007). The loose integration among members of the board of commissioners likely resulted in poor congruency among members of the board of commissioners. As a consequence, monitoring accrual-based earnings management and real activities manipulation become less effective. In other words, the function of the independent commissioner in monitoring the accrual-based earnings management becomes ineffective.

Model 3 (Table 4) involved interaction between periods (*PER*) and independent commissioners (*KI*). The substitution between accrual-based earnings management and real activities manipulation was measured by comparing model 3 (Table 4) and model 3 (Table 5). The outcome of model 3 (Table 5) revealed that the independent commissioners had no significant effect on *ABN_CFO* and *ABN_DISEXP* but had a significant effect on *ABN_PROD*, despite no significant effect of the independent commissioners and *PER*KI* on accrual-based earnings management as illustrated in the outcome of model 3 (Table 4). It suggests that substitution from accrual-based earnings management to real activities manipulation comes through *ABN_PROD*. It was supported by an evidence illustrated in the outcome of model 3 (Table 5), suggesting the significant effect of *PER*KI* on real activities manipulation through *ABN_PROD*. The regression coefficient value of *PER*KI* was greater than coefficient value of *KI* (-0,211 > -0,042), suggesting an increase in the influence of the number of audit committee members on real activities manipulation following the capital market regulation in 2012. Thus, we might conclude that hypothesis 1b is supported by evidence.

As the independent commissioners are regulated in the 2012 Bapepam-LK Decree, they would increasingly monitor firm activities, resulting in managers being more careful when conducting earnings management, particularly real activities manipulation through production costs. Overproduction likely reduces the cost of goods sold which consequently results in the increase in net profit. However, the independent commissioners, as regulated in 2012 Bapepam-LK regulations, set managers up to be more alert on reporting greater amount of inventories.

Models 1, 2, and 3 (Table 4) revealed the number of audit committee (*KA*) members had a significant effect on accrual-based earnings management in positive direction, suggesting the existence of audit committee which did not mitigate accrual-based earnings management. Therefore, hypothesis 2a concerning negative effect of the number of audit committee members on accrual-based earnings management was not supported by evidence. The findings of the study was not aligned with Ghosh et al. (2010), González & García-Meca (2014), and Albersmann & Hohenfels (2017). It was likely due to an absence of additional recruitment of audit committee members from year to year (the average number of audit committee members was 3.07 (Table 3) suggesting efficiency of firms that are expectedly monitor financial reporting process to reduce any risks of accrual-based earnings management.

Table 5 revealed different outcomes. Models 1, 2, and 3 (Table 5) described the number of audit committee which had no significant effect on *ABN_CFO* and *ABN_DISEXP*, otherwise it had a significant effect on *ABN_PROD*. Therefore, hypothesis 2a was well-supported by evidences, suggesting the number of audit committee members negatively influences real activities management through *ABN_PROD*.

The regression coefficient of $Suspect\_NI_t$ indicates significant and positive relationship with *ABN_DISEXP*, suggesting that the suspect firms did

not manipulate the reported earnings by reducing discretionary costs in which resulting in lower abnormal discretionary costs than other firms. This research finding revealed that the suspect firms did not favor real activities manipulation through *ABN_DISEXP*.

Hypothesis 2c was tested by comparing model 3 (Table 4 and Table 5). to measure whether the relationship of the number of audit committee members on real activities manipulation became stronger than the influence of the audit committee on accrual earnings management after capital market regulation in 2012. Moreover Table 4 showed that audit committee had a significant positive effect on accrual-based earnings management which was not visible on period after 2012 since *PER*KA* (Table 4) was non-significant. On the other hand, Table 5 revealed that audit committee had a significant negative effect on the real activities manipulation through *ABN_PROD* which was not visible after 2012 since PER*KA (Table 5) was non-significant, suggesting the inversely proportional relationship of the number of audit committee members on accrual-based earnings management and real activities manipulation through *ABN_PROD*. A decrease in the number of audit committee members would likely reduce accrual-based earnings management but increase real activities manipulation. It suggests the existence of substitution from accrual-based earnings management to real activities manipulation without any difference between pre and post 2012.

Table 6. Regression test (accrual-based earnings management)

Model 1: $TAC_t/A_{t-1} = \alpha_1[1/A_{t-1}] + \alpha_2[\Delta REV_t - \Delta REC_t/A_{t-1}] + \alpha_3[PPE_t/A_{t-1}] + \alpha_4 KI + \alpha_5 KA + \alpha_6 RKA + \alpha_7 PER + \varepsilon_t$

Model 2: $TAC_t/A_{t-1} = \alpha_1[1/A_{t-1}] + \alpha_2[\Delta REV_t - \Delta REC_t/A_{t-1}] + \alpha_3[PPE_t/A_{t-1}] + \alpha_4 KI + \alpha_5 KA + \alpha_6 RKA + \alpha_7 PER + \alpha_8 LEV + \alpha_9 SIZE + \alpha_{10} ROA + \varepsilon_t$

Model 3: $TAC_t/A_{t-1} = \alpha_1[1/A_{t-1}] + \alpha_2[\Delta REV_t - \Delta REC_t/A_{t-1}] + \alpha_3[PPE_t/A_{t-1}] + \alpha_4 KI + \alpha_5 KA + \alpha_6 RKA + \alpha_7 PER + \alpha_8 LEV + \alpha_9 SIZE + \alpha_{10} ROA + \alpha_{11} PER*KI + \alpha_{12} PER*KA + \alpha_{13} PER*RKA + \varepsilon_t$

	Model 1	Model 2	Model 3
Constant	-.082**	-.066	-.091
$1/A_{t-1}$	244.601	1871.285*	1933.557*
$[\Delta REV_t - \Delta REC_t/A_{t-1}$	.004	.001	.001
PPE_t/A_{t-1}	-.082***	-.085***	-.085***
KI	-.010	-.019	-.033
KA	.038***	.023*	.031**
RKA	-.001	-.001	-.001
PER	.002	.005	.051
LEV		.097***	.096***
SIZE		-.002	-.002
ROA		.352***	.349***
*PER*KI*			.039
*PER*KA*			-.020
*PER*RKA*			.000
Adjusted R^2	0.032	0.176	0.173
F value	4.148***	15.128***	11.673***

Notes: * Significant at the level of 0.10; ** Significant at the level of 0.05; *** Significant at the level of 0.01; *KI*= number of independent commissioners/number of members of the board of commissioners; *KA*= number of audit committee members; *RKA*= number of audit committee meetings; *LEV*= leverage (total debt / number of assets at the beginning of the year); *SIZE* = ln (total assets at the beginning of the year); *ROA*= return on assets (net income/number of assets at the beginning of the year); *PER*= dummy variable, with a value of 1 for the observation period 2013-2014 and a value of 0 for the observation period 2009-2012.

Table 4 described significant influence of the number of audit committee meetings on accrual-based earnings management but non-significant influence on real activities manipulation. Therefore, hypothesis 2b concerning the negative effect of number of audit committee meetings on accrual-based earnings management was supported by evidence; whereas its relationship on real activities manipulation were not supported by evidence. However, the findings of the study could not provide evidence on a substitution from accrual-based earnings management and real activities manipulation, leading to failure of 2d hypothesis to meet any evidences. It might stem from the fact that the increasing number of audit committee meetings would increase collaboration among members of the audit committee which likely prevent managers to conduct accrual-based earnings management. However, this assumption did not apply to real activities manipulation. Meanwhile collaboration in audit committee meetings only meets administrative requirements in the regulation of 2012 Bapepam-LK Decree.

Robustness Test

The limitations of earnings management model that involved residual values as dependent variable was that regression coefficient and standard error became bias, leading to conclusion error: type I and type II errors (Chen, et al. 2018). This limitation could be addressed by considering independent variables (independent commissioners, audit committee, and number of audit committee meetings) into the earnings management model to prevent bias. Table 6 demonstrated the results of robustness test for accrual-based earnings management.

Model 1 illustrated in Table 6 showed the influence of audit committee on earnings management. Whereas model 2 (Table 6) revealed similar outcome with model 1, suggesting the influence of audit committee on accrual-based earnings management. Meanwhile control variables of *LEV* and *ROA* influence accrual-based earnings management. The outcome of Model 3 showed similar outcome with model 1 and model 2 even though a variable of *PER* did not provide evidence on the influence of audit committee on accrual-based earnings management. Meanwhile the real activities manipulation model still used residual values because an additional variable of *SUSPECT_NI* was used to prevent any biases occur following the use of residual values as dependent variable.

6. Conclusion

The independence of the board of commissioners did not significantly influence accrual-based earnings management but had a significant negative effect on real activities manipulation which became stronger after 2012. It gave evidence on the existence of substitution from accrual-based earnings management to real activities manipulation in which the influence of the independence of the board of commissioners on real activities manipulation become stronger after 2012. The number of audit committee members had a significant positive influence on accrual-based earnings management and a significant negative on real activities manipulation through abnormal production costs without any differences between pre and post 2012. The decrease in the number of audit committee members could reduce accrual-based earnings management but increase real activities manipulation. It suggested that the substitution from accrual-based earnings management to real activities manipulation exist without any different outcomes before and after 2012. The number of audit committee members had a significant effect on accrual-based earnings management but did not significantly influence the real activities manipulation. It implies such regulation of audit committee meetings in the Decree of Bapepam-LK would likely increase collaboration among the audit committee members in order to reduce the risk of accrual-based earnings management. None-

theless this finding cannot provide evidence of the substitution from accrual-based earnings management to real activities manipulation from a standpoint of audit committee meetings. The research findings can be used as a consideration for capital market watchdog to understand the impact of changes in regulations. The capital market watchdog should pay attention on the nature of companies' obedience, whether they solely comply with administrative requirements or implementing the full functions of good corporate governance as well.

This study has some limitations, it excluded outlier data to meet the criteria of normality test that resulted in bias. It has not identified the pattern of accrual-based earnings management and employs the discretionary accrual value without considering positive or negative relationship. Besides, the researcher identified the number of audit committee meetings from the annual report. Even further, some companies did not mention frequency of meetings in detail but only admitting that they hold regular meetings. The researcher did not explore this information further. For companies without number of audit committee meetings' reports, the researcher considered their number of audit committee meetings reaching up four times as suggested by the latest regulation.

For further studies, it is recommended to comprise all data sampling of companies without discarding any outlier data and to provide rationales on why normality test is unfulfilled. Further investigation is required to understand accrual-based earnings management by considering positive and negative direction with other variables. Any further studies would allow identification of the number of audit committee meetings in more sophisticated way, not only identifying the absolute value but also categorizing it into several groups, for instance a group with the number of meetings less than four time, equal to four times, and more than four time to examine the impact of Bapepam-LK Decree that requires audit committee meetings to be at least every three months.

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