Analysis of earnings management practices using the modified jones model on the industry company index kompas 100

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ABSTRACT
This study aimed to examine the issue of differences in earnings management patterns in companies listed on the Indonesia Stock Exchange (IDX). Earnings management can occur because company management wants to take advantage of accounting descriptions/policies under the character of the assets, existing in each of these industries. This study used a Modified Jones Model approach in determining earnings management proxies. Besides, it also used analysis of variance (ANOVA) to test whether there were differences in earnings management patterns. The data were consisted of 450 companies from 8 industrial sectors in the Kompas 100 Stock Index during 2015-2019. They were from various industries; essential and chemical industry; consumer goods; services; mining, oil, natural gas; plantation; property and real estate; and banking. The result shows that there are differences in earnings management patterns between industrial sectors. Therefore, company management practices earnings management following the characteristics of each industry. The research also suggests that the next study should analyze the comparison of earnings management with other models to determine the consistency of results.

INTRODUCTION
Earnings management is one of the factors that can reduce the credibility of financial reports carried out by management intervention in external financial reporting to benefit itself. Company managers use various ways to determine the size of the profits, namely by recognizing and recording income too quickly, recognizing and recording false income, recognizing and recording expenses sooner or later than they should be. By doing so, they do not not disclose their obligation by simply changing accounting methods and procedures with other accounting methods and procedures on the components of financial statements. These are arranged according to the company manager’s wishes.

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APB Statement No.4 explains the principles of the nature and basic elements of accounting where accruals are the determination of income and expenses from the position of assets and liabilities. This is determined based on the occurrence regardless of whether the payment transaction for cash receipts has been made or not. Discretionary accruals are an accrual component resulting from managerial engineering by utilizing freedom and flexibility in estimating and using accounting standards (Sulistiyanto, 2008).

Several studies also support that earnings manipulation is also often carried out by management. Earnings arranged based on the accruals will provide the management with opportunities to maximize its utility through accrual policy. This occurs because of the managers’ freedom to choose the accounting methods when treating their company business transactions. This is the freedom for a certain reason, which is considered opportunistic (Dechow, Sloan, and Sweeney, 1995). This is supported by the result of a study by Healy (1985) and Watts & Zimmerman (1986). They found that managers manipulate profits by using discretionary accrual strategies. This can describe the influence of the company’s business conditions when there is a greater discretionary value of the company accruals and a greater profit management practices. It can be identified by a large profit but with its low profit quality.

There are various models or detection methods that can be used for identifying and measuring earnings management as proposed by some accounting researchers. These proponents are such as the Healey Model (1985), the De Angelo Model (1986), the Jones Model (1991), the Industrial Model (1991), the Modified Model Jones (1995). Of the five models, this study uses the Jones model modified by Dechow et al., (1995). This modified Jones model is that of the Jones Model refinement (1991) designed by Dechow et al. (1995) to reduce the tendency of testing, specifically in calculating total accruals of earnings which separates non-discretionary accruals and discretionary accruals. It is a model with a time series and is statistically the best compared to other models. Besides, it also has a fairly good level of accuracy in detecting earnings management (Abdurrahim, 2015). So that the Jones modified model is a model that will be used as a research measurement tool. This study used eight samples of the types of industrial sectors traded on the Kompas100 Index, namely: 1. various industries, 2. Basic industry and chemicals, 3. Consumer goods, 4. Services, 5. Mining, oil and natural gas, 6. Plantation, 7. Property and real estate, and 8. Banking.

Based on the background above, the problem formulated in this study is whether each industry in the Kompas 100 Index has a different pattern of earnings management from other industries.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

Positive Accounting Theory
Positive accounting theory is a theory that provides understanding and predictions of a choice of accounting policies to be used by companies (Watts and Zimmerman, 1990). In positive accounting theory, there are three hypotheses put forward by Watts and Zimmerman as the basis for selecting accounting procedures to test a person’s ethical behavior in recording and compiling financial reports. These hypotheses are: (1) The bonus plan hypothesis is the use of procedures that company managers tend to use by providing improvements. High profits in the company’s financial statements through bonuses or rewards. (2) Debt Covenant Hypothesis is a hypothesis which states that company managers that have a large leverage (debt/equity) ratio will prefer to choose accounting procedures that can transfer the recognition of earnings for future periods to the present period. (3) The Political Cost Hypothesis states that the greater the political costs of the company, the more likely company managers are to choose accounting procedures that defer earnings reports from current to future periods. This is with the assumption that large companies will tend to choose accounting procedures that can reduce reported earnings in financial reports compared to smaller companies.

Agency Theory
Agency theory is a theory stating that there is a working relationship between the party giving the authority (principal), namely the investor, and the party receiving the authority (agent), namely the manager, in the form of a contract in running the company’s business (Jensen & Meckling, 1976). According to Scott (2015: 137), there is two information asymmetries
e.g., the parties that are directly related to company business transactions that have more information than other parties.

**Signaling Theory**
Signalling theory suggests how a company should provide signals for their users of financial statements in the form of their information that aims to show more value or competitive advantage over other companies. Companies or managers have more knowledge about the company’s condition than external parties do.

**Earnings Management**
Earnings management is an action, reporting the income level by increasing or decreasing earnings at a certain time for the management and stakeholders’ benefits (Belkaoui, 2006).

**a. Earnings Management Patterns**
Scott (2015: 447) stated that earning management patterns can be done in four ways, namely: 1) Taking A Bath, is a pattern that occurs during the reorganization, including when the appointment of a new CEO by reporting large losses. This action is expected to increase future profits, 2) Income Minimisation is an action that is carried out by quickly recognizing costs such as marketing costs, research, and the imposition of advertising costs when the company earns a large enough profit, 3) Income Maximisation, is an action that aims to report high net income for a larger bonus (bonus plan hypothesis) through the selection of accounting methods and timing of transaction recognition, such as accelerating recording and delaying fees. Likewise, in companies that are approaching a violation of long-term debt contracts (debt hypothesis), managers of these companies will tend to maximize profits. 4) Income Smoothing, is the pattern that is most often done and the most popular because this pattern is not done to generate bonuses. This pattern is carried out by the company by leveling the reported profit so that it can reduce too large fluctuations in earnings because investors generally like relatively stable profits. The more volatile the reported net income is, the more likely it is that debt covenant violations will occur.

**b. Earnings Management Motivation**
According to Scott (2015: 454), there are motivations for earnings management, including: 1) Bonus Purpose, 2) Political Motivation, 3) Taxations Motivations, 4) CEO Replacement, 5) Initial Public Offering (IPO), 6) Providing information to investors on the company’s future performance, and 7) Motivation of debt covenants.

**c. Earnings Management Techniques**
Earning management techniques according to Scott (2015: 459-465) can be broadly grouped into as to the following:

**a. Take advantage of opportunities to make accounting estimates.** This method is used by management to influence earnings through judgments on accounting estimates, including estimated levels of bad debts, estimated periods of depreciation of fixed assets or amortization of intangible assets, and others.

**b. Take advantage of opportunities to choose alternative accounting methods contained in accounting standards.** Management has the freedom to choose or change the accounting method in financial reporting, for example, to calculate inventory, a company can use the FIFO, LIFO, or Average method. Besides, companies can also change their depreciation method from a straight line to the number of years method, and so on.

**d. Earnings Management Measurement**
Dechow et al (1995) evaluate several models for detecting and measuring accrual-based earnings management. These models include the following:
a. Model Healy (1985)

The Healy model tests earnings management by comparing the average total accruals in the last period with the previous period. Healy considers nondiscretionary accrual (NDA) unobservable.

b. The De Angelo Model (1986)

De Angelo’s model tests earnings management by calculating the change in total accruals with the expectation that the first difference is expected to be zero, which means there is no earnings management practice. This model measures nondiscretionary accruals by comparing the total accruals of the last period with the previous period.

c. Model Jones (1991)

The Jones (1991) model tries to control the impact of a company’s economic changes on non-discretionary accruals which are constant from one period to another. By doing so, changes that occur in discretionary accruals will also result in changes in accruals. Changes in accruals can be caused by considerations from the management of the company, namely management and changes in economic conditions. Therefore, this model adds income changes and PPE to the earnings management estimation model.

d. Industrial Model

This industrial model is a model for measuring earnings management created by Dechow and Sloan (1991). This model assumes that the variations that exist in the determinants of non-discretionary accruals can occur in firms in the same industry.

e. Modified Jones model

The difference between the Modified Jones Model and the Jones Model lies in the determination of non-discretionary accruals, where to measure non-discretionary accruals, it includes elements of changes in accounts receivable to estimate non-discretionary accruals. This model is widely used in accounting research because it is considered to be the best model in detecting earnings management and gives the strongest results and has a standard error of εit (error term) the regression result of the estimated total actual value is the smallest compared to other models (Sulistiyanto, 2008: 225).

Discretionary Accrual

Accrual is all events that are operational in a year and they affect cash flow, changes in accounts receivable and payable, and changes in inventories. Meanwhile, depreciation expense is a negative accrual. Accountants take into account accruals to compare costs to income through the treatment of transactions related to net income as expected. According to Jones (1991), total accruals are separated into two, namely discretionary accruals and nondiscretionary accruals as a tool to determine whether earnings management practices occur. Total accruals are used to measure earnings management at an early stage, then specialize in discretionary accruals as a measure of earnings management.

The Relationship between Earnings Management and Discretionary Accrual

Companies with high discretionary accrual values show low-quality company profits. It is likewise, when it is companies with low discretionary accrual values show high-quality company profits. According to Chan in Siallagan (2009: 63), there are three possible explanations for why accruals can be used to predict indications of earnings management. The conventional interpretation of high accruals indicates the existence of earnings manipulation by managers.

a. Accruals can be the main indicator of changes in the company’s prospects without manipulation by managers.

b. Accruals can predict returns if the market views accruals as a reflection of past growth.

Types of Industry on Earnings Management

A type of industry is a characteristic of a company related to the business, business risks, employees, and the company environment. Sari (2012) stated that there are two types of industries including: (1) High-profile industries, namely companies that have a high level of sensitivity to consumer visibility (environment), a tight level of competition, or a high level of political risk. For example, companies engaged in chemicals, plastics, paper, automotive, food and beverage, cigarettes, pharmaceuticals, cosmetics, and
utensils/ furniture. (2) A low-profile industry, namely companies that have a level of consumer visibility, a level of political risk, and a low level of competition.

**Research Framework**

Each type of industry has a different description of the level of earnings management action produced. The focus of this research will be to test how much the earnings management pattern is carried out through the calculation of The Modified Jones Model in the Kompas100 Index company industry listed on the Indonesia Stock Exchange. So the hypothesis in this study are:

\[ H1: \text{The pattern of Earnings Management between the existing industries is different.} \]

**3. RESEARCH METHOD**

This study used a quantitative approach to examine certain populations or samples. This approach focuses on numerical data processed by statistical methods to test predetermined hypotheses. The secondary data were collected in the form of audited annual financial reports of companies. It was published on the Kompas100 Index for the period 2015-2019 which are listed on the Indonesia Stock Exchange with eight samples of traded industrial sectors, namely:

1) Various industries, 2) Basic and chemical industries, 3) Consumer goods, 4) Services, 5) Mining, oil and gas, 6) Plantation, 7) Property and real estate, and 8) Banking.

This study used a purposive sampling approach for taking the sample of 450 numbers observations. The criteria for selecting the sample are described as in Table 1.

The data were analyzed using the modified Jones model developed by Dechow et al., (1995). This is used to determine the value of discretionary accruals through the following stages:

a. Calculate total accruals, which is the difference between net income and operating cash flows:
\[ TA_{it} = NI_{it} - CFO_{it} \]

b. Determine the values for parameters 1, 2, and 3 by scaling the data divided by the previous year’s assets with the following formula:
\[ TA_{it} = ++ \alpha_1 (1/A_{it-1}) \alpha_2 (\Delta REV_{it}/A_{it-1}) + \alpha_3 (\text{PPE}_{it}/A_{it-1}) \varepsilon_{it} \]

c. Using parameter values 1, 2, and 3, the nondiscretionary accrual value is calculated by the formula:
\[ NDA_{it} = ++ \alpha_1 (1/A_{it-1}) \alpha_2 (\Delta REV_{it}/A_{it-1} - \Delta REC_{it}/A_{it-1}) + \alpha_3 (\text{PPE}_{it}/A_{it-1}) \varepsilon_{it} \]
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Total accruals are also the sum of discretionary accruals and nondiscretionary accruals. To calculate the discretionary accrual value, which is an indicator of earnings management, it is done by reducing the total accruals with nondiscretionary accruals.

\[
DA_{it} = \frac{TA_{it}}{A_{it-1}} - NDA_{it}
\]

Information:

- \(TA_{it}\) = Total Accruals of the company \(i\) in year \(t\)
- \(NI_{it}\) = Net Income of Company \(i\) in year \(t\)
- \(CFO_{it}\) = Operating Cash Flow of company \(i\) in year \(t\)
- \(\Delta REV_{it}\) = Company revenue \(i\) in year \(t\)
- \(\Delta REC_{it}\) = Net Receivables of the Company \(i\) in year \(t\)
- \(PPE_{it}\) = Fixed Assets Company \(i\) in year \(t\)
- \(A_{it}\) = Total assets of Company \(i\) in year \(t\)
- \(NDA_{it}\) = Nondiscretionary Accrual company \(i\) in year \(t\)
- \(DA_{it}\) = Discretionary Accrual Company \(i\) in year \(t\)
- \(\alpha_1, \alpha_2, \alpha_3\) = Parameters obtained from the regression equation
- \(\epsilon_{it}\) = Error term company \(i\) in year \(t\)

4. DATA ANALYSIS AND DISCUSSION

This study uses the formula from the Jones modified model to find the value of discretionary accruals which is used to measure whether there are differences in patterns from each industrial sector related to earnings management actions both in terms of income smoothing, income minimization, and income maximization.

Descriptive Statistics

Based on Table 2, it can be seen that the number of samples used in this study was \((N)\) 450 which was divided into 90 company sectors on the Kompas100 Index listed on the Indonesia Stock Exchange during the 2015-2019 period. The selection of the 8 sector samples is based on the differences in indicators of success and success of each entity that has industrial profit levels which aim to report the level of profitability. The explanation of the results for table 2 is as follows:

- The AI sector shows a minimum value of -5 and a maximum of 8 with an average of 0.11 and a standard deviation of 2.985. This shows that an average of 25 samples of companies used have discretionary accruals that are positive, so the majority of companies are indicated to have taken earnings management actions using income maximization.
- 0 = Discretionary accruals are negative
- 1 = Discretionary accruals are positive

To test the hypotheses that have been developed in the study, namely using dummy variable regression analysis by calculating the data in groups into several parts based on certain types of categories so that later you can get the right data from the smallest to the largest data. For a measure of earnings management that is negative, the majority of companies are indicated to have taken earnings management actions with income minimization and a measure of earnings management that is positive, so the majority of companies are indicated to have taken earnings management actions using income maximization.

Table 1

**Sampling Criteria**

| Criteria                                                                 | Number of Companies |
|-------------------------------------------------------------------------|---------------------|
| The number of companies listed in the Kompas100 Index on the Indonesia Stock Exchange (BEI), the period August 2015 - January 2019 | 100                 |
| The company does not have a complete financial report based on consecutive discretionary accrual data for 2015-2019 | (10)               |
| The number of companies that qualify as samples                         | 90                  |
| Total Samples (9 x 5 years observation period)                          | 450                 |

Source: Index kompas100
Table 2
Descriptive Accruals Discretionary Statistics Descriptive

|       | N   | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | Minimum | Maximum |
|-------|-----|------|----------------|------------|---------------------------------|---------|---------|
| AI    | 35  | .11  | 2,985          | .597       | -1.12 to 1.34                   | -5      | 8       |
| IDK   | 65  | .70  | 1,150          | .143       | .42 to .99                      | -2      | 4       |
| Consumption | 85  | .31  | 1,391          | .151       | -.61 to .01                     | -7      | 4       |
| Services | 80  | -.44 | 1,683          | .188       | -.81 to -.06                    | -7      | 6       |
| Mining | 35  | .16  | 1,311          | .222       | -2.38 to .29                    | -3      | 4       |
| Plantation | 35  | .57  | 4,397          | .879       | -1.41 to 1.25                   | -11     | 10      |
| Property | 85  | -.85 | 2,592          | .281       | -1.05 to -.29                   | -9      | 7       |
| Banking | 50  | -.46 | 2,096          | .295       | -1.43 to .14                    | -5      | 6       |
| Total  | 450 | -.28 | 2,256          | 2,156      | -1.03 to -.08                   | -11     | 10      |

Source: Processed Data

b. The IDK sector shows a minimum value of -2 and a maximum of 4 with an average of 0.70 and a standard deviation of 1.150. This shows that an average of 65 samples of companies used have discretionary accruals that are negative and also positive, which means an indication of earnings management carried out by the company for five consecutive years of making earnings management patterns using income minimization and income maximization.

c. The consumption industry sector shows a minimum value of -7 and a maximum value of 4 with an average of -0.31 and a standard deviation of 1.391. This shows that an average of 85 samples of companies used have discretionary accruals with high negative value compared to positive discretionary accruals, which means that the indication of earnings management carried out by the company for five consecutive years is more likely to practice earnings management using income minimization.

d. The service industry sector shows a minimum value of -7 and a maximum of 6 with an average of -0.44 and a standard deviation of 1.683. This shows that an average of 80 samples of companies used have discretionary accruals that tend to be negative and positive, which means an indication of earnings management carried out by the company for five consecutive years of earning management patterns using income minimization and income maximization.

e. The mining industry sector shows a minimum value of -3 and a maximum value of 4 with an average of -0.016 and a standard deviation of 1.311. This shows that an average of 35 samples of companies used has discretionary accruals which tend to have high positive values compared to negative discretionary accruals. This indicates that the indication of earnings management that has been carried out in the company for five consecutive years has carried out a pattern of earnings management using income maximization.

f. The plantation industry sector shows a minimum value of -11 and a maximum of 10 with an average of -0.57 and a standard deviation of 4.397. This shows that an average of the 25 samples of companies used have discretionary accruals with the highest negative and positive values, which means that the indication of earnings management carried out by the company for five consecutive years has carried out the earnings management pattern in two ways, both in terms of income minimization and income maximization.

g. The property and real estate industry sector shows a minimum value of -9 and a maximum of 7 with an average of -0.85 and a standard deviation of 2.592. This shows that an average of 85 samples of companies used has discretionary accruals that are negative and positive are more likely to
indicate earnings management carried out at the company for five consecutive years in terms of income minimization compared to income maximization.

h. In the banking industry sector, it shows a minimum value of -5 and a maximum of 6 with an average of -0.46 and a standard deviation of 2.096. This shows that an average of 50 samples of companies used have negative and positive discretionary accruals, which means an indication of earnings management carried out at the company for five consecutive years of earning management patterns using income minimization and income maximization.

Based on the results of the output table 3 above, the Levene Statistic number is 11.878 with a significance value of 0.000. Because the significance value of 0.000 <0.05, it can be concluded that the average of all 100 compass industrial sectors has a significant difference.

Based on the results of the output table 4 above, it shows the calculated F value of 3.191 with a significance probability value of 0.003 <0.05. The results obtained for the F table are 2.0302. Because F count> greater (3.191 > 2.0302), it can be concluded that the research hypothesis is accepted, which means that every industry listed on the Kompas 100 Index has a different pattern of earnings management from other industries.

Based on the results of the test analysis and calculation of discretionary accruals using the modified jones model that has been carried out, as a whole, the kompas100 index company industry has differences in earnings management patterns, so the research hypothesis is accepted. This is indicated by differences in discretionary accruals that are positive and negative with different motives for management action in each industry. Where the percentage level of the results of all industrial companies is more likely to take earnings management patterns using income maximization. Discretionary accruals that have the highest average value and the lowest value of 0.57 are owned by the plantation industry and the lowest value is owned by the IDK industry of 0.70. This proves that the company has taken many earnings management actions in the form of increasing accrual earnings by reporting the maximum possible profit to obtain personal gain. The higher the reported profit, the higher the profit in attracting investors to invest. The results of this study are following the positive accounting theory developed by Watts & Zimmerman, (1990) that in obtaining profits, managers will try their best to choose the best accounting policies by manipulating earnings on the reported earnings report to cover the adverse effects of the company which are not profitable for the purpose, according to personal interests.

5. CONCLUSION, IMPLICATION, SUGGESTION AND LIMITATION

Based on the results of this analysis, it can be concluded that there are differences in earnings management patterns in each Kompas100 Index company listed on the Indonesia Stock Exchange using The Modified Jones Model. The company’s management practices earnings management with different patterns, both with income minimization and income maximization and according to the character of the industry. Thus, it is possible to manipulate earnings in published financial statements in the interests of management.

The implication is that this research can be used as an input to users of financial reports, either the investor side of the accounting standard maker. Investors should

| Table 3 |
|---------|
| **Test of Homogeneity of Variances** |
| Levene Statistic | df1 | df2 | Sig. |
| 11,878 | 7 | 442 | 0.000 |

Source: Processed by researchers with SPSS 23

| Table 4 |
|---------|
| **Test of ANOVA** |
| Sum of Squares | df | Mean Square | F | Sig. |
| Regression | 100,408 | 7 | 14,344 | 3.191 | 0.003 |
| Residual | 1987,054 | 442 | 4,496 | | |
| Total | 2087,461 | 449 | | | |

Source: Processed by researchers with SPSS 23
be careful in making investment decisions because the published profit figures are the result of management’s processing that has been adjusted according to their interests. By doing it, the decision that will be taken later is not wrong. Meanwhile, standard makers should always revise accounting standards to minimize earnings management which can harm investors and other stakeholders.

For the next researcher, he can make observations on the LQ45 Index, or with other sampling techniques so that the results of this study will be better. One limitation of this study is only using data from the Kompas 100 index.

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