The Determinants of Income Smoothing: Study of Indonesian Manufacturing Companies

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Abstract
The purpose of this research is to obtain empirical evidence about the effect of profitability, financial, dividend payout ratio and firm size towards income smoothing. The dependent variable of this research is income smoothing measured by Eckel Index. The independent variables of this research are profitability measured by Net Profit Margin (NPM), financial leverage measured by Debt to Assets Ratio (DAR), Dividend Payout Ratio (DPR), and firm size measured by natural logarithm assets. The samples were determined based on purposive sampling method. The sample of this research are 11 manufacture companies that listed in Indonesian Stock Exchange (IDX) in 2016-2018. Secondary data used in this research was analyzed by using logistic regression method. The result of this research are (1) profitability (NPM) has no positive effect towards income smoothing, (2) financial leverage (DAR) has no positive effect towards income smoothing, (3) Dividend Payout Ratio (DPR) has no positive effect towards income smoothing, (4) firm size has significant negative effect towards income smoothing, (5) profitability, financial leverage, Dividend Payout Ratio, and firm size has significant effect towards income smoothing.

Keywords: dividend payout ratio, financial leverage (Debt to Assets Ratio), firm size, income smoothing, profitability (Net Profit Margin).

I. INTRODUCTION
Manufacturing companies are companies that sell their products and whose activities starting from purchasing raw materials, processing materials to becoming products that are ready to be sold [1]. According to [2] the manufacturing industry is a major component in national economic development. Manufacturing companies have an important role in the Indonesian economy, which contributes significantly to Gross Domestic Product during 2016 to 2019.

According to the Central Statistics Agency (BPS), Indonesia's GDP during 2016-2019 always increased every year, amounting to Rp12,406.8 trillion, Rp13,588.8 trillion, Rp14,837.4 trillion, and Rp15,833.9. Trillion (www.bps.go.id). The increase in GDP in Indonesia for 3 years is supported by data from the IDX which shows that the number of manufacturing companies listed on the IDX has always increased from 2016 to 2019, from 147 companies in 2016 to 184...
in 2019. In addition, based on the sectoral stock index, the manufacturing industry stock index in 2016-2018 became the highest price compared to other sectors and the overall majority of the manufacturing industry sector gave a positive return compared to other sectors.

In making decisions, investors consider stable profits as positive. This encourages companies to carry out earnings management to stabilize profit fluctuations from year to year. Earnings information is contained in the financial statements, namely the components of the company's financial statements that aim to assess management performance, help estimate representative earnings capabilities in the long term, and assess investment risk or lend funds [3]. Earnings management that is often done by management is income smoothing. Income smoothing is done so that there is no significant increase or decrease in profit in a period. According to [1], income smoothing is a pattern of earnings management actions taken by managers to reduce fluctuations in earnings so that profits look stable from period to period.

In this study, there are four factors that are predicted to affect income smoothing. These factors include profitability, financial leverage, dividend payout ratio, and company size. The first factor that affects the company in conducting income smoothing is profitability. Profitability is the company's ability to generate profits in relation to sales, total assets and own capital effectively and efficiently from its operating activities [4]. Profitability is proxied by using Net Profit Margin (NPM). A high Net Profit Margin (NPM) shows the company has a high ability to generate a company's net profit from total sales. When the company predicts that there is a significant increase in profit in a period, the management can use a strategy by slowing the recognition of revenue from goods in transit from FOB Shipping Point to FOB Destination. Recognition of sales using the FOB Destination method resulted in a decrease in revenue from the company's sales because revenue was only recognized when the goods arrived at the buyer, so that the contribution to net income also decreased. This causes the coefficient of variation of profit changes to be smaller than the coefficient of variation of sales changes, so that the calculation result of the Eckel index will be less than 1, which means the company is smoothing earnings.

The second factor that influences the company's income smoothing is financial leverage. Financial leverage is the use of financial sources that have a fixed expense or debt in order to finance the company. Financial leverage is proxied by Debt to Total Assets (DAR), calculated by dividing total debt by total assets [1]. A high Debt to Asset Ratio (DAR) indicates that majority of the company's assets are financed by debt. When the company predicts a significant increase in profit in a period, management can use a strategy of using debt to acquire assets. This results in a high interest expense that must be paid by the company which will potentially reduce the company's net profit. This causes the coefficient of variation of profit changes to be smaller than the coefficient of variation of sales changes, so that the calculation result of the Eckel index will be less than 1, which means the company is smoothing earnings.
The third factor that affects the company's income smoothing is the dividend payout ratio. Dividend Payout Ratio (DPR) is the percentage of profit that will be distributed to shareholders as cash dividends. A high dividend payout ratio indicates that the profit distributed to shareholders in the form of dividends is also high, thus indicating that the company's profit is high. When the company predicts that there will be a significant increase in profit in a period, management can use a strategy by increasing the company's selling expenses, one of which is by increasing advertising and promotion costs which will potentially reduce the company's net profit. This causes the coefficient of variation of profit changes to be smaller than the coefficient of variation of sales changes, so that the calculation result of the Eckel index will be less than 1, which means the company is smoothing earnings.

The fourth factor that affects the company in conducting income smoothing is the size of the company. Company size is a scale classified according to various standard, including total assets, stock market value, and others. Firm size is calculated using the natural logarithm of total assets [5]. Small company size indicates that the company has low total assets. When the company predicts that there is a significant increase in profit in a period, management can use strategy of acquiring assets through leasing. This will result in interest expenses that must be paid by the company and depreciation expenses from leasing these so that it will have the potential to suppress the company's net profit. This causes the coefficient of variation of profit changes to be smaller than the coefficient of variation of sales changes, so that the calculation result of the Eckel index will be less than 1, which means the company is smoothing earnings.

II. LITERATURE REVIEW

1. Agency Theory

Agency theory is a relationship that arises because of a contract between one party, namely the principal as the owner or shareholder that binds another party, namely the agent as management, to do some work for the benefit of the principal. Agency problems arise because agents are encouraged to act in order to satisfy the principal. So alternatively the agent tries to avoid personal stress due to overwork, and is not responsible for trying to maximize the value of the company. Because the agent has the authority to make decisions, the agent can transfer wealth from the principal to the agent if there is no intervention from the principal [6]. These earnings management actions are carried out by agents to increase compensation, avoid debt agreements, fulfill future analyzes, and influence stock prices by making changes to accounting methods and changes to estimates and accounting policies [7]. The accounting procedure chosen by managers to shift reported earnings for future periods to this period in relation to obtaining a portion of reported earnings. It can affect the present value of the manager's bonus
and increase the bonus. This action is called the bonus program hypothesis [6]. The manager's actions are included in the pattern of earnings management related to income smoothing with smoothing techniques based on allocation to several periods.

2. Income Smoothing

According to [1], income smoothing is a pattern of earnings management actions taken by managers to reduce fluctuations in earnings so that profits look stable from period to period. Earnings management is the manager's action to increase or decrease the currently reported profit for the unit for which the manager is responsible [8].

Two dimensions of income smoothing according to [8], namely:
A. Real Smoothing, namely income smoothing related to actual transactions carried out or not carried out based on the effect of income smoothing.
B. Artificial Smoothing, namely income smoothing related to accounting procedures implemented to change costs or revenues from one period to another.

According to [9] there are several income smoothing techniques, namely:
A. Smoothing through the time of transaction or transaction recognition
B. Smoothing through allocations for certain periods
C. Alignment through classification

According to [1], income smoothing is measured using the Eckel Index. The Eckel index is calculated by comparing the coefficient of variation of changes in profit in one period with the coefficient of variation of changes in sales in one period. If the income smoothing index is greater than or equal to 1 (Eckel Index 1), the company is classified as not doing income smoothing. On the other hand, if the income smoothing index is less than 1 (Eckel Index 1), the company is classified as performing income smoothing. This study uses a dummy variable. Category 1 is given to companies that perform income smoothing and category 0 is given to companies that do not perform income smoothing.

3. Profitability

Profitability is the company's ability to earn profits through all existing capabilities and sources such as sales activities, cash, capital, number of employees, number of branches, and so on. The company's profit is an indicator of the company's ability to meet the obligations of investors and is an element in the creation of company value that shows the company's prospects in the future. Often it is also used to measure company performance, where when the company has high profits it means that its performance is good and vice versa [10]. Profitability in this study is proxied by Net Profit Margin (NPM). According to [11], net profit margin is a ratio used to measure the percentage of each sale in generating net income. The results of research by [12] and [13] which show that NPM has a positive effect on income smoothing. While the
results of [14] research show that NPM has a negative and insignificant effect on income smoothing. Based on the above description, then the research hypothesis is proposed:

Ha1: Profitability has a positive effect on income smoothing

4. Financial Leverage

Financial leverage is the use of financial sources that have a fixed expense or debt in order to finance the company [1]. Long-term creditors and shareholders are usually interested in the long-term solvency of the company. This interest is related to the company’s ability to pay interest when it is due and pay the principal when it is due. Solvency is the company’s ability to survive in the long term [11]. Financial leverage in this study is proxied by the Debt to Assets Ratio (DAR). This ratio measures the percentage of total assets provided by creditors [15]. In addition, it also shows the company’s ability to face losses without affecting the interests of creditors [11]. The results of research by [1], [16], and [17] show that DAR has a positive effect on income smoothing. Meanwhile, research by [18], shows that DAR has no effect on income smoothing. Based on the description above, the proposed research hypothesis:

Ha2: Financial leverage has a positive effect on income smoothing

5. Dividend Payout Ratio

Dividend payout ratio is the percentage of profit that will be distributed to shareholders as cash dividends. The size of the profit will affect the size of the dividend to be distributed to shareholders [19]. Dividend policy is reflected in the dividend payout ratio, which is the percentage of profit distributed in the form of cash dividends, meaning that the amount of the DPR affects the investment decisions of shareholders and on the other hand affects the company's financial condition. Companies that choose to distribute profits as dividends will reduce the total internal funding sources. Meanwhile, companies that choose to withhold the profits earned will result in the ability to form internal funds to be greater [20]. The greater the percentage of profits paid out as dividends can give a positive signal to investors and will have significant implications for investor decision making [16]. The results of research by [21], [22], and [23] show that the DPR has a positive effect on the practice of income smoothing. While the results of [19] show that the DPR has no effect on income smoothing measures. Based on the description above, the proposed research hypothesis is as follows:

Ha3: Dividend Payout Ratio has a positive effect on income smoothing

6. Company Size
Company size describes the size of a company that can be shown by total assets, total sales, average total sales and average total assets [5]. Basically the size of the company is only divided into three categories, namely large companies, medium companies, and small companies. The determination of the size of this company is based on the total assets of the company [3]. One standard that can be used as a benchmark for company size is total assets because it has a long-term nature [14]. The size of the company in this study is proxied by using the natural logarithm of total assets. The results of research by [5], [24], [13], and [25] which show that company size has a negative effect on income smoothing, while the results of research by [8], shows that firm size has no effect on income smoothing practices. Based on the description above, the proposed research hypothesis is as follows:

\[ \text{H}_a: \text{Firm size has a negative effect on income smoothing} \]

7. Research Model

The research model is as follows:

![Research Model](image.png)

**Figure 1.** Research Model.

III. RESEARCH METHODS

The objects studied in this study are manufacturing companies listed on the Indonesia Stock Exchange (IDX) consisting of the basic and chemical industrial sectors, the consumer goods industry sector, and the various industrial sectors. The research period is 2016-2018. The research method used in this study is a causal study. This study wants to test whether there is a relationship between the independent variables, namely profitability proxied by Net Profit Margin, financial leverage proxied by Debt to Assets Ratio, Dividend Payout Ratio, and company size proxied by the natural logarithm of assets with the dependent variable, namely income smoothing which is proxied by the Eckel Index.

The data used in this research is secondary data. Primary data is data that has been collected by other people for different purposes other than research purposes [26]. The secondary data used in this study are financial statements and annual reports with a closing...
date of December 31 on manufacturing companies that have been audited by independent auditors and listed on the Indonesia Stock Exchange (IDX) for the 2016-2018 period. Data was collected from the official website of the Indonesia Stock Exchange (IDX), namely www.idx.co.id and the company’s website.

The operational measurement of variables in this study are as follows:

**Table 1. Variable Operational Measurement**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Formula</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent</td>
<td><em>Indeks Ecek</em> = $\frac{CV \Delta i}{CV \Delta S}$</td>
<td>[1]</td>
</tr>
<tr>
<td></td>
<td>$CV \Delta i = \sqrt{\frac{\sum (\Delta S - \Delta S)^2}{n-1}}$</td>
<td>[1]</td>
</tr>
<tr>
<td></td>
<td>$CV \Delta S = \sqrt{\frac{\Sigma (\Delta S - \Delta S)^2}{n-1}}$</td>
<td>[1]</td>
</tr>
<tr>
<td>Independent</td>
<td><em>NPM</em> = $\frac{Net Income}{Net Sales}$</td>
<td>[11]</td>
</tr>
<tr>
<td>Independent</td>
<td><em>DTA</em> = $\frac{Total liabilities}{Total Assets}$</td>
<td>[15]</td>
</tr>
<tr>
<td>Independent</td>
<td><em>DPR</em> = $\frac{Cash dividend per share}{Earnings per share}$</td>
<td>[7]</td>
</tr>
<tr>
<td>Independent</td>
<td>UP = In Total Assets</td>
<td>[5]</td>
</tr>
</tbody>
</table>

The sampling technique is a non-probability sampling method, namely purposive sampling, which is to determine the sample based on certain criteria that have been determined based on rational reasons [26]. In this study, the criteria applied are manufacturing companies listed on the Indonesia Stock Exchange consecutively during the 2015-2019 period, issuing annual financial reports as of December 31 and having been audited by an independent auditor, using Rupiah, obtained a positive net profit in a row during the 2014-2018 period, distributed cash dividends in a row based on the profit for the 2016-2018 period, did not do a stock split or stock reverse during the 2016-2018 period., and had total assets between IDR 3,000,000,000,000,000 (3 trillion) to IDR 30,000,000,000,000,000 (30 trillion) during the 2016-2018 period. The data analysis method used in this research is logistic regression analysis.
IV. FINDINGS AND RESULTS

The object of research used in this study is a manufacturing company that is listed successively on the Indonesia Stock Exchange (IDX) during the 2016-2018 period. Through purposive sampling, obtained 11 companies that meet the criteria so that the data processed is 33 observations. The results of the descriptive statistics of the variables in this study indicate the average value of NPM is 0.07476, which indicates that the companies sampled in the study are able to generate profits of 7.48% of the average sales made. The average value of DAR is 0.4249, which indicates that the average sample has a proportion of assets financed by creditors of 42.49%. The average value of the DPR is 0.45496, which shows that the average sample pays cash dividends to shareholders of 45.496% of the profits available to shareholders. The average value of the natural logarithm of assets is 29.928, which is Rp. 12,146,047,598,816, which indicates that the average company sampled in the study is classified as a large company in accordance with the Financial Services Authority regulations which state that large-scale companies have total assets of more than IDR 250,000,000,000 (two hundred and fifty billion rupiah). The number of research observations that perform income smoothing is 19 observations and 14 observations that do not perform income smoothing.

The data in this study have passed the Overall Model Fit test (-2LogL) and the regression model feasibility test (Hosmer and Lemeshow's Goodness of Fit Test) with a significance of 0.299. The results of the coefficient of determination test show that the value of Nagelkerke's $R^2$ is 0.403. These results indicate that the ability of the NPM, DAR, DPR, and UP variables to explain the income smoothing variable is 40.3%, while the other 59.7% are explained by other variables outside the research model. This. The results of the clarification table test show that the overall classification accuracy is 75.8% (24/33). This shows that the model is said to be right because it has a classification determination above 50%.

The following are the results of simultaneous significance testing with the Omnibus Test of Model Coefficient:

<table>
<thead>
<tr>
<th>Omnibus Tests of Model Coefficients</th>
<th>Chi-square</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>11,774</td>
<td>4</td>
<td>.019</td>
</tr>
<tr>
<td>Block</td>
<td>11,774</td>
<td>4</td>
<td>.019</td>
</tr>
<tr>
<td>Model</td>
<td>11,774</td>
<td>4</td>
<td>.019</td>
</tr>
</tbody>
</table>

Table 2 shows that the results of the simultaneous probability test are 0.019. Since the resulting probability is smaller than 0.05, the regression model can be used to predict that profitability proxied by NPM, financial leverage proxied by DAR, DPR, and company size proxied by the natural logarithm of assets together have an effect on income smoothing.
The following is the test result. The estimated maximum likelihood parameters of the model can be seen in the display of the output variable in the equation. The following are the results of testing variables in the equation:

### Tabel 3. Variabel in the Equation

<table>
<thead>
<tr>
<th>Variables in the Equation</th>
<th>B</th>
<th>S.E.</th>
<th>Wald</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPM</td>
<td>-10.263</td>
<td>11.080</td>
<td>.858</td>
<td>1</td>
<td>.354</td>
<td>.000</td>
</tr>
<tr>
<td>DAR</td>
<td>-.518</td>
<td>2.707</td>
<td>.037</td>
<td>1</td>
<td>.848</td>
<td>.596</td>
</tr>
<tr>
<td>DPR</td>
<td>1.681</td>
<td>2.682</td>
<td>.393</td>
<td>1</td>
<td>.531</td>
<td>5.373</td>
</tr>
<tr>
<td>UP</td>
<td>-2.147</td>
<td>.874</td>
<td>6.035</td>
<td>1</td>
<td>.014</td>
<td>.117</td>
</tr>
<tr>
<td>Constant</td>
<td>65.000</td>
<td>26.022</td>
<td>6.239</td>
<td>1</td>
<td>.012</td>
<td>169459873369651</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1300000000000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Variable(s) entered on step 1: NPM, DAR, DPR, UP.

### V. DISCUSSION

There are several findings from this research. Table 3 shows that the Net Profit Margin variable has a significance level of 0.354 or more than 0.05. This shows that Ha₁ is rejected, which means that profitability does not have a positive effect on income smoothing. This is in line with research by [27], which shows that profitability proxied by Net Profit Margin has no effect on income smoothing. There is no effect of NPM on income smoothing due to 33 observations with an average NPM of 7.48%, there are 22 observations that have an NPM below the average of 4.77%. The data shows that all 22 observations had other income and experienced an increase in expenses, which resulted in an increase in net income of 1.73% from the previous year. This resulted in the average coefficient of variation of profit changes from 10 observations of -0.7224 and the average coefficient of variation of sales changes of 10 observations of 0.7833, which means the Eckel Index value is less than 1, so even though the company has a low NPM, the company is still indicated to do income smoothing. So it can be concluded that NPM does not have a positive effect on income smoothing.

The Debt to Assets Ratio variable has a significance level of 0.848 or more than 0.05. This shows that Ha₂ is rejected, which means that financial leverage does not have a positive effect on income smoothing. This is in line with research by [18], which shows that financial leverage proxied by the Debt to Assets Ratio has no effect on income smoothing. There is no effect of DAR on income smoothing because 33 observations have an average DAR of 42.5%. There are 19 observations that have a DAR below the average, with the average of those 19 observations is 31%. Despite having a low DAR, the majority of observations experienced an increase in liabilities with an average increase of 41% and resulted in an increase in interest expense. The use of bank loans caused the average sales to increase by 9.7% which resulted in a decrease in the average net profit of 3.9%. This resulted in the average coefficient of
variation of profit changes of -1.0897 and the average coefficient of variation of sales changes of 0.8416, which means the Eckel Index value is less than 1, so that even though the company has a low DAR, the company is still indicated to do income smoothing. Therefore, it can be concluded that DAR does not have a positive effect on income smoothing.

The Dividend Payout Ratio variable has a significance level of 0.531 or more than 0.05. This shows that $H_{a3}$ is rejected, which means that the dividend payout ratio has no positive effect on income smoothing. This is in line with the research of [18] and [19], which shows that the Dividend Payout Ratio has no effect on income smoothing. The DPR has no effect on income smoothing due to 33 observations, the majority of observations have a DPR below the average, but experienced an increase in EPS, which indicates an increase in profit. The data also shows that the increase in sales was higher than the increase in profit. This resulted in the average coefficient of variation of profit changes of -0.7986 and the average coefficient of variation of sales changes of 0.4122, which means the Eckel Index value is less than 1, so that even though the company has a low DPR, the company is still indicated to do smoothing Profit. So it can be concluded that the DPR does not have a positive effect on income smoothing.

Firm Size variable has a significance level of 0.014 or less than 0.05. This shows that $H_{a4}$ is accepted, which means that company size has a negative effect on income smoothing. This is in line with the research of [5] and [12], which shows that company size proxied by the natural logarithm of assets has a negative effect on income smoothing.

VI. CONCLUSION

The conclusion obtained from this study is that only the size of the company which is proxied by the natural logarithm of assets has a significant negative effect on income smoothing. There are several things that limit this research, namely the research period is only 3 years, namely 2016-2018. So that the results of the study cannot be generalized because the research period is short and the value of Negelkerke's $R^2$ is only 0.403 or 40.3% which indicates that the independent variables of profitability, financial leverage, dividend payout ratio, and firm size are able to explain the income smoothing variable of 40.3%, while the remaining 59.7% is explained by other variables outside the research model. Suggestions are put forward for further research regarding the factors that affect income smoothing, namely extending the research period and adding other sectors so that the research results can be generalized and adding other independent variables that can affect income smoothing, such as stock prices, firm value, auditor reputation, and public ownership. The implication of this research for companies is that companies that have small company sizes are more likely to perform income smoothing by minimizing the depreciation expense so that the decrease in profit that occurs is not too significant. When a company wants to smooth out profits, one of the accounts that can be considered is the company's depreciation expense.

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