Corporate characteristics and tax aggressiveness: Evidence from the mining sector in Indonesia

Ikhsan Irmu
Reni Oktavia*
Sari Indah Oktanti Sembiring

Accounting Department, University of Lampung, Lampung, Indonesia

ABSTRACT
This article presents the effect of corporation characteristics, such as capital intensity, leverage, and firm size on tax aggressiveness. Based on the condition of tax revenues and the achievement of the tax ratio in assessing the performance of tax revenues, Indonesia has not been able to reach the target even since 2013. Many motivations drive companies to do tax aggressiveness either legally or illegally. Therefore, this article is necessary to determine the effect of capital intensity, leverage, and firm size on tax aggressiveness. This article uses quantitative data from financial statements with research samples of non-oil and gas mining companies listed on IDX from 2016 to 2020. Using panel data regression analysis, the results show that capital intensity, leverage, and firm size have no significant effect on the tax aggressiveness of non-oil and gas mining companies. It means that capital intensity, leverage, and firm size are not the right way for non-oil and gas mining companies to exercise tax aggressiveness. Further research is expected to use other factors such as CSR and GCG.

KEYWORDS
corporate characteristics; tax aggressiveness; capital intensity; leverage; firm size

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Introduction
Almost all countries in the world levy taxes on individuals or entities for the country's survival. As in Indonesia, taxes are also the backbone of state finances. Its contribution to state revenue has always been more than 80% of total state revenue in the last five years (www.pajak.go.id). The target and realization of tax revenue from 2013 has never exceeded 100%. The target in question is the tax revenue target set by the Directorate General of Taxes (DJP) in the APBN, starting from PPh Oil and Gas to property tax.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Realization</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>1,539</td>
<td>1,283</td>
<td>83.37%</td>
</tr>
<tr>
<td>2017</td>
<td>1,283.6</td>
<td>1,147.5</td>
<td>89.4%</td>
</tr>
<tr>
<td>2018</td>
<td>1,424</td>
<td>1,315.93</td>
<td>92.41%</td>
</tr>
<tr>
<td>2019</td>
<td>1,577.56</td>
<td>1,332.06</td>
<td>84.44%</td>
</tr>
<tr>
<td>2020</td>
<td>1,198.82</td>
<td>1,069.98</td>
<td>89.25%</td>
</tr>
</tbody>
</table>

It can be seen in Table 1, that the tax revenue target has been adjusted due to the COVID-19 pandemic to Rp. 1,198.82 T or decreased by 24% compared to the previous year. However, tax revenue in 2020 has increased to 89.25% or Rp. 1,069.98 T. In addition to tax revenue data, one of the measuring tools to assess the performance of a country's tax revenues is to use the tax ratio. A tax ratio is a measure to assess the performance of tax revenues in a country by comparing tax revenues to gross domestic product (www.pajak.go.id).

<table>
<thead>
<tr>
<th>Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tax Ratio</td>
<td>10.8%</td>
<td>10.7%</td>
<td>11.8%</td>
<td>11.9%</td>
<td>14.4%</td>
</tr>
</tbody>
</table>

Based on Table 2, starting from 2016 - 2020 it continues to increase even though in 2017 it had contracted 0.1%. Based on the condition of tax revenue and the tax ratio's achievement in assessing tax revenues' performance, Indonesia has not been able to meet the target. This is because there are still efforts made by taxpayers to avoid or not fulfill their tax obligations, such as one of them is through tax aggressiveness (Nurzaman, 2020). According to Frank et al. (2009), tax aggressiveness is an action to engineer the company's taxable profit through tax planning,
either legally (tax avoidance) or illegally (tax evasion). Tax aggressiveness can also be interpreted as a level of company aggressiveness to reduce taxes that should be paid in various ways that each company carries out based on the activities carried out (Yuliana & Wahyudi, 2018).

When viewed from previous research, there are various factors that a company tends to tax aggressiveness. Some of them are capital intensity that research conducted by Novitasari et al. (2017), and Kuriah & Asyik (2016), shows that capital intensity has no significant effect on tax aggressiveness. Meanwhile, different results are shown by the research Hidayat & Fitria (2018), Octaviani & Sofie (2019), and Budiadnyani (2020), that capital intensity has a significant effect on tax aggressiveness.

Research that examines the effect of leverage on tax aggressiveness conducted by Dunbar et al. (2016) stated that companies that use more debt in their capital structure have more discretionary fixed differences. This is in line with Hazir (2019) who states that a more significant debt will result in a lower effective tax rate. Therefore, debt is one factor that motivates companies to reduce the tax.

Research conducted in Indonesia related to the effect of firm size on tax aggressiveness conducted by Ayem & Setyadi (2019), and Legowo et al. (2021), concluded that firm size significantly affects tax aggressiveness. However, different results were shown by Novitasari et al. (2017), and Susanto et al. (2018) that firm size has no significant effect on tax aggressiveness. Based on previous research we knew that capital intensity, inventory intensity, leverage, profitability, and firm size had been studied with different results. Therefore, further research is needed to re-confirm the factor of tax aggressiveness.

From the background above, it can be formulated the problem that becomes the focus of the research, namely whether there is an effect of capital intensity, leverage, and firm size on tax aggressiveness in mining companies listed on the IDX from 2016 – 2020 to know whether there is a significant effect.

**Literature review**

Previously published research on tax aggressiveness has given mixed results, both compatible and contradictory. The previously used theory about tax aggressiveness is the positive accounting theory.

**Positive accounting theory**

Watts & Zimmerman (1990) stated that there is a clear relationship between the accounting practices chosen by the company and other variables such as leverage and firm size and these relationships are consistent in several studies. The choice of accounting standards can influence, both increases in stock prices and increases in bonuses or incentives indirectly through taxes, regulatory procedures if the company is regulated, political costs, production cost information, and directly through management compensation plans (Zimmerman, 1983). Three most frequently tested hypotheses are related to positive accounting theory (Watts & Zimmerman, 1990).

The first is the Bonus Plan Hypothesis, where in this hypothesis, managers of a company with a bonus plan scheme tend to choose accounting methods to increase revenue in the current period. However, testing the hypothesis found that the hypothesis was not valid in all conditions. The second is the Debt/Equity Hypothesis, which predicts that company managers with higher debt to equity ratios tend to use accounting methods that increase company income. DER encourages companies to limit debt covenants or agreements made to protect lenders. Finally, the Political Cost Hypothesis predicts that large companies tend to use accounting practices that reduce the number of reported earnings compared to small companies. Corporate tax is one of the political costs. Where the largest company will be subject to the highest tax rate. However, the effective tax rate measures only part of the political costs of the firm, as the tax rate does not include other political costs or benefits such as regulation, government subsidies and contracts, import quotas and tariffs, and antitrust.

**Tax aggressiveness**

The definition of tax aggressiveness as a unit according to Balakrishnan et al. (2012) is as manipulation of taxable income down through tax planning which may or may not is considered tax evasion fraud. Meanwhile, Frank et al. (2009) explained that tax aggressiveness is an action that aims to reduce taxable profit through tax planning, either using methods that are classified as or not classified as tax evasion. The same thing was also explained by Yoehana et al. (2013) who define tax aggressiveness as the company’s desire to minimize the tax burden paid by legal, illegal, or both.

**Corporate characteristics**

The characteristics of the company are the characteristics or traits that are attached to a business entity that can be viewed from various aspects, including the type of business or industry, level of liquidity, level of profitability, company size, investment decisions, and so on (Susanto et al., 2018). In this research, corporate characteristics are proxied by capital intensity (CAPINT), leverage (Debt to Equity Ratio = DER), and firm size (Log Natural Total Asset).
Hypothesis

The effect of capital intensity on tax aggressiveness

Based on positive accounting theory, especially the political cost hypothesis, under conditions of cateris paribus the company tends to reduce its current profit towards the future by increasing the depreciation expense so that the company's tax will decrease. This is because in fixed assets there is a deductible expense or costs that can be deducted at the time of fiscal correction, meaning that the tax paid by the company when it has high fixed assets will have an impact on reducing the amount of tax. So companies with a high equity ratio tend to aggressively reduce taxable income.

Gupta & Newberry (1997) concluded that companies that invest more of their fixed assets would have a lower effective tax rate than those that invest more in inventory. Similar results were also found in the research of Lanis & Richardson (2012), this condition occurs because companies with a large proportion of fixed assets will bear a significant depreciation, while inventories do not cause depreciation expenses. This finding is reinforced by Putri & Febrianty (2016) who found that when the company's capital intensity ratio is high, the company's ETR will be low. Research conducted by Hidayat & Fitria (2018) Budiadnyani (2020), and Octaviani & Sofie (2019) also shows that capital intensity has a significant effect on tax aggressiveness. Therefore, the first hypothesis proposed in this research is:

H1: Capital intensity has a significant effect on tax aggressiveness.

The effect of leverage on tax aggressiveness

The relationship between leverage and positive accounting theory is the debt covenant hypothesis which states that the higher the debt or equity ratio of the company, the greater the tendency of managers to choose accounting procedures to increase company profits by allocating future profits to the current period earnings. Companies with more debt in their capital structure have a lower effective tax rate. This is because the use of debt will result in an interest expense which according to taxation is a deductible expense, while the payment of dividends is a nondeductible expense. Companies with high leverage tend to aggressively reduce profits through interest expenses during fiscal corrections, so the company's taxable income will decrease.

Research that examines the effect of leverage on tax aggressiveness conducted by Dunbar et al. (2016) stated that companies that use more debt in their capital structure have more discretionary fixed differences. This is in line with Hazir (2019) who states that a more significant debt will result in a lower effective tax rate. Therefore, debt is one factor that motivates companies to reduce the tax. Wulansari et al. (2020) found that leverage affects tax aggressiveness, this effect means that the higher the leverage of a company, the higher the interest expense borne by the company so that taxable income will decrease. Therefore, the second hypothesis in this research is:

H2: Leverage has a significant effect on tax aggressiveness.

The effect of firm size on tax aggressiveness

Large companies have sufficient resources to manipulate, such as tax planning and regulating company activities to optimize tax savings. Larger companies also have the most significant permanent difference in discretion, indicating more excellent tax planning. Meanwhile, firm size influences the effective tax rate, with both positive and negative effects. This means larger companies have a more significant opportunity to carry out tax aggressiveness. This is in line with the political cost hypothesis, but also in line with the Tax Planning and Political Power Theory.

The same thing was also stated by Dunbar et al. (2016) who say that larger companies may have more excellent resources and opportunities to engage in tax aggressiveness. Research conducted by Hazir (2019) states that firm size has a positive effect on the effective tax rate, according to him, the results indicate that larger companies face a more significant tax, this supports the theory of political costs. Research conducted in Indonesia related to the effect of firm size on tax aggressiveness conducted by Wulansari et al. (2020) concluded that firm size has a negative effect on tax aggressiveness. Larger companies will receive tighter stakeholder supervision and tend to comply with government regulations. Ann & Manurung (2019) also concluded that firm size could reduce tax aggressiveness due to the company's ineffectiveness in asset management, leading to inefficient asset management costs and low profits. Therefore, the third hypothesis in this research is:

H3: Firm size has a significant effect on tax aggressiveness.

Methods

The data collection technique in this study is a documentation study, namely collecting, understanding, and analyzing company documents in the form of financial statements on mining companies other than the oil and gas mining subsector listed on the IDX for the period 2016 - 2020. This is done so that the research carried out can provide theoretical information as a theoretical basis. The research data that has been obtained was processed using Eviews 9 to obtain results from the regression analysis of panel data.

Participants

The population in this research is mining companies listed on the Indonesia Stock Exchange. Then the study sample was taken by purposive sampling at non-oil and gas subsector mining companies registered with IDX within the research period (2016 - 2020).
Table 3. Purposive Sampling Criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>52</td>
</tr>
<tr>
<td>Mining companies belonging to the oil and gas sub-sector</td>
<td>12(12)</td>
</tr>
<tr>
<td>Mining companies other than the oil and gas sub-sector listed on the IDX after 2016</td>
<td>4</td>
</tr>
<tr>
<td>Mining companies other than the oil and gas sub-sector that were not listed in a row during 2016 - 2020</td>
<td>6</td>
</tr>
<tr>
<td>Mining companies other than the oil and gas sub-sector that have losses before tax during the research year</td>
<td>19</td>
</tr>
<tr>
<td>Companies that do not present complete financial statements in a row during 2016 - 2020</td>
<td>0</td>
</tr>
<tr>
<td>Total sample company</td>
<td>11</td>
</tr>
<tr>
<td>Total sample (×5 years)</td>
<td>55</td>
</tr>
</tbody>
</table>

Instruments

The dependent variable in this research is tax aggressiveness. Meanwhile, the independent variables include capital intensity, leverage, and firm size. Each of these variable measurements is as follows:

Table 4. The Variable Measurements

<table>
<thead>
<tr>
<th>Variable</th>
<th>Proxies</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Tax Aggressiveness</td>
<td>GAAP ETR = ( \frac{\text{Earnings Before Tax}}{\text{Total Property, Plant, Equipment}} )</td>
</tr>
<tr>
<td>X1</td>
<td>Capital Intensity</td>
<td>( \text{CAPINT} = \frac{\text{Total Property, Plant, Equipment}}{\text{Total Asset}} )</td>
</tr>
<tr>
<td>X2</td>
<td>Leverage</td>
<td>( \text{DER} = \frac{\text{Total Liabilities}}{\text{Total Equity}} )</td>
</tr>
<tr>
<td>X3</td>
<td>Firm Size</td>
<td>( \text{SIZE} = \ln(\text{Total Asset}) )</td>
</tr>
</tbody>
</table>

Data Analysis

The use of panel data in observation has advantages. First, the data panel, a combination of two data, time series and cross-section, can provide more data, resulting in greater freedom. Second, combining information from time series and cross-section data can solve the problem that arises when there is a variable omission problem (omitted variable) (Ghozali, 2017). In the regression of panel data, there are three approaches: Pooled Least Square (Common Effect Model), Fixed Effect Model, and Random Effect Model. Then, to choose the most appropriate model used in managing panel data, several tests can be done, namely the Chow test, Hausman test, and Lagrange Multiplier test. These tests were carried out using a statistical tool, the Eviews 9 program.

Results

First of all, to perform panel data regression analysis is to use a panel data regression model which aims to find out which one is the most efficient among the three equation models between Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Several tests can be done to choose the most appropriate model for managing panel data, such as though Chow Test, Hausman Test, and Lagrange Multiplier Test.

Table 5. Chow Test Result

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f.</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section</td>
<td>0.603806</td>
<td>(10,41)</td>
<td>0.8013</td>
</tr>
<tr>
<td>Cross-section Chi-Square</td>
<td>7.56171</td>
<td>10</td>
<td>0.6721</td>
</tr>
</tbody>
</table>

Based on the results of the Chow test in Table 5 above, it can be seen that the probability value is 0.8013 < 0.05, Which means that CEM is more appropriate for the regression equation estimation model.

Table 6. Hypothesis Test Result Based on CEM Output

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.146294</td>
<td>0.313117</td>
<td>0.467219</td>
<td>0.6423</td>
</tr>
<tr>
<td>X1</td>
<td>0.112329</td>
<td>0.102747</td>
<td>1.093259</td>
<td>0.2794</td>
</tr>
<tr>
<td>X2</td>
<td>0.036164</td>
<td>0.031990</td>
<td>1.130467</td>
<td>0.2636</td>
</tr>
<tr>
<td>X3</td>
<td>0.004638</td>
<td>0.015962</td>
<td>0.290565</td>
<td>0.7726</td>
</tr>
</tbody>
</table>

Discussion

The Effect of Capital Intensity on Tax Aggressiveness

The significance probability value (p-value) of CAPINT which is a proxy for capital intensity is 0.2794 with a significance level more significant than = 0.05. The test results show that statistically, CAPINT does not have enough relevance value to be able to have a significant influence on tax aggressiveness in non-oil and gas mining companies for the period 2016 - 2020. Therefore, hypothesis 1 is not supported.
There is a regulation in Indonesia that legalizes taxpayers to shrink all fixed assets owned by companies based on groups of assets except land that has the status of Property Right (HM), Right to Cultivate (HGU), Right to Build (HGB), and Right of Use (HP). However, because the companies sampled in this study are primary sources of fixed assets, are HGU, HGR, and HP, which are included in the soil, they cannot be depreciated so that they do not cause a depreciation burden. In other words, the sample of companies studied did not carry out a tendency to aggressiveness in terms of taxation because the high capital intensity in the sample of companies studied did use these fixed assets for operations.

The results of this study provide empirical evidence that supports the results of the research conducted by Akbar & Thamrin (2020), Simamora & Rahayu (2020), and Rosmaria et al. (2021), which results that capital intensity has no significant effect on tax aggressiveness.

**The Effect of Leverage on Tax Aggressiveness**

The significance probability value (p-value) of DER which is a proxy for leverage is 0.2636 with a significance level more significant than = 0.05. If the significance level is greater than 0.05 then hypothesis 2 is not supported. The test results show that statistically, DER does not have a sufficient relevance value to significantly affect tax aggressiveness in non-oil and gas mining companies for the period 2016 – 2020. These results indicate that leverage is not a determining factor for companies to carry out tax aggressiveness tendencies.

The relationship between leverage and positive accounting theory, especially the debt covenant hypothesis states that the higher the debt or equity ratio of the company, the greater the tendency of managers to choose accounting procedures to increase company profits by allocating future profits to the current period profits. So, when the company increases its profits, its tax will also increase, so the company’s tendency to tax aggressiveness decreases. Companies that tend to choose their source of funding from internal companies, namely retained earnings, will have an impact on not accruing interest expenses so that they cannot reduce company profits, which causes the company’s tax to be significant. The funding policy of the sample companies in this research uses internal sources to finance the company’s operations so that it does not affect aggressive tax actions.

Moreover, the results of this research provide empirical evidence that supports the results of research conducted by Mappadang (2020), Darsani & Sukartha (2021), dan Rosmaria et al. (2021), which results that leverage has no significant effect on tax aggressiveness.

**The Effect of Firm Size on Tax Aggressiveness**

The significance probability value (p-value) of SIZE, a proxy for firm size, is 0.9854 with a significance level greater than = 0.05. If the significance level is more significant than 0.05 then hypothesis 5 is not supported. The test results show that size statistically does not have a sufficient relevance value to significantly influence tax aggressiveness in non-oil and gas mining companies for 2016 – 2020. Because larger companies will receive stricter supervision from stakeholders and tend to comply with government regulations.

This result is not in line with the Political Cost Hypothesis which states that large companies tend to use accounting practices to reduce the number of reported profits compared to small companies. The results of the tests show that larger companies are consistent with an effective tax rate higher than the effective corporate tax rate in Indonesia, while companies with a smaller size tend to have an effective tax rate higher than the effective corporate tax rate in Indonesia. Meanwhile, companies with a SIZE variable value below or close to the sample average tend to produce a low GAAP ETR value or below the effective corporate tax rate in Indonesia.

This is compatible with Wulansari et al. (2020) who state that larger companies will get stricter supervision from stakeholders and tend to comply with government regulations. The results of this research provide empirical evidence that supports the results of research conducted by (Yuliana & Wahyudi, 2018), Susanto et al. (2018), and Putra et al. (2019), which results that company size has no significant effect on tax aggressiveness.

**Conclusion**

Several conclusions can be drawn based on the results of tests and discussions that have been carried out. First, there is no significant effect of capital intensity on tax aggressiveness. Because the sample of companies studied did not tend to be aggressive in terms of taxation because of the high capital intensity in the sample of companies studied, they did use these fixed assets for operations, not deliberately keeping a large proportion of assets to avoid taxes but the company did use these fixed assets for the operational purposes of the company which was able to increase high net profit compared to depreciation expense for reducing the taxable income of the enterprise. Second, there is no effect of leverage on tax aggressiveness. Because companies are more likely to choose the source of funding from the company’s internal, namely retained earnings. So, it will impact not accruing interest expense so that it cannot reduce the company’s profit which causes the company’s tax burden to be significant. Third, there is no effect of firm size on tax aggressiveness. Because larger companies will get stricter supervision from stakeholders and tend to comply with government regulations.

This research still has some limitations. First, this research period only uses five years, that is 2016 - 2020 so the data in this study have not used data from the latest year. Second, further researchers can change the research sample with companies with a higher fixed asset to reduce the tax, and choose external funding sources such as debt aside from non-oil and gas mining sector companies listed on IDX that use this research. Third, this study only uses corporate characteristics proxied by capital intensity, leverage, and firm size as factors that affect tax aggressiveness. So, it does not describe the acts of tax aggressiveness the company carries.
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