

# Coal Prices and Foreign Ownership on the Capital Structure of Indonesian Coal Companies

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## Abstract

This paper investigated the effect of coal prices and foreign ownership on the capital structure of coal companies in the Indonesian stock exchange. This study used debt to equity ratio (DER) to proxy capital structure and control variables, i.e., size, liquidity, and profitability. This study employed the statistic descriptive analysis and regression analysis of panel data and covered quarter data of 23 coal companies listed in the Indonesian stock exchange in a 3-year time horizon (2018-2020). This study concludes that ten out of 23 coal companies have more than 100% DER. Based on the sources of liabilities, debt originating from third parties is the primary source of debt for coal companies listed on the IDX in 2018-2020. The next order of sources of debt in a row is bank loans, debts from related parties, lease payables, bonds, and dividends. The result showed that ten out of 23 companies have a more than 100% capital structure value. The panel data regression analysis showed that capital structure significantly impacts coal prices, foreign ownership, size, liquidity, and profitability. As one of the main coal exporters, Indonesia has a good bargaining position in the international market. An investor can use the movement of coal prices as one of the criteria for deciding to invest in this industry.

**Keywords** : Capital structure; Coal prices; Foreign ownership

**JEL Classification** : D13, I31, J22\*

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## 1. INTRODUCTION

The coal industry as an energy supplier is one of the industries that play an essential role for other industries in carrying out their production activities. According to Elinur (2010), coal has an essential role in meeting energy needs and ensuring energy availability for the industrial sector, especially as a raw material for power plants. Based on KESDM (2020b) data, coal production fluctuated in 2009-2019 with an increasing trend. In 2009 Indonesia's coal production was 256.181 billion tons, and in 2019, Indonesia's coal production was 616.159 billion tons or grew by 140%. An increasing trend also happened to Indonesia's coal exports. In 2019, 454.500 billion tons or 73% of Indonesia's coal production had been exported to the world market. The potential possessed by Indonesia coal has made Indonesia the second-largest coal exporting country after Australia. In 2019,

Indonesia contributed 27% of the world's rural coal exports, equivalent to USD 18.957 million (ITC 2020).

The company required large resources and capital to move quickly according to consumer desires on its development strategy. This is also applied to the coal industry. The mining industry is an industry that requires high capital expenditures (Ferdiansya and Isnurhadi 2013). Large financing needs cannot be met by own capital, so external resources such as debt and equity are needed. The basis for making these decisions can refer to the capital structure. Capital structure is the structure of debt and equity used by a company to finance the company's assets (Pahuja and Sahi 2013). Capital structure is a balance or comparison between foreign capital and own capital. Foreign is meant to be both long-term and short-term debt, while the own capital can consist of retained earnings and also the inclusion of company ownership. The debt financing decision mostly relies upon various factors such as availability of credit, macroeconomy, legal and financial structure (Jibran et al. 2012). One of the most applied theories about capital structure is the pecking order theory. Companies will implement a financing hierarchy by prioritizing internal sources of financing first, then debt and additional capital as the last choice (Nouira and Bellouma 2019). The existence of information asymmetry between management and shareholders impacts decisions taken by management (Chen and Chen 2011). Management will prefer to use retained earnings over debt and equity as a last decision. Myers and Majluf (1984) argue that if the company does not issue new stock and only uses retained earnings to support investment strategy, the problem of information asymmetry can be solved.

One of the capital structure theories often used is the pecking order theory. According to the pecking order theory, the company will apply a hierarchy in the use of debt, with preferences for internal resources from external sources, namely debt and then equity (Balios et al., 2016). Coal prices had a downward trend in 2018-2020. The coal prices peaked at USD 107.83/ton in August 2018, but then it continued to decline at a point of USD 59.65/ton in December 2020 (Kementerian Energi Sumber Daya dan Mineral 2020). This affects the revenue of coal companies. Based on data in the financial statements published by coal companies, the average revenue growth of coal companies in 2020 decreased compared to growth in 2018. The average growth of cash receipts received from customers was 56% in 2018, while in 2020, the average was -18%. The declining revenue in 2020 experienced by PT Toba Bara Sejahtera Tbk and PT Golden Eagle Energy Tbk was -35.6% and -34.2%, respectively. As a result of declining revenue, coal companies have to look for other financial resources than internal sources, thereby increasing the debt to equity ratio (DER). In 2019 the DER level of PT Toba Bara Sejahtera Tbk was 140%, then increased to 165%. This increase also occurred in PT Golden Eagle Energy Tbk with a DER of 49% in 2019, then increased to 56% in 2020.

Based on data published by the Indonesian Central Securities Depository (Kustodian Sentral Efek Indonesia 2021), ten out of 23 coal mining companies with a foreign ownership structure of more than 50% in December 2020. Based on the capital structure, coal companies with larger foreign ownership tend to have less than 100% of DER value in 2020. This shows that Indonesian coal companies are still dependent on foreign investors. According to Gurunlu and Gursoy (2010), foreign investors bring their capital to the company, knowledge, technology, new markets, new distribution channels, the ability to reach the capital market, and new creditors. Foreign investors become alternative financing for domestic corporations when local financing sources are limited (Bolak et al., 2013). In a developing country, foreign ownership is considered an essential part of the ownership

structure that influences the company's capital decisions (Thai 2017). The coal industry that utilizes state-owned natural resources has risks due to applicable government policies. According to UU No. 3 of 2020 concerning an amendment to UU No. 4 of 2009 concerning Mineral and Coal Mining, the government has announced that foreign investors of Indonesian coal companies must divest their shares so that domestic investors own at least 51%.

The capital structure determination test has been carried out by Mostarac and Petrovic (2013), Al ani and Al Amri (2015), Nourira and Bellouma (2019), and El-Diftar (2020). Several studies also measure the change that occurs in the capital structure due to a macroeconomic phenomenon, namely the global crisis, as conducted by Balios et al. (2016), Mohohlo and Hall (2018), and Wronska-bukalska and Mazurkiewicz (2018). In Indonesia, research on capital structure, especially in the mining sector, has also been carried out by Primadhanny (2016), Fadhilah et al. (2012), and Sutomo et al. (2020). Research on the capital structure that continues to grow shows the importance of the company management in making decisions related to the company's capital structure. The difference between this study and previous research is that this study examines the effect of the coal price and foreign ownership simultaneously on the capital structure of coal companies in Indonesia.

## 2. HYPOTHESES DEVELOPMENT

### Coal Price

Profits in coal companies are mainly derived from the sale of coal to its customers. According to Fuadiantoni et al. (2019), the sales growth rate affects the capital structure. One of the factors that influence sales is the price of commodities, which is the price of coal. In Indonesia, the determination of coal prices refers to the Coal Prices (HBA) issued by the Ministry of Energy and Mineral Resources. The HBA is then adjusted to the quality of the coal sold by the company so that the Coal Benchmark Price (HPB) is obtained. According to Sutomo et al. (2020), the higher the commodity price, the greater profit the company will get. This resulted in greater internal funding than external funding in the form of debt. However, Sutomo et al. (2020) found an insignificant effect between coal price and capital structure in Indonesian coal companies. The decline in coal prices that occurred in 2018-2020 (Figure 1) resulted in a decrease in profits received by coal companies to increase the company's external funding. Based on this description, a hypothesis was formulated:

H<sub>1</sub>: Coal Price has a negative influence on capital structure

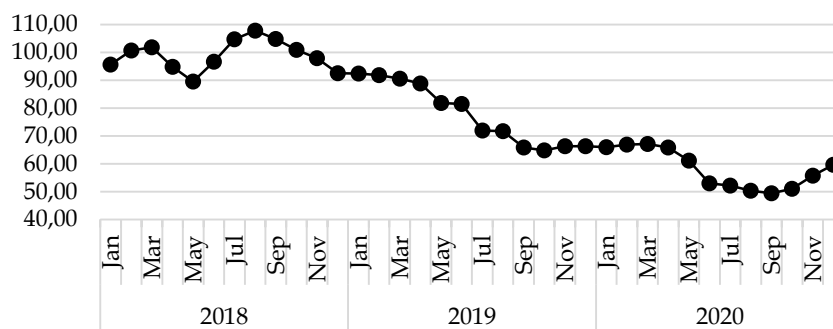


Figure 1. Coal price for 2018-2020 (USD/ton)  
Source: KESDM (2020a)

### **Foreign Ownership**

In agency theory, management is considered as an agent for shareholders. Shareholders expect agents to make decisions that are oriented to the interests of shareholders. The management gets the right incentives and is supervised to make optimal decisions. Supervision is carried out through various methods such as bonding agents, auditing financial statements, and explicitly limiting management decisions. These supervisory activities require agency costs (Horne and Wachowicz 2012).

Based on agency theory, asymmetry information arises when the management prioritizes their goals and puts the interests of shareholders aside. There is a mismatch in the information provided by management to shareholders. The foreign ownership structure has an important role in disclosing company information (Siregar and Bachtiar 2010). Foreign ownership can help strengthen the monitoring role and reduce the cost of capital due to the presence of foreign investors, professional analysts, and economists who follow the actions of managers (Thai 2017). Research on the influence of foreign ownership structure on the capital structure has been done before. Gurunlu and Gursoy (2010) study found that foreign ownership has a significant negative effect on long-term leverage in companies listed on the Istanbul Stock Exchange. Another test was carried out by Bolak et al. (2013) in supporting research on the relationship between foreign ownership and capital structure. The result of Bolak et al. (2013) found that foreign investors tend to choose issuers with large market capitalization and companies with low leverage and book-to-market ratio. Thai (2017) states that the number of shares owned by foreign investors has a negative effect on the company's funding choices. Primadhanny (2016) also tested the effect of ownership structure on the capital structure of mining sector companies on the Indonesia Stock Exchange. Based on the result of Primadhanny's research (2016), it is stated that ownership structure has a simultaneous effect on capital structure, and institutional ownership, managerial ownership, and foreign ownership partially affect capital structure. Based on this description, a hypothesis was formulated:

H<sub>2</sub>: Foreign ownership has a negative influence on capital structure

### **3. METHOD, DATA, AND ANALYSIS**

#### **Data**

The sample consists of 23 coal firms listed on the IDX in 2018-2020, for which quarter reports were available. Panel data is data consisting of cross-section and time-series data. However, due to the incompleteness of the time series data, this study applies unbalanced panel data. The data is obtained from the financial statements of coal firms published on the Indonesian Stock Exchange official website, publication of coal price obtained through circulars of the Decree of the Minister of Energy and Mineral Prices and References Coal Prices, publication of the Indonesian Central Securities Depository regarding company share ownership, as well as literature, previous research studies, online and print publications, and reports published by related institutions.

*Table 1.* Operational variable definition

<b>Type of variable</b>	<b>Proxy</b>	<b>Scale</b>	<b>Variable measurement</b>
Dependent	Debt to equity ratio	Ratio	(total liabilities/total equity)*100%
Independent	Coal price	Ratio	Ln (Price)
Independent	Foreign ownership	Ratio	(Foreign ownership/(foreign+domestic ownership))*100%

Type of variable	Proxy	Scale	Variable measurement
Independent (control variable)	Size	Ratio	Ln (Total asset)
Independent (control variable)	Liquidity	Ratio	(Total current assets/total current liabilities)*100%
Independent (control variable)	Profitability	Ratio	(Net income/total equity)*100%

### Model

Pooled data modeling can be represented by equation 1.

$$DER_{it} = \beta_0 + \beta_1 LnPRC_t + \beta_2 FOR_{it} + \beta_3 LnSIZE_{it} + \beta_4 LIQ_{it} + \beta_5 PROF_{it} + e_{it} \quad (1)$$

$DER_{it}$  : Debt to equity ratio

$\beta_0$  : Constant coefficient

$\beta_1$  : Regression coefficient

$LnPRC_t$ : Coal price

$FOR_{it}$  : Foreign ownership

$LnSIZE_{it}$  : Size of the coal company

$LIQ_{it}$  : Liquidity

$PROF_{it}$  : Profitability

$e_{it}$  : error term

## 4. RESULTS AND DISCUSSION

### Changes in The Capital Structure of Indonesian Coal Companies

This study uses DER as a proxy for the capital structure position in coal companies. Table 2 shows the DER value of coal firms listed on the IDX in 2018-2020. Based on Table 2, the average DER value of coal companies fluctuates with an increasing trend. Data in Table 2 also showed that the period with an average DER of more than 200% has a large standard deviation value. In the fourth quarter of 2018, the average DER value was 265%, with a 7.15 standard deviation, and in the fourth quarter of 2020, the average DER value was 240% with 5.57 of standard deviation. The standard deviation value shows a large increase in the distance between the data points and the average value.

In the fourth quarter of 2018, ARII has 3406% of DER value, and BUMI has 676% of DER value, which is the furthest point from the average DER value of coal companies. The same thing happened in the fourth quarter of 2020. At that time, ARII and BUMI had 1179% and 2485% of DER values, respectively. At the same time, GTBO has not yet published its fourth-quarter 2020 financial report. DER value of more than 100% indicates that the company uses more debt than its financing to pay the operating cost. According to Ufo (2015), high leverage causes the company to go bankrupt due to pressure from creditors to fulfill their liabilities.

**Table 2.** Average and standard deviation of DER of coal companies in 2018-2020

Component	Period											
	2018				2019				2020			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Average DER (%)	158	135	158	265	135	136	138	143	155	145	152	240
Standard Deviation	2.4	1.8	2.2	7.1	1.6	1.5	1.7	1.8	2.1	1.9	2.3	5.5

Source: calculation by authors

Not all companies have the same external funding sources. Based on Table 3, only third parties that all sample companies own. Third-party or trade credit is a way that companies obtain short-term financing arising from business transactions because suppliers agree to defer credit payments (Soufani and Poutziouris 2004). The average value debt originating from third parties of coal companies fluctuated with an increasing trend from 2018 to 2020.

**Table 3** Average source of liabilities of coal companies 2018-2020 (%)

Source	Period											
	2018				2019				2020			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Third Party	22.2	27.7	25.9	26.1	26.4	26.0	26.1	26.3	22.0	21.5	22.0	25.5
Related Party	5.8	7.4	8.1	8.5	6.4	7.1	5.8	5.8	5.4	5.9	4.7	3.3
Lease	3.3	3.8	3.6	2.6	3.1	3.1	3.1	3.5	5.6	5.4	5.3	5.5
Bank	23.4	23.1	21.8	24.5	25.3	28.8	27.6	28.0	25.1	23.4	24.6	24.0
Obligation	52.0	54.7	53.5	52.1	50.3	53.5	42.9	43.3	47.1	49.2	49.6	49.6
Dividends	6.2	11.0	6.0	1.3	6.1	15.2	0.2	1.3	0.2	13.9	0.3	1.4
Foreign Ownership	44.8	44.7	44.6	44.0	43.5	42.7	41.8	43.3	43.6	42.5	39.5	38.2

Source: calculation by authors

Debt to related parties is debt from persons or entities related to the company. Transactions originating from related parties are usually made through transactions that are difficult to understand for externals, making it hard to find dubious transactions or fraudulent acts (Ebirin et al., 2019). Based on Table 3, the average value of related parties' debt is not more than 10% of total liabilities during the observation period and experiences a downward trend. There are 20 out of 23 coal companies that have related-party debt from 2018-to 2020.

Data in Table 3 shows that, on average, lease debt has an increasing trend from 2018-to 2020. This is a response to PSAK 70 to PSAK 73 for lease, implemented effectively on January 1, 2020. The implementation of PSAK 73 requires companies to recognize changes in the structure of financial statements that give rise to right-of-use assets and finance lease liabilities, thus impacting changes in the company's overall financial ratios (Prajanto 2020). Six companies recorded lease payables in 2020 but did not record lease payables in the previous, namely BSSR, BUMI, BYAN, GEMS, HRUM, and MYOH. There are 20 out of 23 coal companies who choose the lease option during the observation period.

Based on UU No. 10 of 1998 concerning Banking, commercial banks carry out business activities conventionally and/or based on sharia principles in providing payment services. The percentage of bank loans to total liabilities fluctuates on average. In the first quarter of 2018, the average percentage of bank loans was 23.40%. The percentage reached its highest point in the second quarter of 2019, which was 28.77%, then decreased to 24.01% in the fourth quarter of 2020. Four companies have more than 50% of bank loans during the observation period, namely DSSA, FIRE, SMMT, and TOBA.

According to the IDX, bonds can be described as transferable medium-long term debt securities, which contain a promise from the issuing party to pay interest for a certain period and pay off the principal at a predetermined time to the buyer of the bond. Two coal companies issued bonds during the observation period, namely INDY and BYAN. 50% of INDY's total liabilities came from bonds during the observation period. Meanwhile, BYAN just issued bonds on January 24, 2020, with a weighting 50% of BYAN's total liabilities in 2020.

The distribution of dividends to shareholders is recognized as a liability in the financial statements. This is because dividends are the amount that the company must pay. The dividend distribution policy is not mandatory, so not all coal companies implement a dividend distribution policy. The average percentage of dividends to total liabilities experienced a downward trend during the observation period. In the first quarter of 2018, the average dividend percentage was 6.2% of total liabilities, then reached its highest point in the second quarter of 2019, 15.2%, and decreased until the end of the 2020 period to 1.4%.

The coal industry is where part of the production is used to meet global demand through export activities. This makes the coal industry a special attraction for local and foreign investors. According to Gurunlu and Gursoy (2010), one of the essential characteristics of ownership formation is foreign ownership. According to Thai (2017), foreign ownership can help strengthen the monitoring role of management because it can attract professional analysts and economist observers to follow managers' actions closely. Based on Table 3, the average ownership has a downward trend. According to Gurunlu and Gursoy (2010), foreign investors bear more risks such as state policy, currency, the business risk caused by taxes, and high managerial cultural differences. The economic crisis due to the covid-19 pandemic has made investors try to save their assets.

### **Model Estimation**

Figure 2 shows outliers that can damage the pattern of the existing data. After conducting a deeper study, the outliers are ARII and BUMI. This outlier data has also been detected in the capital structure data for the fourth quarter 2018 and fourth quarter 2020 (Table 2). The unfavorable financial condition of ARII and BUMI gave a negative signal for an investor to withdraw their ownership. The unfavorable conditions in ARII and BUMI were also reviewed in previous studies. Akbar et al. (2020) said that ARII was bankrupt during the 2016-2018 period. Research by Siswati and Gulo (2016) shows that BUMI was in a bankruptcy state from 2010 to 2013. In Salimah and Yunita (2020), BUMI experienced financial distress in the Ohlson and the Grover model. Based on the data presented, it appears that the two companies have left the pattern of others coal companies. So removing the two companies from testing the model felt right.

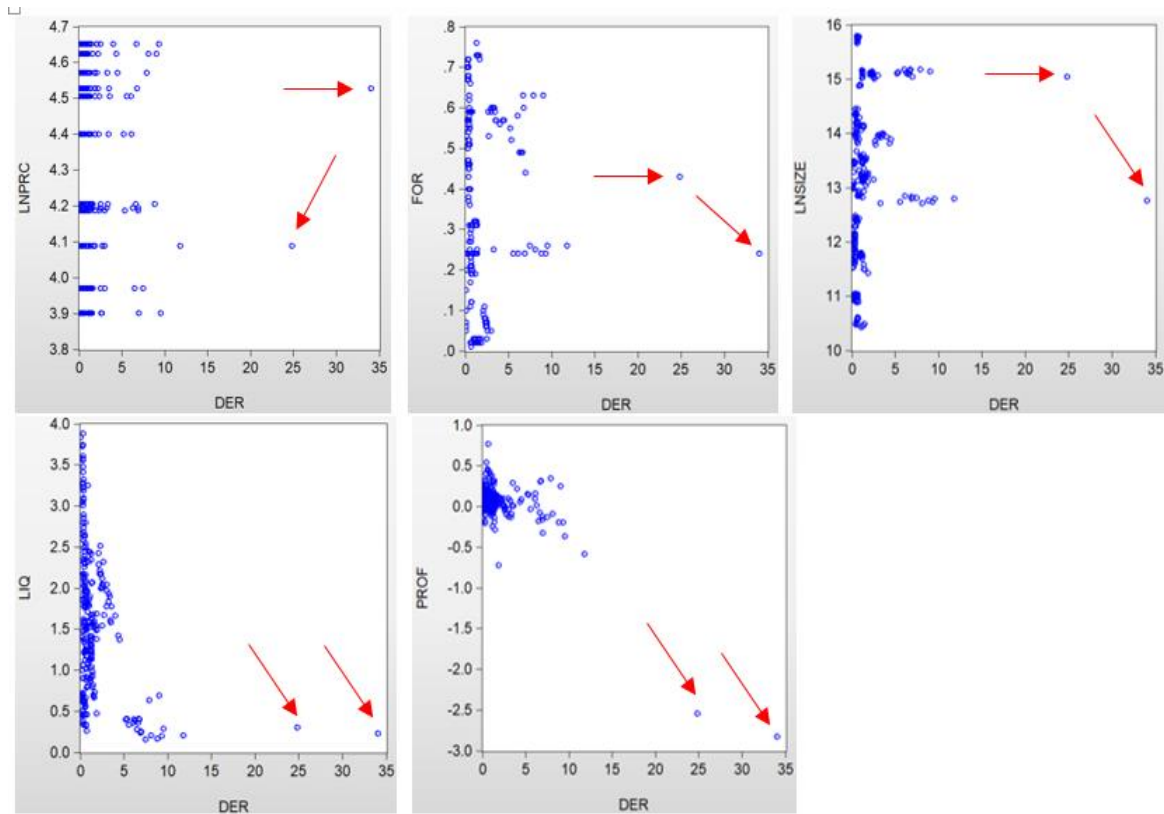


Figure 2 Relationship between capital structure and independent variables

Companies that become of the sample model should be 23 companies. However, the number of cross-sections used for model testing was 21 due to outlier data. The samples that were not used are PT Atlas Resource Tbk (ARII) and PT Bumi Resource Tbk (BUMI). As of December 31, 2020, 20 companies have published financial reports up to the fourth quarter of 2020. The company that has not published its financial statements for the fourth quarter of 2020 is PT. Garda Tujuh Buana Tbk (GTBO), thus forming an unbalanced data panel due to incomplete data.

Table 4 Regression result

Variable	Coefficient	Prob
Coal Price (Ln)	0,1018	0,0000*
Foreign Ownership	-0,3113	0,0002*
Size (Ln)	0,6771	0,0000*
Liquidity	-0,0366	0,0000*
Profitability	-0,1317	0,0326*

Notes: \*significant at the 5% level. Source: calculations by authors

Table 3 summarizes the results using the fixed-effect model based on the Hausman test. It can be noticed that coal price positively correlates with capital structure. The coefficient value interprets that a 1% decrease in coal price leads to a 0.1018% decrease of DER coal companies with assumption ceteris paribus. This situation is not following the initial hypothesis that the DER will decrease if coal price increases. The movement of the average DER of 21 coal companies began to align with the movement of coal price in the



third quarter of 2018. The average DER of 21 coal companies showed an increase in the third quarter of 2018 as the coal price rose in 2018. The second-lowest point also occurred in the third quarter of 2020, increasing again in the fourth quarter of 2020. The covid-19 pandemic caused an economic crisis during the observation period. In tackling the massive spread of the covid-19 virus, people must limit social activities impacting world economic activity, including Indonesia. The pandemic has caused a decline in electricity consumption in Indonesia due to restrictions on office, business, and manufacturing activities (Petriella 2020). A decrease in electricity consumption was also found in Santiago et al.'s (2021) study in Spain and Ontario, Canada (Abu-Rayash and Dincer 2020). Coal is a production factor for the electricity supply industry, so the decline will also impact the coal industry that showed in the declining coal price trend. In financial crisis terms, the risk of bankruptcy increases with the increasing debt burden, thereby increasing the probability that debt costs exceed the benefits of debt (Khodovandloo et al., 2017). So to reduce the possibility, the company reduces the level of external funding.

Foreign ownership has a negative effect on the DER of coal companies. The coefficient value interprets that if foreign ownership decreased by 1 unit, the DER of coal companies increased by 0.3113 units with the assumption *ceteris paribus*. This condition is in accordance with the result of research conducted by Primadhanny (2016), Gurunlu and Gursoy (2010), Do et al. (2019), and Thai (2017), which state that there is a significant negative relationship between foreign ownership and capital structure. According to Chen and Chen (2011), an increase in capital structure is a positive signal for investors because financial institutions such as banks can monitor company performance due to information asymmetry. However, the uncertainty caused by the economic crisis of the covid-19 pandemic has caused investors to act rationally to secure their assets. According to Thai (2017), foreign investors face higher risks at the micro and macro levels.

Size has a positive relationship with the capital structure of coal companies in 2018-2020. The coefficient value interprets that a 1% decrease in the size of companies leads to a 0.6771% decrease of DER coal companies with the assumption *ceteris paribus*. This is also found in research conducted by El-Diftar (2020), Wronska-Bukalska and Mazurkiewicz (2018), M'ng et al. (2017), and Mostarac and Petrovic (2013). This condition follows the pecking order theory. According to Chen and Chen (2011), companies tend to prefer debt over issuing new shares because the company has a lower risk of losing control over the company's management. So companies with larger sizes will choose external funding sources that come from debt rather than equity.

Liquidity has a negative effect on the DER of coal companies. The coefficient value interprets that if liquidity increase by 1 unit, the DER of coal companies decreases by 0.0366 units with the assumption *ceteris paribus*. These results support research conducted by Lipson and Mortal (2009), Udomsirikul et al. (2011), Arini and Harlendo (2013), Ferdiansya and Isnurhadi (2013), and Dewiningrat and Mustanda (2018), which state that company liquidity has a negative effect on the company's capital structure. The negative effect found in this study indicates that the higher the company's ability to pay its short-term liabilities, the lower the level of use of debt for operational activities.

Profitability has a negative relationship with the capital structure of coal companies in 2018-2020. The coefficient value interprets that if profitability increase by 1 unit, the DER of coal companies decreases by 0.1317 units with the assumption *ceteris paribus*. These results support the research conducted by Sutomo et al. (2020), El-Diftar (2020), Noura and Bellouma (2019), M'ng et al. (2017), and Al ani and Al Amri (2015), which state that the

company's profitability has a negative effect on the company's capital structure. This is in line with the pecking order theory which says that companies prioritize internal sources to meet their funding needs rather than external sources. According to El-Diftar (2020), companies with high profitability tend to have more reliable internal funds, so they need less external funds.

## 5. CONCLUSION AND SUGGESTIONS

### Conclusion

This study concludes that ten out of 23 coal companies have more than 100% DER. Based on the sources of liabilities, debt originating from third parties is the main source of debt for coal companies listed on the IDX in 2018-2020. The next order of sources of debt in a row is bank loans, debts from related parties, lease payables, bonds, and dividends, and based on results of panel data regression, it shows that coal price, foreign ownership, company size, liquidity, and profitability variables have a significant influence on the capital structure of coal companies, and the result is in line with the pecking order theory, which says that companies prioritize internal sources to meet their funding needs. As one of the main coal exporters, Indonesia has a good bargaining position in the international market. An investor can use the movement of coal prices as one of the criteria for deciding to invest in this industry.

### Suggestions

Future research can add a longer range of time, especially when the divestment policy has been implemented effectively to see the changes caused by the implementation of the divestment policy. Further research can add other variables that are estimated to influence management decisions in shaping the company's capital structure, such as the economic crisis condition.

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