CEO Determination on Indonesian Coal-Based Enterprises Performance

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Abstract: - The continuous increase in Indonesia's coal production shows an increase in the firm performance. This study aims to examine the determination of CEO characteristics on coal-production-based companies in Indonesia. Using data from coal production sub-sector companies in Indonesia, this study applies a panel data regression analysis method with a total sample of 15 companies from 2016 – 2020. The results show that CEO attributes such as CEO Duality have a significant positive effect on company performance while CEO Tenure and CEO Ownership have no effect on company performance, but CEO Education has a significant negative effect on company performance and the composition of external commissioners has no significant effect on the company's performance.

Key-Words: - Determination CEO, CEO Attributes, Coal Based Companies, Firm Performance

Received: October 22, 2022. Revised: April 5, 2023. Accepted: April 29, 2023. Published: May 11, 2023.

1 Introduction

Coal is still the world's main energy source, even though the world is currently trying to reduce its use, [1]. According to [2], currently coal is an energy source used as fuel for power plants which produces 37% of global electricity, and by 2040 it is predicted to produce 22% of the world's electricity. Meanwhile, the Southeast Asian region itself is predicted to generate 39% electricity by 2040, [2]. Furthermore, empirical research conducted by [3], found that by 2030 coal production in China will reach peak production of up to 5,000 MT, where coal is also the main energy source for China. In Pakistan, according to, [4], Pakistan's coal reserves which reached 185.175 billion tons significantly increased the social, economic and energy of the Pakistani people.

Furthermore, the development of Indonesian coal production for the 2009-2018 period experienced a considerable increase, with production achievements in 2018 of 557 million tons. Of the total production, the export portion of coal reached 357 million tons (63%) and most of it was used to meet the demands of China and India. The high number of Indonesian coal exports makes Indonesia one of the largest coal exporters in the world. Meanwhile, domestic coal consumption reached 115 million tons or less than the domestic coal consumption target of 121 million tons. One of the factors causing the lower realization of coal consumption is the operation of several 35,000 MW steam power plants (*PLTU*) not according to plan and there are several industrial activities that have decreased, [5].

The increase in domestic coal production certainly depends on the performance of companies engaged in coal production. Indonesian Stock Exchange (IDX) noted that in the first semester of 2021, the majority of the largest coal mining issuers reported an increase in revenue, although some experienced a decrease in sales volume, [6]. PT Adaro Energy Tbk (Emiten code: ADRO), for example, recorded operating revenues of US$ 1.56 billion in the first semester of 2021, up 15% year-on-year (YoY). The increase in topline was mainly due to an increase in the average selling price (ASP) of 25%. The improvement in coal prices also helped to raise the average selling price of PT Indo Tambangraya Megah Tbk (Emiten code; ITMG) during the first semester of 2021. ITMG recorded an average coal price of US$ 74.7 per ton. This average price rose 34% from the same period the previous year which was only US$ 55.7 per ton. Like ADRO, the increase in ASP occurred when ITMG recorded a decrease in sales volume. During the first half of 2021, ITMG sold 9.0 million tons of coal, a decrease of 18.91% from coal sales in the same period the previous year of 11.1 million tons. With the increasing income of most coal companies in Indonesia, it can be correlated as one of the determinants in increasing company performance, [7].

In the literature of previous studies, there have been many studies examining the factors that affect company performance, [8], [9]. One of the crucial factors influencing company performance is the characteristics of the chief executive officer (CEO), [10], [11], [12]. The CEO plays an important role in company decision making, so the success or failure of the company is almost always associated with the characteristics of the CEO itself. Furthermore, the CEO's central role is to drive growth and manage the complexity of the company as well as to control costs effectively and efficiently, [8]. The recent economic recession due to the Covid-19 Pandemic has put the role of top managers in the spotlight because they are required to make strategic decisions regarding the effectiveness of corporate governance in the face of the global economic recession for the sake of the company's sustainability, [13]. Therefore, the specific objective of this research is to examine the determination of the characteristics and attributes of the CEO on the performance of coal sub sector companies listed on the Indonesia Stock Exchange (IDX). The characteristics of CEOs that will be tested in this study are CEO Duality, CEO Tenure, CEO Ownership, CEO Education, and the structure of the board of commissioners.

2 Literature Review and Hypothesis Development

2.1 CEO Duality and Firm Performance

The first determinant tested and analyzed in this study is CEO Duality. This determination of CEO Duality on the company's performance has been widely studied in previous studies that refer to the basis of stewardship theory. This theory was first introduced by [14], which stated that a company manager is not motivated to fulfill his own interests, but is more likely to improve the quality of the company's overall performance. Thus, CEO Duality in this theory can be used as the basis for formulation and strategy in developing a more consistent company, [14]. A study conducted by [15], proved that CEO duality has a large and significant influence on increasing company performance. Likewise, another study conducted recently revealed that CEO duality has a significant influence on company performance as measured by the ROA ratio, [16]. Meanwhile, in the context of Agency Theory, [17], stated that CEO Duality has a bad influence on company performance when the company is mature, because the CEO can compromise and control his own performance. Similarly, the authors in [18] revealed a negative relationship between the dual role of CEOs on the performance of small companies in China. Thus, the hypothesis built in this study is as follows:

H1: CEO Duality has a positive influence on company performance.

2.2 CEO Tenure and Firm Performance

There is a debate among scholars regarding the CEO's tenure in a company. In the stewardship theory, it is revealed that the longer a CEO leads the organization, the more the CEO understands the culture and operations of the company which results in increasing company performance. Furthermore, the relatively long periodization makes the CEO increasingly have a higher sense of ownership of the company so that the company tends to be able to continue to grow, [19]. He also tested the interface model as an important intervening mechanism between CEO tenure who is part of the Top Management Team (TMT) and the model shows that CEO tenure with its influence has a significant effect on decision-making risk in TMT which is oriented towards innovative initiatives. Furthermore, CEO tenure will increase the value of the company in line with the increase in compensation for the CEO, [20], [21]. Study in the last decade conducted by [22] proved that CEO Tenure has a positive impact on company performance mediated by firm-employee and firm-customer relationship strength.

On the other hand, some scholars have the view that CEO Tenure actually has a bad influence on the quality of company performance, [23], [24], [25], revealed that investors prefer to place their funds in companies with shorter executive's tenure to get higher yields because they are seen as having a better level of financial stability. Furthermore, the authors in [26] argued that there are two empirical reasons from the results of his research which state that CEO tenure has a negative impact on Corporate Social Responsibility (CSR) performance, namely CEOs have incentives to use CSR performance as a signal of their ability to reduce career problems. and CEO tenure issues. Based on previous studies, we build the second hypothesis as follows:

H2: CEO tenure influences company performance

2.3 CEO Ownership and Firm Performance

The authors in [27] revealed that one way to reduce the impact of agency problems is to increase CEO share ownership. The greater the percentage of shares owned by the CEO in the company is believed to improve the company's performance, [28]. The authors in [10] argued that there is a significant positive relationship between CEO Power and company performance. In this study, it was revealed that the interaction between CEO characteristics and organizational variables has important consequences for increasing company performance. A recent study, [16], found that the performance of companies in India will increase with greater CEO share ownership. Then the third hypothesis that we build is as follows:

H3: CEO Ownership has a positive effect on company performance

2.4 CEO Education Background and Firm Performance

There is no basic rule of education level as the main requirement to become a CEO, since multinational companies have CEO with different educational backgrounds. CEO who has a graduate education background in management, economics or business are expected to improve managerial functions and can easily make the right decisions to improve firm performance. The Study in [8] revealed that companies that have CEO with MBA, masters and doctoral educational backgrounds can increase company value in Saudi Arabia. While the authors in [12] explained the educational background of a CEO has an important role in improving firm performance, because the education level of a CEO can prove CEO's connections and abilities which will ultimately have an impact on Firm performance. The next hypothesis that is built is:

H4: CEO Education has a positive effect on company performance

2.5 The Structure of the Board of Commissioners and Firm Performance

In agency theory, the greater number of independent commissioners in a firm, the better in overcoming agency problems between principals and agents, [29]. The study [30] proved that the more dominant the number of independent commissioners, the more power the board of commissioners will put pressure on CEO to improve the quality of corporate disclosure. In other words, the diversity of outsider supervisory can encourage TMT to act objectively and be able to protect all shareholders, [31]. Thus, independent directors who do not have a relationship with the firm are expected to improve the quality of supervision carried out by TMT so that they can have a positive influence on Firm performance, [32]. Our final hypothesis is constructed as follows.

H5: The Board of Commissioners affects the company's performance

3 Research Methods

This study extracted data published in each annual report of coal sub sector companies listed on the IDX from 2016 to 2020. According to the latest report in [6], there are 33 companies coal sub sectors listed on the IDX, but in this study the sample of companies will be limited to the coal sub sector with the specifications of the coal production industry, and which publish annual reports from 2016 to 2020, so that the total companies that are sampled in the study are 15 companies. Data analysis used panel data regression analysis which is a combined analysis technique of cross section and time series data. The econometric model that we built in this research is as follows.

Formula (1):

$$FP_{it} = \alpha + \beta_1 Dual_{it} + \beta_2 TNR_{it} + \beta_3 Own_{it} + \beta_4 Edu_{it} + \beta_5 Coms_{it} + \varepsilon_t$$

Where FP_{it} is firm performance ratio through ROA in firm i and year t; $Dual_{it}$ is CEO Duality in firm i and year t; TNR_{it} is CEO Tenure in firm i and year t; Edu_{it} is CEO Education Background in firm i and year t; and $Coms_{it}$ is Ratio of Independent Commissioner in firm i and year t; ε_t = Error term.

In panel data regression, there are four models that can be used. These models include the pooled OLS model, the least square dummy variable (LSDV) fixed effects model, the within-group fixed effects model and the random effect model, [33]. The selection of the model to be used is through selection by testing the model specifications. There are two specification tests, namely fixed effects, or random effects.

The specification test aims to determine the panel data analysis model that will be used through the Chow Test, Hausmann Test, and the Lagrange Multiplier (LM) Test, [33]. Furthermore, the feasibility of the model built will also be tested or in this case it will test each hypothesis that has been built through a simultaneous significance test (F test) and individual parameter significance test (t test).

4 Results and Discussion

In this study, the analysis begins with a description of some basic statistical values for all tested variables which are presented in Table 1. The statistical descriptions that will be described are the average, minimum, and maximum values. The average value for ROA in coal production sub-sector companies in Indonesia is 7.49% during the study period. This ROA percentage indicates that coal production sub-sector companies are on average able to generate a positive return to assets ratio during unstable economic conditions due to the Covid-19 Pandemic. Furthermore, the average value of CEO Duality is close to 0, which means that most CEOs do not have closeness to the board of directors, commissioners, and shareholders or in other words, the average company that is the sample of this study does not have leadership duality. The variable tenure of CEOs in Indonesian coal production sub-sector companies is an average of 7 years, which means that many companies retain CEO leadership for more than 1 period. For the average CEO education variable statistically has a mean of almost 50%, which indicates that half of the COEs in the sample have a postgraduate education level. Meanwhile, the level of CEO's share ownership in the companies he leads is on average very low, which is only 3.27% and the number of independent commissioners in each company is on average 41.32 percent.

Meanwhile, the minimum ROA value is negative 0.0984 and the maximum is 0.456. This negative ROA value is believed to have occurred at the peak of Covid-19 cases that occurred in 2020, so that some companies were unable to generate profits on their assets. The minimum tenure of the CEO is under 1 year and a maximum of 28 years, and the maximum value of shares owned by the CEO in the company he leads is 54.03% who is also the owner of one of the companies. The minimum percentage of independent commissioners is 25%, which indicates that every company has an external commissioner to supervise the management of the company.

Furthermore, to ensure that the model to be built does not have a relationship between variables (multicollinearity), Table 2 shows the correlation between variables with fair value, which is below 80 percent, meaning that the variables in this study do not have symptoms of multicollinearity.

Table 1. Statistical Descriptive

Variables	Mean	Std. Error	Median	Std. Deviation	Kurt.	Skew.	Min.	Max.
ROA	0.0749	0.0120	0.0470	0.1041	2.7848	1.3669	-0.0984	0.4560
CEO Duality	0.2533	0.0506	0.0000	0.4378	-0.6788	1.1576	0.0000	1.0000
CEO Tenure	7.4762	0.7908	7.0000	6.8483	1.5472	1.3227	0.0833	28.0000
CEO Education	0.4667	0.0580	0.0000	0.5022	-2.0364	0.1364	0.0000	1.0000
CEO Ownership	0.0327	0.0138	0.0000	0.1194	14.2969	3.9540	0.0000	0.5403
Board Structure	0.4132	0.0107	0.4000	0.0925	0.6849	1.0073	0.2500	0.6667

Table 2. Correlation Matrix

	DUAL	TNR	EDU	OWN	COMS
DUAL	1.000000	0.263678	0.253996	0.467539	-0.032311
TNR	0.263678	1.000000	-0.203057	-0.160397	0.154032
EDU	0.253996	-0.203057	1.000000	0.171863	0.089364
OWN	0.467539	-0.160397	0.171863	1.000000	-0.222454
COMS	-0.032311	0.154032	0.089364	-0.222454	1.000000

Table 3. Output Fixed Effect Model (FEM)

Dependent Variable: ROA
Method: Panel Least Squares
Date: 05/09/22 Time: 15:19
Sample: 2016 2020
Periods included: 5
Cross-sections included: 15
Total panel (balanced) observations: 75

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.831489	0.281609	-2.952640	0.0046
DUAL	5.046628	1.386212	3.640588	0.0006
TNR	-0.005194	0.005344	-0.971825	0.3354
OWN	0.031131	0.040110	0.776147	0.4410
EDU	-9.412381	2.712936	-3.469445	0.0010
COMS	-0.098243	0.124472	-0.789276	0.4333

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.772311	Mean dependent var	0.074876
Adjusted R-squared	0.693655	S.D. dependent var	0.104116
S.E. of regression	0.057627	Akaike info criterion	-2.646482
Sum squared resid	0.182646	Schwarz criterion	-2.028485
Log likelihood	119.2431	Hannan-Quinn criter.	-2.399722
F-statistic	9.818834	Durbin-Watson stat	1.827918
Prob(F-statistic)	0.000000		

Source: Processed data (EViews 10)

From the results of the Chow test and Hausmann test on panel data regression, the statistically recommended model is the Fixed Effect Model (FEM) (Table 3). The FEM output is presented in more detail as follows.

$$FP_{it} = -0.83 + 5.04Dual_{it} - 0.005TNR_{it} + 0.03Own_{it} - 9.41Edu_{it} - 0.098Coms_{it}$$

The model formed statistically has an R-Squared of 77.23 percent, which identifies the five independent variables tested that have a relatively large effect on the dependent variable ROA and has an F-statistic smaller than 0,05 which makes the FEM model a significant fit model.

4.1 CEO Duality on Firm Performance

Statistical test results and econometric models show a significant positive relationship between CEO Duality on the performance of companies in the coal production sub sector in Indonesia. The regression coefficient of 5.04 indicates that on average and if other variables are considered constant, if there is a duality of leadership in the company, it will statistically increase the company's performance. This is in line with research conducted by [16], who found that if the CEO of a company in India having affiliation to company ownership will be more efficient and better able to improve the performance of the company. The same thing is also shown by research, [34], which stated that the performance of companies in France will increase significantly if the company has a Duality CEO.

4.2 CEO Tenure on Firm Performance

This study found that CEO tenure has no effect on company performance. The CEO who has led the company for a long time does not mean that it will increase the value of the company. Even the coefficient of the CEO Tenure variable in the model is negative, which indicates that the longer a CEO leads the company, the lower the company's performance. This result contradicts the findings in [19], which stated that a CEO who has led an organization for a long time will tend to have a higher level of knowledge of the culture and operations of the company, so that he will be able to make a more effective contribution to improving company performance. However, our research supports the results of research in [35], which stated that investors have a tendency to choose companies with shorter CEO tenures on the grounds that these companies have a better level of financial stability. Likewise the authors in [25] described long service

CEOs as having no influence on developing companies.

4.3 CEO Ownership on Firm Performance

CEO share ownership in coal production sub-sector companies in Indonesia in this study shows a statistically insignificant relationship with company performance. The results of this study are different from previous studies which state that the greater the CEO stock ratio, the greater the company's performance, [10], [16], [27]. This is because in the research sample companies only a few CEOs have contributed share ownership in the company they lead, so the percentage of share ownership does not have a significant effect on company performance.

4.4 CEO Education on Firm Performance

The educational background of the CEO in this study has a statistically significant effect on company performance. This significance is indicated by a p-value that is smaller than 0.05 and has a regression coefficient of -9.41. This means that companies with undergraduate educational backgrounds are better able to improve company performance compared to companies with CEOs with postgraduate education backgrounds. This study contradicts previous research conducted in [8], [12], which stated that CEOs who have a master's and doctoral education background can significantly improve company performance.

4.5 Board of Commissioners on Firm Performance

Panel data regression test shows that the proportion of independent commissioners in a coal production sub-sector company has no effect on the company's performance. This is contrary to previous research which found that the greater the proportion of commissioners from external parties, the higher the company's performance, [31]. The research states that the commissioners from outside the company will be more objective in conducting supervision and evaluation so that it will indirectly improve the company's performance.

5 Conclusion

As one of the coal exporting countries, the role and background of the CEO in coal companies in Indonesia is crucial in improving company performance. This study found that CEO duality has a very crucial role because it can improve company performance. However, CEO tenure and CEO Ownership do not significantly affect the performance of coal sub sector companies in Indonesia. Meanwhile, CEO Education has a significant but negative effect on company performance, which means that CEOs with non-master's educational backgrounds are even more able to improve company performance compared to CEOs who have master's and doctoral degrees. Furthermore, the composition of independent commissioners in this study showed insignificant results, so it can be said that the percentage level of external commissioners in coal sub-sector companies in Indonesia has no effect on increasing company performance.

Acknowledgement:
The authors would like to thank *Riset Indonesia Terpadu* (RIT) for the assistance in analysing data. The authors would also like to thank *Enago* (www.Enago.com) for the English language review.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

-Habibullah Jimad carried out the analysis and the discussion.
-Roslina and Fajrin Satria Dwi Kesumah carried out analysis data and literature.

Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

No funding was received for conducting this study.

Conflict of Interest

The authors have no conflict of interest to declare.

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