

HOW A DOMESTIC MARKET OBLIGATION POLICY AFFECTING THE COMPANY FINANCIAL PERFORMANCE: CASE STUDY OF COAL MINING INDUSTRY IN INDONESIA

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Abstract. Indonesia has a great potential in natural resources in term of coal resources. The average ratio of the nation's coal production being exported from 2000 to 2014 is 75.4%. With a high ratio of national coal production being exported rather than for domestic market, Indonesia is currently leading the global coal exporters with a total contribution to global coal exports of 28.59%. In March 2018 the government are issuing the DMO price policy written in Government Regulation No. 8/2018 and Ministry of Energy and Mineral Resources Regulation No. 19/2018 related to guidance of the determination of the coal price for electricity that is supplied in the public interest protect domestic market needs. This research aims to obtain empirical evidence about the differential in the financial performance of Indonesian Public Listed Coal Companies before and after the Domestic Market Obligation price policy issuance represented with Return on Assets ratio. This research will be using 17 Indonesian Public Listed Coal Companies and using difference-in-difference method with Return on Asset ratio using 2 period of event window which was 2 quarter before and after the regulation was issued. To validate the result from difference-in-difference analysis, this research will be analyzed with Wilcoxon Signed Rank Test. The analysis indicates that the short term effect of the Domestic Market Obligation price policy issued by the government did not give a significant impact towards the financial performance of Indonesian Public Listed Coal Companies represented with Return on Assets ratio.

Keywords: Financial Performance; Coal Industry; Profitability Ratio; Difference-in-Difference

1. INTRODUCTION

Indonesia has a great potential in natural resources in term of coal resources. The coal production in Indonesia has increased rapidly from 77 million ton in 2000 to 458 million ton in 2014 (Kementerian Energi dan Sumber Daya Mineral, 2015). The average ratio of the nation's coal production being exported from 2000 to 2014 is 75.4% (Kementerian Energi dan Sumber Daya Mineral, 2015). With a high ratio of national coal production being exported rather than for domestic market, Indonesia is currently leading the global coal exporters countries by ranked number 2 after Australia, with a total contribution to global coal exports of 28.59%. (The Global Economy, 2016). From a total of 891 billion ton of global coal reserves, Indonesia has only around 37 billion ton coal reserves or 4.15% of total global coal reserves (British Petroleum , 2018). Based on that matter, on 8th March 2018, Minister of Energy and Mineral Resources issued a number of regulations related to guidance of the determination of the coal price for electricity that is supplied in the public interest which is written in Government Regulation No. 8/2018 and Ministry of Energy and Mineral Resources Regulation No. 19/2018. The government issued the regulations to protect domestic market needs because Indonesian coal producers sell most of their production for export.

Based on the problem statement, the objective of this research is to analyze and measure the short term impact of DMO pricing policy (1395K/30/MEM/2018) towards the financial performance of Indonesian public listed coal companies. This research will be using Return on Assets and Return on Equity ratio to analyze the financial performance of the company and difference-in-difference method to analyze the effect of DMO price policy towards financial performance.

2. MATERIAL AND METHOD

2.1 LITERATURE REVIEW

2.1.1 DMO Price Policy in Indonesia

On 8 March 2018, PerMen 19/2018 was issued as the second amendment of PerMen 7/2017. Based on PerMen 19/2018, the Minister of Energy and Mineral Resources shall determine the selling price of coal for domestic needs based on the quality of the coal. The Minister of Energy and Mineral Resources considers the public interest in determining the coal price. On 9 March 2018, KepMen 1395K/30/MEN/2018, concerning the "Coal Selling Prices for Electricity Supply for Public Interest", was issued as an implementing regulation of PerMen 19/2018 and PP 8/2018.

2.1.2 Financial Statement Analysis

According to Munawir (2007), financial statements are the results of the accounting process which is used as a tool to communicate between the financial data with related parties. Financial Statement Analysis is the process of analyzing financial statement with the aim of providing additional information for the management to be used for decision making, or for other parties such as investors and shareholders to analyze the condition of the company.

2.1.3 Financial Ratios Analysis

Financial ratios are common analytical tool to analyze the overall firm's financial performance. Financial ratios are very important and effective tool for external parties who wanted to assess a company based on the financial statements.

Financial ratios divided into categories, which are profitability, liquidity, efficiency, and leverage ratio. In this research, the author will only focusing on profitability ratios. According to Investopedia (2019), profitability ratios is a tool to measure the overall firm's efficiency in generating profits, with a certain level of sales, total assets, or the owner's investment as a group. Financial ratios which are categorized as profitability ratios are:

- Return on Assets, this ratio is a tool to analyze how effective a company is in generating profits by utilizing its assets (Investopedia, 2019). The formula is as stated below:

$$\text{Return on Assets} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

2.1.4 Difference-in-Difference Method

The Difference-in-Difference (DiD) method is a research design for estimating causal effects. The DiD design is usually based on comparing de facto four different groups of objects. Three of these groups are not affected by the treatment. In many applications, "time" is an important variable to distinguish the groups. (Lechner, 2011)

2.2 METHODOLOGY

2.2.1 Data Collection

The data used in this study are secondary data, because the data taken indirectly from the source but obtained from the second party or third party by collecting financial report from the Bursa Efek Indonesia website and the companies' annual report. The data needed for this research consist of the annual and quarterly financial statements for the period of 2017 to 2018.

2.2.2 Calculate Financial Ratios

The financial ratios chosen to represent the companies condition is Return on Assets, the data is chosen from 2nd quarter of 2017 to 4th quarter of 2018. The data was collected from the annual and quarterly report. The Return on Asset equation used to this research is as follows:

- Return on Assets = $\frac{\text{Net Profit}}{\text{Total Assets}}$

The dependent variable is the Return on Assets and Return on Equity ratio, because the ratios will respond to the changes of the independent variables which are Net Profit, Total Assets, and Total Equity.

2.2.3 Difference-in-Difference Analysis

The author use difference-in-difference method to evaluate the impact of Domestic Market Obligation price regulation towards the Indonesian public listed coal companies financial performance represented by the ROA ratio by comparing the pre- and post- intervention change. The period of event window is -2 quarters before and +2 quarters after the event date. The event window was chosen since the government issued Domestic Market Obligation price regulation at March 2018.

The data that are being processed for difference-in-difference comparison were divided into two groups and separated by two different time period. These group consists of treatment group and historical control group. Historical control group is the type of control group that are currently receive a treatment (Lechner, 2011).

The treatment group is the financial ratio of Indonesian public listed coal companies after the government issued Domestic Market Obligation price regulation and the control group is the financial ratio of Indonesian public listed coal companies before the government issued Domestic Market Obligation price regulation.

2.2.4 Normality Test

To validate the result from the difference-in-difference analysis, the author conducts a statistical test. Statistical test could be a parametric or non-parametric test. In order to figure which statistical test will be used for analysis, the distribution of the data will be analyzed. If the data distribution is normal, paired t-test will be used, and if the distribution of the data is not normal, the Wilcoxon Signed-Rank test will be used. Normality test was done to test

whether the data have normal distribution. Normality test will figure which statistical test is going to be used. In this research, the author use One-Sample Kolmogorov-Smirnov test. The significant rules of the test are:

- If p -value < 0.05 , then the data distribution is not normal
- If p -value ≥ 0.05 , then the data distribution is normal

2.2.5 Wilcoxon Signed-Rank Test

In this step, Return on Assets ratio from each companies will be analyzed using Wilcoxon Signed-Rank test as robustness test towards the result from difference-in-difference analysis. Wilcoxon Signed-Rank Test is a nonparametric test to analyze whether there is a significant differences between median of matched paired samples (Anderson et al., 2017). Wilcoxon Signed-Rank Test makes no assumptions about the distribution of the population except that the population is symmetric and continuous. (Jaggia & Kelly, 2013). Nonparametric test is used when the sampled population does not have normal distribution and when the sample size were small ($N > 30$). (Jaggia & Kelly, 2013). The time period being used for this test is 2 quarters in comparison before and after the government issued the Domestic Market Obligation price regulation.

The steps of Wilcoxon Signed-Rank Test are:

1. **Categorizing the data**

Each data will be divided into 2 groups, one group for the Return on Assets ratio data before the regulation is issued and another group for the Return on Assets ratio data after the regulation is issued.

2. **Set the hypothesis**

The hypothesis for this part of research is:

H_0 : There is no significant difference between the median of the Return on Assets ratio before and after the government issued the Domestic Market Obligation price regulation.

H_1 : There is significant difference between the median of the Return on Assets ratio before and after the government issued the Domestic Market Obligation price regulation.

3. **Processing the data**

All categorized data then processed using IBM SPSS Statistics 23 software to perform Wilcoxon Signed-Rank Test. The significance level for the test is $\alpha = 0.05$. Wilcoxon Signed Rank-Test is used when the data is not normally distributed. Normality test is performed at the beginning of the analysis to evaluate whether each data is normally distributed or not.

Each paired data then calculated to know the difference, $d_i = x_i - y_i$, where x_i, y_i are the pairs of observations.

Calculate W^+ , the sum of the ranks of the positive d_i s, and W^- , the sum of the ranks of the negative d_i s. (As a check the total, $W^+ + W^-$, should be equal to $\frac{n(n+1)}{2}$, where n is the number of pairs of observations in the sample).

3. FINDINGS

The analysis outcome using difference-in-difference method stated that the issuance of Domestic Market Obligation price policy did not give a significant impact towards the financial performance of Indonesian Public Listed Coal Companies represented with the Return on Assets ratio. The table below is the outcome of difference-in-difference analysis using StataMP software:

Table 1. Difference-in-Difference Analysis

Source	SS	df	MS	Number of obs	=	68
				F(3, 64)	=	1.85
Model	.077378467	3	.025792822	Prob > F	=	0.1471
Residual	.892549125	64	.01394608	R-squared	=	0.0798
				Adj R-squared	=	0.0366
Total	.969927592	67	.014476531	Root MSE	=	.11809

roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
dtr	.0121915	.0405057	0.30	0.764	-.0687281 .093111
dt	.0756982	.0405057	1.87	0.066	-.0052214 .1566177
did	-.017806	.0572838	-0.31	0.757	-.1322435 .0966315
_cons	.0722657	.0286419	2.52	0.014	.015047 .1294844

Table 1 presents the estimation result of difference-in-difference estimation analysis, the focus of interest in above table is the p -value of the DID which exhibits the number of 0.757. The difference-in-difference p -value is greater than the significant level being used for the analysis which is 0.05, it means that there is no significant difference between the Return on Assets of Indonesian Public Listed Coal Companies before and after the government issued the regulation.

To validate the analysis from difference-in-difference output, the author then use Wilcoxon Signed-Rank Test. Based on the One-Sample Kolmogorov-Smirnov Test, the data is not normally distributed. The data then analyzed using Wilcoxon Signed-Rank Test for robustness test from the difference-in-difference analysis findings. The Return on Assets ratio was divided into two groups; one group for the ratio data before the regulation is issued and another group for the ratio data after the regulation is issued. The author used IBM SPSS Statistics 23 software to process the data with significance level of $\alpha = 5\%$. The following table represents the output of Wilcoxon Signed-Rank Test:

Table 2. Wilcoxon Signed Rank Test

Test Statistics ^a	
	Post - Pre
Z	-.607 ^b
Asymp. Sig. (2-tailed)	.544

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Table 2 shows the output of Wilcoxon Signed-Rank Test. The test is done by comparing the Return on Assets ratio with 2 quarters in comparison before and after the government issued the Domestic Market Obligation price regulation. The focus of this findings is the p -value which shows the number of 0.544. The p -value is greater than the significant level being used for this test, which is 0.05. It can be concluded that based on the Wilcoxon Signed-Rank Test, there is no significant difference on the Return on Assets ratio of the Indonesian Public Listed Coal Companies in before and after the Domestic Market Obligation price policy is issued by the government.

Based on both Difference-in-Difference Analysis and Wilcoxon Signed-Rank Test, the analysis shows the same result which is there is no significant difference on the Return on Assets ratio of the Indonesian Public Listed Coal Companies in before and after the Domestic Market Obligation price policy is issued by the government. If we look to the annual coal production volume and annual coal sales from each companies being analyzed, we can see that most of the companies has increased in coal production and coal sales. With the mean of the improvement of annual coal production is 8.59% and the mean of the improvement of the annual coal sales is 8.23%. It can be infer that one of the factors of no significant difference on the Return on Assets ratio of the Indonesian Public Listed Coal Companies in before and after the Domestic Market Obligation price policy is issued by the government are the increase of annual coal production and annual coal sales from 2017 to 2018.

12 out of 17 companies being analyzed for this research has improved in term of coal production volume and coal sales. The rise in Indonesian coal production can be attributed to increased production quotas by the government as part of the effort to boost the country's

export revenues, which also affected to the rise of Indonesian coal sales. In domestic market, the demand for coal increases along with the increased number of coal-fired power plant and the massive development of power plant projects, especially the steam power plant (PLTU) projects. To anticipate the surge in coal demand for power plants, the government give the producers the opportunity to add production quota up to 100 million tons. It is stated in Ministerial Decree Number 1924 K/30/MEM/2018 concerning Amendments to the Establishment of the Minimum Percentage of Coal Sales for Domestic Interest in 2018. Coal consumption by the domestic market grew in 2018 to 115 million tons from 97 million tons in 2017, which helped partially offset the weakness in the export market in the end of 2018.

Indonesia also utilizing the growth momentum of the global coal industry in 2018 by increasing its coal production target from 461 million tons (2017) to 528 million tons (2018). This increase in production target occurs because many holders of Mining Business Permits (IUP) and Coal Mining Concession Work Agreements (PKP2B) will enter the production phase. In addition, an increase in production capacity is carried out to compensate for losses incurred as a result of a decrease in coal prices in the past.

Besides increasing production quota by the government, there is also a better ecosystem in the industry such as growing consensus for industry players to broaden investment across multiple energy sources and technologies to improve the coal mining industry in industry revolution 4.0 era.

4. CONCLUSIONS

Based on the research done by the author, the conclusion of this study is that the analysis indicates that the short term effect of the Domestic Market Obligation price policy issued by the government did not give a significant impact towards the financial performance of Indonesian Public Listed Coal Companies. Even though the Domestic Market Obligation has set a price ceiling at \$70 while the global coal price at 2017-2018 is quite stable at \$90-\$100, but an increase of average coal production volume at 8.59% could compensate from the declining sell price in domestic market.

5. ACKNOWLEDGMENTS

We want to express our gratitude to School of Business and Management, Institut Teknologi Bandung for the opportunity to write this work.

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