

# Market Reaction to the Implementation of Coal Royalty Tariff Policy in Indonesia

I Wayan Gde Wahyu Purna Anggara<sup>1</sup>

Ni Made Puji Andari

<sup>1</sup>Fakultas Ekonomi dan Bisnis Universitas Udayana, Indonesia

\*Correspondences: [wahyu.purna.anggara@unud.ac.id](mailto:wahyu.purna.anggara@unud.ac.id)

## ABSTRACT

This research captures the market response to two tariff policy reforms, namely Government Regulation of the Republic of Indonesia Number 25 of 2021 and Government Regulation Number 15 of 2022 which are built on semi-strong form of market efficiency. T Test analysis is used to test the hypothesis where abnormal returns from a sample of mining sector companies on the Indonesia Stock Exchange are related to the enactment of government regulations. There were no abnormal returns that occurred around the enactment of Government Regulation Number 25 of 2021, while the enactment of Government Regulation Number 15 of 2022 did produce abnormal returns. The results show a strong relationship between changes in risk and investors' expectations of future profitability because investors' expectations are reflected in stock price movements. This concludes that uncertainty due to changes in government regulations is an additional premium that investors need.

Keywords: Stock Price; Coal Mining; Government Policies; Royalty Rate.

## *Reaksi Pasar Terhadap Penerapan Kebijakan Tarif Royalti Batubara di Indonesia*

### ABSTRAK

Penelitian ini menangkap respons pasar terhadap dua reformasi kebijakan tarif, yaitu Peraturan Pemerintah Republik Indonesia Nomor 25 Tahun 2021 dan Peraturan Pemerintah Nomor 15 Tahun 2022 yang dibangun berdasarkan efisiensi pasar bentuk semi-kuat. Analisis Uji T digunakan untuk menguji hipotesis dimana abnormal return dari sampel perusahaan sektor pertambangan di Bursa Efek Indonesia seputar berlakunya peraturan pemerintah. Tidak terdapat abnormal return yang terjadi disekitar berlakunya Peraturan Pemerintah Nomor 25 Tahun 2021, sedangkan berlakunya Peraturan Pemerintah Nomor 15 Tahun 2022 memang menghasilkan abnormal return. Hasil menunjukkan hubungan yang kuat antara perubahan risiko dan ekspektasi profitabilitas masa depan investor karena ekspektasi investor digambarkan dalam pergerakan harga saham. Hal ini menyimpulkan bahwa ketidakpastian akibat perubahan peraturan pemerintah merupakan tambahan premi yang dibutuhkan investor.

Kata Kunci: Harga Saham; Pertambangan Batubara; Peraturan Pemerintah; Tarif Royalti.

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## PENDAHULUAN

Over the last decades, governments have shown prominent influence in the market due to their capacity to regulate monetary and fiscal policy. While achieving the government's economic objectives, it is also critical to assess the impact of these public policies on the stock market since stock prices are highly interrelated to investors' economic outlook (Chen, 2021). Numerous event studies emerged in the 1980s and thereafter had been conducted to evaluate the result of changes in regulation on stock prices (Schwert et al., 1981), (Veronesi & Zingales, 2010), (Xiao & Gao, 2016), (Chen, 2021). To study the linkages between governments' regulation and financial market, past studies have tended to focus through the lenses of monetary policy (Bernanke & Kuttner, 2005) and tax policy could simply affect companies' business process where its risks are shared into each business component itself (Fraser, 1985). In fact, empirical analysis regarding the influence of policy changes of non-tax state revenue (*Penerimaan Negara Bukan Pajak* or "PNBP") on investors' wealth is relatively insufficient. On top of that, understanding the non-tax state revenue policy is essential because in certain sectors such as mining, the amount of contribution to non-tax state revenue plays a notable impact on companies' profitability, which could eventually affect shareholders' value. In fact, to our knowledge, there are no empirical studies that evaluate stock price reaction around the announcement of non-tax state revenue regulation changes such as royalty contribution to the Government.

Non-tax state revenue contribution to the government from mining companies in Indonesia consists of fixed payment (land rent/deadrent) and production/exploration-based payment (royalty). In the last few years, coal royalty has contributed the most, approximately 60% to Indonesia's non-tax state revenue (*Penerimaan Negara Bukan Pajak* or "PNBP") in the mineral resources category compared to other minerals (Indonesia Financial Reports, 2020). On February 2, 2021, the Indonesian government has enacted Energy and Mineral Policy through Indonesian Government Regulation Number 25 of 2021 which significantly altered the coal royalty contribution to 0% (zero percent) for holders of Production Operation Mining Business License (*Izin Usaha Pertambangan Operasi Produksi* or "IUP-OP") and Production Operation Special Mining Business License (*Izin Usaha Pertambangan Khusus Operasi Produksi* or "IUPK-OP") or an IUPK as a continuation of operations contract/agreement who conduct downstream operations. This strikingly low royalty payment rate of 0% is part of the government program to add higher value through downstream coal operations. The royalty-free policy should boost the nation's coal processing industries (development and utilization) in a bid to replace energy imports while optimizing its upgraded domestic coal added value which in turn results in an increase of production value, investment and employment in the sector. Even though this government's fiscal incentive scheme of zero-percent royalty could reduce non-tax state revenue in the short term, nevertheless in the long run it is expected to improve national and regional economy with a surge in Gross Domestic Product (GDP) and Gross Domestic Regional Product (GDRP) estimated by three times (Ragimun & Rosjadi, 2020). Therefore, the Government strongly supports downstream beneficiation for the nation to obtain maximum value from this valuable yet non-renewable coal resource.

On the contrary, a more recently enacted Indonesian Government Regulation Number 15 of 2022 regarding taxation and non-tax state revenue imposed a new progressive coal royalty rate depending on the government's benchmark coal price (*Harga Batubara Acuan* or "HBA"). Article 16 of Government Regulation Number 15 of 2022 stipulates that coal's royalty rate progressively to range from 14% - 28% subject to Indonesia's benchmark coal price. This new policy replaces the previous fixed rate of 13.5% regardless of coal prices. This newly introduced higher coal royalty rate which is part of the government's effort to raise state revenue amid a global surge in coal prices could arguably send a shockwave to stock prices of coal companies in Indonesia.

Royalty holds a vital part in the fiscal regime of mining as well as an important means of revenue source for the government of Indonesia. Due to the contrasting nature of Government Regulation Number 25 of 2021 and Government Regulation Number 15 of 2022, both policies will likely generate different impacts to coal business entities. From the industry perspective, mining business inherent characteristics are remarkably high upfront initial capital investment, massive sunk costs, long-term production period, and fluctuating commodity prices (Daniel et al., 2010). All these characteristics simultaneously build uncertainty (risk premium) for investors, in addition to uncertainty from government policy changes. Consequently, the effect of policy changes is rather complex to measure due to little responsiveness to policy changes because mining companies already exercise fixed investment. Nevertheless, a survey conducted by Fulwood & Fattouh (2019) discovers that investors today are requiring higher minimum rates of return approaching 40% to invest in new coal mine projects. This soaring hurdle rate is considered reasonable due to investors' growing concern and risk perception regarding energy transition and high future uncertainty surrounding climate change government legislation (Achakulwisut et al., 2021). Castillo (2021) finds that higher royalties can influence early-stage mining exploration by reducing the expected value of discovered deposits. Further, Daniel et al., (2010) argue that royalty increase can significantly hit extraction decisions (affecting not only current but also future level of profitability). In fact, royalty rates that are not based on income or profit can aggravate cash-flow problems, resulting in premature business closure during commodity price downturn, although how significant its impact is still unclear in practice (Otto et al., 2006).

To evaluate the mining asset market response to certain events, we build from the credence that market participants engage in an efficient market. If public policy change has implications on stock value, the effects of regulation are incorporated into stock prices at the time when the policy is first anticipated (Schwert et al., 1981). Whether investors shift their assets as a response to public policy changes, can be appraised from the assets' abnormal returns. A market is considered efficient when stock prices fully reflect all available relevant information in the market. In accordance with Efficient Market Hypothesis (EMH), new information is promptly incorporated in stock prices implying that investors can never consistently seize arbitrage opportunities to generate abnormal returns (Fama, 1970).

However, to date, many empirical studies have challenged the EMH and conclude various results with no consensus among economists. Investors and/or

investment managers cannot outperform the market consistently (Jensen, 1968); the announcement of corporate actions such as dividends and stock splits do not create an increase in stock price (Fama et al., 1969); and as security prices are unpredictable (random walk) hence it is not possible to forecast future price movements; those are several prior findings that support the theory of market efficiency. On the contrary, a growing number of studies challenge the EMH in a way that certain systematic risks or events could potentially lead to anomalies, which mean a possibility of acquiring abnormal return (Altin, 2015), (Xiao & Gao, 2016), (Anand & Singh, 2018), (Crowley et al., 2019), (Hachenberg et al., 2017). Titan (2015) proposes that it is still necessary to continue empirically testing the market efficiency considering the fact that changes in market/economic conditions are evolving, delayed response (under-reaction) because investors may be inattentive, and the veracity of the model and its underlying assumptions.

The aim of this study is to empirically analyze how the market responds to changes in royalty policies in the coal mining business sector as reflected in change of stock prices in regards to semi-strong form efficient market hypothesis. This present study contributes to literature by capturing how the market reacts to regulation changes when it is first anticipated. This study employs event study to test the presence of abnormal returns of coal mining businesses stock prices listed in Indonesia Stock Exchange.

The efficient market hypothesis (EMH) states that stock market prices trade at fair value and incorporates all the available information. Several underlying assumptions to attend the EMH sufficiently are the absence of transaction costs; information is freely available to all market participants, and all participants see and analyze information in the same way, and investors are rational. Once information reaches the market, it is immediately priced, leaving investors with little to no room to undertake arbitrage trading in the hope for excess return.

Considering the actual empirical market conditions to accommodate stock prices adjustment, (Fama, 1970) classifies three different assumed levels of market efficiency. First, the weak-form efficiency asserts that security prices already reflect all information of past data (asset prices, historical value, and trend). Second, the semi-strong form market efficiency states that security prices incorporate all publicly available information, commonly tested using event study. Lastly the third, the strong-form market efficiency argues that security prices cover all information including private information. The three forms of market efficiency are examined accordingly by employing appropriate types of test.

The semi-strong form of EMH has formed the base of many empirical research. Among several studies of first published event study, Ball & Brown (1968) assess the relative importance of annual income data that is reflected in asset price adjustment by the month of its announcement. In addition, Fama et al. (1969) observe the speed of price adjustment to specific kinds of new information. Fama et al. (1969) study the unusual behavior of security returns in the months surrounding stock split and discover that stock prices move rapidly immediately after the announcement date. Brown & Warner (1985) provide a major cornerstone to the basics methodology of how to conduct event study. In addition, longer-term intervals of event study must proceed conscientiously because size effect could influence the measurement of the abnormal return (Dimson & Marsh, 1986).

Further, Binder (1985) examines the ability of stock returns as an indicator to measure the effect of newly imposed public regulation to investors' expectations. The impact of an economic event on security prices in an inefficient market, specifically the duration of the price adjustment would be the appropriate test of semi-strong market efficiency (Basdas & Oran, 2014).

Commonly, the application of semi-strong form EMH is applied to build the baseline in explaining the behavior of the financial market reaction to new regulation is of major importance for companies, investors and policy makers. On theoretical premise, both monetary and fiscal policy have an important impact on stock return (Tobin, 1969); emphasizing stock return as a critical link that connects the real and financial side of the economy (Darrat, 1988); and the Government policy announcement usually lead to a change in anticipated profitability from investors' viewpoint, this means a follow-up response from stock market (Blanchard, 1981), (Afonso & Sousa, 2011). On empirical grounds, previous studies indicate that the passing of government policy affects stock prices by increasing volatility and stock's risk premium Pastor & Pietro (2010); and some industries experienced greater return volatility than others depending on the industry's exposure to political events/policy changes (Boutchkova et al., 2011). A significant and positive average abnormal returns have been found in the stock market during the anticipated government deregulation in the financial sector Hachenberg et al. (2017). Despite the large number of studies that have been done in assessing the interface of government regulation to the stock market, yet, our understanding of the impact of certain fiscal policies, namely non-tax state revenue, to the financial market is far from complete.

Stock market activity is inseparable from macroeconomic events including government policies. The Government of Indonesia regulates the nation's natural resources with the objective to ensure its utilization for the people. The enactment of Government Regulation Number 25 of 2021 stipulates royalty 0% to support the Government's development/utilization coal schemes namely coal gasification, cokes making, underground coal gasification, coal liquefaction, coal quality enhancement, briquette making, and coal slurry/coal water mixture. From the government point of view, providing a 0% royalty rate is to encourage coal companies to undertake value-added activity on higher value derivative products that can be sold for higher prices.

In contrast, The enactment of Government Regulation Number 15 of 2022 concerning Treatment of Taxes and or Non-Tax State Revenues in the Coal Mining Business Sector modifies the coal's royalty rate progressively to range from 14% - 28% depending on the government's benchmark coal price. Government's benchmark coal price is a price obtained from the average index of the Indonesia Coal Index (ICI), Newcastle Export Index (NEX), Globalcoal Newcastle Index (GCNC), and Platt's 5900 in the previous month, with quality equivalent to 6322 kcal/kg GAR, total moisture 8%, total sulfur 0.8% and Ash 15%.

Royalty paid to the government is part of the cost of revenue, subtracting total revenue to obtain gross profit. Investors are generally reluctant to the use of high royalty, even on possibly rich deposits, because royalties that are based on volume or value of production is a marginal cost of extracting minerals (Sunley & Baunsgaard, 2001). In terms of cash flow, royalty payments are deduction flows

from operating activities. Uncertainty due to regulatory policy changes could challenge future cash flows resulting in an increased unpredictability of forecasted cash flows for investors. Since this regulation changes are unique to the industry, that is industry-specific risk. A critical concern for investors is to protect themselves against uncertainty or policy shock to the financial premises of the coal mining business companies. Hence, it is expected that investors will likely require higher return to compensate for this additional risk they assumed.

H<sub>1</sub>: There is an abnormal return on the stock price of coal mining companies around the enactment of Government Regulation Number 25 of 2021.

Assuming semi-strong market efficiency, event study is the appropriate test to determine whether stock prices react to a specific event, in the form of abnormal returns (MacKinlay, 1997). Several prior research have evaluated the impact of industry-specific government regulations to stock prices by utilizing event study. Cable et al., (2005) assess the impact of UK Government policy imposing license fee to telecommunication companies through abnormal return and result infer that there is no extreme market reaction in the stock of telecommunication companies. Sunley & Baunsgaard (2001) assesses the adoption of environmental policy by sectors that have a track record of polluting is correlated with increased stockholders' excess return, indicating that stock market (investors' response) plays a prominent role in rewarding and encouraging companies to comply with Government's environment policy. Whereas, Anand & Singh (2018) found significant negative cumulative abnormal return of the stock prices during the introduction of new government regulation to push the Indian automobile industry to achieve sustainable development. A significant jump of change in shareholders' wealth, captured by cumulative abnormal returns, during the announcement of public policy reform has been observed especially for the market leaders in the industry. Xiao & Gao (2016) suggest that regulatory changes on Food safety law do affect investors' expectations, providing empirical results of positive cumulative abnormal return during the event study observation period.

In terms of mining companies announcement to certain events, an empirical investigation of Australian mining companies conducted by Bird et al. (2013) find that investors quickly respond to mining companies after releasing exploration or resource announcements, which is confirmed by a significantly positive abnormal return of between 2.05% and 3.24% in the period from 10 trading days before the announcement to 20 trading days after the announcement. Meanwhile, empirical result from Indonesia has found a significant difference of abnormal return when the enactment of raw mineral export ban by the Indonesian Government in 2014 (Purnasari et al., 2015). Apart from previously mentioned, study regarding market reaction to government regulation changes that use data from the mining sector is surprisingly very scarce and limited.

Despite the expected various impacts of policy shock to mining companies, little empirical evidence has been analyzed to understand how investors' return is influenced by royalty policy changes. Therefore, the hypotheses in this study are:  
H<sub>2</sub>: There is an abnormal return on the stock price of coal mining companies around the enactment of Government Regulation Number 15 of 2022.

## RESEARCH METHODS

Sample generated from companies that are categorized in the mining company category, especially those carrying out coal mining which are listed on the Indonesia Stock Exchange from 2021 to 2022 and at the time of the research, sample companies did not take any corporate action. In total, there are 18 sample companies for 2021 and 20 sample companies for 2022. The observation period (event windows) used in this study is 7 trading days, that are 3 days before the enactment of the law, the day the law is enacted, and 3 days after the enactment of the law.

Abnormal return is the difference between the actual stock return (actual return) and the expected stock return (expected return). The actual rate of return for individual stocks is obtained by finding the difference between the daily closing share price subtracted by the previous day's stock price, then divided by the previous day's closing stock price. The formula is as follows:

$$R_{it} = \frac{P_{i(t)} - P_{i(t-1)}}{P_{i(t-1)}} \dots\dots\dots(1)$$

The actual market rate of return is obtained from the difference between the daily closing price of the market portfolio, using the Indonesia Composite Index (*Indeks Harga Saham Gabungan* or "IHSG") as proxy, that is subtracted by the previous day closing price, which then divided by the previous day closing price. The formula is as follows:

$$E(R_m) = \frac{IHSG_{(t)} - IHSG_{(t-1)}}{IHSG_{(t-1)}} \dots\dots\dots(2)$$

The risk-free rate of return is a theoretical rate of return of an investment with zero risk, i.e. with the risk beta ( $\beta$ ) equal to zero. The risk-free rate of return used in this research is the interest rate of government bond which is then proxied by Ownership of Bank Indonesia Certificates (*Sertifikat Bank Indonesia* or "SBI"). The formula is as follows:

$$R_f = \sum \frac{R_f}{N} \dots\dots\dots(3)$$

The expected rate of return is the rate of return required by investors to receive from their investment. The Capital Asset Pricing Model (CAPM) approach is used to obtain the expected rate of return. The formula is as follows:

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f) \dots\dots\dots(4)$$

Therefore, the abnormal return is obtained using the following formula:

$$A(R_{it}) = R_{it} - E(R_{it}) \dots\dots\dots(5)$$

Cumulative abnormal return (CAR) as a proxy of market response is the total of each stock abnormal return which is obtained using the following formula:

$$CAR = \sum A(R_{it}) \dots\dots\dots(6)$$

The t-test analysis technique is used to test the hypothesis in this research. The variable being tested is abnormal return as a proxy for the market response to the enactment of the government regulation. Abnormal returns that occur can be positive or negative values that indicate a response direction from the market.

## RESULTS AND DISCUSSIONS

**Table 1. Data, Samples, and Stocks' Beta for Testing the First Hypothesis**

Num.	Code	Name	Beta	CAR
		Tambang Batubara Bukit Asam	0,926	0,034
1	PTBA	(Persero) Tbk.		
2	ADRO	Adaro Energy Tbk.	1,02	-0,007
3	INDY	Indika Energy Tbk.	1,28	-0,026
4	ITMG	Indo Tambangraya Megah Tbk.	1,051	-0,043
5	UNTR	United Tractors Tbk.	0,922	0,025
6	BUMI	Bumi Resources Tbk.	0,667	0,024
		Borneo Olah Sarana Sukses Tbk.	1,037	-0,022
7	BOSS	1.926		
8	BSSR	Baramulti Suksessarana Tbk.	0,458	-0,037
9	ARII	Atlas Resources Tbk.	0,56	0,006
10	BYAN	Bayan Resources Tbk.	1,546	-0,044
11	DEWA	Darma Henwa Tbk.	0,364	-0,000
12	DOID	Delta Dunia Makmur Tbk.	1,838	-0,028
13	HRUM	Harum Energy Tbk.	0,616	0,019
14	ITMA	Sumber Energi Andalan Tbk.	1,06	0,033
15	KKGI	Resource Alam Indonesia Tbk.	0,97	-0,050
16	MBAP	Mitrabara Adiperdana Tbk.	0,908	-0,010
17	MYOH	Samindo Resources Tbk.	0,699	0,000
18	SMMT	Golden Eagle Energy Tbk.	0,8	-0,03

Source: Processed Data (2022)

**Table 2. Data, Samples, and Beta Stocks Testing the Second Hypothesis**

Num.	Code	Name	Beta	CAR
		Tambang Batubara Bukit Asam	1,047	0,038
1	PTBA	(Persero) Tbk.		
2	ADRO	Adaro Energy Tbk.	1,106	0,031
3	INDY	Indika Energy Tbk.	1,726	-0,015
4	AIMS	Akbar Indo Makmur Stimec Tbk.	0,46	-0,039
5	BUMI	Bumi Resources Tbk.	1,028	-0,083
6	BOSS	Borneo Olah Sarana Sukses Tbk. 1.926	1,617	-0,177
7	BSSR	Baramulti Suksessarana Tbk.	0,507	-0,016
8	ARII	Atlas Resources Tbk.	0,468	0,003
9	BYAN	Bayan Resources Tbk.	0,736	-0,047
10	CNKO	Exploitasi Energi Indonesia Tbk.	0,334	-0,003
11	DEWA	Darma Henwa Tbk.	0,435	-0,178
12	DOID	Delta Dunia Makmur Tbk.	1,981	-0,126
13	DSSA	Dian Swastatika Sentosa Tbk.	0,405	-0,136
14	HRUM	Harum Energy Tbk.	0,821	0,0116
15	ITMA	Sumber Energi Andalan Tbk.	1,079	-0,123
16	KKGI	Resource Alam Indonesia Tbk.	1,116	-0,046
17	MBAP	Mitrabara Adiperdana Tbk.	0,91	-0,009
18	MYOH	Samindo Resources Tbk.	0,654	-0,001
19	SMMT	Golden Eagle Energy Tbk.	1,031	0,113
20	TOBA	Toba Bara Sejahtera Tbk.	0,491	-0,085

Source: Processed Data (2022)

Table 1 presents the data, samples and beta values of the stocks as inputs for calculating CAR and testing the first hypothesis. Table 2 presents the data,



samples and beta values of stocks as inputs for the calculation of CAR and testing second hypothesis. Table 3 exhibits the descriptive statistics for the t-test of the CAR variable. The average CAR for testing the first hypothesis has a value of -0.0093 which means that on average the CAR value that occurs is close to 0 in a negative direction. The average CAR for testing the second hypothesis has a value of -0.0447 in a negative direction.

**Table 3. Descriptive Statistics**

Data Testing First					
Hypothesis	N	Minimum	Maximum	Mean	Std. Deviation
Cumulative Abnormal Return	18	-0,05	0,03	-0,0093	0,0287
Data Testing Second					
Hypothesis	N	Minimum	Maximum	Mean	Std. Deviation
Cumulative Abnormal Return	20	-0,178	0,113	-0,0447	0,076

Source: Processed Data (2022)

To examine parametric distribution assumption, the Kolmogorov-Smirnov test is used to test whether the CAR data is normally distributed. The test results in table 4 show that both CAR data that is being used for hypothesis testing is normally distributed. Therefore, these CAR values can then be tested using a parametric test approach, that is the t-test.

**Table 4. Normality Test Results**

		First Hypothesis CAR	Second Hypothesis CAR
N		18	20
Normal Parameters <sup>a,b</sup>	Mean	-0,00093	-0,04475
	Std. Deviation	0,02873	0,07600
Most Extreme Differences	Absolute	0,122	0,145
	Positive	0,120	0,101
	Negative	-0,122	-0,145
Test Statistic		0,122	0,145
Asymp. Sig. (2-tailed)		0,200	0,200

Source: Processed Data (2022)

Table 5 indicates that the CAR value surrounding the enactment of Government Regulation Number 25/2021 demonstrates the absence of significantly different from zero (0). In other words, there is no abnormal return that occurred around the enactment of Government Regulation Number 25/2021. The market did not respond to the enactment of the regulation even though a negative CAR value was obtained, but CAR value is refuted because the average CAR value is very close to 0.

**Table 5. Testing First Hypothesis**

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CAR	-	17	0,190	-0,00925	-0,0235	0,0050
	1,366					

Source: Processed Data (2022)

Table 6 presents that CAR value surrounding the enactment of Government Regulation Number 15 of 2022 suggesting a result that is significantly different from 0. There is an abnormal return that occurs as a market reaction to the enactment of the government regulation. The market responds in a negative direction because on average the CAR that occurs is -0.04475.

**Table 6. Testing Second Hypothesis**

	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CA	-	19	0,016	-0,04475	-0,0803	-0,00918
R	2,633					

Source: Processed Data (2022)

Results analysis testing the first hypothesis suggest the absence of abnormal return that is significantly different from 0 during the enactment of Government Regulation Number 25 of 2021. The application of a 0% royalty as a scheme to support the development of the coal industry does not seem attractive to investors. From the company's point of view, the application of a 0% royalty rate is not seen as a burden that costs coal mining company's activities in conducting coal exploration and undertaking coal processing, which in turn has an impact on increased profits.

The enforcement of Government Regulation Number 25 of 2021, initially intended to ease the burden on coal mining companies that undertake downstream processing of coal into higher value derivative products. Government Regulation Number 25 of 2021 is also a form of royalty rate adjustment made due to changes in coal status. From previously considered as non-taxable goods, which are now classified taxable goods. This regulation change was made aiming to collect more state revenue from the tax perspective by encouraging mining companies' efforts to increase the production of coal derivative products that have higher selling value, which previously used a 0% royalty rate.

Investors observe this regulation change as something that does not significantly affect the level of risk and future projected cash flow of coal mining companies. On the exploration and processing side of coal, its operational expenses have been eased by 0% royalty rate, however on the other hand coal is now designated as taxable goods. This trade-off could explain why the enactment of Government Regulation Number 25 of 2021 was not responded to by the market. Moreover, the 0% royalty rate is only applicable for mining companies that are involved in coal value added activities or downstreaming businesses.

Results analysis testing the second hypothesis reveal the presence of an abnormal return that is significantly different from 0 surrounding the enactment

of Government Regulation Number 15 of 2022. More specifically, the average abnormal return that occurs is -4.475%. This negative magnitude indicates selling actions from investors in response regarding the changes in risk and a shift in cash flow projections from coal mining companies.

The enactment of Government Regulation Number 15 of 2022 is responded with a negative outlook by the market. The tariff adjustment from initially a fixed rate of 13.5% to a progressive rate ranging between 14%-28% according to the government's benchmark coal price. This creates uncertainty about the projected future cash flows of coal mining companies. This policy change seems to pose a challenge to the coal mining industry in Indonesia. One of these challenges is the increase in operational costs, which inevitably requires efficiency as a result of the implementation of the new tariff. Further, the imposition of royalty rates starting from 14% could arguably impede the implementation of downstreaming projects to increase the company's added value.

For the coal mining companies and investors, the increased risk will surely modify the perception of the premium return. Castillo (2021) reveals that an increase in royalties can affect the early stages of mining which further reduces the expected income from the discovery of new coal deposits. Otto et al. (2006) also added that the application of tariffs that are not based on sales or profits can create substantial cash flow problems which in turn could threaten the sustainability of newly established mining companies. Hachenberg et al. (2017) emphasize that all information regarding new policies issued by the government are capable of influencing stock price movements. This research findings are in line with Purnasari et al. (2015) that a significant abnormal return as a response to the regulation officially enforced.

Fama (1970) states that all available information will be fully reflected in changes of stock prices in a timely manner. The presence of abnormal return during the enactment of Government Regulation Number 15 of 2022 proves that the market responds to this type of information. This indicates that the Indonesian market responds accordingly to government regulation enactment. This reaction indicates the existence of a semi-strong market efficiency that occurs in the Indonesian stock market. Furthermore, the government policy changes could direct investors to anticipate the possibility of a change in future profitability (Blanchard, 1981) which has an impact on stock risk premium and volatility (Pastor & Pietro, 2010). Investors are concerned with the compensation from the additional risk they assume and that must be reflected in a fair amount of return on their investment.

## CONCLUSIONS

Based on the results of the research and discussion above, it can be concluded that there is a strong relationship between changes in risk and the investors' expected future profitability from the implementation of policies, especially in this study the enactment of Government Regulation Number 25 of 2021 and Government Regulation Number 15 of 2022. The investors relate the change in risk and expected future profitability to the change in the stock risk premium. The change in investors' expectation will be depicted in the form of investors' action in the stock market. As reflected during the enactment of Government Regulation Number 15

of 2022, uncertainty of the return leads investors to inquire additional premium on their investment. If the required premium cannot be obtained, investors may sell the stocks to switch to another investment. Meanwhile, during the enactment of Government Regulation Number 25 of 2021, the absence of investors' reaction depicts no change in required premium from their investment.

Our findings contribute to the literature on the relationship between the implementation of non-tax government policies and reactions in the stock market by investigating abnormal returns that occur during the event study period. The result adds insight to the Efficient Market Hypothesis on semi-strong form of market efficiency. This investigation has important implications for governments and investors. This finding clearly presents the market's response to the implementation of policies, especially related to tariffs, which can affect the projected risks and profits of coal mining companies. These findings can also be considered as an overview in the implementation of related policies. This shows that the government should give proper attention to the issue of determining tariffs in order to find a new balance stance in which all parties concerned are equally benefited. Investors should evaluate their required premium based on the impact of tariff changes since the market takes semi-strong form efficiency. This research has limited generalization capacity due to the fact that the scope of coal mining is very unique to the industry.

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