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Reinstall Financial Performance of PT LAM

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ABSTRACT : *In 2022 Indonesian government released new regulation that doubled the royalty tariff, while global political conditions led to a surge in oil prices. To assess the economic situation, the company used discounted cash flow method using the weighted average cost of capital to determine its firm value. However, the terminal value was not considered because the operation will end in line with the termination date of license, the assets would be returned to the government. The result shown declining in the firm present value from USD 43.7 million to USD 21.8 million. If the royalty tariff remained at 3%, the firm value would increase to USD 31.3 million, as the company wouldn't need to decrease the stripping ratio, and coal sales would continue as planned. Sensitivity analysis was conducted, considering factors such as production cost and operating expenses, with variations of ±20% from current assumptions. From the analysis, production cost was the most significant factor. To increase the firm's value from USD 21.8 million to USD 31.3 million, the company need to request an exemption the increase in royalty tariff, negotiate lower fuel prices with suppliers, and negotiate with customer to add fuel price adjustment in determining the sales price.*

KEYWORDS - *Discounted cash flow, valuation, coal mining, royalty tariff*

I. INTRODUCTION

Coal is the primary generator of electricity worldwide, contributing 36% of the global electricity supply. Its popularity stems from its affordability and reliability in meeting the growing power demands. Despite the increasing societal preference for modern and environmentally friendly renewable energy sources, coal continues to play a vital role in alleviating global energy poverty. Coal surpasses both oil and gas in terms of abundance. As of 2018, global coal reserves were estimated to last for approximately 132 years of production, making it the second-largest energy resource in terms of consumption worldwide [1].

In 2021, Indonesia emerged as the world's third-largest coal producer, following China and India, with a total production of 550 million MT [2]. The country's coal production further increased in 2022, reaching a volume of 685.4 million MT. During the period from 2015 to 2022, the export realization predominantly hovered around 300 million MT. Indonesia has set a target to further increase its coal production to 695 million MT in 2023, with an anticipated export volume of 518 million MT [3].

The prices of both domestic and exported coal are influenced by the Newcastle index and the national coal price (HBA). When demand increases, prices tend to surge, and vice versa. In 2022, the price of coal experienced a significant surge due to an increase in demand. This was a result of Europe's ban on gas supply from Russia, leading to a spike in the demand for coal as an alternative energy source in Europe. Capitalizing on this opportunity, coal companies in Indonesia ramped up their production capacities to capitalize on the higher coal prices and generate profits during this period of increased demand.

Based on data from the Ministry of Energy and Mineral Resources in 2021, Indonesia's total coal reserve is estimated to be 38.84 billion MT. Assuming an average annual coal production of 600 million MT, the coal reserve would last for approximately 65 years, under the assumption that no additional new reserves are discovered [4].

PT LAM, is the subsidiary of a conglomerate mining company group. The company operates as a mine-mouth coal mining entity in South Sumatera, holding a Mining License (IUP) for Coal Production Operations spanning an area of 4,563 hectares. The company has successfully extended its mining license which valid until 8 March 2031. The primary focus of the company is coal mining and trading. When conducting mining operations on-site, the company utilizes the open-pit mining technique along with a backfilling system. This approach involves excavating the open pit to extract coal and subsequently employing a backfilling process to restore and fill the excavated area. Being a mine-mouth mining company, the company supplies coal to Independent Power Producer (IPP) located in close proximity to the mining area.

The Government of the Republic of Indonesia introduced Government Regulation No. 26 of 2022, which came into effect on 15 September 2022. This regulation pertains to State Non-Tax Revenue (Royalty) for coal sales and replaces the previous regulation, Government Regulation No. 81 of 2019. The new regulation results in an increase in the royalty tariff from 3% to 6%.

Additionally, the global political situation resulting from the conflict between Russia and Ukraine has led to an increase in fuel prices, which directly affects the financial performance of the company. As fuel prices are a crucial component of production costs, the company's profitability is impacted. The unpredictability of fuel price hikes and royalty tariffs has eroded the company's profits. To keep profitability, the management has been compelled to modify the operational plan by reducing the stripping ratio. However, this decrease in the stripping ratio has the adverse consequence of depleting the coal reserve.

Based on that condition, the company is currently experiencing a decline in its profits because the production costs and royalty tariffs have increased, while the sales price has remained constant. This research assesses the impact of the new regulation and the effect of the changes of economy and global environment to the economic value of company. The research objective is to restore the financial performance of the company after the implementation of new Government Regulation No. 26 of 2022.

II. LITERATURE REVIEW

II.1 Theoretical Foundation

The Discounted Cash Flow (DCF) method is the most common use by the investor to evaluate the value of a company based on its future cash flows. This approach utilizes the income approach to determine the fair value, which reflects the market's expectations at the current [5]. However, DCF method has some drawbacks that should be acknowledged. One of the main limitations is its sensitivity to key variables, particularly the estimations of the Weighted Average Cost of Capital (WACC) and Free Cash Flow (FCF) [6]. There are four factors that determined the firm value with DCF method which are [7]:

1. The company's capacity to generate cash flow by effectively utilizing its assets, commonly referred to as free cash flow.
2. The anticipated rate of growth in cash flow over a specific period.
3. The duration required for the company to attain a state of stable growth.
4. The cost of capital, which is the weighted average cost of capital (WACC), representing the company's required rate of return.

The formula for calculate the firm value which is not consider the terminal value as below [7]:

$$Valuation\ of\ firm = \sum_{i=1}^{t=n} \frac{CF\ to\ firm_t}{(1+WACC)^t}$$

Where:
- n: Life of the asset
- CF to firmt: Expected cash flow to firm in period t
- WACC: Weighted average cost of capital

The common free cash flow that used for the valuing the firm is Free Cash Flows to the Firm (FCFF). The formula to calculate the FCFF as below [7]:

FCFF = EBIT (1-tax) + Depreciation and amortization – Capital expenditures – ΔWorking capital

To calculate the discount rate for firm valuation using DCF Method, the most suitable discount rate is WACC. The equation for WACC as follows [8]:

$$WACC = \left(\frac{E}{V}\ x\ Re\right) + \left(\frac{D}{V}\ x\ Rd\ x\ (1-T)\right)$$

Where:
- E= Market value of the firm’s equity
- D= Market value of the firm’s debt
- V= E+D
- Re= Cost of equity
- Rd= Cost of debt
- T= Corporate tax rate

In estimating the cost of debt for profitable company, risk free rate, default spread and marginal tax rate are necessary to be obtained [7]. The formula for calculate the cost of debt is:

After-Tax Cost of Debt = (Risk-free rate + Default Spread) (1 – Marginal Tax Rate)

Where:
- Risk-free rate + Default Spread: the pre-tax cost of debt

In order to calculate the firm value, forecasting data need to be considered. The expected exchange rates can indeed be determined from the financial market using the forward rates formula. The forward exchange rate is a rate at which two parties agree to exchange currencies at a future date. It reflects the market's expectation of the future exchange rate between two currencies. To calculate the forward rate, one key factor to consider is the expected inflation of the two currencies involved [7]. The equation for calculate the forward rates is:

$$Expected\ rate\ (IDR/USD)\ = IDR\ today\ * \left[\frac{1\ +\ Expected\ inflation_{IDR}}{1+\ Expected\ inflation_{USD}}\right]^{n}$$

II.2 Conceptual Framework

To effectively develop a conceptual framework for business research, researchers need to gather relevant information, understand the conditions and situations related to the business problem they are investigating. There are two common approaches to developing a conceptual framework: (i) Deductive approach: This approach involves developing the conceptual framework based on existing literature reviews. (ii) Inductive approach: this approach involves exploring the existing literature and adding additional context and justification.

The conceptual framework is important for the research as the guidance during doing the research. For this research, the conceptual framework depicts as below:

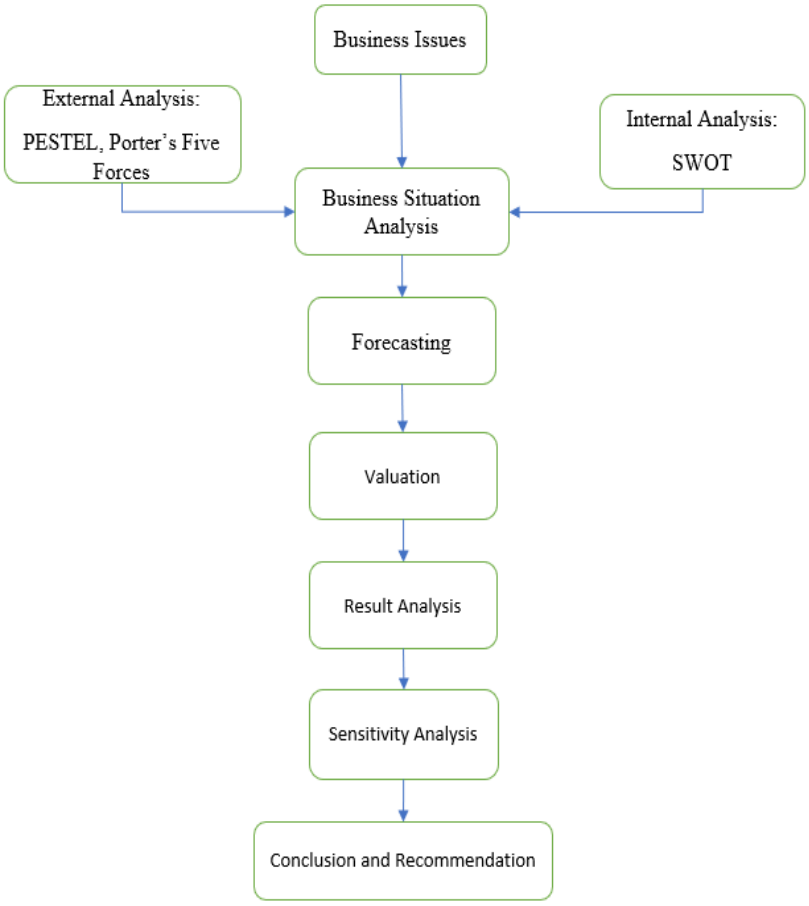


Figure II.1 Conceptual Framework

III. RESEARCH METHODOLOGY

III.1 Research Design

The research design is the overall plan or strategy that the researcher develops to address the research questions or objectives [9]. The author uses quantitative method for conducting the analysis, specifically for calculating the valuation of the company. Once the author receives the data projections, both from internal sources within the company and external sources such as industry reports or market data, the researcher will utilize quantitative analysis techniques to calculate the valuation of the company. The valuation result will be compared the previous valuation then sensitivity analysis will be conducted to extent the analysis. Based on those analysis, the researcher will provide recommendations.

III.2 Data Collection & Analysis Methods

There are two type of data that use for research which are primary data and secondary data. Primary data is new data that collected directly from the source of information usually come from the human. Secondary data is the data that obtained from the published source and those data will be used to extent the analysis [9]. this research conducted using quantitative method with secondary data. The secondary data are the assumption data for finance and business environment, supporting previous research from journals and articles. Those data are collected from news and internet.

The impact of the regulation, global environment and economic to financial performance was assessed by calculating the firm value. The steps to do valuation are:

- Compute the cash flow using FCFF.
- Calculating cost of debt and cost of equity to obtain the discount rate (WACC).
- Compute the net present value of the firm using DCF Methods.
- Compare the result of the firm value calculation with the previous result.
- Calculate the sensitivity analysis for the result.

IV. RESULT AND DISCUSSION

Production Plan Projection

Production data forecast are necessary to calculate the company value. The operation data consist of total overburden (OB) in BCM and coal in MT that will be delivered to the IPP from 2023 until 2031. Pit A will stop to operate in 2024 and Pit B keep continue to produce coal until 2031. Hauling distance to deliver coal from pit to IPP will affect the hauling cost. The production data forecast shown as below:

Table IV.1 Production plan projection

Description	Unit	2023	2024	2025	2026	2027	2028	2029	2030	2031
Total All Pit										
OB	BCM	9.314.181	8.292.206	4.452.302	4.406.176	4.400.000	4.400.000	4.400.000	4.400.000	1.658.963
CG	MT	1.520.962	1.321.379	732.623	732.706	730.000	730.000	730.000	730.000	276.298
SR		6,12	6,28	6,08	6,01	6,03	6,03	6,03	6,03	6,00
Pit A										
OB	BCM	6.011.682	4.379.034							
CG	MT	974.132	644.521							
SR		6,17	6,79							
Distance hauling	km	4,45	4,45							
Pit B										
OB	BCM	3.302.499	3.913.172	4.452.302	4.406.176	4.400.000	4.400.000	4.400.000	4.400.000	1.658.963
CG	MT	546.830	676.857	732.623	732.706	730.000	730.000	730.000	730.000	276.298
SR		6,04	5,78	6,08	6,01	6,03	6,03	6,03	6,03	6,00
Distance hauling	km	4,90	4,9	4,9	4,9	4,9	4,9	4,9	4,9	4,9

General Assumption

Production cost is influenced by the exchange rate, fuel price, labour rate (UMSK). Another component of production cost is royalty tariff. The detail of assumptions used as follows:

- Inflation rate

The basic price of production will be evaluated by the company and contractor within 3 and 5 years. Inflation rate could be precited by Gross Domestic Product (GDP) price deflator [11]. The projection for Indonesia GDP price deflator as follows:

Table IV.2 Indonesia inflation forecast 2023-2031

2023	2024	2025	2026	2027	2028	2029	2030	2031
3,72%	3,73%	3,74%	3,76%	3,77%	3,78%	3,80%	3,81%	3,82%

- Exchange rate

In estimating the exchange rate, inflation rate forecast for Indonesia and United Stated are necessary, The United State inflation forecast using consumer price index are shown below:

Table IV.3 United State inflation forecast 2023-2031

2023	2024	2025	2026	2027	2028	2029	2030	2031
3,10%	2,40%	2,30%	2,30%	2,30%	2,30%	2,30%	2,40%	2,40%

After gathering the inflation forecast of Indonesia and United State, the forward exchange rate could be calculated. In 2022, the exchange rate is USD 1/ IDR 15.731. Then, the forecast for the exchange rate 2023-2031 are:

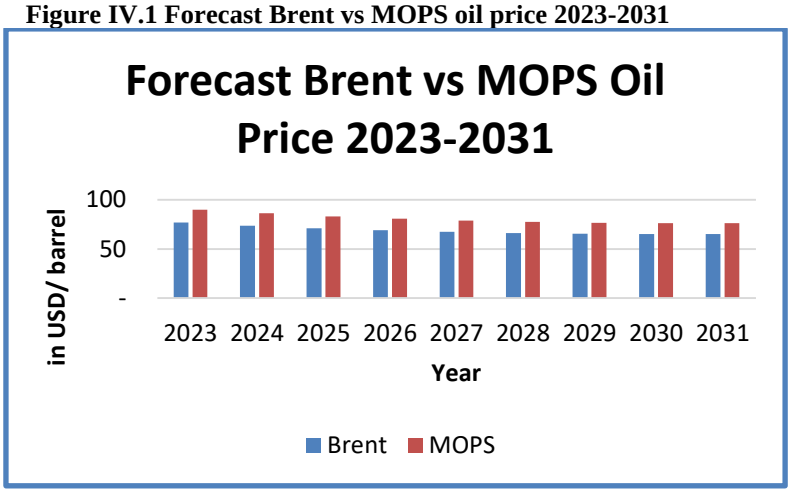
Table IV.4 Forward exchange rate estimation 2023-2031

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031
15.731	Rp/USD	Rp/USD	Rp/USD	Rp/USD	Rp/USD	Rp/USD	Rp/USD	Rp/USD	Rp/USD
IDR	3,72%	3,73%	3,74%	3,76%	3,77%	3,78%	3,80%	3,81%	3,82%
USD	3,10%	2,40%	2,30%	2,30%	2,30%	2,30%	2,30%	2,40%	2,40%
Exchange Rate	**15.826**	**16.142**	**16.405**	**16.648**	**16.894**	**17.147**	**17.418**	**17.550**	**17.807**

- Fuel price

Fuel price projected using the MOPS (Mean of Plats Singapore) oil price. During the 2017-2022, MOPS oil price is 17% higher to brent oil price. Therefore, to project the MOPS oil price in the next 9-years, from forward curve of brent oil price plus 17%. The MOPS and brent oil price projection as follows:

Figure IV.1 Forecast Brent vs MOPS oil price 2023-2031



- UMSK rate

In 2023, the UMSK rate is Rp 3.502.873. the increment of UMSK rate during 2024-2031 will use the inflation rate assumptions.

- Sales price

Sales price for 2023 is USD 26,42 per MT. Based on the coal sales agreement, the sales price will escalate 3,5% ever year.

- Royalty tariff

As per the regulations outlined in MoEMR Decree 139.K/HK.02/MEM.B/2021, the Harga Batubara Acuan (HBA) for all type coal sold to IPP maximum at USD 70. PT LAM use the open pit method for doing the operation. The royalty tariff for 2023 is 6% the changes is shown below:

Table IV.5 Royalty tariff

Royalty tariff coal	UoM	GR No. 26 of 2022	GR No. 81 of 2019
Open Pit		GAR ≤ 4.200 Kkai/Kg	GAR ≤ 4.700 Kkai/Kg
HBA < USD70	Per ton	5% from Selling Price	3% from Selling Price
USD 70 ≤ HBA ≤ USD 90	Per ton	6% from Selling Price	
HBA ≥ USD 90	Per ton	8% from Selling Price	

- Capital expenditure and non-cash cost

Capital expenditure is determined by projecting internal data. Non-cash costs are incurred through the amortization of deferred stripping costs and depreciation is calculated based on the estimated useful lives of the assets.

- Selling and general administrative expenses (S&GA expenses)

The S&GA expenses will be calculated based on historical data the average percentage of sales in the last 6-years. The average percentage for the S&GA expenses is 12% as shown in table below:

Table IV.6 Operating expense in the last 6-years

Financial Line Items	2017	%	2018	%	2019	%	2020	%
Revenue	18.679.599		17.443.306		25.069.469		32.419.599	
S&GA expenses	(2.872.341)	15%	(2.138.264)	12%	(2.750.237)	11%	(4.614.435)	14%

Financial Line Items	2021	%	2022	%	Average 6-years %
Revenue	34.331.118		32.412.710		
S&GA expenses	(3.670.577)	11%	(2.632.375)	8%	12%

- Tax rate

Based on the Law on the Harmonization of Tax Regulations No. 7 of 2021 on October 7, 2021. As per Article 17 (1b) of the Law, a corporate income tax rate of 22% will be implemented starting from the fiscal year 2022 and subsequent years.

In the absence of leverage in the upcoming projection year, the net working capital is expected to remain relatively stable. There are no significant anticipated changes in current assets and current liabilities, which are the key components used in calculating net working capital. As a result, it is assumed that the net working capital will remain unchanged during the valuation period in the future.

By considering the production plan and general assumptions, the company's free cash flow (FCFF) from 2023 to 2031 can be determined. This involves calculating the earnings before interest and taxes (EBIT) by subtracting the cost of sales from the revenue. The cost of sales is computed based on the production plan projection and general assumptions. Additionally, the non-cash costs, such as depreciation and amortization, along with capital expenditure, are considered when computing the FCFF. The forecast for FCFF 2023-2031 as follows:

Table IV.7 FCFF projection 2023-2031 (in USD)

Financial Line Items	2023	2024	2025	2026	2027
Sales (a)	40.183.820	36.126.489	20.733.223	21.460.950	22.133.600
Cost of sales (b)	29.154.583	25.800.328	14.425.787	14.513.735	15.206.522
S&GA expenses (c)	4.798.772	4.314.244	2.475.972	2.562.878	2.643.206
EBIT (d) = (a) - (b) - (c)	6.230.465	6.011.917	3.831.464	4.384.337	4.283.872
Tax rate (e)	22%	22%	22%	22%	22%
EBIT (1-t): (f) = (d) x (1- (e))	4.859.763	4.689.295	2.988.542	3.419.783	3.341.420
Non-cash cost (g)	886.975	773.412	525.449	636.516	585.548
Capex (h)	384.382	-	304.791	632.058	40.783
FCFF = (f) + (g) – (h)	**5.362.356**	**5.462.707**	**3.209.200**	**3.424.241**	**3.886.185**

Financial Line Items	2028	2029	2030	2031
Sales (a)	22.907.400	23.710.400	24.542.600	9.615.176
Cost of sales (b)	15.219.838	15.294.843	15.502.203	5.884.400
S&GA expenses (c)	2.735.613	2.831.508	2.930.890	1.148.249
EBIT (d) = (a) - (b) - (c)	4.951.949	5.584.049	6.109.507	2.582.527
Tax rate (e)	22%	22%	22%	22%
EBIT (1-t): (f) = (d) x (1- (e))	3.862.520	4.355.558	4.765.415	2.014.371
Non-cash cost (g)	656.235	646.004	603.096	393.246

Capex (h)	317.259	-	-	-
FCFF = (f) + (g) – (h)	**4.201.496**	**5.001.562**	**5.368.511**	**2.407.617**

In 2031, the total sales amount to USD 9,615,176, which is significantly lower compared to the previous years where sales exceeded USD 20 million. The primary reason for this notable difference is the expiration of the company's license permit in March 2031. As a result, the company is unable to operate for the entire year of 2031. Consequently, the consequence of the license permit expiration is a substantial decrease in sales and free cash flow in 2031.

Weighted Average Cost of Capital

This research chose 6,76% as the risk-free rate. The rate derived from the average last 6-years for the yield 10-years Indonesia from 2017-2022.

The expected return from the management is 20%. It is inline with the MoEMR Decree 7424 K/30/MEM/2016 about the acceptable profit margin percentage for the mine-mouth coal mining company. This regulation specify that the profit margin for this type of business should fall within the range of 15% to 25%.

From the assumption above, the WACC calculation as shown below:

Table IV.8 WACC calculation

Items	Value	Components
Total debt (USD)	6.203.862	E
Total equity (USD)	6.582.095	D
Total cost of capital	12.785.957	V = E + D
Weighted debt (Wd)	48,52%	D/V
Risk free rate	6,76%	a
Default spread	2,33%	b
Cost of Debt (Rd)	9,09%	a + b
Tax rate	22%	Tc
Weighted equity (We)	51,48%	E/V
Cost of Equity*) (Re)	20%	
WACC	13,74%	((E/V) x Re) + ((D/V) x (Rd x (1-Tc)))

*) The cost of equity is based on expected return from the management

Firm Value Calculation

After the free cash flow and WACC have been determined, the next step is to calculate the firm value using the DCF method. The firm value is obtained by calculating the net present value of the free cash flow from 2023 to 2031, applying the discount rate which is the WACC rate. In this calculation for the mining company, there is no terminal value included. This is because, after the expiration of the license permit, all assets owned by the company must be returned to the Government of Indonesia. The firm value based on total NPV of the free cash flow using WACC is 13,74% is USD 21,8 million as shown below:

Table IV.9 Firm value calculation (in USD)

Items	2023	2024	2025	2026	2027	2028
FCFF	5.362.356	5.462.707	3.209.200	3.424.241	3.886.185	4.201.496

Items	2029	2030	2031
FCFF	5.001.562	5.368.511	2.407.617
WACC	13,74%		
NPV	**21.851.480**		

Based on the calculations, the updated firm value is USD 21.8 million, representing a decrease from the previous valuation in 2020, which was USD 43.7 million. The significant decline of USD 21.9 million in firm value can be attributed to the updated current situation, which includes various factors and changes that have affected the valuation. The changes factors are:

- The increment of fuel price projection from average Rp7.729 /litre increase into Rp9.240 /litre in 2023-2031.
- The changes of regulation of royalty tariff that increase from 3% to 6%.
- Decrement of the stripping ratio from 7,41 to 6,09 to manage the production cost resulted the reserve decrease 9,5 million MT to 7,5 million MT.

To extent the analysis, the sensitivity for production cost and S&GA expenses with swing ± 20% will affect the firm value. The outcome highlights the substantial impact of production costs on the firm value. It underscores the importance for management to maintain cost efficiency in order to sustain a profitable business.

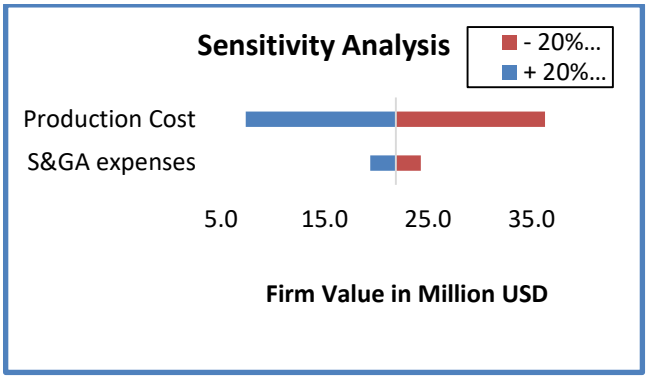


Figure IV.2 Sensitivity analysis- tornado chart

If the royalty tariff remains the same, it will be able to adhere to its previous plan of selling 9.5 million metric tons (MT) of coal instead of 7.5 million MT. The reserves increase resulting from an increment of overburden from 45 million Bcm to 57 million Bcm. This situation will elevate the company's value from USD 21.8 million to USD 31.3 million. In addition, it will escalate the state revenue amounting USD 0,07 million. Below the comparison between the current valuation with the propose valuation when the royalty tariff is still 3%

Table IV.10 Valuation with and without exemption of increment royalty tariff

Items	UoM	Current Valuation	Propose Valuation
Overburden	Bcm	45.723.829	57.537.242
Coal	MT	7.503.967	9.504.880
Selling price	USD/MT	30,44	30,44
Royalty	%	6%	3%
Fuel	IDR/litre	9.240	9.240
Operating profit	USD	43.970.087	66.115.251
EBIT (1-Tax)	USD	34.296.667	51.569.896
Non-cash cost	USD	5.706.481	5.692.317
Capital expenditure	USD	1.679.273	1.679.273
NPV	USD	21.851.480	31.306.868
State revenue	USD	22.958.239	23.028.161

V. CONCLUSION

The conclusions of this research are:

1. The firm value plummet from USD 43,7 million to USD 21,8 million due to increment of royalty tariff 3% to 6% and escalation of average fuel from Rp7.729 /litre into Rp9.240.
2. The exemption of increment of royalty tariff will rise the firm value from 21.8 million to 31,3 million.
3. The sensitivity analysis shown that the changes of ±20% production cost will bring significant impact to firm value.

The recommendation to reinstall the financial performance of the company are:

1. A formal request has been made to the Ministry of Energy and Mineral Resources to exempt the company from the newly introduced regulation that entails an increase in the royalty tariff.
2. Engage in negotiations with the fuel supplier to secure discounted rates in order to effectively manage the fuel costs.
3. Initiate negotiations with customers to incorporate the fuel price as a component in determining the selling price of the product.

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