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Determining the Optimal Capital Structure of PT Bumi Resource Tbk

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ABSTRACT: Demand for coal increased because of the energy crises that occurred in Europe and China. Due to this growth in demand, coal prices have gone up globally as well. This can be an opportunity for coal companies in Indonesia as one of the countries with the largest coal reserves in the world. PT Bumi Resource Tbk, one of the businesses with Indonesia's largest coal deposits. Additionally, most of the coal supplied by PT Bumi Resource Tbk is consumed domestically, and most of it for China. So, it is necessary to increase production to meet these demands.

One way to increase production is by optimizing the company's capital structure. The proportion of debt and equity which is capital structure will be the focus of the company in the future. PT Bumi Resource Tbk was repeatedly unable to repay its loans. Based on calculations through the Damodaran theory, the optimal capital structure for companies in 2021 with 30 percent debt ratio. This would maximize the company's value of $1,709,478,366 with a weight average cost of capital of 7.86 percent. Future projections are made using three scenarios: the best scenario, the base scenario, and the worst scenario. The best scenario is the best of these three scenarios with delivers the highest firm value, $ 4,605,803,420 with the lowest weight average of capital costs, 9,06 percent. The proportion of the debt ratio needed to maximize the value of the company in its best condition is 10 percent.

The results of calculating the optimal capital structure today or in the future show that companies need to reduce the debt ratio if they want to maximize their firm value. In addition, the company is also facing threat of bankruptcy because the Alman Z-score is -0.13. There are several ways based on the Damodaran framework to reduce debt ratio. First, a company can do a debt for equity swap by converting its debt into equity or by doing a private placement. Second, companies can negotiate with lenders regarding the maturity of their debts or decrease of interest by making an agreement. Third, companies can sell their assets to pay off their debts.

KEYWORDS: Company Value, Optimal Capital Structure, Weight Average Cost of Capital

I. INTRODUCTION

A. Background

Demand for coal increased because of the energy crises that occurred in Europe and China. This can be an opportunity for coal companies in Indonesia. Indonesia is one of the countries with the largest coal reserves in the world. The Central Bureau of Statistics (BPS) announced that in the second quarter of 2022, Indonesia experienced an increase in the value of its main non-oil and gas exports by 50.78 percent or to $117.55 billion. The increase in Indonesia's coal exports is inseparable from the significant increase in coal prices until 2022. In that year coal reached its highest price of $457.8 per tonne based on ICE NewCastle coal prices (Trading Economics 2022). As a result, coal companies in Indonesia get a very big gain in revenue.

One of the companies experiencing an increase in revenue is PT Bumi Resource Tbk. Based on its financial statements in the second quarter of 2022, the company's revenue was $968.7 million which was an increase of 43.6 percent yoy. In addition to the increase in revenue, PT Bumi Resource Tbk with the stock code BUMI also experienced an increase in stock prices. In November 2021, BUMI shares had a price of Rp. 70 and in November 2022, the price of BUMI's shares had reached Rp. 183 or an increase of 150%. In meeting the demand for coal, of course, requires sustainable capital to carry out production. So, to meet future production needs, companies need to make strategies in obtaining capital and avoiding mistakes in making decisions. The strategy that can be done is by optimizing the capital structure, namely determining the optimal proportion of debt and equity required by thecompany. With the optimal capital structure, the company can meet its capital needs, improve its financial performance, and maximize the value of the company.

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Table I.1 PT Bumi Resource Tbk Income Statement 2018-2021

	2021	2020	2019	2018
Revenue	1,008,212,975	790,436,397	1,112,566,618	1,111,820,412
Gross Profit	201,736,646	91,914,927	105,083,350	110,677,256
Operating Profit	123,860,015.	28,472,920.	32,352,614	38,637,902

Source: *Annual Report 2021 PT Bumi Resource Tbk*

B. Business Issue

Annually from 2018 to 2021, PT Bumi Resource posted an increase in revenue except in 2020 the company experienced a decrease in revenue. In 2021 the company experienced a significant increase of $1.008 Billion compared to 2020 of $790 million. The increase in the company's revenue was also supported by an increase in coal prices until 2022, which reached the maximum is $457.8 per tonne based on ICE New Castle coal prices.

Although PT Bumi Resource experienced an increase in revenue, this increase was accompanied by an increase in company debt. PT Bumi Resource recorded a total debt of $3.58 billion in 2021, which is an increase compared to 2020, which is $3.29 billion. In addition, the proportion of debt to equity owned by the company is also very different, in 2021 the company has a Deb to Equity Ratio (DER) of 5.53. This can be interpreted that the company's debt is 5.53 times more than its net capital, so it can be interpreted that the company is very dependent on external financing. The high DER owned by PT Bumi Resource must be the focus of the company, this causes the company to often carry out debt to equity swaps to pay off its debts. During the last 4 years the company has a DER that exceeds 1, so it can be interpreted that the proportion of debt owned by the company is very worrying. This high debt cause a reduction in the company's credit scoring from caa1 to caa3 from moodys and S&P agencies. So that the optimal proportion of the company's capital structure is needed for the future in managing debt and equity which is the company's capital in operating. With this optimal capitalstructure, it will encourage the company to improve and maximize the value of the company.

Table I.2 Debt to Equity Ratio PT Bumi Resource Tbk 2018-2021

Year	2021	2020	2019	2018
DER	5.53	24.85	6.26	6.76

Source: *Author's Analysis*

Solving business problems contained in this research can be answered through the following questions:

1. What is the optimal capital structure of PT Bumi's resources?
2. What should the company do to optimize its capital structure?

II. BUSINESS ISSUE EXPLORATION

A. Research Methodology

This research was conducted to analyze solutions to business problems faced by the company. The author will conduct a study and analysis of the variables that affect these problems. The research method used is a qualitative approach and a quantitative approach:

1. A qualitative approach is carried out by analyzing external factors through PESTEL analysis and the 5 Force of Competition Model
2. The quantitative approach is carried out by analyzing the company's internal factors through financial performance ratios. Furthermore, the calculation of the current capital structure and optimal capital structure is carried out.

B. PESTEL Analysis

Political-1: The government is pushing for the application of renewable energy, which causes banks to withdraw their funding for coal companies in Indonesia

***Economy-2*:** Indonesia experienced economic growth until the second quarter of 2022 compared to the same period in the previous year. This growth is shown through data from the Central Bureau of Statistics (2022) that until the second quarter of 2022

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Indonesia's Gross Domestic Product (GDP) grew 5.44 percent (y-on-y) compared to the same period the previous year. 73% (QoQ). Indonesia's GDP in the second quarter of 2022 at current prices reached IDR 4,919.9 trillion and at constant prices in 2010 reached IDR 2,923.7 trillion. The increase in GDP was also supported by the mining sector, where the mining sector increased by 4.01 percent (y-on-y) with a distribution to GDP of 13.06 percent.

Social-3: As one of the countries with the largest population in the world, Indonesia's energy needs are very large. By 2022, coal needs for electricity will reach 60% or 144.1 million tons with an allocated volume of 122.5 million tons. The Ministry of Energy and Mineral Resources projects that until 2025 PT Perusahaan Listrik Negara (PLN) will still use coal for the electricity sector. With a projected demand of 119 million tons in 2023, 126 million tons for 2024, and 128 million tons for 2025.

Technology-4: In terms of technology, the mining industry will continue to develop. This also happens in line with the development of industry 4.0 which makes intelligent and automated technology systems. In the coal industry, the Ministry of Energy and Mineral Resources is focusing on creating technological innovations that can reduce coal emissions to Net Zero Emission by 2060. So, with this technology, to achieve Net Zero Emission, there is no need to reduce the use of coal.

Enviromental-5: The use of coal as energy for electricity or others can give impact on the environment. First, burning coal can cause a greenhouse gas effect. This is because coal when burned will release carbon dioxide (CO2) and nitrogen oxides (NO2) which are greenhouse gases. This greenhouse effect can eventually lead to global warming.

Legal-6: In its implementation, coal entrepreneurs are of course regulated in the legislation for each of their operational activities. This is necessary to maintain order for entrepreneurs both in coal mining and in carrying out export or import activities for the coal industry.

C. Industry Environment

According to Hitt, Ireland, and Hoskisson (2016:55), the industrial environment has a direct effect on the company's competitiveness in a competitive manner and to succeed in competing. Furthermore, Hitt, Ireland, and Hoskisson (2016: 55) also explain that, in studying an industry, companies need to look at the five strengths that companies must compete and operate profitably in a particular industry.

Figure II.1 The 5 Force of Competition Model
Source: *Strategic Management Competitiveness and Globalization*

Threat of New Entrants-1 (Low): In the development of the age, new companies will always come into an industry. This is because the company can see business opportunities in an industry, one of which is the coal industry. However, it is not easy for new companies to enter the coal industry, this is because coal itself is a commodity that cannot be recycled and can run out later. Furthermore, the coal industry requires large costs in the mining process or product processing, this is needed to purchase equipment and make infrastructure during the coal production process. Because during the coal mining and production process, environmental and health issues can interfere with operational activities due to waste from coal processing.

Bargainig Power of Supliers-2 (High): The needs of mining companies for suppliers are quite large, especially for foreign suppliers. This is because the equipment needed to produce and carry out mining is still mostly imported from abroad. When

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commodity prices increase and market demand increases, this makes coal entrepreneurs need additional heavy equipment. The increase in world oil prices can also affect the mining sector because rising prices can increase the costs incurred by companies.

Bargaining Power of Buyers-3 (Medium to High) : The bargaining power of buyers in the mining industry is quite large, especially in the coal industry. This is because coal can be replaced with other fuels that are cheaper and cleaner. Although the existence of coal is still needed in the industry as an energy fuel, it does not rule out the possibility that in the future it can be replaced with cheaper and cleaner fuels. However, in conditions of an energy crisis, the use of coal is needed again, such as some European countries that reuse coal after the energy crisis. Where previously European countries applied the use of green energy for fuel.

Threat of Subtitute Product-4 (Low To Medium): In the long term, coal products can be replaced with other products such as gas or oil for fuel use in industry. In addition, there are other alternative products such as renewable energy which is more environmentally friendly than coal. However, in its development, coal will still be used as fuel, especially in the electricity sector. Coal companies in Indonesia are also trying to apply clean coal technology to reduce pollution and reduce emissions. so that with the improvisation of coal products, in the future coal can still compete with environmentally friendly fuel products.

Rivalry Among Competing Firms-5 (High): The rivalry between domestic coal entrepreneurs can be said to be quite high. This is because coal is a non-renewable product. Although Indonesia's coal reserves are still large, in the long term, Indonesia's coal reserves will eventually decrease so that entrepreneurs will find it more difficult to mine or sell coal products due to reduced reserves. This is because the product is still used in industry as a fuel in every process in an industry.

Financial Ratio Analysis

Financial ratio analysis, according to Gitman and Zutter (2015:115), is a technique for assessing company financial performance through the calculation and study of a company's financial ratios. Income statements and balance sheets are used to gather data for financial ratio analysis.

Liquidy Ratio-1: Liquidity ratios are used by companies to measure the company's ability to meet its short-term obligations (Gitman and Zutter 2015). Liquidity is seen through the company's financial position which is used to pay its debts.

Table II.1 Calcultaion of Liquidity Ratio PT Bumi Resource Tbk 2018 - 2021

	2018	2019	2020	2021
Current Ratio	0.40	0.39	0.31	0.27
Quick Ratio	0.36	0.36	0.28	0.26

Sources: *Author's Analysis*

Activity Ratio-2: According to Gitman and Zutter (2015:121), the activity ratio is a ratio that gauges how quickly a company converts an account into cash flow or cash, including both inflows and outflows.

Table II. 2 Calculation of Activity Ratio PT Bumi Resource Tbk 2018-2022

	2018	2019	2020	2021
Inventory Turnover	20.80	35.48	25.57	26.46
Average Collection Periode	86.86	105.12	103.87	104.25
Average Payment Period	339.58	402.48	657.77	627.83
Total Asset Turnover	0.2846	0.3005	0.2305	0.2387

Source: *Author's Analysis*

Solvency Ratio-3: According to Gitman and Zutter (2015:124), debt in a company is someone's money that will be used by the company to be used in operations and generate profits. Financial analysis of the costs will look at the company's long-term debt

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Table II.3 Calculation of Solvency Ratio PT Bumi Resource Tbk 2018-2021

	2018	2019	2020	2021
Debt Ratio	0.87	0.86	0.96	0.85
Debt to Equity Ratio	6.76	6.26	24.85	5.53
Time Interest Earned Ratio	0.46	0.52	0.27	0.65

Source: *Author's Analysis*

Profitability Ratio-4: According to Gitman and Zutter (2015: 128), profitability ratio is a ratio that can measure company profits based on certain sales levels, certain asset levels, and owner investment. The ability of the company to generate more revenue is correlated with the profitability ratio.

Table II.4 Calculation of Profitability Ratio PT Bumi Resource Tbk 2018-2021

	2018	2019	2020	2021
Gross Profit Margin	10.0%	9.4%	11.6%	20.0%
Operating Profit Margin	3.5%	2.9%	3.6%	12.3%
Net Profit Margin	14.2%	0.9%	-42.7%	22.2%
ROA	4.0%	0.3%	-9.8%	5.3%
ROE	31.4%	1.9%	-254.3%	34.6%

Source: *Author's Analysis*

III. BUSINESS SOLUTION

A. Business Solution Alternative

One of the business solutions that can be provided is to determine the optimal capital structure at PT Bumi Resource Tbk. Three financial scenarios, Worst conditions, most likely conditions, and bestconditionswill be used by the author to identify the optimal capital structure. Additionally, projected income statements and projected balance sheets are calculated using this scenario. Next, the writer will determine the cost of debt and cost of equity to determine the company's weighted average cost of capital. The weighted average cost of capital for the company will be used to determine its maximized value.

B. Analysis of Alternative

Assumption of Financial Scenarios Analysis-1: In making financial scenarios, the proportion of company growth is one method that can be used. This is because the company's growth can account for its operational circumstances when market conditions are unstable and unpredictable. The author will use the compound annual growth rate to calculate the percentage of firm growth (CAGR). To calculate the company's growth rate over a specific time, this CAGR will be used. The growth in returns,investments, income, profit, and other factors are all calculated using this CAGR. The authors will therefore calculate three CAGRvalues based on three scenario evaluations to forecast future financial situations. The CAGR formula is as follows:

$$CAGR = \left(\frac{Ending\ Value}{Begining\ Value}\right)^{1/n} - 1$$

a. Project Income StatementRevenue

Due to the fluctuating CAGR results to determine revenue projections, the authors use the median of the CAGR results from 2018 to 2021. This is due to the Covid-19 pandemic which occurred in 2020 causing a decrease in revenue from 2019 to 2020 by 28.95 percent. herefore, to determine revenue projections, the authors use the median of the CAGR data each year and determine the standard deviation to determine the company's financial scenario. Based on the author's calculations, the company's future CAGR projection is 0.07 percent with a standard deviation of 28.26 percent.

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Table III.1 Revenue PT Bumi Resource Tbk 2018 – 2021

2018	2019	2020	2021
1,111,820,412	1,112,566,618	790,436,397	1,008,212,975

Source: *Financial Report PT Bumi Resource Tbk 2018 -2021*

Furthermore, in determining the financial scenario, namely the worst and best scenario, the authors try to add and subtract a CAGR of 0.07 percent with a standard deviation of the annual growth. So that in the best scenario the CAGR projection is 28.32 percent, and in the worse scenario the CAGR projection is -28.19 percent.

Cost of Revenue

Cost of revenue is the expense a business incurs in producing its goods; in the case of PT Bumi Resource, that good is coal. The company's cost of revenue consists of stripping and mining costs, royalty fees, freight costs, as well as the company's initial and ending inventories. A proportion of total sales is used as the cost of revenue in the estimate. The company's average cost of revenue ranges from 79 to 87 percent from 2018 to 2021. The following shows a summary of the company's cost of revenue from 2018 to 2021.

Table III.2 Cost of revenue PT Bumi Resource Tbk 2018 - 2021

2018	2019	2020	2021	Average
87%	87%	84%	79%	84%

Source: *Financial Report PT Bumi Resource Tbk 2018 -2021*

Furthermore, to determine future cost of revenue projections, the authors will look for the standard deviation of the company's cost of revenue. The calculated standard deviation is 4 percent. To determine the best scenario and the worse scenario, the authors add the standard deviation to the company's average cost of revenue. A value of 80% is achieved for the best-case scenario, and 88 % for the worst-case scenario. Furthermore, for the projected value, the results of the proportion of the cost of revenue for the three scenarios will be multiplied by the company's projected income.

GA Expense, Selling Expense, and Depreciation

General and administrative expenditures are ones that the business incurs daily and are not specifically tied to certain divisions or functions like sales, manufacturing, or production. The company's GA Expense consists of salaries and wages, administrative costs, transportation, office supplies, and others. The company's selling expenses consist of marketing expenses and commissions. Depreciation is a cost incurred due to the use of assets or depreciation due to the use of assets. These three costs are costs contained in operating expenses. Anderson banker and Janakiraman (2003) through their research states that GA expenses and selling expenses will increase with an increase in company activity and decrease with a decrease in company activity. Of the three costs, the one with the greatest value is the cost of selling expenses. The following is the history of the company's GA expense, selling expense and depreciation from 2018 to 2021.

Table III.3 GA Expense, Selling Expense, Depreciation PT Bumi Resource Tbk 2018-2021

	2018	2019	2020	2021
GA Expense	32,900,505	32,061,560	29,281,447	29,915,754
Selling Expense	37,974,293	39,310,864	32,684,133	46,341,256
Depreciation	33,207,766	44,855,137	32,320,074	14,100,669

Source: *Financial Report PT Bumi Resource Tbk 2018 -2021*

The table above shows that the costs incurred by the company for GA expense, selling expense and depreciation are quite large, so the management of the company needs to reduce these costs. Furthermore, the average percentage between the three accounts and

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the company's revenue is used to predict GA expense, selling expense, and future depreciation. So that the projected GA expense is 3.13 percent, Selling expense projected is 3.92 percent, and depreciation projected is 3.13 percent. Additionally, the estimated future revenue of the company will be multiplied by the results of the ratio of the three accounts.

Other Income, Interest Expense, and Tax Espense

The company's other income is net profit from associates and joint ventures, interest income, foreign exchange differences and others. The company's interest and finance transactions are the source of interest expense. Meanwhile, for the projected tax expense, a tax policy of 22 percent will be used, this is in accordance with the amendments to Article 17 paragraph (1) letter B of the UHP Law. Profits before income tax will eventually be multiplied by the tax expense. Where, if the profit is minus then for the projection, it is assumed that the company will not be taxed. The following will display the history of other income and Interest expense from 2018 to 2021.

Table III.4 Other Income and Interese Expense PT Bumi Resource Tbk 2018-2021

	2018	2019	2020	2021
Other Income	283,721,605	95,918,835	-128,402,463	380,468,091
Interest Expense	76,452,274	34,558,567	24,875,144	25,311,475

Source: *Financial Report PT Bumi Resource Tbk 2018 -2021*

Projections for other income and interest expenses will be calculated based on the average proportion of the two accounts based on company revenue. Obtained through calculations that the average percentage of the proportion of other income to revenue is equal to 13.91 percent. While the average percentage of the proportion of interest expense to revenue is 3.91 percent. So, it can be concluded that the company's other income has a greater value than its interest expense. Meanwhile, the projected tax expense is 22 percent which is multiplied by profit before income tax as previously explained.

Summary of projected income statement

The table below provides a summary of the accounts utilized in projected income statements for the following five years. This review will examine how three financial scenarios—worse, base, and best condition—were used to create the company's future income statement predictions. Additionally, the weighted average cost of capital for the business will be calculated in the future using this prediction. The appendix will have the following expected income statement.

Table III.5 Summary of Input Projection

		Worse	Base	Best
Projection	**Base**	**2022 F-2025F**	**2022 F-2025F**	**2022 F-2025F**
Revenue	Median	-28.19 %	0.07 %	28.32 %
Cost of Revenue	% Of Sales	88 %	84 %	80 %
GA Expense	% Of Sales	3.13%	3.13%	3.13%
Selling Expense	% Of Sales	3.92%	3.92%	3.92%
Depreciation	% Of Sales	3.13%	3.13%	3.13%
Other Income	% Of Sales	13.91%	13.91%	13.91%
Interest Expense	% Of Sales	3.91%	3.91%	3.91%
Tax Expense	EBT	22%	22%	22%

Source: *Author's Analysis*

b. Projected Balance SheetCapital Intensity Ratio

The capital intensity ratio is one tool for analyzing projection from the balance sheet. This is because the capital intensity ratio can be used to estimate total assets. A comparison between total assets and income yields this capital intensity ratio. The capital intensity of a corporation is a measure of how dependent it is on buying assets to maintain a certain growth rate.

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Table III.6 Capital Intensity Ratio PT Bumi Resource Tbk 2018 -2021

Year	2018	2019	2020	2021	Average
Total Asset	3,906,773,939	3,702,805,778	3,428,550,327	4,223,787,286	3,815,479,333
Total Revenue	1,111,820,412	1,112,566,618	790,436,397	1,008,212,975	1,005,759,101
Capital Intensity Ratio	351%	333%	434%	419%	384%

Source: *Author's Analysis*

The table above shows that the company's capital intensity ratio from 2018 to 2021 has fluctuated increases and decreases, with the largest capital intensity ratio in 2020 with a value of 434 percent. Furthermore, after calculating the capital intensity ratio, the estimated total assets for the next 5 years can be determined. To make estimates for the balance sheet, the company's total equity and total liabilities for the following five years will also be sought after. For liabilities, meanwhile, can be calculated by deducting total equity from total assets. Projections for the balance sheet will be determined by three financial scenarios in worst, base, and best conditions. The projection of the balance sheet will be shown in the appendix.

C. Weight Average Cost of Capital

In this chapter, the author makes a calculation to determine a company's weighted average cost of capital using Damodaran's framework. To determine the ratio of the lowest cost of capital to the highest company value. The author will then develop a capital structure strategy and actionable steps using the Damodaran framework. so that the value of the company will rise in the future.

Cost of Equity Calculation-1: One of the elements required to create the cost of capital is the cost of equity. According to Damodaran (2014: 88), the rate of return needed by investors who invest using equity is known as the cost of equity. The capital asset pricing model (CAPM) and the continuous growth valuation model are the two methods used to determine the cost of equity. This study uses the capital asset pricing model in determining the cost of equity. urthermore, to perform calculations in the cost of equity, several components are needed, such as the risk-free rate, equity risk premium, and beta coefficient.

$$Cost\ of\ Equity = Risk\ Free\ Rate + (B * Equity\ Risk\ Premium)$$

Risk Free Rate

According to Damodaran (2014: 89), the risk-free rate is the return expected by investors from an asset free of risk. The risk-free rate is a 10-year government bond in which the government controls the printing of risk-free currency. The data used is data from 2018 to 2021 obtained through the Indonesian Securities Pricing Agency (PHEI). Meanwhile, future projections will be determined by an average from 2018 to 2021.

Table III.7 Historical Risk-Free Rate

2018	2019	2020	2021
7.49%	7.44%	6.94%	6.40%

Worse	Base	Best
7.58 %	7.07%	6.56%

Source: *Indonesia Bond Pricing Agency (PHEI)*

Equity Risk Premium

According to Damodaran (2014: 93), equity risk premium is the additional return desired by investors because of investing their money from risk-free investments to market portfolios or risky investments. The equity risk premium generated using the Damodaran formula is the equity risk premium employed in this study. The data used is data from 2018 to 2021 and then based on

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this data a projected equity risk premium will be calculated for the future. Based on the calculation, it is found that the value of the projected equity risk premium in best scenario is 5.98%, in base scenario is 6.65%, and in worse scenario is 7.73%.

Table III.8 Historical Equity Risk Premium

2018	2019	2020	2021
7.62%	6.31%	6.56%	6.12%
Worse	**Base**	**Best**	
7.73 %	6.65 %	5.98 %	

Source: *Damodaran*

Beta Coefficient

According to Gitman and Zutter (2015: 382), Beta Coefficient is a non-distinguishable relative measure of risk. Beta is also a measure of movement of asset returns fluctuate in response to changes in market returns. The return on the market portfolio of all traded securities is what is known as the market return. The Indonesian Securities Rating Agency (PEFINDO) provided the author with the beta coefficient. The beta coefficient data used is coal industry beta data from 2018 to 2021. Furthermore, based on this historical data, a projected beta coefficient will be determined in the future through an average of four years. The projection will be determined based on three scenarios, namely, best, base, and worse using the standard deviation of 0.44.

Table III.9 Historical Beta Coeffisien

2018	2019	2020	2021	Average
1.37	1.49	0.95	0.97	1.2

Source: *Indonesian Securities Rating Agency (PEFINDO)*

The data above shows that the average beta coefficient is 1.2, this means that the company's condition is more volatile than the overall market condition. Furthermore, based on the calculation of the average and standard deviation, it is found that in the best scenario, the company has a beta coefficient of 0.76. Meanwhile, in the base condition, the company has a beta coefficient of 1.2. And for the worse scenario, the company has a beta coefficient of 1.64.

Table III.10 Projected Beta Coeffisien

2022 E – 2026 F		
BEST	**BASE**	**WORSE**
0.76	1.2	1.64

Source: Author's Analysis

The following shows the calculation of the historical cost of equity based on the data on the risk-free rate, equity risk premium and beta coefficient previously obtained.

Table III.11 Historical Cost of Equity Calculation

	2018	2019	2020	2021
Risk Free Rate	7.49%	7.44%	6.94%	6.40%
Equity Risk Premium	7.62%	6.31%	6.56%	6.12%
Beta	1.37	1.49	0.95	0.97
Cost of Equity	17.91 %	17.36%	13.19%	12.33%

Source: *Author's Analysis*

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Cost of Debt-2: One of the elements required to calculate the weighted average cost of capital is the cost of debt. Cost of debt, according to Damodaran (2014: 137), is the expense incurred by a business when borrowing money to finance operations or projects. The cost of debt is also the interest rate given by creditors as a condition for returning a company's debt. In calculating the cost of debt, the company requires several components, such as the risk-free rate, default spread, and marginal tax. The following is the formula for the cost of debt.

$$After\ tax\ cost\ of\ debt = (Risk\ Free\ Rate + Default\ Spread) * (1 - Marginal\ Taxt\ Rate)$$

Default Spread

The default spread is one of the components used in determining a company's cost of debt. The default spread itself is the difference between the interest rate on a bond with default risk and a default-free government bond (Damodaran, 2014:80). To determine the default spread, country default spread and firm default spread are needed. The country default spread used by the author is obtained through data from Damodaran. As for the firm default spread, it is required to determine the company's interest coverage ratio in advance. The interest coverage ratio itself is the level of a company's ability to pay interest on its debts. The interest coverage ratio is obtained by dividing the Earning Before Interest and Tax (EBIT) with the Interest expense. Furthermore, after the interest coverage ratio is obtained, the company's bond rating and default spread can be determined based on the default spread table from Damodaran. Next, the following is the default Damodaran spread table.

Table III.12 Default Spread and Ratio

If interest coverage ratio is			
>	*≤ to*	*Rating is*	*Spread is*
-100000	0.499999	D2/D	18.60%
0.5	0.799999	C2/C	13.95%
0.8	1.249999	Ca2/CC	10.63%
1.25	1.499999	Caa/CCC	8.64%
1.5	1.999999	B3/B-	4.37%
2	2.499999	B2/B	3.57%
2.5	2.999999	B1/B+	2.98%
3	3.499999	Ba2/BB	2.38%
3.5	3.9999999	Ba1/BB+	1.98%
4	4.499999	Baa2/BBB	1.27%
4.5	5.999999	A3/A-	1.13%
6	7.499999	A2/A	0.99%
7.5	9.499999	A1/A+	0.90%
9.5	12.499999	Aa2/AA	0.72%
12.5	100000	Aaa/AAA	0.54%

Source: *Damodaran*

The following is historical data from 2018 to 2021 for PT Bumi Resource's country default spread, interest coverage ratio, firm default spread, and estimated default spread.

Table III.13 Historical Default Spread

	2018	**2019**	**2020**	**2021**
Country Default Spread	1.55 %	1.35 %	1.62 %	1.36 %
Interest Coverage Ratio	0.51	0.94	1.14	4.89
Firm Default Spread	13.95 %	8.644 %	10.63 %	1.13 %
Estimated Default Spread	15.5 %	11.98 %	12.47 %	2.49 %

Source: *Author's Analysis*

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Marginal Tax Rate

In historical data there are differences in the tax rate imposed by the government on companies. In 2018 and 2019, the tax levied on companies is 25 percent, in accordance with Chapter 14 of Law No. 36 of 2008. Meanwhile, for 2020 and 2021 corporate tax is imposed, namely 22 percent, this is in accordance with Government Regulation (PP) No. 30 of 2020. Furthermore, for the assumption of future projections, a corporate tax of 22 percent will be used, in accordance with the latest government regulations.

Table III.14 Historical Marginal Taxt Rate

2018	2019	2020	2021
25 %	25 %	22 %	22 %
	22 E – 2026 F		
	22 %		

Source: *PT Bumi Resource Financial Report 2018-2021*

Next, a historical calculation of the cost of debt will be given based on the formula obtained by Damodaran.

Table III.15 Historical Cost of Debt Calculation

	2018	2019	2020	2021
Risk Free Rate	7.49%	7.44%	6.94%	6.37%
Default Spread	15.5 %	11.98 %	12.47 %	2.49 %
Tax Rate	25 %	25 %	22 %	22 %
Pretax cost of debt	22.99%	19.95%	19.41%	8.86%
After tax cost of debt	17.25%	14.96%	15.14%	6.91%

Source: *Author Analysis*

Historical Weight Average Cost of Capital-3: After knowing the prior cost of equity and cost of debt, the company's historical weighted average cost of capital may be calculated. Furthermore, the firm value of the corporation can be calculated after determining the weighted average cost of capital. The weighted average cost of capital is calculated as follows (Damodaran 2014)

$$WACC = Cost\ of\ Equity\ (\frac{Equity}{Debt + Equity}) + Cost\ of\ Debt\ (\frac{Debt}{Debt + Equity})$$

Meanwhile, the firm value formula is as follows:

$$Value\ of\ Firm = \sum_{t=1}^{t=\infty} \frac{FCFF^t}{(1 + WACC)^t}$$

Description:
FCFF = Free Cash Flow to Firm in Year t
WACC = Weight Average Cost of Capital

Meanwhile, according to Damodaran (2015: 356) firm value can be determined by another formula, assuming constant growth as follows:

$$Value\ of\ Firm = \frac{FCFF * (1 + g)}{(WACC - g)}$$

Growth rate can be calculated based on the following formula:

$$Growth\ Rate = \frac{(Firm\ Value\ x\ cost\ of\ capital - FCFF)}{(Firm\ Value + FCFF)}$$

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Furthermore, based on Damodaran (2015: 539) Free Cash Flow to the Firm (FCFF) can be determined through the followingformula:

$$FCFF = EBIT\ (1 - Tax\ Rate) + Depreciation - Capital\ Expenditure - \Delta working\ capital$$

Free cash flow to the firm is also known as unlevered cash flow because it is cash flow that is unaffected by debt payments and the tax benefits that come with it. The tax rate utilized is historical, namely 25 percent in 2018 and 2019, and 22 percent in 2020 and 2021. Following that, a summary of the company's weighted average cost of capital and firm value will be displayed.

Table III.16 Historical Cost of Capital and Firm Value Calculation

	2018	2019	2020	2021
Debt Ratio	76.68%	81.12%	77.40%	78.19%
Cost of Equity	17.91 %	17.36%	13.19%	12.33%
Cost of Debt	17.25%	14.96%	15.14%	6.91%
Cost of Capital	16.32%	14.78%	13.99%	8.18%
Firm Value	$1,876,844,387	$1,689,469,178	$1,755,411,356	$1,481,854,572

Source: *Author's Analysis*

The company's cost of debt is more than its cost of equity in 2020. This is due to the company's interest coverage ratio being very low or less than one, in 2020. As a result, the company's EBIT is smaller or not significantly different fromits interest expense. Because of the low interest coverage, the company's bond ratings are Ca2/CC, resulting in a quite substantial default spread. A wide default spread raises the cost of debt. Next, the company's historical optimal capital structure will be displayed. Where Based on the summary in table III.17 shows that, if the company wants to maximize the value of the company with a low WACC then it is necessary to reduce the proportion of the debt ratio.

Table III.17 Optimal Historical Cost of Capital and Firm Value Calculation

	2018	2019	2020	2021
Debt Ratio	0%	10%	0%	30 %
Cost of Equity	10.75%	10.38%	8.64%	8.47%
Cost of Debt	8.27%	7.67%	7.27%	6.45%
Cost of Capital	10.05 %	10.11%	8.64%	7.86%
Firm Value	$6,188,403,483	$5,885,015,331	$8,000,370,958	$1,709,478,366

Source: *Author's Analysis*

Projected Weight Average Cost of Capital-4: To calculate the company's capital structure and optimal capital structure, a projection of the weighted average cost of capital is required. This forecast will be carried out in three scenarios: best case scenario, most likely scenario, and worst-case scenario. After the projection is made, then the good scenario will be sought which gives the smallest WACC with the largest firm value. the author will provide advice regarding the capital structure strategy based on the framework from Damodaran. Calculation of the optimal capital structure is carried out using the worksheet from Damodaran.

Best Scenario

The best scenario can be interpreted that in 2022 the company is in its best condition. The best conditions can be seen from the projected income statement and balance sheet, which provide positive results and grow quite large on a regular basis. In addition, the required variables show the best results. The following are the inputs required in the best conditions of the company.

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Table III.18 Input for Projection Best Scenario

Input	Data	Source
Beta Stock	0.76	Indonesian Securities Rating Agency
Risk Free Rate	6.44%	Indonesia Bond Pricing Agency
Risk Equity Premium	5.98%	Damodaran
Country default Spread	1.41 %	Damodaran
Taxt Rate	22 %	Financial Statement
Number of Share out Standing	143,841,242,189	Financial Statement
Market Price	$ 0.012	Stockbit

The company's weight average cost of capital and optimal capital structure will be determined using the data from the table above, the income statement projection and balance sheet projection before. But first, the company's cost of equity and cost of debt in the best-case scenario will be displayed.

Table III.19 Cost of Equity and Cost of Debt Best Scenario

	2022 F		2022 F
Risk Free Rate	6.44%	Risk Free Rate	6.44%
Equity Risk Premium	5.98%	Default Spread	4.98 %
Beta	0.76	Pretaxt Cost of Debt	11.54%
Risk Free Rate	6.44%	Risk Free Rate	6.44%

Source: *Author's Analysis*

Table III.20 Actual WACC and Firm Value Best Scenario

Best Scenario	2022 F
Debt Ratio	49.97%
Cost of Equity	11.07%
Cost of Debt	9.00%
WACC	10.04%
Firm Value	$3,313,321,127

Source: *Author's Analysis*

After the company's cost of equity and cost of debt when the best conditions have been determined, a summary of the company's cost of capital and firm value will then be displayed as shown in table III.20. According to the calculation results, the company has a cost of equity of 11.07 percent and a cost of debt of 9 percent when it is in its best condition. Furthermore, the value ofthe cost of capital is 10.04 percent with the company's value is $ 3,313,321,127 based on a debt ratio of 49.97 percent. Next, the author will provide a summary of the optimal analysis of the company's capital structure based on its best conditions. Optimal capital structure will be determined using the worksheet provided by Damodaran. The complete worksheet will be added in the appendix.

Table III.21 Optimal Capital Structure Best Scenario

Optimal Capital Structure (BEST)	
Debt Ratio	10 %
Debt ($)	345,040,519.38
Cost of Equity	9.31%
Cost of Debt	6.78%
WACC	9.06%
Firm Value ($)	$4,605,803,420.

Source: *Author's Analysis*

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The table above describes the optimal capital structure of the company when it is at its best in 2022. The cost of equity and cost of debt after the analysis of the optimal capital structure has changed, namely to 9.31 percent and 6.78 percent. The table also shows that the proportion of company debt to obtain an optimal capital structure is 10 percent or equal to $ 345,040,519.38. With this debt proportion, the company will optimize its capital structure with a WACC of 9.06 percent. With a debt ratio of 10 percent,the company will maximize the value of the company to $4,605,803,420. Next, a graph of the results of the WACC calculationwill be shown in the condition of the debt ratio from 0 to 90 percent.

Figure III.1 WACC, Debt Ratio, and Firm Value Best Scenario
Source: *Author's Analysis*

Base Scenario

The base scenario can be interpreted as that in 2022 the company will be in the same condition as the previous year. This is shown by the project income statement and project balance sheet, the rise of which rise not much different from the previous year. As well as other inputs needed to calculate the WACC the same as the previous year's average. The following is the input data needed when the company is in a state of most likely.

Table III.22 Input for Projection Base Scenario

Input	Data	Source
Beta Stock	1.2	Indonesian Securities Rating Agency
Risk Free Rate	7.07 %	Indonesia Bond Pricing Agency
Risk Equity Premium	6.65 %	Damodaran
Country default Spread	1.54 %	Damodaran
Taxt Rate	22 %	Financial Statement
Number of Share out Standing	143,841,242,189	Financial Statement
Market Price	$ 0.012	Stockbit

Based on the data from the table above, as well as project income statement data and the company's balance sheet when the base or most likely conditions are, the company's WACC and optimal capital structure will be determined in the most likely conditions. The following is the company's cost of equity and cost of debt in the base scenario or most likely to current situation.

Table III.23 Actual Cost of Equity and Cost of Debt Base Scenario

Base Condition	**2022 F**	**Base Condition**	**2022 F**
Risk Free Rate	7.07 %	Risk Free Rate	7.07 %
Equity Risk Premium	6.65 %	Default Spread	10.18 %
Beta	1.2	Pretaxt Cost of Debt	17.24%
Cost of Equity	15.05%	Cost of Debt	13.45%

Source: *Author's Analysis*

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Table III.24 Actual WACC and Firm Value Base Scenario

BASE Scenario	2020 F
Debt Ratio	44.88%
Cost of Equity	15.05%
Cost of Debt	13.45%
WACC	14.33%
Firm Value ($)	$3,017,394,778

Source: *Author's Analysis*

The table above shows that when the company is in the base scenario or most likely condition, the company's cost of equity is 15.05 percent, and the cost of debt is 13.45 percent. Furthermore, through the WACC calculation, under base scenario or most likely conditions the result of company WACC is 14.33 percent. With a debt ratio of 44.88 percent, the company can maximize its value of $ 3,017,394,778. After the WACC is obtained, then the author will look for the company's optimal capital structure when the base scenario or most likely condition. Optimal capital structure will be determined using the worksheet provided by Damodaran. The complete worksheet will be added in the appendix.

Table III.25 Optimal Capital Structure Base Scenario

Optimal Capital Structure (BASE)	
Debt Ratio	10 %
Debt ($)	$313,137,349
Cost of Equity	12.38%
Cost of Debt	7.48%
WACC	11.89%
Firm Value ($)	$4,550,086,811

Source: *Author's Analysis*

The table above shows the company's optimal capital structure in the basic scenario or conditions most likely in 2022. The optimal capital structure analysis changed the cost of equity and cost of debt to 12.38 percent and 7.48 percent, respectively. The table also shows that the optimal debt ratio required by a company to achieve an optimal capital structure when the basic scenario or the most probable condition is 10 percent or $0. With a debt of $ 313,137,349, the company can maximize the value of the company by $ 4,550,086,811with a WACC of 11.89 percent. Next, a graphic will be displayed from the results of the WACC calculation based on a debt ratio of 0 to 90 percent.

Figure III.2 WACC, Debt Ratio, and Firm Value Base Scenario
Source: *Author's Analysis*

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Worse Scenario

The worst scenario is an illustration of the company's projections when the company's condition is at its worst in 2022. This is shown in the projected income statement and balance sheet, which have experienced a decline. In addition, the input required for the WACC calculation also shows the worst condition. The following is the input data needed when the company is in a worse scenario.

Table III.26 Input Projection Worse Scenario

Input	Data	Source
Beta Stock	1.64	Indonesian Securities Rating Agency
Risk Free Rate	7.70%	Indonesia Bond Pricing Agency
Risk Equity Premium	7.32%	Damodaran
Country default Spread	1.66 %	Damodaran
Taxt Rate	22 %	Financial Statement
Number of Share out Standing	143,841,242,189	Financial Statement
Market Price	$ 0.012	Stockbit

Based on the data from the table above, as well as project income statement data and the company's balance sheet, when the condition is worse, the company's WACC and optimal capital structure will be determined. The following is the company's cost ofequity and cost of debt in a worse scenario.

Table III.27 Actual Cost of Equity and Cost of Debt Worse Scenario

Base Condition	2022 F	Base Condition	2022 F
Risk Free Rate	7.70%	Risk Free Rate	7.70%
Equity Risk Premium	7.32%	Default Spread	12.29 %
Beta	1.64	Pretaxt Cost of Debt	19.87 %
Cost of Equity	19.54%	Cost of Debt	15.5%

Source: *Author's Analysis*

Table III.28 Actual WACC and Firm Value Worse Scenario

WORSE Scenario	2020 F
Debt Ratio	38.32%
Cost of Equity	19.54%
Cost of Debt	15.5%
WACC	17.99%
Firm Value	$2,707,540,636

Source: *Author's Analysis*

The table above shows that in the worst condition the company has a cost of equity value of 19.54 percent and a cost of debt of 15.5 percent. Furthermore, in the worst conditions, the company generates a WACC of 117.99 percent and maximizes the value of company in the amount of $ 2,707,540,636 with a debt ratio of 38.32 percent. The firm's debt ratio has decreased, but not because the company has reduced the amount of its debt; rather, the company's total assets in the worst scenario have decreased the most when compared to the best and base scenarios. So that it causes a decrease in the company's debt ratio. After the WACC is obtained, the author will then look for the optimal capital structure of the company when the scenario is worse. Optimal capital structure will be determined using the worksheet provided by Damodaran. The complete worksheet will be added in the appendix.

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Table III.29 Optimal Capital Structure Worse Scenario

Optimal Capital Structure (WORSE)	
Debt Ratio	10 %
Debt ($)	$279,841,400
Cost of Equity	16.34%
Cost of Debt	8.2%
WACC	15.52%
Firm Value	$3,549,744,313

Source: *Author's Analysis*

The table above shows the company's optimal capital structure in 2022 with the assumption that the company is experiencing its worst condition. The cost of equity and cost of debt after the optimal capital structure analysis has changed to 16.34 percent and 8.2 percent. Based on the table above, it also shows that in a worse condition to achieve optimal capital structure, the required capital source consists of a 10 percent debt ratio, which is $ 279,841,400. Furthermore, the WACC obtained when the company is in a worse scenario is 14.37 percent. While the maximum value of the company is $3,549,744,313assuming a debt ratio of 10 percent. Next,a graph will be displayed from the WACC calculation results based on a debt ratio of 0 to 90 percent when the company is in a worse condition.

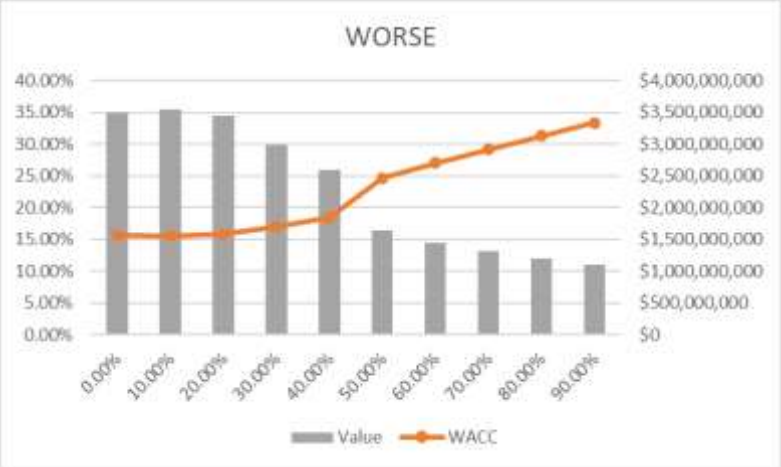

Figure III.3 WACC, Debt Ratio, and Firm Value Worse Scenario
Source: *Author's Analysis*

Optimal Capital Structure Strategy-5: After calculating the company's optimal capital structure using three different scenarios, it can be concluded that the company can maximize its highest value in the future when it is in the best scenario. In the best scenario, the company can maximize the value of the company to reach $ $4,605,803,420.with a WACC of 9,06 percent. The debt ratio required by the company to maximize its value is 10 percent. This can be interpreted as that the company is experiencing overlevered, because the optimal debt ratio of the company is lower than the actual debt ratio. Where, the company's actual debt ratio during the best scenario was 49.97 percent. One of the reasons why a low debt ratio proportion is needed to obtain optimal capital structure in the future is because the company is currently in a condition with large debts. This is indicated by the company's historical debt to equity ratio (DER), which is very large compared to other companies. So, it can be interpreted that the company's current financial condition is bad, because the current funding is based on its long-term debt. In addition, basedon the worksheet from Damodaran, it shows that the company's interset coverage ratio has the best value when the company can maximize its debt ratio at 10 percent. As a result, to maximize the optimal capital structure in the future, the company can use several strategies such as those already in the Damodaran framework below.

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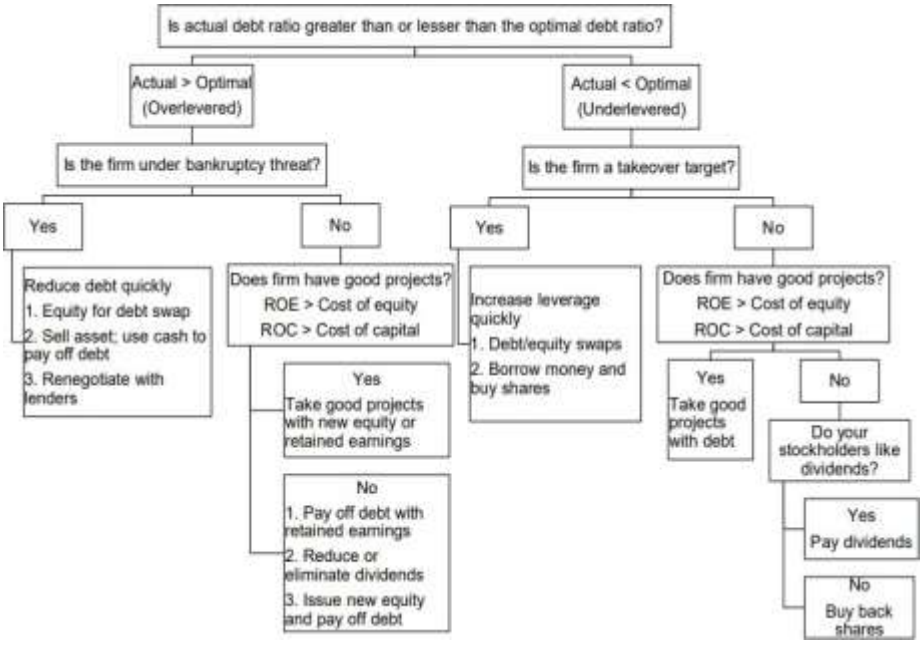

Figure III.4 Optimal Capital Structure Strategy
Source: *Damodaran*

Alman Z-Score

Based on the damordan framework above, it shows that the company is experiencing overlevered. To find out the strategy needed, then it must be known whether the company is under threat of bankruptcy or not. One way to find out if a company is in a state of bankruptcy is to calculate the Alman Z-Score. According to Altman (2000:9) the following is a formula for finding the Z-Score:

$$Z - Score = 1.2\ X1 + 1.4\ X2 + 3.3\ X3 + 0.64\ X4 + 1.0\ X5$$

Description:
X1 = Working Capital / Total AssetX2 = Retained Earning/Total AssetX3 = EBIT / Total Asset
X4 = Market Value Equity / Book Value of Total LiablitiesX5 = Sales / Total Asset

Furthermore, the calculation results from the altman z-score of the company PT Bumi Resource Tbk in 2021 will be shown in the table below.

Table III.30 Altman Z-Score Calculation

x	Formula	Calculation	Z-Score
x1	1.2	(0.50)	(0.60)
x2	1.4	0.053	0.07
x3	3.3	0.029	0.10
x4	0.64	0.08	0.05
x5	1.0	0.239	0.24
Total Z Score			(0.13)

Source: *Author's Analysis*

The results of the calculation of the alman-Zscrore company PT Bumi Resource Tbk in 2021 show that the company is facing the threat of bankruptcy. This is because the total value of the company's z-score is -0.13. Companies that are threatened with bankruptcy

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if the z-score results are below 1.81 or in the "distress" zone. So, after knowing the company's Z-score, the following are the steps needed by the company to optimize its capital structure.

Equity for Debt Swap

An equity for debt swap is one method that businesses can use to reduce their debt ratio according to Damodaran (2015: 405) Equity for debt swap can mean that companies can negotiate with lenders to convert their debt into company equity. This in turn will reduce the ownership of the company and increase the number of outstanding shares. However, this strategy is a strategy that does not disrupt the company's operations and is in accordance with the company's current financial condition. PT Bumi Resource Tbk has also conducted an equity for debt swap in the last few years. The company carries out pre-emptive rights (HMETD) or commonly known as private placement. The last time the company did a private placement with the Salim group as the investor. This private placement issued 200 billion series C shares worth IDR 120 or a total of IDR 24 trillion. The capital from this private placement is then used by the company to pay off its debts. In addition, the company has also conducted a debt-to-equity swap to pay off its Rp 1.01 trillion debt to innovative capital with Series C shares valued at Rp 76.59. To optimize the company's capital structure in the future, the company can slowly return to Equity for Debt Swap. So, this can reduce the company's debt ratio to the limit of the debt ratio for the optimal capital structure.

Renogiate with Lenders

The next strategy to optimize the company's capital structure is to renegotiate it with lenders. According to Damodaran (2015: 400) companies with overleveraged debt ratios can negotiate with lenders, namely taking company equity as a replacement for part or all its debts. Companies can also negotiate with lenders regarding agreements on the maturity of their debts and reduce interest on their debts, by offering things that can benefit lenders. One of them is making the company's assets to be payment guarantees. In addition, according to Arnold (1985) from the Harvard Business Review article, managers can complete loans by:

- Learn to think like a banker and determine the goals of the bank.
- Meet the banker's aim in making the loan while causing the least amount of harm to their own position.
- Make a priority list of the banker's requested constraints so that they can give in to one or two of them without jeopardizing the company's strategy.
- Persuade the banker to reduce or remove non-essential.

Even though negotiations sometimes do not benefit the lender, this negotiation is a necessary thing. This is because the last threat that can be received by lenders is that companies cannot pay their debts and experience bankruptcy.

Sell Asset

This strategy could be the company's last option. This is because the assets sold by companies can have a smaller value than they should be, so the right buyer is needed when they want to sell their assets. The sale of these assets can also disrupt operations and reduce company production. However, if the lender does not agree to swap and issue new equity, the company will need to sell its assets. The proceeds from the sale of these assets will later be used to pay off the company's debts. This is because if the debt is not paid off as soon as possible then in the future the company's debt will be even greater due to greater interest.

CONCLUSION

The energy crisis in China or Europe provides an opportunity for coal-producing countries to enhance their exports to these regions. One of them is Indonesia, which has one of the greatest coal reserves in the world. This export opportunity is growing in tandem with the rise in global coal prices. PT Bumi Resource Tbk is an Indonesian coal corporation with the highest coal reserves.and also one of the companies that supplies part of its production to the domestic and Chinese countries. However, the financial condition of the company is quite worrying. This can be seen from the debt-to-equity ratio which is very high compared to other companies. The problem of the company's financial condition will later become a problem in the future because of the large debt that is owned by the company. This has been demonstrated multiple times by the company's inability to pay its debts. As a result, in the future, we will require a strategy to solve this problem while also increasing the company's value.

Based on the analysis from the previous chapter, one way for companies to maximize firm value is to have an optimal capital structure. The writer uses Damodaran's weigh average cost of capital analysis. Furthermore, the author uses the worksheet provided

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by Damodaran to analyze the optimal capital structure of PT Bumi Resource Tbk. After that, the best strategy based on the Damodaran framework is sought which can maximize the value of the company. Following are the questions asked:

1. What is the optimal capital structure of PT Bumi's resources?

PT Bumi Resource's capital structure in 2021 consists of 78.19 percent debt and 21.81 percent equity. The current amount of current debt is $ 1,158,662,089 and the amount of equity is $ 323,192,482. However, this does not provide optimal results for the company. Because with such a large proportion it produces a very large DER for the company. While the optimal debt ratio to maximize company value is 30 percent or $ 510,850,191. This requires the company to reduce its debt large enough to maximize the value of the company's value. In terms of forecasts for 2022, the optimal capital structure required when company conditionsin best scenario at 10 percent debt ratio. This may be possible considering that the company's debt has so far been very large, so itis necessary to reduce debt even up to 10 percent. The biggest company value is when the conditions are in best scenario with a value of $4,605,803,420.and a WACC of 9.06 percent.

2. What should the company do in optimizing its capital structure?

Based on the analysis from the Damodaran framework and the calculation results from the alman z-score, it shows that the company is in an overleveraged condition and is experiencing the threat of bankruptcy because the almant z-score is -0.13.As a result, the following strategy can be used to maximize the company's capital structure in the future.

- Companies can conduct equity for debt swaps, this is the most secure option because it will not affect the company's activities. Furthermore, firms can execute private placements with investors and issue new shares, which can subsequently be used to settle debts and run the business.
- Companies can renegotiate with lenders regarding extending maturities and reducing interest rates, by offering something that can benefit the company and lenders. Companies can also negotiate with lenders to convert their debts into company equity.
- The company can sell its assets, but this should only be done as a last option. Selling assets can interrupt operations and limit the company's capacity to produce. However, the sale of these assets is required if the corporation is unable to make payments with the cash it has on hand.

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