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## CAPITAL BUDGETING ANALYSIS IN COAL HAULING SUBSCRIPTION BUSINESS MODEL

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**Abstract:** Volatile coal business conditions have become a challenge for coal mining business practitioners, PT ABC is one of them. PT ABC is a market leader for coal mining hauling equipment in Indonesia. Considering this company is owned by a listed mining company, the company name is covered up. One possible solution is to solidify the revenue by adopting the subscription business model. This study aims to assess investment feasibility by providing a capital budgeting analysis to develop the “Subscription Business Model in Coal Mining Business Sector”. The parameter to verify this project will apply IRR calculation, Net Present Value, Payback Period, ROE, and ROI. The result shows that the IRR value is 28,3%, the Net Present Value is IDR 198,8 Bio, the Payback period is 3,4 years, ROE is 509,1%, and ROI is 50,9%. Through this analysis, it is found that the results indicate the business plan is feasible to implement taking into account all required parameters.

**Keywords:** Capital Budgeting, Internal Rate of Return, Net Present Value, Payback Period

**Abstrak:** Kondisi bisnis batubara yang fluktuatif menjadi tantangan tersendiri bagi para pelaku bisnis pertambangan batubara, salah satunya PT ABC. Perusahaan ini merupakan pemimpin pasar untuk peralatan pengangkutan pertambangan batubara di Indonesia. Sehubungan dengan perusahaan ini dimiliki oleh emiten pertambangan, maka nama perusahaan disamarkan. Dalam rangka memperkuat pendapatan, salah satu solusi yang mungkin dilakukan adalah dengan mengadopsi model bisnis berlangganan. Studi ini bertujuan untuk menilai kelayakan investasi dengan memberikan analisis penganggaran modal untuk mengembangkan “Model Bisnis Berlangganan di Bidang Usaha Pertambangan Batubara”. Parameter untuk memverifikasi proyek ini akan menggunakan perhitungan IRR, Net Present Value, Payback Period, ROE, dan ROI. Hasil penelitian menunjukkan nilai IRR sebesar 28,3%, Net Present Value sebesar Rp. 198,8 Bio, Payback Period 3,4 tahun, ROE 509,1% dan ROI 50,9%. Hasil dari penelitian menunjukkan bahwa seluruh aspek penganggaran modal memenuhi parameter yang disyaratkan sehingga rencana bisnis ini layak untuk dilaksanakan.

**Kata Kunci:** *Capital Budgeting, Internal Rate of Return, Net Present Value, Payback Period*

## INTRODUCTION

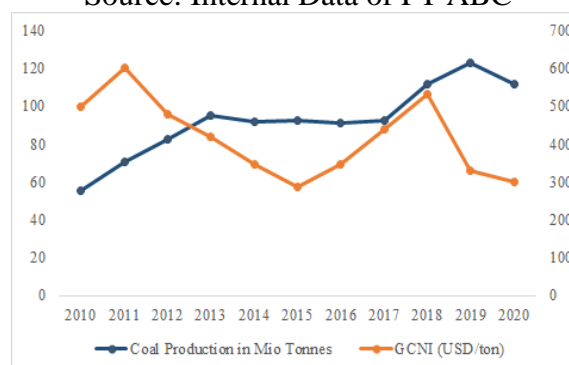
### Background

Due to the Covid-19 Pandemic since the beginning of 2020, the condition of the global economy was severely affected including Indonesia. Based on The World Bank (2020), the declining Indonesian economy is indicated by the decline of -2,2 percent of GDP. Although 2020 is not a good year for most countries, it seems that 2021 will be a better year for Indonesia.

The partial reopening of the domestic and global economies will support Indonesia in recovery. It is forecasted by the outlook from The World Bank (2020) that Indonesia's GDP would increase to 4,4% in 2021. The mining and manufacturing sectors are the sectors that are more dominant to increase in 2021.

According to Badan Pusat Statistik (2021), the mining sector contributes 7,38% to Indonesia's GDP. Coal mining contributes 19% to mining sectors in Indonesia, consistently in 2018 and 2019 according to PricewaterhouseCoopers (2020). Based on Kementerian Energi dan Sumber Daya Mineral (2021), coal production in Indonesia has stable growth that making Indonesia one of the biggest coal exporters. Unfortunately, the research result shows that the price of coals is unstable. This condition affects companies in that business sector such as mining concessions, mining contractors, and heavy equipment manufacturers. All those companies have difficulty keeping their business performance and growth.

**Figure 1**  
**Coal Production vs. Coal Price**  
Source: Internal Data of PT ABC



This research focused on PT ABC, one of the companies supporting mining activities in Indonesia as heavy equipment manufacturers. PT ABC is a private limited company that is owned by one of the largest listed mining companies in Indonesia. To keep the data confidential the company name is covered up. Currently, the revenue driver of PT ABC is selling Trailer Long-Hauler for coal transportation to the mining contractors. However, the revenue of PT ABC is affected by the volatility of coal prices. The information regarding PT ABC is collected by the researchers through direct observations in PT ABC.

To solidify the revenue, PT ABC could adopt a subscription business model. This subscription business model could generate recurring revenue and reduce their dependency on the investing activity from mining contractors. Warrillow (2015) stated that the subscription economy will become a huge opportunity for companies when they can turn their customers into subscribers. These types of subscribers can be said to the automatic customers that have a big impact on the companies to increase the cash flow, stimulate growth, and boost the value of the company. In other words, subscribers do not have to pay a large amount of cash at the beginning. Whereas the payment will go periodically (monthly, yearly, or seasonal). The subscription economy is commonly used in digital and media businesses such as Amazon, Spotify, Netflix, iCloud, Microsoft Teams, etc. Further research stated that 35% of Global 2000 companies' non-media digital products are estimated that the subscription models will contribute 5% to 10% of their incremental revenue. Thus, it is very possible to adopt this model in any industry.

According to Schuh et al. (2019), the manufacturing company is one of the sectors that is possible to implement the subscription business model. The implementation requires several major adjustments, there are major changes from short-term revenue to long-term revenue, a new financial model and strategies, and a clear analysis of the rights and obligations between the manufacturer and the customers. If these things can be done properly, the implementation of the subscription model in manufacturing could create a dynamic and long-term relationship with the customer. The manufacturing company that changed its business into a subscription

is Rolls Royce through “Power by the hour” which was established several years ago. According to Jacopino (2020), “Power by the hour” is the system that Rolls Royce offers the engine and accessories based on a fixed cost per flying hour basis. Rolls Royce will gain revenue whenever the airlines (customers) use the engine and vice versa. Inspired by the success of Rolls Royce, researchers proposed PT ABC adopt this subscription business model. This proposed business will be attractive and beneficial by offering “One Stop Solution Services to Increase Mine Contractors Productivity” with lower capital expenses required.

**Research Purpose**

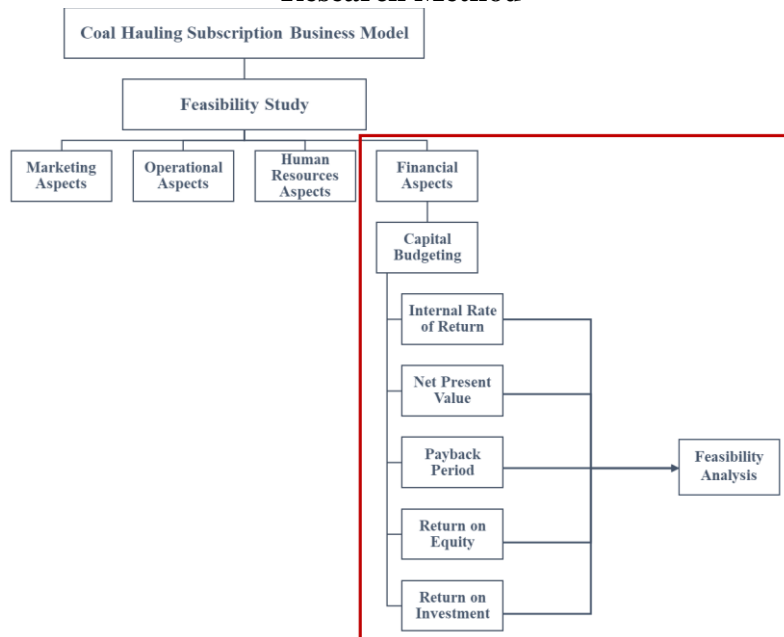
This study aims to assess investment feasibility by providing a capital budgeting analysis to develop the “Subscription Business Model in Coal Mining Business Sector”.

**RESEARCH METHOD**

This research method begins with collecting, analyzing, and interpreting data. The research method approach is carried out using qualitative and quantitative methods. Researchers collect qualitative data by conducting literature studies and observations. While the quantitative data, from the researchers, get from the internal data of PT ABC, financial statements, and other online sources. The collected data is analyzed to determine the investment feasibility.

The researchers use the method of analysis in this study with a figure as follows:

**Figure 2**  
**Research Method**



**RESULT AND DISCUSSION**

The financial plan is conducted by calculating the income statement, and investment feasibility using capital budgeting analysis. The result shows the five years projection of this business plan. It starts with cash flow forecast, IRR, NPV, Payback Period, ROE, and ROI. All of the criteria are calculated according to Gitman and Zutter (2014).

**Cash Flow Forecast**

In the beginning, the project requires investment at IDR 227,7 Bio. This project will start to generate profit in the Y+4 at IDR 21,2 Bio in present value. In total for five years projections, the project will generate a profit at IDR 198,8 Bio in present value.

**Table 1**  
**Cash Flow Forecast (in Bio)**

Year	EAT	DEPR.	FCF	Cum. FCF	Disc. Rate	Disc. FCF	Cum. Disc. FCF
Y			(227,7)	(227,7)			(227,7)
Y+1	57,2	2,7		(227,7)	0,92		(227,7)
Y+2	114,5	5,5	85,7	(142,0)	0,84	72,0	(155,7)
Y+3	176,9	8,4	59,7	(82,3)	0,77	46,0	(109,7)
Y+4	176,9	8,4	185,3	103,0	0,71	130,9	21,2
Y+5	262,2	12,2	274,3	377,3	0,65	177,6	198,8

Source: Research Result, 2021

### Internal Rate of Return (IRR)

The internal Rate of Return is an indicator of the efficiency level of investment. IRR is also a clue value that is identical to how much interest the investment can generate compared to the weighted average cost of capital (WACC), if the IRR is bigger than WACC, the investment is considered profitable and feasible to conduct. According to Johan (2018), the WACC is the calculation of the cost of capital when investing in a project that consists of capital cost and borrowing cost. Based on the calculation, the WACC for this project is 9,1%. The IRR value for this project is 28,3% bigger than WACC.

**Table 2**  
**Internal Rate of Return (IRR)**

YEAR	Free Cash Flow
Y	(227,7)
Y+1	-
Y+2	85,7
Y+3	59,7
Y+4	185,3
Y+5	274,3
<b>IRR</b>	<b>28,3%</b>

Source: Research Result, 2021

### Net Present Value (NPV)

NPV is the amount of the increase in profits obtained by a company from an investment. The value is gained by subtracting the present value of cash flow from the initial investment.

The present value of cash flow is the cash flow that is discounted with the weighted average cost of capital (WACC). The NPV for this project is IDR 198,8 Bio, which indicates that the project will generate cash at the end of the project period. The cash is converted into present value by the contribution of WACC (9,1%).

**Table 3**  
**Net Present Value (in IDR Bio)**

YEAR	Cumulative Discounted FCF
Y	(227,7)
Y+1	(227,7)
Y+2	(155,7)
Y+3	(109,7)
Y+4	21,2
<b>Y+5 (NPV)</b>	<b>198,8</b>

Source: Research Result, 2021

### Payback Period (PBP)

The payback period is the period or number of years required to return the value of the investment that has been issued. Investors often use the payback period to decide to invest capital in a project. The project is feasible if the payback period is below the expected period by the company or investors. From the calculation, this project will pay back its investment in 3,4 years.

$$\text{Payback Period} = \frac{\text{Investment}}{\text{Net Income}}$$

**Return on Equity (ROE)**

Return on equity describes the amount of return that could be generated in a certain amount of equity and it represents the profitability of this project. The project is profitable and feasible if the ROE is more than zero. If the value is more than zero, it means that the project generates profits bigger than the equity. Based on the calculation the ROE is 509,1%.

$$ROE = \frac{Net\ Income}{Equity}$$

**Return on Investment (ROI)**

Return on investment describes the amount of return that could be generated in a certain amount of investment. The investment is the total of debt and equity for the project. It also represents the profitability of the project. The criteria are the same with ROE, the value must be bigger than zero. Based on the calculation the ROI is 50,9%.

$$ROI = \frac{Net\ Income}{Debt + Equity}$$

**Table 4****Capital Budgeting Summary**

Description	Result	Criteria
IRR	28,3%	Feasible, IRR > WACC (9,1%)
NPV	198,8	Feasible, NPV > 0
Payback Period	3,4 Years	Feasible, PBP < 5 years
ROE	509,1%	Feasible, ROE > 0
ROI	50,9%	Feasible, ROI > 0

Source: Research Result, 2021

**CONCLUSION**

The results of the cash flow forecast show that this business will provide a profit at IDR 198,8 Bio in present value. The capital budgeting method contains IRR, NPV, Payback Period, ROE, and ROI. The IRR for this project is 28,3%, that value is bigger than the WACC at 9,1%. The NPV value from this project is IDR 198,8 Bio, it is bigger than zero. The Payback Period for this project is 3,4 years, it is below the expected investment period which is five years. The ROE from this project is 509,1% and ROI is 50,9%, both ROE and ROI are bigger than zero. After assessing the capital budgeting, it can be concluded that the “Subscription Business Model in Coal Mining Business Sector” is feasible to conduct.

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