



Comparing Company Valuation Before and After IPO Study Case PT Pertamina Geothermal Energy Tbk

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ABSTRACT: Affordable energy resources of energy play a crucial role in economic and social development to support food production, availability of water supply and sustainable healthy lifestyle. In order to avoid long-term scarcity resulting from the continuous use of non-renewable energy sources, we must explore all potential renewable energy source that align with concerns about climate change and other environmental issues. As a continuation of the Indonesian government's efforts to generate clean and environmental friendly energy, PT Pertamina Geothermal Energy (PGE) was established in 2006. It has contributed 82% of the installed geothermal energy capacity in Indonesia. By leveraging Indonesia's location within the Ring of Fire as one of the world's geothermal energy hubs, PGE has been supplying electricity to more than 2 million households in Indonesia with a potential emission reduction of 9.7 million tons of CO₂ per year. To achieve sustainable business growth, PGE is optimizing production in its operational areas by expanding installed capacity. In the company consideration, IPO is an appropriate step to financing the expansion. The author compares the company's value before and after the IPO to determine the short-term impact of the IPO, helping investors gauge their confidence in making investment decisions in PGE.

This study utilizes secondary data from prospectuses, financial statements, annual reports, sustainability reports, company-published documents, as well as data from IDX.co.id and IDN Financials.com. The data was collected and analyzed to understand evaluate financial performance, and assess the company's value before and after the IPO. The calculation of the company's intrinsic value is conducted using the Discounted Cash Flow Valuation method for the pre-IPO period against the company's financial projections for the years 2019 to 2022 and for the post-IPO period against the company's financial projections for the years 2024 to 2028, using discount rates of 8.25% and 8.65% for each. In resulting the intrinsic value pre-IPO is IDR 1.141,28 and the intrinsic value post-IPO is IDR 1.300,86. The stock price of PGE at its IPO on February 23, 2023, was IDR 875, while the adjusted closing price on December 29, 2023, was IDR 1,170. This study finds that the market price of PGE's stock, both before and after the IPO, are overvalued.

KEYWORDS: DCF Valuation, Financial Performance, Geothermal Energy, Initial Public Offering, Intrinsic Value, Renewable Energy, WACC.

I. INTRODUCTION

By 2050, global energy demand could double or triple as the population rises. The United Nations projects the current world population of 7.6 billion to reach 8.6 billion by 2030, 9.8 billion by 2050, and 11.2 billion by 2100. Half of this growth will be concentrated in nine countries, including Indonesia. This population increase will significantly raise energy consumption, stressing limited natural resources. Affordable energy is crucial for economic and social development, supporting food production, water supply, and a sustainable lifestyle.

For over 200 years, humans have relied on fossil fuels, but their continued use impacts the carbon cycle and greenhouse gas emissions, prompting debates on fossil fuel accessibility, peak oil, carbon emissions, and the shift to renewable energy. To prevent long-term scarcity from non-renewable sources, exploring renewable energy aligned with climate change concerns is essential.

Established in 2006, PT Pertamina Geothermal Energy (PGE) contributes 82% of Indonesia's geothermal energy capacity, supplying electricity to over 2 million households and potentially reducing CO₂ emissions by 9.7 million tons annually. Indonesia's geothermal potential stands at 23,766 MW, with only 9.6% currently utilized as electrical energy. The Indonesian government aims to increase this capacity by promoting carbon markets and ESG practices. PGE collaborates globally, targeting a 600 MW increase in installed capacity over the next five years, requiring an estimated US\$ 1.6 billion in investment.



The company's IPO in February 2022 raised approximately US\$ 500 million, marking a significant milestone. As global demand for renewable energy grows, PGEO's strategic growth has attracted investor interest. Stock prices, influenced by supply, demand, and market perceptions, adjust over time. Evaluating PGEO's valuation using the Discounted Cash Flow (DCF) method before and after the IPO provides insights into its financial condition, market expectations, and investor trust.

A. Business Issue

The 21st Session of the Conference of the Parties (COP 21) to the UNFCCC, held in Paris in 2015, resulted in the adoption of the Paris Agreement, which aims to limit global temperature increases to below 2°C, with efforts to limit it to 1.5°C above pre-industrial levels. Indonesia, vulnerable to climate change, signed the agreement in 2016 and aims for net zero emissions by 2060 or sooner, focusing on transitioning from fossil fuels to clean energy. Indonesia, located within the Ring of Fire, has significant geothermal energy potential, which the government, through Pertamina, is working to maximize. The Asian Development Outlook 2022 predicts continued economic and energy consumption growth for Indonesia in 2023. Data from the National Central Bureau of Statistics shows a 9% increase in electricity consumption per capita in 2022, with total electricity production reaching 310,660 GWh, predominantly from steam power plants.

Despite being the 3rd largest coal producer globally, with substantial methane and CO₂ emissions from coal mines and power plants, Indonesia's geothermal energy potential remains largely untapped. PGEO has increased geothermal steam production by 15.8% over the past six years, highlighting the potential for renewable energy transition.

PGEO's decision to go public is seen as prudent, aiming to optimize production and expand capacity. As a state-owned enterprise, PGEO's mission includes providing high-quality services and pursuing profits to enhance company value, in line with Indonesian law. The renewable energy sector in Indonesia is still emerging, presenting growth opportunities despite a lack of historical track records compared to conventional energy companies. This research analyzes PGEO's valuation before and after the IPO and financial performance in PGEO to guide investors in their investment decisions.

II. LITERATURE REVIEW

A. Signaling Theory

Signaling theory, developed by Spence in 1973, addresses how decision-makers handle information asymmetry. This theory is particularly relevant during Initial Public Offerings (IPOs), where new companies face significant information imbalances, making it hard to communicate their potential to investors. Signaling can help reduce this asymmetry, as suggested by various researchers (Arthurs et al., 2009; Certo, 2003; Komara, 2019). New IPOs often struggle with limited track records, complicating their efforts to gain industry legitimacy. PT Pertamina Geothermal Energy Tbk, established in 2006, did not share its track record prior to its IPO, leaving the prospectus as the primary information source for investors. Analyzing the firm's intrinsic value before and after the IPO can serve as a positive signal for investors, aiding in their decision to retain shares. Investors should monitor unusual reverse volatility during the IPO lock-up period, which can indicate negative signals (Jain, 2008). The lock-up period is when restrictions on selling shares post-IPO are lifted, allowing insiders to trade freely. Companies that cannot demonstrate a clear path to profitability post-IPO are penalized with lower valuations and face difficulties in securing financing. Those with negative cash flow depend on external funds and risk a downward spiral leading to delisting or bankruptcy if they cannot raise more capital. Achieving profitability post-IPO is crucial as it legitimizes the company and signals its ability to remain economically viable amid market fluctuations.

B. Herding Theory

Herding theory explains the phenomenon where individuals in a group act collectively without centralized direction (Banerjee, 1992). This behavior is common in financial markets, where investors mimic the actions of others rather than relying on their own analysis. During PGEO's IPO, herding behavior likely influenced investor reactions. Early investor interest might have led others to follow, believing these initial buyers had valuable insights, potentially causing overvaluation. After the IPO, large purchases by prominent investors could have further driven up the stock price due to herding, while large sales could have triggered sell-offs. Initially priced at IDR 875, PGEO's stock dropped to IDR 650 but surged to IDR 1680 within six months, nearly 200 percent above the IPO value. Currently, the stock price is relatively stable, fluctuating between IDR 1000 and IDR 1300.



C. Prospect/Loss Aversion Theory

People tend to feel happier with gains and are more influenced by them than by losses, experiencing more panic at the prospect of losses than joy from equivalent gains. Consequently, investors often hold onto risky stocks, hoping for a price increase and are willing to pay more for something they believe has higher value. The renewable energy sector is currently a global hot topic, with many countries enhancing regulations to promote it as a solution for environmental improvement, significantly influencing investor sentiment.

Rapid technological advancements allow investors to access diverse information. According to Abdulsattar et al. (2018), market sentiment on social media can be negative, positive, or neutral. Their findings indicate that positive sentiment correlates with stock prices, while negative sentiment does not (Pradana et al., 2020), suggesting investors prefer stocks with positive signals. If an investor leaves a company, it likely means no positive signals are perceived.

Investors often make mistakes by chasing market trends and investing in heavily publicized instruments (Tversky and Kahneman, 1979). Conversely, companies focused on value creation are more resilient and contribute to stronger economies, higher living standards, and more opportunities (Koller et al., 2010). Intrinsic value analysis helps investors stay aligned with a company's true value and avoid misleading trends.

III. RESEARCH METHODOLOGY

This research utilizes secondary data from both internal and external sources, including the company's Annual Reports and official financial reports published on the PT Pertamina Geothermal Energy and Indonesia Stock Exchange websites. The reports cover a 5-year period from 2019 to 2023. Additionally, the research incorporates information from public documents related to Indonesian government regulations, research and reports from professional organizations, journals, reputable articles, literature, and textbooks. The intrinsic value of a firm, representing its equity value, is calculated by determining the present value of the Free Cash Flow to the Firm (FCFF) and subtracting the company's debt (Ramdhani and Murtaqi, 2022). There are several steps involved in calculating discounted cash flow as follow:

1. Historical Financial Summary

The first step is to summarize the company's financial performance over the last four years. Since PGEO is relatively new as a public company, the financial reports published by the company only start from the year 2020 as part of the prospectus. The author consider several factors from accounts in the financial statements to calculate the average and forecast the growth rate. These financial statements include the statement of financial position, income statement, and cash flow statement.

2. Calculating the Free Cash Flow to Firm

Growth rate for EBIT are based on the average growth of related EBIT generating accounts since 2020 to 2023.

The formula of Free Cash Flow to Firm is:

$$FCFF = EBIT \times (1 - \text{tax rate}) + \text{Depreciation} + \text{Changes in Working Capital} - \text{Capital Expenditure}$$

3. Calculating the Discount Rate

WACC is the rate that will be used as FCFF discount rate above to calculate the present value.

The formula of Weighted Average Cost of Capital is:

$$WACC = \text{Cost of Debt} \times \left(\frac{\text{Debt}}{\text{Debt} + \text{Equity}} \right) \times (1 - T) + \text{Cost of Equity} \times \left(\frac{\text{Equity}}{\text{Debt} + \text{Equity}} \right)$$

Meanwhile, the formula for Cost of Debt is:

$$\text{Cost of Debt} = \text{Risk Free Rate} + \text{Estimated Company Default Spread} + \text{Estimated Country Default Spread}$$

With assumption:

- This study use Risk Free Rate from the Indonesia government bond return in 20 years. The yield used is a yield of December 31, 2022, of 6.92% for Pre-IPO and yield of December 31, 2023, of 6.49% for Post-IPO.



Figure 1. Indonesia Government Bond Return 2022 & 2023

Source: <http://www.market-risk-premia.com/>

- Estimated Company Default diperoleh dari perhitungan Company’s Interest Coverage Ratio (ICR) Dimana ICR akan di konversi ke dalam estimated company spread (Company Market Cap ≤5 billion USD) by Damodaran online below:

Table 2. Estimated Company Spread

For smaller and riskier firms		Rating is	Spread is
If interest coverage ratio is			
greater than	≤ to		
-100000	0.499999	D2/D	12.00%
0.5	0.799999	Caa/CCC	10.00%
0.8	1.249999	Ca2/CC	8.00%
1.25	1.499999	C2/C	7.00%
1.5	1.999999	B3/B-	6.00%
2	2.499999	B2/B	5.00%
2.5	2.999999	B1/B+	4.00%
3	3.499999	Ba2/BB	3.25%
3.5	3.999999	Ba1/BB+	2.75%
4	4.499999	Baa2/BBB	1.75%
4.5	5.999999	A3/A-	1.20%
6	7.499999	A2/A	1.00%
7.5	9.499999	A1/A+	0.90%
9.5	12.499999	Aa2/AA	0.70%
12.5	100000	Aaa/AAA	0.40%

Source: https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ratings.html

$ICR = EBIT / Long\ Term\ Interest\ Expense$

$ICR\ PGEO\ 2022 = \$209.583 / \$14.822 = 14,14$

$ICR\ PGEO\ 2023 = \$265.176 / \$24.215 = 10.95$

Based on above table, the Estimated Company Spread PGEO for Pre-IPO (2022) is 0,40% and for Post-IPO (2023) is 0,70%.

- Estimated Country Default Spread list also can be seen at spreadsheet Damodaran Online. According to that list, Indonesia’s spread is 2,07%.
- Tax company rate applicable in 2022 and 2023 is 22% in accordance with the provisions of Law Number 7 of 2021 concerning the Harmonization of Tax Regulations Indonesia.

Then the formula for Cost of Equity is:

$Cost\ Of\ Equity = Risk\ Free\ Rate + Beta\ x\ (Implied\ Market\ Return - Risk\ Free\ Rate)$



With Assumptions

- Risk Free Rate from the Indonesia government bond return in 20 years. The yield used is a yield of December 31, 2022, of 6.92% for Pre-IPO and yield of December 31, 2023, of 6.49% for Post-IPO.
- Beta represent the sensitivity of investment to market risk, for companies that have been listed on the Indonesia Stock Exchange for at least three years, professional credit rating agencies such as Pefindo publish their beta rates. Since PGEO has been listed on the Indonesia Stock Exchange for less than two years, this study calculates PGEO's beta using the following steps:
 1. Unlever the beta using the competitor's DER

Table 3. PGEO's Competitors Beta and Debt to Equity Ratio

Year		2022		2023	
Ticker	Company	Beta	DER	Beta	DER
KEEN	PT Kencana Energi Lestari Tbk	0,704	80,57%	0,702	87,93%
POWR	PT Cikarang Listrindo Tbk	0,944	48,61%	0,603	46,83%
DSSA	PT Dian Swastika Sentosa Tbk	0,463	112,47%	1,441	78,01%
Average		0,704	80,55%	0,915	70,92%

Source: Processed Financial Statement PT Pertamina Geothermal Energy Tbk

Result:

$$\beta_u (2022) = 0,704 / [1 + (1-22\%) \times 80,55\%] = 0,423$$

$$\beta_u (2023) = 0,915 / [1 + (1-22\%) \times 70,92\%] = 0,589$$

2. Relever the Beta Using the Privately-Held Company's DER

Table 4. PGEO's Debt to Equity Ratio

PGEO		
Year	2022	2023
Liabilitas	1.219.597	992.885
Ekuitas	1.255.541	1.971.256
DER	97,14%	50,37%

Source: Processed Financial Statement PT Pertamina Geothermal Energy Tbk

Result:

$$\beta_l (2022) = 0,432 \times (1 + (1-22\%) \times 97,14\%) = 0,759$$

$$\beta_l (2023) = 0,589 \times (1 + (1-22\%) \times 50,37\%) = 0,821$$

- This study using Implied Market Return from the Indonesia government bond return in 20 years. The yield used is a yield of December 31, 2022, of 9,72% for Pre-IPO and yield of December 31, 2023, of 10,00% for Post-IPO.

3. Calculating the Terminal Values

The formula for calculating the terminal value is:

$$\text{Terminal Value} = \text{Final Year Projected Cash Flow} \times (1 + \text{Infinitive Growth Rate}) / (\text{Discount Rate} - \text{Long Term Cash Flow Growth Rate})$$

4. Calculating Present Value

The formula for calculating the terminal value is:

$$\text{Present Value} = \text{Future Value} \times 1 / (1 + \text{WACC})^n$$

Where n = Number of Periods

From the result of DCF valuation calculations above, then author finally make a conclusion.

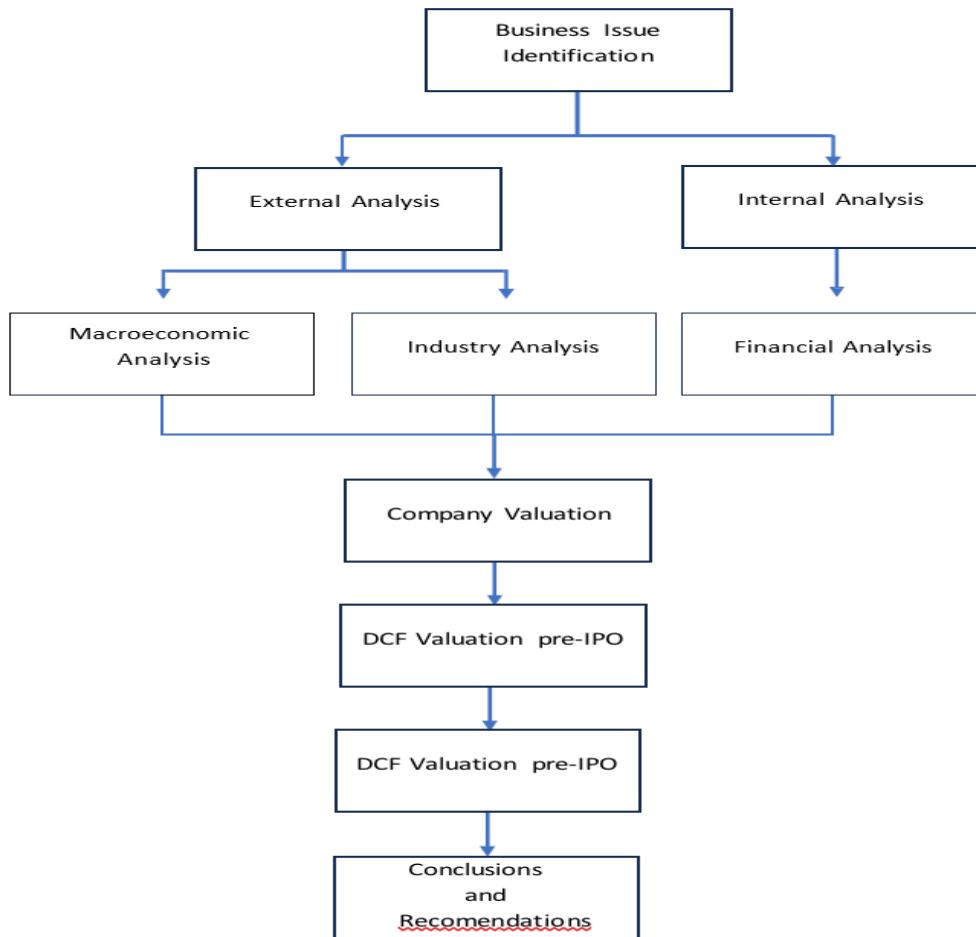


Figure 2. Conceptual Framework

Source: Author (2024)

IV. FINDING AND ANALYSIS

A. External Analysis

1. Macroeconomic Analysis

During 2023, the global economy faced numerous challenges, including increased geopolitical tensions, fluctuating global supply and demand, and economic dynamics in developed countries, all contributing to a global economic slowdown. The United States grappled with inflation above target and high-interest rates, while China worked to rebuild its economic strength post-COVID-19. The World Bank projected global economic growth at 2.1%, while the International Monetary Fund was slightly more optimistic with a forecast of 3%. Amid these global challenges, Indonesia showcased resilience, achieving an economic growth rate of 5.05%, driven by strong household consumption, investments, and exports. The Indonesian government's coordinated efforts with Bank Indonesia successfully contained inflation at 2.61% in 2023, significantly lower than the previous year's 5.51%. According to PLN's Electricity Supply Business Plan (RUPTL), the projected growth in Indonesia's economic development and electricity demand over the next decade (2021-2030) is 4.9%. This growth projection will also serve as a foundation for the development strategy of PT Pertamina Geothermal Energy Tbk.

2. PESTEL Analysis

Political stability in Indonesia Indonesia's political stability has been relatively strong, providing PT Pertamina Geothermal Energy Tbk (PGE) with a secure environment for investment and operations. However, political changes can impact energy policies and subsidies, which are crucial for the renewable energy sector. Indonesia, along with many other countries, endorsed the Glasgow



Climate Pact during COP26. This pact focuses on reducing emissions, assisting those affected by climate change, enabling countries to achieve their climate goals through finance, and fostering greater collaboration. The Indonesian government has set a target to achieve a 23% renewable energy mix in the energy supply by 2025, as outlined in the Electricity Supply Business Plan (RUPTL) of PT PLN (Persero). The government emphasizes the importance of geothermal power and hydropower plants in meeting this target.

Economic growth in Indonesia's has been reach 5.05% in 2023, despite global challenges, indicates a favorable environment for business expansion. Rising minimum wages and government social assistance have boosted household consumption and economic stability. Russia's energy sector dominates its exports with natural gas, crude oil, and coal. In 2020, Russia supplied 11.6% of the world's oil demand and holds approximately 15% of the world's coal reserves. Significantly affecting global commodity prices amid the Ukraine war. This has led to soaring prices and inflationary pressures worldwide. The Federal Reserve's interest rate hikes to combat domestic inflation have global repercussions, likely increasing risks in Indonesia's capital market.

Social awareness and demand for sustainable energy solutions are growing all over the world. The Indonesian population's growing support for renewable energy aligns with PGEO's operations and expansion. Building positive relationships with local communities is crucial, as successful geothermal projects depend on their cooperation. PGEO's community development programs in education, healthcare, and infrastructure foster goodwill and enhance the company's social license to operate while improving community well-being.

Technological advancements and continuous innovation are crucial for PGEO to remain competitive and meet environmental standards. The company must invest in advanced technology for efficient exploration, drilling, and energy production. Due to the high costs and risks associated with geothermal exploration, securing bank funding is challenging, often requiring public finance to mitigate risks before confirming resource availability or exploitability.

Environmental regulations are becoming stricter, and PGEO needs to comply with these to mitigate environmental impacts. The company must manage emissions, such as hydrogen sulfide, and potential land subsidence while ensuring sustainable operations. PGEO operates in areas that often intersect with conservation zones, necessitating a strong commitment to environmental protection. The company runs sustainability programs, the Kamojang Eagle Conservation Center and NENG ELIE, to protect biodiversity and promote sustainable practices. In result PGEO has received several awards for its sustainability efforts, including the Indonesia Green Awards, the Annual Global CSR & ESG Summit and Awards, and the ASEAN Energy Awards from the ASEAN Center for Energy.

Legal company of PGEO must comply with stringent environmental regulations and laws, ensuring sustainable and safe operations, reflecting its commitment to responsible corporate governance. The company has established a Good Corporate Governance (GCG) mechanism to optimize governance and create value for stakeholders. PGEO aims to improve its GCG standards in line with the ASEAN Corporate Governance Scorecards, enhancing visibility in the ASEAN region. PGE adheres to regulations from the Financial Services Authority (OJK) and the Ministry of State-Owned Enterprises, ensuring all business activities align with applicable laws and ethical practices.

3. Porter Five Forces Analysis

Competitive Rivalry within the geothermal energy industry in Indonesia is moderate. While there are several players, the market is not as saturated as conventional energy sectors. PGEO's significant market share and expertise provide a competitive edge.

Threat of New Entrants is relatively low due to high capital requirements, technological barriers, and regulatory hurdles associated with geothermal energy projects. These factors deter new players from easily entering the market.

Bargaining Power of Suppliers is moderate. PGEO relies on specialized equipment and technology providers, which limits the number of available suppliers. However, PGE's strong market position allows some leverage in negotiations.

Bargaining Power of Buyers is low to moderate. As a state-owned enterprise, PGEO primarily supplies electricity to government bodies and large corporations, which typically have limited alternative sources for geothermal energy.

Threat of Substitute Products is high, as renewable energy sources such as solar and wind power are becoming increasingly viable alternatives. PGE must continuously innovate and improve cost efficiency to maintain its competitive position.



Internal Analysis

1. Financial Performance Analysis

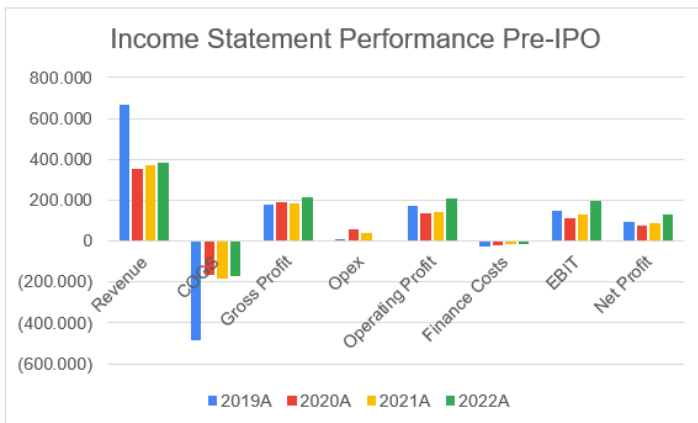


Figure 3. Income Statement Performance Pre-IPO
Source: Processed Financial Statement PGEO

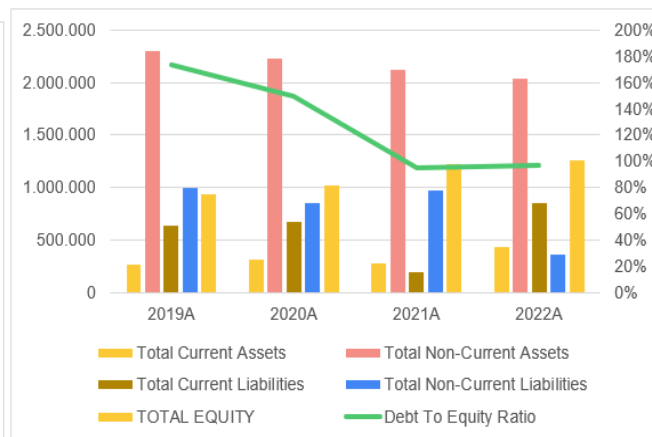


Figure 4. Income Statement Performance Pre-IPO
Source: Processed Financial Statement PGEO

Average revenue growth was 4.4% annually, with cost of goods sold rising by 3.0%. Gross profit increased by an average of 6% per year, peaking at 14% in 2022. The gross profit margin remained above 50%. General & Administrative Expenses grew significantly, by 2.6 times in 2021 and 1.5 times in 2022, with an average annual growth rate of 206.9%. In 2020, there were significant asset impairments related to the Sungai Penuh project. In contrast, 2022 saw other incomes from foreign exchange gains, carbon credit sales, and contract penalties totaling \$7,322. Earnings Before Tax (EBT) grew by 26.1% annually on average. Interest and finance income increased, suggesting better investment returns, while interest and finance expenses decreased by 17.6%, reflecting better debt management. Net income grew by an average of 27.5% annually. Current assets grew by 21.2% annually, indicating improved liquidity, although the current ratio fluctuated. Non-current assets decreased slightly by 4.3% annually due to discontinued exploration. Total assets saw a slight average decline of 1.4%. Current liabilities fluctuated, with a significant increase in 2022 due to short-term bank loans. Long-term liabilities decreased by 24.6% annually. Overall, liabilities decreased by 9.6% annually, while equity increased by 11%. The debt to equity ratio decreased by 17.1% over three years, reflecting efforts to strengthen equity relative to debt. The Return on Assets (ROA) remained below 6%, indicating modest returns on asset-based operations.

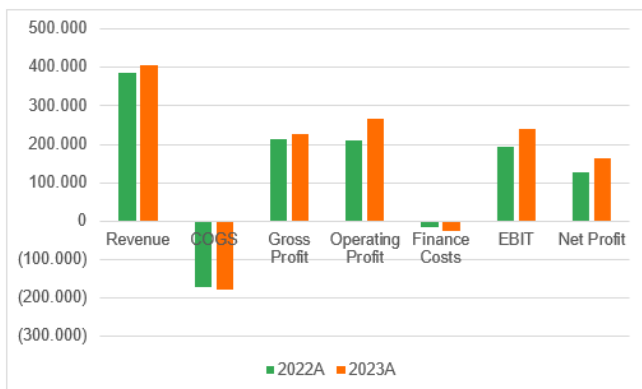


Figure 5. Income Statement Performance Post-IPO
Source: Processed Financial Statement PGEO

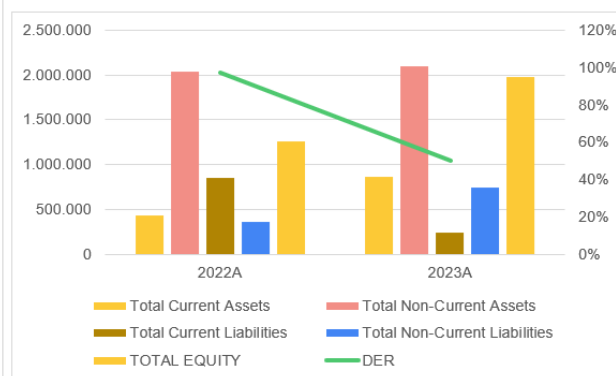


Figure 6. Income Statement Performance Post-IPO
Source: Processed Financial Statement PGEO

Revenue grew by 5.2%, while the Cost of Goods Sold increased by 3.3%. General and administrative expenses were reduced by 53.2%, contributing to overall efficiency. Other income, including foreign exchange differences, dividends, contract penalties, and



carbon credit sales, increased 17.5 times compared to the year before the IPO. Unutilized IPO funds generated significant interest income, increasing by 189.8%. Loan interest payments increased by 63.4%, but the Debt to Equity ratio improved, decreasing by 48.1%. The Net Profit Margin increased to 22.1%. Total assets grew by 19.8%, driven by a 99.2% increase in current assets, with 78.5% of these being cash and cash equivalents. Despite this, the Return on Assets remained around 5%, and the Return on Equity decreased by 18.2%. Current liabilities decreased by 71.5%, while long-term liabilities increased by 107%, contributing to higher financial expenses. Overall, liabilities decreased by 18.6%. Equity increased by 57% due to the issuance of shares post-IPO, leading to a stronger equity position compared to liabilities. In overall, PGEO showed financial growth and efficiency post-IPO, the main objective of increasing revenue through additional production capacity was not achieved. The increase in net profit was largely due to other income rather than enhanced production capacity.

2. Company Valuation

The calculation of the Weighted Average Cost of Capital (WACC) indicates that PT Pertamina Geothermal Energy Tbk had a WACC of 8.25% in 2022 and 8.65% in 2023. The other component needed for DCF valuation calculation can be seen below:

Table 5. Weighted Average Cost Of Capital

Weighted Average Cost of Capital	2022	2023	Source
Total Equity	1.255.541	1.971.256	Financial Statement PGEO
Total Debt	1.219.597	992.885	Financial Statement PGEO
Total Capital = Equity + Debt	2.475.138	2.964.141	Financial Statement PGEO
Weight of Equity	51%	67%	Processed Financial Statement PGEO
Weight of Debt	49%	33%	Processed Financial Statement PGEO
Cost of Debt	9,39%	9,26%	Processed by Author
Cost of Equity	9,15%	9,37%	Processed by Author
Tax Rate	22%	22%	UU HPP No. 7/2021
Risk Free Rate	6,92%	6,49%	Source: Market Risk Premia
Beta	0,795	0,821	Source: Pefindo & Processed Financial PGEO
Implied Market Return	9,72%	10,00%	Source: Market Risk Premia
WACC	8,25%	8,65%	Processed by Author
Estimated Company Spread	0,40%	0,70%	Damodaran Online
Estimated Country Default Spread	2,07%	2,07%	Damodaran Online
Terminal Growth (Electricity Growth)	4,90%	4,90%	Source: RUPTL 2021-2030 PLN

Source: Author (2024)

By absolute valuation in this research, it was found that the intrinsic value per share of PT Pertamina Geothermal Energy Tbk was IDR 1,141.28 before the IPO and IDR 1,300.86 after the IPO, as shown in the table below:

Table 6. Intrinsic Value of PGEO Pre-IPO

Intrinsic Value of PGEO pre-IPO (2022)	
Terminal Value	\$ 3.700.707
Total Discounted Firm Value	\$ 3.244.474
Equity Value converted to IDR using BI Exchange Rate 31 Des 2022	Rp35.432.341.529.120
Number of Shares	31.046.142.000
Equity Value per Share (IDR)	Rp1.141,28

Source: Author (2024)

Table 7. Intrinsic Value of PGEO Post-IPO

Intrinsic Value of PGEO post-IPO (2023)	
Terminal Value	\$ 3.300.614
Total Discounted Firm Value	\$ 3.791.163
Equity Value converted to IDR using BI Exchange Rate 31 Des 2023	Rp53.850.404.330.297
Number of Shares	41.396.142.000
Equity Value per Share (IDR)	Rp1.300,86

Source: Author (2024)

The stock price of PGEO at its IPO on February 23, 2023, was IDR 875, while the adjusted closing price on December 29, 2023, was IDR 1,170. This study finds that the market price of PGEO's stock, both before and after the IPO, is overvalued.



3. Sensitivity Analysis

After performing the absolute valuation calculation, the author validated the method by modifying some of the underlying assumptions. To investigate the sensitivity of the calculation model, the author chose to adjust the infinite growth rate, specifically the electricity growth projected by PLN RUPTL 2021-2023, and the WACC. These modifications were applied to both the pre-IPO and post-IPO valuations. The author calculated the sensitivity based on assumptions of -0.15% and +0.15% for each terminal growth rate and WACC.

Table 8. Sensitivity Analysis of Intrinsic Value Pre-IPO and Post IPO

		Terminal Growth (2022)					
		1.141,28	4,45%	4,60%	4,75%	4,90%	5,05%
WACC	8,00%	1053,66	1115,34	1182,72	1256,62	1338,03	
	8,25%	964,7	1018,5	1076,92	1141,28	1210,17	
	8,50%	886,72	934,08	985,22	1040,63	1100,85	
	8,75%	817,81	859,83	904,99	953,67	1006,3	
	9,00%	756,48	794,01	834,19	877,31	923,71	

		Terminal Growth (2023)					
		1.300,86	4,45%	4,60%	4,75%	4,90%	5,05%
WACC	8,35%	1250,64	1298,05	1349,4	1405,22	1466,11	
	8,50%	1208,33	1252,28	1299,75	1351,18	1407,07	
	8,65%	1169,04	1209,91	1253,92	1300,86	1352,3	
	8,80%	1132,46	1170,56	1211,49	1255,57	1303,17	
	8,95%	1098,32	1133,93	1172,09	1213,07	1257,21	

Source: Author (2024)

The intrinsic value of PT Pertamina Geothermal Energy pre-IPO ranged between IDR 756.48 and IDR 1,338.03. The company's value decreased significantly more with an increase in WACC compared to an increase in the terminal growth rate. A similar trend was observed in the post-IPO sensitivity analysis, showing a value range between IDR 1,098.32 and IDR 1,466.11, where the value increased with higher terminal growth rates and decreased with higher WACC.

V. DISCUSSION AND FINDINGS

The IPO of PT Geothermal Energy Tbk has significantly impacted its financial structure and market perception. Although the short-term effects on core operational activities have been modest, the company's investment strategies show strong potential. Of the IDR 9.05 trillion raised, only 32.4% has been allocated to geothermal exploration, with the rest generating substantial financial income. This income boosted net profit by 22.1% from 2022 to 2023, while gross profit increased by just 6.8%. This cautious approach protects funds amid economic uncertainties and high costs associated with geothermal exploration. The company experienced asset impairment with the closure of the Sungai Penuh project in 2020 due to unsuccessful exploration. However, PGE plans to enhance operational performance by 2025 with new units in Lumut Balai, Ulubelu, and Lahedong, followed by additional units in 2026. Maintaining geothermal facilities requires advanced technology and monitoring to avoid disruptions. These projects need significant initial investments and face environmental impacts and strict regulations, adding to operational costs and timelines. The development phase can take years before becoming operational, with more time needed to reach optimal capacity. Electricity prices from geothermal energy can fluctuate due to market changes and government policies. PLN's RUPTL (2021) projects a 4.9% annual electricity growth over the next decade, with 23% from renewable sources, including geothermal energy. Despite low growth in core operations post-IPO, alternative investments have boosted net profit and increased the company's intrinsic value from IDR 1,141.28 to IDR 1,300.86 within a year. Based on this study, company can enhance its business growth, build stronger investor confidence, and position itself as a leader in the geothermal energy market by implementing the following suggestions:

1. Improve operational performance to maximize returns from existing and future assets exploration as a company core business.



2. Improve existing various funding options such as green bonds, carbon credit sales and strategic partnership to reduce reliance on short-term bank loans and ensure sufficient capital for future projects. In current position company can generate significant other revenue from finance income rather than from operating activity, company may become overly dependent on its financial activity, which can be more volatile and less sustainable. On the other hands, investors may view the company’s reliance on finance income as a signal that company are unable to generate sustainability and profitability of its core business operations. Moreover, PGEO is a state-owned company that was built with the aim of supporting national development by managing the country’s resources.
3. To increase the confident level of investors, in suggested that the company to built more transparent communication, especially through financial statements as a tools of company financial communication to investors by detailing the composition of accounts in financial reports.

VI. CONCLUSIONS AND RECOMMENDATIONS

The geothermal business requires substantial funding due to its long-term, high-risk nature. PT Pertamina Geothermal Energy Tbk's intrinsic value was calculated using the Discounted Cash Flow Valuation method. For the pre-IPO period (2019-2022), the discount rate was 8.25%, resulting in an intrinsic value of IDR 1,141.28 per share. For the post-IPO period (2024-2028), the discount rate was 8.65%, resulting in an intrinsic value of IDR 1,300.86 per share. PGEO's stock price at its IPO on February 23, 2023, was IDR 875, and the adjusted closing price on December 29, 2023, was IDR 1,170. The study found that PGEO's stock was overvalued both before and after the IPO. Revenue projections indicate slow financial growth for the company as shown in table below:

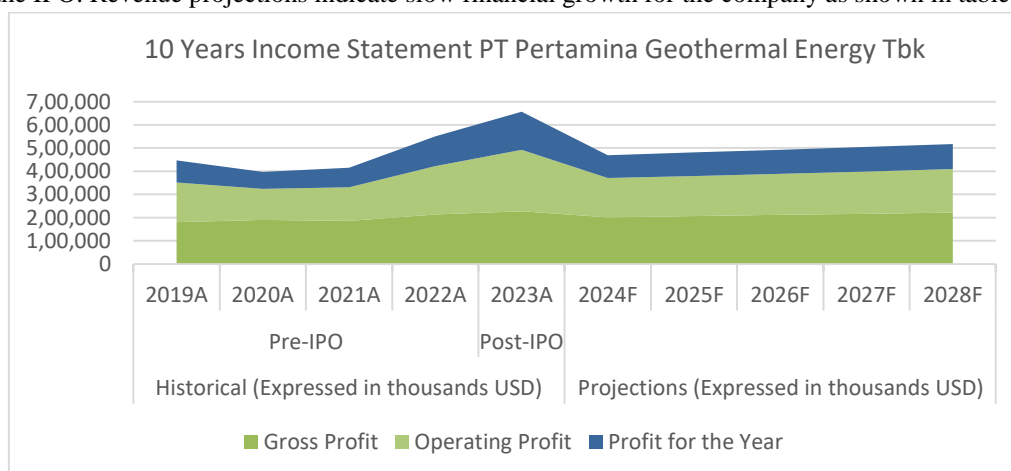


Figure 7. Income Statement Historical and Projections PT Pertamina Geothermal Energy Tbk

Source: Processed Financial Statement PT Pertamina Geothermal Energy Tbk

With this improvement, the company's EBIT is expected to grow in line with and beyond the growth rate, resulting in a continuous annual increase in FCFF. The present value of this FCFF reflects the company's current value of future business turnover, using a discount rate of 8.65%. This indicates that the company's ability to generate future profits exceeds the current equity value. This condition is likely to attract investors, as the future value prospects of the company are quite high. However, further analysis is necessary to understand the long-term performance of the company post-IPO, particularly whether the company can leverage profits from its core business while maintaining or even increasing its value. As of December 31, 2023, a deeper analysis of the financial position reveals that a significant portion of cash and cash equivalents comes from short-term bank loans and unrealized IPO funds. Considering the promising and potential for future growth align with the long time period and high risk, investor should consider adopting a long-term investment strategy rather than expecting a short term gains. The intrinsic value calculations shown a potential increase in value post-IPO it’s an indication for company is well positioned in long term gains. Beside that, investors are advised to consider both the current valuation metrics and the market sentiment to avoid following trend blindly and ignore the other factors such as personal risk tolerance. Then keep monitoring the company financial performance as a fundamental analysis for EBIT growth and FCFF, which can provide early indicators is on track to meet its long term growth projections.



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